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Research Innovation and Institutional Growth: Digital Humanities, USM, and the University of Maine System

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RESEARCH INNOVATION & INSTITUTIONAL GROWTH

Digital Humanities, USM, and the University of Maine System

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USM Digital Humanities Maine Economic Improvement Fund

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TABLE OF CONTENTS

4	CONTEXT: THE PUBLIC UNIVERSITY IN A DIGITAL WORLD
5	ACKNOWLEDGMENTS
6	PREFACE
7	EXECUTIVE SUMMARY
10	PURPOSE OF THE STUDY
10	RESEARCH APPROACH
11	Focus Group Discussions (FGDS)
11	<i>The Participants</i>
12	Methods For Geospatial Analysis
12	KEY FINDINGS: FGDS
12	The Impact Of IT On Operations Is Significant And Expanding
13	A More Skilled, Analytic Workforce Is Needed Across Sectors
14	The New Workplace Needs Broad And “Soft” Skills
17	Workplace Prerequisites: Digital Competency And Adaptability
22	MEETING EVOLVING WORKFORCE NEEDS
22	Leaders Find New Recruits Through Network
23	The Demographic Winter Is Hitting Maine Hard
24	<i>Meeting Diversity Goals Presents Special Challenges</i>
24	The Digital Humanities Potential Is Strong
26	<i>Humanities Graduates Must Demonstrate Digital Literacy</i>
27	DIGITAL HUMANITIES AND MAINE CULTURE
27	DH Programs: Maine And Northern New England
31	Comparison Of Cultural And DH Programs In Maine
31	<i>Spatial Analysis</i>
32	<i>Spatial Statistics</i>
33	<i>DH And Art-Related Sites In Maine</i>
34	DH Institutions Survey Results
35	CONCLUSIONS AND IMPLICATIONS
35	Spatial Trends Indicate USM Provides A Natural DH Cluster
36	Amplify DH Among Humanities Students
36	<i>Rethink Terminology</i>
37	<i>Require The Development Of An “Applied Humanities” Portfolio</i>
38	Cross-Pollinate Computer Science And Humanities Into Coursework, “Hybrid Lab Spaces,” And Lateral Mentoring
39	“Join The Forces” Of The Community And The University
40	<i>Improve Practical Engagement With The Portland Community</i>

40	<i>Expand Internship Opportunities</i>
41	<i>Work With The Community To Address The Demographic Winter</i>
42	<i>Combine Systems Thinking, Emotional Intelligence, And Professionalism</i>
43	<i>Keep Up With The Rapidly Evolving Workplace</i>
43	Build A “Culture Of Pride” For USM Students
44	Advance New Types Of Advising To Improve Retention
46	APPENDICES
46	Appendix A: Working Definitions
46	Appendix B: Moderator’s Guide
48	Appendix C: Survey Questions
51	Appendix D: Additional Maps And Statistics
53	Appendix E: Case Study: A Successful Digital Humanities Cluster Initiative At Dartmouth University
53	<i>The Interdisciplinary Cluster Initiative</i>
53	<i>The Digital Humanities Cluster At Dartmouth</i>
54	<i>Exemplary Partnerships In DH</i>
55	Appendix F: Focus Group Invitation

LIST OF TABLES AND FIGURES

TABLES

11	Table 1. Respondent Type By Response Rate And Participation Rate
15	Table 2. Elements Of The Key “Soft” Skills For The Evolving Workplace
19	Table 3. The Most Important “Hard” Skills For The Evolving Workplace

FIGURES

27	Figure 1. Programs By Classification (%): Northern New England And Maine
28	Figure 2. DH Program Locations In Northern New England: <i>Programs Per Site And Programs By Classification</i>
28	Figure 3. Programs By Type (%): Northern New England And Maine
29	Figure 4. DH Programs In Northern New England: <i>Programs Per Site And Programs By Type</i>
29	Figure 5. Program Sites (%) By Variation In Program Types: <i>Northern New England And Maine</i>
30	Figure 6. Age Distribution Of Northern New England DH Programs
30	Figure 7. DH Programs In Northern New England By Age
31	Figure 8. Cultural Locations In Maine: Density By County And Density By Town
32	Figure 9. Maine Cultural Clustering Patterns And DH Program Sites: <i>Cultural Hot Spots By County And By Town</i>
33	Figure 10. A Visual Comparison Of DH Programs, Museum Locations, And Art-Related Sites In Maine

CONTEXT

The Public University in a Digital World

Digital technologies are radically transforming all aspects of knowledge production, assessment, archival, retrieval, and dissemination. As the social, public site for the generation and application of knowledge, the University is ground zero for the digital revolution. Two questions gain significance:

What is the relationship of the university to a post-industrial society?'

How can the arts and the humanities prepare students and faculty to effectively negotiate the realignments of knowledge, skills, and learning necessary for the university to thrive in a post-industrial society?

Recently, the CNBC reported that in a survey conducted by *Glassdoor*, an online job search platform, fifteen top companies in the U.S. do not view a college degree as a requirement for new hires; instead, they look for evidence of project engagement, and use of skills in and out of the classroom. In other words, the university as the reliable arbiter of knowledge and expertise can no longer be taken for granted.² Such trends are only going to accelerate over the next decade. A major challenge for higher education in a post-industrial society is to understand the fluctuating value of a university degree for employment and career building.

For the University of Southern Maine, the challenges are urgent. In February 2018, the *Chronicle of Higher Education* published an article on higher education in Maine, and noted, "As a result, Maine has become a de facto laboratory for the future of sustainable public higher education."³ The adverbial phrase "as a result" points to these factors:

- A declining demographic in Maine will impact enrollments, as fewer high school students go to college.
- Multiple university campuses in the University of Maine system have redundancy built into them.
- Maine is the most rural state in the country, with 61.3 % of residents living in rural areas than in urban settings.
- Public investments in the university system are often uneven and inconsistent
- College costs are spiraling.
- Student debt is growing out of control, amounting now to 1.4 trillion dollars.

The nature of a postindustrial society and the disruptive impact of digital technologies pose significant challenges for a regional, public university like USM. For the arts and the humanities, the stakes are high. Over the past five years, as faculty members in the Departments of English and Art, we lead the USM Digital Humanities Initiative, which began as a research-driven project to use digital tools for creative work and humanities scholarship. It now includes faculty from several departments who are directing a subset of related projects that model Digital Humanities principles.⁴ This past July, we launched the first Digital Humanities Summer Institute in the University of Maine System.⁵

As we considered strategies to grow and scale digital studies at USM, we considered research on Information Technology in relation to the Arts and Humanities, in order to draw on latest datasets and models. While we found a number of reports by think tanks, academic bodies, business entities, and non-profit organizations, we did not find one that was

¹ Alan Liu, "The state of the digital humanities: a report and a critique." *Arts and Humanities in Higher Education* 11. 1-2 (2011): 8-10.

² Courtney Connley, "Google, Apple, and 13 other companies that no longer require employees to have a college degree." CNBC, *cnbc.com* 16 Aug. 2018
<https://www.cnbc.com/2018/08/16/15-companies-that-no-longer-require-employees-to-have-a-college-degree.html>

³ Lee Gardner, "How Maine Became a Laboratory for the Future of Public Higher Ed." *The Chronicle of Higher Education* 25 Feb. 2018
<https://www.chronicle.com/article/How-Maine-Became-a-Laboratory/242621>

⁴ <https://usm.maine.edu/digital-humanities>

⁵ <https://usmdhsummerinstitute.org/>

locally generated. We were looking for a special focus on IT and the Arts/Humanities that culled insightful commentary and feedback from community and business leaders from the Portland metropolitan region. We approached *Group Dimensions International*, a consulting firm specializing in organizational development and focus group training, to assist us in gathering information; our partnership led to this report based on data collected in focus group sessions.

We are pleased to present its findings to the general public, especially to the USM community; we hope it will benefit students, staff, faculty, administrators, and stakeholders interested in furthering the mission and vision of the public university. We are confident that regardless of academic background and disciplinary orientation, the report will shed light on powerful changes unleashed by the rise of the digital.

What we do with such findings, how we translate them into curricular and programmatic innovation, and how we empower students to confidently face new economic realities and give them an education grounded in the liberal arts, one that gives them the skills to become productive participants in society, while enabling them to be discerning and effect change for the common good: these are our challenges. Together, in different ways, in different forms, and in different registers but with common goals, we can transform USM into a university that can face the challenges of the future with knowledge, confidence, and hope.

John Muthyala, Professor, Department of English
Jan Piribeck, Professor, Department of Art
USM Digital Humanities Initiative

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This is, all said and done, for our students: it's a privilege for us as faculty to walk together on the often lonely, tough, and frustrating yet exciting path of exploring, learning, and growing; we learn with you, too, about ourselves, and the world we inhabit, which we, together, seek to make a better place.

Preface

This project was commissioned by USM Digital Humanities for two reasons: to explore the impact of Information Technology on businesses, nonprofits, and workplace settings, and to assess how the arts and humanities can empower students to gain new skills and knowledge to forge successful careers and become thoughtful agents for social and cultural change. The following USM goals and visions for the future were used as guiding principles for the study:

USM President Glenn E. Cummings' goal for USM:⁶

"USM will be known for academic excellence with real world experience as a core part of its academic program."

USM Provost Jeannine D. Uzzi's Vision 2028: USM's Next Decade⁷

At USM, academic excellence finds expression in the four pillars of our academic vision:

I. A Focus on Relationships: To learn effectively, students must feel connected to their community. At USM we put the student at the center of all we do, focusing on relationships between students and their faculty members, advisors, coaches, student life professionals, supervisors, community partners, tutors, and peers. Students work closely with expert advisors trained in best advising practices. Our faculty of nationally recognized scholars, researchers, and artists guide student research and internships, practice experiential and high impact teaching, train peer tutors, and lead student travel experiences. At USM, high-quality academics exist within a culture of mentoring and care.

II. A Future Forward Curriculum: USM provides students foundational education and learning opportunities for intellectual risk-taking and self-maturation through rigorous and free inquiry, research, and creativity. At USM students also acquire habits of mind, skills, and enduring dispositions that transcend academic disciplines and foster confidence and agency, preparing them to contribute meaningfully to their professional and cultural communities. These include but are not limited to the following: design, creativity, innovation, digital and data literacy, leadership, multi-modality, collaboration, and entrepreneurial thinking.

III. The Integration of Learning and Work: At USM we understand the working student, and we value student work. Our academic programs integrate student work with academic learning in a way that is responsive to students' complex lives. Campus employers help students make meaningful connections between their work and their academic experiences. USM teaches students to think critically about the work they do and equips them with the knowledge and skills to pursue rewarding careers and meaningful, prosperous, and fulfilling lives.

IV. A Mission of Service and Citizenship: USM offers place-based education with community engagement, service learning, and internship opportunities in Portland, Gorham, Lewiston, and beyond. Students and faculty develop deep ties with community partners and businesses to address social and economic challenges. USM's place-based engagement is designed to enable students to develop cross-cultural understanding, a global outlook, and adaptability to diverse settings. USM seeks to meet workforce needs, contribute to economic growth, enrich civic participation, and enhance the quality of life in Maine and around the world.

The Group Dimensions International (GDI) team operated in all instances as an independent research group. It had complete freedom to select the sample for interviews, geospatial analysis, and a survey, to form its own opinions, and to reach conclusions based on objective analysis that stands apart from advocacy or value position

⁶ Glenn E. Cummings, USM President. (27 August, 2015). *Inaugural Opening Breakfast Speech*, Gorham Campus, University of Southern Maine. <https://usm.maine.edu/president/nine-goals-usm>

⁷ Jeannine Diddle Uzzi, Ph.D., Provost and Vice President for Academic Affairs (2018).

EXECUTIVE SUMMARY

In alignment with the President's goals and the Provost's academic vision for 2028, the University of Southern Maine (USM) is poised for intense, transformational, and comprehensive change. This study provides material for a case statement that explicates how Digital Humanities (DH) can become a signature initiative of USM in achieving these goals and how it can contribute to institutional transformations. The findings also make a compelling case for Digital Humanities as an essential part of academic preparation for Information Technology (IT) fields, and for the importance of the future of interdisciplinary Humanities programs. The findings are timely as USM contemplates reshaping its core curriculum and initiating new pedagogical approaches.

Overarching findings of the study can be summarized as follows:

- Geospatial analysis identified Portland as a cultural “hot spot” with many potential and existing partnerships between public and private sectors that support DH initiatives and demonstrate their cultural value and facility.
- Innovative academic projects, programs, and partnerships create significant potential for economic and social benefits to both private and public sector organizations in Maine, as well as to other institutions of higher education.
- USM's Digital Humanities initiatives link fields of study in the Humanities with digital tools and technology; this interconnection expands the potential of academic projects, programs, and partnerships, as well as readiness of humanities students for careers in both technology and non-profit sectors.
- Specifically, representatives of the Greater Portland public/private/nonprofit community believe that USM is uniquely situated as a leader in education to develop knowledge, skills, and abilities *essential* for future workforce effectiveness, especially among sectors with robust opportunities for employment.

Discussions with public/private/nonprofit leadership in the Greater Portland Community revealed the following perspectives on the modern workplace:

- The impact of IT on modern workplace operations is significant and expanding; it warrants innovative approaches to training the next generation.
- Public/private/nonprofit leaders agree that a skilled next-generation Maine workforce is unlikely to grow on its own; this increases stress around recruiting new employees with sufficient skills.
- Specialized skill sets fade quickly in a rapidly changing workplace; adaptable, multi-disciplinary individuals are more likely to succeed in a climate of change.
- Digital competency and ability to adapt to emerging digital tools are modern workplace prerequisites. Foundational understanding of computer science and technology is a must, regardless of specific program knowledge; prior exposure to basic statistics and coding syntax implies trainability for job-specific software.
- Many requisite skills for the modern workplace are currently lacking among Maine job applicants—USM and the University System can continue to be significant drivers for boosting skills and keeping skilled people in the state by preparing them for higher-quality jobs.
- As the modern workplace evolves, the value of networks increases; the majority of new recruits benefit from prior connections (internships, affiliations with partner organizations, etc.). Thus, it is essential that the University System increase involvement with the Greater Portland community through digital communications networks and other mechanisms to prepare graduates for the new workforce.
- Portland community members recognize the changes in the modern labor climate; they are cognizant of the necessity of their increased involvement through internships, informational interviews, classroom visits, job fairs, and knowledge sharing; they see these activities as advantageous to the academic community but also to their own economic advantage.

Principle skills for a *successful future workforce* emerged from focus group discussions with Greater Portland Community leaders. Synchronicity between skills identified by leaders and skills envisioned by Digital Humanities at USM is extremely high: the majority of these skills form the core of what DH intends to impart. This finding is particularly relevant to the *Future Forward Curriculum* (Section II) of the USM vision statement. To ensure responsiveness to the needs of the Portland and Southern Maine communities, as well as to prepare students with relevant skills, awareness and integration of these key learning outcomes at the university level is essential:

- **Effective Writing, Synthesizing and Communication:** Leaders view high-level achievement of these skills as a foundational bundle of talents that is currently lacking in the modern workplace: writing, synthesizing information, presenting findings, designing visual representations, and general competency around “telling a story.”
- **Digital Fluency and Analytic Skills:** Leaders see the ability to utilize digital software and conduct basic data management and/or analytics as the new status quo for computer skills in the modern workplace; these skills need to become a core element *across disciplines* in all modern higher learning.
- **Soft Skills and Professionalism:** Leaders believe that skills in teamwork, leadership, ethics, and emotional intelligence are more difficult to train than a variety of technical skills, and often distinguish between those who are successfully recruited into the workplace and those who are not.
- **Collaboration Skills and Adaptability in Working Across Disciplines:** Leaders find that the new and ever-changing territory in technology demands graduates with higher levels of dynamic and interdisciplinary skill sets, as well as the ability to take on multiple roles and adapt to new approaches.
- **Creative and Critical Thinking:** In general, leaders find a positive, versatile, resilient individual who can think creatively and critically to be more desirable as a new hire than a technical expert; it is easier to train technical skills required for a specific position than it is to instill these baseline qualities in the workplace.

Leaders agree that the most desired yet most difficult skills to find in the current job market are writing and synthesizing; importantly, they expect to find these skills among students who receive a Humanities-based education, coupled with exposure to digital tools, syntax, and critical thinking—the ideal skill set for the modern job applicant.

