RevUp Montana Project Executive Summary

USDOL's $25 million investment in Montana focused broadly on two big picture goals: (1) improving student return-on-investment[1], and (2) reducing the "skills-gap" reported by employers who describe being unable to find workers with the competencies needed to fill positions. Through a range of initiatives the project aimed to stimulate both incremental and systemic transformation. Systemically the project sought to unify the workforce development efforts of 13 public, community and tribal colleges and the state's Department of Labor and Industry (DLI), increase involvement of businesses in program design, and provide cross-agency wrap-around services to job-seekers. At the programmatic level, the project targeted programs in nine trades-oriented occupations in the manufacturing and energy industries[2], aiming to stimulate programmatic enhancements and fundamental changes in how those programs are offered to improve their value proposition to students.

Achievement of USDOL Metrics

	USDOL Standard Performance Metrics	Project Goals from Grant Application	Project Actual	% of Goal Met
1	**Total unique participants served** *USDOL ultimately did not approve of including coached students as "participants", nor did they allow the adjustment of project targets to reflect this determination*	3,419 *In Programs: 2,451* *Through Coaching: 968*	7,219 *In Programs: 5,186* *Through Coaching: 2,429*	*Programs: 152%* *Coaching: 251%*
2	**Total number of participants earning credential** *USDOL includes third-party credentials*	2,439	1,775	73%
3	**Total number of participants who have completed a TAACCCT funded program**	2,329	1,374	59%
4	**Total number of participants employed after grant-funded program of study completion** *Only includes participants not employed at time-of-enrollment (no wages in quarter of entry)*	175	780	446%
5	**Total number of participants retained in employment after grant-funded program of study completion** *Only includes participants not employed at time-of-enrollment (no wages in quarter of entry)*	131	466	356%
6	**Total Number participants completing credit hours**	6,921	7,920	114%
7	**Total number of participants enrolled in further education after grant-funded program of study completion**	759	301	40%
8	**Total number of participants still retained in their program of study**	585	908	155%
9	**Total number of participants employed at enrollment who receive a wage increase post-enrollment**	1,744	653	37%
10	**Total # of "non-participants" impacted by changes to developmental math and/or completing an National Career Readiness Certificate (***Not an official USDOL metric***)**	5,970	1,156	29%

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[1] RTI, RevUp's third-party evaluator, recently completed a return on investment (ROI) study that indicates it takes the average Montana two-year graduate 13+ years to earn back in wages the actual cost of their education, including the opportunity costs of foregone wages, and the average non-graduate - 7+ years to recuperate their costs. More information on calculations of MT student ROI can be found in RTI's ROI MEMO, Results for the Return on Investment in 2-Year College Credentials and in RevUp's The Case for Transformational Change and Final Evaluation of RevUp's Apprenticeship Initiative Part II reports.

[2] A complete list of colleges and the specific initiatives in which they participated is included in the Programmatic Initiatives synopsis that follows this Executive Summary.

Analysis of Incremental Change Objectives

Incremental change objectives are defined (Reigeluth, 1994) as those that improve upon processes, instruction and/or services within the *existing* paradigm of two-year institutions in Montana.

	Objective	Project Highlights
1	**Modernize Program Equipment**	$6 million invested in new training equipment – in support of advanced manufacturing, CDL, diesel technician, energy technician and welding training programs.
2	**Initiate or Enhance Needed Programs ("industry driven")[3]**	17 programs were initiated (an additional 8 programs were made available to students through course-sharing agreements) and 22 programs were enhanced during the project period in welding/fabrication, diesel & energy technology, CDL, industrial safety, advanced manufacturing, and entrepreneurship. At least 571 employers were engaged in the project including 170 site visits to businesses by project personnel.
3	**Enhance Retention-Focused Advising[4]**	**Coaching –** The retention rate for coached students (N= 2,429) was 9.3% higher than for all other students during the project period. Internal analysis demonstrated a return-on-investment for all institutions, including substantial net revenue increases in some cases (e.g. Missoula College - $3,847,668/cohort) for colleges that engaged in the service. **Workforce Navigators** (WFN) – Applying an "intrusive"/proactive case-management model, fall-to-fall retention rates in RevUp programs averaged 117% of all two-year programs, the student award rate tripled, and some colleges witnessed significant completion rates increases while decreasing time-to-completion (36% for F'14 cohort).
4	**Increase use of Work-based Learning and Apprenticeship[5]**	New apprenticeship tracks were created in electrical technology, welding and metal fabrication, and energy technology; GFC MSU/City College and the Department of Corrections initiated a pre-apprenticeship program in welding for inmates at the women's prison; City College also entered into formal apprenticeship pathway agreements with the Montana Electrical JATC. Analysis of a **new NWCCU-approved, competency-based, degree-bearing model** with benefits to all stakeholder groups is very promising (e.g. cost differential of $96,000 for students) but remains un-implemented.
5	**Increase Online/ Hybrid Course Opportunities**	New online/hybrid programs were created at MSUN, Missoula College, Helena College and Flathead Valley Community College. FVCC created the bulk of new courses. 3 new hybrid advanced-manufacturing pathways (reached students from Missoula College & MSU Northern) and provided a foundation of new courses for course-sharing.

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[3] More information about RevUp programs can be found in RevUp Programs synopsis that follows this Executive Summary and more comprehensively in the Final Evaluation of RevUp's Programmatic Initiatives report.

[4] More information about coaching and WFN can be found in the Workforce Navigator and Coaching synopsis, and in the Final Evaluation of RevUp's: Workforce Navigator and Coaching initiative reports.

[5] More information about Course Sharing can be found in Apprenticeship synopsis; Final Evaluation of RevUp's Apprenticeship Initiative Part I report which discusses WBL activities completed during the project; Final Evaluation of RevUp's Apprenticeship Initiative Part II report which outlines provides financial analysis of different models of apprenticeship, and; Final Evaluation of RevUp's Apprenticeship Initiative Part III report which outlines the process of gaining accreditation for competency-based apprenticeship models.

Analysis of Transformative Change Objectives

Transformation shifts are defined (Reigeluth, 1994) as those that improve upon processes, instruction and/or services sufficiently to transform the current educational paradigm into a *new* one.

