



ADVANCING UNIVERSITY-ENGAGED ECONOMIC AND SOCIETAL PROSPERITY

A Policy Position Paper by APLU's Council on Engagement and Outreach (CEO) and Commission on Innovation, Competitiveness and Economic Prosperity (CICEP)

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INTRODUCTION

Land-grant institutions and all public research universities have had a longstanding mission to contribute to economic and social prosperity by leveraging assets across institutional learning, discovery and engagement goals. University units responsible for economic development, community engagement, cooperative extension, among other areas, play a critical role in driving economic and social prosperity through their many and varied contributions to:

1. **Talent** and workforce development;
2. **Innovation**, entrepreneurship and technology-based economic development; and
3. **Place** development through social, cultural, and community engagement.

The Morrill Act of 1862 and 1890 established the first land-grant colleges in the United States. Since at least that time, the federal government and public research universities have had a partnership whereby federal policy helps cultivate an environment in which universities can maximize economic and social outcomes. Public policy supports universities' work in engaging stakeholders to advance the areas listed above.

The partnership is critical to the long-term U.S. standard of living. The U.S. competitive standing on the international stage is also sustained and augmented by this partnership, as is the economic mobility, opportunity and resilience of our communities. The global economic and science and engineering landscape is changing rapidly, with China emerging as a major player in technologies and economies of the future. U.S. lawmakers, meanwhile, continue to grapple with social and economic challenges domestically and abroad.

The United States must urgently address economic and community development needs to maintain its position globally. At a time when the nation's economic and social needs require action on the part of universities as well as lawmakers, advancing an environment supportive of university partnerships with stakeholders is critical. Lawmakers and university leaders can bolster national economic competitiveness and resilience by strategically implementing policies and programs that promote and strengthen university-engaged economic and community development and advancement.

In response to growing concerns and urgency of the federal – university partnership, members of the Association of Public and Land-grant Universities (APLU)'s Council on Engagement & Outreach (CEO) and Commission on Innovation, Competitiveness and Economic Prosperity (CICEP) established a joint working group to develop this position paper. This document presents high-level recommendations for universities and federal lawmakers with a focus on five key economic and community development objectives the working group identified as crucial to responding to the needs of our nation.

APLU hopes that this paper will ignite further conversation, bring together universities and their federal partners for continued in-depth dialogue and action to meet these five key national objectives:

1. Build a thriving rural America.
2. Meet the demand for 21st century talent and skills.
3. Secure American leadership in advanced manufacturing.
4. Stimulate and accelerate university-based innovation and entrepreneurship.
5. Foster equitable, inclusive economic opportunity and mobility.

APLU and its member institutions are committed to furthering these policy recommendations at the federal and institutional level. Together with federal partners, APLU seeks to strengthen the long-standing government-university partnership that has fueled the nation's economic and community development.

SECTION 1: BUILDING A THRIVING RURAL AMERICA.

Since the emergence of the public research university in the U.S., many of these institutions—particularly the nation's land-grant universities—have been engaged in rural communities helping to provide economic opportunity to rural populations. Through strategic community engagement, Cooperative Extension, outreach, and public service, universities have been long-time economic and community development collaborators with local leaders in rural regions.

Yet, the hollowing out of rural regions has presented new challenges to many communities. The U.S. Department of Agriculture (USDA)'s Economic Research Service reports that rural populations have declined significantly. This trend is likely to continue as young Americans in rural areas migrate to cities and suburban regions where economic opportunity is more prevalent.¹

Educational institutions serve as “anchors” in their regions. In some rural communities the local college is key to holding the community together, with the support of other partners including federal, state and local government agencies. Through this capacity, universities—and especially land-grant institutions—can become even more involved in supporting places across the country and in helping lawmakers empower rural regions with the skills and resources necessary for economic resilience in the face of demographic changes.

¹ www.ers.usda.gov/amber-waves/2017/september/rural-areas-show-overall-population-decline-and-shifting-regional-patterns-of-population-change/

Cooperative Extension is already active in place-based development by helping small business owners and entrepreneurs with business planning, marketing concepts (including e-commerce training), market testing of products, grant writing and training support for programs such as the Small Business Innovation Research (SBIR) or the Farmers Market or Local Food Promotion programs.

