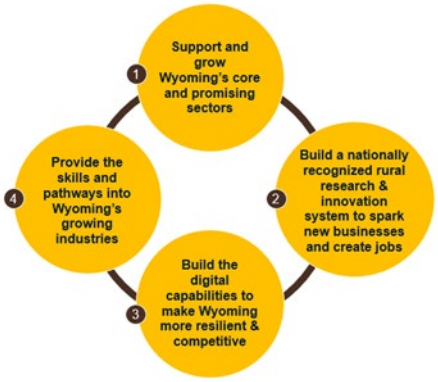
Wyoming Innovation Partnership (WIP)
A State-wide Economic Development Consortium
Executive Summary

The Wyoming Innovation Partnership (WIP) was created at the request of Governor Gordon in early 2021, to modernize and refocus Wyoming's higher education system to better align with Wyoming's economic development agenda by increasing collaborations between the University of Wyoming, the state's community colleges, state agencies and economic development groups with an emphasis on developing innovative solutions that support and enhance Wyoming's economy, workforce, and sources of revenue. In addition to supporting the state's overall economic vision, WIP is focused on ensuring the state achieves its education attainment goals.

WIP's Strategies & Initiatives



WIP's objectives include the creation of a state-wide ecosystem of connected hubs that work together to drive innovative approaches to economic development. WIP is exploring and recommending investments that create, or further develop, strategic programming in key areas focused on Wyoming's economic priorities. Emphasis is placed on workforce development, and retention, in high-potential areas; developing and integrating market demanded computing skills; programming aligned with entrepreneurship, innovation, and new business start-ups; a research and market analysis agenda aimed at technology transfer and commercialization; and increasing outside revenue sources such as corporate partnerships and federal grant opportunities.

A President's Steering Group (PSG) provides collaborative leadership for WIP that engages in a regular cadence of meetings, focused on state-wide planning and execution. The PSG is comprised of presidents from each of the state's academic institutions, in addition to representation from the Wyoming Community College Commission. The PSG is chaired by UW President Ed Seidel with Co-chairs Lachelle Brant, Governor's Office, and Casper College President, Darren Divine. UW's Steve Farkas serves as WIP Executive Director. Three sub-committees support the PSG's work as it considers the innovation and collaboration needed to address scenarios threatening the state's economy and sustainability:

- Programmatic Development Committee
  - Identifies and recommends initiatives necessary for economic success. Programmatic priorities are driven by available data, Wyoming based industry insights and needs, and collaboration with the Business Model and Governance Committee
- Business Model and Governance Committee
  - Determines costs, assessments, revenues, and methods for measuring success
- Advocacy and Communication Committee
  - Builds awareness, support and inclusion of various internal and external WIP stakeholders

In May, 2021, WIP submitted a request to the Governor's office for federal American Rescue Plan (ARP) funding to make needed investments that deliver near-term state-wide strategic programming, and related infrastructure, to support the state's priority economic sectors: energy, agriculture, hospitality/tourism, and advanced technologies (computer science, manufacturing, and healthcare). This request was later modified to reflect Phase 1 and Phase 2/3 investment considerations and follow this summary.

Phase 1 Investment = $27,812,225
Original Phase 2/3 Investment Request = $100,000,000 (Now Avail = $55,000,000)

WIP

Phase 1 Investment

Proposal

October 15, 2021

Wyoming Innovation Partnership

Prioritized Project List for Initial (Year 1) Implementation
September 3, 2021 / Revised October 15, 2021

Background: The Presidents' Steering Group (PSG) has created a holistic approach to leveraging Wyoming's Institutions of Higher Education (IHE) to drive economic development across the state. This document focuses on the initial phases of this project, including only phase one components that can be implemented in the first year and that maximize economic impact across the state.

Overview: The WIP endeavors to create the functional environment through a collaborative approach that will give Wyomingites the skills, means, and tools to drive economic development across the state. This requires **Digital Infrastructure** to bring digital expertise and computing power to all corners of the state. It also requires widespread **Entrepreneurial Spirit** where the skills and ambition are cultivated and developed to empower citizens to create engines that drive economic advancement. It also requires a **Consortial Infrastructure** that allows the nine IHE's to share expertise and increase the educational capabilities needed to advance the statewide economic workforce needs. With these infrastructure improvements, Wyoming can more effectively capitalize on its unique location and resources to ensure that the benefits of our natural resources (energy, agricultural and touristic) stay in the state.

Process: To better understand the rationale behind the proposals listed below, it is important to note the process and criteria utilized. The proposals below are the result of the PSG collaboratively applying the criteria of speed to market and maximal economic impact to prepare for a proposal of first round WIP - ARP funding. Note: The proposals below are not necessarily the top priorities for any given institution and not representative of individual requests associated with an individual institution, but rather are key considerations in support of the state's economic priorities. It is expected that additional funding tranches will be made available for WIP projects, consistent with those represented in the original 3-year ARP proposal. Additionally, the WIP – ARP proposal in general has prioritized flexibility in the face of an uncertain funding environment.

Notes on Projects:

- Costs are based on informed estimates. Up-front, one-time costs have been prioritized, but some administrative or faculty lines have been included where necessary to create or expand a high-priority program.
- The location of programs is not finalized and subject to discussion and change. Lead institution and locations will be based on the expertise of the PSG and consider current employment needs, established infrastructure and facilities, faculty expertise, and speed to implementation.
- The January deliverables are estimates based on established norms for contracting, purchasing, curriculum development, curriculum approval processes, and funding availability. Ongoing costs for new faculty or administrative lines will, of course, be ongoing cost centers.
- Total amount included in revised request: **$24,670,000**

Consortial Infrastructure

Overview: Immediate and long-term success relies on establishing the administrative tools to implement, manage, and continuously improve collaborations across the eight IHE's, as well as establishing the delivery tools to ensure that educational offerings are available across the state without unnecessary and expensive duplication.