	Objective	Project Highlights
1	**Creation of "Stacked Credential" Programs[6]**	*Research by our third-party evaluators indicate both credential types have labor market value and that these "early-wins" for students seem to increase the likelihood of persistence to obtain higher-level degrees, perhaps by building confidence (RTI RevUp MT Interim Report).* **Industry-recognized Credentials** – IRCs were embedded into 35 programs, providing students with competency-specific credentials accrued as they matriculate through courses. **Certificate of Technical Studies (CTS) –** Many colleges adopted CTS to acknowledge students that complete a semester in good standing. While this is not a desirable stopping point, it is a stopping/pause point for many students. Highlands and GFC have automated awarding this to appropriate students (no fees or application) which means that students who leave unexpectedly still have a value-added credential to peddle in the labor market. As an example of the potential impact, GFC MSU increased its award rate from 25% to 83% between '15-'16. Five institutions are actively awarding these certificates.
2	**Course Sharing[7]**	RevUp aimed to create courses and programs that would be shared between a **"teaching college"** and **"enrolling institutions"**. A students' native institution would retain its transcripting role - enabling seamless use of financial aid. The initiative lacked strong institutional support and was delayed due to a number of factors. Roughly a dozen students were able to successfully make use of the opportunity, though similar opportunities are being adopted in the delivery of four healthcare programs in HealthCARE Montana.
3	**Local Partnership with MT DLI Job Service One-Stops for Recruitment and Braided Funding[8]**	**Workforce Navigators** were tasked with working closely with Job Service (and other point-of-entry organizations) to recruit appropriate clients and provide ongoing braided financial and other supports across agencies. Impacts included: (1) a four-fold increase in referral-to-enrollment rate; (2) program enrollment that increased 24% over the project period during an overall decline of 13% in all other programs (comparing '13 to '15). The support of a WFN involved in active case management seems to have reduced time-to-completion from 6.8 terms to 4.4 terms for graduates (Fall '15 Cohort). Analysis suggests that navigators that focused on JS recruitment drove increases of at least a $130,000/yr. in increased revenue (tuition, fees and FTE allocation) to institutions on average through added recruitment. While roughly half the institutions found value in the added student/business support and sustained some elements of the WFN positions, only GFC MSU maintained the strong partnership component of the position. MT DLI has indicated interest in integrating the positions into their Job Service sites but they'll need cooperation (data and space sharing) from local colleges to achieve success.

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[6] More information about RevUp programs can be found in Programmatic Initiatives synopsis and more comprehensively in the Final Evaluation of RevUp's: Industry-Recognized Credential and Programmatic Initiatives.

[7] More information about Course Sharing can be found in the RevUp Course Sharing synopsis that follows this Executive Summary and in the Final Evaluation of RevUp's Course Sharing Initiative report

[8] More information about workforce navigators can be found in the Workforce Navigator synopsis and more comprehensively in the Final Evaluation of RevUp's Workforce Navigator Initiative report.

4	**Strategic Collaboration with MT DLI[9]**	RevUp helped catalyze significant increases in interaction between senior leadership at MT DLI and the 2-year system including: the creation of a joint MSM leadership committee, the workforce navigator initiative, and the data sharing described below. **Dr. Kirk Lacy** - The first joint-hire in the U.S. between a college system and a state department of labor; focused largely on the expansion of collaborative apprenticeship models.
5	**Data Sharing with MT DLI[10]**	RevUp enabled the expansion of data sharing agreements between MTDLI and OCHE with two major impacts: **(1) Talent Pipeline Report** – coupling local and state-wide workforce supply and demand has greatly increased the ability for data-based decision making; and **(2) the coupling of student and wage data** offers a better understanding of student ROI and other impacts of postsecondary education on students' labor market outcomes.
6	**Post-employment[11]**	**Short-term Technical Training** – A gaps analysis funded by RevUp highlighted significant opportunities to provide standardized, credential-based, short-term training to industry partners, especially in welding, industrial maintenance, safety, CDL and advanced manufacturing. New WIOA legislation puts pressure on its implementing organizations to find short-term training opportunities to advance the welfare of their clients. These short-term opportunities remain vastly underdeveloped in Montana.
7	**Formalization of Industry Partnerships[12]**	Outreach to the private sector from public workforce development is often redundant and costly for employers. RevUp invested in expanding sector-partnerships to better align efficient communications. Further, the project sought ways to connect these regional conversations to help inform industry outreach efforts occurring through Main Street Montana and the State Workforce Innovation Board (SWIB). While significant momentum was created, MT DLI ultimately deferred adoption of a formalized/unified industry outreach strategy until after they had more time for communication within their agency.

Project Sustainability:

An additional report which reflects on the implementation of large-scale transformative projects in Montana is explored in RevUp's **The Case for Transformational Change** report. All of the RevUp Montana final evaluation reports contain information about plans for sustaining each initiative, where such plans exist.

RevUp - Third Party Evaluation:

RevUp Montana's third party evaluator, RTI, will provide a comprehensive follow-up to their Interim Report by the end of September. Their Final Evaluation will contain their take on each of these initiatives, the role of each participating college and the impacts of initiatives on student outcomes. RTI plans to update some of their Final Report data after further analysis between September and the end of December. They will not charge for those updates.

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[9] More information about this cross-agency collaboration can be found in the Unified Workforce System, Workforce Navigator, Apprenticeship and Formalized Industry Partnership synopses and more comprehensively in the Final Evaluation of RevUp's: Unified Workforce Development System, Apprenticeship I, II, III, Formalized Industry Partnership, and Workforce Navigator initiative reports.

[10] More information about Course Sharing can be found in the Unified Workforce Development synopsis, and in the Final Evaluation of RevUp's Unified Workforce Development Initiative report.

[11] More information about Course Sharing can be found in RevUp Post-Employment synopsis that follows this Executive Summary and more comprehensively in the Final Evaluation of RevUp's Post-Employment Initiative report.

[12] More information about Course Sharing can be found in RevUp Industry Partnership synopsis that follows this Executive Summary and more comprehensively in the Final Evaluation of RevUp's Industry Partnership Initiative report.

