Maine is IT! Program Evaluation Final Report

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Submitted to:
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U.S. Department of Labor,
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I. Executive Summary

1. *Maine is IT!* Description and Activities

As articulated in the grant application to fund the *Maine is IT!* program, there were 3,851 openings in Maine in 2012 for positions in IT occupations, including computer occupations, with anticipated additional needs of 265 annual vacancies across multiple industries (e.g., healthcare, banking, government). In addition to employment needs across a variety of IT fields, the Maine Department of Labor (MDOL) identified a number of gaps in potential employees' skill levels that could be addressed in an academic setting. These included a need for basic computer skills, expanded internship or workplace experiences, and an overall lack of capacity in existing IT programs to accommodate interested students. To address these gaps in skilled information technology (IT) workers in all 16 counties in Maine, the state's community colleges, led by consortium staff based at Central Maine Community College (CMCC), developed and implemented the *Maine is IT!* program using Trade Adjustment Assistance Community College Career Training (TAACCCT) Round 3 grant funds. The *Maine is IT!* program planned to serve 2,096 unique participants across seven colleges during the four-year grant period.

The *Maine is IT!* program helped to improve IT workers' employability by improving access to IT training opportunities across the state and across a range of industries by implementing a number of evidence-based strategies: (1) creating and enhancing 36 non-credit industryrecognized certifications, certificate and advanced certificate programs, and associate degree programs that allow multiple entry points to support the diverse needs of TAA-eligible workers, veterans, and other unemployed and underemployed workers, led by the Community College Learning and Innovation Collaborative;[1] (2) increasing the number and type of stackable credentials;[2] (3) building new bridges between non-credit and credit courses; (4) standardizing and expanding the award of credit for prior learning (PLA);[3] and (5) introducing innovative approaches to remediation such as online and technology enabled competency-based learning strategies and accelerated time to completion strategies, to improve student success rates.[4] In addition, the program worked to support students through wrap-around Student Navigators[5] and to improve the employability of *Maine is IT!* program graduates by participating in a Dynamic Skills Audit and establishing strong employer partnerships.

2. Evaluation Design Summary

CMCC contracted with ICF in April 2014 to serve as the third-party program evaluation team to study the *Maine is IT!* program. The ICF evaluation team addressed both formative and summative evaluation questions by conducting a longitudinal study of implementation and outcome data and conducting a comparison cohort study using a quasi-experimental design to compare students in IT programs of study to students in Business Administration (BUS)

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[1] Banta, Lunch, Black & Oblander, 1996; Council for Higher Education Accreditation, 2005; Mentkowski & Loacker, 2002; Peterson & Einarson, 2001).

[2] Community College Research Partners, 2008; Van Noy & Weiss, 2010; Jepson, Troske, & Coomes, 2012.

[3] Berrett, 2011; U.S. Department of Education, 2010; Klein-Collins, 2010

[4] Center for Postsecondary & Economic Success, 2011; Alssid, Godber, & Klerk, 2011; Community College Research Center, 2011.

[5] Bahr, 2008; Community College Research Center, 2011

programs of study. The evaluation serves DOL and the seven consortium institutions by systematically assessing the operation and outcomes of the program, and provides feedback to help college leaders sustain program activities and to maximize *Maine is IT!* created activities.

2.1 Implementation Study Design

Guided by the program's logic model, the implementation evaluation sought to generate findings around key areas related to the extent to which project components such as new curricula, expanded programs, enhanced online delivery methods, and student services were implemented as intended by the grant. Specifically, this evaluation addressed four evaluation questions:

1. How was the particular curriculum selected, used, and/or created?
2. How were programs and program designs improved or expanded using grant funds? What delivery methods were offered? What was the program administrative structure? What support services and other services were offered?
3. Was an in-depth assessment of participants' abilities, skills, and interests conducted to select (identify) participants into the grant program? What assessment tools and processes were used? Who conducted the assessment? How were the assessment results used? Were the assessment results useful in determining the appropriate program and course sequence for participants? Was career guidance provided, and if so, through what methods?
4. What contributions did each of the partners make in terms of: (a) program design, (b) curriculum development, (c) recruitment, (d) training, (e) placement, (f) program management, (g) leveraging of resources, and (h) commitment to program sustainability? What factors contributed to partners' involvement or lack of involvement in the program? Which contributions from partners were most critical to the success of the grant program? Which contributions from partners had less of an impact?

Data sources for the implementation evaluation included program documentation, surveys of program staff, college faculty and employer partners, and annual site visits comprised of staff/faculty/administrators and student interviews and program observations. Textual data were explored using thematic analysis and quantitative data was analyzed using descriptive statistics.

2.2 Outcomes Study Design

The summative evaluation component analyzed *Maine is IT!* project outcomes and impacts using longitudinal cohort analysis and a comparison cohort study using propensity score matching to evaluate the outcomes and impacts of *Maine is IT!* overall. Absent random assignment to the program, evaluators and the grant leadership team identified a concurrent group of comparison students drawn from the same seven colleges enrolled in Business Administration (BUS) programs of study. Through this analysis, the outcomes evaluation addressed nine evaluation questions:

1. How many unique participants were served through the grant?
2. How many program participants completed a TAACCCT-funded program of study?
3. How many participants were retained in their program of study at the end of the grant period? How many participants entered but did not completed a TAACCCT-funded program of study?

4. How many participants completed credit hours with a passing grade?
5. How many participants earned credentials through the grant-funded program of study?
6. How many participants who completed a grant-funded program of study enrolled in further education? How many of these participants enrolled in subsequent grant-funded degree or certificate programs?
7. How many participants who completed a grant-funded program of study were employed after program completion?
8. How many participants who completed a grant-funded program of study and were employed after program completion retained that employment for six months and one year after program completion?
9. How many participants were employed at the time of program enrollment? How many participants who were employed at enrollment received a wage increase after program completion?

The primary data source used for the outcomes analysis was the student tracking database, a longitudinal database comprised of student academic and demographic information that was updated during each semester of the grant period. Supplemental data on students who enrolled in further education came from the National Student Clearinghouse and data on employment following program completion came from the Maine Department of Labor.

3. Implementation Findings

Program Planning and Development

- Program Coordinators and Student Navigators were hired at each institution in the consortium, interacting regularly to facilitate the smooth implementation of the program.
- Program leadership held a variety of regular meetings to promote consistent communication, facilitate training, and advance implementation: o The Community College Learning & Innovation Collaborative (CCLIC) was established to facilitate curriculum planning and to maintain a consistent relationship between the consortium colleges and grant management staff. o The Statewide Advisory Council (SAC), comprised of representatives from various IT industries and workforce development groups across the state met regularly to discuss curriculum development, marketing strategies, PLA credits, and general program updates. Individual employer partnerships were also established at each college.

Curriculum Development and Delivery

- The consortium used various types monitoring processes and analytic software, including the Dynamic Skills Audit (DSA) process, Burning Glass and EMSI Analyst software, as well as anecdotal information or additional organization-specific insights from industry partners and SAC members to create a consortium-wide curriculum.
- Developmental and co-curricular strategies that expanded institutional capacity were implemented across the consortium to increase the effectiveness of student success, which included:

- o Summer Accelerated Academies, peer-to-peer tutoring, learning lab pilot projects and a co-curricular course delivery program (i.e., Summer Success Academies, Accelerated Math and Summer Bridge Programs, and summer 2015 Academies and Tutoring).[6]

- Expansion of online programing and curriculum was implemented throughout the course of the grant, which included shared online degrees between multiple consortium institutions, online program coursework being offered via hybrid model (e.g., Comp TIA A+ certification coursework, non-credit Becoming IT training), faculty vodcasts, online orientations, and the use of testing centers for online certification testing.

Student Recruitment and Continuous Improvement

- Numerous methods were used to promote the *Maine is IT!* program to already enrolled students and potential students, largely driven by the urbanicity of each college's location, which included: o Outreach through local newspapers, radio and movie theater ads, presentations at local businesses and promotional activities in alignment with normal processes in college admissions officers.
- The Program Coordinator and Student Navigator at each of the seven colleges successfully carried out their respective initiatives, aided by leadership and support from the *Maine is IT!* grant leadership team.
- This success in implementation fidelity was greatly attributed to the various types of meetings established at a consortium level, communications strategies used, and training opportunities provided by the grant leadership team to build relationships with consortium colleges and program staff.

Support Services and Strategies

- The *IT'S Summer!* remedial course was successfully created and offered during the 2015 and 2016 summers to assist students in the remediation process and prepare for the fall semester.
- Three colleges offered an 8-week stacked course that included algebra, English, and computer skills to facilitate remediation.
- *Maine is IT!* collaborated with the business and industry divisions from each of the seven community colleges and local One-Stop Career Centers to develop the *Becoming IT!* program, which included basic workplace computer skills, introductory and self-paced numeracy and literacy skills, guided career exploration, test taking skills, and job shadowing experiences and led to an industry-recognized credential in the IT field.
- The collaboration between colleges regarding PLA and articulation agreements was significantly enhanced by the *Maine is IT!* program, allowing for a more comprehensive standard across the consortium. Each institution had joined CAEL, an established program for PLA to obtain additional guidance in this process.
- Student Navigators provided wrap-around student support services, interacting with students through social medial, emails, telephone calls, classroom visits, and face-to-face meetings to provide a variety of standardized and individualized supports such as:
  - o General campus announcements, information on financial aid, and encouragements to register for upcoming classes or programs;

[6] Summer Accelerated Academies were not funded through the TAACCCT-grant, due to grant limitations to serve participants only, but were designed to align with the *Maine is IT!* program.

- More in-depth support such as goal setting, academic advising, ongoing tutoring, and personal counseling; and
- Individualized career counseling, resume development, and employment information.

4. Participant Impacts and Outcomes

Grant Participation Aligned with DOL Outcome Measures

- Overall, 1,687 unique students were served through the *Maine is IT!* program in degree, certificate, and advanced certificate programs with 398 of these students completing their program of study (see Table A).[7]
  - These 398 students had earned a total 419 individual credentials.
  - 1,651 students had completed credit hours, which was more than the goal.
- In addition to the participants reported in Table A, the program also included nine non-credit certification programs, which were excluded from DOL reporting requirements and reduced the number of students that could be reported in Table A, but still represented a key piece of the *Maine is IT!* program.
  - An additional 329 students had enrolled *exclusively* in one of these non-credit certification programs,[8] increasing the total number of students enrolled in grant-funded

TABLE A: DOL OUTCOME MEASURES

Source: *Maine is IT!* Technical Proposal, Student Tracking Data – through July 2017, and MDOL Labor Report – through May 2017.

#	Reporting Category	*Maine is IT!* Goal (Number of Participants)	Total Actual Participants
1	Total Unique Participants Served	2,096	1,687
2	Total Number Who Have Completed a Grant-Funded Program of Study	787	398
3	Total Number Retained in Grant-Funded Program of Study	1,158	854
4	Total Number of Students Completing Credit Hours	1,401	1,651
5	Total Number of Earned Credentials	865	419
6	Total Number Pursuing Further Education After Program of Study Completion	260	51
7	Total Number Employed After Program of Study Completion	629	162
8	Total Number Retained in Employment After Program of Study Completion	503	138
9	Total Number of those Participants Employed at Enrollment Who Receive a Wage Increase Post-Enrollment	315	44

[7] Data shared with evaluators were snapshots in time within a students' college career, similar to data reported to the Integrated Postsecondary Education Data System (IPEDS). As a result, these outcome numbers do not fully align with the numbers that the consortium reported. Data included in Table A is based on students who were "currently active" when the data were captured. Students who participated in accelerated models and/or eight-week semesters may not have been fully captured by the data presented due to this snapshot cycle.

[8] This number does not include those students who enrolled in and completed a non-credit certification course and then enrolled in a *Maine is IT!* degree or certificate program or who first enrolled in a degree or certificate program and then enrolled in a noncredit certification course. In both instances, these

programs to 2,016, or 96% of the grant program's overall unique participant goal. Unless otherwise specified, the remainder of this report includes all 2,016 students.

Student Participation in Academic Programs and Use of Support Services

- 2,016 students had enrolled in *Maine is IT!* programs of study, which included 81% who were enrolled in degree programs, 3% in a certificate or advanced certificate program and 16% in a non-credit certification program.
- Three-fourths (75%) of students enrolled in their program of study on a part-time basis.
- Student Navigators provided at least one support service to 34% of all students enrolled in *Maine is IT!* programs of study, although this support varied by institution with the majority of *Maine is IT!* students at WCCC, CMCC, and KVCC receiving at least one support service (91%, 59%, and 57% respectively). o Having participated in any support service (composite of each support service) was not significantly correlated with higher GPAs but was significantly positively correlated with program completion (p=.108**).
  - o Participating in any coaching and retention service, irrespective of the number of coaching appointments was also significantly positively correlated with both higher GPA (p=.049*) and program completion (p=.062**) across the consortium.