Component Description	Cost	January 2022 Deliverables
Component 1: Administrative Support - Ongoing coordination of the collaborative and consortial approaches is necessary to scale up impact more quickly, but also increases administrative load. Additional administrative support staff at a state-wide level can reduce any negative workload impacts the WIP has on the eight institutions. Additional support for Project management, analysis, Finance/Accounting and Admin Support	**$820,000,** inclusive of benefits for five full-time staff	5 support positions hired and providing administrative support for WIP and WIP subcommittees.
Component 2: Course-sharing Platform – Several third-party organizations have developed established, effective platforms to allow multiple institutions to share courses, allowing IHE's to increase the number of programs offered without the normally required increase in staff and/or facilities/equipment.	**$400,000,** inclusive of five years of platform maintenance.	Functional course-sharing platform with a sizeable course catalog sufficient to expand program offerings across institutions.
Component 3: Virtual-reality expansion – Many technical training programs utilize hands-on training with expensive equipment and facilities. The state's IHE's and K12 recently began using third-party VR companies to develop online versions of these courses – this funding allows that to be scaled up to increase the geographic availability of previously site-limited training programs.	**$2.5M** Includes hardware, software, and training to allow for all 8 institutions to offer substantial VR versions of technical programs. Ongoing subscription costs are substantially lower.	Initial installation and implementation of VR functionality across the eight institutions.
Total	**$3,720,000**	

Energy

Overview: Wyoming's location provides both abundant energy sources (coal, oil, gas, solar, wind) as well as a key role in America's energy transmission infrastructure. We must ensure Wyomingites have the cutting-edge skills sets necessary to both fill the workforce needs and drive innovation that maximizes the economic impact of our state's unique resources.

Component Description	Cost	January 2022 Deliverables
Component 1: Powerline Technology program– Wyoming does not currently offer a powerline technology program and training within the state, yet increased electricity transmission capability is needed for the scale-up of renewables and other low-carbon energy production. The key limiter on this program is upfront costs – once established the cost of instructors will be covered by program tuitions. Currently these roles are trained out-of-state, and are frequently filled by temporary workers who leave Wyoming when individual projects conclude.	**$2M/college –** For purposes of Year 1, only one college will participate.	**2 years.** At this time students could begin matriculating. The need for new facilities is the biggest factor extending this timeframe.
Component 2: Low-voltage Fiber Optic Program – Just as the national energy grid crosses Wyoming, so does the nation's information infrastructure. This program can be affiliated with Powerline Technology program due to related equipment and expertise needs. Also provides opportunities for displaced energy sector workers.	**$500k** – Covers curriculum dev and equipment necessary for two programs	**One year**. Curriculum development is the limiting factor, given the program approval timeline.
Total	**$2,500,000**	

Entrepreneurship

Overview: An entrepreneurial spirit and skill set are necessary to unlock the job-creating potential of Wyoming's citizens. This requires the development of state-wide training capabilities, incubator spaces for start-ups, and wide-spread access to expertise, mentorship, and banking/finance tools.

Component Description	Cost	January 2022 Deliverables
Component 1 - Center for Entrepreneurship and Innovation- Development of the CEI will deliver necessary infrastructure and support for statewide expansion of entrepreneurship, to include the Cheyenne Center for Entrepreneurship and Education (C2E2) and expansion of IMPACT 307 to offer augmented curricula and expand physical locations, including but not limited to Evanston/Uinta, CWC and LCCC.	**$2M** in ongoing and one-time costs.	• Supplemental funding for faculty to create pathways and articulations between UW and the CC's to support statewide entrepreneurial education. Hire additional labor resources to begin development of "bootcamp" activities across the state. • Creation of the C2E2 Board of Advisors and Initial Cataloging/Inventory of local resources, efforts, activities, etc. Foundational documents for the network and its operations may also be completed.
Component 2 - Innovation workshops, student projects, business/corporate engagement Coordinated activities that allow for sharing of best practices and enable state-wide network connections. Destinations for UW and CC collaboration supporting local, regional and state-wide innovation activities that connect our industry partners to faculty and students to tackle strategic challenges in innovative and applied ways.	**$2M** in ongoing and one-time costs	• Expand IMPACT 307 assets in addition to similar resources at community colleges to deliver workshops, projects, etc. • Initial expansion includes: LCCC, Evanston/Uinta County, and Rawlins/Carbon County • Business engagement • Faculty workshop design • Faculty project advisement • Project Delivery + Student Experience Coordinators • Event Production Calendar • Marketing / Communications • Travel
Component 3 - Expansion of MakerSpace Availability – includes creation of permanent maker space facilities across the regions, and expansion of mobile maker spaces to allow for multiple, simultaneous "residencies" outside of areas served by permanent sites.	**$2M**	• Initial design concept (Level II), cost estimates, and programming plan. Can include fabrication labs, food industry incubators, and other relevant manufacturing equipment.

Technology, design thinking, and social-emotional learning (SEL) curriculum will be aligned to mobile makerspaces and shippable "maker crates" expansion fleet. Student interns, trained in this makerspace curriculum and technology, will facilitate and support school district students and educators across the state. Incorporate/Expand Wyoming industry partner access and facilitation in makerspace endeavors, engaging directly in respective industry sectors and with students and educators.		• Includes initial curriculum design framework, intern SEL and technology training, and marketing plan. • Costs related to vehicle/trailer acquisition and customization, technology acquisition and installation, curriculum creation, training design, and direct personnel costs (facilitators, student interns, etc.)
Total	**$6,000,000**	

Digital Infrastructure and Technology

Overview: Economic development requires access to information, computing resources, and the skills and training necessary to create new industries and expand existing industries. Access to digital resources requires a significant improvement in existing digital infrastructure, and improving the digital skillsets of Wyoming's workforce requires an expansion of training and educational resources in regards to both content and accessibility. Economic advancement across all sectors (Energy, Technology, Agriculture, Tourism, Education, Health Care, Advanced Manufacturing, Workforce etc.) will be reliant upon increased computational power, big data computing abilities and hyper focused resources in the digital arena. Dispersed computing capabilities, with a centralized nucleus of hyperaccute data processing power will be critical for Wyoming to support expansion and advancement of current industries as well as provide the stability of digital infrastructure in support of growth among new and existing industries in Wyoming and out.