Considering these overarching findings in conjunction with the principles for a *successful future workforce*, the public/private/nonprofit leadership community saw many potential ways the University of Maine System could respond to tomorrow’s challenges. Several recommendations emerged:

- Amplify and/or require digital competency among Humanities students in the University of Maine System with an updated digital studies infrastructure across departments, campuses, and colleges.
- Require the development of an “Applied Humanities” portfolio in which students learn to catalogue their work in DH, practice digital publishing, and exemplify their skill sets as supplements to future applications for employment.
- Cross-pollinate computer science and humanities coursework with expanded potential for lateral mentoring structures; allow students to trade knowledge from their respective fields (e.g., code writing for narrative writing and vice-versa).
- Expand the level of USM’s “practical engagement” with the Portland community and the development of strong professional networks by increasing internship and networking opportunities, and invitations to events—this will further help position students for expanding contacts that will facilitate entering the workforce.
- Embrace a role as a “metropolitan university” and work with the community to address the “demographic winter” of Maine’s aging population and other economic challenges through both academic training and research.
- Focus on developing a curriculum that re-instills a breadth of skills in systems thinking, synthesizing information, emotional intelligence, and professionalism to uphold a quality of workplace for the next-generation workforce.
- Build a “culture of pride” for students by redefining USM’s unique offerings and increasing visibility of success stories.

- Stay current with the rapidly evolving workplace through regular communication and resilient feedback loops among partnerships and programs shared with the business community; invite community members to participate more frequently on campus and in the classroom.
- Advance new advising strategies to improve retention of the student body at USM; this will ultimately train and retain a larger group of graduates who are well-prepared to enter the evolving Maine workforce.

In conclusion, there remain untapped partnerships, training opportunities, community involvement strategies, and academic programs, such as Digital Humanities, from which USM and the Maine System can further benefit. USM can bolster a broad interdisciplinary academic initiative to infuse digital competency into other academic disciplines and facilitate interdepartmental collaborations. Particularly among the Humanities disciplines, interdisciplinary programs can work to retain a wider relevance of fields of study vital to educating core skills, such as writing, design, and communication. By improving connectivity and integration with the Greater Portland community, and tying together community engagement with interdisciplinary academic initiatives, USM as part of the University of Maine System can move strategically towards its vision for leading and training a quality next-generation workforce.

RESEARCH INNOVATION & INSTITUTIONAL GROWTH

Digital Humanities, USM, and the University of Maine System

PURPOSE OF THE STUDY

The Maine Economic Improvement Fund (MEIF)⁸ is dedicated to funding university- level research, development, and programs that have significant potential to improve the Maine State economy. Digital Humanities (DH) programs and projects represent an innovative catalyst for linking inter-disciplinary scholarship with Information Technology (IT)⁹ and other private sector business, as well as with the public and non-profit sectors associated with cultural institutions. This study, supported by MEIF, provides material for a case statement that explicates how Digital Humanities can become a signature initiative of USM as it seeks to play a vital role in enhancing Maine's economic growth and establish itself as a leader in higher education.

USM's Digital Humanities connects students in the humanities disciplines (such as art, philosophy, history, literature, and language) with technology companies and non-profit sectors.¹⁰ Innovative DH projects and programs create significant potential for economic and social benefits to higher education, but also to private and public sector organizations.

Since MEIF recognizes IT as a key sector for statewide economic development, and DH typically involves IT, our research sought to document connections between DH efforts and IT industries. This report highlights findings from a study in late 2017 that identified key partnerships between the public and private sectors that support DH initiatives; it verifies the academic and economic value of such arrangements. *Specifically, the data derived from this study can inform decisions that will stimulate development of a robust DH initiative based at USM that can establish leadership for academic innovation and excellence to prepare the evolving workforce and spur a growing, creative, thriving economic environment in the State of Maine.*

RESEARCH APPROACH

Having a humanities background, I didn't have the hard skills for the jobs out there, so at first I couldn't get a job. I wish that had been part of my education.

A comprehensive research approach was taken to the project, including focus group discussions with Maine public, private, and nonprofit leadership to address the needs of the current and future workplace, a geospatial assessment of cultural density and how it relates to DH programs, and a survey of digital humanities programs in New England, focused on cases of successful DH academic cluster strategies.

⁸ <https://umaine.edu/meif/background/>

⁹ IT is one of the seven key economic investment and growth areas identified by the Maine Legislature in 1997.

¹ Working definitions of the humanities are included in Appendix A.

Digital Humanities programs exist throughout the United States and in other countries but this study focused specifically on Maine in comparison to similar programs in Northern New England.¹¹ A literature review was conducted to identify academic DH clusters in the region (Appendix A). Current DH projects were cataloged and the need to bolster DH efforts was examined to determine the viability of USM as a potential leader for DH in Maine. Focus groups were conducted to determine the needs and perspectives of the Greater Portland Community leaders in improving the economy and meeting workplace skills requirements; participants represented organizational leadership and/or directorship of IT departments across public, private, and non-profit sectors. The focus group discussions also explored participant views of USM’s current Digital Humanities offerings, as well as the broader needs of regional employers.

Focus Group Discussions (FGDs)

The very entry-level jobs—we have the same challenges as everybody has with that—finding applicants with core skills. For the upper-level jobs, we have a different problem: We get over 60 applications and are almost never able to hire someone from Maine to fill those jobs because the caliber is not there.

Group Dimensions International (GDI) developed the research design and interview guides in consultation with the Digital Humanities leadership at the University of Southern Maine: Professors John Muthyala and Jan Piribeck (Appendix A includes the moderator’s guide). The focus groups lasted a full two hours each. The interviews were digitally recorded and transcribed by the GDI team to preserve data integrity. Codes were developed by GDI from transcripts using inter-rater reliability techniques. Thematic analysis of qualitative data followed topics treated in the guides. Anonymity of individual respondents was maintained in preparing this report.¹² Participant quotations are used throughout the report to demonstrate key concepts explained in the qualitative analysis.

The Participants

Participants were selected randomly from lists of potential interviewees generated by USM and GDI. Great care was taken to ensure that the participants in both groups reflected the population from which they were drawn in terms of role, diversity of organizations, stress on IT as part of everyday operations, public versus private sector, and senior leadership position. Thus, the participants included presidents/CEOs of major Maine businesses, IT directors of public and private sector organizations, and senior leadership of several well-known non-profit organizations; respondent types were mixed evenly in each group. In order to avoid any question of politicization of the selection process, invitations were sent to *all* prospective participants and the groups were filled to capacity at a maximum of 14 on a first-come/first-served basis (Table 1).

Table 1. Respondent Type by Response Rate and Participation Rate

Respondent Categories	Total # Invited	% Planned Participation	% Actual Participation
Public Sector, Non-Profit Sector	12	91.7% (n=11)	75.0% (n=9)
Private Sector	18	88.9% (n=16)	66.7% (n=12)
Total	30	90.0% (n=27)	70.0% (n=21)

The show rate of those who committed to attend was exceptional (nearly 80%), demonstrating a very high level of interest in the topic and a strong commitment to furthering the agenda of Maine’s economic growth.

¹¹For the purpose of this study, DH programming in Boston was excluded; as the only major metropolis in New England, Boston would dramatically skew the comparability of Maine data to Northern New England.

¹²Focus group discussions afford depth and insight into the research question; they produce qualitative rather than quantitative data, but the insights they generate extend far beyond the number interviewed. Although participants are not statistically representative of the target population from which they are drawn, they are conceptually representative. The moderator led both discussions neutrally as a “guided interaction” meant to generate systematic, reliable data as opposed to mere anecdotes. Group interaction generates insights that might not occur without the cross-fertilization of ideas that occurs in a well-moderated focus group.

Methods for Geospatial Analysis

Be succinct in figuring out USM's unique role in solving workforce challenges of the State. They have a Portland advantage. Determine their unique role in workforce challenges and let's work together!

The use of a Geographic Information System (GIS) provides a powerful example of a digital technology that has common applications in DH. GDI used ArcGIS to symbolize a taxonomy of DH programs across Northern New England, analyze relationships between DH programs, and identify cultural “hot spots” throughout Maine.

Cultural Data for Maine were compiled from the Maine Humanities Council, Creative Portland, and the Association of Maine Archives and Museums to compare cultural clusters in the state with the presence of DH programs. Particular attention was given to the Portland area, where a significantly higher presence of cultural locations exists. Maine county-level data were used, as they were the smallest data possible for statistical analysis given the low numbers of cultural locations in some census tracts. Because of low frequencies for DH programs and specifically art-related cultural sites across the state, statistical analysis could not be conducted on DH clustering patterns. However, spatial patterns were visually assessed relative to cultural clusters in Maine, DH programs, and specific cultural sites in order to observe spatial trends.

DH locations were also used to derive contact information for faculty members from Humanities departments and/or involved with referenced DH projects. Faculty members were sent a brief survey (Appendix D) on the nature of DH at their institutions. Programs were also analyzed for statistically significant relationships among program types, age, classifications, and state.

Everyone has to be able to interact with technology now to be able to communicate and function as a team.

KEY FINDINGS: FGDS

It was my humanities background that made me CEO of my organization, not my technical skills.

Technology will always be accelerating at an advancing rate. We are smart to harness it, to leverage it, and to advance alongside of it. We must stay rooted and grounded in the things we identify that make a person high quality. It would be scary to focus too much on technical skills without having the balance of the humanities skills.

The Impact of IT on Operations is Significant and Expanding

There are people who were not very fast with computers who have had to adjust. It has been a big jump for some. It has been a bit difficult and can sometimes take away that personal communication amongst team members.

Focus group participants were asked how growth in IT has impacted their respective organizations. All agreed that technological advancements are having tremendous impact on their operations. Keeping current with the rapidly expanding technologies is time intensive and poses financial challenges, driving individuals to improve computer skills.

With new technologies come expedited communications that for many have led to novel intra-organizational partnerships, faster work-flow, and increased resource and information sharing. For nonprofits, abundant new options exist for communication and networking: blogs, e-newsletters, and self-produced video content can offer significant savings and more effective, timely and personalized communications with donors. Academic disciplines such as media studies, English, design, and technology are understood to facilitate these types of activities. Simultaneously, face-to-face interactions have become far less frequent in the workplace with the increasing popularity of conference calls, Skype calls, and other forms of electronic communication.

People can do their work solely from the Internet now. People are so comfortable having meetings via Skype—people can even be hired online.

Mobility has also dramatically improved through advances in IT; working remotely, cooperatively, and within the self-employed, entrepreneurial sector minimizes the need for office space. Readily accessible high-tech equipment and assistance has opened up new competition for small IT businesses, while improving the self-sufficiency of others—new skills around mobile work management have become necessary.

Staff are now mobile, where they used to be office-bound. Before they would have to come back to the office to do paperwork; now they can do it out of the office. So we have seen a reduction in office space needed.

A More Skilled, Analytic Workforce Is Needed Across Sectors

There is a different skill set needed now than existed 10 years ago.

Certain technological advancements have also changed the roles and distribution of workforce requirements when it comes to recruiting new staff. Advancements in automated processes and computer-based record-keeping have significantly diminished the need for secretarial work and basic data entry positions; in some cases, this dramatically reduces the number of jobs at an organization. Meanwhile, moving toward shared digital records has opened up new compliance and security issues, including privacy, confidentiality, and copyright law; this “new territory” increases the demand for employees with legal knowledge and the aptitude to take on multiple roles.

Data entry and so-called “clerical” tasks have given way to a much higher level of analysis, understanding, and knowledge. In the last ten years, we have reduced up to 80 jobs and replaced them by more analytic work that requires college degrees. Manual tasks are almost gone.

The privacy and security compliance stuff adds a whole other layer of complexity and cost to us, so we have to spend a lot of money making sure people cannot hack into personal information. This can take money away from other work.

Likewise, with the surge in the capacity to store and track data electronically, the need for widespread data-analytic skills among employees has soared. Fundraising, outreach, and marketing departments have broadened with improved real-time data capacity. Working with sophisticated, global database systems has become the norm for many, while those in software engineering fields require constant learning of new content to keep up with industry knowledge. Others are now regularly creating and updating digital archives, records, and materials to mitigate an exponentially steeper technological learning curve.

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Colleagues and new recruits often have a much wider range of technical skills than in the past, and workplace training for specific essential skills has become a part of workplace culture. Overall, the growth of IT has resulted in the need for a higher level of analytic skills in the workplace. With automation leading to fewer low-skill jobs, employees have to be more dynamic and able to address increased legal and analytic tasks as they arise. New recruits must be able to solve problems and troubleshoot, think critically, and handle a wide array of data types for nearly every role in the workplace.

Improved IT has most recently changed fundraising. Digital record-keeping methods around funding and operations have profoundly changed the way the community engages with [our organization].

When you are in a role in any way mentoring, teaching or coaching, you see a very wide-ranging technical skill base that people are bringing in.

The New Workplace Needs Broad and “Soft” Skills

In the core technology fields, if you make an assumption that people have basic technological skills, then really what we are looking for is what everybody calls the soft skills.

The people that I struggle with are those who cannot communicate—they don’t understand that they have an audience and are writing for someone, or the point they are trying to make. That will differentiate between people who are good with the tools and people who have a message to convey. Preferably they have both.

A person’s breadth of knowledge and experience has become increasingly important alongside the fast-changing nature of technology. When seeking new recruits, nearly all FGD participants agreed that this breadth of abilities includes soft skills related to emotional intelligence, work ethic, and leadership—these lie at the core of what they seek in new employees. Coupled with good writing and critical thinking skills, soft skills sharply distinguish between a viable job applicant and those who would not make the cut. For the most part, this is because soft skills are more difficult to train or transmit in the workplace.

Table 2 displays a complete list of the soft skills identified by FGD participants. *At the top of the list are curious, critical thinkers who communicate and listen well, can be strong team players or even leaders when necessary, and who can take the initiative but also respect and facilitate the work of others. Being adaptable to change in a rapidly changing workplace and world is an essential, underlying characteristic of a vital workforce that can contribute to a vital Maine economy.* Likewise, maintenance of strong writing skills and the ability to make cogent statements was equally if not more important to FGD respondents as the development of broader experience with data analytics. Similarly, having prior exposure to design principles (visual and otherwise) are thought to bring out the potential for powerful multi-modal communication skills in the handling of data and other resources.

Employers expect that new hires will come in with a substantial cross-section of the comprehensive skill set outlined in Table 2, and encourage the University of Maine System to uphold consistent communications with the modern workplace to stay abreast of baseline workforce development requirements that can be served by interdisciplinary academics.

