

WT 125 White Paper

Responsiveness to Industry Across Disciplines: Market-Informed Education

Abstract:

The purpose of this working paper is an initial perspective on emerging issues related to market-informed education. The manuscript offers background information, a narrative applied to eight WT 125 focus points, an empirical application demonstrating positive results based on responding to market demand, and general recommendations. Actions include institutional leaders holding strategic planning meetings with the goal of identifying the two or three most significant opportunities and/or threats facing the institution with corresponding actions. The discussion must include the possible transition of faculty and staff resources from low demand areas to high growth areas. Maintaining affordability is also identified as a critical advantage for West Texas A&M University. The dedication of faculty and staff at WT is consistent with a private college experience. A private school experience at a public institution price is an important value proposition for West Texas A&M University. Also, all administrative and academic units must follow paths of innovation and efficiency. The principle-agent problem associated with administrative leadership could limit impactful innovation and stakeholder needs if some administrators are excessively risk-averse and seek deference to status quo. Engaged central leadership at the highest levels, which includes an ability to motivate and a willingness to replace, is required to avoid the principle-agent problem. Universities with leadership willing to engage regional stakeholders and support market demand will hold significant advantages over competitor institutions in the coming years.

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Introduction:

The trend in higher education throughout the last decade is for institutions to consider carefully their role in society and to evaluate the relationships with various stakeholders

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and communities. Increasingly universities are expected to engage interactions with industrial and regional partners (Burrows, 1999). In addition, the marginal revenue derived from alumni and corporate donors is often key to yielding viable campus innovation and advancement. The rise of stakeholder salience correlates with the decline in government funding as a percent of total expenditures. For the university, thinking in terms of partnerships with key stakeholders has important implications for its governance and accountability arrangements (Jongbloed, Enders & Salerno, 2008). The purpose of this research is to explore market-informed education via a combination of general issues common to all institutions that serve the academic realm on the macro level with a supplementary narrative focus on West Texas A&M University at the micro level.

The organization of the manuscript includes a background section framing the environment influencing market-informed education. The second section puts forth a narrative on the possible impact of various key WT 125 change initiatives. The third section offers a brief empirical analysis illustrating a perspective on the importance of responsiveness to market demand in higher education. The fourth section includes recommendations and suggested next steps. The final section is a conclusion.

Background:

This paper reflects on the interconnections and interdependencies between higher education, society, and the economy. Higher education is interacting with an increased number and variety of stakeholders. How a university proceeds to identify, prioritize and engage with its communities reflects the evolution of the university. One may argue that the outcome of this process of stakeholder engagement will have important implications for the university's chances for survival (Jongbloed, Enders & Salerno, 2008). Understanding universities as complex social agents is key, not just to build more efficiently functioning universities, but also for identifying the unintended consequences and possible pitfalls that may emerge through the adoption of new approaches.

The stakeholder concept originates from the business science literature (Freeman, 1984) tracing back to Adam Smith's "The Theory of Moral Sentiments." Its modern use in management literature comes from the Stanford Research Institute introducing the term in 1963 to generalize the notion of stockholder as for the only group or individual to whom management need be responsive. A more modern definition of stakeholder is "any group or individual who can affect or is affected by the achievement of the firm's objectives" (Freeman, 1984). Freeman argues that business organizations should be

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concerned about their stakeholders' interest when making strategic choices.

Higher education institutions have a distinctly public character or responsibility to society (Neave, 2000). To meet this public responsibility objective, higher education institutions historically receive significant funding from government sources. Today, the basic funding and functions that higher education institutions perform are going through a process of change. The teaching and research functions are being reassessed, in particular with an eye upon the contribution they make to the social-economic well-being of their environment. Higher education is not only expected to deliver excellent education and research, but it also has to deliver those outputs in ways and forms that are relevant to the productive process and to shaping the knowledge society. As far back as 1973, there were discussions about changing social contract between higher education and society (International Labor Organization, 1975). In addition to the transmission and extension of knowledge, universities have been called upon to engage the following: (1) Play an important role in the general social objective of achieving greater equality of opportunity; (2) Provide education adapted to a great diversity of individual qualifications, motivations, and aspirations; (3) Facilitate the process of lifelong learning; and (4) Assume a public service function by making a contribution to the solution of major problems faced by the local community and society at large (Neave, 2006).

