Strategic Workforce Initiative (SWI) Proposal
Information Technology (IT) WEB Development

Partnership—Weber State University (WSU), through the College of Engineering, Applied Science & Technology (EAST) and the School of Computing, a departmental unit within the college, is applying for Strategic Workforce Initiative funding for a cooperative IT pathway among the following education partners:

- Weber State University—Dean David Ferro, College of Engineering, Applied Science & Technology; Dr. Allyson Saunders, Associate Dean; Dr. Brian Rague, Department Chair, School of Computing
- Davis Technical College—Mike Bouwhuis, President; Kim Ziebarth, Vice President of Instruction; Marcie Valdez, Foundation Director and Grant Administrator
- Davis School District—Jay Welk, CTE Director; Neil Hancey, Skilled and Technical Services; Mike Parker, CTE Information Technology
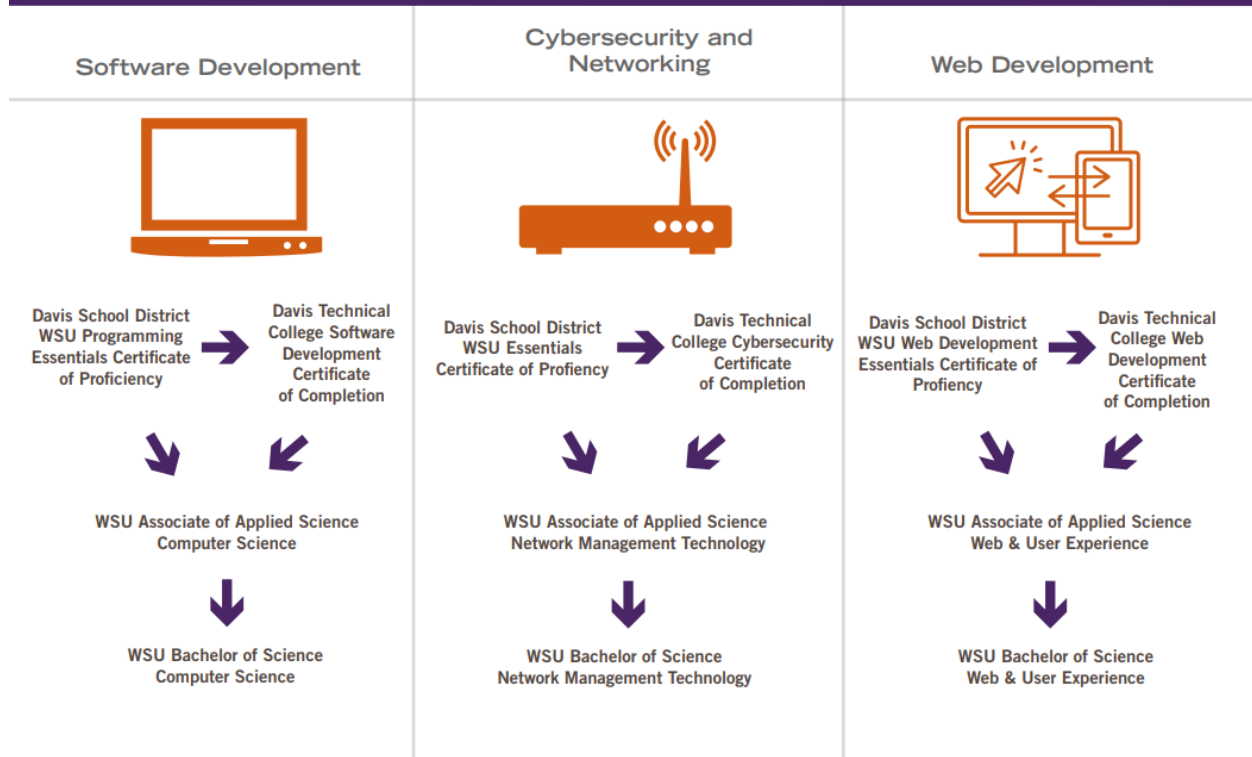
Weber State University, Davis Technical College, and Davis School District are current members in the Governor's Information Technology (IT) Pathway Pilot partnership for the Northern Wasatch Front Region (NWFR). This NWFR partnership covers the following three pathway areas for Information Technology as shown in Figure 1:

1. Software Development
2. Cybersecurity and Networking
3. Web Development

Proposal—Web Development Pathway

This proposal involves the third pathway in the Wasatch Front North Region, in the discipline of Web Development. Last year's approved proposal for WSU and area school district partners was in the area of software development. This proposal is for the web development pathway leading to different associate's degree and bachelor's degree from those obtained through the software development pathway. The following paragraphs describe each partner's role in the web development pathway.