Table 2. Elements of the Key Soft Skills for the Evolving Workplace

"Soft Skill"	Elements	Comments
<i>Lifelong Learning and Curiosity</i>	<ul style="list-style-type: none"> · Stays up to speed · Is trainable and willing to try new things · Actively seeks out new <i>questions</i> · Find new ways to get <i>answers</i> 	<p><i>When I interview people I ask, "How do you stay current?" That is really what we want to know. We really want someone who is a life-long learner.</i></p> <p><i>Even in software engineering, the world moves fast—you end up hiring for a passion for learning</i></p>
<i>Critical, Independent Thinking</i>	<ul style="list-style-type: none"> · Understands and applies concepts · Asks the right questions · Solves problems · Challenges the status quo · Innovates · Is able to present new ideas clearly · Has the ability to overcome barriers and continue forward (can search out new digital tools) 	<p><i>The skills are not core technical skills, but critical thinking skills that are a whole skill set and career now. It is specialization but not bits and bytes. It is not writing code.</i></p>
<i>Systems Thinking and Synthesis</i>	<ul style="list-style-type: none"> · Sees both the intrinsic and extrinsic impacts of a decision on the organization · Works to break down silos with cooperation and empathy · Can synthesize a wide range of concepts and ideas 	<p><i>Knowing there is a larger whole than your silo, and also knowing where everything is interwoven. You have to look for the patterns and understand cause and effect.</i></p>
<i>Teamwork</i>	<ul style="list-style-type: none"> · Shares in organizational principles · Can make strong partnerships, collaborations · Can bring fire to a team by getting behind the ideas of others · Willing and able to take on diverse roles, as needed · Drives for clarity · Introduces new ideas; argues kindly for them · Can recover from disagreement with grace · Can listen carefully · Tolerates the ideas of others · Can get behind the winning agenda 	<p><i>Hard skills can be taught. You can teach code or a programming language, but without focus on the soft skills, a person probably won't work out as well in building a team.</i></p> <p><i>A team player. We need team players.</i></p>

Table 2. Continued

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"Soft Skill"	Elements	Comments
<p>Strong Work Ethic, Positive Attitude</p>	<ul style="list-style-type: none"> · Shows honesty and integrity · Does the right thing · Works hard, stays focused · Can maintain an appropriate work-life balance · Has an overall positive energy · Brings in a personal and team drive · Has passion for the work · Has a good sense of humor 	<p><i>We are looking at a lot of other skills—but also what their energy is like, how they work with a team, because we can't really teach that stuff.</i></p>
<p>Effective Communication</p>	<ul style="list-style-type: none"> · Can adapt to and learn an institution's common language · Is able to focus and actively listen · Can articulate and deliver a clear message (orally or in print) in a professional, personable way (e.g., ability to write a memorandum) 	<p><i>One of the elements that is critical is driving to clarity. In IT there is so much information to deal with. Developing a common language and critical thinking skills leads to getting to clarity on a topic, or contract, etc.</i></p>
<p>Emotional Intelligence</p>	<ul style="list-style-type: none"> · Can “read” people · Can make connections with others while managing self-image · Comes into a team “tight and ready to act” 	<p><i>We see a lot of burnout, people who get exhausted. We find that if we hire people that tend to be more caring and compassionate, and understand the culture of our organization values, they work better in teams.</i></p>
<p>Apptitude/Efficiency</p>	<ul style="list-style-type: none"> · Has the ability to self-moderate and streamline work · Can take on complex projects · Displays intellectual agility 	<p><i>Computer programming. We are talking about networking, quality assurance, system analytics, and project management skills that help things grow.</i></p>
<p>Good Organization and Time Management, and Good Judgment</p>	<ul style="list-style-type: none"> · Can stay on top of roles and responsibilities · Plans for both individual and group work (particularly important among remote employees) · Can make good choices on the spot · Knows how to represent the organization properly outside of work 	<p><i>It is a really interesting topic—what are we willing to teach [as the employer]? There are certain skills and proclivities that have to be there.</i></p>
<p>Strong Customer Service and Professional Skills</p>	<ul style="list-style-type: none"> · Has the ability to represent the organization · Respects those whom they are teaching or working with as colleagues and clients 	<p><i>We all need to have that customer service mindset, particularly being able to help others at all levels of competence.</i></p>

Table 2. Continued

"Soft Skill"	Elements	Comments
Diversity	<ul style="list-style-type: none"> · Brings in unique perspectives, backgrounds, and contexts · Shares different approaches · Tolerant of divergent ideas 	<p><i>We had a hard time with our recent search because we had trouble bringing diversity into our mix. We wanted our culture to have that component, but having the hard and soft skills we were looking for and trying to achieve a diversity goal was difficult –we were unsuccessful.</i></p>
Adaptability / Flexibility / Agility	<ul style="list-style-type: none"> · Is open to change · Is able to handle the ambiguities and unknowns · Can bravely continue forward and pivot in the face of challenge · Can learn from a new context—train and be trained 	<p><i>We seek trainability: both a willingness and a talent to migrate to a different platform. And openness to innovation and change, because everything keeps changing all the time.</i></p> <p><i>A life-long learner has resiliency and adaptability</i></p>

Participants said they prefer applicants who have a breadth of interests. *Because of the quickly changing pace of workplace operations, job applicants with a diverse background, including varied cultural and personal interests, might bring a higher level of curiosity, commitment to life-long learning, and flexibility. Leaders were less confident that these qualities could be “trained” in the workplace.* How can college graduates applying for jobs better communicate these skills, as some applicant skill sets (namely, critical thinking, curiosity, teamwork, good judgment, and work ethic) have been difficult to identify outside of internships? Some leaders already include interactive tests for problem solving and critical thinking in their application process. *Nearly unanimously, these professionals have found critical thinking and communication skills to be severely lacking in the labor pool today, and have had to develop ways to screen more closely for these attributes among applicants.*

Likewise missing among job applicants, interns, and new recruits is the ability to make a succinct point or to generate a novel idea. Many tech-savvy college graduates do not have well-developed social, professional, or writing skills; others lack a sense of humor. Participants agreed that it is most important that a new recruit be able to integrate into the workplace culture and get on board with the organizational mission. *Adaptable and flexible young people who can engage in systems thinking, can debate respectfully, and bring a passion for learning were considered ideal candidates to learn the organizational language, find common ground, and be malleable and trainable for meeting the mission and sharing in a positive workplace attitude. Overall, curiosity and life-long learning stood out as the most apparent indicators of a person’s ability to grow, adapt, and change in the face of what participants predict will be a volatile labor market in the future.*

Workplace Prerequisites: Digital Competency and Adaptability

I wouldn’t hire someone who had no database experience. I need them to come in with enough skills to sit down and figure out a problem in front of them. I need someone to run a database right now.

Although leaders were focused on the intense need for soft skill development among new recruits, there was consensus that a basic knowledge of technology, digital competency, and exposure to programming syntax or Structured Query Language (SQL) (i.e. language using relational database management systems) is expected from a modern job applicant.

This finding indicates that some baseline understanding of computer science and technology is a must for entry into the modern workforce. Among participants, it was given that a curious, motivated, life-long learner will have developed basic digital literacy skills. *Higher levels of computer programming knowledge and exposure to specific software or programming platforms are not a priority characteristic for most jobs, and would be readily traded in for a positive, versatile, resilient individual who would be easily trained in the specific tech skills required for a specific position.*

In IT organizations, certain positions require a computer science degree or a network-engineering certificate, but there are many other workplace functions in any organization that do not need such specific credentials. It is these positions that depend more on the soft skills for success. On the other hand, not only computer programming jobs require experience with code writing in the evolving workplace. The level of technical skills can be highly varied and job specific. *Leaders agree that at a minimum, even for entry-level positions, it is becoming necessary that new recruits are able to parse syntax, troubleshoot problems, work with a database, and construct logical thoughts.*

Because code is always changing, it has become most important that a prospective applicant demonstrate simply that they have had *exposure to code*. For most jobs, it matters that a person understands what code is as a language and tool, not necessarily that they know the exact coding platform and/or software used in a particular organization. Learning one platform shows competency in learning another, and even code experts have to constantly relearn and learn new code due to a rapidly transforming coding culture. Similarly, a person does not need to be fluent in writing HTML to be able to look at the source code, duplicate it, and use it. *In essence, business leaders agree that for most jobs, people do not need to know how to program, but they should have had exposure at some point to code as part of basic computer literacy and would be able to decipher syntax, if necessary. This indicates that students being prepared for the modern workplace across disciplines need to be introduced to coding language.*

Similar to familiarity with parsing code, *being able to work with large databases and integrate data as part of basic data architecture and pre-analysis is now considered part of entry-level computer competency*. As more jobs become analytic in nature, all employees need a basic understanding of structuring data and using descriptive statistics: prior exposure to both basic code and statistics implies trainability. Almost every department within an organization requires computer competency, experience with data, and the ability to adapt to new platforms and software. This is particularly important in marketing and fundraising departments, which have quickly increased their ability to measure outcomes and track changes with new data collection capacities and analytic software. Likewise, some competency with digital communication and a thoughtful social media footprint indicate a person's drive to communicate effectively and use online resources.

Many jobs now require some research competency, meaning a person must have had exposure to research methods and the logic of drawing conclusions. Job applicants need to be able to show that they can discern among legitimate and illegitimate resources on the web, and be able to conduct a literature review of peer-reviewed articles. *Again, leaders agree that code-savvy applicants are not ideal for most jobs unless they are also strong writers who know how to report and cite quality sources*. New recruits should be familiar with issues around cyber security and should already be aware of basic security protocol, risk, and copyright as part of working with computers in the evolving workplace. Similarly, job applicants should know how to work with hardware, drivers, and printers, and to conduct necessary computer updates. *Without these basic computer skills, leaders would question a person's competency and curiosity for learning.*

Respondents identified a complete list of the "hard" skills they value as the basic technical, computer-based knowledge, skills, and abilities that the next generation needs to bring to the entry-level of employment (Table 3). Specialization in any of these skills can be trained in the workplace, given a basic level of exposure and understanding as a starting point. In fact, in the experience of these leaders, employee-training opportunities have become commonplace and specialized tech skills needed for nearly every job are easily taught in the workplace. *Thus, the spark that differentiates job candidates lies within their soft skills, particularly communication and storytelling skills for IT jobs that rely on the ability to construct a narrative*. The ability to write and design Infographics is also critical. Because tech skills are always changing, leaders suggest that soft skills and the ability to demonstrate critical thinking and problem solving are likely to withstand the test of time. Nonetheless, graduates must arrive at the doorstep of a hiring organization with basic computer literacy.

Table 3. The Most Important “Hard” Skills for the Evolving Workplace

"Soft Skill"	Elements	Comments
Analysis and Logic	<ul style="list-style-type: none"> · Can dissect a problem · Can qualify and quantify data · Knows and can utilize basic statistics · Understands logical ordination and stepwise processes 	<p><i>Facility with data and critical thinking skills—there is a lot of overlap there. This idea of infographics combines critical thinking with facility of data and design skills. To be critical about data.</i></p>
Writing	<ul style="list-style-type: none"> · Can clearly display ideas in writing · Can construct effective memoranda · Can understand and compose contracts 	<p><i>The biggest challenge is finding people who can write well and who also have basic research skills. Being a fluid writer. Being able to write some ad copy versus a technical description versus something playful.</i></p>
Research	<ul style="list-style-type: none"> · Can navigate the Internet to find quality resources · Knows online search strategies · Has had exposure to research methods · Understands data collection, control, and fundamental statistical analysis 	<p><i>People (in every role) need to be able to look at statistics and what they mean and how to analyze the numbers, whether it is community impact data, volunteer statistics, or fundraising statistics. And they need to know their own job through data. It is amazing how weak many people’s skills are in that area. It is kind of astonishing.</i></p>
Programming/ Basic Script Writing	<ul style="list-style-type: none"> · Has worked with at least one database management platform and/or code-writing language (Oracle, HTML, SQL, Java, Python, R, etc.) · Can display critical analytic skills and logic that accompany exposure to coding 	<p><i>Having basic experience with computer programming.</i></p>
Basic Software Skills	<ul style="list-style-type: none"> · Has worked with basic software packages (spreadsheets, presentations, word processor, Google docs, basic statistical packages) 	<p><i>I prefer the person over the programming language they know. There are so many programming languages, I don’t care if they have ORACLE versus SQL, if I see it on the resume, then that is a plus if they <u>also</u> have all of the core human skills</i></p>
Computer Literacy	<ul style="list-style-type: none"> · Has personal computer skills, Internet literacy, and hardware and/or basic IT skills (drivers, installations, printers, updates, etc.) 	<p><i>They do need an entry level of hard skills.</i></p>
Narrative / Story Telling	<ul style="list-style-type: none"> · Can concisely persuade others using a narrative to tell a story in writing and with graphics · Can formulate a report or message 	<p><i>The ability to tell a story, either in writing or in graphics. The ability to understand a narrative is crucial in persuading others.</i></p>

"Soft Skill"	Elements	Comments
Social Media Fluency	<ul style="list-style-type: none"> · Demonstrates active computer competency and curiosity through thoughtful social media and online publishing · Has a drive to stay current and be an active learner 	<p><i>If a student is not networking, accessing social opportunities, and actively engaging networks, it is hard to know that they are there.</i></p> <p><i>Everyone is on social media, but what makes someone good at it? I think it is about storytelling and all of that.</i></p>
Database Management, Data Integration	<ul style="list-style-type: none"> · Has general facility with data · Can work with large data sets, data frames, and data bases · Can reconfigure data into usable formats · Able to combine necessary resources in the appropriate ways for their use 	<p><i>Network administration, database administration and management, how to deal with hardware, how to deal with hard drives and partitioning, working with different interfaces.</i></p>
Design and Presentation Skills	<ul style="list-style-type: none"> · Can creatively and competently organize and display information · Uses tools to turn data into graphics and presentations · Understands Infographics 	<p><i>If I am hiring for a specific position, technical skills needed will be specific, but that is the stuff that we can teach. We are looking for folks with a baseline, Taste, for example, is something that we cannot teach.</i></p> <p><i>Reasonable design skills. Anyone engaged in any visual output. When it comes to the design and presentation, knowing your way around decent design is crucial.</i></p>
Risk Assessment, Cyber Security	<ul style="list-style-type: none"> · Can use critical thinking to gauge and manage risk, both in legal arenas and with program assessment to stay safe and optimal in the work · Can identify and parse legal and policy constraints, parameters, and regulations · Can determine issues versus non-issues, · Demonstrates respect for the law · Has at least a basic knowledge of the importance of protecting personal information from hacking, and keeping data sources safe 	<p><i>Is up to date with security issues.</i></p>
Financial Literacy	<ul style="list-style-type: none"> · Has the ability to manage personal and institutional income and budget · Can use funding efficiently 	<p><i>For entrepreneurs and small businesses, be able to work with irregular budgets.</i></p>

Table 3. Continued

"Soft Skill"	Elements	Comments
Copyright Literacy	<ul style="list-style-type: none"> · Has respect for copyright, ownership · Has a sense of justice 	<p><i>Basic understanding of copyright law requires a respect for the law, a kind of understanding and integrity around something belonging to someone else even though you could take it if you wanted to. Looking for people who can manage risk appropriately and who can discern when an issue is key.</i></p> <p><i>Along the lines of the copyright laws, I would add application licenses and software licensing, which can help when you have to figure something out.</i></p>
Systems Changes/Version Control	<ul style="list-style-type: none"> · Is able to keep track of contributions to new developments · Can adapt to an ever-changing software market · Can make necessary updates to stay current 	<p><i>Technologies are changing so fast; processes are changing so fast!</i></p>

It is computer literacy. If they have taken one class in computer script writing, and have looked at code and understood that it is a language, then they can probably decipher what they need from it. If you cannot get something to work and you click over and look at the source code, you can work with it without being fluent in that code. If you can say, "Maybe I can figure this out," it doesn't mean you have to hire a computer programmer.

Theoretically, any college graduate should have these skills and could fill in any little job niches that are available across different types of organizations—but sometimes you find people who just cannot write. A lot of them. If they cannot write, that is a problem.

MEETING EVOLVING WORKFORCE NEEDS

Where IT is in demand, how do you find a person without practical tech skills but who has the aptitude to learn on the spot—how do you identify that person?

I have seen more of a concentration within jobs. Things that used to be done by three or four people are now done by one.

The description of the ideal “new hire” for organizations in Maine was surprisingly consistent across the public, private, and non-profit sectors. Focus group participants were asked to discuss the ease with which they can find and recruit their ideal applicant, particularly coming from the University of Maine system. They agree that finding a person with both soft and hard skills is nearly impossible. Part of this problem stems from difficulties in obtaining examples of writing and technical work from college graduates, as well as a lack of professionalism in the application process. In general, there seemed to be a disconnect between the hard and soft skill sets.

Leaders Find New Recruits through Networks

There is a consensus here. We are all looking for the same people, even though we are representing different industries. There is commonality in what we are looking for—that is something the University should hear.

Although leaders seek new employees and interns at career days and job fairs, most of their new recruits come to them via connections in their existing networks. Established partnerships facilitate finding qualified applicants known through former colleagues, internship programs, and partner organizations. Talent is also found through extended social networks. Respondents estimate that over 80% of jobs are placed through networking; this illuminates the importance of university partnerships and strong digital communications in placing college graduates.

Organizations also offer incentives for their current employees to recruit talent (using referral bonuses, for example). Recent college graduates who have been actively involved with personnel are much more likely to be considered, especially if they have an interesting digital footprint. In smaller business communities such as Portland, social networks carry weight; those who reach out and attempt to enter overlapping circles are much easier to identify.

Leaders are most impressed when a young person actively seeks face-to-face relationships via informational interviews. Students who set up interviews with key people in the community are better-positioned job applicants. Informational interviewing is an effective way for graduates and interns to connect with the workplace. *Participants strongly agreed that they like to be generous in giving their time to young people who seek interviews; they acknowledge the significant economic benefit of this type of engagement for the State and the university system.*

Other recruitment opportunities for prospective employees include becoming interns and volunteers, and frequenting “meet-ups,” events that are organized to facilitate networking on various topics related to Maine jobs. College students can find these events easily by searching online, and those who show up display a certain level of tech awareness simply by having found the event.

The Demographic Winter is Hitting Maine Hard

In today's [workplace] environment, finding a body is a real challenge. The workforce shortage is causing us to begin to think about these great skills desired, and drop expectations a little to find somebody, not always holding to the highest standard, if you will. That is the reality. So if we are finding some of the skills we look for, the tech skills, we will train people.