Present day universities are forced to be in constant dialogue with their stakeholders in society. This may lead to some fundamental changes in the relationship between the universities and their environment. In their education and research tasks, the universities will continue to have an obligation to demonstrate quality, efficiency, and effectiveness, not just to those in government administration, which have the legal and historic responsibility for exercising official oversight, but increasingly to a wider range of stakeholders (Trow, 1996). As the source of revenue to fund institutional budgets increasingly rely directly on students, alumni, community and corporate sources, accountability to said stakeholders expands. As the direct role of government financial support is displaced by other stakeholders, the university becomes more integrated into society and more responsive to market forces. The downside of this trend is the potential of universities becoming fragmented and overburdened by stakeholder claims unless careful management practices are employed.

The future of West Texas A&M University will likely correlate with increasing responsiveness to industry and market forces. The low population density combined with limited population growth in the Texas Panhandle is both a negative and a positive.

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On the negative, the lack of population growth in the region limits the ability of WT to achieve the organic enrollment growth experienced by many other institutions throughout the state. Expansion of degree options, increases in student services,

funding of new initiatives, and maintaining competitive salaries are all dependent on positive marginal revenue growth, which is usually correlated with enrollment. On the positive, the lack of anticipated population growth limits the attractiveness of competitor institutions physically locating in the region. With the exception of Texas Tech University considering additional nursing and veterinarian program offerings, the Texas Panhandle is generally not viewed by external constituents as a growth market. The result of limited competition implies the importance of WT in the regional community will continue to increase. The primary source of future Texas Panhandle employees, entrepreneurs, innovators, civic leaders, and cultural ambassadors will remain inextricably linked to West Texas A&M University.

Current circumstances demonstrate West Texas A&M University responsiveness to regional community demand and economic development across a variety of disciplines. Specific impact examples include the following (Terry, 2017):

Commerce & Employment Impact

- WT Annual Constituent Spending Potter/Randall Counties – \$263,175,204
- WT Employment Benefit to Potter/Randall Counties – 5,613 full-time jobs
- Benefit to Potter/Randall Counties Bank Credit Base – \$25,791,250
- Annual Airline Boarding with Direct/Indirect WT Affiliation – 18,000
- Average Annual WT Student Regional Expenditure on Food/Drink – \$1,081
- Average Annual WT Student Regional Retail/Service Expenditure – \$1,483
- Placement of WT Engineering Graduates in the Panhandle – 74%
- Placement of WT Nursing Graduates in the Panhandle – 69%
- Placement of WT Accounting Graduates in the Panhandle – 62%
- Teachers in the Panhandle with at least one WT Degree – 66%

Social & Cultural Engagement Impact

- Amarillo Symphony Participants with WT Affiliation – 55%
- Amarillo Chamber Music Participants with WT Affiliation – 60%
- Amarillo Little Theatre Participants with WT Affiliation – 65%
- Amarillo Opera Participants with WT Affiliation – 70%
- Texas Outdoor Musical Participants with WT Affiliation – 53%
- Panhandle Plains Historical Museum Annual Student Visitors – 12,000

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Innovation & Outreach Impact

- Creation of a new Nano Material with Antibacterial Properties
- Prime One – Improved Cattle Production Research
- Wind Turbine Testing Center

- Creation of Software for Modeling Ecological Risk
- Panhandle Plains Historical Museum Annual Impact – \$6,083,200
- West Texas A&M University Amarillo & Amarillo Center
 - Center for Learning Disabilities
 - Counseling and Research Center
 - Enterprise Center
 - Panhandle Area Health Education Center
 - Small Business Development Center
 - Speech and Hearing Clinic