Figure 1: Wasatch Front North Region IT Pathways

Weber State University

WSU proposes to add a 17-credit Web Development Essentials Certificate of Proficiency as a stackable credential. The courses in this certificate will be articulated with Davis Technical College, and these same courses will be offered as concurrent enrollment courses with Davis School District. This WSU Certificate of Proficiency is in the initial approval stages and is undergoing further review through appropriate curriculum channels. Currently, WSU offers the following courses as concurrent enrollment through Davis School District that would apply towards the 17-credit Web Development Essentials Certificate:

WEB 1400 – Web Design and Usability (3 credits)
CS 1030 – Foundations of Computing (4 credits)
CS 1400 – Fundamentals of Programming (4 credits)

The following courses are proposed concurrent enrollment courses to match Adobe Certifications currently offered to Davis School District students:

WEB 2200 – Image Editing (3 credits)
WEB 2210 – Computer Illustrations (3 credits)

WSU's Web and UX (Web/UX) program offers certificates of proficiency and associate's and bachelor's degrees, providing a number of entry and exit points for students with each successive step. This proposed pathway will achieve two goals of the Strategic Workforce Initiative: (1) provide students access to an advanced degree and associated higher wages, and (2) prepare students with skillsets that allow for earlier access to available employment through internships. WSU is already a participant of an SWI with Davis School District in the area of Programming and Software Development (Computer Science.)

WSU would require an instructor/coordinator to teach Web and UX at WSU and to work with Davis School District to assist an expected increasing number of students in successfully completing the Web Development Essentials certificate (through concurrent enrollment) while in high school. Thus, high school students could complete this 17-credit certificate from Weber State University while attending high school. Moreover, students will have 17 of the 40 major course credits required for the Web and UX Associate of Applied Science degree. These students can be even further ahead in their degree pathway if they take other general education concurrent enrollment courses such as English and mathematics. This instructor would also coordinate articulated courses with Davis Technical College.

Davis Technical College

Students in the Davis Technical College Digital Media Design program are prepared for employment as web developers capable of image editing, graphic design, video production, search engine optimization, and animation. Students in this 1,200-hour program can earn up to 30 industry credentials, providing third party validation of knowledge and skill, thus increasing employability.

While the program boasts an 88% job placement rate, student enrollment is limited by the number of faculty members, impacting the pipeline to industry and educational growth opportunities for students. The College would require another faculty member who will be responsible for instruction, student advisement, and development of industry relations, contributing to student externships and placement opportunities.

Davis School District

Davis District provides Adobe Certified Associate testing in each of their 10 high schools. The cost for each school is $3,400 per year. Those licenses include unlimited practice and certification exams. Students can test in Photoshop, Premiere Pro, InDesign, and Illustrator.

Web Development Student Opportunities—The goal of this proposal is to connect more high school IT students with the opportunities associated with the pathway and to help these students complete the first Stackable Credential in this high demand area while in high school. Web and User Experience recently experienced a major revision in the degree to meet industry needs and is a growing program.

Stackable Sequence of Credentials—To meet the growing demand for IT professionals, students are encouraged to start early in IT education classes in secondary schools. Figure 2 contains the educational and employment opportunity IT pathways for Davis School District, Davis Technical College, and Weber State University. High school students can take Web Development concurrent enrollment courses that are applicable towards the proposed Web and User Experience Web Development Essentials Certificate of Proficiency. Students are also able to complete courses at Davis Technical College in the Digital Media area, which can apply towards the Digital Media

Certificate at Davis Tech and/or the Associate of Applied Science degree in Web and User Experience at Weber State University. This AAS degree is a significant step towards the Bachelor of Science degree in Web and User Experience. With stackable credentials started in high school and completed at Weber State University or Davis Technical College, these students can successfully realize a career as IT professionals and obtain employment at each credential level.

