Digital Economy Ecosystem Assessment Report:

Greenfield & Franklin County Massachusetts

June 2021

Contents

Acknowledgements

In close partnership with communities, the Rural Innovation Initiative and the Center on Rural Innovation (CORI) conduct assessments of digital economy ecosystems as part of a collaborative and iterative process to identify regional strengths and assets, challenges and opportunities, and actionable strategies for scalable growth and development.

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01) Introduction: The path toward scalable growth

What we know: Understanding your community

County Summary	
FIPS	25011
County	Franklin
State	Massachusetts
ACP Typology	Rural Middle America
Urban/Rural Type	Micropolitan Statistical Areas
Population	70,577
Pop. Density	100.9 per sq mile
Employment	36,728

Franklin County boasts economic, workforce, and entrepreneurship assets that could catalyze and grow a dynamic Digital Economy Ecosystem, including high shares of Computer Science graduates in the region, entrepreneurial and coworking spaces across the county, and tech success stories in the recent HitPoint Studio acquisition by Penn Game Studios and Another Castle tech meetups. The county seat, Greenfield, has a number of foundational elements to build from, including an Opportunity Zone, the beginnings of an attractive live-work downtown, many culture and entertainment options, and Greenfield Community College as an anchor institution. It also has a number of challenges to address to build a thriving tech economy, including the dominance of slow growth industries such as healthcare in the area, community unawareness of local tech success stories to spark the ecosystem, and limited pathways and support to explore tech as an opportunity for local residents. Building a thriving Digital Economy Ecosystem (DEE) in Franklin County will require intentional leveraging of the assets present and mitigation of these key barriers so that residents can participate in and drive local startups and tech job creation.

Core strengths and assets:

- Reliable broadband internet availability in Greenfield & Orange
- Emerging entrepreneurial spaces and programs (LaunchSpace, GCC Ideation Center, Rural Innovation Center).
- Early signs of a tech culture via the recent HitPoint Studios acquisition by Penn Game Studios, and the presence of Another Castle coworking space that caters to game designers and hosts meetups.
- Franklin County is in the 95th percentile for all micro counties across the United States for Computer Science graduates, boasting ~631 graduates per year from Umass Amherst, Amherst College, Smith College, Mt Holyoke College, College of our Lady of the Elms and more.
- Growing creative economic focus (9.2% of the total economy, 57% above the national average) to leverage and connect to the tech economy.

- Pioneer Valley Plan for Progress includes technology sector development as an area of focus, providing a case for focused effort in this area.

Core challenges:

- Three top industries (healthcare and social assistance, manufacturing, and retail trade) are not high growth industries in the US economy and there aren't currently dynamic shifts towards tech-related sectors. However, they are all tech enabled with tech workers present that could spin off more tech startups with the right ecosystem support.
- Overall availability and usage of broadband across the county lags that of the US and most adjacent counties.
    - The US average for broadband availability is 92%, whereas Franklin County's is only 80%.
    - The US average for broadband usage is 50%, whereas Franklin County's is only 45%.
        - "Usage" is sourced from Microsoft Corp. "Availability" is sourced from the Federal Communications Commission (FCC).
- Franklin County's population is historically flat to declining, with an overall aging population.
    - Since 2000, Franklin County's population growth has remained constant around 1.0% (County Population Characteristics, US Census Bureau).
    - The median age in Franklin County is more than 15 years higher than in comparable rural American Counties (American Community Survey, US Census Bureau).
- Broadly speaking, the community is not aware of the current opportunity with the tech economy and is not taking advantage of GCC's current Computer Science and Workforce Development Computer programs.
- For those who may have some awareness and interest, there is no clear local pathway or support to explore tech as a career or incubate startups.
- Franklin County's share of computer and math occupations overall is only 1.7% of local employment, less than half of Rural America's overall share of these occupations at 5% (American Community Survey 2019 5 year estimates, US Census Bureau).

Where we can go: Growing your digital ecosystem

Franklin County has a number of opportunities to leverage your assets and mitigate challenges to produce more homegrown startups and local tech job opportunities.

The following are some potential starting points to grow your Digital Economy Ecosystem:

- Better understand local employer demand and build clear tech pathways that include K-12, Greenfield Community College CS programs and local employment

opportunities.