Still, there are opportunities to expand these efforts, and for institutions of higher education to become more involved in their communities.

Below are recommendations for building a thriving rural America.

IMPERATIVES FOR UNIVERSITIES:

- Leverage partnerships among all educational assets in rural areas including Cooperative Extension and USDA's Regional Rural Development Centers to achieve community and economic development goals, building on the USDA's Agriculture and Rural Prosperity (ARP) Taskforce Report.²
- Participate in regional efforts to maximize deployment and adoption of broadband technology, as laid out in the ARP Taskforce Report, facilitating connections to colleges and universities and access to technology and innovation. For example, see the case study from APLU Innovation & Economic Prosperity (IEP) University designee, Northern Illinois University.³
- At land-grant universities, ensure that the university's community engagement, public service and outreach, economic development, and Cooperative Extension units are collaborating, and also connecting with other entities, to maximize public engagement with rural communities.
- Develop workforce and business skills supporting remote health care provisions (including compliance with Health Insurance Portability and Accountability Act regulations) and other technological advancements such as drone delivery of goods, precision agriculture, the internet of things, and 3-D printing and other advanced manufacturing technologies.

² <https://www.usda.gov/sites/default/files/documents/rural-prosperity-report.pdf>

³ www.aplu.org/projects-and-initiatives/economic-development-and-community-engagement/innovation-and-economic-prosperity-universities-designation-and-awards-program/IEP_Library/northern-illinois-university-broadband/file

- All higher education institutions, including those that are urban-based, have a stake in the well-being of rural areas. Within universities, it is critical to encourage research and teaching initiatives from all departments on rural problems in addition to urban and suburban problems.

IMPERATIVES FOR FEDERAL POLICYMAKERS:

- Establish coordinated policies and programs specifically focused on bringing broadband technology to rural areas, and, importantly, facilitating the effective adoption and leveraging of broadband access by rural businesses, schools and families.
- Provide increased support for the U.S. Department of Agriculture’s Stronger Economies Together (SET) program, a collaboration with the four Regional Rural Development Centers and their land-grant university partners. SET seeks to strengthen the capacity of communities and counties in rural America to work together in developing and implementing an economic development blueprint, strategically building on the current and emerging economic strengths of their region. The SET process has occurred or is occurring in 32 states across the U.S. and SET regions as of this date have leveraged over \$200 for each \$1 invested in program delivery.⁴

SECTION 2: MEET THE DEMAND FOR 21ST CENTURY TALENT THROUGH WORKFORCE DEVELOPMENT.

At the heart of every higher education institution is the teaching and learning mission. Universities exist to educate the nation’s citizenry and workforce in every field and profession.

But technological innovation, increased global competition, and a more demanding business climate require new and re-envisioned approaches to ensuring Americans are educated and equipped with the skills and competencies necessary to excel in the 21st century workplace.

Universities and lawmakers must work together to ensure students and working learners across the postsecondary education pathway graduate ready for jobs but are also equipped with a well-rounded foundation afforded by a quality liberal arts education.

For many years, universities have considered “workforce development” to be the domain

⁴ For more information see <http://srdc.msstate.edu/set/>

of community colleges and vocational institutions. In 2017, APLU called on its member institutions to re-commit to student and employer needs by embracing their role in talent and workforce development in the report, [*Ready for Jobs, Careers and a Lifetime: Public Research Universities and Credentials that Count*](#). The report underscored the fact that enrolling and graduating more students isn't enough. There is also a false choice between education and employment readiness. The authors of this paper underscore the importance of the themes and messages outlined in this publication and encourage its review.

Below are recommendations for meeting the demands for talent through workforce development.

IMPERATIVES FOR UNIVERSITIES:

- Expand and improve “work-and-learn” educational strategies including co-ops, internships, externships, industry-engaged problem-based learning, apprenticeships and other models. Employers should be involved with the design and execution of these strategies.
- Establish programs facilitating faculty externships in industry and employer settings to provide educators with a better sense of employer needs and vice-versa.
- Create workforce development centers or hire workforce development professionals to manage the process of effective workforce development in conjunction with faculty, employers and university leadership. Tap existing continuing and professional education centers and programs to help get such centers going. States or university systems may also consider establishing multi-campus offices to respond to regional employers.
- Engage employers in the process of developing and supporting online and on-campus educational pathways for working professionals seeking continuing education, upskilling and retraining. Particularly important is engaging university continuing and professional education programs, and aligning non-credit offerings with pathways into degree opportunities.
- Expand definitions of student success beyond completion to include employment readiness.