RevUp's Programmatic Initiatives

RevUp Programs of Study (as implemented) and Participantion (estimate - 6.20.17)
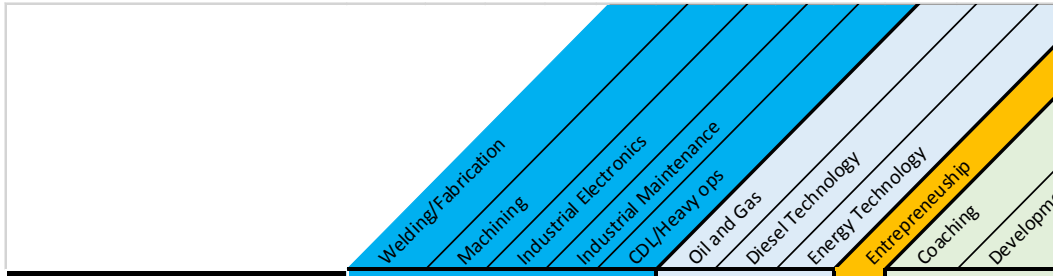
Colleges	Advanced Manufacturing Programs				Energy Programs			Tracks don't count towards participant Total			
Bitterroot College*											
City College	211				115	242		107		465	
Dawson Comm College	54				20						
Flathead Valley Comm College	253	145	138		16					241	
Fort Peck Comm College	55				45		5	15			70
Gallatin College	194	46									
Great Falls College MSU	291				7	41				710	
Helena College	127	85				120					710
Highlands College	102	29			*						
Little Big Horn College	18				35						
Miles City Comm College					123						
Missoula College	137	5			85				27	484	906
MSU Northern	118	3					597			529	

Legend

Implemented as Planned Program of Study	Program Offered via Course Sharing
Offered but not Originally Planned (added during project)	Non-participant grant-funded Initiatives
Planned but not Offered (due to lack of course sharing)	#'s indicate *estimated #* participants served (6.20.17)

Pertcentage of Participant Estimate Met by College by Program

Colleges											
Bitterroot College*											
City College	281%	0%	0%	0%	958%	165%		243%	0%	207%	
Dawson Comm College	57%				20%						
Flathead Valley Comm College	142%		276%		16				0%	130%	
Fort Peck Comm College	153%				90%			43%			125%
Gallatin College	277%	92%							0%		
Great Falls College MSU	233%				7	41			0%	316%	
Helena College	747%	567%				49%			0%		107%
Highlands College	1133%				*						
Little Big Horn College	19%	0%			35	0%		0%			0%
Miles City Comm College					186%						
Missoula College	214%	12%	0%	0%	52%	0%		0%	17%	227%	20%
MSU Northern	118					136%				441%	
Percentage (%) of aggregate goal met	**215%**	**152%**	**130%**	**0%**	**146%**	**86%**	**106%**	**41%**	**16%**	**250%**	**31%**

*outcomes aggregated with Missoula College

Legend

The percentage of the original participant-to-be-served estimates are indicated in white
Programs that did not have participant estimes - #'s (black) represent particiapnts served in these programs

Background: Each college participating in RevUp Montana chose the project initiatives in which they would participate. Each college was asked to supply an estimate of the number of participants it thought it would serve in each initiative and these estimates were aggregated to provide the project's overall Performance Objectives. **Successes:** 17 programs were launched and 22 programs were enhanced during RevUp. Five new programs (orange) were offered through course sharing and 8 unanticipated programs (blue) were launched during the project, including 5 additional CDL programs. On top of outfitting programs with modern equipment and updated curriculum, most RevUp programs also adopted a stacked credential format (a sequence of credentials that each build upon one another and signify the completion of a specific competency or skill). Generally, in this format, credentials can be earned more quickly than traditional postsecondary awards and they accrue as a student moves

Stacked Credential Programs

Colleges	Advanced Manufacturing Programs					Energy Programs			
Bitterroot College*									
City College									
Dawson Comm College									
Flathead Valley Comm College									
Fort Peck Comm College									
Gallatin College									
Great Falls College MSU									
Helena College									
Highlands College									
Little Big Horn College									
Miles City Comm College									
Missoula College									
MSU Northern									

Legend of Integrated Stacked Credential

- Programs that have a CTS award opportunity
- Programs that have integrated at least one IRC
- Programs with integrated IRCs and automated CTS offerings

through their academic program. Two approaches to creating stacked credentials were used in RevUp: (1) integrating industry-recognized credentials (IRCs), and (2) adopting Certificate of Technical Studies (CTS) awards to denote completion of a semester in good standing. Many programs adopted both strategies. RTI, RevUp's third-party evaluator, found in their Interim Report that both IRCs and CTS degrees hold labor market value and that students who earned credentials early in their postsecondary experience seemed to obtain higher-level educational degrees at a higher rate, perhaps due to increases in their academic confidence.

Some colleges (Highlands College, Great Falls College MSU, and Flathead Valley) also automated the award of the CTS credential by removing any application or fee payment processes. This automation appears to be significant for student impacts. In one case (GFC MSU:'15-'16) this automation process resulted in adjustment of the student award rate upwards from 48% to 83%.

Challenges: RevUp consortium colleges intended to offer 14 new programs to students through course sharing that were not launched. Delays in implementing course sharing and a decision to limit the pilot to a few institutions ended some colleges' participation in the course sharing initiative.

While some colleges expressed they believed the CTS "off-ramp" would encourage students to leave college after just a semester and potentially negatively impact the college's reputation with employers; other colleges recognized that a significant percentage of students do not complete their studies in a linear fashion and believed that adding additional stages of recognition would help students' transient entry into the labor market and ease their re-entry into postsecondary through PLA.

Colleges that didn't add CTS degrees into programs included Helena College, Gallatin College and Missoula/Bitterroot Colleges. Both Bitterroot and Missoula Colleges aggressively sought approval to add the CTS award into their mix of educational credentials but those approvals were denied by their flagship university.

There is great variance in the characteristics of IRCs. The IRCs piloted during RevUp as well as their impacts are detailed in the full **Final Evaluation of RevUp's Stacked Credential** report. In some cases, most notably in welding, colleges were able to better align their collective programs to one another's' learning outcomes by agreeing to integrate common IRC frameworks. In most cases this meant minor adjustments to course content or sequence.

RevUp Coaching Initiative

What was the initiative? As part of the $25 million RevUp Montana initiative, five MT colleges provided coaching services to their students in an effort to improve student retention rates. InsideTrack's, an Oregon-based provider of coaching services, official goal was to increase student fall-to-fall retention by 3% over each institution's historic retention levels. The price of the services was $1.89 million over 3 years.

InsideTrack coaches contacted students by phone, email and text (starting as early as possible in their academic career), helping identify individual barriers to each student's success and assisting students in proactively addressing those barriers. Coaches continued outreach periodically throughout the student first term. InsideTrack customized services to each institution with coaches connecting students to personnel at each campus that could provide salient direct face-to-face assistance. InsideTrack also helped analyze information gathered from students to help institutions identify areas where students are describing common struggles.