There is no reason to believe the current interdependency between the regional community and West Texas A&M University will fundamentally change between now and 2035. Ideally, WT can be a vehicle that accelerates regional economic development by providing meaningful educational programs that attract additional employers to the region. A combination of agriculture, technology, financial, transport, and energy companies are ideal prospects to locate in the Texas Panhandle and rely on local education resources for human capital needs. The attractiveness of the region is further enhanced by a low cost-of-living combined with quality health, education, and performing arts amenities tied directly to WT. In the end, the future prosperity of the Texas Panhandle and WT are highly correlated. West Texas A&M University will need to be increasingly responsive to market conditions and local needs across all disciplines if there is a desire to drive regional engagement, innovation, and impact.

Impacts:

As part of WT 125, several possible discussion points have been put forth. The eight topics include the following:

- Environmental Impact, The Corridor and the Panhandle
- Impacts on Doctoral Aspiration
- Impacts on Students
- Impacts on Faculty and Staff
- Impacts on Community Colleges
- Impacts on Residential Life

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- Impacts on Costs for Positive Change
- Impacts and Issues Related to Leadership/Management/Governance

As mentioned in the previous section, West Texas A&M University will continue to be increasingly responsive to industry and community demands across the Panhandle. The only obstacle the university faces concerning supporting market demand is the potential for principle-agent problems. In short, some academic administrators may not seek program innovations that will positively impact the regional community. If we assume the goal of some administrators is to maintain their administrative position, change may not be in the best interest of said managerial agents. In this context, the innovation that could impact the institution and stakeholders does not follow a path of efficiency as some administrators are excessively risk-averse and seek deference to status quo. While some individuals in higher education administration are comfortable in the change agent role, several members lack the ability or ambition to play the part. Related to the discussion point eight, engaged central leadership at the highest levels, which includes an ability to motivate and a willingness to replace, is required to avoid the principle-agent problem. Universities with leadership willing to engage regional stakeholders and support changing market demand will hold significant advantages over competitor institutions in the future.

Second, the role of market demand in relation to doctoral aspirations is unclear at this time. To the extent the demand exists, it is clear WT can and will serve said market. In view of this, WT historically serves the region as a masters-comprehensive institution. The initial doctorate program (i.e., agriculture) was not added to the university inventory solely on the basis of regional need or market demand. The administration team put forth the first doctorate program based on a combination of the benevolent ambition of pursuing the vision of making WT a doctorate-granting institution plus the less benevolent ambition of being the first leaders to achieve said status for the institution. Regardless of motivation, the initial doctorate program was not driven completely by market forces or regional needs. As a result, the doctorate program in agriculture has not been a priority for central administration beyond program creation. While the program has found a niche with some strengths, the long-run efficacy of the program is still in question. Future doctorate programs at WT will need to clearly identify a niche at the point of inception. In short, there is no reason to create additional doctorate programs without distinct and meaningful purpose. Accordingly, focused doctorate

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programs that meet stakeholder needs and are financially viable have the potential to elevate the institutional brand and reputation.

Students are the most important stakeholder for a public institution of higher education. The existence of the institution is predicated on serving the human capital needs of emerging constituents that will serve as future leaders in a variety of roles throughout society. Higher education has witnessed transformational changes, which includes