- Leverage your strong traditional entrepreneurship programs and spaces to create tech startup specific programming that are welcoming of the diverse aspects of your community.
- Bridge your creative economy development activities to the digital economy by including a tech focus, building awareness and opportunity for innovation with local creators.
- Jumpstart the ecosystem by pulling in CS talent and startups from the wider region through creating a program similar to Cape Girardeau's First 50K.
- Start from the ground-up with inclusive tech culture building programs that will increase awareness of tech as an option through the creation of accessible onramps into tech careers and/or scalable tech entrepreneurship for all residents.

This report will:

- Outline the approach and key activities of the assessment process
- Provide an overview of community context and economic baseline and foundations
- Present key insights and data indicators organized by CORI's Direct Drivers
- Summarize conclusions and next steps

Perspectives from the community:

- "My experience is that people [tech startups] look into Amherst, North Hampton, and Springfield, and ... Holyoke. That's just where the focus gets drawn. The focus doesn't get drawn further north, yet I think that is evolving, particularly as downtown Greenfield becomes more vibrant. I think there are more artists that are there that are starting to pick up. You know they're opening stores, they're just locating themselves because their rent is cheap." — Heather Bell, Innovation Accelerator
- "The biggest hurdle is ... We need to identify a tangible demand in the area and then we can form a ... backwards problem solving strategy. We can develop programs to meet those demands ... In the past ... we anticipated demand and developed a program that has nobody in it ... In a workforce and also in the academic sphere ... we need to make sure that we have a demand that we understand" —Chet Jordan, Dean of Social Sciences, Professional Studies & Workforce Development at Greenfield Community College
- "Many of our buildings have served us well for over a century, and we now see an opportunity to create and implement a major long-range capital improvement plan and build new buildings ... that embrace the principles of sustainability ... we see the need for a larger Town Hall that houses all Town staff and fosters communication and collaboration; a library that is sized to serve Greenfield and the surrounding community; and a senior center that is healthy and located near the town center" — Sustainable Greenfield Master Plan, page 18

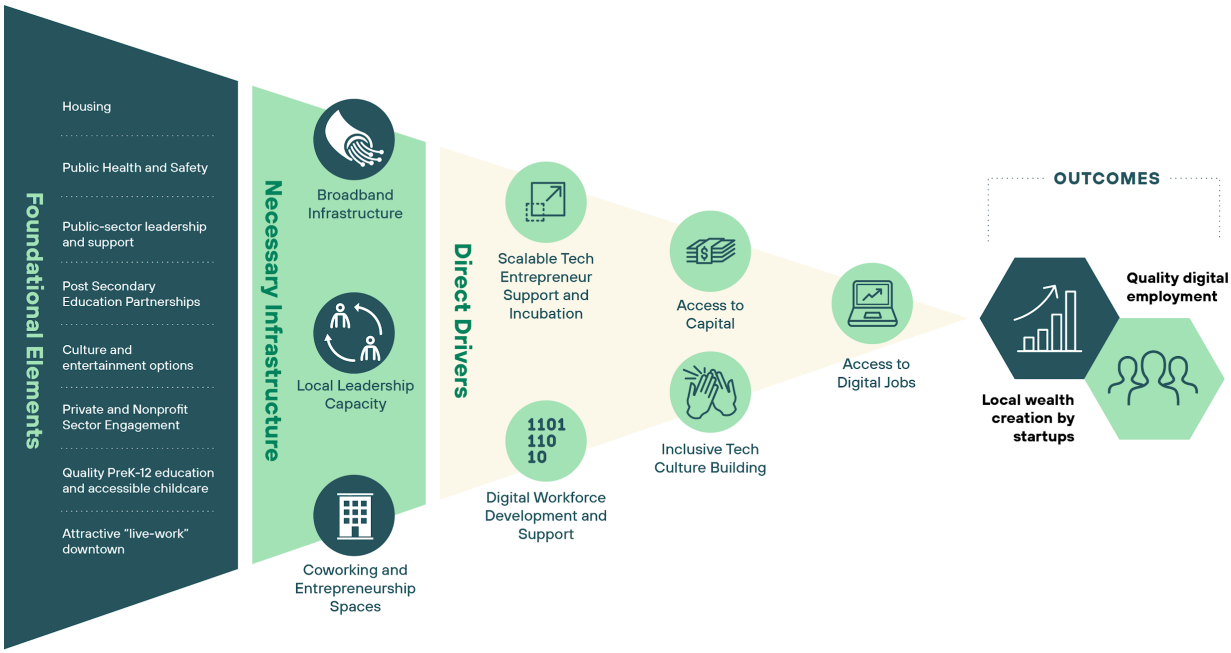
02) Assessing Greenfield & Franklin County's current position and potential