Leaders agree that Maine companies will face a serious workforce shortage in the near future; the process is already underway. Both FGDs brought up how an aging workforce and a stagnant population trend, known as a “demographic winter,” is hitting hard in Maine and is expected to make job market conditions more challenging. *Leaders do not expect the workforce to grow in the next five to ten years, and warn that it will likely shrink as people retire. This creates a stressful situation for employers, who will have to work harder to recruit talent and compete with other markets (Boston and New York, in particular).* Employers in Maine will have to recruit a higher level of remote employees, and possibly relocate to states that are not experiencing the demographic winter. For this reason, leaders consider efforts to improve job replacement strategies to be critical in the next five years.

Replacing existing jobs is not the only hurdle. Leaders agree that the workplace will likely go through dramatic transformations over a ten-year period, requiring an even higher level of analytic and computer skills, and a wider breadth of abilities. *Young people in Maine will face serious challenges in crafting a career path based on undergraduate work if they are not encouraged to become more multi-disciplinary.* Specialized skills will quickly change in an unpredictable labor market; therefore, there is an acute need to prepare the next generation to be highly resilient and adaptable in the face of a transformational workplace. Job turnover rate is also on the rise, meaning college students need to be primed for the most general of workplace conditions; they must understand that they will need to be able to pivot nimbly, take up new skills and tools quickly, and stay on top of changing knowledge and skills repertoires to compete.

Leaders think that many of the requisite skill sets are lacking in Maine job applicants. Internship programs are quickly improving and expanding, and could continue to help bridge the skills gap among new recruits. Internships are particularly valuable in teaching students about workplace culture and professionalism to prepare them for the job interviewing process, and to work out the kinks related to gaps in career development and advising. *Respondents agree that Maine companies also need to increase their proficiency in training short-term skill sets to new recruits that they may employ only for two or three years.* Many Maine workers currently retain their jobs, instead of reaching for new opportunities, because they fear instability in a market where reaching the top talent pool can be extremely competitive.

Leaders agree that it is often better when interns and new recruits come from a more comprehensive academic background with better-developed, high priority soft skills, and then learn relevant tech skills on the job—the exception might be a straight computer programming position, as noted above. *It is critical that university students are aware that most of the labor market is no longer seeking expertise by subject area, but views the ability to master subjects and earn a degree as indicators of probable workplace competence. In other words, undergraduate education in and of itself is becoming more about signaling that students have acquired the most highly valued knowledge, skills, abilities, interpersonal strengths—and, importantly, a positive work ethic.*¹³ If students wish to develop a career in modern business and non-profits, their academic curriculum should be designed to signal competence across a wide range of relevant skill sets.

¹³ Castagnetti, C., Chelli, F. and Rosti, L. “Educational Performance as Signalling Device: Evidence from Italy.” *Economics Bulletin*, 2005, 9(4), pp. 1-7.

Looking forward, I imagine that in 20 years well over half of the jobs out there will have not yet been created as of right now! Young people will need to be prepared [in their career trajectory] for a completely different labor market. They need to see that this will be a kaleidoscopic transformation and think carefully about how they will need to relate to new opportunities.

Meeting Diversity Goals Presents Special Challenges

In Maine, it has been particularly difficult for business leaders to increase their workplace diversity. Job applicants from diverse backgrounds in culture and education are hard to find in a shrinking pool of candidates, and many do not qualify for the job or they lack professionalism. Leaders have diversity goals because they recognize how varying perspectives and cultures can improve the originality of the work that gives an organization a competitive advantage.

The Digital Humanities Potential is Strong

I prefer the term “Applied Humanities.” It feels like it is getting at more of what we are talking about. It goes without saying that the digital skills need to be there.

There are analysts who fully understand SQL, but you can’t teach them organizational values and teamwork. They have a much steeper learning curve than the other way around. At the same time, I would never hire someone who has not seen SQL before.

Leaders agree that the most desired yet hardest skills to find in the job market are writing and synthesizing skills; these are skill sets that could be expected to derive from an education in the humanities. Synthesizing information is very important in the workplace, and leaders find that humanities students (particularly English and History majors) are trained to handle high volumes of information, sometimes of a conflicting nature, and to distill core concepts. Focus group participants, over half of whom had an undergraduate humanities degree themselves, said that the humanities teach the soft skills (writing, ethics, storytelling, and communication skills); the technical skills they currently use as leaders are much easier to learn independently or as supplements. Being able to write, edit, proofread, communicate effectively, present ideas with clarity, and diplomatically represent an institution are among top assets in the modern Maine workplace.

A student does not need to be enrolled in a technical program to demonstrate a baseline of technical skills. In fact, participants point to humanities majors who have an extra-curricular digital footprint that demonstrates facility with digital communication channels (i.e., social media and self-publishing); these are ideal job candidates because they can write. In contrast, computer science students who write creatively online (i.e., in blogs and journals) are also considered top-notch candidates. *In general, quality writers and thinkers with demonstrable curiosity in digital tools are the most viable candidates for jobs in Maine. If respondents had to choose, however, they would rather train for tech skills than have to teach good writing (which they do not see as their role or even their own particular strength).*

Being able to work in a team is a necessary and immediate skill set in the evolving workplace. Leaders agree that humanities educators often address teamwork via group projects, while many students from technical and computer science backgrounds are not pushed to work in groups. Participants associate humanities students with curiosity, asking probing questions, looking ahead, innovating, navigating complex cultural interactions, and understanding paradigm shifts and social and intellectual cycles. This knowledge, along with culture and diversity, is considered important to a dynamic workplace, particularly in Maine where diversity levels are relatively low. Leaders believe humanities majors are educated

in “worldly notions” that can improve workplace diversity of perspectives and problem-solving approaches. Leaders also look for civic-minded students with volunteer work experience, another more common attribute among humanities students, often gained as part of coursework or cultural/political projects.

By creating interdisciplinary links between humanities coursework and digital literacy, an “Applied Humanities” approach to skills development would align very well with current and future recruitment needs. Humanities graduates would be positioned to become more competitive in the workplace. Thus, if humanities students were given sufficient baseline technological training and were directed toward a wider range of more technical job opportunities, the labor pool in Maine could be dramatically and positively altered. Organizations seeking a higher caliber of college graduates for internships and employment would be less likely to search for them out of state. In fact, 100% of the leaders interviewed agreed that they would be much more likely to hire a humanities graduate if they had demonstrable digital literacy.

Leaders on the Humanities Potential

Even if they haven’t traveled, humanities majors have been exposed to a lot of cultural contexts in their reading; an understanding of culture differences is tremendously important and is a huge skills-gap in Maine. Humanities graduates have had to expose themselves to many different ideas and perspectives through their studies; leveraging that is really important for our State.

Humanities graduates can write competently with feeling. When they also have the ability to do analysis, they are the gold standard...everything else [technological skills] is teachable.

I didn’t have financial literacy or business operational skills coming in, but if I had studied [business and IT skills] instead of [my humanities major skills], I definitely wouldn’t have the skills to be successful in my business. I was able to become an IT administrator when necessary, and I could learn that myself. I didn’t need to study that in school. But if I couldn’t write or work with people, then it would really have been hard to become successful.

Synthesizing is very important. Sure, it is a skill that can be learned in any field, but a lot of the humanities lend themselves to developing that ability to take history or a classical work and know how to say something meaningful about it.

Having interests is key. If someone just studies a particular trade that is single faceted, versus a humanities major that has worked in many different fields, the latter will bring a more three-dimensional personality and character into the office and organizational culture. That can be more valuable than just recruiting an expert in one thing.

When I think of humanities, I think of curiosity, which is a trait I am always looking for in people. They are always looking around corners, and what they see is not enough. Many of the soft skills we have talked about are driven by curiosity.

My [humanities background] has made it so my head is always running. I find myself often on a park bench thinking about curious things that our organization could be doing—this is driven by being able to step back and analyze from a philosophical place.

I love how much we have returned to storytelling, and how much storytelling really matters. It takes communication skills, but also critical thinking about the elements of a story that need to be conveyed. It really comes back to the heart of what humanities are. It is not that complicated. Here is to storytelling!

Humanities Graduates Must Demonstrate Digital Literacy

For job opportunities that do not require a specific technical degree, it is important that applicants find ways to *demonstrate* technical competency through prior projects and presentations that show an applicant's competence and curiosity for inquiry. *Leaders do not require that applicants present a degree in a technical field, as long as they have projects that demonstrate and imply a certain level of digital literacy and analysis: Baseline hard skills have become a new given in the workplace.*

For those who fail to demonstrate these skills upon entering the workplace today, leaders question their ability to stay current, to have curiosity, and to show a self-motivated drive to succeed. Liberal arts majors who are tech aficionados as a pastime often do well as hires because they often have a wider and more interesting breadth of knowledge and can show the following characteristics in an online work product:

- Competence with modern publishing (digital publishing/blogging/social media);
- Following through with projects;
- Reading and writing skills (i.e., translating complex projects into plain English);
- Distilling and understanding research ideas;
- Data analysis and visualization (charts, graphs, maps); and
- Design (projects, presentations, web designs).

It is clear that a gold-star candidate for the modern workforce can demonstrate skilled writing, research, and project productivity using their web-based competency by publishing their digital outputs via an online platform, professional social media profile, and any other thoughtful social media archive. *To leaders, it would be ideal if applicants came with a complete portfolio demonstrating their undergraduate work, writing skills, facility with data/digital tools, and baseline research and analysis skills.*

I don't care where they went to school, I care what they have done.

What have they made? We want examples of their work and passion that give indicators of life-long learning. A college graduate with a degree in history—yet has completed projects that are impressive and demonstrate a passion for learning in tech—this is a cool fit.

Technology and basic stats should be a tool in all majors, and the ability to produce a report and analyze data. We want to see this.

I would question people who do not have tech skills. What is their ability to learn and function in our current society? To me it is a red flag if they are not farther along on that spectrum. It makes me question their curiosity for learning.

DIGITAL HUMANITIES AND MAINE CULTURE

Maine already boasts many DH programs throughout the University System and at most of Maine’s private colleges. However, Maine had a lower percentage of department-based programs than Northern New England and a greater percentage of DH-related events, implying that room exists for improved development statewide of department-based DH programs. Spatial analysis of cultural data relative to DH program locations in Maine that demonstrated a significant cultural “hot spot” engulfing Greater Portland also identifies a corresponding cluster of DH activity and art-related sites in the area. This finding demonstrated the area’s unique potential for a culturally influential DH initiative stemming from USM programs.

DH Programs: Maine and Northern New England

I am the English major [in my workplace], so I get referred a lot of things, such as writing a blog post that others struggle with. So to me, what USM can do is beef up the writing program and English department and give better writing skills to everyone. What you can do with an English degree is anything you want, from proofreading to designing all of the promotional materials.

Data were collected for Digital Humanities programs across Northern New England. Out of 74 programs, 38% were located in Maine. Programs were classified by how they self- identified: DH (which included any mention of digital scholarship and pedagogy), New Media (NM), or Social Media (SM). NM and SM were included as categories in the search so as to cast a broad net and ensure inclusion of any programs not yet using DH terminology to describe DH-related programs. NM and some SM programs exist as earlier and specialized cases contained within what has emerged as a wide definition of DH applications. As DH remains a broadly defined term, the use of digital tools coupled with a self-identification in NM or SM are considered to constitute a DH-related program for the purpose of this study.¹⁴

For both Maine and the entirety of Northern New England, self-identified DH programs were the majority of programs represented, with Maine showing slightly more emphasis in NM and SM programs (Figure 1). Programs were present at most academic institutions in the area,¹⁵ many having more than one program per site (Figure 2).¹⁶ DH sites were represented in ArcGIS by graduated point symbols to show the number of program occurrences at each site, ranging from 1 to 6, as well as the distributions by program classification.

**Figure 1. Programs by Classification (%):
Northern New England (left) and Maine (right)**

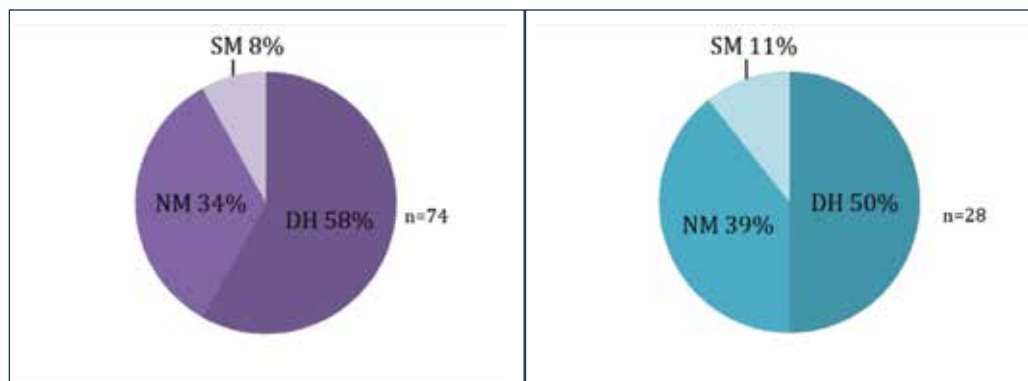
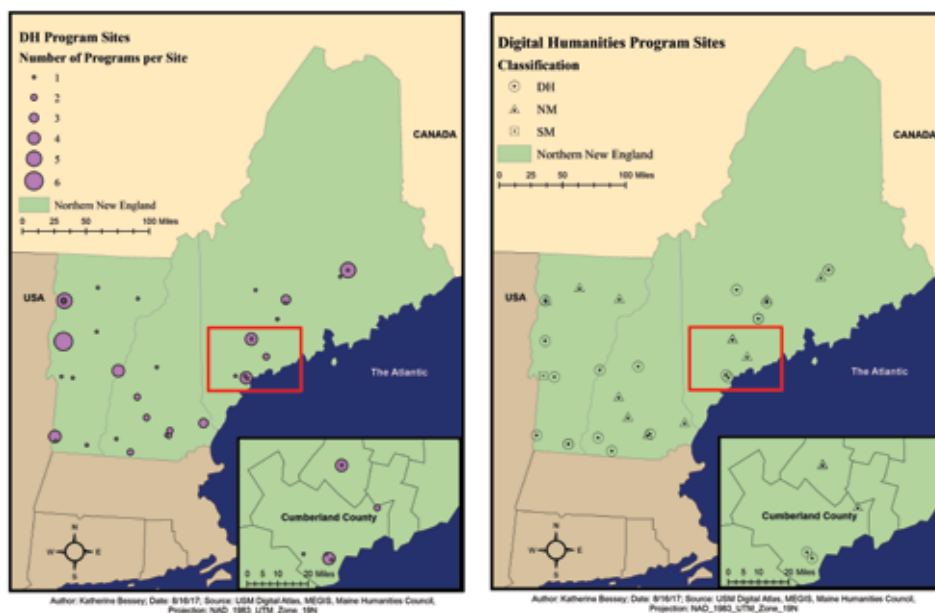
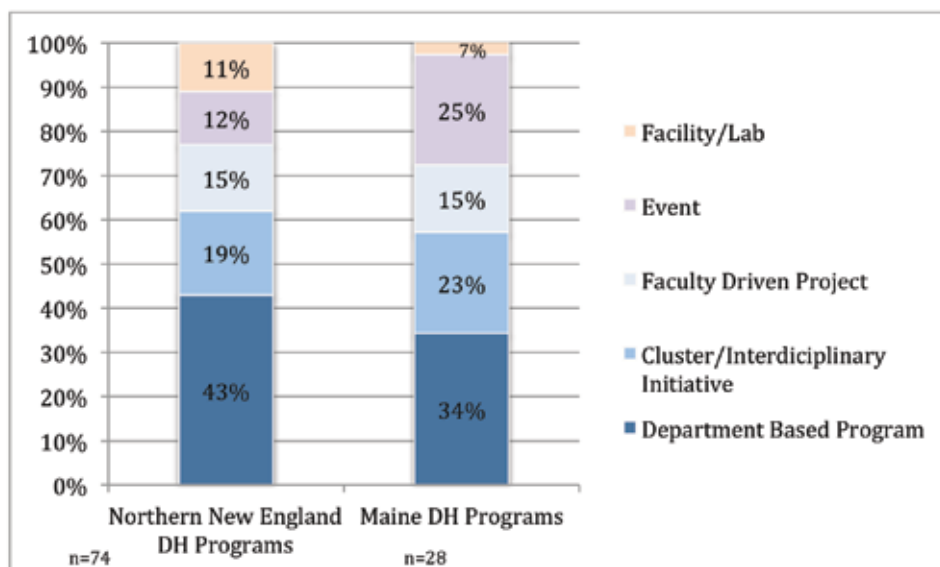


Figure 2. DH Program Locations in Northern New England: Programs per Site (left) and Programs by Classification (right)



DH Programs were also categorized by program type, including faculty-driven projects, department-based programs, and cluster/interdisciplinary strategies, events, and facilities (Figures 3 and 4).¹⁷ Overall, most programs were department-based, including degree or certificate graduate and undergraduate programs. Nearly 20% were cluster or interdisciplinary initiatives or strategies to improve DH programs among faculty and students. Maine had a significantly higher proportion of events than the rest of Northern New England, likely due to a high number of DH-related art shows in DH and NM across Maine, and fewer department-based programs. However, Maine showed high levels of clustering, including organized DH initiatives at USM, University of Maine at Orono, and Bates, Colby and Bowdoin Colleges.