Successful Program Completion and Post-Completion Outcomes

- 1,687 students had taken courses in credit-bearing degree or certificate and advanced programs throughout the life of the grant.
  - o Across all degree programs, the overall average GPA was 2.64, with average GPAs ranging from 2.39 (in Computer Science) to 3.26 (in Computer and Network Technology).
  - o Students enrolled in certificate or advanced certificate programs earned an average GPA of 3.10.
- 405 students (inclusive of 76 students who had also enrolled in a degree, certificate, or advanced certificate program) enrolled in a non-credit certification program with 50% completing at least one non-credit program and 18% completing two or more programs.
- By the end of the grant period, 51 students who had completed a *Maine is IT!* program had transferred to a 4-year university, primarily the University of Southern Maine or a campus of the University of Maine.
  - o In addition, 53 students across CMCC, EMCC, and KVCC completed one (n=20) or multiple (n=33) *Maine is IT!* non-credit certification courses and subsequently moved on to enroll in a certificate, advanced certificate, or a degree program with 66% of those students also completing a degree or certificate program within the grant period.
- 162 students had found new employment after program completion (56% of those with data available) and 85% of those students had retained that employment for the following three quarters after program completion.
- This exceeded the rates of employment among comparison students; 51% had found new employment after program completion and just 74% retained that employment three quarters after program completion.

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students are counted as enrolled in the degree or certificate program, based on DOL reporting requirements.

  - There was a statistically significant difference among those who retained employment between the treatment and the comparison group (*p*=.011), suggesting that participating in the *Maine is IT!* program had a positive effect on finding and retaining subsequent employment.
- In addition, 44 *Maine is IT!* students who were initially employed at the time of program enrollment (incumbent workers) had retained their employment following program completion and received a wage increase in their retained position.

Findings from Comparative Analysis

- *Maine is IT!* participants and comparison students with similar demographic and enrollment characteristics were matched with each other, and the final matched sample contained 812 students from both the *Maine is IT!* treatment group and the comparison group for a total matched sample of 1,624 students.
- Students in the comparison group had a statistically significant and slightly lower cumulative GPA than their matched students enrolled in *Maine is IT!* degree programs (2.41 vs. 2.58, respectively), suggesting that participation in *Maine is IT!* enhanced academic achievement.
- *Maine is IT!* matched students were 1.34 times more likely not to drop out of or withdraw from their program of study (e.g., were retained or completed their program) and 2 times more likely to have completed credit hours. Additionally, *Maine is IT!* participants had higher rates of earning a degree than their matched comparison students (18.5% vs. 13.5%), all of which were statistically significant, again suggesting a positive impact on academic and completion outcomes due to participation in *Maine is IT!*

5. Conclusions

- The Student Navigator position was seen by grant and various levels of college staff as one of the most prominent supports made possible through the *Maine is IT!* program. Receiving coaching and retention support from the Student Navigator was found to be statistically significantly positively correlated with both higher GPAs and program completion. Moving forward, it will be important for each college to continue to build a culture of student support based on a Student Navigator model that promotes academic guidance, personal mentorship, and a broad “one stop shop” support service.
- The consortium as a whole accomplished their goals of creating new PLA and new articulation and transferability relationships early on in grant implementation. Moving forward, maintaining the new PLA standards across MCCS and articulation agreements with four-year institutions will be critical in keeping standards up to date. The increased level of communication seen under the grant will need to be sustained for future partnerships and coordinating PLA standards across the consortium.
- Since the early stages of grant implementation, grant staff at each of the colleges reported their satisfaction with the grant leadership team and CMCC’s overall leadership in guiding each of the colleges as it relates to the various grant-related goals. For future grants related to community college program capacity building or workforce development, CMCC would be an ideal selection for consortium leadership.
- The ability to successfully maintain newly established or enhanced employer relationships and activities was directly mentioned by grant staff at three colleges as a probable challenge following grant closeout. In order to effectively maintain employer partnerships, colleges will need to identify individuals among college staff who can potentially take on this

responsibility, as well as successfully articulate the importance of these relationships as it relates to students enrolled in IT programs at each college.

II. Introduction

1. Evaluation Overview

CMCC contracted with ICF in April 2014 to serve as the third-party program evaluation team to study the *Maine is IT!* program. The ICF evaluation team addressed both formative and summative evaluation questions by conducting a longitudinal study of implementation and outcome data and conducting a comparison cohort study using a quasi-experimental, comparison cohort design to compare students in IT programs of study to students in Business Administration (BUS) programs of study. Through these analyses, the ICF evaluation team provided pertinent descriptions and indicators about the *Maine is IT!* program implementation as well as the program's effect on outcomes for enrolled participants and those who have completed their program of study. The evaluation serves DOL and the seven consortium institutions by systematically assessing the operation and outcomes of the program, and in this final report, provides feedback to help the college leaders sustain program activities and to maximize *Maine is IT!* created activities.

This program evaluation was organized around a mixed methods evaluation design. With the understanding that by drawing upon multiple methods, evaluation findings would be more robust and more accurate, the ICF evaluation team drew from the multiple data sources that make up the evaluation database to write this report. Data sources have included program documentation, student tracking data, annual site visits, and periodic surveys.

- *Program Documentation:* The ICF evaluation team created and used a document review matrix to track key findings and program developments summarized from *Maine is IT!* quarterly and annual reports, course syllabi, marketing materials, staff and stakeholder meeting notes, Student Navigator reports and advising logs, and individual program documents. These documents were reviewed to assess the extent to which the project was implemented in relation to the original proposed project plan.
- *Student Tracking Data:* Student academic and demographic information was collected by each of the institutions and compiled into one student tracking data spreadsheet. This data was updated each semester and used to create a master database that included cumulative information on students enrolled in the *Maine is IT!* program as well as students in the designated program comparison group.
- *Annual Site Visits:* The ICF evaluation team conducted annual site visits to CMCC and each of the consortium colleges to conduct one-on-one or small group interviews with *Maine is IT!* program staff and college staff and to collect relevant documents to inform the evaluation. The first round of these site visits occurred in October 2014 and subsequent visits occurred in each fall of the program period. Textual data from the annual site visits were explored using thematic analysis.
- *Stakeholder Surveys:* ICF collected data through two online surveys; one of *Maine is IT!* program staff and faculty and other college staff members, one of employer partners, both regarding the implementation and impact of the *Maine is IT!* program and the programs of study created or expanded through the program. Both types of surveys were administered three times throughout the evaluation in the spring of 2015, 2016, and 2017. Additionally,

the staff online survey included questions about the successes, challenges, barriers, and innovative strategies that occurred through program implementation.

Guided by the program's logic model, the implementation evaluation sought to generate findings around key areas related to the extent to which project components such as new curricula, expanded programs, enhanced online delivery methods, and student services were implemented as intended by the grant. Specifically, this evaluation addressed four evaluation questions:

1. How was the particular curriculum selected, used, and/or created?
2. How were programs and program designs improved or expanded using grant funds? What delivery methods were offered? What was the program administrative structure? What support services and other services were offered?
3. Was an in-depth assessment of participants' abilities, skills, and interests conducted to select (identify) participants into the grant program? What assessment tools and processes were used? Who conducted the assessment? How were the assessment results used? Were the assessment results useful in determining the appropriate program and course sequence for participants? Was career guidance provided, and if so, through what methods?
4. What contributions did each of the partners make in terms of: (a) program design, (b) curriculum development, (c) recruitment, (d) training, (e) placement, (f) program management, (g) leveraging of resources, and (h) commitment to program sustainability? What factors contributed to partners' involvement or lack of involvement in the program? Which contributions from partners were most critical to the success of the grant program? Which contributions from partners had less of an impact?

The summative evaluation component analyzed *Maine is IT!* program outcomes and impacts using longitudinal cohort analysis and a comparison cohort study using propensity score matching to evaluate the outcomes and impacts of *Maine is IT!* overall. Through this analysis, the outcomes evaluation addressed nine evaluation questions:

1. How many unique participants were served through the grant?
2. How many program participants completed a TAACCCT-funded program of study?
3. How many participants were retained in their program of study at the end of the grant period? How many participants entered but did not completed a TAACCCT-funded program of study?
4. How many participants completed credit hours with a passing grade?
5. How many participants earned credentials through the grant-funded program of study?
6. How many participants who completed a grant-funded program of study enrolled in further education? How many of these participants enrolled in subsequent grant-funded degree or certificate programs?
7. How many participants who completed a grant-funded program of study were employed after program completion?
8. How many participants who completed a grant-funded program of study and were employed after program completion retained that employment for six months and one year after program completion?

9. How many participants were employed at the time of program enrollment? How many participants who were employed at enrollment received a wage increase after program completion?

1.1 Report Purpose

The purpose of this report is to inform DOL and *Maine is IT!* program leaders and stakeholders of the progress made pertaining to program implementation and final outcomes between February 2014 and March 2017. This report describes key findings related to the *Maine is IT!* program's formative evaluation component, through which the program's implementation processes and program delivery have been evaluated; as well as its summative component, through which program outcomes and impacts have been evaluated.

1.2 Report Organization

To provide a context for the two sections that offer analyses of *Maine is IT!* implementation and outcomes following the introduction, the first provides a holistic representation of the program as it was planned and developed. Within this section, outreach and coordination of consortium colleges, curriculum and credential program development, and support services and strategies are addressed and pull from various data sources. The section following planning and development, outcomes and impact evaluation, offers comprehensive reporting on program data related to academic and employment outcomes followed by a discussion about program impacts on participants compared with non-participants. The report concludes with program sustainability and recommendations, which discuss employer partnerships, maintaining newly offered programs, and student support services.

2. Program Overview

2.1 Program Context and Description

To address gaps in skilled information technology (IT) workers in all 16 counties in Maine, the state's community colleges, led by consortium staff based at CMCC, led the *Maine is IT!* program using Trade Adjustment Assistance Community College Career Training (TAACCCT) Round 3 grant funds. In addition to CMCC, this consortium was comprised of Eastern Maine Community College (EMCC), Kennebec Valley Community College (KVCC), Northern Maine Community College (NMCC), Southern Maine Community College (SMCC), Washington County Community College (WCCC), and York County Community College (YCCC). The *Maine is IT!* program helped to improve IT workers' employability by improving access to IT training opportunities across the state and across a range of industries (e.g., healthcare, banking, government) by: (1) creating and enhancing 36 certifications, certificates, and associate degree programs that allow multiple entry points to support the diverse needs of TAA-eligible workers, veterans, and other unemployed and underemployed workers; (2) increasing the number and type of stackable credentials; (3) building new bridges between non-credit and credit courses; (4) standardizing and expanding the award of credit for prior learning; and (5) introducing innovative approaches to remediation to improve student success rates. The *Maine is IT!* program planned to serve 2,096 unique participants across seven colleges during the four-year grant period.

2.2 Need for IT Training in Maine

In response to the DOL's call for grant proposals, a consortium of all seven Maine community colleges proposed the *Maine is IT!* program to address growing needs for skilled IT workers and, simultaneously, to address the large number of TAA-impacted workers. As described in the grant application, 12,000 manufacturing jobs were lost between 2001 and 2005 across the state of Maine, as the already steady decline in manufacturing jobs across the state had continued. This loss of employment has affected each region of the state and presents unique opportunities for each of the consortium institutions to impact employment outcomes in their region. Since the 1950s, blue-collar industrial jobs have declined from comprising more than half of the workforce to making up less than one-quarter of jobs. Conversely, managerial, professional, and technical jobs have increased from one-fifth to nearly one-third of jobs across the state. By 2018, 59% of all jobs in Maine are expected to require some post-secondary training.

Although demographics within TAA-laborers varies nationally, the average age is 45, and just over 30% of all workers are younger than 40. In addition, more than half of all those eligible only have a high school degree, and nearly 20% have not graduated from high school, suggesting a need for targeted advanced training (DOL, 2010). Demographic trends in Maine align with these national trends and also support the need for the training programs proposed by the *Maine is IT!* program. In the 2012–2013 academic year, 63% of Maine's TAA-eligible population had earned a high school diploma or its equivalent, and over 80% were 41 years old or older and had worked for their last employer for an average of 14.5 years. Due to their age and tenure in work settings, most of these workers had not had a formal educational experience in many years, and although many have robust on-the-job skills, they typically have few academic credits to show for those skills, presenting both challenges and opportunities for training programs.

In 2012, there were 3,851 current openings in Maine for positions in IT occupations, including computer occupations, with anticipated additional needs of 265 annual vacancies across multiple IT fields. In addition to employment needs across a variety of IT fields, the Maine Department of Labor (MDOL) identified a number of gaps in potential employees' skill levels that could be addressed in an academic setting. These included a need for basic computer skills, expanded internship or workplace experiences, and an overall lack of capacity in existing IT programs to accommodate interested students.

2.3 *Maine is IT!* Program Purpose and Components

The *Maine is IT!* program was designed to be consistent with the TAACCCT program priority of addressing industry needs by helping prospective workers attain associate degrees, advanced certificates, certificates and certification credentials. The *Maine is IT!* program had three main components: (1) the development and enhancement of processes and infrastructures, (2) the development, implementation, and refinement of student support services; and (3) the development, enhancement, and implementation of the 36 programs of study.

2.4 *Maine is IT!* Program Goals

The *Maine is IT!* grant proposal identified program goals aligned with each of the nine DOL outcome measures (see Table 1). Through the grant, the consortium planned to ultimately serve 2,096 unique students, about 67% of whom were expected to complete credit hours (1,401

students) and 38% of whom were expected to complete a *Maine is IT!* program of study (787 students) during the program implementation period (November 2013 to March 2017).

Table 1 also shows the progress made on each of the DOL *Maine is IT!* goals. By the end of the program, 1,687 unique students had been served through the *Maine is IT!* program in degree, certificate, and advanced certificate programs with 398 of these students completing their program of study. These 398 students had earned a total 419 individual credentials, with 19 students completing two programs of study and one student completing three during the life of the grant. In addition, 1,651 students had completed credit hours which was more than 100% of the grant's goal.