What were the results? 2,429; mostly first-time, full-time students; were coached between November 2013 and December 2016 which included 20,993 contacts made with students. The cost per coached student was roughly $781. Coached students were retained at a rate that averaged 9.3% higher than non-coached students during the time period (4.6% higher than historical rates) equating to an additional 335 students retained and generating an estimated additional $6.25 million in revenue across the five participating institutions or an average of $2.31 in tuition, fees and FTE-based revenue for every dollar invested in coaching.

	# FT/FT Students	Retention Rate Average*	Students Retained Semester 2	Tuition, fee and FTE per semester	$ Generated FT/FT Semester 2	Students Retained Semetser 3&4	$ Generated FT/FT	Students Retained Semester 5&6	$ Generated FT/FT	Total Revenue - 3 Cohorts	Total Revenue Difference	Total Cost ($720 per FT/FT student)	Net Revenue Differential
Coaching Model													
City College	256	56.60%	145	$3,305	$478,881	145	$957,763	79	$523,098	$5,879,225	$705,148	$552,960	**$152,188**
FVCC	232	63.30%	147	$3,170	$465,534	147	$931,067	86	$545,205	$5,825,416	$1,484,295	$501,120	**$983,175**
GFC MSU	191	67.50%	129	$2,965	$382,263	129	$764,525	78	$463,807	$4,831,784	$1,652,460	$412,560	**$1,239,900**
Missoula/BC	342	71.35%	244	$4,519	$1,102,713	244	$2,205,426	158	$1,424,352	$14,197,472	$4,586,388	$738,720	**$3,847,668**
MSUN	237	66.10%	157	$3,861	$604,853	157	$1,209,705	102	$783,849	$7,795,220	$538,560	$511,920	**$26,640**
Comparison Model													
City College	256	50.77%	130	$3,305	$429,527	130	$859,053	66	$436,113	$5,174,078			
FVCC	232	49.35%	114	$3,170	$362,940	114	$725,879	57	$358,221	$4,341,121			
GFC MSU	191	47.40%	91	$2,965	$268,433	91	$536,867	43	$254,475	$3,179,324			
Missoula/BC	342	51.45%	176	$4,519	$795,159	176	$1,590,317	91	$818,218	$9,611,083			
MSUN	237	62.27%	148	$3,861	$569,775	148	$1,139,551	92	$709,560	$7,256,661			
Total											$8,966,851	$2,717,280	**$6,249,571**
Average											$1,793,370	$543,456	**$1,249,914**
*Historic rate averaged with '14, '15 non-coached cohort retention rate													ROI = $2.30

What are the implications? Despite widely varying levels of impact and differing return-on-investment across participating institutions, the use of professional coaching as a means of increasing student retention appears to be both effective and financially sage. Should the average experiential retention rate increase (+8.3%) be applied to all FT/FT students at Montana's two flagship universities over a three-year period of time, the University of Montana would stand to retain an additional 230 students and increase net revenue by $4,219,029, while Montana State University would retain an additional 597 students and increase revenue by $12,323,994 annually.

Given the breadth of return-on-investment amongst institutions, it is important that all campuses conduct careful analysis; however, the use of professional coaches seems to have both positive outcomes on student retention and be a wise financial investment.

RevUp's Workforce Navigator Initiative

What was the initiative? As part of the $25 million dollar initiative, RevUp Montana sought to pilot new "Workforce Navigator" positions. While there was significant variation in how the positions were deployed, positions were designed to help bridge/align the services of MT DLI Job Services and local two year colleges – often sharing space/time at both agencies. Supporting specific occupational pathways, Navigators helped **recruit** appropriate students from Job Service locations, provided **proactive student supports** (or case-management) to aid in student **retention**, and actively engaged local employers to aid in student **job placement** when they exit training.

What were the results? Programs supported by navigators increased enrollment by 24% (*during a period when overall enrollment in Montana's two-year system declined by 13% overall*); enjoyed a student retention rate 117% of all-other two-year programs (*this equates to approximately 102 more students per year across the 2-year system and roughly $666,830 in tuition/fees and $293,760 in state-allocated revenue per year*); completion rates increased from 37% to 55%; job-placement-rates of students was roughly 80%, and the enrollment-rate of Job Service clients who were referred to college training increased by a multiple of four. Conservative analysis indicates that navigator recruitment activities created an average of $130,750 in additional tuition, fees and FTE per college per year while reducing student costs by $19,711 and their return-on-investment timeline by 4-5 years by reducing time-to-completion by over two terms (F'14 cohort). Over 576 employers were engaged in the project by workforce navigators, including 213 site visits with 88% of businesses surveyed saying that students were better prepared than when RevUp started. Wage data is preliminary but the average student's wages rose by $1,965 in the quarter after graduation in comparison to the quarter preceding their enrollment or roughly $7,858 annually[13]. RevUp students that did not obtain an educational degree and exited prior to Fall '16 saw average wages increase by $1,133 or roughly $4,532 per year, roughly 4-times higher than the average non-graduate wage increase ($1,171/year across all 2-year programs)[14].

Table 1: Analysis of FT Fall '15 Student Cohort	Completion Rate (150% of time) in RevUp Tracks	% earning an AAS	% earning a Certificate	% earning a CTS	% earning an IRC	% not gaining award that did earn IRC	Time-to-completion for average AAS grad	Approximate Cost to Student (in PV)	ROI (yrs)
Historical ('01-'13)	37%						6.68 Terms	$57,032	13
'15 RevUp Cohort Total	43% 116/272	17% 46/272	16.5% 45/272	9% 25/272	39% 106/272	25% 39/156	4.3 Terms	$37,321	8
'15 RevUp cohort w/ comprehensive WFN	55% 84/150	24% 36/150	25% 37/150	7% 11/150	42% 63/150	45.5% 30/66	4.4 Terms	$39,716	9

Historical rates as calculated by RTI, RevUp's third-party evaluator. Colleges considered to have comprehensive (recruitment, case-management, job placement) navigator services (Fall '14-Fall '16) include: Gallatin, GFC MSU, FVCC, Missoula, Highlands, Helena College (Fall '14-Spring '16) and City College (Summer '16-Fall '16)

What are the implications? The WFN position pilot in Montana demonstrated positive impacts for all major stakeholders. Under WIOA the Department of Labor and Industry and its partners are incentivized to partner more effectively with credential-bearing training institutions. Montana's Commissioner of Labor and Industry requested that RevUp staff create a workforce navigator training that could be used to train DLI staff in how to work collaboratively with their 2-year college partners. In response, a 12-hour interactive training was created and may be used to help train DLI workers in MT in the future. At this point only one college (GFC MSU) has continued a collaborative partnership with their local Job Service. DLI will need cooperation (data and space sharing) from local colleges to achieve success in bridging services.