Community Assessment Activities

Community Self-Assessment	Digital Economy Ecosystem Report (DEER)	Review of Current Economic Strategies/Reports	Community Interviews
• Benchmarking digital economy ecosystem survey • Self-assessment and scoring for each aspect of DEE model, including identification of assets, gaps, and opportunities	• Analysis of digital economy data indicators related to digital employment and entrepreneurship		• interviews with community stakeholders about challenges and opportunities for local tech entrepreneurs and the digital workforce

The Digital Economy Ecosystem (DEE) Model

A cornerstone of the community assessment process is understanding a region's current state and position and its growth potential through the lens of the CORI Digital Economy Ecosystem Model. The Model is grounded in the underlying principle that healthy digital ecosystems offer promising and accelerated paths to broad based economic growth, the creation of high quality and durable jobs, higher productivity, and local wealth creation.



The Model includes the following components:

- **Foundational Elements:** The key structural elements of the built environment within a community, such as housing, community density, cultural and social amenities, an

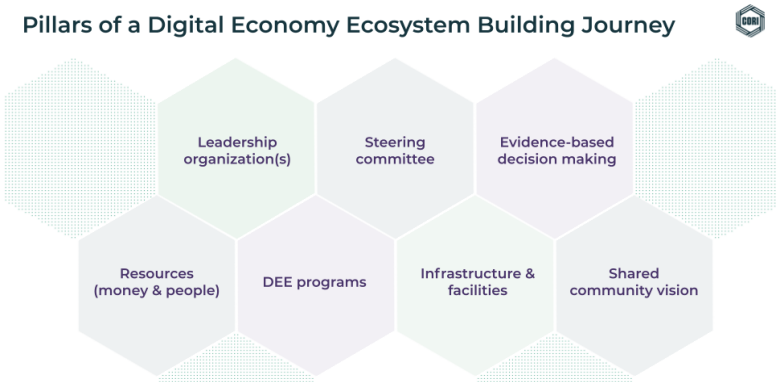
attractive "live-work" downtown, etc. that enable a digital economy ecosystem to thrive. While the configurations of these elements are unique and will vary by community, gaps or weaknesses should be thoughtfully considered and addressed to set these base conditions that can foster diverse and thriving digital ecosystems.

- **Necessary Infrastructure:** Including broadband, coworking and entrepreneurship spaces, and local leadership capacity and other imperatives for communities that will support workers, small and start-up businesses, and residents. Gaps or weaknesses in the infrastructure assets communities will stunt local wealth creation and quality digital employment.

- **Direct Drivers:** Key enablers for communities to successfully compete in the digital economy that build local capacity and provide access to digital jobs, capital, and workforce development and support.

Pillars of a Digital Economy Ecosystem Building Journey

CORI organizes the key components and process steps of ecosystem building into 7 pillars and benchmarks to track progress through the phases of technical assistance from community assessment, strategy development and execution, and beyond.



These 7 pillars are:

1. **Leadership Organizations.**
   The relevant conveners and connectors in the community to define and clarify roles, drive the workstreams related to the journey, and devise the execution path for the digital economy ecosystem strategy.

2. **Steering Committee.** Identified by members of the leadership organizations, a committee or advisory group of cross-sector partners and stakeholders to collaborate through the participation planning process.

3. **Evidence-based Decision Making.** The process for collecting and analyzing data to understand the current state of the community, identify priorities and areas of focus, guide decision-making, and inform program development and resource allocation.

4. **Resources.** The essential human and financial resources required to ensure that strategies and plans progress towards execution and on-the-ground impact.

5. **Digital Economy Ecosystem (DEE) Programs.** The tailored set of programs and initiatives designed to address community gaps and needs and achieve strategic goals.

6. **Infrastructure & Facilities.** As gaps and opportunities are identified, the planning and execution on the creation of the physical spaces and other aspects of the built environment that will support the digital economy ecosystem and innovation hub.

7. **Shared community vision.** The articulation of the shared priorities and goals for the digital economy ecosystem and coordinating and expressing the community's commitment towards building a tech economy and an inclusive tech culture.