TABLE 1: *MAINE IS IT!* GOALS ALIGNED WITH DOL OUTCOME MEASURES

	Reporting Category	*Maine is IT!* Goal (Number of Participants)	Total Actual Participants
1	Total Unique Participants Served	2,096	1,687
2	Total Number Who Have Completed a Grant-Funded Program of Study	787	398
3	Total Number Retained in Grant-Funded Program of Study	1,158	854
4	Total Number of Students Completing Credit Hours	1,401	1,651
5	Total Number of Earned Credentials	865	419
6	Total Number Pursuing Further Education After Program of Study Completion	260	51
7	Total Number Employed After Program of Study Completion	629	162
8	Total Number Retained in Employment After Program of Study Completion	503	138
9	Total Number of those Participants Employed at Enrollment Who Receive a Wage Increase Post-Enrollment	315	44

Source: *Maine is IT!* Technical Proposal, Student Tracking Data – through July 2017, and MDOL Labor Report – through May 2017.

The DOL completion goals described above in Table 1 include all students enrolled in a degree, certificate, or advanced certificate program through the *Maine is IT!* program. However, the program also included nine non-credit certification programs, which were excluded from DOL reporting requirements, but still represent a key piece of the *Maine is IT!* program. By March 2017, an additional 329 students had enrolled *exclusively* in one of these non-credit certification programs.[9] Therefore, when the outcome measures include students enrolled in non-credit programs, the total number of students enrolled in grant-funded programs jumps to 2,016, or 96% of the grant program's overall unique participant goal. While employment numbers presented in Table 1 lagged behind the program's initial goal, this is in part a factor of the reduction of programs with outcomes included in DOL reporting. Furthermore, although these numbers are below the initial goal, the percentage of students retained in employment as compared to those employed after program completion is actually *greater* than the initial goal

[9] This number does not include those students who enrolled in and completed a non-credit certification course and then enrolled in a *Maine is IT!* degree or certificate program or who first enrolled in a degree or certificate program and then enrolled in a noncredit certification course. In both instances, these students are counted as enrolled in the degree or certificate program, based on DOL reporting requirements.

set by *Maine is IT!* (85% compared to a goal of 80%). Subsequent positive trends in employment are reported later in this report. Unless otherwise specified, the remainder of this report includes all 2,016 students.

III. Program Planning and Development

1. Outreach and Coordination of Consortium Colleges

Since the beginning of *Maine is IT!* program implementation, the grant leadership team at CMCC facilitated successful working relationships across each of the colleges within the consortium. In many cases, the grant leadership team facilitated annual and independently scheduled meetings with college grant staff, and provided assistance or clarification in a timely manner. In particular, Program Coordinators and Student Navigators reported the helpfulness of the grant leadership team in areas such as hiring grant staff, coordinating communications and training events, facilitating leadership meetings, and assisting with employer engagement and involvement.

1.1 Hiring of Grant Staff

All key personnel were hired in November 2013, beginning with the grant manager, and by July 2014, all consortium institutions had grant project staff in place. All Student Navigators were hired by October 2014. Early implementation challenges were seen in the hiring of new staff positions in spring 2014. Challenges reported during the October 2014 site visits included the geographic location of the colleges (particularly in more remote areas), finding qualified IT professionals willing to work as instructors for lower compensation than offered in other IT fields, and hiring for grant-funded positions. It was noted early on in implementation that hiring for a temporary position, such as those paid for from grant funds, was difficult as there was a definite end to employment and prospective employees were therefore less willing to take that work. Following the initial hiring stage, the grant leadership team noted select cases where the Program Coordinator and Student Navigator had left the program, and the need to fill the positions occurred for a second time. To alleviate some of these hiring challenges, especially for grant-funded and part-time positions, some colleges merged multiple part-time positions for one new hire or asked current staff to take on all or some of the responsibilities funded by the grant. After filling those vacant grant-funded positions, some stakeholders reported that the new hires led to an improvement to *Maine is IT!* program implementation. According to one faculty member, *"We weren't great at having regular meetings until the [new Program Coordinator] came here, but now we do, and we also have regular faculty meetings."* Additionally, there were internal position changes within the consortium, which included a Program Coordinator becoming a Dean at another college, as well as a grant leadership team member becoming the fiscal and administrative officer at a college.

During 2016, most of the colleges were able to successfully maintain newly hired staff and create a consistent and effective work environment for the *Maine is IT!* program implementation efforts. The consistency in staffing and overall grant implementation led many individuals to appreciate the efficiency and cooperation of grant and college staff, as well as cooperation across colleges within the consortium. According to one Dean, 2016 was *"probably the best year for me of the grant…from an administrative standpoint, this has been the best year."* During the latter part of 2016 and early 2017, the grant leadership team had prepared for the

process of losing grant staff at each college as it was expected that these individuals would be leaving for new job opportunities prior to grant closeout. Preparations were made by the grant leadership team to alleviate the changes and reduction of grant funded positions. This proactivity and preparedness significantly minimized the effect of staff departures on data collection and analysis for both the grant leadership and the ICF evaluation team.

1.2 *Maine is IT!* Program Staff Communications and Training

At each of the seven colleges, there was a consistent group of individuals responsible for carrying out the *Maine is IT!* program. These individuals included the Program Coordinator and Student Navigator, both of whom interacted with each other on a daily basis. Most Program Coordinators and Student Navigators attributed some of their success to being in such close proximity with each other, with some even sharing offices with the one another. Following the first year of grant implementation, the stable staffing at each college also generated more consistent and ongoing collaboration among staff members via meetings and communication, with colleges reaching their full potential in 2016. According to one Dean in 2016, reflecting on the early years of the grant, he was *"frustrated with the faculty and the ability to herd them in the direction I wanted them to go, but once we got the first [Student Navigator] on board and now with the new [Program Coordinator], they have pulled them together and it made a huge difference…I'm feeling much better about it."* In addition to the collaboration within each college, Program Coordinators and Student Navigators across the consortium consistently communicated with one another through email or ad hoc conversations on the phone, which yielded successful results in terms of information and strategy sharing. During the final site visit in December 2016, only two of the six Program Coordinators recalled staffing and communication in the first half of grant implementation as a challenge.

Across the consortium, various types of meetings were held by the grant leadership team, further building a relationship between colleges within the consortium. Reflected in all three of the *Maine is IT!* evaluation site visits, many Program Coordinators noted and appreciated the grant leadership team's willingness to answer any questions or concerns, encompassing a proactive approach through monthly and annual meetings, complimented by campus-based visits to assist newly hired program staff and the colleges' fiscal staff to acclimate to the grant project. In the last year of implementation, college visits by the grant leadership team focused more on grant closeout activities pertaining to final deliverables and budget. To further enhance communication among institutions, the grant leadership team introduced Adobe Connect to regularly scheduled consortium meetings beginning in fall 2015.

The grant leadership team also made strides in providing training regarding prior learning assessment (PLA) policies and best practices. The PLA trainings offered insight on the practices that were currently used to determine PLA credit within various degree programs, and the financial costs and benefits associated with PLA practices. The partnership with the Council for Adult and Experiential Learning (CAEL) allowed for a smoother transition of PLA practices into the MCCS. In May 2015, CAEL conducted a survey as part of an initiative that advocates the adoption of PLA policies within the MCCS, followed by a two-day workshop in June 2015 that included all seven *Maine is IT!* colleges, going over the elements of the PLA system and structure. In spring 2016, system-wide PLA standards as it applied to both IT programming and all programming were submitted for acceptance to the System Academic Deans, and in fall 2016, MCCS staff members attended and presented at the 2016 CAEL conference. In spring

2017, the last steps of PLA implementation, training, and promotion across the consortium were finally completed.

1.3 Consortium Leadership Meetings

The Community College Learning & Innovation Collaborative (CCLIC) meetings under the *Maine is IT!* program began in November 2013 in an effort to maintain a consistent and effective relationship between the consortium colleges and grant management staff. Initial meetings occurred in-person while later communication was primarily done through email notifications, with the Program Coordinators serving as the main points of communication and dissemination of information to staff at their respective colleges. These meetings, and later updates, primarily served as a means to sustain a clear vision of the grant requirements among Program Coordinators at each college, as well as for communicating questions and other necessary grant information between grant leadership staff and each institution. The centralized implementation strategies conducted by the grant leadership team via CCLIC meetings and updates established an open line of communication for each institution's Academic Dean via email and phone throughout *Maine is IT!* implementation. This practice of inter-college meetings involving college leadership is one of the many ways in which the *Maine is IT!* program encouraged and facilitated a more cohesive MCCS and fostered greater collaboration among the administration within each institution.

1.4 Employer Engagement and Involvement

The Statewide Advisory Council (SAC) meetings kicked off shortly after the CCLIC meetings, convening for the first time in January 2014, which continued through the 2015 and 2016 year. This council was initially comprised of about 15 representatives from various IT industries and workforce development groups across the state as well as grant project staff. During their biannual meetings, the group met to discuss curriculum development, marketing strategies, PLA credits, and general program updates. In many instances, the SAC meetings remained consistent throughout grant implementation in terms of frequency and content. Onsite learning experiences were also offered through employer partnerships, in addition to on-campus visits, workplace tours, and interviews. Following the initial group of employer partners who joined the SAC in 2014, new employer partners were continually sought out for at each college. As a whole, the consortium was able to leverage both formal and informal connections and resources to find new employers throughout grant implementation. In one instance, a student of the *Maine is IT!* program who also happened to own a business, hired a fellow student from his class. In another instance a college, led by the grant staff, hosted a breakfast for current and potential new employer partners.

Overall, the *Maine is IT!* program assisted each college in enhancing their already established employer partner network into more formal and intentional groups. In addition to the employer partnerships that were established or enhanced through the SAC meetings and previously mentioned activities, each college also established local employer connections. These employers and industry partners represent IT companies, hospitals, banks, utilities, government agencies (local, state, federal), colleges, and other organizations that staff IT positions. A strong relationship was established throughout the consortium, particularly in geographic areas with prevalent IT employers. Based on interviews conducted during site visits in all three

implementation years, most industry partners recognized a vital need for qualified IT graduates not just in their respective regions, but also throughout the state. According to employer survey data in 2017, 46% of employer participants were *very satisfied* with their partner institution's relationship, and another 31% were *somewhat satisfied*. In 2017, 41% of employer partners had reported hiring *Maine is IT!* matriculated students.

Conclusion

As the lead institution, CMCC did an excellent job reaching out to and coordinating with the other six colleges in the consortium. CMCC and consortium colleges successfully hired for all positions early in grant implementation, and replaced staff when turnover occurred. Following the second year of implementation, stable staffing at each of the colleges in the consortium led to more consistent implementation efforts and team interaction. The Program Coordinator and Student Navigator at each of the seven colleges successfully carried out their respective initiatives, aided by leadership and support from the *Maine is IT!* grant leadership team. This success was greatly attributed to the various types of meetings established at a consortium level, communications strategies used, and training opportunities provided by the grant leadership team to build relationships with consortium colleges and program staff. Enhancement of these communications strategies (e.g., the use of Adobe Connect for virtual meetings), as well as the development of relationships among position types across the consortium, led to specific improvements in sharing ideas and best practices amongst grant staff as a whole. The grant manager also established an open line of communication with each institution's Academic Dean through the CCLIC, resulting in a clear vision of the grant requirements at each college. SAC meetings and advisory boards at each college helped engage employers and involve them in program development and implementation, with many employers noting at the end of grant implementation that they were more willing to hire two-year graduates over four-year graduates in the IT field.

2. Curriculum Development and Delivery, Student Recruitment and Continuous Improvement

2.1 Curriculum Planning, Development and Launch

The department chairs at each institution collaborated with the Program Advisory Boards to develop curriculum. This group had served as the primary leader of planning the degree and certificate programs. The consortium had used various types of software, mainly the Dynamic Skills Audit (DSA) process and Burning Glass and EMSI Analyst software, as well as other labor market information from industry partners and *Maine is IT!* advisory council members to create a consortium-wide curriculum. This process began in spring 2014, when a request for proposals was released for an economical analytical data service to assist colleges in determining the certifications and skills needed for Labor Market Information (LMI) data. By July 2014, Jobs for the Future (JFF) was selected as the provider. In addition to LMI data, employers and industry partners have advised the colleges about the specific IT skills that students should develop to be successful in various types of IT jobs. Following grant staff training on the real-time LMI (RTLMI) software in October 2014, meetings with the Program Advisory Committee (PAC) and grant staff kicked off to confirm and approve local employer needs and curriculum. Popular organizations invited by grant staff in the PAC meetings included Carbonite, Maine Technology Users Group, and Defense Finance and Accounting Services (DFAS). Following the early

stages of grant implementation, the roles of JFF and employers changed to the evolving needs of the *Maine is IT!* program. In January 2016, the remaining contract time with JFF (their contract ended in September 2016) was used to facilitate more opportunities to educate deans and other college staff on the DSA process and the use of LMI. Additionally, employer partners and colleges began the work of establishing job shadowing and internship opportunities early on in grant implementation, and when completely finalized near the end of grant implementation, this proved to be a major resource in preparing students for the workforce. In 2016, employers at five colleges noted their preference for a community college graduate over a four-year degree student, citing more work and hands-on experience. This feedback spurred less focus on curriculum modifications and more work with colleges to create career-ready students with both hard and soft skills.