Figure 3. Programs by Type (%): Northern New England and Maine



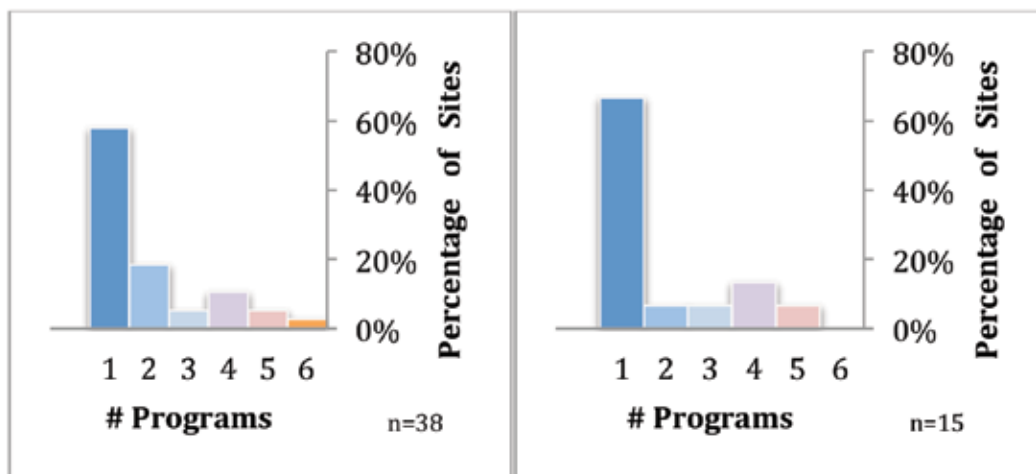
¹⁷ Note: Because of overlapping site locations, some programs are not represented on the DH Program Type map; variety in type shape was used to better identify overlapping icons at a given site.

Figure 4. DH Programs in Northern New England by Type



There were 38 DH program sites in Northern New England, 15 of which were located in Maine (39%). The majority of sites had only one program or program type per site but some sites had up to 6 programs/program types at each site¹⁸ (Figure 5).

Figure 5. Program Sites (%) by Variation in Program Types: Northern New England (left) and Maine (right)



¹⁸ Some program types were not conducive to counting every case, such as faculty-driven student projects, and events; in such cases, only the most recent and representative examples were recorded in the database. Other program types, including cluster initiatives, department-based programs, and specialized facilities, were counted multiply if there were distinct variations between them when more than was one present (for instance, graduate versus undergraduate department-based programs); hence, there were >5 programs at some sites.

Programs with start date data available were also analyzed by the program age (Figures 6 and 7). Almost 30 programs were excluded from the analysis for not having definitive program start dates. Of the 45 programs with determinable age, ages ranged from 1 to 20 years with one outlier at 26 years, the University of New Hampshire's Bachelors of Arts Degree Program in Communications Art. Otherwise, programs had a mean age of approximately 4.8 years. Most of the programs (62%) were 3 or fewer years old.

Figure 6. Age Distribution of Northern New England DH Programs

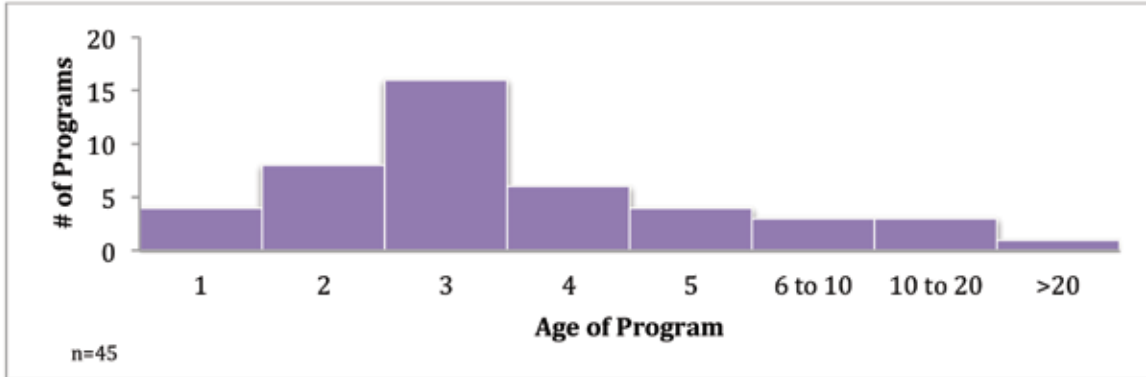
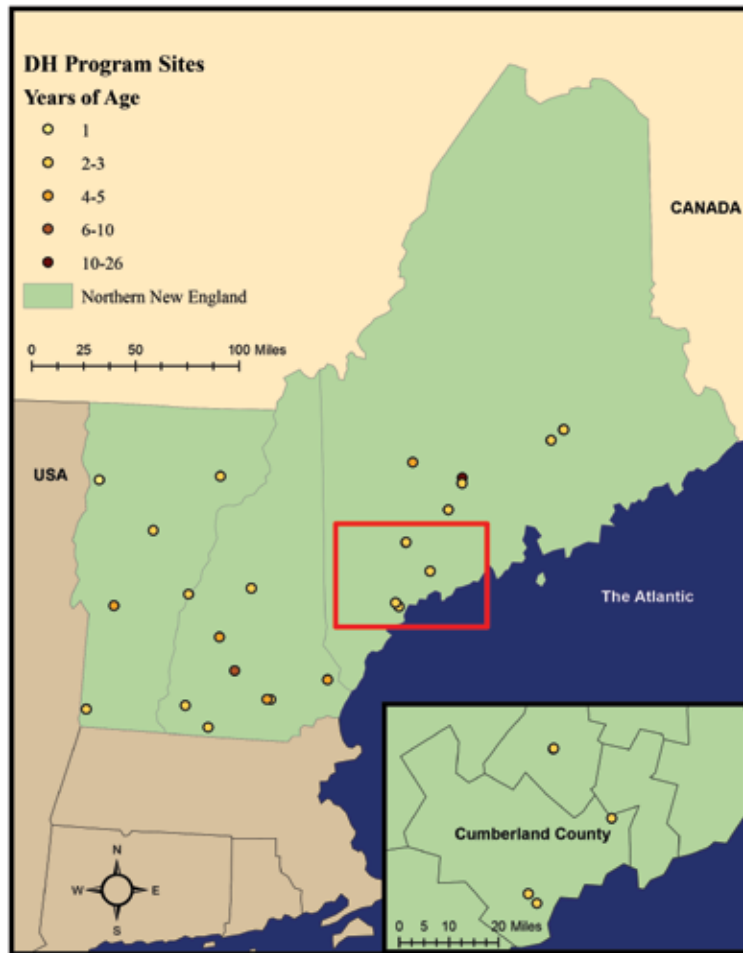


Figure 7. DH Programs in Northern New England by Age



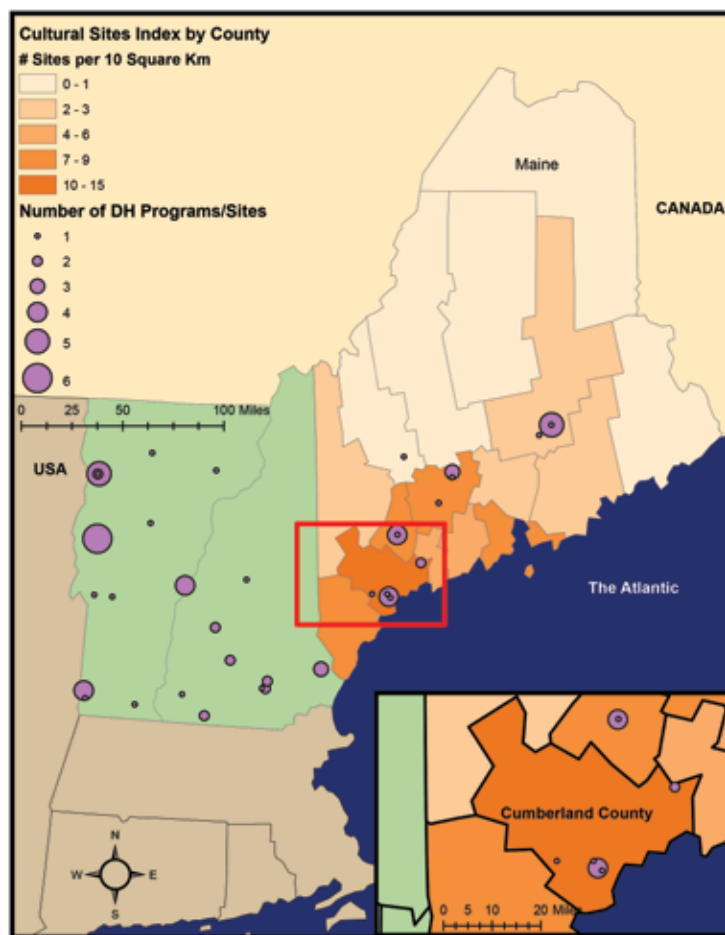
Comparison of Cultural and DH Programs in Maine

Spatial Analysis

Data were collected for cultural locations across Maine, including the location of education centers, libraries, museums, and art related sites. Art-related sites included institutions, galleries, classes, studios, and design-based organizations throughout Maine. These sites were symbolized in ArcGIS to better understand the overall spatial distribution of culture within the state (Appendix Figure E.1). In general, high concentrations of art-related sites and museums accompanied areas particularly dense with schools and libraries, especially in southern and central Maine.

Cultural sites were compiled into a cultural index and analyzed for density by county and township to identify where the highest spatial concentrations of culture occur (Figure 8); Cumberland County showed the highest density of cultural sites per square kilometer, with other high densities forming around southern and coastal Maine and some high levels of cultural sites scattered across central and northern towns. Many northern and western towns were devoid of cultural sites. DH program sites were represented with the cultural densities to demonstrate variation in DH program density by site compared to concentrations of culture.

*Figure 8. Cultural Locations in Maine:
Density by County*

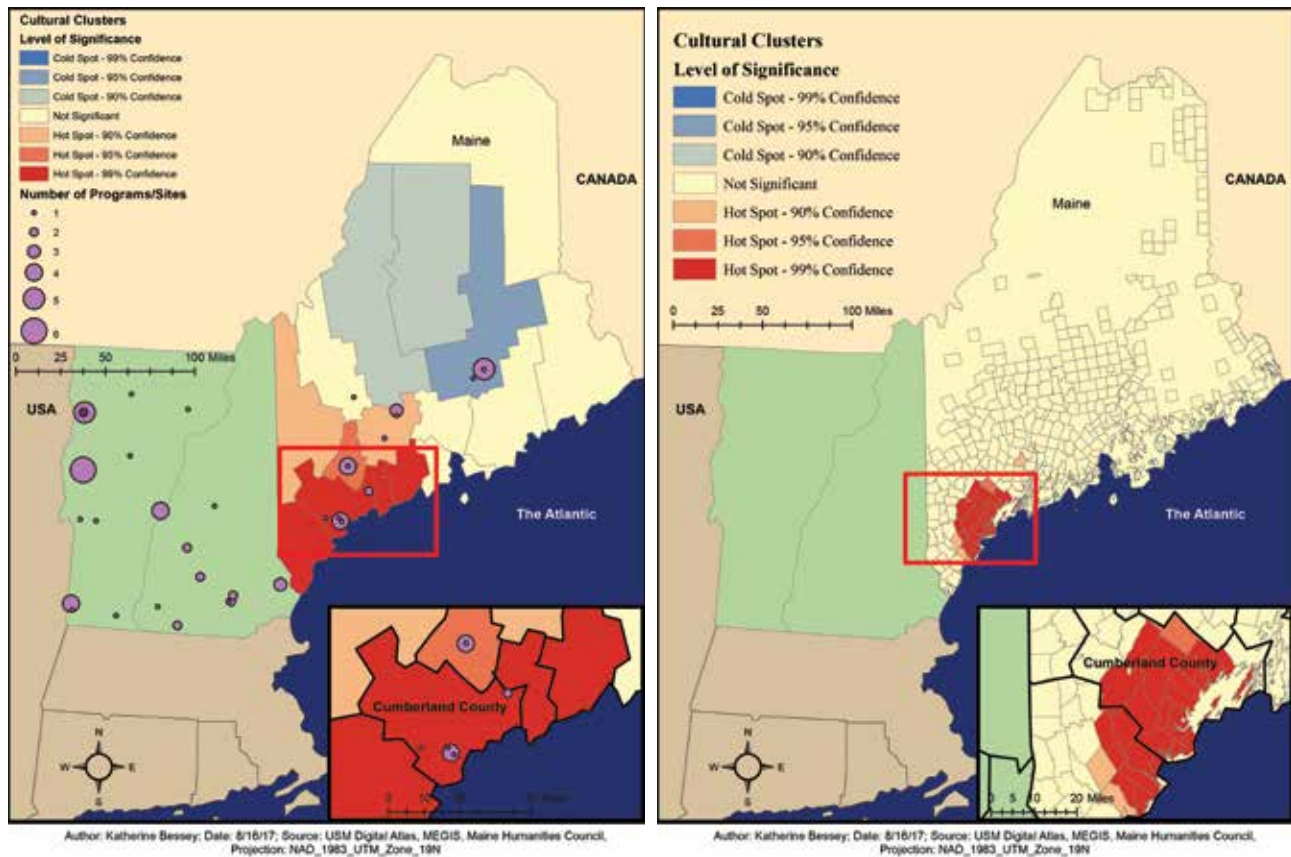


Author: Katherine Bessey; Date: 8/16/17; Source: USM Digital Atlas, MEGIS, Maine Humanities Council, Projection: NAD_1983_UTM_Zone_19N

A dominant cultural “hot spot” appeared in southern Maine, with finer analysis identifying a heightened clustering in southern Cumberland and Eastern York counties (Figure 9). A general “cold spot” appeared in Washington County. A general “cold spot” appeared in Washington County. A finer analysis for cold spot trends was not discernible, as many of the townships had no cultural sites within them. Other areas showed insignificant cultural clustering patterns.

The scattered concentrations of culture at the township level made apparent the need for a closer look at the statistical significance of localized concentrations of culture in Maine compared to DH sites. A Gettis Ord G_i^* statistic was conducted across cultural sites to determine cultural concentrations relative to DH locations at the county and township levels. County-level data were analyzed as a broad estimate of clustering trends, and townships were analyzed for a finer sense of trends. Significant “hot” and “cold” trends were visualized at 90%, 95%, and 99% confidence levels ($p > .10$, $p > .05$, and $p > .01$ respectively). Hot spots are generally defined as counties or towns where high cultural frequencies appear to attract other high neighboring levels, while cold spots can be understood as being where low values appear to attract low values, both representing first-order clusters and positive spatial autocorrelations.¹⁹ All counties with insignificant p-values can be assumed to have randomized or independent spatial correlations.