03) Greenfield & Franklin County in context

Community overview

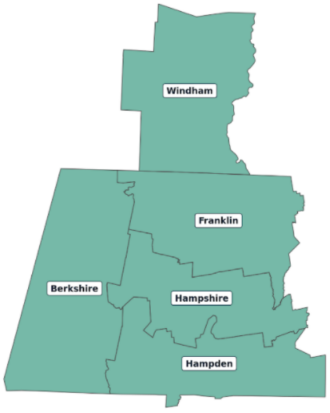
The focus of this Digital Economy Ecosystem (DEE) assessment is on Franklin County, Massachusetts with an emphasis on Greenfield's ecosystem as the county seat and natural hub for the area. Broader regional assets within the Pioneer Valley are also included in our assessment findings that could be leveraged to provide expertise and services to Franklin County.

Benchmarking against peer communities across the US

Given the unique economic and social character, scale, and geographic variability of rural places and communities, it is important to assess strengths, challenges, and overall digital economy readiness against peer communities. These are communities of similar composition, located in non-metro and rural areas, and generally share aspirations and goals to build-out their digital economy ecosystems. To draw out the most appropriate and useful insights, we conduct our qualitative and qualitative analyses and compare against CORI's twenty-one Rural Innovation Network (RIN) communities. These are communities that have journeyed through the Rural Innovation Initiative (RII) assessment, strategy, and technical assistance paths and have demonstrated a commitment to catalyze and grow their digital economy ecosystems.

Economic baseline/foundations

This section outlines our topline takeaways regarding Franklin County's economic foundations for building a Digital Economy Ecosystem from your comprehensive Digital Economy Ecosystem Data Report, available here.



	Franklin County	Adjacent counties	MA	US
Population change, 2010-2019	-1.7%	-1.9%	5.3%	6.3%
Total employment, change, 2018-2019	-0.5%	0.4%	1.9%	1.6%
GDP, 2018 (per capita)	$44K	$52K	$83K	$63K
Poverty rate, 2019	9.3%	11.2%	9.4%	10.5%

Note: "Adjacent counties" are Berkshire, Hampden, Hampshire, Windham (VT)

Source: State & County Quickfacts, US Census Bureau, 2019, BEA

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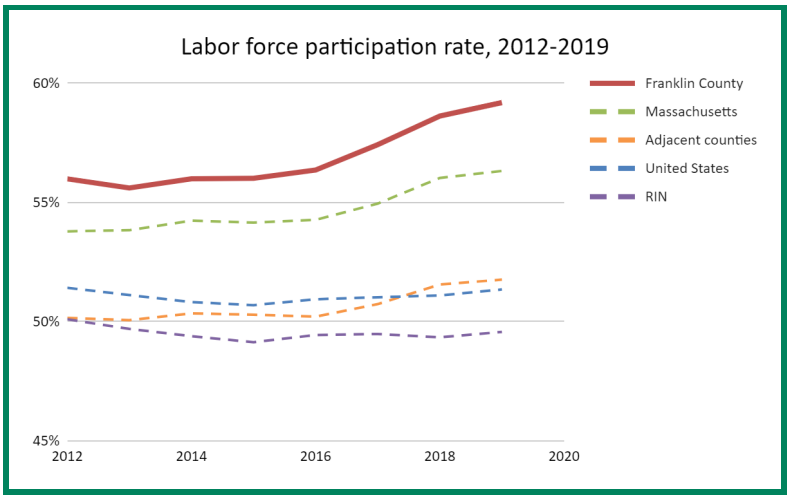
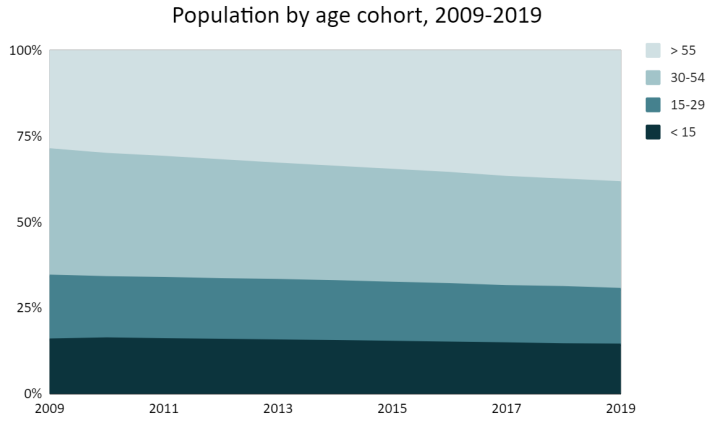
The Franklin County economy demonstrates some favorable foundational and structural conditions to continue to grow as a digital economy:



- Workforce participation and engagement is exceptionally high at nearly 60% compared to other geographies, including adjacent counties, other US rural communities, and the US.
- Franklin's workforce productivity is nearly $80K/worker. Comparable rural communities' productivity is $77K/worker. Worker productivity is an indicator of the presence of high quality, durable, wealth creating jobs.
- Jobs have rebounded from the 2008 crisis, although recent numbers show declines, and population has been historically flat to declining.
- Relatively low costs of home ownership and rent are a competitive advantage in attracting younger, tech-oriented workers (American Community Survey 2019 5 year estimates, US Census Bureau).

Other baseline challenges do exist in age and income demographics and trends, including:

- Median age is higher than all comparable geographies and 55+ age cohorts have grown in the last decade:
    - Older age cohorts have only increased since 2009, increasing from 28% to 38% of the total population.
    - Less than one-third of the population (~31%) is of prime working and earning age (30-54) (American Community Survey 2019 5 year estimates, US Census Bureau).



- Since 2000, Franklin County's population trajectory has been flat to declining. Franklin County trails in population growth when benchmarked against similar rural counties who have pursued digital ecosystem strategies (County Population Characteristics, US Census Bureau). Developing a thriving tech economy could

attract and retain younger tech workers, particularly from the CS grad pool in the region to help reverse this trend.

- Households with income in excess of $100K+ that are potential individual and angel investors lag adjacent counties, MA, and the US (*Source:* American Community Survey, US Census Bureau, 2019). One way to address this gap is to tap into regional angel investment groups for Franklin County startups while developing local connections to foster a local network.

04) Focus on the five Direct Drivers

Based on CORI's experience working with rural communities across the US, in addition to the foundational and infrastructure elements, our model features five direct drivers that are at the core of building sustainable and thriving digital economy ecosystems to drive long term job growth, wealth, and prosperity.

The keys to local wealth creation and increasing high paying, high-quality, and "durable" tech jobs through the digital economy are the following five drivers:

- **Scalable Tech Entrepreneur Support and Incubation:** Fostering a dynamic and innovative environment and community for start-up founders and aspiring entrepreneurs to connect and collaborate with local peers, established leaders from the business community, and access to labs, project shops, and other work spaces.

- **Digital Workforce Development and Support**: Providing learning and development opportunities from local students and workers from across the career spectrum. This driver focuses on establishing and maintaining both traditional and non-traditional learning paths to provide the local digital economy with skilled and talented labor pools.

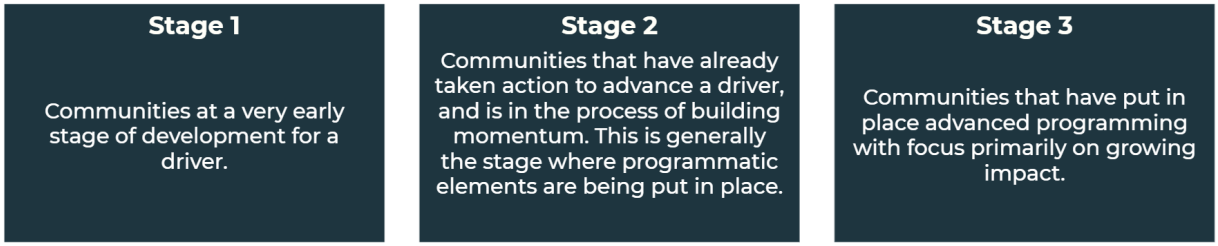
- **Access to Capital:** Creating an environment where burgeoung entrepreneurs and start-ups have exposure and access to seed, angel, or more traditional funding mechanisms. This driver focuses on the funding necessary to ramp up operations, hire, and scale.

- **Inclusive Tech Culture Building:** Building a strong, inclusive tech culture and community through programming that encourages people from diverse backgrounds to participate in the digital economy. This driver focuses on ensuring that communities are strengthened through broad based involvement across racial, gender, socio-demographic, and other groups.