Component Description	**Cost**	**January 2022 Deliverables**
Component 1: Software Development degree(s) – Wyoming does not currently have a Software Development/Engineering degree which is a growing an immediate need across business and industry sectors of the state. This degree is being crafted amongst the 8 IHEs in the state and alongside Wyoming based businesses to create an online program that can produce workforce ready software development graduates who can respond immediately to the industry needs of Wyoming businesses.	$600k - 3 faculty, 1 support staff; infrastructure improvements and equipment for Software Development degrees *Ongoing funding will be needed in years 2-3 with corresponding increases assoc. w/ any added faculty expansion across WY.	Launch hiring process
Component 2: School of Computing-will serve as an engine to build out training and education programs for college students in big data, artificial intelligence (AI), and their applications. A corporate partners program will develop close research connections to Wyoming industries and work with the university's new Center for Entrepreneurship and Innovation to build a talent pipeline from K-12 to the workforce. The SoC, by design, creates the foundation and infrastructure of support for programmatic expansion across all 8 IHE's through increased data computing and capabilities within the state. Creating opportunities for increased computational power in support of economic growth.	$1,150,000 total. Training and curriculum development ($750,000), Research Scientists ($250,000), Graduate Assistants ($100,000), Visiting Scholars ($50,000)	Hire initial staff for WIP project management and training/outreach for K-12 and CCs, prepare initial training material, deliver initial training courses, develop undergraduate curricula for new majors/minors, develop 2+2 agreements across state, host visiting scholars, hire initial research staff and graduate students

Component 3: Wyoming Data Hub-The Hub will support technology-based approaches to specific important areas including biodiversity, agriculture, energy, health sciences and advanced manufacturing. These investments will foster an open culture for data sharing and data innovation among its inaugural faculty and student programs and with Wyoming Community Colleges, state agencies, industries and national partners.	$4M total. $175,000 staff costs to initiate and coordinate planning for the datahub, $3.325M for new instrumentation, $500K for staff/student costs for operation and dataset generation, analytics etc. for datahub, including new AI/ML support.	Procurement of new instrumentation, hiring of initial staff, report detailing build out and management of the new datahub including its integration with WIP.
Component 4: FinTech and BlockChain- Develop educational programs to be shared between the Community Colleges and University in support of expansion of existing minors and develop certificates across the FinTech and BlockChain areas	3 FTEs = $450,000	Implement process for current blockchain/FinTech courses available for online, statewide consumption
Total	**$6,200,000**	

Tourism and Hospitality

Overview: Just as Wyoming's central location in the US has allowed us to develop important transportation industries, our natural beauty and unique outdoor recreation venues can be better leveraged to extract added revenue from domestic and international tourism. This requires improvements in access to diverse trainings, coordination and collaboration across the tourism industry, and investment in tourism infrastructure to extend the average duration and spending amounts amongst out-of-state travelers.

Component Description	Cost	January 2022 Deliverables
Component 1: Establishing training programs to address growth areas currently not served. Hospitality, ORTM and EMT Search and Rescue Programs, Bicycle Instructor Cert. Programs, Aerial Advent. Operations, Mech. Trail Const. Certl, Outdoor Rec programs.	$3.5M	• Stakeholder Engagement • Program Dev • Program start-up • Search Costs • Market Research • Research support • Data sets/access
Component 2: Culinary & Hotel/Restaurant Management – Expansion of program in Teton County, which is drastically underserved, and expansion and marketing of programs in Casper, Cheyenne and elsewhere.	$750K	• Hire Chef • Temporary Kitchen Rental • Program start-up • Kitchen design and construction • Statewide Culinary Expansion efforts
Component 3: Wyoming Outdoor Recreation, Tourism and Hospitality Center (WORTH Center) A central hub to provide professional development, extension and outreach, and applied research to support these industries across the state.	$2M	• Director • Program Developer • Office Asst • Existing Faculty Comp • Visiting Faculty Comp • CBEA Research Hire • Graduate Research Students
Total	**$6,250,000**	