In fall 2014, the Dynamic Skills Audit, as facilitated by JFF, was used to evaluate a skills matrix within a chosen *Maine is IT!* program at each college and confirm that the proper skills were being met in all of reviewed the programs. Overall, 12 new programs had been created across five institutions including Network Security, Computer Technology and Science, and Network Administration; the Dynamic Skills Audit was used to evaluate these new courses. The PACs were tasked with reviewing the newly developed curriculum, while the grant leadership team monitored overall progress. A component of this progress monitoring included drafting reports that detailed the results of the Dynamic Skills Audit, conducted of at least one program per college. In summer 2016, JFF organized a conference call between MCCS and another TAACCCT consortium to discuss new implementation strategies based on the progress at each college within the *Maine is IT!*, reflected through the Dynamic Skills Audit.

In January 2015, the consortium submitted a modification to DOL to clarify and provide more accurate descriptions of the grant programs offered through the *Maine is IT!* program. In particular, the consortium clarified the distinctions between credit certificate programs and noncredit certification programs. They also adjusted some certificate programs to be offered as advanced certificate programs for those students who had previously attained an associate degree prior to enrolling in the certificate program. A few institutions also changed program names to define more clearly the program's intent as aligned with job placement and transfer strategies. Finally, SMCC modified two certification programs, IT Helpdesk and Programmer I, II, III, to be concentrations within the Information Technology program to provide more targeted market skills and to prepare students to sit for some nationally industry-recognized certification exams, while CMCC built a stacked certification model as written within the statement of work. The renaming of certain programs also allowed the consortium to have greater consistency in the continuity and marketability of the *Maine is IT!* program and course offerings across all institutions.

All new curriculum was fully developed by May 2015 and fully launched for students by July 2015. Furthermore *Maine is IT!* planned to expand and enhance eight certificate and three degree programs. These enhanced programs were fully completed and launched for students by January 2015. Combined with enhanced *Maine is IT!* programs, all credentials were fully available to all students by summer 2015.

2.2 Promoting the Program to Students

Numerous methods were used to promote the *Maine is IT!* program to already enrolled students and potential students. During the fall 2014 site visits, a majority of grant staff considered their Student Navigators as their heads of marketing, but others mentioned that their Program

Coordinator or even faculty members were taking on program marketing responsibilities. It was noted further along in grant implementation that once each grant position was hired, and each individual gained more experience working with the grant, marketing and outreach became more of a focus among Student Navigators and Program Coordinators. The types of outreach and marketing activities conducted varied by college, especially based on the urbanicity of the college's location. Advertisements in local newspapers and even postcards to households were more prevalent in rural communities than urban ones. Additionally, radio and movie theater advertisements were used to market the *Maine is IT!* program. At one particular college, targeted advertising was conducted at nearby lumber mill sites for workers that were laid off from their jobs. One outreach strategy used by some colleges included presenting at high schools in their respective communities. Staff at another college described how high schools in the area received a Maine Education Loan Marketing Corporation (MELMAC) grant that supported college-going cultures in high schools, further facilitating the relationship and incentives for high schools to work with the local community college. Although this effort did not originate from grant funds, it assisted in gaining community awareness of the *Maine is IT!* program in that area.

2.3 Course Delivery

Since the beginning of 2015, developmental and co-curricular strategies had been implemented to increase the effectiveness of student success within the *Maine is IT!* program. Summer Accelerated Academies, peer-to-peer tutoring, and learning lab pilot projects were underway across the consortium. In May 2015, five colleges (CMCC, EMCC, KVCC, SMCC, and YCCC) implemented a co-curricular course delivery program (i.e., Summer Success Academies, Accelerated Math and Summer Bridge Programs, and summer 2015 Academies and Tutoring). Expansion of online programing and curriculum was being implemented throughout the course of the grant, with significant progress occurring during the grant period. This included shared online degrees between CMCC/WCCC and YCCC/NMCC, online program coursework being offered via hybrid model (Comp TIA A+ certification coursework, non-credit Becoming IT training), faculty vodcasts, online orientations, and the use of testing centers under the grant for online certification testing. Eighty-six percent of program staff or faculty surveyed indicated that the expansion of programs as a result of the *Maine is IT!* program was *very successful* or *somewhat successful*.

3. Use of Feedback and Continuous Improvement

The grant leadership team, as well as *Maine is IT!* staff at individual colleges sought feedback from multiple sources. Colleges, more so in the early stages of grant implementation, sought individual feedback from the SAC and PACs regarding curriculum implementation and improvements. In February 2014, four of the seven colleges received feedback from their respective PACs, and the SAC continued to meet twice a year with the grant leadership team. The grant leadership team facilitated, organized, and scheduled trainings for the individual

colleges in topic areas covering PLA, and RTLMI software use for the Dynamic Skills Audit (DSA) and Burning Glass. In 2015 and 2016, the grant implementation team organized a training for colleges with JFF on using RTLMI with employer partners, and consistently held monthly Program Coordinator/Student Navigator meetings and quarterly CCLIC meetings, which allowed college grant staff to ask questions and provide feedback to the grant implementation team. Grant-sponsored professional development activities were implemented throughout grant implementation for faculty that included training on the Universal Design for Learning (UDL), the Americans with Disabilities Act (ADA); Sections 504 and 508 of the Rehabilitation Act of 1973 (as amended), and Web Content Accessibility Guidelines (WCAG) 2.0 Level AA. In January 2016, campus-based DSA teams examined designed skills matrices alongside PAC members in preparation for integrating into formal competencies for students, and in summer 2016, JFF organized a final conference between another consortium and the *Maine is IT!* consortium to compare implementation findings using notes and other archival information.

Conclusion

All curriculum was developed or enhanced in a timely manner and in a way that supported colleges to launch programs of study for students as quickly as possible, given curriculum development and review processes. Curriculum development was informed by the Dynamic Skills Audit process, the use of LMI data, and employer advisory boards to align the curriculum with skills students needed to be successful in the workforce. Program staff at each college used numerous methods to successfully promote the *Maine is IT!* program to students, most of which were based on the geography of the communities in which colleges operated (i.e. flyers, radio ads, movie theater advertisements). Program staff successfully implemented developmental and co-curricular strategies to increase student success, and the expansion of online programing was fully completed in the last year of grant implementation. Grant leaders and program staff across the consortium effectively incorporated feedback and continuous improvement into their work; one example of this is the further use of RTLMI and Burning Glass software among individual colleges and employer partners to strengthen curricular connections to industry needs.

4. Support Services and Strategies

4.1 Accelerated Remediation

The remediation course offerings created under the *Maine is IT!* program began in summer 2014, with four of the five colleges implementing the *IT's Summer!* remedial course. The *IT's Summer!* course was offered during the 2015 and 2016 summers as the strategy used by the campuses to help assist students in the remediation process and prepare for the fall semester. Three colleges (CMCC, SMCC, and YCCC) offered a separate 8-week stacked course that included developmental Algebra, English, and computer skills, which over 50 students attended in summer 2014. As a result of not receiving any applications for the Workforce Partners subcontract – an effort to recruit, assess, support, and train students in a 120-hour remedial program in Comp TIA and A+ certifications, with remediation work as needed based on assessment scores – the consortium decided to partner with regional MDOL CareerCenters to provide these services. This contract was finalized in October 2014, and continued to collect student data for the remainder of grant implementation.

4.2 Online and Technology-Enabled Instruction

As of October 2014, five of the seven colleges in the consortium created and implemented online and/or hybrid course modules that accommodate to the needs of the students in their geographical area. Some of the methods used to disseminate materials or conduct classroom activities included faculty vodcasts, text publisher online tools, online certification testing, virtual labs, and SmartBoard/SmartResponse systems. Instructors noted during the fall 2014 site visits that they are appreciative of having flexibility to teach their respective courses the way that best fits their style and their students' learning habits. In many instances, the type of course that was to be taught was also a determining factor in making it an online and/or hybrid course as opposed to a traditional in-person course. Courses such as Web Development, Network Fundamentals, and Advanced Visual Basic were cited later on in grant implementation by faculty across the consortium as utilizing hybrid and/or online components much more often than courses that required more hands-on experience. According to the spring 2017 staff survey, 57% of grant staff and faculty were either *very confident* or *somewhat confident* in the improvements made to their respective college's courses. Challenges that may have led to a lack of confidence among staff and faculty included limited internet availability, broadband service, and internet access for many students.

4.3 Prior Learning Assessment, Transferability, and Articulation

As new degree and certificate programs were developed, the colleges needed to continue to establish transfer/articulation agreements to baccalaureate degree programs which include the transfer of PLA, creating additional pathways for students. The collaboration between colleges regarding PLA and articulation agreements was significantly enhanced by the *Maine is IT!* program, allowing for a more comprehensive standard across the consortium. Each institution had joined CAEL, an established program for PLA to obtain additional guidance in this process. A PLA learning community of representatives from each campus had been established to enable each of the consortium institutions to comply with state and national criterion. These representatives ensured policies consistent with the nationally-recognized CAEL standards, timely assessment of students' portfolios or demonstrations of prior learning, and appropriated faculty members at the colleges in assessing students' learning against learning objectives for specific course(s) in a program. This inter-college relationship will need to be sustained for future success regarding PLA.

During the fall 2016 site visits, many faculty and staff members noted a decrease in student enrollment at each of their institutions. Moving forward, continued consortium efforts to maintain and improve their PLA processes could assist each college in attracting new, potentially nontraditional students to each college because of the expertise in PLA the *Maine is IT!* program established.

4.4 Support from Student Navigators

The Student Navigator role was critical in implementing *Maine is IT!*-sponsored support services and other forms of student assistance throughout grant implementation. Those who were hired early in the grant implementation process were able to meet with many of the students early on in the fall 2014 semester, which proved helpful in establishing the position as a main resource for students in the early implementation stages of the grant. Because of the need to market

their position to *Maine is IT!* students, virtually all of the Student Navigators noted in the fall 2014 site visits and stakeholder online survey that they regularly sent weekly mass and tailored emails to their students regarding job openings, financial assistance, and remedial classes. This strategy was continued throughout the life of the grant, with additional strategies coming in the form of career fairs, employer visits, and brown bag lunches. In the fall 2016 site visits, Student Navigators at four of the colleges had noted that if they had been able to change how they implemented the Student Navigator role, they would have liked to increase their presence among students earlier on, mainly in the form of student orientations, creating more in-depth and intentional brown bag lunch series, or sitting in and visiting IT classes. According to one of these Student Navigators, *"I would have been in classes earlier…I get to see what they are doing and how they are going to be a benefit to an employer when they leave."*

Student Navigators were hired at each of the Consortium institutions to provide wrap-around student support services to students interested, or enrolled, in *Maine is IT!* programs of study. Student advising logs were collected from Student Navigators at five of the seven Consortium institutions (CMCC, KVCC, SMCC, WCCC, and YCCCC) in the first year of grant implementation and analyzed to determine methods and content of student support. Student Navigators at each institution continued to interact with students through emails, telephone calls, and face-to-face meetings for the remainder of grant implementation; two institutions, CMCC and SMCC, also reported reaching out to students through social media such as Facebook or chat features embedded in their websites. Student Navigators also discussed their most effective strategies in building relationships with the *Maine is IT!* students during the fall 2016 site visits. The most prominent and popular of these strategies included visiting classes on a regular basis (WCCC, KVCC, and CMCC), a strategy that had developed later in grant implementation rather than in the early stages. Other best practices and services provided by Student Navigators ranged from general announcements and encouragements to register for upcoming classes or programs, to more in-depth support such as goal setting, ongoing tutoring, and personal counseling.

Services also extended beyond the student's academic performance and moved into career counseling and employment information, especially in the 2015-16 and 2016-17 school year. Student Navigators across five institutions reported providing information or guidance around registration, financial aid, general program or campus announcements, academic advising and support, and employment information. Three institutions (SMCC, WCCC, and YCCC) specifically cited providing career counseling including guidance around resume development and three institutions (CMCC, KVCC, and WCCC) listed other support services that they offered including computer lab or digital assistance or providing information on immunizations support for students to ensure that they could take classes on time.

4.5 Testing Centers

In combination with grant funds and the new equipment that was purchased, some schools were able to become certified testing centers for students looking to complete IT certification exams. As of fall 2016, all testing centers had been reported in site visit interviews as having been completed and used regularly by students. At one college (EMCC), a student said, *"The equipment that we got through the grant enabled the CST program to then reach out and become a certified testing center …and they can provide testing for Microsoft certifications,*

CompTIA certifications, and also a software that we use called TestOut-LabSim." Additionally, one Student Navigator noted the convenience of having a testing center, saying *"I hear that the students really like the updated labs…The fact they can sit here, take the certification class for a great rate…and they walk right around the corner when they are ready and sit for their test, they say that's super helpful as well."* The testing centers that came to fruition as a result of *Maine is IT!* grant funds are one of the major sustainable improvements throughout the consortium.

Conclusion

Consortium colleges successfully planned and implemented various support services and strategies, including accelerated remediation, online and technology-enabled instruction, and tailored support from Student Navigators. Generally, all of these implementation areas saw success, particularly in the PLA field, with many colleges actively participating in CAEL workshops and implementing formal practices for accepting students' prior work experience for accreditation. With colleges throughout MCCS identifying a decrease in overall student enrollment, a focus on marketing new processes and promoting student supports, remediation opportunities, and online instruction may support future enrollment of students in the newly established IT programs.