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[13] Students with no wages reported in both the quarter prior and quarter after exit were not included in this analysis
[14] Based upon data compiled by RTI for the years 2001-2010.

RevUp's Apprenticeship Initiative

What was the initiative? As part of the $25 million dollar initiative, RevUp Montana sought to expand apprenticeship and pre-apprenticeship opportunities in diesel, industrial electronics, welding and machining.

What were the results? Three new apprenticeship programs were established in partnership with colleges in electrical, welding and energy technology programs. A pre-apprenticeship program was created in conjunction with Montana women's prison in welding/fabrication. Articulations were formalized, providing journeymen Lineman and Wireman apprentices credit (via prior-learning-assessment) when entering college degree tracks at MSUB.

New Collaborative Apprenticeship Models: Four new partnership models were explored that have a role for a college, and employer and the state. All collaborative apprenticeship models show considerably better return-on-investment for students than traditional college AAS programs and hold additional advantages for employers and businesses.

	Model 1.A. Pathway 1: CTS degree	Model 1.B. Pathway 2: CAS degree	Model 2 Concurrent	Model 3 Employer-based College Program	Model 4 Employer-based, College Assessed	Traditional College Program
Wage cost to sponsor	$57,840	$47,789	$66,978	$66,978	$66,978	$0
Total cost to sponsor	$57,840	$47,789	$66,977	$66,977	$88,451	$0
Credential costs to student	$7,935	$15,373	$13,218	$27,310	$0	$57,032
Wages earned	$57,839	$47,788	$66,977	$66,977	$66,977	$0
Student Cost/Benefit when Credential Gained	$49,904	$32,415	$53,759	$39,667	$66,977	-$57,032
Eligible for Financial Aid?	1 semester	2 semesters	Unlikely	Yes	No	Yes
Advantage to sponsor	Ability to select best students			student doesn't leave community	student doesn't leave community	No cost
Advantage to college (gross)	$4,699	$9,398	$9,398	$27,533	$21,473 (cont. ed)	$30,239
Student earns RA credential +	CTS Certificate	CAS Certificate	CTS Certificate	AAS Degree	No-cost	AAS Degree
Disadvantage to sponsor	student leaves community		Workers need time away from work for coursework		$21,473	student leaves community
Disadvantage to college	best students culled from program			CBE approval	reimbursement	
Disadvantage to student	($7,935)	($15,373)	likely need physical acces to college	($23,267)	degree/credits - maybe PLA?	($57,032)
Yr. in Which Increased Wages = Student Training Costs						
Private Sector Cost/Benefit	($7,936)	($15,374)	($13,218)	($27,310)	($21,473)	($57,032)
Costs accruing to:	student	student	student	student	employer	student
Overall Cost/Benefit	($3,237)	($5,976)	($3,820)	$223	($14,387)	($26,793)

What are the implications? With significant federal and state dollars being invested in the expansion of apprenticeship opportunities, colleges/universities have an opportunity to adapt some traditional programs to incorporate apprenticeship-approaches. By finding robust ways to appropriately assess apprenticeship and award AAS degrees to students completing a registered apprenticeship, colleges can help alleviate concerns about the breadth, quality and transferability of apprenticeship instruction. Colleges that are able to identify ways to integrate all of the AAS requirements into the apprenticeship will be saving workers considerable extra costs and increase the likelihood that they'll obtain their educational degree. This can be achieved by integrating general education requirements/assessments into the learning outcomes of the apprenticeship plan, particularly for those designed as competency-based programs.

The Final Evaluation of RevUp's Apprenticeship Initiative Part II & III, describe the process NWCCU prescribes for establishing CBE apprenticeships.

RevUp's Industry-Recognized Credential (IRC) Initiative

What was the initiative? RevUp Montana aimed to integrate industry-recognized credentials into technical training programs in eight fields across thirteen colleges. IRCs or IRC frameworks provide stackable short-term learning chunks, each tied to a (or a specific bundle of) competencies and each recognized by a unique credential (not-so-unlike a Boy Scout's Merit Badges). This credentialing approach is increasingly considered to have some advantages over traditional college degrees in technical fields, though IRCs vary greatly and have a wide spectrum of characteristics.

What were the results? Across the state, 39 programs integrated IRCs into their curriculum and at least 702 students earned at least one IRC during the course of the project. RTI, RevUp's third-party evaluator, found that IRC had labor market value and obtaining IRCs early in a student's academic career seemed to boost student retention and completion rates. After initial success, certain colleges (MSUN & Helena College) began to integrate additional IRCs (National Association of Railroad Sciences (NARS), NC3, FANUC, Snap-On, etc.). Analysis of the 2015 cohort indicates that a significant percentage of students that did not obtain an educational degree did obtain an IRC (69 students in that cohort). Some colleges also began a more concerted effort to offer IRC modules to businesses looking to upskill their incumbent workers.

What are the implications? There is significant unexplored opportunities to utilize IRC modules as a useful common denominator of K-12, postsecondary and work-based learning, as well as PLA, and competency-based programs (college and apprenticeship). For example, colleges can use IRCs as a foundation for both traditional academic programs and short-term training that serve incumbent workers, allowing easier non-credit to credit articulation, consistent PLA, and increase the value proposition of higher education by offering a host of credential types to students. IRCs might also help bridge the

	Manufacturing Industry IRCs					Energy Industry IRCs		
Bitterroot College	NCCER/AWS	CDL						
City College	NCCER/AWS	CDL				*		NCCER
Dawson Comm College	NCCER/AWS							
Flathead Valley Comm College	AWS	CDL	NIMS	ETA-I	NIMS/ETA-I			
Fort Peck Comm College	NCCER/AWS	CDL				Snap-On, NC3, NARS		
Gallatin College	AWS		NIMS					
Great Falls College MSU	NCCER/AWS	CDL	NIMS	ETA-I	NIMS/ETA-I			
Helena College	AWS	CDL	FANUC			SNAP-On		
Highlands College	NCCER/AWS	CDL	NIMS					
Little Big Horn College	AWS	CDL						
Miles City Comm College		CDL						
Missoula College	NCCER/AWS	CDL	NIMS					
MSU Northern	NCCER/AWS		NIMS	NARS		Snap-On, NC3, NARS		