WIP

Phase 1 Investment

Distribution Summary

WIP - ARP Year 1
Total Distribution = $27,812,225

		Total Avail	UW	WCCC
Consortial Infrastructure				
Component 1: Administrative Support		$ 820,000.00	$ 592,000.00	$ 228,000.00
Component 2: Course-sharing Platform		$ 400,000.00	$ 100,000.00	$ 300,000.00
Component 3: Virtual-reality		$ 2,500,000.00	$ -	$ 2,500,000.00
	Sub Total	$ 3,720,000.00	$ 692,000.00	$ 3,028,000.00
Energy				
Component 1: Powerline Technology program		$ 2,000,000.00	$ -	$ 2,000,000.00
Component 2: Low-voltage Fiber Optic Program		$ 500,000.00	$ -	$ 500,000.00
	Sub Total	$ 2,500,000.00	$ -	$ 2,500,000.00
Entrepreneurship				
Component 1 - Center for Entrepreneurship and Innovation		$ 2,000,000.00	$ 2,000,000.00	$ -
Component 2 - Innovation workshops, student projects, business/corporate engagement		$ 2,000,000.00	$ 1,570,000.00	$ 430,000.00
Component 3 - Expansion of MakerSpace Availability		$ 2,000,000.00	$ 1,500,000.00	$ 500,000.00
	Sub Total	$ 6,000,000.00	$ 5,070,000.00	$ 930,000.00
Digital Infrastructure and Technology				
Component 1: Software Development degree(s)		$ 600,000.00	$ 362,000.00	$ 238,000.00
Component 2: School of Computing		$ 1,150,000.00	$ 1,150,000.00	$ -
Component 3: Wyoming Data Hub		$ 4,000,000.00	$ 3,900,000.00	$ 100,000.00
Component 4: FinTech and BlockChain		$ 450,000.00	$ 350,000.00	$ 100,000.00
	Sub Total	$ 6,200,000.00	$ 5,762,000.00	$ 438,000.00
Tourism and Hospitality				
Component 1: Establishing training programs to address growth areas currently not served		$ 3,500,000.00	$ 1,140,000.00	$ 2,360,000.00
Component 2: Culinary & Hotel/Restaurant Management		$ 750,000.00	$ -	$ 750,000.00
Component 3: Wyoming Outdoor Recreation, Tourism and Hospitality Center (WORTH Center)		$ 2,000,000.00	$ 2,000,000.00	$ -
	Sub Total	$ 6,250,000.00	$ 3,140,000.00	$ 3,110,000.00
Additional Initiatives*				
Wyoming Works		$ 2,500,000.00	$ -	$ 2,500,000.00
Wyoming Investment in Nursing (WyIN)		$ 169,000.00	$ -	$ 169,000.00
Healthcare		$ 473,225.00	$ -	$ 473,225.00
	Sub Total	$ 3,142,225.00	$ -	$ 3,142,225.00
	Totals	$ 27,812,225.00	$ 14,664,000.00	$ 13,148,225.00

*Additional Initiatives Funded Post Phase 1 Proposal Submission (Original submission = $24.670M)

WIP

Phase 1

Sector Work Groups

WIP PHASE 1 PROJECTS

Consortial Infrastructure
Ben Moritz
Kyle Moore

- **Admin Support**
  - Diana Hulme (UW)
  - Ben Moritz (WCCC).
- **Virtual-Reality**
  - Ben Moritz (WCCC)
  - Emma Jane Alexander (UW)
  - Kim Dale (WWCC)
- **Course-Sharing Platform**
  - Cory Daly (CWC)
  - Kyle Moore (UW)
  - Paris Edeburn (WCCC)

Energy
Kim Dale
Kyle Moore

- **Powerline Technology**
  - Cliff Wittstruck (WWCC)
  - Holly Krutka (UW)
  - NWCCD Rep (1, TBD)
- **Low Voltage Fiberoptic**
  - Amy Murphy (WWCC)
  - Dave Bagley (UW)

Entrpreneurship
Brad Tyndall
Steve Farkas

- **Center for Entr. & Innov.**
  - Rob Godby (UW)
  - Lynne McAuliffe (CWC)
  - Etc.
- **Expansion MakerSpace Avail.**
  - Tyler Kerr (UW)
  - Joe Schaffer (LCCC)
- **Innovation workshops, corp. eng.**
  - Nicole Anderson (WCCC)
  - Eric Schlidt (UW)

Digital Infrastructure & Technology
Ben Moritz
Ed Seidel

- **Software Dev. Degree**
  - Estella Garrison (NWCCD)
  - Mike Borowczak (UW)
- **Wyoming Data Hub**
  - Geier Solvang (WCCC)
  - Jeff HamerLinck (UW)
- **School of Computing**
  - Bryan Shader (UW)
  - CC Rep (1, TBD)
- **FinTech and BlockChain**
  - Steven Lupien (UW)
  - CC Rep (1, TBD)

Tourism & Hospitality
Ben Moritz
Lisa Watson

- **Training Programs**
  - Dan McCoy (UW)
  - Lynne McAuliffe (CWC)
  - Marnee Crawford (NWC)
- **Culinary & Hotel/Rest. Mgmt**
  - Brandon Kosine (CC)
  - Estella Garrison (NWCCD)
  - Dan McCoy (UW)
- **WORTH Center**
  - John Koprowski (UW)
  - CC Rep (1, TBD)

Healthcare
Joe Schaffer
Curtis Biggs

- **Cardiac Sonographer**
  - Keri Brown-Herest (LCCC)
- **CNA Program**
  - Jeff McCarty (CC)
- **Mobile Clinic Services**
  - Nervana Elkhadragy (UW)
  - Kathy Wells (CWC)
- **Nursing Program Expansion**
  - Brandon Kosine

WIP

Phase 2/3 Investment

Proposal

November 12, 2021

Wyoming Innovation Partnership (WIP)
PHASE 2 PROPOSAL
Submitted to Governor Mark Gordon's Office
November 12, 2021

EXECUTIVE SUMMARY

The Wyoming Innovation Partnership (WIP), on behalf of the nine institutions of higher education, has developed a Phase 2 proposal for its collective efforts towards driving Wyoming's economic prosperity. Phase 2 represents the major structure of the WIP Blueprint with four primary components: (1) infrastructure to create an environment for WIP institutions to collaborate with efficacy; (2) building an entrepreneurial ecosystem using WIP institutions as the backbone of the network; (3) a proactive research and development agenda that helps drive economic activity in Wyoming; and (4) workforce development efforts aligned with the state's priority economic sectors.

Specific institution investments included the Phase 2 proposal are recommendations subject to further consideration, and in some cases, represent balances after Phase 1 WIP funding. WIP leadership intends to convene upon approval of Phase 2 investments to further delineate investments by purpose, institution, phase, and agreed upon metrics. A final summary of this data will be prepared and submitted to Governor Gordon ahead of Wyoming's 2022 legislative session.