servicing a working adult population via night classes and the more recent innovations in the form of online course offerings. The asynchronous mode of online instruction has significantly changed higher education at West Texas A&M University throughout the last twenty years. More importantly, the trend toward online and hybrid instruction is likely to continue for the next twenty years. Consistent with e-commerce and cyber sales displacing significant market share from brick and mortar retail outlets, the market for online instruction has still not reached maturation. While some programs and disciplines at West Texas A&M University have found success in the campus, online, and hybrid modes, others need to consider the future competition that is likely to emerge if diverse delivery options are not available. Also, the transformation of dynamic engagement via video and related tools requires significant and consistent investment into the online infrastructure. The modern student no longer goes to a video store to rent movies, and network television is being replaced by on-demand viewing services. The end result is an environment where the traditional dictated time and place for higher education instruction will not serve the expectations of many future students. Future students are likely to demand an increasing amount of asynchronous options across engaging platforms. Institutions, programs, and disciplines that can meet those needs at a competitive price will have a market advantage in an increasingly competitive environment.

The fourth talking point relates to the role and impact of faculty and staff in relation to market-informed education. There is no doubt the heart of an institution is the faculty and staff. A dedicated staff is crucial to the daily customer service operational components of the institution. Faculty is the talent embodying the product of higher education. Facilities, athletics, and local amenities may influence student college selection, but academic programs cannot sustain relevance without committed faculty members. The rise of the information age and online instruction will result in some academic programs expanding market share but other academic programs struggling to compete. To borrow from the finance literature, beta values tied to academic program enrollment variability will be much higher than historical norms. As a result, institutions

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will meet short-run enrollment expansion with a disproportionate number of non-tenure track faculty positions relative to new tenure track positions. In addition, programs that struggle to compete in the modern market reality of higher education will need to replace some retiring and departing faculty with non-tenure track positions. Tenure is an valuable part of the governance of higher education and will be maintained into the future. On that basis, the percentage of faculty in tenured and tenure-track positions must slightly decrease to maintain flexibility to market demand fluctuations across various disciplines. Somewhat related, the national propensity in higher education is to employ an increasing number of part-time faculty as a vehicle to support short-run

growth patterns. Although many part-time faculty members provide great value to an institution, focusing on filling excess demand with full-time positions align better with the student-centered environment ideology espoused at West Texas A&M University. The dedication and focus put forth by full-time faculty is a luxury many part-time faculty members cannot provide given the need to work other jobs to earn a living.

Community colleges and residential life are both important to the future of West Texas A&M University. Students seeking an affordable option can find great value by earning an associate degree before transitioning to a university. Although the probability of earning a college degree is greatly enhanced by starting at a four-year institution, students successfully transferring from a community college tend to be just as successful at the junior and senior course work levels as native peers. Many institutions desire expansion via community college transfer students, but WT has an opportunity to excel in the effort. West Texas A&M University is large enough to provide depth of service and resources yet small enough to encourage operational adjustments when the need arises. Community college students have unique needs and will require said operational adjustments. Residential life will also need to respond to market conditions. A transitional year that requires freshman from outside the region to live in the dorms is often in the interest of students. Young adults away from home for the first time can often benefit from some degree of structure offered by the rhythm of dormitory life. That being said, millennials expect choice and requiring dorm life beyond a period of practical use is a deterrent for initial enrollment. A rule requiring students to reside in the dorms for the first 60 credit hours of collegiate activity without considering other options is an uninspiring tact representing a lack of managerial creativity. In short, a university can require a policy that is not conducive to the freedom expectations of millennials, but one should not be surprised when many freshman select alternative educational institutions. International students, married students, graduate students, and other student groups might be willing to self-select into dormitory space if

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dedicated locations are appropriately modified. The managers of dormitory resources must create positive options consistent with market demand.