*Safety Training (City College):	Compliance & H2S Awareness (PEC); 10-hour PEC Basic and H2S Awareness (PEC); 8-hour Heartsaver CPR with AED & Heartsaver First Aid (American heart Association); 4-hour Fall Protection; 4-hour Defensive Driving; 10-hour OSHA 10 (OSHA); 4-hour Pressures and Forces; 4-hour Spill Prevention and Reporting; 8-hour Aerial Work Platform/Rough Terrain Forklift (JLG); 8-hour Confined Space (OSHA); 8-hour Basic Rigging (NCCER); 16-hour Heavy Equipment Operation (NCCER); 8-hour Crane Operations (NCCO)
Advanced Manufacturing (MMEC)	Lean Enterprise Certification, Lean for Office and Administration, Lean product Development, PCQI certification, HACCP training

communication gap between employers and educators. Most colleges seem intent on maintaining the IRCs integrated during RevUp; however, it is important to keep scaling the use of these credentials in order to build a critical mass of recognition and utility both in-state and nationally in order to ensure these credentials maintain labor market value. As a holistic Type 4 credentialing framework, considerable opportunities still exist with Canadian Welding Bureau (CWB) in particular.

RevUp's Course Sharing Initiative

What was the initiative? A key element of the $25 million dollar RevUp Montana initiative focused on increasing access to advanced manufacturing programs by expanding availability of online and hybrid programs, focusing specifically on isolated rural students and others without physical access to a college that offered RevUp's lab-heavy target programs. To provide that access, RevUp aimed to implement a model wherein a "teaching college" would make online coursework available to students at "enrolling colleges" and students would periodically complete lab work at Assessment Centers geographically dispersed throughout the state. A student's native institution would remain their transcripting institution simplifying the student's enrollment, financial aid and transcript processes.

It is currently possible for students enrolled at one institution to enroll in courses at another through "consortium agreements". Course Sharing was seen to have several advantages over this process. (1) Consortium agreements are put in place on a student-by-student basis – making it challenging to scale. (2) There is no revenue sharing in consortium agreements, meaning there is no incentive for colleges to promote the opportunities.

What were the results?   After significant delays in implementation due to a myriad of factors (both internal and external[15]), and a systems-level decision to limit the pilot, cost-sharing and administrative processes were established and in Fall Term 2016 and five programs (machining, industrial maintenance, industrial electronics, diesel technology and entrepreneurship) were made available to students at four enrolling institutions. Roughly a dozen students made use of these opportunities.

Administratively: A **Montana Collaborative Programs MOU** was created and agreed upon that provided guidelines for cost and data sharing. RevUp partnered with WICHE to pilot WICHE ICE, a service that provide the back-end administration for enrollment, data sharing and revenue sharing. Within this framework, colleges more or less split revenue which seems a feasible long-term strategy to sustain course-sharing in Montana.

Programmatically: FVCC, MSUN and Missoula College all completed the development of online/hybrid course offering. FVCC had the lion's share of this work in RevUp, creating three new manufacturing stacked credential pathways. In Fall Term 2016, five programs (machining, industrial maintenance, industrial electronics, diesel technology and entrepreneurship) were made available to students at four enrolling institutions. Roughly a dozen students made use of these opportunities.

What are the implications? While piloting course sharing did not reach near the scale hoped for in RevUp, the model highlighted the potential to expand program offerings, increase student access, reduce student and institutional operational costs and mitigate inconsistent demand for programs across the state by aggregating cohorts, particularly in low enrollment institutions. This seems to have opened up opportunities in TAACCCT IV (HealthCARE MT) in which four programs are actively being shared between institutions, including: medical assistant, surgical technology, pharmacy technician and radiologic technologist. The model offers significant opportunities to expand the breadth of training opportunities to students without forcing them to relocate.

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[15] Policy-level challenges arose that delayed implementation of the proposed state-wide, shared-course model. These challenges included: (1) increased costs and new substantive change policies at NWCCU; (2) gaining USDOL permission-to-purchase and developing a framework to mitigate liability concerns associated with buying equipment through one consortium member (all necessary equipment budget was included in FVCC's budget) that would be used at other institutions; (3) building the buy-in from senior leaders who had differing opinions about the most appropriate model - leading to a need for systemic leadership on the issue to gain consistency and scalability of the model, and; (4) identifying and gaining buy-in to the technical infrastructure required to share student data and revenue between colleges. Due to issues associated with procurement/transfer of equipment, City College felt it could not offer machining-related training and Highlands College volunteered to serve in this function. Helena chose not to serve in any capacity.

RevUp's Unified Workforce Development System Initiative

What was the initiative? As part of USDOL's $25 million dollar grant, efforts were made to align the workforce activities of Montana's Department of Labor and Industry (DLI) and the state's two-year college system. USDOL, in partnership with the US Department of Education, expressed that vast federal resources were being spent across two agencies that worked largely in isolation from one another despite significant overlap in the arena of workforce education to the detriment of job-seekers and businesses who frequently have to interact with both systems to obtain their objectives.

The RevUp strategy to align colleges and the efforts of DLI was fourfold:

1. Hire local, cross-agency **workforce navigators** to help job-seekers/students access resources across agencies with the intent of increasing postsecondary enrollment, retention rates, completion rates and job placement rates through improved services and access to resources;
2. Create cross-agency **data-sharing** MOU's to enable linking student data with wage data (opportunity to create ad-hoc longitudinal data system) and complete the required Scorecard deliverable;
3. Integrate the Governor's Main Street Montana Key Industry Networks (KIN) initiative and RevUp's efforts to expand **sector partnership** as a means of formalizing industry outreach;
4. Integrate the Governor's National Governor's Association work-based learning (WBL) expansion, DLI's apprenticeship expansion and RevUp's interests in **expanding apprenticeship and post-employment opportunities**;
    a. Hire a joint-funded director and develop a "Main Street Montana Leadership Committee" comprised of senior leaders across multiple agencies to oversee these collaborative activities.

Three of the four alignment initiatives are described in other synopses. This synopsis, therefore, addresses just the data-oriented collaboration.

What were the results?   A collaborative workgroup was created to draft a "Talent Pipeline Report". A 76-page pilot report was created for Missoula College with great interest shown by other colleges: Link to Missoula College Report. The report included such data as the percentage of graduates employed, average wages by program and analysis of which industries and fields where workforce demand is likely to grow.