IV. *Maine is IT!* Outcomes and Impact Evaluation

The *Maine is IT!* programs of study were designed to address workforce gaps in Maine by producing a qualified pool of eligible employees. This required that interested students enrolled in, were trained in, and have mastery of key program goals and outcomes and are subsequently hired and retained in relevant employment. This section presents preliminary findings about the types of students who enrolled in the *Maine is IT!* programs of study followed by the impact of the *Maine is IT!* program on students' academic and employment outcomes.

Student Tracking Data was initially pulled on a quarterly basis, which caused some academic data to be lost when the end of a quarter fell in the middle of a semester. Data collections were later adjusted to reflect a more standard semester reporting timeline. Some academic variables such as program of study, grade point average (GPA), and number of credits were updated each semester, so a longitudinal database was created to capture this data on an ongoing basis. However, if a student switched programs of study mid-semester or had to withdraw from a program, matching relevant GPA and credit data to the correct program of study presented a challenge. To minimize the impact of this limitation, all reports of student enrollment reflect their first program of enrollment, unless otherwise specified.

1. Data Collection and Analysis

Student academic and demographic information was collected by each of the institutions and compiled into one student tracking data spreadsheet. This data was updated each semester and used to create a master database that includes cumulative longitudinal information on all students ever enrolled in the *Maine is IT!* program as well as students in the designated program comparison group.

ICF received nine rounds of data submissions by summer 2017:

1. February 2015 (data from fall 2014 semester, going back to the beginning of program enrollment)
2. June 2015 (data through March 2015)
3. July 2015 (data through June 15, 2015)
4. November 2015 (data through September 30, 2015)
5. January 2016 (data through December 30, 2015)
6. July 2016 (data through June 30, 2016)
7. November 2016 (data through September 30, 2016)
8. January 2017 (data through December 30, 2016)
9. July 2017 (data on program participation through March 2017, on completion through May 2017, and on employment through July 2017)

Each dataset was combined into one master database that records ongoing academic progress of participants across *Maine is IT!* programs of study. The final compiled database included 5,385 unique *Maine is IT!* students and comparison group students. Of these, 2,395 students had enrolled in a *Maine is IT!* program of study (degree, certificate, advanced certificate, or noncredit certification program). Among these students, 379 students entered the database as "dropped from T3 program" and never reported a valid program of enrollment. This was primarily due to a data validity check for the initial data sent to the evaluation team; this was also reflective of the snapshot format of the data, which included students who were "currently active" when the data was captured. Students who participated in accelerated models and/or eight week semesters may not have been fully captured by the data presented due to this snapshot cycle. These students are excluded from all analysis, leaving 2,016 valid students enrolled in *Maine is IT!* The remaining 2,990 students were enrolled in comparison group programs of study in Business Administration, with 36 of these students reported as always dropped from a comparison group program of study.

In November 2015, each college was given the option to extend services under the grant for up to six months through March 31, 2017 instead of September 30, 2016. All but one college (NMCC) agreed to extend services to some extent. Data collection activities continued until the end of the Spring 2017 semester per DOL approval.

2. Outcomes of *Maine is IT!* Program

2.1 Programs of Study

New and enhanced degree, certificate, and certification programs were the main intervention of the *Maine is IT!* program. Across all institutions, the project sought to develop and expand 36 credentials (see Table 2). *Maine is IT!* planned to create five new degree programs and expand upon ten existing programs including Associate of Applied Science (AAS) and Associate of Science (AS) degrees. The 14 new Certificate programs were 16–36 credit hours intended to be completed in one year while Advanced Certificate programs were designed for those who had already attained an associate degree prior to matriculation into the Advanced Certificate program. For DOL reporting purposes, students enrolled in these credit programs are counted as fully part of the grant program. However, this grant program also includes certification programs which were short, noncredit courses that prepared students to sit for exams that lead

to a national, industry-recognized certification; these programs were excluded from DOL's reporting requirements However, taken together, these programs allowed students to access education and training at multiple points on an educational pathway, to accelerate their time to completion through the remediation and support strategies discussed above, and to build an electronic portfolio that could accelerate their time to completion and serve them in the workforce.

TABLE 2: *MAINE IS IT!* PROGRAMS OF STUDY, CREDENTIAL, AWARDING COLLEGE, AND STATUS

Program of Study	Credential	Awarding College	Status
CADD	AAS	EMCC	Enhance
Computer and Network Technology	AAS	NMCC	Enhance
Computer Information Security	AAS	SMCC	Create
Computer Systems Integration – Business concentration	AAS	KVCC	Create
Computer Systems Technology	AAS	EMCC	Enhance
Digital Graphics Design	AAS	EMCC	Enhance
Information Technology	AAS	SMCC, YCCC	Enhance
IT Helpdesk I, II, III	Concentration	SMCC	Enhance
Programmer I, II, III	Concentration	SMCC	Enhance
Network Security/Computer Forensics	AAS	CMCC, WCCC	Create
Computer Information Systems – CADD	AS	KVCC	Enhance
Computer Science	AS	SMCC, YCCC	Enhance/Create
Applied Electronics and Computer Technology	AAS/AS	KVCC	Enhance
Computer Technology	AAS/AS	CMCC, WCCC	Enhance/Create
Information Security	Adv. Certificate	YCCC	Create
Network Administration	Adv. Certificate	CMCC	Create
Network Security	Adv. Certificate	CMCC	Create
Server Administrator	Adv. Certificate	CMCC	Create
Applied Electronics and Computer Technology	Certificate	KVCC	Create
CADD	Certificate	EMCC	Enhance
Computer and Network Technology	Certificate	NMCC	Enhance
Computer Repair	Certificate	EMCC	Enhance
Digital Graphic Design	Certificate	EMCC	Enhance
Healthcare Information Technician	Certificate	EMCC	Create
Help Desk and User Support	Certificate	YCCC	Create
Network Administrator	Certificate	YCCC	Create
Web Development	Certificate	YCCC	Create
Computer Technology	Certification	KVCC	Create

Program of Study	Credential	Awarding College	Status
Healthcare Information Technician	Certification	NMCC	Create
IT Helpdesk I, II, III	Certification	CMCC	Create
Mobile Systems Technology	Certification	KVCC	Create
Network Administrator	Certification	CMCC	Create
PC Repair	Certification	CMCC	Create
Server Administration	Certification	CMCC	Create
Web Development	Certification	NMCC	Create

Source: *Maine is IT!* Technical Proposal

The curriculum enhancements and new components include several strategies that are described here.

2.1.1 Stacked and Latticed Credentials

A central component of *Maine is IT!* was the development and expansion of stackable certifications, certificates, and degrees that allowed students to access education and training at multiple points on an educational pathway. This began with non-credit certification courses that bridge to courses and modules that awarded both college credit and industry recognized certifications, the building blocks of one- and two-year credentials leading on to four-year degrees.

2.1.2 Accelerated Time to Completion and Multiple Entry Points

The project anticipated that many participants would need to strengthen their math, computer, and critical thinking skills quickly and effectively. *Maine is IT!* leaders planned to pilot or expand a variety of promising accelerated learning models to meet the needs of these and other students. Students could take advantage of program features such as accelerated remediation opportunities and competency-based coursework that provided students with the ability to complete degrees and certificates on their own timeline. Staggered program start times supported students' complex lives by allowing them to begin courses in the middle of a semester, to provide more immediate entrance into college, and reduce time spent out of the workforce. An expansion of summer programming likewise allowed adults who needed remedial support to take part in development courses over the summer so that they can be prepared to seamlessly enter full programs in the fall semester with the skills needed to persist and succeed in their chosen program of study.

2.1.3 Becoming IT

The project collaborated with the business and industry divisions from each of the seven community colleges that served as providers[10] and local One-Stop Career Centers to develop the Becoming IT program. The Becoming IT program was a partnership through a Memorandum of Understanding between MCCS and the MDOL/One Stop Career Centers to provide a referral service. The local Career Center referred dislocated, un- and under-employed, and/or veteran customers who showed interest in the Information Technology field to apply for the program at

[10] The proposed partnership with Goodwill Industries did not work as intended, so offices of corporate and community services had been taking on the Becoming IT component of the program as an alternative source for this contracted service.

their local community college. The goal of the Becoming IT program was to serve up to 150 dislocated Maine workers. Career and educational pathways included multiple entry and exit points for those trade-impacted workers and others who may have needed extra support to initially access and succeed along these pathways. In addition to offering an integrated set of academic and career supports, they enabled participants to complete a 6week, 120-hour program to earn an industry-recognized credential in the IT field and connect with the local community college. Students were assisted by a Student Navigator who provide one-on-one assessment of their math, reading, writing and computer skills as well as IT aptitudes and interests. The Student Navigators trained workforce partner staff on "best practices" to guide and support participants who wanted training to enter IT careers. They also worked with local adult education centers to develop a series of developmental education steps that support success in transitioning to post-secondary IT coursework. The Becoming IT training program included basic workplace computer skills, introductory and self-paced numeracy and literacy skills, guided career exploration, test taking skills, and job shadowing experiences.

2.2 Student Participation in Degree and Certificate Programs

The *Maine is IT!* program planned to enroll 2,096 students by the end of the grant period and by March 2017, 2,016 students had enrolled in a *Maine is IT!* program of study. In Table 3, the demographic background of the 2,016 students who enrolled in a *Maine is IT!* program of study is presented.

TABLE 3: STUDENT DEMOGRAPHIC AND ENROLLMENT CHARACTERISTICS

Student Demographic Characteristic	Percentage of Students	Student Enrollment and Demographic Characteristic	Percentage of Students
Race/Ethnicity (*n*=2,016)		**Institution (*n*=2,016)**	
American Indian or Alaska Native	1%	Central Maine (CMCC)	19%
Asian	2%	Eastern Maine (EMCC)	14%
Black or African American	4%	Kennebec Valley (KVCC)	17%
White	78%	Northern Maine (NMCC)	4%
Hispanic/Latino	2%	Southern Maine (SMCC)	36%
Multi-racial	2%	Washington County (WCCC)	2%
Race unknown	9%	York Country (YCCC)	9%
Gender (*n*=2,016)		**Age (*n*=2,016)**	
Female	14%	18–21	23%
Male	86%	22–29	37%
TAA-Impacted (n=2,016)	1%	30–39	19%
Veteran (n=2,016)	6%	40–49	10%
		50+	11%

Source: Student Tracking Data – through July 2017. NOTE: Total percentages may not total exactly 100% due to rounding.

The majority of students enrolled in *Maine is IT!* were white (78%) and male (86%). Students ranged in age from 18 to 77 with an average age of 31. SMCC had enrolled the greatest percentage of students at 36%, followed by CMCC at 19% and KVCC at 17%. Veterans made up 6% of *Maine is IT!* students and TAA-eligible individuals were 1% of the total enrolled population (see Table 3). Across the life of the grant program, 2,016 students (96% of the initial goal) had enrolled in *Maine is IT!* programs of study, which included 81% who were enrolled in

degree programs, 3% in a certificate or advanced certificate program and 16% in a non-credit certification program (see Table 4). Due to the short duration of certification programs, students' specific program of study is not tracked and therefore is not reported. The program of study with the most students enrolled was the Computer Technology program which had been implemented across three institutions (CMCC, WCCC, and YCCC) and accounted for 25% of the total student enrollment.

TABLE 4: PERCENTAGE OF STUDENTS ENROLLED, BY TRAINING PROGRAM

Program of Study by Credential Type	Students Enrolled	Full Time Enrollment
Total	**N=2,016**	**25%**
Degree Programs (*n*=1,623)	**81%**	**29%**
Applied Electronics and Computer Technology	5%	29%
Computer Aided Drafting & Design (CADD)	1%	42%
Computer and Network Technology	1%	77%
Computer Information Security	5%	13%
Computer Information Systems – CADD	--	--
Computer Science	14%	27%
Computer Systems Integration – Business concentration	3%	29%
Computer Systems Technology	6%	56%
Computer Technology	25%	43%
Digital Graphic Design	4%	46%
Program of Study by Credential Type	**Students Enrolled**	**Full Time Enrollment**
Information Technology	13%	24%
Network Security/Computer Forensics	3%	34%
Certificate and Advanced Certificate Programs (*n*=64)	**3%**	**29%**
(Advanced) Information Security	--	--
(Advanced) Network Administration	--	--
(Advanced) Network Security	<1%	50%
(Advanced) Server Administrator	<1%	100%
Applied Electronics and Computer Technology	<1%	0%
Computer Aided Drafting & Design (CADD)	<1%	0%
Computer and Network Technology	<1%	100%
Computer Repair	1%	67%
Digital Graphic Design	<1%	75%
Healthcare Information Technology	1%	33%
Help Desk and User Support	<1%	29%
Network Administrator	<1%	0%
Web Development	1%	9%
Non-Credit Certifications (*n*=329)	**16%**	**4%**

Source: Student Tracking Data – through July 2017. NOTE: Total percentages may not total exactly 100% due to rounding. NOTE: Students' credentials are reported by the highest credential of enrollment, with credit-program enrollment always trumping non-credit program enrollment.