Total Phase 2 Request: $100,000,000

OVERVIEW & BACKGROUND

The WIP is a multi-year initiative of Governor Mark Gordon that leverages the collective efforts of the state's community colleges and university to drive Wyoming's economic and workforce development goals. The purpose of WIP is to improve Wyoming's economic prosperity through the coordinated efforts of the state's nine institutions of higher education (IHE) that link community goals and strengths to the state's strategy for economic development and diversification. WIP aims to grow the economy through ***entrepreneurship***, ***research***, ***computing education,*** and ***workforce development*** by collaborating with industry and governmental partners to spark innovation, economic growth, and prosperity.

The WIP initiative is structured into three phases.

1. **Phase 1 (Now-June 30, 2023)**
   Phase 1 of the WIP initiative is focused primarily on initiative organization, and early, immediate focus on activities intended to launch the WIP's collaborative nature and immediate economic impact.
2. **Phase 2 (July 1, 2022 – June 30, 2024)**
   Phase 2 will be a far larger effort of WIP that will focus on three primary areas to help drive the state's recovery out of the economic and health impacts it has faced since late 2019. These areas include significant workforce development programming efforts, efforts that make it easier for the WIP institutions to collaborate and work together, and large-scale collaborative efforts that improve institutional productivity and outcomes.
3. **Phase 3 (July 1, 2024 – Beyond)**
   Phase 3 of the WIP initiative will be defined in the time ahead based on the impact and progress of Phase 2 to align the work of the WIP institutions with longer-term, transformational strategies to help Wyoming and our communities thrive well into the future.

On September 3, 2021, a Phase 1 proposal was submitted to the Governor's office and has been approved for funding in the amount of $24,670,000. Phase 1 focus on the establishment of a **Consortial Infrastructure** that allows the nine IHE's to share expertise and increase the educational capabilities needed to advance the statewide economic workforce needs. It proposes to create a **Digital Infrastructure** to bring digital expertise and computing power to all corners of the state. It also takes the

initial step in developing a foundation for an **Entrepreneurial Ecosystem** where the skills and ambition are cultivated and developed to empower citizens to create engines that drive economic advancement. Finally, the Phase 1 proposal aims to capitalize on Wyoming's unique location and resources to ensure that the benefits of our natural resources (energy, agricultural and touristic) stay in the state.

INFRASTRUCTURE

Overview:

Wyoming's IHE's have a long, rich, and successful history of partnership and collaboration. Yet the localized nature of the community college's focus and governance, combined with the deep structural history of UW as Wyoming's Land Grant institution, does not naturally allow for achieving the needed depth of collaboration. Thus, a focus in Phase 2 must be a continued buildout of an infrastructure that creates an environment where collaboration can be accomplished with the greatest of efficacy.

General Areas of Focus:

- WIP Staffing and Organization: $1.18M
- Centralized Corporate Relations Office - A corporate partners program will develop close connections to Wyoming industries and work with the WIP to build a talent pipeline from K-12 to the workforce: $2M
- Marketing Campaign (awareness campaign, initiative-specific marketing, etc.): $250K
- Expanding Opportunities for Internships, Externships, Practica, Apprenticeships, etc.: $2M

Total Funding Request: $5.43M

ENTREPRENEURSHIP

Wyoming Center for Entrepreneurship and Innovation (CEI)

Overview:

Wyoming's higher education entrepreneurship and innovation assets are not coordinated, well-developed, efficient, nor fully aligned with the state's priority economic sectors and workforce development/retention needs. In Phase 2, WIP proposes to build upon the success of UW's CEI, IMPACT 307, and the various efforts in place at the state's community colleges, to establish the Wyoming Center for Entrepreneurship and Innovation. The center will be a state-wide interdisciplinary integrator of essential components necessary to build a robust entrepreneurial ecosystem. Under the auspice of the center, the WIP will strive to accomplish five goals for supporting new business starts and small business growth. These are:

1. **Connect:** *Grow Statewide Entrepreneurship and Innovation Network*
   Wyoming has a wealth of individual resources and support for individuals wishing to launch their own business and for small businesses to grow. They need to be brought into a more cohesive, digitally connected network.

   Focus Areas: Leadership and governance board, staffing and support infrastructure, digital concierge and resource portal, web-based mentor connection platform, partner/resource relations (alumni, associations, special interest groups, businesses, etc.). Investment: $2M

2. **Launch:** *Expand Concept Development, Programming, and Start-Up Initiatives*
   Entrepreneurs begin with an idea. Those ideas must be developed, nurtured, and launched. This component of the WY CEI focuses on the spectrum of concept development support ranging from business plan development to start-up initiatives.

Focus Areas: Innovation workshops, short courses, seminars, bootcamps and other applied learning opportunities; Associate degrees, Bachelor's degrees, minors, concentrations, certificates, etc.; Faculty/staff support. Investment: $5M

3. **Mentor:** *Create a Resource Base of Mentors for Entrepreneurs*
   In an entrepreneurial ecosystem, individuals must be able to connect formally and informally with those who have similar mindsets and experiences to share. Mentoring of emerging entrepreneurs is essential in helping them move from concept to launch, and launch to sustainability.

   Focus Areas: Mentor training programs, match-making program, mentor network development and networking, connection events and convenings, etc. Investment: $1M

4. **Incubate:** *Establish Spaces and Places to Help Businesses Start and Grow*
   Similar to the development and incubation of ideas, new business start-ups and small businesses rely on unique facilities and spaces to help them develop prototypes, materials, and launch their business operations. This goal is focused on "incubating" these entities by establishing a network of unique spaces at Wyoming's IHE's to that accomplish this.

   Focus Areas: IMPACT 307 incubators, innovation labs, maker spaces, collaborative work spaces, prototyping, UW and CC facilities retrofit and upgrades, etc. Investment: $6M

Key Metrics:

New business starts, existing business growth/retention, business recruitment, increased access to capital, new job creation

Total Funding Request: $14M to UW to further build, support and deploy state-wide CEI activities in collaboration with the state's community colleges.