While the report was illuminating on many fronts, RTI, RevUp's third-party evaluator, noted that some descriptions seemed misleading, particularly the suggestion that students recouped their costs in all programs in under a year (analysis did not include students' opportunity costs or those associated with student's loan interest and did not account for the length of time required by most students to complete programs). The report also included little focus on students that did not graduate or gained certificates of less-than-1-year or industry-recognized credentials.

A similar 128-page report was also created that summarized workforce supply and demand across the state: Link to State-wide Report.

What are the implications? The ability to match student data and wages has huge potential for creating an ongoing state-wide longitudinal data system. Such data could be used at the regional and state level to help determine priority industries and pathways in which to invest public dollars with the greatest chance for returns to individuals, the economy and the state (through increased tax revenue). Such data is also important for helping students, advisors and case-managers make informed decisions about which post-secondary training areas align with career and financial objectives.

DLI has discussed providing individual colleges a customized regional report as a fee-for-service in future.

RevUp's Postemployment Initiative

What was the initiative? During RevUp Montana, workforce estimates came to light suggesting Montana will experience a significant demographically-driven worker shortage during the next decade. Montana Department of Labor and Industry (DLI) suggests the gap will be at least 24,000 workers though the skills gap is likely to be significantly larger. Since Montana suffers from relatively low worker productivity (GDP/worker), there is an opportunity to mitigate the impact by "upskilling" incumbent workers; however, institutions are not currently well situated to offer short-term, credential-bearing technical training. RevUp sought to explore and expand opportunities for businesses to access this kind of "postemployment" training.

What were the results?   RevUp hired Thomas P. Miller and Associates (TPMA) to conduct a gaps analysis of needed and available short-term training in the state. The TPMA report concluded that needs existed with approximately 30% of employers reporting unmet needs for short-term training for their employees. Employers expressed interest in the public workforce system developing training programs to increase job-specific knowledge, skills and abilities (KSAs) for their existing workforce. Employers suggested they were willing to pay up to $508 dollars towards maintaining a service of this kind and a willingness to pay specific amounts for training over the next five years (a total of $1.1 million in welding/fabrication, for example).   Specific needs were identified in 4 key occupations: welding/fabrication, CDL, industrial maintenance and industrial safety training.

Analysis suggested that short-term training was financially infeasible on the local level. In other words, local businesses were unlikely to generate enough demand to support a consistent local college program. On the other hand, without consistent offerings, employers are likely to consider looking elsewhere to meet their training needs. Therefore, a centralized approach in which a singular entity marketed specific short-term offerings across the entire state became the focus.

RevUp sought to build the capacity of specific existing college programs by: (1) increasing an entrepreneurial approach (marketing to a state-wide market), (2) enabling mobile training, and (3) aligning training with specific industry-recognized credentials (IRCs). Through partnerships with Great Falls MSU, City College MSUB, Bitterroot College and MMEC, RevUp expanded postemployment opportunities in welding/fabrication (mobile), safety and CDL training (mobile); however, the scope of opportunity remains small and lacks a strong institutional or agency leader. Meaningful progress was not made in the expansion of industrial maintenance.

Further, RevUp staff worked with DLI to create a comprehensive work-based learning platform to help market work-based learning opportunities, including postemployment, to businesses across the state. That platform, however, was only partially completed.

What are the implications? At this point there is little cohesion amongst institutions (colleges, IWT, IRC providers, employers, etc.) that offer consistent credential-based training for incumbent workers. The result is that Montana businesses are generally not aware of the opportunities that exist to partner with the public sector. Generally, business will continue to look to conduct training internally – unfortunately research (Heinrich 2013) has shown this kind of training rarely increases worker productivity) or will continue the costly practice of sending employees out-of-state for training. With WIOAs emphasis on short-term training, clear demand from employers, and opportunities to use IRC modules to frame short-term training – significant opportunities exist to build the productivity of Montana's workforce through short-term training.

Continuing to build a critical mass of institutions (secondary, postsecondary, union, etc.) that utilize the same IRC framework to train incumbent (and new) workers would help raise the willingness of employers to purchase such training as they became more familiar with the associated productivity increases. This will require continued coordination of a central entity to bring partners together to achieve this vision.

RevUp's Formalization of Industry Partnerships Initiative

What was the initiative? In alignment with Governor Bullock's Main Street Montana (MSM) initiative and activities of the State Workforce Innovation Board, RevUp sought to expand the use of sector partnerships as a means of efficiently and formally engaging the private sector in workforce development discussions with the public sector.

What were the results? Sector partnership groups were launched in the Flathead Valley, Butte, Lewistown and three now exist in Bozeman. Opportunities were explored in Billings, Missoula and Great Falls as well. Recommendations were made about how to align the efforts of sector partnership, MSM Key Industry Networks (KINs) and the SWIB. The SWIB did adopt a committee structure that increased the board's ability to play a role in the recommended structure.

Graphic 1: Depicting a structure proposed to align the efforts of Sector Partnerships, KINs, the Governor and the SWIB

Who's participating at each level?

A self-selected group of employers from a given industry within a self-defined economic region. While employers drive top priorities - the group includes requisite support partners that can effectively support/address local issues. In some industries this will also include established representative industry groups.

A state-wide group of employers representing the state's employers within the given industry. Recommendation is that Main Street Montana KINs work continue under the auspices of an existing state-wide employer group.