Enrollment varied by institution, driven by the types of programs being implemented at each institution.[11] SMCC, YCCC, EMCC, and CMCC enrolled the vast majority of students in degree programs and correspondingly, had smaller percentages of students enrolled in non-credit certification programs. KVCC and NMCC likewise had the smallest percentage of students enrolled in degree programs while enrolling the greatest percentage of students in non-credit certification programs (see Table 5). The majority of non-credit participants came from the Becoming IT program-Comp TIAA+ certification/remediation offered across the consortium. No institution had enrolled more than 15% of students in certificate or advance certificate programs; YCCC and EMCC had enrolled the largest percentage of their students in these programs with 13% and 9% enrolled in certificate or advanced certificate programs, respectively.

TABLE 5: PERCENTAGE OF STUDENTS ENROLLED, BY PROGRAM TYPE AND INSTITUTION

Institution	Degree Programs	Certificate & Advanced Certificate Programs	Non-Credit Certification Programs
Total (*n*=2,016)	**81%**	**3%**	**16%**
Central Maine (CMCC) (*n*=376)	83%	1%	16%
Eastern Maine (EMCC) (*n*=275)	81%	9%	9%
Kennebec Valley (KVCC) (*n*=344)	45%	1%	54%
Northern Maine (NMCC) (*n*=74)	41%	3%	57%
Southern Maine (SMCC) (*n*=722)	98%	1%	1%
Washington County (WCCC) (*n*=43)	77%	0%	23%
York Country (YCCC) (*n*=182)	87%	13%	0%

Source: Student Tracking Data – through July 2017. NOTE: Total percentages for each program type may not total exactly 100% due to rounding. Note: Students' credentials are reported by the highest credential of enrollment, with credit-program enrollment always trumping non-credit program enrollment.

2.3 Students' Use of Support Services

Maine is IT! assisted students through targeted support services designed to enable students to enter the workforce more quickly or with a greater range of skills or credentials. Support services were primarily provided by Student Navigators who were hired by each institution to provide one-on-one tailored and general support to all students enrolled in a *Maine is IT!* program of study. Student Navigators linked students to supports that included administering assessments intended to provide information and guidance to students from enrollment through to employment, including PLA, diagnostic skills assessment, career aptitude assessment, and job and career-oriented events. Student Navigators also worked with students to provide or support access to general wrap-around support services including assistance with transportation, guidance in navigating financial aid and scholarships, arranging or providing tutoring, and information about potential internship or employment opportunities.

Throughout the entire grant period, Student Navigators provided at least one support service to 34% of all students enrolled in *Maine is IT!* programs of study (see Table 6). This support varied by institution with the majority of *Maine is IT!* students at WCCC, CMCC, and KVCC receiving at least one support service (91%, 59%, and 57% respectively). In addition, approximately four in

[11] The data is coded to prioritize students' most advanced degree program or program of study, which may contribute to a slight under-reporting in the overall participation in non-credit certification programs among those who have also participated in a degree or advanced certificate program.

ten students enrolled in *Maine is IT!* at NMCC and YCCC received at least one support service (47% and 41% respectively).

TABLE 6: PERCENTAGE OF STUDENTS USING SUPPORT SERVICES, BY INSTITUTION

Institution	Any Support Serv	Diagnostic Sk Assessment	PLA	Career Aptitu	Academic Pl Preparation	Instructional Learr Supports	Supplement Instruction	AnyCoaching ar Retention Servic
Central Maine (CMCC) (*n*=376)	59%	0%	8%	0%	49%	23%	<1%	1%
Eastern Maine (EMCC) (*n*=275)	2%	0%	2%	0%	0%	0%	0%	0%
Kennebec Valley (KVCC) (*n*=344)	57%	20%	1%	11%	16%	32%	<1%	24%
Northern Maine (NMCC) (*n*=74)	47%	8%	43%	12%	0%	0%	0%	5%
Southern Maine (SMCC) (*n*=722)	16%	0%	14%	0%	0%	0%	0%	2%
Washington County (WCCC) (*n*=43)	91%	10%	74%	19%	0%	0%	19%	64%
York Country (YCCC) (*n*=182)	41%	0%	29%	0%	0%	0%	2%	8%
Total (*n*=2,016)	**34%**	**4%**	**13%**	**3%**	**12%**	**10%**	**1%**	**7%**

Source: Student Tracking Data – through July 2017. NOTE: Total percentages for each program type may not total exactly 100% due to rounding.

Each institution also varied in the types of supports that it provided to students. Prior learning assessment was the support provided the most frequently and the only support consistently provided by all institutions, impacting 13% of *Maine is IT!* students overall, including 74% of those enrolled at WCCC (Table 6). In contrast, just 3% of all students took part in the Career Aptitude test and 1% of students engaged in Supplemental Instruction. Only KVCC reported providing all available supports to their students, although less than 1% of their students utilized supplemental instruction. In addition, CMCC and WCCC reported utilizing all but two available support services (see Table 6).

Student support services were designed to support students' academic achievement and program retention all the way through program completion or graduation. The evaluation team conducted correlational analysis to assess the extent to which participating in *any* support service and participating specifically in coaching and retention services (e.g., meeting with a Student Navigator) promoted academic achievement (measured by higher cumulative GPAs) and program completion Table 7 shows at which colleges any support service and any coaching and retention service was significantly correlated with GPA and/or graduation/completion. The correlation statistic explains the relationship between the two variables, with a positive significant correlation indicating that the two variables rise or increase together; as support services increase, so do students' GPA and graduation/completion rate.

TABLE 7: IMPACT OF SUPPORT SERVICES ON ACADEMIC ACHIEVEMENT AND COMPLETION

Institution	Any Support Service				Any Coaching & Retention Service			
	Significantly Correlated	Correlation	Significantly Correlated	Correlation	Significantly Correlated	Correlation	Significantly Correlated	Correlation
	Higher GPA		**Graduation/Completion**		**Higher GPA**		**Graduation/Completion**	
Total	**ns**	**--**	**+**	**.108****	**+**	**.049***	**+**	**.062****
Central Maine (CMCC)	ns	--	ns	--	ns	--	+	.159**
Eastern Maine (EMCC)	ns	--	ns	--	n/a	--	n/a	--
Kennebec Valley (KVCC)	+	.161*	ns	--	+	.311*	ns	--
Northern Maine (NMCC)	ns	--	ns	--	+	.265*	ns	--
Southern Maine (SMCC)	+	.176**	ns	--	ns	--	-	.127**
Washington County (WCCC)	ns	--	ns	--	+	.433**	+	.385*
York Country (YCCC)	+	.167*	+	.185*	ns	--	ns	--

Source: Student Tracking Data – through July 2017. NOTE: 'ns' indicates a non-significant correlation. 'n/a' indicates that institution did not provide coaching and retention services. * Correlation is significant at the .05 level. ** Correlation is significant at the .01 level.

Having participated in any support service (a composite variable of *any* participation in each of the individual support services) was not significantly correlated with higher GPAs but was significantly positively correlated with program completion (p=.108**).[12] Participating in any coaching and retention service, irrespective of the number of coaching appointments was also significantly positively correlated with both higher GPAs (p=.049*) and program completion (p=.062**) across the consortium. This finding indicates that these support services promoted higher academic performance and degree attainment or program completion. However, these correlations varied by institution. At KVCC, SMCC, and YCCC, participating in any support service was positively correlated with academic achievement, and at KVCC, NMCC and WCCC, participating in coaching and retention services were also uniquely positively correlated with academic achievement. This suggests that at these institutions, something about the way in which these services were delivered or the population of students who received these services uniquely benefited participants; these supports were not significantly correlated with GPA at the other institutions (see Table 7). Participating in any support service was only positively

[12] * Correlation is significant at the .05 level. ** Correlation is significant at the .01 level.

correlated with graduation or completion at YCCC while participating in coaching and retention services was positively correlated with program completion at both CMCC and WCCC, indicating that at these institutions, this intensive support promoted program completion. Interestingly, at SMCC, receiving coaching and retention services was *negatively* correlated with program completion. This is likely a reflection of the population of students targeted for this support; while these students may still have benefited from this support, coaching services may not have been able to fully overcome the needs and challenges faced by these students.

Conclusion

Through March 2017, the consortium colleges had enrolled nearly 96% of the planned number of participants (2,096) in *Maine is IT!* programs of study—81% in a degree program, 3% in a certificate or advanced certificate program, and 16% in a non-credit certification program. The majority of the enrolled students enrolled were white, male, non-veteran, non-TAA eligible, and enrolled part-time. The program of study with the most students enrolled was the Computer Technology program offered at three of the colleges in the consortium. Student Navigators were critical at each institution to provide support services to *Maine is IT!* students, interacting with students mostly through emails, telephone calls, and face-to-face meetings. Overall, one-third of students (35%) received services from Student Navigators, although this varied by institution. In spite of the relatively low participation rates, having participated in any support service (composite of each support service) was positively correlated with program completion and having received the more individualized coaching and retention services was significantly positively correlated with both higher GPA and program completion, suggesting that these services uniquely support students' academic and completion goals.

3. Impact of *Maine is IT!*

Program impact is conceptualized first as successful program completion by enrolled students. This is further broken down into grade point average and obtaining industry-recognized certifications for credit and noncredit students respectively. Following program completion, program impact is assessed by examining participants' employment outcomes.

3.1 Successful Program Participation

Maine is IT! was comprised of 12 degree programs, nine certificate programs, and four advanced certificate programs. Each of these programs were credit-bearing and awarded grades to students at the end of each semester to report on program progress. Due to the small sample size of students in certificate and advanced certificate programs, grade point average (GPA) was not reported by program for students in these programs. This data is included in the overall totals reported in Table 8.

By the end of March 2017, 1,687 students had taken courses in credit-bearing degree or certificate and advanced programs. Across all degree programs, average GPA ranged from 2.39 (in Computer Science) to 3.26 (in Computer and Network Technology). The overall average GPA for students in degree programs was 2.64, which was skewed to the lower end of the average GPA range due to the large size of the Computer Science and Computer Technology programs and their relative low average GPAs (see Table 8). Students enrolled in certificate or advanced certificate programs earned an average GPA of 3.10.

TABLE 8: PERCENTAGE OF STUDENTS BY CUMULATIVE GPA RANGE AND PROGRAM

Program of Study	Percentage of Students by GPA Range					Mean GPA
	0–0.99	1.00–1.99	2.00–2.99	3.00–3.99	4.00	
Degree Programs (*n*=1,623)	**10%**	**12%**	**31%**	**43%**	**4%**	**2.64**
Applied Electronics and Computer Technology (n=92)	10%	15%	22%	53%	0%	2.73
Computer Aided Drafting & Design (CADD) (n=26)	0%	4%	39%	54%	4%	3.00
Computer and Network Technology (n=22)	0%	5%	9%	82%	5%	3.26
Computer Information Security (n=98)	6%	13%	30%	41%	5%	2.80
Computer Information Systems – CADD (n=0)	--	--	--	--	--	--
Computer Science (n=290)	17%	14%	30%	34%	5%	2.39
Computer Systems Integration – Bus. Conc. (n=70)	14%	16%	21%	46%	3%	2.52
Computer Systems Technology (n=117)	5%	8%	33%	55%	0%	2.86
Computer Technology (n=495)	7%	13%	36%	42%	2%	2.65
Digital Graphic Design (n=85)	6%	8%	32%	44%	11%	2.89
Information Technology (n=266)	11%	13%	31%	42%	3%	2.60
Network Security/Computer Forensics (n=62)	13%	11%	27%	47%	2%	2.51
Certificate/Advanced Certificate Programs (*n*=64)	**2%**	**3%**	**37%**	**48%**	**11%**	**3.10**

Source: Student Tracking Data – through July 2017. Total percentages may not total exactly 100% due to rounding.

3.2 Graduation and Completion

In addition to the 25 credit-bearing programs offered through the *Maine is IT!* program, four institutions (KVCC, NMCC, CMCC, and SMCC)[13] implemented nine non-credit certification programs. Across these institutions, 329 students had enrolled exclusively in these non-credit certification programs while another 76 students enrolled in both a non-credit certification program and in a degree or certificate program. Among this total of 405 students, 50% had completed at least one non-credit program with 18% completing two or more programs (see Table 9). In particular, at CMCC, one-quarter (25%) of those enrolled in non-credit certification programs had earned 3 or more certifications. The Student Tracking Database did not report on specific certification programs that students participate in; however, KVCC and CMCC – the institutions that had the largest numbers of student enrolled in certification programs – had tracked individual students' enrollment and completion of these programs. The majority of these non-credit students at these two institutions had enrolled in certifications in the Comp TIA programs, followed by certifications in Microsoft technologies and capabilities.

[13] SMCC's noncredit was absorbed into concentrations within their degree program.

TABLE 9: STUDENTS EVER ENROLLED IN AND COMPLETION OF MULTIPLE CERTIFICATION PROGRAMS

Institution of Enrollment	Retained, dropped or failed program	Completed one program	Completed two programs	Completed three or more programs
CMCC (*n*=108)	39%	20%	16%	25%
EMCC (*n*=26)	75%	25%	0%	0%
KVCC (*n*=207)	50%	36%	9%	5%
NMCC (*n*=48)	63%	38%	0%	0%
SMCC (*n*=6)	100%	0%	0%	0%
WCCC (*n*=10)	40%	60%	0%	0%
Total Enrolled (*n*=405)	**50%**	**32%**	**9%**	**9%**

Source: Student Tracking Data – through July 2017. NOTE: Total percentages for each institution may not total exactly 100% due to rounding.