IMPERATIVES FOR FEDERAL POLICYMAKERS:

- Reform U.S. visa and immigration policies to retain international talent educated at U.S. institutions. More than half of the graduates in STEM fields at U.S. colleges

and universities are foreign nationals. While the U.S. has benefitted greatly from bringing the best and brightest from across the globe to our campuses, it is self-defeating to our domestic economic interests to educate international students and send them away after graduation to compete with the United States' workforce. The U.S. immigration system should be reformed to streamline the green card process for international students who graduate with an advanced degree from a U.S. higher education institution.

- Recognizing that the 21st century workforce is best served if multiple career pathways remain available to workers, it is important to build capacity for partnership between employers and education and training providers at multiple levels, from non-degree, to two-year degree, to four-year degree. To help build capacity for strengthening pathways, within the context of the Workforce Innovation and Opportunity Act (WIOA), ensure availability of funding, through the U.S. Department of Labor Employment and Training Administration (ETA), specifically targeted to four-year curriculum development and delivery, and work to create pathways to four-year degrees through existing ETA programs.
- Create incentives and support for the participation of four-year institutions in workforce development through apprenticeship programs.

SECTION 3: SECURE AMERICAN LEADERSHIP IN ADVANCED MANUFACTURING.

A strong advanced manufacturing sector ensures national defense and security, the long-term competitiveness of U.S. industry. High-skilled jobs in advanced manufacturing can provide good wages and job security for graduates of both two- and four-year higher education institutions.

Universities have been engaging with a wide variety of federal research and education programs designed to fortify the U.S. manufacturing base and cultivate new industries around emerging manufacturing technologies including robotics, national defense and security, additive manufacturing, lightweight materials, regenerative medicine and bio fabrication, photonics, and renewable energy.

Below are recommendations for strengthening American leadership in advanced manufacturing by leveraging university efforts and federal programs.

IMPERATIVES FOR UNIVERSITIES:

- Consider membership in federally funded manufacturing institutes that are part of the Manufacturing USA network to contribute to R&D and workforce development

efforts in emerging technology areas.

- Engage the Hollings Manufacturing Extension Partnership (MEP) in technology transfer activities with a goal of helping small and medium-sized manufacturers benefit from university-derived innovation.
- Enhance engineering and manufacturing education programs with “work-and-learn” strategies that engage employers and manufacturing institutes in both design and implementation.
- Raise undergraduate and graduate student awareness of well-paying and fulfilling careers in advanced manufacturing. Use academic advising, career fairs, employer visits, student organizations, freshmen orientation, manufacturing-oriented student programs in makerspaces, and other means to inform students of opportunities.
- Consider incentivizing use-inspired university research programs, in collaboration with industry partners, with a focus on advanced manufacturing.

IMPERATIVES FOR FEDERAL POLICYMAKERS:

- Improve communication and collaboration across the Manufacturing USA institutes network to encourage more effective university, industry and institute linkages for workforce development and R&D.
- Provide funding for the Manufacturing USA institutes to engage university and industry partners on “work-and-learn” education models (co-ops, internships, apprenticeships etc.) that enable students to benefit from an integrated learning environment at universities, employers, and manufacturing institutes.
- Strengthen university interfaces with the MEP program focusing on fostering technology transfer and workforce development within small and medium-sized manufacturers.
- Increase investment in the Manufacturing Engineering Education Program (MEEP), administered by the Department of Defense (DoD) through the Office of Naval Research, supporting industry-relevant, manufacturing-focused, engineering training to ultimately enhance technological superiority for the DoD.
- Continue to develop regulatory strategies that foster the streamlined assessment and clearance of novel products resulting from advanced manufacturing.

SECTION 4: STIMULATE AND ACCELERATE UNIVERSITY-BASED INNOVATION AND ENTREPRENEURSHIP.