Web Development
Educational Pathways

Davis School District

WSU Web & User Experience Essentials Institutional Certificate

JOBS

Data Entry Keyers
Computer Operators
Computer User Support Specialist

Davis Technical College

Digital Media

JOBS

Web Developer
Animator
Videographer
Graphic Designer

Weber State University

Associate of Applied Science Web & User Experience

JOBS

Web Developer
Junior Programmer

Bachelor of Science Web & User Experience

JOBS

Computer Programmer
Computer Occupations, All Other
Multimedia Artists and Animators

Table 1 lists many possible courses in Davis District high schools leading to IT Web profession.

Table 1: Davis School District Web Development Offerings by High School	Bountiful	Clearfield	Davis	Layton	Mountain	Northridg	Syracuse	Viewmont	Woods Cross
Digital Media 1A	X	X	X	X	X	X	X	X	X
Digital Media 1B	X	X	X	X	X	X	X	X	X
Digital Media 2	X	X	X	X		X			X
3D Graphics	X	X	X			X			X
3D Animation	X	X	X						X
Web Development 1				X	X	X	X		X
Exploring Computer Science I	X	X				X	X		X
Computer Science Principles									X
PLTW Computer Science			X						
AP Computer Science	X			X		X			
Programming 1	X	X		X	X	X	X		X
Gaming Development Fundamentals I		X	X	X		X			
Gaming Development Fundamentals II									
Database Development							X		

Table 2 shows the concurrent enrollment courses offered by Weber State University with Davis District.

Table 2: Weber State University Concurrent Enrollment with Davis District	
Davis District High School Courses	**Weber State University Concurrent Enrollment**
Weber State University offers 10 credits of concurrent enrollment with Davis School District, which can be applied to the Associate of Applied Science Degree in Web and User Experience. WSU plans to increase that number to 17 credits enabling high school students to complete the WSU Web Development Essentials Certificate of Proficiency.	
Digital Media 1A	WSU will establish concurrent courses with Davis District
Digital Media 1B	
Digital Media 2	
3D Graphics	
3D Animation	
Web Development 1	WEB 1400, Web Design and Usability
Computer Science Courses That Are Part of Web and UX AAS Degree	
Computer Science Principles	CS 1030, Foundations of Computing
AP Computer Science	CS 1030, Foundations of Computing
Programming 1	CS 1400, Fundamentals of Programming

Table 3 lists Davis Technical College articulations with Davis District.

Table 3: Davis Technical College Articulations with Davis District	
High School Courses	**Davis Technical College**
Davis Tech articulates the following nine coures and over half (630 hours) of the college program from any Utah high school, removing duplication and improving efficiency of student progress and completion.	
Business Web Page Design	Media Design Introduction
Commercial and Advertising Art	Graphic Design Principles
Web Development I	Responsive Web Design with HTML5 and CSS3
Video Production 1	Digital Video I: Adobe Premier Pro CC
Video Production 2	Digital Video II: Adobe After Effects CC
Advanced Commercial Photography	Digital Photography and Editing
3D Graphics	Animation Principles
3D Animation	Animation Principles

Table 4 shows Weber State University articulations with Davis Technical College.

Table 4: Weber State University Articulations with Davis Technical College	
Weber State University	**Davis Technical College**
Weber State articulates the following courses with Davis Tech, equaling 14 credits, which can be applied to the WSU Associate of Applied Science Degree in Web and User Experience.	
WEB 2080, Database Applications	BTEC 1153 or 1154, Database Applications
WEB 2200, Image Editing	DMDC 1025, Adobe Photoshop CC – Basic
WEB 2300, Video Editing	DMDC 2010, Digital Video 1: Adobe Premier Pro CC
CS 1030, Foundation of Computer Science	ITEC 1000, Introduction to Information Technology and ITEC 1031, Software Development Fundamentals or ITEC 1100, Introduction to Information Technology and ITEC 1031, Software Development Fundamentals
CS 1400, Fundamentals of Programming	ITEC 2842, Java Programming Fundamentals or ITEC 2877, Visual C# .NET

Industry Support

Department of Workforce Services (DWS) ranked Digital Media Design a 5-star occupation. This ranking is indicative of a strong employment outlook for this high wage field. DWS data shows 100 openings per year in the Ogden-Clearfield and Salt Lake Metropolitan Service Areas. Annual growth is projected to be 5%. Increasing enrollment capacity will allow Davis Tech and WSU to better meet industry demand.