By May 2017, 541 students (27%) had completed their program of study, which included 23% of all students enrolled in a degree program, 38% of those enrolled in certificate or advanced certificate programs, and 44% of those enrolled exclusively in a certification program (see Table 10). As a reminder, only students in degree or certificate/advanced certificate programs were counted toward the DOL outcome measure for program completion.

TABLE 10: PERCENTAGE OF STUDENTS GRADUATING/COMPLETING AND BEING RETAINED, BY PROGRAM TYPE

Program Type*	Percentage of Students Graduated/ Completed	Percentage of Students Retained	Percentage of Students who Dropped[β]
All degree programs (*n*=1,623)	23%	51%	26%
All certificate programs (*n*=64)	39%	44%	17%
All NC certification programs (*n*=329)	43%	16%	41%
Total (*n*=2,016)	**27%**	**45%**	**28%**

Source: Student Tracking Data – through July 2017. NOTE: Total percentages may not total exactly 100% due to rounding.
*Students' credentials are reported by the highest credential of enrollment. [β]Dropped students includes only those students who had a valid initial program of study recorded.

These rates varied slightly by program as well as by institution. NMCC and WCCC had the highest completion rates at 51% and 40% respectively, although these institutions also had the smallest overall enrollment. KVCC, EMCC, CMCC, and YCCC each had approximately onethird of their enrolled students complete at least one program of study during the grant period (38%, 38%, 29%, and 28%, respectively).

3.3 Continuing Education

An additional area of interest for DOL TAACCCT grants is to assess the number of students who complete a grant-funded program of study and go on to enroll in continuing education. By the end of the grant period, 51 students who had completed a *Maine is IT!* program had transferred to a 4-year university, primarily the University of Southern Maine or a campus of the University of Maine. The vast majority of these students (94%) had completed an Associate's degree program at one of the consortium institutions prior to enrolling in a 4-year university while the remaining

6% of students had completed either a certificate or advanced certificate program or a non-credit program.

Another marker of continuing education is those students who completed a *Maine is IT!* program of study and went on to enroll in subsequent coursework within MCCC. This is of particular relevance for students who complete a non-credit certification course, which were shorter in duration than the degree or certificate programs and often served as a point of entry for students. Through the PLA process established by the grant, these certification programs contributed to receiving PLA credit in a degree program. Fifty-three students across CMCC, EMCC, and KVCC had previously completed one (n=20) or multiple (n=33) *Maine is IT!* noncredit certification courses and subsequently moved on to enroll in a certificate, advanced certificate, or a degree program, presumably earning PLA credit to support their program completion. Two-thirds of those students (66%) also completed a degree or certificate program within the grant period (results not shown). Taken together, 104 *Maine is IT!* students chose to continue their education following their initial experience with the grant program.

3.4 Student Employment Outcomes

The *Maine is IT!* programs of study were designed to help TAA-eligible, unemployed and underemployed workers receive training in various information technology fields and find employment in those fields across the state of Maine. Workforce participation was collected from students upon program entry to assess subsequent employment outcomes for both unemployed and incumbent workers.

At the time of enrollment, nine in ten students reported being unemployed (89%). This ranged from 67% of students at WCCC to 100% of students at EMCC (see Table 11). Among students who were employed at program entry, approximately equal percentages were employed in a full-time vs. part-time capacity, although this also varied by institution. Among those students who were employed, one-quarter (26% - results not shown) were actively working in the IT field, indicating that for the rest, finding a job related to their degree or certificate program would also result in a change of careers or industries.

TABLE 11: PERCENTAGE OF STUDENTS WHO WERE EMPLOYED AT PROGRAM ENROLLMENT

Institution	Unemployed	Employed – Full Time	Employed – Part Time
Central Maine (CMCC) (*n*=376)	91%	6%	3%
Eastern Maine (EMCC) (*n*=275)	100%	0%	0%
Kennebec Valley (KVCC) (*n*=344)	90%	8%	2%
Northern Maine (NMCC) (*n*=74)	87%	10%	4%
Southern Maine (SMCC) (*n*=722)	84%	7%	9%
Washington County (WCCC) (*n*=43)	67%	14%	19%
York Country (YCCC) (*n*=182)	92%	1%	7%
Total (n=2,016)	**89%**	**6%**	**5%**

Source: Student Tracking Data – through July 2017. NOTE: Total percentages may not total exactly 100% due to rounding.

Following program completion, *Maine is IT!* staff obtained data from the Maine Department of Labor's (MDOL) Center for Workforce Research and Information. The data from MDOL was available approximately five months after a student completed their program of study and entered the workforce, contingent upon the student having a social security number that matched MDOL's database. The evaluation team received two rounds of employment data: 1)

employment records for students who completed their program of study during the 2013-2014 and 2014-2015 academic years and 2) records for students who completed their program of study during the 2015-2016 and 2016-2017 academic years. Overall, MDOL was able to provide employment information for 290 *Maine is IT!* students and 303 comparison students. However, this data was provided in aggregate, limiting the amount of analysis that could be conducted on employment trends. In addition, this data excludes information on students who are selfemployed, employed by a federal agency, or who have moved out of state.

Among *Maine is IT!* students in these cohorts, 56% of non-incumbent workers had found new employment after program completion and 85% of those students had retained that employment for the following three quarters after program completion. However, this number may continue to rise; 10 students who had found work had completed their program of study during the last six months of 2016 and had not yet had the opportunity to be employed for three quarters after program completion, as of the time of reporting. These rates of employment exceeded those of students in the comparison group; 51% of non-incumbent workers in the comparison group found new work following program completion and just three-fourths of these students (74%) had continued in that position for three quarters after program completion (see Table 12). The difference in means between treatment and comparison group for non-incumbent workers who were employed following program completion was not significant. However, there was a statistically significant difference among those who retained employment between the treatment and the comparison group, suggesting that participating in the *Maine is IT!* program had a positive effect on finding and retaining subsequent employment.[14]

TABLE 12: PERCENTAGE OF STUDENTS WHO FOUND NEW WORK OR RECEIVED A WAGE INCREASE AFTER PROGRAM COMPLETION

	Percentage of Eligible Workers	
Non-incumbent worker	Initially Employed	Retained Employment
Maine is IT! (treatment) students (*n*=290)	162 (56%)	138 (85%)
Comparison students (n=303)	156 (51%)	115 (74%)
Incumbent worker	Wage Increase	
Maine is IT! (treatment) students (*n*=98)	44 (45%)	
Comparison students (*n*=2)	***	

Source: MDOL Labor Report – through May 2017. ***Cell sizes smaller than 10 were not reported by MDOL.
NOTE: 10 students in the treatment group and 24 students in the comparison group who had found work had completed their program of study during the last 6 months of 2016 and had not yet had the opportunity to be employed for 3 quarters after program completion, as of the time of reporting.

Trends among incumbent workers (those who were employed upon beginning their program of study) were less clear, due to a lack of available data among comparison students. However, among treatment students who took part in a *Maine is IT!* program of study, 45% of incumbent workers received a wage increase following the completion of their program.

3.5 Employer Perceptions

Overall, employers indicated general satisfaction with the *Maine is IT!* program as it related to communication with their respective partner college, the content of the material being taught as it

[14] An independent t-test found that there was a significant difference between the treatment (M=.85, SD=.356) and comparison (M=.74, SD=.442) groups; t(316)=2.55, p=.011.

was suggested by advisory councils, and the equipment being used to train students. Throughout the implementation process, employers repeatedly mentioned during site visits the importance not only having the basic understanding of IT and various facets within the field, but also the soft skills (i.e. customer service, communication, social) that were needed to support a business and the client relationships attached to the business. According to one employer, *"Soft skills sometimes get overlooked, sometimes the students think that as long as they know the technical piece it doesn't matter how they relate to people."* Most employers cited the entry-level position of a help desk team member as an example of one that utilized these soft skills; many graduates would need to work in that role before being promoted to a higher position. Although the newly created or enhanced internship programs in some schools countered some of the need for students to gain more technical experience, employers still noted the importance of maintaining a dynamic and responsive relationship with the consortium college in the years following *Maine is IT!* grant funding, to ensure that employer needs continued to be met. According to the spring 2017 employer survey, 46% of employers reported being *very satisfied* with their partner college relationship, and another 31% were *somewhat satisfied* with their relationship, which was generally consistent over the grant period. Additionally, 14% of employers indicated having hired individuals who received certificates or degrees through the *Maine is IT!* program. It should be noted, however, this percentage may be lower than actual hiring statistics; 41% of employer partners were unsure of whether or not they have hired a *Maine is IT!* student, meaning that students who achieved a certificate or degree through the *Maine is IT!* program may have been hired without the individual employer partner representative's knowledge.

Conclusion

Through the life of the grant, 1,687 students took courses in credit-bearing degree or certificate programs of study, and their overall average GPA was 2.66. In addition, 405 students enrolled in 25 non-credit certification programs at four colleges, and fully half of these students completed at least one certification program. By May 2017, 541 students had completed their program of study, which included 23% of all students enrolled in a degree program, 38% of those enrolled in certificate programs, and 44% of those enrolled exclusively in a certification program.

Overall, 104 *Maine is IT!* students successfully completed at least one program of study and enrolled in subsequent education, either at one of the consortium institutions (51%) or at a 4-year university (49%) while the majority of program completers pursued new or more advanced work opportunities following program completion. At the time of enrollment, nine in ten students reported being unemployed, representing a significant opportunity for the *Maine is IT!* program to impact subsequent employment. Indeed, 162 *Maine is IT!* students found new work following program completion with 85% of those students retaining that employment for three quarters after program completion. This was statistically significantly higher than students in the comparison group, suggesting a lasting benefit of program participation on employment. In addition, 45% of incumbent workers received a wage increase after completing their program of study. Overall, employers were generally satisfied with the *Maine is IT!* program, specifically citing the technical skills being taught to students. Most indicated that they planned on continuing their relationship with their respective college partners in the future.

4. Comparison to Non-Participants

This evaluation further examined the impact of the *Maine is IT!* program using a comparisongroup evaluation design. All students who applied to the *Maine is IT!* program were

accepted and enrolled in a grant-funded Information Technology (IT) program of study and received new or enhanced educational training and supports. Absent random assignment to the program, evaluators and the grant leadership team identified a concurrent group of comparison students drawn from the same seven colleges enrolled in Business Administration (BUS) programs of study. These comparison students had similar chronological entry points to those in the *Maine is IT!* programs of study, but did not benefit from the grant-funded new or enhanced curricula, resources, and student support services. From Fall 2014 to Spring 2017, 1,687 students were enrolled in one of the *Maine is IT!* degree, certificate, or advanced certificate programs across all consortium colleges. During that same period, 2,954 students were enrolled in one of the BUS programs of study. Table 13 provides a summary of the demographic and enrollment characteristics of the two groups using college entry data collected by the seven institutions in the first semester of a student's admission. These characteristics include gender, age, race/ethnicity, English as a second language indicator, full- or part-time enrollment indicator, and the ACCUPLACER arithmetic test score on problem solving and arithmetic concepts.

4.1 Characteristics of Students in the Comparison Group

By March 2017, 2,954 students had been added to the comparison group across the nine rounds of data submitted by *Maine is IT!* program staff. Demographic and enrollment characteristics are summarized in Table 13. Table 13 also presents information about all *Maine is IT!* participants and a measure of comparing the two original groups on these characteristics; standardized mean differences (Cohen's d effect sizes) are also displayed. In the original samples of *Maine is IT!* participants and Business Administration students (comparison group) there were some differences that stand out (e.g., had a medium or large effect size) such as the composition of males vs. females, the number of students with missing data on their school status (enrolled full- or part-time) and differences in the chronological entry point to the institutions, as broken down academic year of enrollment. Students in the comparison group were evenly divided by gender, whereas the majority of the participants in the *Maine is IT!* program were male (86%). In addition, students in the comparison group were more likely to have missing information about their school status than those in the *Maine is IT!* group (27% vs. 7%), and almost one-fourth of the comparison students were enrolled during 2016-17, which was the final academic year of the program (24% vs. 10% of *Maine is IT!* enrollees in 2016-17).

Due to these notable differences between the original samples of the *Maine is IT!* participants and comparison students, the study combined exact matching on the year of admission with nearest neighbor using a 1-to-1 propensity score-based matching approach for establishing an equivalent comparison group.[15] The matching process using propensity score matching ensured

[15] The study followed an individual 1-to-1 propensity score-based matching technique for establishing an appropriate concurrent and equivalent comparison group using data obtained in the first semester of admission: gender, age, race/ethnicity, English as a second language indicator, full- or part-time enrollment indicator, and the ACCUPLACER arithmetic test score on problem solving and arithmetic concepts. Admission data such as eligibility for Pell grant or trade-adjustment assistance (TAA) aid, disability status, and veteran status were not collected by the program for the group of comparison students. To select "similar" comparison students on available data, 1-to-1 nearest neighbor match on a logistic-regression based propensity score within a 0.25 caliper restriction was followed here through a precise algorithm applied through a computer-based macro, called *MatchIt* (Ho, Imai, King, & Stuart, 2007). The default nearest neighbor matching method in *MatchIt* is 'greedy' matching, where the closest control match for each treated unit is chosen one at a time at a random order without replacement.

that *Maine is IT!* participants and comparison students with similar demographic and enrollment characteristics were matched with each other to strengthen analysis. The final matched sample contained 812 students from both the *Maine is IT!* treatment group and the comparison group for a total matched sample of 1,624 students. Both groups in the matched sample consisted primarily of male students (roughly 80% of students in both groups were males) who were admitted the same academic year (due to exact match). Additionally, both groups had almost the same ratio of students enrolled part-time (roughly 61%). The matched groups were also alike on all other characteristics such as racial composition (almost 8 out of 10 students in both samples were White), average age (approximately 27), ACCUPLACER arithmetic test performance (*Maine is IT!* participants and comparison students had a 76.3 and a 74.2 average score, respectively), and on missing data for school status (as Table 13 indicates, the effect size of all differences were trivial or small, Cohen's d<=.25).