- **Access to Digital Jobs:** Giving workers the necessary skills and technology tools to expand career opportunities from both a sector and geographic perspective. This driver allows access to higher-paying, tech-focused opportunities, be they to support local companies and ecosystems as well companies that may be located elsewhere.

The three stages of development for direct drivers

To assess digital economy readiness and potential, the current state of and the environment for each driver is examined. There are different categories or stages of driver maturity and representative programs for each of these 3 stages of development. The programs outlined are potential options that your community can consider to progress from one stage to another. Communities can vary across the spectrum of stages for each unique driver.

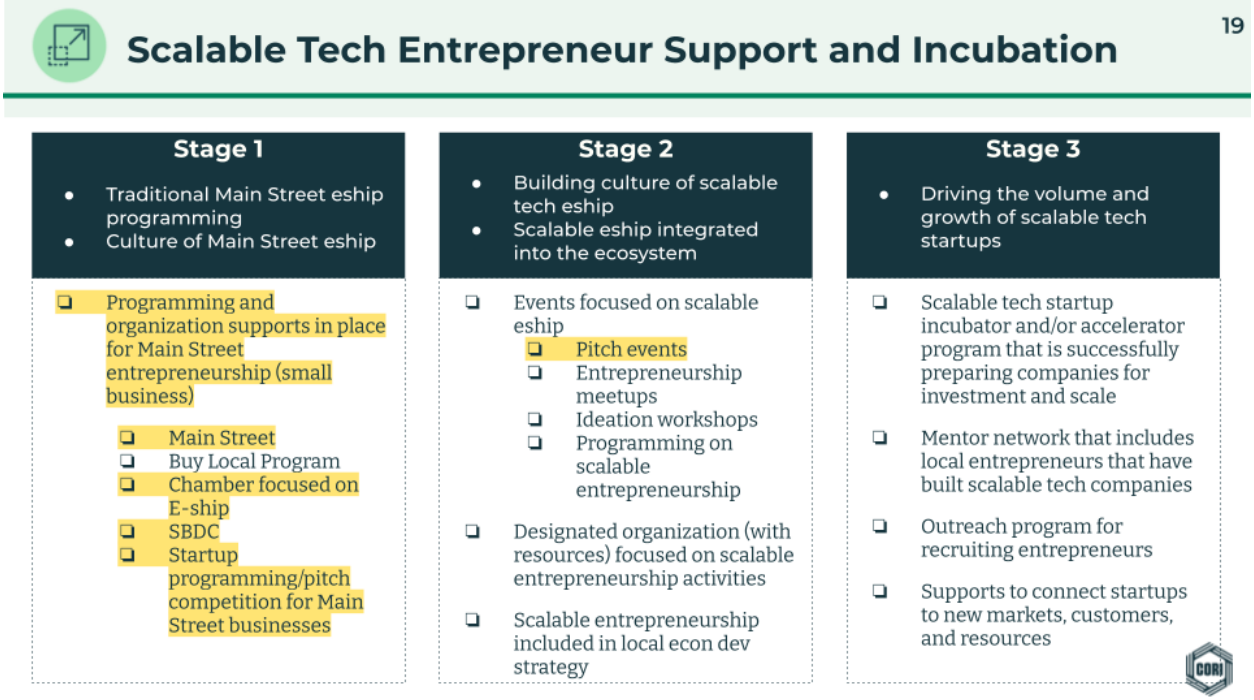


For each Direct Driver, your core team provided an initial score based on your self-assessment. Based upon our completed analysis, we have provided you with an updated score and rationale below per driver.

Overall, Franklin County is a strong stage one community, with a number of core assets and partners present that can be leveraged to build a Digital Economy Ecosystem.

1) Scalable Tech Entrepreneurship Support and Incubation

- Driver stage scoring
    - Community's self-assessment score: 1
    - CORI's score: 1
        - Note: All programs highlighted in yellow in the image below were confirmed as present in your community to demonstrate our rationale for your community's score.