The 1980 Bayh-Dole Act led to the establishment of modern technology transfer offices within universities. These offices significantly increased academic institutions' capacity to translate research discoveries made by students and faculty members into market-ready innovations and products.

Universities have served as engines for economic resilience and competitiveness through their many and varied contributions to innovation and entrepreneurship. Public research universities and their partners are cultivating vibrant innovation ecosystems across the nation. These ecosystems provide university students, faculty, staff and community members with critical resources and opportunities to form new ventures and transfer university-derived research discoveries into market-ready innovations. For example, universities have garnered nearly 80,000 U.S. patents over the past 25 years, and 70 percent of university innovations have been licensed to startups and small businesses.⁵

Even so, there is much left to be done at the federal and institutional level to unleash the full potential of university innovation and entrepreneurship. The United States invests over \$150 billion in research expenditures annually with an expectation of societal and economic impact. Universities and federal lawmakers can and should continue to cultivate an environment that incentivizes and encourages university-based innovation and entrepreneurship.

Below are recommendations for stimulating and accelerating innovation and entrepreneurship through universities.

IMPERATIVES FOR UNIVERSITIES:

- Shift the mandate and evaluation metrics for technology transfer offices from a transaction and revenue orientation to instead focus on enabling technology

transition and entrepreneurial opportunity for students, faculty, and staff. Engage technology transfer offices meaningfully in developing the university economic development strategy and communicating the impact of that strategy.

⁵ <https://www.autm.net/AUTMMain/media/SurveyReportsPDF/AUTM-FY2016-Infographic-WEB.pdf>

- Include faculty inventors in developing of technology transfer policies and procedures. Faculty committees can help develop inventor engagement programming, promoting buy-in and interest in entrepreneurship among faculty.
- Align metrics and create incentives to spur student and faculty entrepreneurship.
 - For faculty, steps may include broadening promotion and tenure criteria, streamlining conflict of interest policies, clarifying revenue distribution policies, and promoting opportunities to students through living-learning communities and advising offices.
 - For students, university-wide curriculum flexibility, on-campus incubation and business development resources and learning opportunities, mentorship programs, and outreach programs makerspace and can also encourage and support students' entrepreneurial endeavors.
- Engage the fundraising units on campus to support innovation and entrepreneurship. Technology transfer offices should coordinate to ensure alumni and other donors are aware of opportunities to support research commercialization, startups and venture formation.
- Evaluate royalty split policies to ensure the appropriate balance is being struck between inventors and the university. Universities that collect a high proportion of royalty fees may be stifling innovation and encouraging entrepreneurial faculty and students to “hide” activity, leave the institution or state, or give up venture formation ambitions.
- Consult development and alumni relation units to secure funding for the establishment of scholarship or financial aid opportunities to support student entrepreneurs. For faculty, consider developing or expanding internal prize awards, endowed scholarships and other incentives to encourage entrepreneurial education and activities.
- Universities should consider adopting an institutional-level definition of “knowledge transfer” that enables faculty and students in the social sciences, humanities and professional disciplines, in addition to those in the STEM disciplines, to envision and explore potential application and forms of traditional social entrepreneurship stemming from their research.
- The higher education community as a collective and institutions individually should review and consider analysis and recommendations in the forthcoming white paper

from the U.S. National Institutes for Standards and Technology on the Return on Investment Initiative for opportunities to optimize tech transfer.

Additional recommendations for strengthening university innovation and entrepreneurship ecosystems may be found in publications produced by APLU's [*Taskforce on Managing University Intellectual Property*](#), [*Taskforce on Tenure, Promotion & Technology Transfer*](#), and the [*Technology Transfer Evolution Working Group*](#).

IMPERATIVES FOR FEDERAL POLICYMAKERS:

- Preserve a strong patent system and balanced enforcement mechanisms through the federal courts and improved USPTO administrative review processes.
- Pass and enact the bipartisan STRONGER Patents Act to ensure the strength of the technology transfer process and maintain a robust and equitable patent system, helping research universities maintain our nation's leadership in science and technology.
- Congress should authorize and appropriate funding for a program that enables universities to invest in proof of concept and related activities.
- Increase the federal investment in fundamental science, which will in turn expand successful federal programs that catalyze innovation, entrepreneurship, and economic engagement including Small Business Innovation Research (SBIR)/Small Business Technology Transfer Program (STTR).
- Additionally, increase the federal investments for National Science Foundation (NSF) and National Institutes of Health (NIH) I-Corps the Economic Development Administration's Regional Innovation Strategies program and University Centers Economic Development Program.
- Reduce regulatory and reporting burden and improve the usability of university intellectual property reporting mechanisms such as the iEdison platform.