Figure 9. Maine Cultural Clustering Patterns and DH Program Sites: Cultural Hot Spots by County (left) and by Town (right)

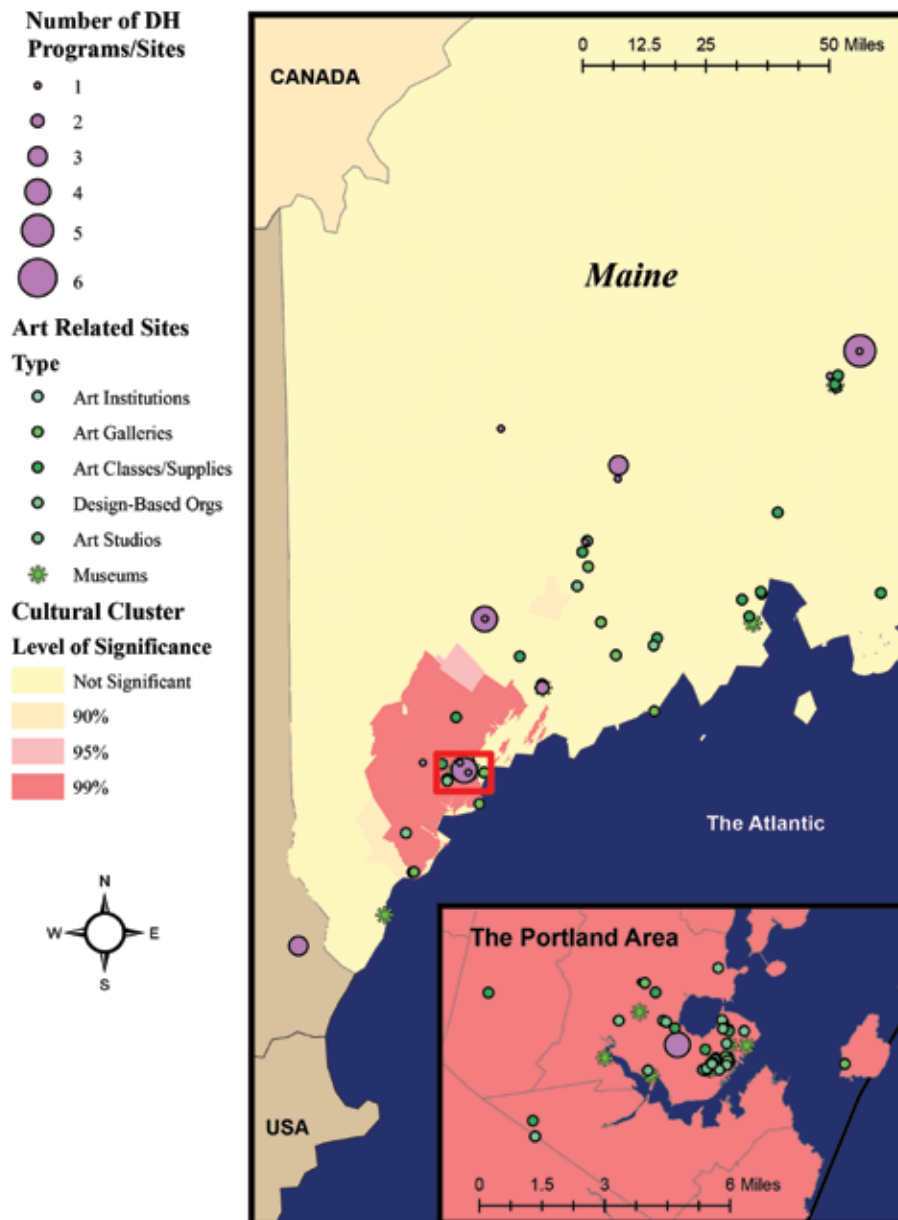


¹⁹ A first-order cluster can be defined as a cluster of independent features (i.e., counties) based on weighted values; a spatial autocorrelation can be defined as a measure of correlation among the cross product of the given attribute matrix with a spatial weights matrix, by a measure of proximity (Longley et al., (2015). Geographic Information Science and Systems).

DH and Art-Related Sites in Maine

To take a closer look at trends, art-related sites and museums were isolated and visually compared with the location of DH programs (Figure 10). Frequencies were too low for both DH and art-related sites to conduct statistical spatial analysis, but over 90% (n=23) of DH programs in Maine were spatially associated with a museum or an art-related site. Most, but not all, DH sites in Maine were close to a cluster of art-related cultural sites; many art-related cultural sites were present in areas without DH programs. Looking closely at the Portland Area, relatively high concentrations of art-related sites, museums, and DH programs were apparent. This synergy is part of what makes Maine an especially attractive destination for travelers, new residents, and potential new hires, alike.

Figure 10. A Visual Comparison of DH Programs, Museum Locations, And Art-Related Sites in Maine



Author: Katherine Bessey, Date: 8/16/17; Source: USM Digital Atlas, MEGIS, Maine Humanities Council, Projection: NAD_1983_UTM_Zone_19N

DH Institutions Survey Results

This almost seems silly to me: knowledge is going to be encoded digitally for the foreseeable future and DH will provide the skills needed, just as reading and writing did, say, after Gutenberg.

A survey was conducted to obtain feedback from faculty in humanities departments and/or faculty directly involved with DH programs. Only two faculty associated with DH programs in Northern New England responded; the low response rate was likely due to the time of year (September-January). Academic faculty may feel over-surveyed and are therefore less likely to open a new survey. However, qualitative data were still analyzed for respondents, with the caveat that the DH faculty views are in no way generalizable.

DH faculty from two other institutions strongly agreed that humanities students at their institutions “are developing DH-related knowledge, skills, and abilities” and “their humanities program has greatly benefited from the DH perspective and activities.” They also agreed “humanities students are entering DH-related work positions after graduation” and that “interdepartmental relationships and cross-disciplinary endeavors have expanded with DH.” Fields, orientations, and practices associated with their DH programs included NM and graphic arts applications, computer science applications, SM applications, and digital archives. Notable resources available to these specific DH programs included:

- Institutional grants;
- Professional development (conferences, workshops, training);
- IT support within the institution;
- Computer labs and software;
- Faculty support and dialogue;
- Library DH archives; and
- Presentation space.

Students later find DH incredibly valuable in their professional and creative lives post-college.

DH pushes faculty to learn new technologies, skills, and approaches to disciplines.

Some challenges regarding DH included a lack of familiarity with DH as a field, even after over 10 years of visibility at some institutions. Likewise, the lack of consistent support, both locally and regionally, can pose challenges and allows students to remain unfamiliar with DH, its purpose, and why they should be interested in technology and humanities for their future. Other concerns included that DH work can take away from the reading of important texts by competing for curriculum time. There was mention of challenges that come with “keeping up” with advancing technologies. One DH faculty member suggested that in the future humanities would be “studied and transmitted via digital means, changing the role of Humanities faculty.”

Colleagues and partners are unfamiliar still with DH as a field and discipline. Students are unfamiliar with DH, what it means, and why they should be interested in technology and humanities.

What was once a CD-ROM becomes a website, will become an app, and then, who knows?

Program data were also analyzed for further trends. There were no significant differences by state for program type or classification (Appendix Tables E.1 and E.2). Likewise, there were no significant differences among program types by program classifications (Appendix Table E.3). Given increased DH programming in the state and region, a higher level of analysis would be necessary to determine strengths and weaknesses by program area, class, and type.

CONCLUSIONS AND IMPLICATIONS

Spatial Trends Indicate USM Provides a Natural DH Cluster

Employ competitive niche strategies in, say, data analytics as an area of concentration. For example, the University of New England has done a lot in the medical field. [The U Maine system should] pick areas of growth and develop programs that have an immediate impact on the system. Produce a marketable product.

In many ways, Maine mirrors the rest of Northern New England in its Digital Humanities program qualities: DH is widely distributed across academic institutions, often with new and limited programs per institution. However, *Maine institutions have a slightly broader range of DH initiatives compared to the rest of Northern New England. Maine also has many more DH-related events, particularly in the Portland area. Given the business community's need for a next-generation workforce equipped with literacy in both digital tools and the humanities, Maine is well positioned as a new DH cluster hub in Northern New England* (see Appendix F for a case study of a successful DH academic cluster).

Most DH programs in Northern New England are relatively young and on the rise, demonstrating a high potential for Maine leadership in DH clustering strategies. A high concentration of culture already exists in Southern Maine, oriented around the Portland area. Some of the oldest DH sites in Maine appear in Greater Portland, including a variety of DH program types, such as department programs, interdisciplinary strategies among faculty, events, facilities, and faculty-driven projects; this DH concentration is also met with the highest concentration of art-related sites in the state.

Although there are other areas with high DH accompanied by the same degree of cultural density. The current community efforts and connections built around DH in Portland provide additional resources and spaces for, and visibility of, DH projects that can spur momentum behind an initiative. Thus, USM is well positioned to further pursue a DH initiative as an important academic niche for the University of Maine System. DH programs at USM can be bolstered and geared towards partnerships with the Portland community, including digital facility-sharing strategies, partnerships, internships, conferences, workshops, and networking events. FGD participants identified proximity as a major factor in considering partnerships with academic institutions—the Portland area schools offer strong potential collaborations with area leaders in one of the most robust business communities in the State.

There is a lot of big money right now for this headline, Digital Humanities, and I would say that this reinforces my sense that the notion is very open of exactly what DH is and how it is relevant to our culture.

Amplify DH among Humanities Students

University faculty members must understand the importance of including and using tech in all of the fields of study. Humanities students need to be taught that this is an important toolbox to add.

By providing humanities students with a wider technical and analytic skill set based around digital literacy, humanities majors will have familiarity and some level of digital authority with tools to make them more competitive for a wide range of jobs, especially in the IT sector (a recognized growth sector for Maine). Leaders agree that, because of the primacy of language and interpersonal skills that go along with humanities degrees, teaching humanities majors digital tools and methods is likely to produce a future employee who can apply knowledge using digital tools; that candidate will have analytic skills that translate into problem-solving skills and constructive teamwork. As mentioned earlier, a humanities degree aims to prepare a student to effectively convey a message and tell a story or narrative, a highly prized skill.

Improving digital literacy in the humanities is a must, evidenced also by the growing emphasis on Digital Humanities in the Northeast and elsewhere. The Portland campus, on behalf of the Portland community, could strengthen a Digital Humanities network within the University of Maine system. *Both the enthusiasm around DH from leaders and the cultural concentration in Portland are conducive to improving labor retention in Maine for qualified DH graduates.* Thus, USM can spur the University of Maine system and aid the economy in the following ways:

- Bolster the DH initiative at USM and expand the reach of the initiative into all Maine universities;
- Engage more faculty and departments with the initiative;
- Increase funding and technological resource-sharing across institutions and their partners;
- Improve partnerships with organizations that can contribute new or expanded resources and training around a DH and digital literacy curriculum; and
- Expand the discussion around teaching digital literacy and the relationship between digital literacy and career pathways.

Rethink Terminology

One point made strongly by leaders in this study is that the DH terminology may already be outdated. Many prefer what they see as a more durable conceptualization of this field as "Applied Humanities" or simply "digital literacy" because it should be assumed that any contemporary college graduate would have had exposure to digital technology. However, DH is a well-known and funded initiative in other states. Still, leaders suggest renaming the DH initiative as an Applied Humanities requirement for the long term because the DH terminology is not considered as ground-breaking at this point. *As digital tools become the norm, it becomes impractical to discuss the digital component as separate from any field.* Having instead applied, product-based, humanities goals and requirements that ensure the practical and competent use of digital tools will most likely mean more to students in the long term. *Leaders believe that the digital skill set will become inherent in all fields of study, and programs in place or newly developed now should reflect that pressure.* Not all participants agreed with this terminology shift but rather emphasized the importance of integrating what the humanities have to offer with core aspects of the digital revolution.

The soft skills we need [in workers] won't change. A lot of these skills are about adapting, morphing, and learning. The push towards the digital age probably just reinforces the need for the soft skills to be underneath as an anchor. You want the people who can do both of these things and do them well.

Digital Humanities is just very "right now." If they are looking for something more forward-focused, the Applied Humanities sounds much more practical and enduring. Digital is just a response to Analog.

Digital Humanities feels like we are trying to make a thing that was seven years ago.

Require the Development of an “Applied Humanities” Portfolio

You can't just avoid tech, not the way the world is going to work. You have to impress that upon students. You have to teach that and incorporate technology. And keep up.

Those avoiding IT and tech skills should be pushed there.

Shore up communication and organizational skills (critical thinking and core concepts) among students. Humanities departments do typically inject these skills into the way they teach.

To best facilitate career options for humanities graduates from the University of Maine System, professors should require that students produce an online portfolio that demonstrates the integration of good writing skills with core digital skills: the ability to publish something online, exposure to data management/analysis and script writing, the ability to think critically and use software to explore a problem of their choosing, and productive participation in group projects that involve digital literacy.

Humanities students are already fairly well-positioned to streamline skill sets to match labor market needs and to become well-rounded and versatile employees, but they need to be able to demonstrate proficiencies when applying for professional level jobs. The more they can show, the more likely they can match the job description and compete well in the labor market.

Leaders agreed that getting a certificate (such as a DH certificate or minor) is not enough. They still want to see the work. They need proof, as in a portfolio with project examples to document and demonstrate a graduate's capabilities and interests. By having to develop this, students will become more aware of how technical skills and working with data are important skill sets to be competitive in the evolving workforce; the creative questions they ask can help reveal their insight and curiosity when they apply for work. Likewise, students should be required to create at least one presentation, so recruiters can see how well they synthesize, communicate, and display information. Students must be prepared to present something of merit during the interview process.

How would one position themselves to say, “I am proficient in these things?” Maybe there are some tech skills that you would put on a resume to say, “these are my proficiencies” (people put PC/MAC, and that means nothing). Tech skills would be difficult for me to pull out during a quick meeting with a potential candidate, and they are not necessarily questions I would ask, like “Have you ever set up a server before, or used a MYSQL database?” If these students are becoming more proficient in these skills, how do they represent that they are?

A DH certificate would not be enough. You have to be able to prove [your tech proficiency]. You need to prove that you have asked creative questions made possible by the use of digital tools...questions that could not be answered or explored otherwise.

Every student should learn some sort of logic skills (truth treaties or discrete math) to have intellectual horsepower, and be able chop through complex information.

Cross-Pollinate Computer Science and Humanities into Coursework, “Hybrid Lab Spaces,” and Lateral Mentoring

Some interns have too big a focus on core tech skills, and less focus on design thinking. Shift to do more integrated work and cross pollination—teamwork and interdisciplinary projects.

As part of an initiative to facilitate a wider range of interdisciplinary cross-pollination, it is recommended that the University consider developing a lateral mentorship agenda. This agenda would fit with the efforts already underway in the Innovate for Maine Fellowship Program. Such an agenda could take many forms, and would be an inventive approach to formalizing student-to-student mentorship among computer science and humanities majors.

During the junior or senior year (after majors have been declared), the *computer science and humanities departments could require a “teamwork and project-based incubator course” in a hybrid space such as the USM Ci2LAB, where students from both fields are brought together and formed into working groups for at least one semester.* This would follow the Liberal Arts Learning Lab model that is springing up in higher education institutions throughout the country.²⁰ In this setting, students would be expected to share skills, organize joint tasks, present their methodologies, complete research reports, utilize digital tools, practice writing skills, participate in debate and discussion, and develop their abilities to *work as a team*. Students would be actively encouraged to share their knowledge to the group, practice leadership and role differentiation, and apply digital tools to interesting and inventive research questions. Such a course could be team-taught by a person from computer science and a humanities department (as in a presidential seminar format); the model could be piloted and then promoted throughout the system.

The goals of such a class would be to bridge the gap between technical studies and the humanities; it would help to teach computer science students how to work in large teams and write reports, while humanities students would apply digital tools to their writing. The class would engage students in actively mentoring one another to overcome the baseline skills gaps. This would prepare students for real-world issues they will inevitably face in their internships and careers, such as communicating with colleagues with very different abilities and skill levels. Humanities students would learn how to publish online and produce a project for their DH portfolio; computer science majors would produce an example of a team project and strengthen oral and written presentation skills.

I have seen a bit, but I would like to see USM do more advanced research in a hybrid space.

The definition of Digital Humanities sounds like the skill sets needed for data analysis.

For most positions in our organization now—we have very top heavy expert functions with few end-level positions—most everyone who interviews with us in the final stages has to present. Specifically, we would structure a question that has them show us data, and map and visualize information.

²⁰ Liberal Arts Learning Labs are interdisciplinary project-based lab spaces that engage students in real-world experiences. Examples include: USM’s own Ci2Lab; the James Madison University X-Labs in Harrisonburg, Virginia; and the Liberal Arts Action Lab, which is a joint venture between Trinity College and Capital Community College in Hartford, Connecticut.

“Join the Forces” of the Community and the University

USM is sitting on a tremendous opportunity. They have two customers: students and employers. I say, listen to these customers and engage much more actively with the employer community.