Key findings and learnings

- *Gaps & Challenges to Address*
    - Franklin County has numerous stage one entrepreneurship programs that indicate strengths in traditional main street entrepreneurship programming as well as a community pitch event, Take the Floor. However, these programs are not currently focused on supporting tech innovation at all stages of a startup journey, from ideation to acceleration and beyond.
    - No structured mechanism for tracking active or potential tech entrepreneurs in the community.
    - Low access to services / wraparound supports focused on tech entrepreneurs including:
        - Access to angel investors
        - Access to venture capital or seed funding
        - Access to workers with digital skills

        - Access to workers with sales, finance, or operational skills
        - Access to legal services - Business formation
        - Access to legal services - Patents & IP
        - Access to legal services - Equity structures
        - Access to startup training (e.g., lean startup training)
        - Access to broadband (Strong broadband Internet in Greenfield, limited in last mile communities)
    - Tech-focused startup programs or focused scalable startups, such as TechSpring and Valley Venture Mentors, are located elsewhere in the Pioneer Valley, primarily concentrated in Springfield. Startups that begin in Franklin County are at risk of being pulled to Springfield or more urban centers for support and investment.
    - Startups with success in the region are able to leverage their strong social capital and informal networks to build their companies. This presents a significant gap in awareness and opportunity for diverse residents of the county who do not have access to these informal networks to support them in pursuing an idea and founding a startup.

- *Potential Solutions to Explore*
    - Position a central downtown location (e.g. Rural Innovation Center) as the designated organization focused on scalable tech to create a one-stop shop
    - Leverage your county & Pioneer Valley partners and coworking locations to build a clear, accessible journey for Franklin County residents to follow, starting with:
        - Tech ideation workshops targeting diverse target audiences (e.g. artists, recovery community, seniors etc.).
        - Startup weekends and/or incubator programs tied to pitch events.
        - Explore how the Innovation Accelerator could potentially expand to support local startups.
        - Explore how Valley Venture Mentors mentor networks and accelerator program design could be customized to spark innovation in Franklin:
            - 150-200 mentors available to support startups
            - Has mandate to expand reach to Franklin County
    - Before launching a full incubator or accelerator program, dedicate staff resources to promising startups to provide custom wraparound support and serve as connectors to the ecosystem (e.g. mentors, legal services, accounting, space).
    - Leverage strong small business culture already present and funnel towards tech ideation and “dreaming big.”
    - Include digital device access as part of all tech programs to reduce barriers to participation.

- *Assets & Partners to Engage*
  - GCC Ideation Center
  - Rural Innovation Center
  - Innovation Accelerator
  - Coworking spaces and makerspaces: The Hive, Another Castle, Greenspace CoWork, LaunchSpace, Bridge of Flowers Business Center
  - Valley Venture Mentors (pending capacity)
  - GCC Business Administration Program & Entrepreneurship Certificates
  - Leverage small business focused programs (e.g. Chamber, SCORE, SBDC, Venture Center).
    - SCORE's mentorship program to match entrepreneurs with mentors
  - Startups to leverage for potential mentors, resources: HitPoint Studios, Copper Hill Technologies, PVGD, Vermont Digital Arts, Giant Light Studios, Wood Penny.
  - Success story of HitPoint Studios acquisition by Penn Game Studio to show what is possible.
  - Take the Floor Pitch Event could be adapted for tech-focused pitches.
  - Directly engage the strong small business community present in the region to explore tech ideas and explore scalable solutions to some of their own business pain points. This will leverage the county's high shares of:
    - Franklin workers (28%) employed by small, owner operator businesses. Adjacent counties stand at ~20% (US Bureau of Economic Analysis).
    - Employment in firms of 50 or fewer employees (42% vs 29% in MA), evidencing a healthy network of small businesses and entrepreneurs.
    - Activity in web-based businesses, with 2.5 highly active web ventures per capita vs 1.2 per capita for adjacent counties (GoDaddy, 2020). This indicates connections to non-local markets via tech enabled businesses that may have potential to innovate and scale.