Notes:

It is understood that American Rescue Plan (ARP) funds are time-limited and not a source of on-going funding for programs; however, in this instance, the ARP funds would be used as initial seed funding to jump start the program and accordingly when the ARP funding expired, the program would be transferred to other funding (i.e., self-generated revenue, philanthropic/private donor support, etc.).

APPLIED RESEARCH and OUTREACH

Overview:

Wyoming's future is reliant on a robust research agenda that provides opportunity for diversified funding strategies across the state's economic sectors. States and regions around the world have benefitted from the economic activity that is derived from new knowledge creation associated with universities and other IHE's. Phase 2 of the WIP initiative will establish a stronger infrastructure to support research and development and drive major research activity focused on stimulating new economic growth. Research investments will focus on the applied arenas of discovery with intentions to bring products or technology to market. This approach provides greatest connectivity between industry and immediate return on investment.

Areas of Focus:

Expanding the purpose and scope of Wyoming's Extension offices across the state to accommodate additional research capacity for UW, the Community Colleges and Industry. Direct outcomes of this expanded scope will include corporate partnership involvement and applications in support of economic sectors. Incorporate elevated lab space, technology and collision spaces for the above three entities. Opportunities for these spaces to fold in local sector activities (Food incubator - farm to table - Drone technology etc.), hospitality (Agro and Eco Tourism connections) has opportunity to connect directly to this research section. Investment: $7M

Salary and support for visiting faculty scholars to bring immediate expertise in critical areas of need to Wyoming and to bring five research scientists/faculty to seed the Corporate Partners Program and establish large-scale research projects. Each of these research scientists/faculty will be expected to eventually bring in substantial external funding to cover their salary and/or research students (e.g., each scientist will be responsible for securing approximately $2M per year in external funds). Investment: $5M

Graduate research students who will provide core research workforce, develop technology transfer from faculty research, and contribute to education and training. Investment: $2M

Total Funding Request: $14M

It is understood that American Rescue Plan (ARP) funds are time-limited and not a source of on-going funding for programs; however, in this instance, the ARP funds would be used as initial seed funding to jump start the program and accordingly when the ARP funding expired, the program would be transferred to other funding (i.e., self-generated revenue, philanthropic/private donor support, etc.).

COMPUTING RESEARCH/EDUCATION

In the past decade, computing has become an increasingly crucial tool for research, for our graduates, and for almost all sectors of the economy. The University of Wyoming has responded by hiring faculty who use computing in their discipline, establishing programs like the Data Science Center and the Advanced Research Computing Center (ARCC), and by developing a partnership with the University Cooperation for Atmospheric Research and its NSF-funded National Center for Atmospheric Research (NCAR) around the NCAR-Wyoming Supercomputer Center (NWSC).

Today, computing's impact is found in virtually every discipline, and simulation and modeling are more important than ever, but are joined by new data science technologies like artificial intelligence, machine learning and blockchain that are starting to transform every academic discipline, every industry, and every aspect of modern society. Access to world-class research, infrastructure and workforce training in computing and data is therefore critical for Wyoming businesses, its citizens, and all its students.

A focus around "Computing for All" will develop close relationships and new programs with Wyoming community colleges, K-12 schools, state agencies and other community stake holders and will position the University as a regional leader in computing and data with national impact and global reach.

Faculty, staff and students will have access to supported computing and data infrastructure in all disciplines to facilitate new research and education opportunities. Faculty will be more competitive for external research funding. More research involving data science and AI will be catalyzed. New activities to increase involvement with WIP and private sector partners will be possible.

Investments in Computing Education will translate to increased state-wide higher education enrollments in computer/data science courses. Increased state-wide higher education graduates with a computer/data science credential. Increased percentage of state's K-12 educators who have received professional development/training in teaching coding/computer science. Increased corporate partnerships with Wyoming businesses focused on data science solutions and economic development and growth. Increased external funding involving computing and data. Increased educational offering for students involving use of modern cyberinfrastructure. Increased use of national computing and data cyberinfrastructure.

- One-time critical infrastructure needs for UW's Advanced Research Computing Center (ARCC). Urgent investment is needed to update ARCCs compute/access nodes, network switches, backup storage and power/cooling equipment. New investment is needed to increase the GPU footprint to enable AI/data science research and applications and provide clusters to support WIP initiatives such as the provision of statewide software engineering education and research projects with the private sector: $10M
- WIP training program that will develop state-wide computer/data science boot camps, specialized coursework, teacher/lecturer professional development and student engagement activities: $5M
- Start-up funds for six new faculty ($500,000 per faculty start-up fund) to establish research programs (e.g., equipment, graduate students, post-doctoral fellows, etc.) with $300,000 of each start-up fund invested in shared computing infrastructure to support their research (e.g., GPUs, unmanned aircraft, sensors, etc.): $3M
- Salary and support for visiting faculty scholars to bring immediate expertise in critical areas of need to Wyoming: $2M
- Five research scientists/faculty to seed the Corporate Partners Program and establish large-scale research projects. Each of these research scientists/faculty will be expected to eventually bring in substantial external funding to cover their salary and/or research students (e.g., each scientist will be responsible for securing approximately $2,000,000 per year in external funds): $3M

Key Metrics:

Research activity aligned to the state's economic development strategy with a focus on increasing dollars spent, patents generated, intellectual property documented, spin-off's, etc.

Total Funding Request: $23M to UW to further build, support and deploy state-wide computing research/education in collaboration with the state's community colleges.

It is understood that American Rescue Plan (ARP) funds are time-limited and not a source of on-going funding for programs; however, in this instance, the ARP funds would be used as initial seed funding to jump start the program and accordingly when the ARP funding expired, the program would be transferred to other funding (i.e., self-generated revenue, philanthropic/private donor support, etc.).