TABLE 13: DEMOGRAPHIC AND ENROLLMENT CHARACTERISTICS OF MAINE IS IT! PARTICIPANTS AND CONCURRENT COMPARISON GROUPS: ORIGINAL AND MATCHED SAMPLES

Student Demographic and Enrollment Characteristics		Original Samples			Matched Samples		
		Maine is IT!	**Comparison Group**	**Difference (Effect Size*)**	***Maine is IT!***	**Comparison Group**	**Difference (Effect Size*)**
		n=1,687	n=2,954	Cohen's d	n=812	n=812	Cohen's d
Gender	Male	86%	49.8%	1.10	83%	82%	0.04
	Female	14%	50.2%		17%	18%	
Race/Ethnicity	*Missing Data*	*4%*	*3%*	*0.23*	*4%*	*3%*	*0.09*
	White	83%	82%	0.06	80%	79%	0.05
	Black	5%	7%	0.23	8%	9%	0.09
	Asian	2%	2%	0.23	2%	2%	0.00
	Hispanic	2%	3%	0.23	3%	3%	0.08
	Other	4%	4%	0.05	4%	5%	0.17
Age Range	*Missing Data*	*0%*	*<1%*	-	-	-	-
	18–21	27%	33%	0.17	32%	35%	0.09
	22–29	41%	41%	0.01	39%	41%	0.04
	30–39	18%	14%	0.19	16%	12%	0.24
	40–49	8%	7%	0.09	9%	8%	0.04
	50+	6%	4%	0.18	5%	5%	0.03
	Average Age	26.9	28.3	0.14	27.7	27.2	0.05
English as Second Language	No	98%	99%	0.26	97%	98%	0.16
	Yes	2%	2%		3%	2%	
Enrollment Status	*Missing Data*	*7%*	*27%*	*1.01*	*9%*	*9%*	*0.04*
	Full-Time	30%	24%	0.18	30%	31%	0.03
	Part-Time	64%	50%	0.36	61%	61%	0.01
ACCUPLACER Score	*Missing Data*	*34%*	*33%*	0.04	-	-	-
	Have Data	66%	68%		100%	100%	0.00
	Avg. Score	79.0	69.4	0.36	76.3	74.2	0.08
Enrollment Year	2014-15	69%	58%	0.30	63%	63%	0.00
	2015-16	21%	19%	0.08	24%	24%	0.00
	2016-17	10%	24%	0.61	13%	13%	0.00

Source: Student Tracking Data – through July 2017. NOTE: Total percentages may not total exactly 100% due to rounding.
NOTE: The Cohen's d effect sizes (d) show the magnitude (in absolute values) of the differences between the *Maine is IT!*

participants and Business Administration comparison students on selected characteristics. Effect size range by Cohen's definition: *trivial* (<.20), *small* (.20 to .49), *medium* (.50 to .79), and *large* (>.79). The Cohen's d effect size calculations were based on the online effect size calculator for binary proportions and continuous variables available at: http://campbellcollaboration.org/escalc/html/EffectSizeCalculator-Home.php

4.2 Program Impacts

In examining the impact of the *Maine is IT!* program, on average, students in the matched comparison group had a statistically significant and slightly lower cumulative GPA than their matched students enrolled in *Maine is IT!* degree programs (2.41 vs. 2.58, respectively), suggesting that participation in *Maine is IT!* promoted academic achievement. Moreover, as Table 14 displays, *Maine is IT!* matched students were more likely (1.34 times) not to drop out or withdraw from their program of study (e.g., were retained or completed their program) and more likely (2 times) to have completed credit hours during the life of the grant, both of which were statistically significant, again suggesting a positive impact due to participation in *Maine is IT!* Additionally, *Maine is IT!* participants had higher rates of earning a degree than their matched comparison students (18.5% vs. 13.5%).

TABLE 14: PROGRAM OUTCOMES AND IMPACTS ON MAINE IS IT! PARTICIPANTS VERSUS COMPARISON GROUP PARTICIPANTS

	Matched Samples			
	Maine is IT! n=812	Comparison Group n=812	Estimates*	P value
Average Cumulative GPA (standard deviation)	2.58 (1.07)	2.41 (1.14)	0.174	0.0016
Completed Credit Hours	97.4%	95.0%	0.699	0.0106
Retained	75.5%	70.9%	0.299	0.0109
Earned Degree	18.5%	13.5%	0.371	0.0068
Gained Credentials	80.8%	86.5%	-0.421	0.0020

Source: Student Tracking Data – through July 2017. NOTE*: (Logit) estimates are based on a null random effect mixed model estimating the treatment effect of the *Maine is IT!* on the binary outcomes studied here (Dropped Out of Program/Retained, Completed Credit Hours, Earned a Degree, Gained Credentials) and (Least Squares Means) estimates on Average Cumulative GPA.

All these differences between the two matched groups were found to be statistically significant and are indicative of the efforts of the *Maine is IT!* program to retain students in the grant-funded programs of study and to promote academic outcomes such as credit hours, GPA, and degree completion. The matched comparison students did, however, have statistically significantly higher rates of obtaining credentials than matched students enrolled in *Maine is IT!* (87% vs. 81%) during the same time period (see Table 14). In addition, as described above, greater percentages of *Maine is IT!* students as compared to students in the comparison group found new work following program completion and retained that work for three quarters after program completion. However, data provided by MDOL were in aggregate only, so these outcome measures were not able to be more rigorously assessed through matching.

Conclusion

A comparison study between *Maine is IT!* program participants and similar students in Business Administration was conducted to compare similar academic and completion outcomes to understand the impact of the *Maine is IT!* program. Through the end of the program, students enrolled in *Maine is IT!* programs of study had statistically significantly higher GPAs, were more likely to have completed credit hours, were more likely to be retained in their program of study (versus withdrawing or dropping out), and were more likely to have earned a degree as compared with students in the Business Administration comparison group. This suggests a positive program impact as a result of receiving support services and taking part in new and enhanced course curricula.

V. Program Sustainability and Recommendations

The evaluation team has provided insight regarding program sustainability and viable recommendations for the consortium colleges moving forward beyond the grant period.

1. Maintaining Newly Offered Programs

According to grant staff at all colleges during the fall 2016 site visits, most programs implemented under the *Maine is IT!* program were planned on being sustained and continued beyond the grant period. Overall, 11 of the 12 new or enhanced degree programs offered throughout the consortium had enrolled students and all but two of the new or enhanced certificate or advanced certificate programs had enrolled students through the end of the grant (Table 4). Faculty generally recognized that more time and effort than what was provided by the *Maine is IT!* program is needed to fully develop a degree program. According to one Dean, *"As with any new degree path, three years is conservative to get a degree path successful. A fiveyear period is needed as a test module for any new degree path."*

As the newly created and enhanced *Maine is IT!* programs of study continue to establish themselves as part of the IT curriculum at each of the colleges, IT department heads and faculty members will most likely need to determine or implement already existing methods of improving the courses in regards to curriculum and equipment. Some colleges have already addressed the fact that in a few years, the equipment purchased through the grant will need to be updated, as well as the curriculum.

2. Student Navigator Positions Sustained

The Student Navigator position was seen by grant and various levels of college staff as one of the most prominent supports made possible through the *Maine is IT!* program. Because of its recognized importance under *Maine is IT!* and within the MCCS as a whole, the Student Navigator model (i.e. purpose, roles, responsibilities, etc.) is being continued in some fashion. The new source of funding for the Student Navigator model was made possible through the Navigating Success initiative, a three-year grant, funded through the John T. Gorman Foundation. The Student Navigator grant under the John T. Gorman Foundation permits the colleges to serve an identified student population or program to provide student support services.

As the colleges move forward in establishing a new Student Navigator model at their campuses, it would be wise for college leaders to maintain an accurate archive of activities conducted, the number of students utilizing the services, and a comprehensive collection of best practices being

implemented. It will be important for each college to continue to build a culture of student support that incorporates the Student Navigator model that promotes academic guidance, personal mentorship, and a broad "one stop shop" support service.

3. Other Supports

In addition to the Student Navigator position, other supports were also cited as having a major impact on student success within the *Maine is IT!* program. Testing centers and accelerated remediation courses were mentioned at most colleges as having a positive impact on student perceptions of their success in the *Maine is IT!* program. With the anticipation early on in grant implementation that many *Maine is IT!* students would be non-traditional and lack required technology skills upon entering the program, schools in more rural areas made a strong effort in providing basic computer courses prior to the first semester of enrollment. Overall, this had positive impact in preparing students for the *Maine is IT!* course offerings, but it was reported that some students were still unable to grasp the necessary skills and ended up dropping out. Moving forward, the colleges that implemented these remedial courses will need to continue to enhance these remedial courses with the goal of attaining more non-traditional students.

4. PLA and Articulation Agreements

One of the goals set by the *Maine is IT!* program was for colleges to work with educational partners to create new PLA and to create new articulation and transferability relationships with partner institutions. The consortium as a whole accomplished these two goals early on in grant implementation. In regards to PLA, the consortium immediately began working with the UMaine system in 2014 to adopt CAEL standards that allowed for transferability between MCCS colleges as well as transferability into the UMaine system. Additionally, CAEL webinars and conferences were also attended by grant staff. By April 2017, PLA implementation, training, and promotion was completed. According to the staff survey in spring 2017, the inclusion of PLA in student advising as a result of the grant had the highest level of satisfaction with 83% of respondents either reporting themselves as either *satisfied* or *very satisfied.* Throughout the *Maine is IT!* implementation, colleges in the consortium also formed articulation agreements with four-year colleges such as Husson University, Thomas College, University of Southern Maine, University of Maine – Augusta, St. Joseph's College of Maine, and others. One challenge that was noted by some grant staff was the speed in which private colleges responded to potential articulation agreements. One individual said that they, *"Have been slow to respond to our requests for articulation agreements…Some have been faster, such as the University of Maine."*

Moving forward, maintaining the new PLA standards across MCCS and articulation agreements with the four-year institutions will be critical in keeping standards up to date in the near and distant future. One of the major enhancements *Maine is IT!* has had on the consortium is the communication between colleges. This increased level of communication will need to be sustained for future partnerships and coordinating PLA standards across the MCCS. Monthly or annual meetings, specific to PLA and articulation agreements, between college leaders would help continue the collaboration within the MCCS as created by the *Maine is IT!* program.

5. Consortium Leadership

Since the early stages of grant implementation, grant staff at each of the colleges reported their satisfaction with the grant leadership team and CMCC's overall leadership in guiding each of the colleges as it relates to the various grant-related goals. Timely feedback, quick turnaround for answering questions, and general communication with each of the colleges were all reasons noted by grant staff throughout the consortium that the grant leadership team at CMCC was so helpful. Recalling the complexity of the program, one Program Coordinator noted, the *"coordination with Central Maine is very active, because it has to be."* Additionally, the grant leadership team at CMCC had clearly defined the roles and responsibility of each member, making it easier for their counterparts at each college to know who to contact as it relates to varying types of questions.

For future grants related to community college program capacity building or workforce development, CMCC would be an ideal selection for consortium leadership. Grant leadership team members of the *Maine is IT!* program demonstrated expertise in grant funded programs, exercised a strong foundational knowledge of the MCCS throughout Maine, and displayed critical thinking and teamwork skills in achieving the goals set forth by *Maine is IT!*

6. Sustaining Employer Partnerships

The ability to successfully maintain newly established or enhanced employer relationships and activities was directly mentioned by grant staff at three colleges (SMCC, WCCC, and CMCC) during the fall site visits as a probable challenge following grant closeout. Because grant staff at many colleges took the lead role in facilitating employer partnerships, many staff in *Maine is IT!* funded positions expressed concern with the transition after the grant period ends. According to one Program Coordinator, the most challenging aspect in the future will be *"sustaining the employer connections…worried about when the employers reach out to the college at any level and say, 'Hey, we're looking to hire, we want to do something with you', there will be nobody to give that work to who has the dedication."* Varying views of solving this challenge were suggested and differed across the consortium, but some attributed the level of "buy-in" from college staff as the biggest inhibitor to maintaining employer partnerships. One Student Navigator cited that, *"because there are not individuals like us that aren't working for the grant anymore, the sustainability has to come from 'buy-in' from faculty and department head to continue the relationship with employers."*

In order to effectively maintain the newly established or enhanced employer partnerships, colleges will need to identify individuals among college staff who can potentially take on this responsibility, as well as successfully articulate the importance of these relationships as it relates to students enrolled in IT programs at each college. It would benefit each college if, while maintaining these relationships through a designated individual, data were collected on the number of students who obtained internships, externships, or employment as a result of established partnerships, potentially creating more "buy-in" among staff once it is proven to be beneficial to the students.

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