In 2016, Utah Technology Council reported that 70% of technical companies are having to recruit out-of-state talent to Utah and more than half say it is difficult to get talent to relocate to Utah. 25% of responding companies have opened offices outside of Utah in order to get technical talent, resulting in the export of numerous $60K-$160K jobs. Obtaining and retaining good web design and development personnel is commonly among the top challenges faced by small and emerging businesses. Industries considering locating in Davis and Morgan Counties may consider other areas with a higher population of a trained workforce. Existing industries may have limited growth capability if they are unable to deliver products and services. Equally important is the unrealized potential for family-sustaining jobs that support our economy.

The WSU Web Development Advisory Committee and local industry have affirmed support for this proposal by supporting jobs and internships early in a student's educational path. Support of the project is wide ranging, from relatively small, privately held organizations, to large international firms and aerospace industries.   The following are some quotes from local industry leaders affirming support for this proposal.

Hill Air Force Base, Norm LeClair, Chief, Workforce Development Branch, stated that "Software engineering is a tough one for us.   We can hire in this series most easily if the title of the degree includes computer science somewhere within it (e.g. Computer Science, Software Engineering disciple, or any combination that you can dream up).   This has to do with how AFPC interprets degrees.   I can provide more insight into that at a later date.   It also depends on the CIP code chosen for the degree.   We have to have one that is on SAF/AQR's approved list. So, assuming all of that works, we can hire up to 50 students a year with the course content that arises from a CS disciplined approach to SW engineering."

Imagicom Corporation, Sean Stromberg stated, "Imagicom Corporation has worked with and will continue to work with the Weber State University School of Computing . . . . "

HQ, Adam Hellewell, "HQ plans to hire 5 - 10 employees in software engineering in the next year. "Currently, we have 10 number of employees in software engineering, mobile, and web development." They also plan to work closely with the WSU School of Computing."

HQ, Zarin Ficklin, "Internships are a great way to mutually test the waters. We've hired web developers, mobile developers, and web designers from Weber State. In fact, the majority of our team has come from Weber State."

Borsight Inc., John Allen, Director of Engineering, stated that "Borsight Inc. (has worked and will continue to work closely) with the Weber State University (WSU) School of Computing and plans to hire 3-5 employees in software engineering in the next year. Currently, we have 8 number of employees in software engineering, 8 in system engineering, and 6 in cybersecurity."

Marketstar, Christopher Wall stated, "Marketstar has worked with Weber State for many years and recently has committed to Weber State to increase our support of the school through mentorship and

networking opportunities, internships and direct hiring and placement efforts. Marketstar has specifically focused efforts on the students of the Computer Sciences program. We have found that Weber produces some very quality potential employees."

Since the start of the Marketstar Launch program in the Fall of 2016, "we have placed 9 students in permanent CS career positions within our organization. Marketstar has committed to continue to source our Entry Level development and software technology employees, whenever possible, from Weber State." Here are a couple of comments from managers at Marketstar about the quality of WSU students:

"The external candidates I've interviewed thus far have just been OK. Some of them have had applicable experience but not the drive and personality like the interns we have now. The skills our interns are bringing to the table are often times more applicable and all-encompassing than those who have previous experience with another company." -- **Trevor Thompson, Sr. Manager - BI**

"We've had to make some changes in the department based on voluntary attrition, and some involuntary attrition. The interns we have had in, have been tremendous in doing what we need them to do, but also bringing new ideas." -**- Phil Mickey, Sr. Manager – Marketing**

U.S. Department of the Treasury, Mike Halverson—The U.S. Department of the Treasury has a distinguished history dating back to the founding of our nation. As the steward of U.S. economic and financial systems, Treasury is a major and influential leader in today's global economy. They have over 100,000 employees across the country and around the world. The IRS Recent Graduates Program affords developmental experiences in the Federal Government intended to promote possible careers in the civil service to individuals who have recently graduated from qualifying educational institutions or programs. Selectees are placed in a dynamic, developmental program with the potential to lead to a civil service career in the Federal Government. Following the successful completion of program requirements, applicants may be considered for non-competitive conversion to a career-conditional or term appointment.