WORKFORCE DEVELOPMENT

Overview:

One of the most significant components of the WIP Blueprint is a strategic focus on developing talent pipelines for those industries associated with the state's economic strategy. These include a focus on adding value to core industries as well as activating new economic sectors. The colleges and the University have drawn on their faculty expertise, industry partners, and workforce data to identify growth areas under each of the main sectors below and are prepared to bring collaborative opportunities across all regions of the state to support credential attainment in response to workforce needs.

The colleges and University will work collaboratively and strategically to identify which specific programs will have the largest impact on the state's economy. Much of the work during Phase 2 will be focused on addressing foundational gaps in workforce training capacity. While the resulting programs may be offered at only one or two distinct sites, the overall effect will be felt statewide, and because of the consortial infrastructure funded in Phase 1 with follow-up support in Phase 2, these site-based new programs will have the capacity to scale up as demand grows across the state. The funding request includes a combination of previously identified programmatic start-up projects, and a "**Collaborative Start-Up Fund"** to allow the colleges and the University to respond quickly and effectively as opportunities or challenges arise across the state.

Previously Identified Start-up Programs:

Previously identified start-up programs (listed below) are the result of both WIP collaborations and discussions with regional industries. Some projects in this category will incorporate cross-institutional aspects from the start, while others will initially fill regional workforce training gaps, but can be scaled up across the state utilizing the Phase 1 Consortial Infrastructure tools, as demand dictates.

Total Funding Request: $16M

Brief Program Description	Location
Automated Manufacturing	Western
Expansion – Electrical and Instrumentation Program	Western
Machine Tool & Manufacturing Program Integration	Casper
Agricultural Economics and Ranch/Range Management	Western
Industrial Maintenance and Light Manufacturing	Central
Mobile Slaughter Facility	Central
Agricultural Program Development and Expansion	LCCC
Precision Agriculture Program	Eastern
~~Hydroponics~~	~~Northwest~~
Agricultural Technology	Northwest
Hybrid Diesel Technology	Casper, LCCC, NWCCD
Renewable Energy Technology	Casper, Northwest, Central
Certified Clinical Medical Assistant	LCCC, Casper
Respiratory Therapy, LPN and conversion to for-credit programs in Health areas	LCCC
Healthcare Expansion – Respiratory Therapy, Radiology and EMT across Fremont and Teton counties	Central
Computer Science, Cybersecurity	Northwest
Medical lab tech, Respiratory Therapy, Pharm tech	Northwest
IT Industry Credentials	Western
Applied programming	LCCC
Crop Certification	Eastern
Medical Technician, Assistant, and ADN	Eastern
CNC Machining Certificate and Degree	Eastern
Performing Arts Expansion	Northwest
Residential Electrical Program	NWCCD
Tourism Events Planning Certificate and Degree	Central
Construction Trades	Central, Northwest
Criminal Justice	CWC
Geographical Information Systems	Central
Farm Production/Marketing	Central
Mobile Workforce Training Lab – Partnership with DWS	Wyoming IHE's

WIP - "Collaborative Start-Up Fund":

A “Collaborative Start-Up Fund” (CSF) is proposed to support the following priority economic sectors while activating new sectors. This funding will provide start-up capital for future academic and workforce training programs. This acknowledges that WIP cannot anticipate all future economic opportunities that may arise, and ensures WIP partners have funding to capitalize on needed activities and provide the training and expertise necessary for nascent industries to take root is vital. The WIP administration will create rules and processes for the application, evaluation, awarding, and review of the funds, and will prioritize requests that are collaborative and impactful to the state’s economy.

Agriculture - it is clearly recognized that underdeveloped strengths exist across the state between institutions that point to strong and immediate opportunities to respond to agricultural industry needs while providing opportunities to increase economic activity by adding value to the products and processes produced by Wyoming agriculture producers. Beyond supporting value-added enterprises to existing ag industries, there are also opportunities for new ag enterprise start-ups in areas the state currently imports products.

> ***Areas of Collaborative Focus:*** Agribusiness and ag business incubation, Animal and Plant Sciences, Range/Ranch Management (with energy and tourism crossover opportunities), meat sciences, biomedical research (with health sciences crossover), advanced agricultural technology including geospatial systems and precision agriculture, “ranch of the future,” crop certification, and blockchain applications (with computing cross over opportunities) represent immediately available areas for response. Colleges with the infrastructure as well as regional and industry-specific needs for programs in this area include: UW, Eastern, Western, Central, LCCC and Northwest.

Hospitality/Tourism - the state is well positioned to meet current and future workforce development needs related to the hospitality, tourism, and outdoor recreation sectors; specifically, further development of degree offerings, certificate programs, and just-in-time credentials to address critical needs in workforce recruitment and retention. Additional infrastructure to digitize credentials will increase the state’s agility and responsiveness in a rapidly changing industry sector.

> ***Areas of Collaborative Focus:*** Expanding the number of short-term certificates and credentialing to ensure industry has access to the broad range of touristic enterprises, improving coordination of tourism/hospitality training, expertise and information across the state, and increasing culinary and hospitality offerings, particularly in areas with strong tourism sectors and tourism corridors but limited workforce. Colleges with the infrastructure as well as regional and industry-specific needs for programs in this area include: UW, Western, Central, Casper, LCCC, NWCCD and Northwest.

Energy / Natural Resources - Multiple opportunities are available for scaling up existing programs, improving synergies across the eight institutions, and developing new programs that leverage existing expertise and capital resources. More than 50 energy related credentials are currently available across the eight institutions, with opportunity for accelerated pathway development between institutions.

> ***Areas of Collaborative Focus:*** Emerging opportunities to respond to industry and economic needs of the state include: power lineman, hybrid diesel technology, wind and solar energy and storage, carbon storage, nuclear, hydrogen, green construction, and other emerging energy industries. Expansion of electrical, instrumentation and industrial technologies will be needed to support these energy and mining industries. Colleges with the infrastructure as well as regional and industry-specific needs for programs in this area include: UW, Western, Central, Casper, LCCC and NWCCD.