Given the discussion on governance and leadership in the first paragraph of this section, the final discussion topic is future cost structure. West Texas A&M University is and must continue to be a good value proposition in the realm of higher education. Spending money on accreditation, rankings, brand enhancement, and related marketing can augment the value-added proposition of a WT degree. On the other hand, a lack of prudent deployment of funding can quickly compromise the value proposition of a WT degree. Athletics at the institution is an interesting case study. Successful teams can engage students, alumni, and the regional community. Yet, diminishing returns on

expenditures put forth in a Division II athletics environment is a likely effect on a nominal budget. Careful analysis of the pros versus cons of future athletic expenditures from the holistic perspective of the institution is important. It is possible more funding in athletics is needed to support various university goals. At the same time, it is also possible too much is spent on athletics relative to the tangible value added, and the institutional academic component is less cost-effective as a result. Of course, athletics is not the only realm responsible for meeting efficiency considerations. Admissions, institutional advancement, and administrative overhead across academic and non-academic units may all be subject to increases or decreases in budget as market conditions change and the institution explores efficiency considerations.

Empirical Illustration:

In an effort to illustrate the importance of responsiveness to market demand in higher education, this section offers a brief empirical analysis. Online course offerings have become ubiquitous in modern higher education. The trend is particularly strong in graduate business programs. This section evaluates comparative 2013-2017 enrollment growth of MBA campus, MBA online, Specialized Graduate Business campus, and Specialized Graduate Business online programs ranked in the top 100 (U.S. News & World Report, 2017).

The Kruskal-Wallis test is sensitive to differences among means in the k populations and is extremely useful when the alternative hypothesis is that the k populations do not have identical means. The null hypothesis is that the k enrollment growth in the different program classifications come from an identical distribution function. For a complete

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description of the Kruskal-Wallis test, see Conover (1980). The specific equations used in the calculations are as follows:

- (1) $N = \sum_i n_i$ with $i = 1$ to k
- (2) $R_i = \sum_j R(X_{ij})$ with $j = 1$ to n_i
- (3) $R_j = \sum_i O_{ij} R_i$ with $i = 1$ to c
- (4) $S^2 = [1/(N-1)] [\sum_i t_i R_i^2 - N(N+1)^2/4]$ with $i = 1$ to c
- (5) $T = (1/S^2) [\sum_i (R_i^2/n_i) - N(N+1)^2/4]$ with $i = 1$ to k
- (6) $| (R_i/n_i) - (R_j/n_j) | > t_{1-\alpha/2} [S^2(N-1-T)/(N-k)]^{1/2} [(1/n_i) + (1/n_j)]^{1/2}$,

where R is the variable rank and N is the total number of observations. The first three equations find average ranks. Equation (4) calculates the sample variance, while equation (5) represents the test statistic. If, and only if, the decision is to reject the null hypothesis, equation (6) determines multiple comparisons of enrollment growth across graduate business program classifications.

The nonparametric empirical approach yields an equation (5) test statistics of 22.36 (p -value = .0001), indicating a significant difference in the average rank order of enrollment growth across one or more of the four classifications. Assuming an alpha level of .05, the empirical results from equation (6) indicate there are three groupings of program classifications with enrollment growth rates that are statistically different. Specifically, the results from equations five and six provide empirical evidence that the MBA online has statistically higher enrollment growth rates than the other three program classifications. The second highest enrollment growth is from Specialized Graduate Business online, which is also statistically greater than the other two program classifications. Finally, the lowest enrollment growth is statistically equivalent for the MBA campus and Specialized Graduate Business campus programs.

The empirical results above provides evidence that business programs reacting to market demand and providing online course delivery are rewarded with higher enrollment growth over campus programs. It is important to note the results are somewhat biased by the fact that some campus graduate business programs are not actively pursuing enrollment growth. Several campus Ivy League or highly-ranked MBA programs could achieve enrollment growth by simply being less selective and more open to expansion when reviewing applications. At the same time, the primary reason many graduate business programs offer online degree options is to increase enrollment. The empirical results from online graduate business programs demonstrate an example of a positive result based on an academic discipline responding to industry conditions

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and market demand.

Requiring completion of an internship or experiential learning activity by undergraduate and graduate students is another example of responsiveness to market-informed demand and provides a way to connect the future workforce to the respective industry. Empirical data suggests that students who complete an internship while in school have a higher probability to be hired upon graduation. Internships and experiential learning opportunities allow students to apply classroom knowledge in a real-world setting. Through internships, students not only strengthen their comprehension and gain experience and skills demanded by employers but also develop the professional network to enhance their career paths. Employers are linked back to the degree programs further informing the curriculum.