According to Mike Halverson, Chief, Compliance Development Branch, Compliance Domain, The Internal Revenue Service, has a significant presence in the Ogden area. The IRS would like to hire 10 or more individuals who meet the following criteria in the greater Ogden area.

"Program requirements include but are not limited to successful completion of at least 1-year of continuous service; completion of at least 40 hours of interactive training; demonstration of successful job performance; and meet the qualification standards for the position to which the Recent Graduate may be converted. If selected, applicants will be placed in a position as an Information Technology Specialist, GS-2210, Career Ladder 5/7/9/11/12 in the IT Division. Open to U.S. Citizens who are Recent Graduates and have completed a degree or certificate from a qualifying education institution within the previous 2 yrs. Students who are within 9 months of graduating may apply. The pay range is $32,318.00 to $69,460.00 / Per Year. "

Board of Regents Support—The Board of Regents will send a separate message of support.
USTC Support—Utah System of Technical Colleges will send a separate message of support.

IT Workforce Needs—Table 5 illustrates the number of Utah job openings and wages for job titles at the various levels of education.

Table 5: Utah IT Employment Needs and Wages (Source: DWS)					
Stackable Education	**Job Title**	*Projected Annual Statewide Job Openings (2014-2024)*			**Median Annual Wage**
		2014 Employment	**2024 Employment**	**Total Annual Openings**	
WSU Web Development Essentials Certificates of Proficiency	Data Entry Keyers	4,130	4,700	110	$30,560
	Computer Operators	330	310	0	$40,880
	Computer User Support Specialist	7,800	11,250	450	$42,420
Tech College Certificate of Completion in Digital Media Design	Web Developers	2,120	3,290	140	$55,910
	Animators	310	390	20	$59,380
	Graphic Designers	3,120	4,040	170	$44,860
	Videographers	240	320	20	$50,320
WSU Associate of Applied Science	Junior Programmer	DWS data not available – this position leads to computer programmer position			
	Web Developers	2,120	3,290	140	$55,910
WSU Bachelor of Science	Multimedia Artists and Animators	310	390	20	$59,380
	Computer Occupations, All Other	2,660	3,530	120	$72,540
	Computer Programmers	3700	4,480	170	$77,530

Funding Request Items—The budget requested to support this proposal is listed in Table 6.

Table 6: Budget On-going Funding	
Weber State University	
Funding Need	**Budget**
Faculty Position A faculty position to bridge the gap of lack of qualified IT teachers in the Secondary Schools. This person would **a.** Facilitate the training for Web Development concurrent enrollment high school instructors. b. Teach a minimum of half time (four classes) at the university to offset the increased demand at the university level. c. Advise secondary students in pursuing additional educational step (AAS Degree) and employment opportunities.	$120,000
Student Training—Since employers use a broad range of technologies including over 200 software programs and multiple platforms, students need individualized training that gives students the opportunity to obtain software, platform, and technology skills that are unique to employers. This money covers the cost of students' access to IT Web Development training.	$15,000
Davis Technical College	
Funding Need	**Budget**
Digital Media Design Faculty Faculty will increase program capacity and the pipeline to industry and continuing education. This individual would be responsible for • Instructing students (30 hours per week) • Student advisement, and development of industry relations, contributing to student externships, and placement opportunities (10 hours per week)	$120,000
Davis School District	
Funding Need	**Budget**
Industry Certifications: Davis District provides Adobe Certified Associate testing in each of their 10 high schools. The cost for each school is $3,400 per year. Those licenses include unlimited practice and certification exams. Students can test in Photoshop, Premiere Pro, InDesign, and Illustrator.	$34,000
Total On-Going Funding	**$289,000**