SECTION 5: FOSTER EQUITABLE, INCLUSIVE ECONOMIC OPPORTUNITY AND MOBILITY.

As economic inequality increases, universities and lawmakers must act to ensure the perseverance of the American dream and equal opportunity for all.

Public research universities must work to foster broad-based, equitable, and inclusive economic growth and opportunity. Universities must engage business, community, and government partners to address social, cultural and community development issues to create great places to work and live.

Below are some recommendations for fostering equitable, inclusive economic opportunity and mobility.

IMPERATIVES FOR UNIVERSITIES:

- Establish incentives and deliberate outreach efforts to encourage technology transfer offices, university research parks and other innovation and entrepreneurship programs to engage racial minorities, veterans, women and other underrepresented faculty, students and community members.
- Consider the development of an institutional “place development” strategy that addressing key regional social, cultural, and community development issues by leveraging Cooperative Extension, economic development and community engagement units on campus.
 - Strategies, programs, and taxonomies for place development can be found in the publications [*Higher Education Engagement in Economic Development: Foundations for Strategy and Practice*](#) and the [*Centrality of Engagement in Higher Education*](#).
- Recognize non-traditional students and working learners as key student constituencies when undertaking strategic planning. University units offering continuing education, distance learning, and certification and professional development opportunities to working professionals are critical to affording economic mobility and opportunity to broad population groups.
- In partnership with community colleges and technical institutions, leverage Cooperative Extension, economic development and community engagement units to help formerly incarcerated individuals seek out and complete postsecondary education and training.
- Universities located in areas serving Native American populations should consider partnerships with tribal colleges and universities (TCU’s) focused on economic and community development projects and programs.

IMPERATIVES FOR FEDERAL POLICYMAKERS:

- Expand support for programs that promote higher education access and inclusion for underrepresented and underserved populations including women, racial and ethnic minorities, and veterans.

- Identify mechanisms to explore ways federal agencies can foster economic inclusiveness, mobility, and opportunity with a specific focus on their programs and partnerships with colleges and universities.
- Expand investment and impact of Small Business Administration Minority Owned, Women Owned, and Service Disabled Veteran Owned business eligibility and programming.
- Establish award program similar to the Presidential Early Career Award for Scientists and Engineers (PECASE) at all agencies focused on racial minorities, veterans, women and other underrepresented faculty, students and community members.

CONCLUSION

Stemming from the Morrill Acts, the partnership between public research universities and the federal government has led to a globally resilient, competitive and prosperous economy and society. Both partners are faced with new challenges but also opportunities to enhance the economic and social well-being of millions of Americans by working together to addressing issues raised in this publication. This publication serves as a starting-point for continued discussion and action around the historic government-university partnership.

APLU remains committed to maximizing the economic and social impact of our member institutions by expanding university engagement and working with Congress, the Administration and partners in Washington, DC and around the nation to further this mission.

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About CEO: APLU's Council on Engagement and Outreach is composed of university administrators responsible for outreach, engagement, community development, extension, and other functions at their universities. The council provides forums for members to discuss and take action on issues relevant to the array of institutional efforts in public service, outreach, and community engagement. CEO also supports members in developing plans, programs, and policies related to outreach, engagement, extended education, community relations, engaged scholarship, service learning, extension, and a variety of other activities that create university impact in communities.

About CICEP: APLU's Commission on Innovation, Competitiveness, and Economic Prosperity. The Commission promotes public research universities that advance cultures of innovation and entrepreneurship on university campuses and within and among communities, educational institutions, businesses, and investors; develop talent to fuel a more prosperous tomorrow through top-flight degree and certificate programs and industry-aligned curriculum that addresses societal and workplace demands; and create great places to work and live through partnerships that build workforce capacity and employment, improve neighborhoods, and ensure quality of life for all.



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