The federally-mandated and Governor-appointed SWIB is a 35 member board charged with creating policy recommendations for the statewide workforce development system
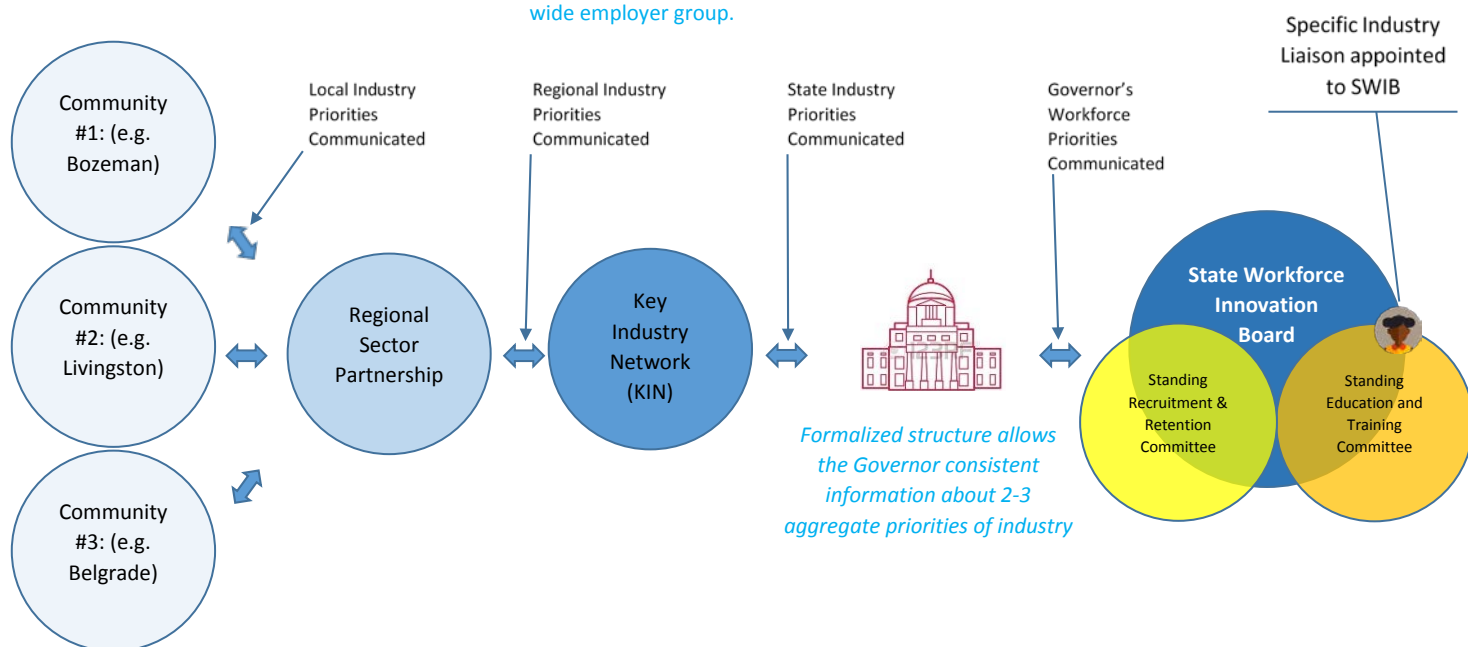
DLI eventually expressed it was not prepared to commit to formalizing business engagement strategies within the timeframe of RevUp.

What are the implications? There remains room to develop a consistent and efficient (formal) mechanism for engaging employers with the myriad players that comprise the workforce development system. Plans to leverage this expertise, particularly that of Megan Lannan of the Livingston Job Service (now a trainer for the Next Generation Sector Partnership team) remain unclear. A consistent and efficient (formal) mechanism for engaging employers with the workforce development system would go a long way in reducing the time burden placed on the private sector by well-intentioned but uncoordinated public-sector partners.

Invitation for Transformative Change

The Case for Transformation Change: RTI, a leading international research firm, recently completed a study that took a more comprehensive view of the costs and benefits of Montana's two-year colleges using actual student wage data from 2000-2015. That study indicates that it takes the average two-year graduate 13+ years to earn back in wages the actual cost of their education. Similarly, the 62% of students will not ever graduate will still take 7+ years to recuperate their costs.

The primary factors that drive this longer ROI are:
- Time: It takes the average graduate 6.8 terms (3.16 years) to complete a 2-year program; the average non-graduate completes 2.8 terms;
- Opportunity Costs: Wage data suggests that students forego significant earnings when they enter postsecondary education. The average foregone earnings are less impactful for "traditional" students (18-24 y.o.) who forego an average of $10,114/year in earnings; but costs ramp up quickly ($16,975/year for 25-34 year-olds; and $23,479/year for 35-49 year-olds). The National Center for Education statistics predicts that by 2020 42% of all college students will be 25+ (Horn, 2015).
- The average cost to students that leave Montana's two-year system without a degree or a certificate is $18,756.

The data highlight that the Montana two-year system is not serving the majority of its students effectively and those that are being served effectively are not being served efficiently.

What Conditions Need to Exist in order for Transformational Change to be Successful? Creating transformational shifts requires that leaders are supported in creating the conditions wherein the collaborative launch of new ideas can thrive. Fortunately, a significant amount of research exists on the subject of what conditions help spur the success of such initiatives[16]. Summarizing that research: leaders from a wide-swath of institutions, a penchant for "systems thinking" and a high level of trust for one-another need to:
- **Gain agreement about the need for change,** including joint diagnosis of the problem and agreement to share leadership of the initiative;
- **Create a sense of urgency;**
- **Gain agreement about what will resolve the challenges;**
- **Commit themselves to prioritize the initiative** (over the long term and to the exclusion of other initiatives) **and communicate zealously about the initiative and it's progress, and**
- **Nurture an culture of ongoing innovation**

What Steps Can be Taken to Create Those Conditions? Distillation of research about the process of undertaking transformative change initiatives in the higher education environment, is suggestive of a two-step process. (1) Build a critical mass of senior-level executives within a broad stakeholder group (e.g. multiple agencies, multiple sectors, etc.) that are committed to the change initiative and amongst whom the conditions described above exist. (2) Build a critical mass of senior-level buy-in at each of the original stakeholders' institutions.

Gaining the necessary buy-in requires designating at reform team (at both levels) to be accountable for implementation of the initiative. This reform team should offer the following services to promote success:
- Technical assistance and professional development that provides secondary institutional stakeholders information on the "why" and the "how of the initiative
- A process that holds senior managers accountable to making progress
- Robust communication that creates meaningful opportunities for feedback

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[16] This synopsis summarizes the 55 studies that undergird RevUp's **The Case for Transformative Change**

More Information on each of RevUp's initiatives can be found in the following reports that are also available on Great Falls Colleges MSU's website:

RevUp Montana Reports:

- The Case for Transformational Change
- Final Evaluation of RevUp's Coaching Initiative
- Final Evaluation of RevUp's Workforce Navigator Initiative
- Final Evaluation of RevUp's Apprenticeship Initiative Part I
- Final Evaluation of RevUp's Apprenticeship Initiative Part II
- Final Evaluation of RevUp's Apprenticeship Initiative Part III
- Final Evaluation of RevUp's Programmatic Initiatives
- Final Evaluation of RevUp's Industry-Recognized Credential Initiative
- Final Evaluation of RevUp's Course Sharing Initiative
- Final Evaluation of RevUp's Unified Workforce System Initiative
- Final Evaluation of RevUp's Formalization of Industry Partnerships Initiative

RTI Third-party Evaluator Reports:

- RevUp Interim Report
- RevUp Final Impact Report
- Results for the Return on Investment in 2-Year College Credentials
- Missoula College Math Emporium: Quantitative Analysis