Headline: The community and the university join forces to develop an “Applied Humanities” curriculum for the work force of the future. Sign me up!

Leaders see the University of Southern Maine as being very well situated to play a key role in overcoming the skills gap and recruiting the next generation of the Maine workforce. In fact, leaders say they have seen USM improve dramatically over the past five years at engaging with the metropolitan community. *At the same time, leaders would like to see still more pro-active leadership and project roll-outs that demonstrate economy-building strategies that will help define USM’s role in overcoming the state’s economic challenges.*

USM must be adaptable and continue to meet the needs of the ever-changing global, national, and state economies with increased interdisciplinary options for students that entail expanded connectivity with both public and private sectors. *USM, with its geographical position at the population center of Maine, should be the leader in linking students to opportunities, training baseline technology across fields, attracting and retaining students, and producing graduates who can cross the digital divide nimbly and with integrity.*

Portland is an ideal place for practical engagement initiatives because it is a business magnet. As leaders see it, Maine has a “tale of two states,” where the coastal area experiences a much higher population volume than do inland communities. This gives the Portland-based campus a great opportunity to work closely with a wide variety of leaders. The “community should be the classroom”—leaders want to share in the role of shaping the Maine workforce.

USM is a metropolitan university. Taking that as more conceptual, it is not just USM but the whole community that needs to get together. That is what it is going to take. The community understands that we have a challenge here. There is a lot more outreach into the community now than there was 10 years ago, that is true.

Practical engagement—people from the community coming into the classroom—that is the heart of being a metropolitan university. You are reflecting the community in your academics as opposed to it being strictly classroom: the idea is the community is the classroom. That is a compelling model when you are claiming the title of a metropolitan university. It is a way for all of us to model what we mean by telling a story. If we are invited into a classroom, or in one-offs, or if a class is doing a project for an organization, we are in the role of modeling what it means to be a professional in a field that requires a high level of IT skills. We are also reveling in how students/graduates might bring their various humanities backgrounds into the workplace. It is a simple, old-fashioned answer, but it is not done loudly enough.

Improve Practical Engagement with the Portland Community

USM and others need to reach out to the employer community and engage with them more.

Respondents were generally impressed with the strides the USM has taken in recent years to become more active about internships and engagement with the private and public sector. Still, many businesses have established and maintained connections with other academic institutions for internships and practical engagement because of the general perception that USM is not working to hone the workplace skill sets that are needed from graduates. Over time, and with demonstrated improvements in both student skills and practical engagement efforts, participants expect to increase greatly the number of partnerships between the business community and USM.

USM could work harder to invite members of the Portland community into the classroom to articulate workplace needs as a form of external advisory. The leaders would be willing to come into the classroom and help students understand the information addressed by the focus group discussions. They argue that USM should also address obstructive policy issues around classroom engagement to facilitate more field trips with university partners and potential employers/networks. Some programs currently geared toward practical engagement with the greater community could be bolstered and innovated, and members of the community could be brought in as guest speakers at a wide range of events to discuss action plans for improving Maine's workforce. USM could develop a greater number of complex partnerships with external organizations involving the sharing of data, tools, resources, and training; students who participate in this kind of resource sharing would also be streamlined into careers in those organizations.

Expand Internship Opportunities

To build a more diverse culture [in Maine], we have to connect more to the mission, challenge more on how students can contribute and grow, and show how they can move on to other local companies instead of other states.

Although leaders acknowledge that the internship capacity at USM has greatly improved in recent years, they want to see more. *Internship pipelines need to be better cultivated, branded, brought to the forefront, and streamlined to get students engaged earlier in their academic career.* Internships must ensure that students learn professionalism; they should experience multiple opportunities during their undergraduate education and be moved around to increase their familiarity with different workplace scenarios and the knowledge, experience, and exposure that go along with them.

USM and the Portland community need to develop new recruitment strategies to match more interns with startups (as with the Innovate for Maine Fellows) where the University, the State and community employers work together to share in the financial risk. Leaders strongly suggest that along with exposure to multiple internships, at least one internship should be a non-profit, so interns become more familiar with the roles of non-profits in their society—the wider range of internship experiences among undergraduates, the better prepared they will be for an unpredictable labor market, and the more their soft and hard skills will be tested and improved.

We hire a lot of interns. That is the best way because if someone is a little rough around the edges, they may not have had a job like that or their parents haven't had a job like that. They learn more about how they talk, dress, and deal with people. Through internships, we need the University to be working with students to prepare them for the opportunities that are out there.

It is hard to attract talent. Some kids we have hired left to go to a [larger] metropolitan area and work for more socially conscious companies.

Take it one step further. Take liberal arts students and move them around. Have the same person work here for a summer, and then there for a summer, not necessarily all technical jobs. Companies around Maine take this student for a year, and s/he works at the library or someplace else the next summer.

Having several internships before graduation can help a student develop a good network, find a good fit, and demonstrate their abilities to a wider range of people. Interns can learn workplace etiquette in each environment. Emotional intelligence is something leaders do not think about until they find it lacking in a person, and they are often shocked by how poorly some young people read others, react, and develop relationships. Internships can help train students on how to be personable in a professional setting; they can also establish norms for a positive work ethic, strong professional ethics, and productive teamwork. New employees should come into the workplace with at least a cursory knowledge of the sector, which an internship can offer. Without this, they cannot be expected to demonstrate systems thinking, which is important in developing inter-organizational partnerships.

Work with the Community to Address the Demographic Winter

There is a two-way street of engagement. USM has responsibility to engage—the energy exists in the private sector. It is about finding partners willing to be actively engaged.

The typical story is that people want to settle down and move back to Maine where their family is and bring their job, but now people can get jobs without ever meeting their bosses, just over Skype and with their resumes.

In order to minimize the negative impacts of the demographic winter in Maine, and contribute to the long-term security of Maine's business and non-profit economy, the entire community must work together. *Leaders identified Portland as a focal point in which to cultivate a stronger internship and job-training program based upon university-community partnerships, largely because of the critical mass of private and public sector activities in the area.* This means that both hiring organizations and USM must improve branding. *Students must be made aware of the businesses and organizations that offer opportunities—and the community must work to solidify partnerships and ties with USM.*

To accomplish partnering, all parties must work to improve communications of needs: skills needs for the labor market, outreach needs for the university, and volunteer and internship needs for the public, private, and non-profit sectors. In general, students need to be better groomed to compete in the evolving workforce. Businesses and academic institutions must shore up training agendas to improve the caliber of skills required for increasingly complex and dynamic jobs; this will allow more graduates to land better-paid positions with secure benefits, so they can contribute to the Maine economy.

To become a “metropolitan” university, USM needs the Portland community to engage more immediately with the university and to model their requirements. Leaders agree that they need to explain better what they need in professional development and want the university to open up wider communication channels for them to do so. Together, the university and the community can further develop standard processes around mutual visions and benefits to funnel more college graduates into the workplace. *All leaders would be willing to come into the classroom and talk about working together. Business leaders agree that building the economy and partnerships is a two-way street, and that they need to dedicate time to keep jobs in Maine and maximize workforce quality.*

We say we want all of these soft skills, but all the job listings say “engineer” or “finance,” so we either have to find a tech person or create openings where we say, “Even though it is a tech job, we will train you because you have the soft skills,” or else expect that a lot more people will become self-employed.

All you need is an Internet connection and you can run a business.

[A community leader] is coming [into the classroom] from a real-world perspective and that is invaluable. Not only do the students get a second opinion that could differ from their professor, but they also see what the industry is looking for as a potential viable output.

Combine Systems Thinking, Emotional Intelligence, and Professionalism

The stronger applicants are always from out of state....

Leaders are clear about the critical importance of professionalism, emotional intelligence, and systems thinking, combined with the ability to demonstrate “big picture” thinking. These skills need to be taught at the university level for a high-quality workforce ready for a complex workplace. Leaders actively look for “old school professionalism” traits among applicants. In part, the freedom of digital communications has allowed students to become loose with their big-picture understandings, such as their public image, self-presentation, and dialogue, as well as how that big picture ties into their relationships. In social media and via email or text, people are not always thoughtful and often communicate with professionals as though they are “writing to a buddy.” *Demonstrating the ability to participate in social media and digital communications in a thoughtful way is the first step towards demonstrating good judgment and emotional intelligence.*

We get many emails from graduates looking for work in one sentence: “Hi, do you have a job?” It is poor writing, lack of respect, and lack of understanding about what their public image is like or how they are skilled. Presentation skills and written communication...key!

Maybe it boils down to old school professionalism, recognizing you are not just chatting. We see that with interns: As much as you are learning content, you are also learning how to be in a workplace, learning the basic rules of the road. You learn the basics that you need to be aware of a particular environment.

I don’t know if it is a college’s job to teach [how to read people], but if a person will be out here making judgments, then being able to read reactions is essential. Emotional intelligence is huge. This is one of these things you don’t think about until it is not there in someone, and then it is a challenge.

Keep up with the Rapidly Evolving Workplace

In every field and every organization, changes are happening at the speed of light. If you cannot handle change, it will be a really bumpy road for you. I do not know of anywhere a person can go and have a job for the next ten years and not worry about [keeping up with technology].

Maine job applicants rarely qualify for the better job openings in the labor market, leaders say, and this is a problem for the state. It could lead to the relocation of companies over time. The workplace, the university, and the students must all begin to prepare intentionally for both hard and soft skills improvement. People who cannot demonstrate tech skills as they enter the workplace will be seriously questioned for their curiosity and adaptability and they might not be able to hold their positions.

Tech skills change so quickly that entering workers need to be trained in how to keep themselves current. *Adaptability has never been more important, and students must be made familiar and comfortable with change.* The rate of change in jobs and in technology challenges the conventional way of doing things; this means a careful approach to rapid change and innovation must be developed, starting with the school systems: Teaching for breadth of skills as well as depth of skills, teaching how to learn and relearn technology, and training for broad versatility in subjects and approaches. Students need to become familiar with online etiquette and job applications to stay competitive in an increasingly digitized application process.

Six years from now, what is the college-level version of what I will expect from a new graduate? I don't know. When I was graduating, it would have been a big deal to be able to demonstrate [proficiency in data processing and presentation skills].

We will have many applications for an open position, but only five are viable. This is another impact of how fast technology changes things. You get flooded. People can apply to four hundred jobs in one day.

Build a “Culture of Pride” for USM Students

[USM faculty members] have directly told us, “This is not the level of students you would be familiar with from [other institutions].”

Some leaders described the University of Southern Maine as suffering from reputational issues in the community, mostly because some USM faculty downgrade their own students as being below standard. Leaders said that, although their experiences with USM interns and graduates have been inconsistent, most have been good; *some claim that their best interns have come out of USM programs.* Leaders suggest that the institution's reputation is out of alignment with the actual level of talent coming from USM; this disconnect is seen a major barrier that USM will have to work to overcome by cultivating an organizational culture of pride in the students.

Advance New Types of Advising to Improve Retention

Even individuals who have grown up in the U.S. but are from very economically challenged backgrounds, who have never been told to write a thank you note, are dinged because they didn't and the other candidates did. Cultural norms exist among people who have grown up in middle-class families; they may have had greater exposure, for example, to appropriate attire for interviews and other things that are very important to us.

Some college graduates lack awareness about what their field of study can lead to in the workplace, but translating academic learning into work pathways is the role of an institution of higher learning such as USM. The younger generation seems to lack respect for the job application process, leaders say, and disregard professionalism in digital communications and face-to-face interaction. Leaders suggest that university systems that intentionally train their students in professionalism will have an advantage in placing students into jobs of the future.

Showing respect and a professional stance stems from well-designed advising and career development services. For this reason, if a university does not supply quality advising services, it can become a social class issue. For example, leaders report that in their experience students from middle-class households receive informal advising about what it means to be a respectful professional; others might not receive this guidance. Secondary advising can be worked out through internships, but the students who are more likely to land internships are those who already demonstrate these qualities. It is the university's role to ensure that students from less privileged backgrounds can participate in experiences that help them learn how to conduct themselves in today's workplace.

Intentional career development and targeted advising are key components in navigating the pipeline and ensuring that all students have opportunities post-graduation. Students can easily fall through the cracks if they are not familiar with career options or the demands of the workplace they are entering. Beyond internships, students need to be reinforced with more crosscutting and comprehensive strategies that link students with careers, including mixed (internal and external) advising programs, events, acceleration programs, and mandatory informational interviews with business professionals. Informational interviewing is particularly powerful; students can use this tool to network, connect with prospective employers, learn the language and mission of various organizations, and ask thoughtful questions.

Keeping students in school should be a top priority. *More acceleration programs that are organized among the community college, the university, graduate studies, and internship options can challenge the high dropout rate at USM. Leaders agree that the community needs to share in this burden by keeping students engaged in K-12 education, and in securing low-income families with opportunities.* Likewise, the university needs to work harder at keeping more graduates in Maine. *The state must attract and retain both in-state and out-of-state students to combat the hyper-mobile generation and the workforce competition of more urban states.* Leaders note that many states have more desirable startup cultures and platforms for young people. USM and the University System must continue to contribute to the "Maine brand" and find marketable niche strategies to set Maine apart from other systems.

At this point, a student's sample projects are worth more to the people hiring in the workplace than their diploma or what institution they attend. The industries want proof of competency. By improving career development and advising to include a discussion of necessary skills, how to demonstrate digital literacy and familiarity with data analysis, and how to present one's self in interviews, on resumes, and with project portfolios, students will become better prepared for the evolving workplace.

My question is, what can the community do to assist USM in keeping kids in school? I think of the number of folks that do not make it through community college or USM. Those students are lost, and retooling them back is a hard if not an impossible job.

There needs to be a system wherein people can translate an English degree into a career. As an English major in an English department, what resources are there to say, “You could become a video editor or work for an IT company with your story-telling skills?”

Our world is changing. The technology world is changing. Interns will stay with us for three to four years and then move on to something else. This whole generation moves more than other generations did. The era of the 30- to 40-year state IT worker is over.

So it goes both ways—what can the university do differently and what can the community do to help support kids from leaving school? — Focus Group Participant, Maine Leaders, 2018

We have to have well-balanced kids coming out of the schools, and if we reinforce that, they will have way more than ample opportunity here in Maine. They will not need to go beyond our state borders to find great work options. That would be a significant benefit to us as employers—and a significant benefit for the future of the state. — Focus Group Participant, Maine Leaders, 2018

APPENDICES

Appendix A: Working Definitions

Definitions were given to participants in paper form and read aloud to ensure understanding.

Humanities:

For the FGDs we defined Humanities as any fields that study human culture and creativity, ranging from fine arts and music to philosophy and religion, language, and the classics, to history, archeology, and literature.

Digital Humanities:

For the FGDs we defined digital humanities as research and creative activity made possible by the creative use of digital tools or information technology. It includes producing and analyzing data, using a variety of modes to visualize, map, and present information, and innovatively using social media to impact public policy and civil society with humanities research.

Academic Cluster:

For the purpose of this report, an academic cluster can be considered a group of faculty from different backgrounds and departments that together form a concentration of a wide breadth of skills and ideas to tackle complicated problems and concepts, and who actively engage in intra- and inter-organizational partnerships to advance their purposes. Clusters focus on collaborating, target hiring for skills gaps and diverse thinking, and identifying new interdisciplinary approaches to academic inquiry and discovery as a crosscutting action team.

Appendix B: Moderator's Guide

Research Innovation and Institutional Growth and the University of Maine System

PREAMBLE

Purpose

To explore the needs of business and non-profit organizations for knowledge, skills, and abilities of potential employees for the next five years

Thank you for agreeing to participate in this focus group discussion. I'm Janet Mancini Billson of Group Dimensions International, based in Maine and South Carolina. As an independent consultant, I've been asked by the University of Southern Maine to moderate this discussion to explore your experiences with hiring humanities graduates.

Humanities are any fields that study human culture and creativity, ranging from fine arts and music to philosophy and religion, language, and the classics, to history, archeology, and literature.

My associate, Katherine Bessey, will be assisting by taking notes. I am here to ask questions and keep us on time and on track, but this is really *your time* to share your ideas.

I am recording the conversation in order to ensure accuracy in writing the report. Please be assured that I will not include your name in the report, nor will I connect your name or identifying characteristics with a direct quote. Rather, the data will be analyzed in the aggregate.

There are no right or wrong answers in a focus group discussion—I want to know what you think, so let's have plenty of discussion and debate. I appreciate your time and your honest opinions. You can speak openly.