In recognition of the very different program development and implementation processes between the University and community colleges, the CSF will allocate:

It is understood that American Rescue Plan (ARP) funds are time-limited and not a source of on-going funding for programs; however, in this instance, the ARP funds would be used as initial seed funding to jump start the program and accordingly when the ARP funding expired, the program would be transferred to other funding (i.e., self-generated revenue, philanthropic/private donor support, etc.).

Activate New Economic Sectors

Advanced Manufacturing – Manufacturing as an industry is growing strong again in the United States, and this trend is predicted to continue well beyond the current COVID-19 pandemic. Manufacturers are growing, investing, and hiring according to the National Association of Manufacturers. However, the association reported that 77% of manufacturers said they had positions going unfilled for the lack of qualified applicants. These unfilled positions are the result of the burgeoning skills gap that is being heightened by the rapid adoption of new technology, the retirement of baby boomers, and the difficulty of recruiting skilled youth into the industry. This pressure will only increase as companies work to expand, bring off-shore operations back to America, and working-age populations remain un-addressed.

Wyoming is positioned well to embrace the next wave of American manufacturing progress. The number one issue that will determine the success of growing a manufacturing industry in Wyoming is the availability of a trained, qualified workforce. WIP institutions present the opportunity to develop a cohesive pipeline for the preparation of an Advanced Manufacturing workforce for Wyoming.

> ***Areas of Collaborative Focus:*** Machining (including metrology), Computer Numeric Control (CNC milling and turning), machine tool technology, automated manufacturing, additive manufacturing (including materials and metallurgy), glass manufacturing, ISO/quality assurance, Lean, Project Management Associate certification preparation, various OSHA and safety training, Coordinate Measurement Machine (CMM), Geometric Dimensioning and Tolerancing (GD&T), routine maintenance, CAD/CAM, 3D modeling. Colleges with the infrastructure as well as regional and industry-specific needs for programs in this area include: UW, Eastern, Western, Central, Casper, LCCC and NWCCD.

Digital / Technology - A collaborative effort is underway to develop a 2-year software development degree with clear pathways to a 4-year degree at UW in response to statewide and national demand for software developers across all industry sectors. All of the state's higher education institutions, along with international and industry partners (Wyoming based businesses) have contributed to this initiative; an initiative that will catalyze additional program development in areas such as artificial intelligence, machine learning, and cyber security. Development and offering of short-term IT certificates to high school students through the community colleges can fill immediate workforce shortages and provide a seamless pathway onto the University.

> ***Areas of Collaborative Focus:*** UW School of Computing, Software Development, Applied Programming Cybersecurity, Data Analytics, IT industry certifications (Microsoft, AWS, Other), GIS, Financial Technology including Blockchain, low-voltage fiber optics, and leveraging digital processing power and storage to enhance research opportunities across the state. Colleges with the infrastructure as well as regional and industry-specific needs for programs in this area include: UW, Western, Central, LCCC, NWCCD and Northwest.

Healthcare– Health program expansions are necessary to ensure respiratory, emergency, and rehabilitative expertise and training is available across the state. This industry represents significant opportunity for economic growth and diversification. From direct provider/clinician job opportunities, to manufacturing, advancements in medicine, and telehealth, many opportunities exist. All community colleges in the state provide essential workers for the healthcare industry in their area and all will participate in programmatic enhancements in this industry sector.

> ***Areas of Collaborative Focus:*** Expansion of nursing programs, increased capacity for respiratory therapy, radiology, emergency medical professionals, and improving and enlarging the ability to offer short-term medical training across the state via mobile units and telehealth methodologies. Colleges with the infrastructure as well as regional and industry-specific needs for programs in this area include all the colleges and the University.

Key Metrics:

Increased output of graduate (credential holders), post-secondary education attainment rates, overall increase in qualified workforce, etc.

Total Funding Request: $27.57M

Notes:

It is understood that American Rescue Plan (ARP) funds are time-limited and not a source of on-going funding for programs; however, in this instance, in addition to the significant one-time computational infrastructure expenditures, the ARP funds would be used as initial seed funding to jump start the program and accordingly when the ARP funding expired, the program would be transferred to other funding (i.e., self-generated revenue, philanthropic/private donor support, etc.).

			WIP Funding
Salary	***Base Salary***	***Months Worked***	
Faculty			$ 1,626,112.00
Staff			$ 1,347,111.00
Graduate Student			$ 253,345.00
PT/Student			$ 369,000.00
Total Salary			***$3,595,568***
Fringe Benefits	***Rate***		
Full-Time Faculty	42.100%		$684,593
Staff	49.900%		$672,208
PT/Students	2.800%		$17,426
TOTAL, Fringe Benefits			***$1,374,227***
TOTAL, Salary & Fringe			***$4,969,795***
Services/Collaborators			
Professional/Collaborator			$651,180.00
Consultant/Vendor			$314,627
TOTAL, Services/Collaborators			**$965,807**
Travel			
Travel Expense			$242,000
Lodging, Food, Mileage			$122,000
TOTAL, Travel			**$364,000**
Supplies			
Lab Supplies			$57,400
Office Supplies			$246,715
Other Supplies			$225,878
TOTAL, Supplies			**$529,993**
Data			
SBDC			$25,455
CBEA			$75,000
IMPACT			$22,500
TOTAL, Data			**$122,955**
Other Expenses			$226,400
TOTAL, Direct Costs (in MTDC)			***$1,982,755***
Other Direct Costs (not included in MTDC)			$4,867,673
TOTAL, Other Direct Costs (not in MTDC)			***$4,867,673***
Total Direct Costs			**$12,178,739**
Indirect Costs		**34.00%**	**$2,485,762**
TOTAL PROJECT COSTS			**$14,664,501**
TOTAL Award			**$14,664,000**
Difference			**-$501**

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