Recommendations/Suggested Next Steps:

Responsiveness to industry across disciplines in relation to market-informed education will be an important issue far into the future. Universities with central leadership willing to engage regional stakeholders and support market demand will hold significant advantages over competitor institutions. There are several paths West Texas A&M University can follow to find success in a world of higher education that is increasingly influenced by market forces and stakeholder initiatives. First, strategic planning meetings with campus leaders identifying the two or three most significant opportunities and/or threats is a key to maintaining short-run focus. The discussion must include the possible transition of faculty and staff resources from low demand areas to high growth areas. In some cases, the nature of higher education may not be able to fully adjust to the reality of market demand as the academic realm is not a business. For example, student and stakeholder demand for communication skills might be minimal at any given time from the perspective of the market, but faculty ownership of a curriculum might support additional investment in communication-based human capital to enhance the long-run reputation of the institution by producing better quality graduates.

Second, maintaining affordability is a key competitive advantage West Texas A&M University must maintain into the foreseeable future. Being considered inexpensive or cheap in isolation is not the goal. The strategic objective is to provide students and other stakeholders a positive value experience. The dedication of faculty and staff at WT

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is consistent with a private college experience. A private school experience at a public institution price is the type of value proposition West Texas A&M University can and should continue to provide.

Third, all administrative and academic units must follow paths of innovation and efficiency. The principle-agent problem associated with administrative leadership could limit impactful innovation and stakeholder needs if some administrators are excessively risk-averse and seek deference to status quo. Academic and non-academic units may all be subject to increases or decreases in budget as market conditions change and the institution explores efficiency considerations. Responsiveness to industry across disciplines in relation to market-informed education requires a willingness to analyze and change.

Conclusion:

Technological change is creating a world where all industries, including higher education, must respond to market triggers. This draft manuscript offers general and specific views covering responsiveness to industry across disciplines in relation to market-informed education. The narrative put forth is done in the spirit of initiating an important discussion but should not be viewed as complete or inflexible. Advancing the discussion and finalizing an institutional perspective requires additional input across internal and external stakeholders. Despite limitations, this manuscript establishes market-informed education as a topic for future research. Analyzing market forces, responding to stakeholder needs, and efficiently allocating resources in response will continue to be an important aspect of successful modern higher education.

References/Works Cited:

Burrows, J. (1999). Going beyond labels: A framework for profiling institutional stakeholders. *Contemporary Education*, 70(4), 5-10.

Conover, W. (1980). *Practical Nonparametric Statistics*. New York, NY: John Wiley & Sons Publishing.

Freeman, R. (1984). *Strategic management: A stakeholder approach*. Boston, MA:

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Pitman.

International Labor Organization (1975). *The role of universities in higher education*. Geneva, Switzerland: International Labor Organization.

Jongbloed, B., Enders, J., & Salerno, C. (2008). Higher education and its communities: Interconnections, interdependencies and a research agenda. *Higher Education*, 56(3), 303-324.

Neave, G. (2000). *The universities' responsibility to society*. Oxford: Pergamon.

Neave, G. (2006). Redefining the social contract. *Higher Education Policy*, 19(1), 269-286.

Terry, N. (2017). *WTAMU with Amarillo and Canyon: 2017 impact of collaboration*. Canyon, TX: West Texas A&M University.

Trow, M. (1996). On the accountability of higher education in the United States. In P. Maassen & F. Vught (Eds.). *Inside academia: New challenges for the academic profession* (pp. 227-268). Utrecht: De Tijdstroom.

U.S. News & World Report (2017). Best graduate school rankings. Retrieved from <https://www.usnews.com/best-graduate-schools>