Ground rules:

Please turn off cell phones. One person speaks at a time. All perspectives are valuable. It is not necessary to reach consensus.

Introductions:

Please introduce yourself with: Your first name; organization, title, and primary job function; and, if you attended college, what was your major? Minor?

Section 1: Needs

1. What is the core function of your organization? [Mission, goals] Briefly, over the last one or two decades, how has the growth of Information Technology impacted your business operations?
2. What are the basic knowledge, skills, and abilities necessary for you and your colleagues to carry out this primary function?
3. What do you see as your most critical personnel needs in the next five years?

Section 2: Acquisition Of Employees With Relevant Preparation

4. How easy is it to find new college graduates with
 - An appropriate knowledge base?
 - Relevant skills?
 - Necessary abilities?
5. Where do you typically go to find the people you need?
 - Probe for: Career/job days at universities or colleges in the area (which, when, how often, expectations?)
 - How satisfied are you with the graduates you find?
6. Which knowledge, skills, and abilities are missing in recent graduates that you have interviewed and/or hired?

Section 3: Humanities and Business

7. In your experience, how well have students in the humanities been able to fulfill requirements for positions in your organization?
8. What strengths do they bring to helping your organization fulfill its goals and core function [value added]?
 - Probe: *What seems to be missing [gaps]?*
 - [Probe: *Are some humanities graduates more attractive to you than others?*]

9. Have you met with any colleges or universities in Northern New England to discuss these strengths and weaknesses?
· *Probe: Which ones, and could you share the outcomes of the discussion?*

Section 4: Digital Humanities and the Future

[A PRINTED HANDOUT OF THE DH DEFINITION WAS GIVEN TO ALL PARTICIPANTS, AND THE DH DEFINITION WAS DISCUSSED TO MAKE SURE EVERYONE WAS ON THE SAME PAGE]

10. What IT related skills would you say have become a given, a base line expectation, especially in non-computer related organizations?
11. What IT related skills would you say will help humanities students to acquire as part of career preparation and work force readiness?
12. Would you be more likely to hire a humanities student with DH experience than a student without that experience?
13. Have you partnered with any colleges or universities in Northern New England in a DH-related project or initiative? Probe for details.
· *Probe: Please describe and share some of the outcomes.*
· *Probe: What could you and/or your partner do to enhance those outcomes?*
14. Looking toward the future, how do you see your needs regarding certain knowledge, skills, and abilities changing over time (5 years)?
15. What is the most important point we should take away from this discussion?
16. What is the most important point we should take away from this discussion?

Thank you for your time and ideas!

Appendix C: Survey Questions

Digital Humanities in Northern New England: An Overview

Survey: Digital Humanities at your Academic Institution

Audience: Department Chairs at Northern New England universities with DH programs

Group Dimensions International is conducting this short survey on behalf of a Digital Humanities research cluster at the University of Southern Maine. The cluster, which includes faculty from Art, English and History departments, is studying the relationship between Digital Humanities programs and economic growth and development in the communities they serve. The project and this survey are funded through Maine Economic Improvement Funds distributed through the University of Southern Maine.

You are being contacted because of your expertise and your experience with Digital Humanities initiatives at your institution. Please take a few minutes to share your perspectives. Be assured that your responses will be kept anonymous and non-traceable: Data will be reported to the requesting agency in aggregated format only—your name, institution, or

other identifying characteristics will not be provided, nor will your responses be linked to your name, institution, or other identifier in any way. Data collected will be used to provide an overview of Digital Humanities programs in Northern New England thus creating a valuable resource for colleges and universities within the region. Thank you for your cooperation!

Instructions

Please indicate your response to each question by filling in the corresponding circle on the right.
Please answer every question.

For the purpose of this survey, we define Digital Humanities (DH) as any self-described DH programs, projects, or initiatives; and/or any academic humanities projects or programs that incorporate digital scholarship or the use of a digital technology, including new media programs and social media applications.

DH Culture at Your Institution

**Q. 1 How long has DH been an academic point-of-interest at your institution?
(Please list a number of years)**

Q. 2 How many students are in your humanities program/initiative/department?

Q. 3 What do you see as the three most critical knowledge, skills, and abilities gained from Digital Humanities?

Knowledge Gains

Skills Gains

Abilities Gains

Q. 4 Below are some possible positive outcomes that could have been achieved by the DH programs/initiatives at your institution. For each outcome, please indicate your level of agreement that this achieves an outcome on a scale of 1 to 5, with 5 being very strong agreement.

(1 DISAGREE STRONGLY 2 AGREE SLIGHTLY 3 MODERATELY AGREE 4 AGREE 5 AGREE STRONGLY)

Humanities students are developing DH-related knowledge, skills, and abilities

Humanities students are entering DH-related positions after graduation

Interdepartmental relationships and cross-disciplinary endeavors have expanded

The humanities program has benefited from the DH perspective and activities

Q. 5 If earmarked funding for DH exists at any level at your institution, what are the funding/budgetary sources (check all that apply)?

Budget Line Item funded through departments (please specify which departments:

Discretionary funds (please specify office/source: _____

Institutional Grant (please specify office/source: _____

Government Grant (please specify agency/source: _____)

Corporate Grant (please specify source, if appropriate _____)

Foundation Grant (please specify source, if appropriate _____)

Incorporated into coursework _____

Other (please specify) _____

Q. 6 In what ways have you worked with partner organizations for your DH programs/initiatives?

Sharing facilities for special events, meetings, or classes

Providing internships for DH students

Facilitating employment opportunities for DH graduates

Consulting on DH-related issues

Making funding contributions (monetary donations)

Giving time and other (non-monetary resources)

None of the above

Q. 7 Which of the following resources (other than earmarked funding) are available to your department for DH at your institution?

Professional development (conferences, workshops, training)

IT support within the institution

Computer labs and software

Faculty support and dialogue

Library DH archives

Presentation space

Other necessary space (Please specify)

Q. 8 Which of the following fields, orientations, or practices are involved with DH at your institution:

Creating Digital Archives _____

New media and graphic arts applications _____

Computer science _____

Social media studies _____

Other _____

Q. 9 What are the three most significant challenges you face in implementing DH programs/initiatives?

Q. 10 What are the three most significant rewards?

Thank you for your time and ideas!

In a separate email: Would you be willing to come to a focus group discussion regarding DH and how best to interface with the local, regional, and state communities? IF SO, Please write your e-mail address here:

Appendix D: Additional Maps and Statistics

A Chi-Square statistical test was used on cross-tabulated DH program data to determine if there were any significant relationships among program types, age, classifications, and State in Northern New England. There were no significant differences by state for either program type, or program classification. ANOVA [analysis of variance] tests did not show a discernible trend in program type or classification by program age.

*Appendix Table E.1 Cross Tabulation: Type * State*

		State			Total
		Maine	New Hampshire	Vermont	
Program Type	CL	6	3	5	14
	DBP	9	10	13	32
	E	7	0	3	10
	F	2	4	1	7
	FDP	4	3	4	11
	Total	28	20	26	74

$p > .05$: No Significant Differences (Chi-Square)

*Appendix Table E.2 Cross Tabulation: Classification * State*

		State			Total
		Maine	New Hampshire	Vermont	
Program Classification	DH	14	13	16	43
	NM	11	5	9	25
	SM	3	2	1	6
	Total	28	20	26	74

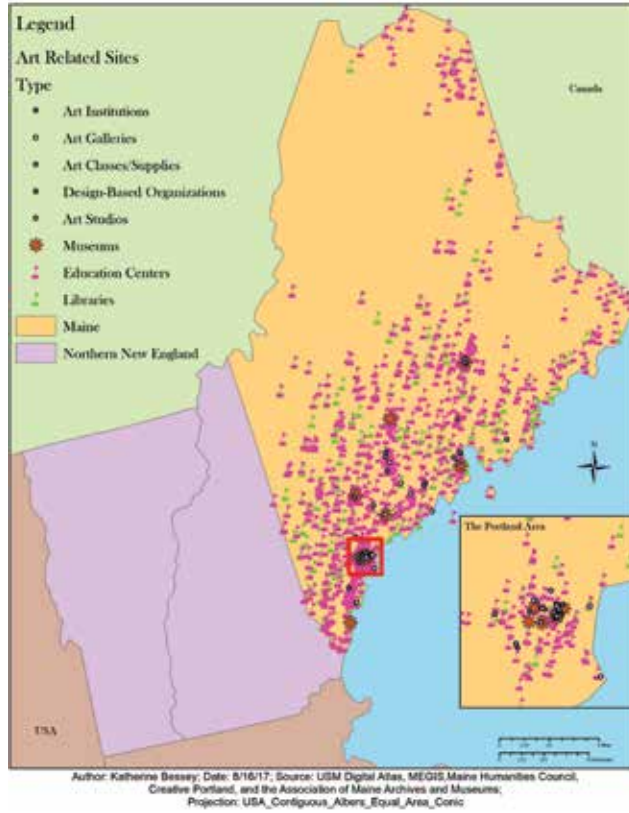
$p > .05$: No Significant Differences (Chi-Square)

*Appendix Table E.3 Cross Tabulation: Classification * Type*

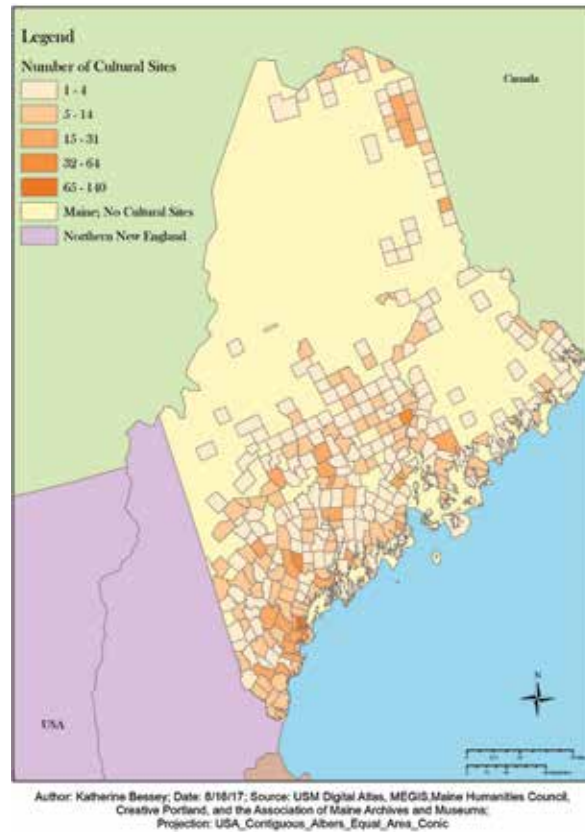
		State					Total
		CL	DBP	E	F	FDP	
Program Classification	DH	11	18	4	2	8	43
	NM	3	9	5	5	3	25
	SM	0	5	1	0	0	6
	Total	14	32	10	7	11	74

$p > .05$: No Significant Differences (Chi-Square)

**Appendix Figure E.1.
Cultural Locations in Maine**



**Appendix Figure E.2. Cultural Locations in Maine:
Density by County**



Appendix E: Case Study: A Successful Digital Humanities Cluster Initiative at Dartmouth University

The Interdisciplinary Cluster Initiative

In January of 2016 Dartmouth established ten new academic clusters uniting interdisciplinary fields with three faculty positions in each cluster. The mission of the initiative was to “expand interdisciplinary research; create dozens of new courses, symposium, and seminars; offer students unprecedented experiential learning opportunities; and ultimately improve the lives of people around the world.”²¹

The University Provost, Carolyn Dever, believed the cluster initiative to be a great investment, as interdisciplinary education in both undergraduate and graduate work contributes to student skills in leadership, problem solving, and knowledge work. The clusters are intended to bring in new faculty to collaborate with current faculty and students across academic programs, as well as in partnerships. The seven cluster fields recognized by Dartmouth as having promise for research and interdisciplinary partnerships across academic institutions and the private and public sectors include the digital humanities, the neural code, globalization, human development, decision science, health care delivery, and computational science.²²

The academic cluster initiative is intended to attract talented new professors that are willing to cross academic fields—the initiative has so far proven a success.²³ By bringing a wide breadth of experts from various fields and departments to work together to explore complex issues from multiple viewpoints, a wider set of perspectives, outcomes, and alternatives emerge for a more rewarding academic environment; multi-disciplinary learning can be achieved for both faculty and students contributing positively to the attraction and retention of talent.²⁴

Breaking down barriers between disciplines and among our schools will create strong new possibilities for groundbreaking research and scholarship. —Michael Mastanduno, Dean of the Faculty of Arts and Sciences at Dartmouth University

The Digital Humanities Cluster at Dartmouth

The digital humanities and social engagement cluster at Dartmouth specifically aims to harmonize the arts and computing sciences in such a way to expand their strengths in addressing complex issues in society, ethics, and digital technologies. Other topics range from exploration of the digital class divide to body-implantable digital devices and the physical threshold between humans and technology.²⁵

²¹ Dartmouth Office of Communications. (January, 2016). *Dartmouth Achieves Goal for Investment in World-Leading Academics*. Dartmouth News. Retrieved from: <https://news.dartmouth.edu>.

²² The seven announced clusters at Dartmouth by name include: Breaking the Neural Code; The Challenges and Opportunities of Globalization; Digital Humanities and Social Engagement; Global Poverty Alleviation and Human Development; The Jack Byrne Academic Cluster in Mathematics and Decision Science; The Susan J. and Richard M. Levy 1960 Academic Cluster in Health Care Delivery; and The William H. Neukom Academic Cluster in Computational Science.

²³ Dartmouth, January, 2016.

²⁴ Dartmouth, January, 2016.

²⁵ Dartmouth, January, 2016.

Dartmouth defines Digital Humanities as “the field in which computer technology intersects with the traditional interests of the humanities”²⁶ and sees it as a major research opportunity as well as an area of teaching and practice of high promise. DH cluster projects at Dartmouth range from creating digital games, developing online collections and archives, analyzing social media, and mining textual data. Digital humanities (DH) is considered a practice in collaboration, involving partnerships across disciplines such as history, film, English, language, and fine arts.

Exemplary Partnerships in DH

Partnerships are vital to cluster initiatives because they offer a wider breadth of resources and facilities to those instructors and students from varied backgrounds looking to crosscut fields of interest. At Dartmouth, the Center for the Humanities and the Institute for Computational Science team up with the College Library to offer to the shared resources necessary for a thriving Digital Humanities cluster that has many community partnerships to share in technological resources for improving digital literacy. This multi-faceted, interdepartmental approach to interdisciplinary academic clusters can serve as a scalable case model for improving the breadth and versatility within academic programming at the university level.

This feels like we are looking in the rear view mirror already. The digital literacy skills combined with the soft skills are required. I perceive that every graduate is going to come here and have way more digital skills than I did.

The table stakes have risen. That said, we are at a place where a humanities kid has to demonstrate how they can write a technical piece, not just an analysis of Proust. How can we make it more relevant and job specific, without taking away the ability for people to really dive into and embrace the humanities? So, whether that is digital, or practical or applied, or something else... it is required.

²⁶ <http://digitalhumanities.dartmouth.edu/about>.

²⁷ Other DH Dartmouth partnered organizations include: Tiltfactor; DALI Lab; Bregman Media Labs; NEH; ACLS; IMLS; The Mellon Foundation; HASTAC; DH+Lib; DH Now; H-Net; Association of DH Organizations; Association for Computers and the Humanities; and the DH Commons.



Please join other local leaders in a private focus group to help the University of Southern Maine expand its Digital Humanities program.

USM's Digital Humanities program connects students in the humanities (such as art, history, literature, and language) with technology companies and innovations. The focus group sessions will explore USM's current Digital Humanities offerings, as well as the needs of regional employers. What technology skills do we expect of humanities students? How can USM better fulfill its mission as a metropolitan university serving the community.

We hope you can join us!

USM campus Abromson Center (88 Bedford Street), Room 213

Choose one of two focus group opportunities
Tuesday, December 19
from 7:30-9:30am OR 4:00-6:00pm

Refreshments will be served. RSVP to katherinebessey@maine.edu

FMI, please contact John Muthyala, muthyala@maine.edu

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There are some skills on a very basic level that you cannot sacrifice. We don't have time to teach people how to write or communicate effectively. Communication skills are too remedial, especially the written parts, and are something that job applicants need to have. It is the things we are not built to train for that they really have to come into the workplace with.

— *Focus Group Participant, Maine Leaders, 2018*

*Designed By
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