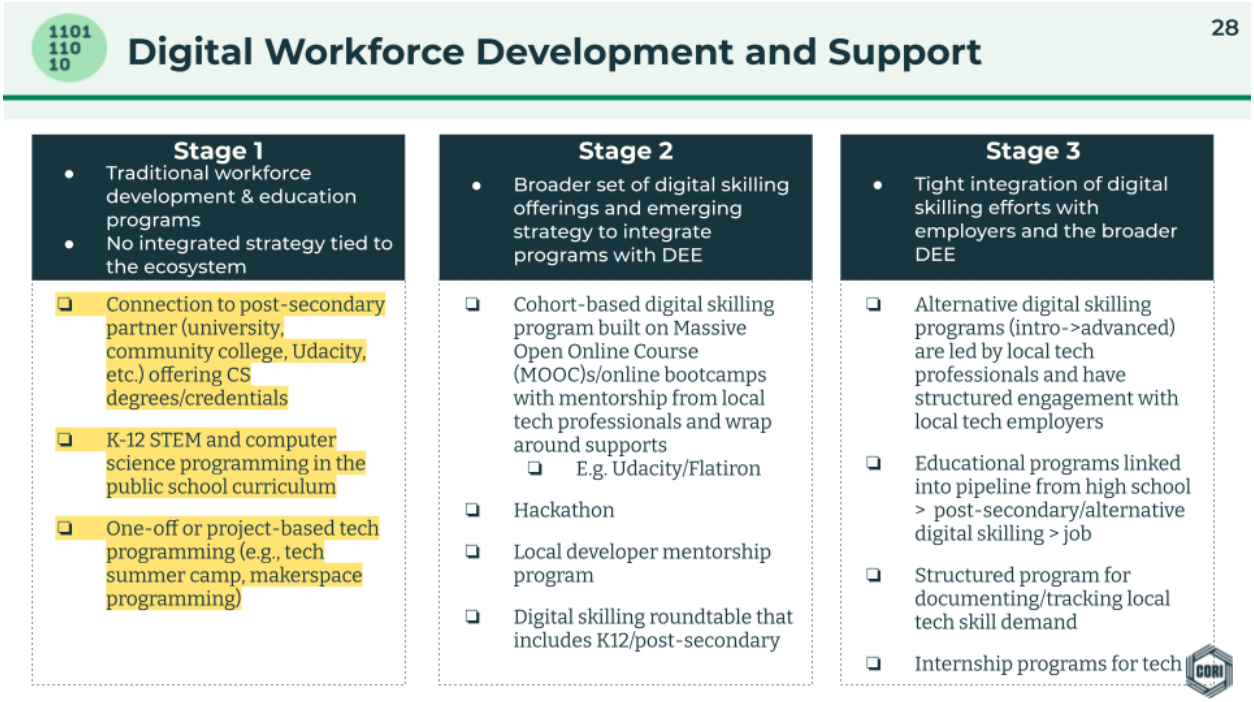
- Perspectives from the community
  - "The Valley is now sorely lacking in tools to help people build scalable companies ... they're doing a great job helping traditional main street businesses, but no one's really helping folks ideate, no one's building the community of mentors to bring them all together." — Paul Silva, Co-Founder & Instructor at Innovation Accelerator
  - "We had plenty of people that realized they could become entrepreneurs leading scalable businesses ... and they cranked out ... close to 50 startups, a year ... Mostly it's about educating people that ... there's low code, no code solutions ... I think there's a lot of people in greater Greenfield that could learn skills, and then realize that they could make things happen, because it's never

been easier to code." — Paul Silva, Co-Founder & Instructor at Innovation Accelerator

- "[We should] enhance the system of business support services provided to the Pioneer Valley's critically important small and mid-sized enterprises and develop new and more flexible sources of growth capital. As part of this effort, enhance supply chain and vendor opportunities for existing Pioneer Valley businesses, with special attention to connections with new major employers in the region." — Pioneer Valley Plan for Progress, page 13
- "I think the important thing that we're trying to accomplish with [Valley Venture Mentors], more so than ever, is make sure that people up and down the Pioneer Valley know that ... we've survived the pandemic, ... we really want to make sure people understand that we're all about entrepreneurship in general. Now, to the extent that we're able... to work with high growth startups or tech enabled, or tech startups ... so for us it's, it's about entrepreneurship, it's about really redefining Western Mass, as a place that entrepreneurs can succeed. And they've got the support both in mentoring and financially to do just that." — Chris Bignell, Valley Venture Mentors
- "The major colleges that [produce tech] graduates ... are within 40 miles of Greenfield, and much of the county, but ... people look ...into Amherst, Northampton and Springfield, [and] Holyoke ... The focus doesn't get drawn further north, yet I think that is evolving, particularly as downtown Greenville becomes more vibrant. I think there are more artists that are there that are starting to pick up. You know they're opening stores, They're just locating themselves, their rent was cheap ... My guess is that [Greenfield is] a little behind the curve there." — Kate Minton, Co-Founder & Director of Operations at Innovation Accelerator
- "We're going to [create] a business administration general program that combines ... the best ... courses of the ... disparate degree programs like computer information systems, accounting, marketing, management, these were all separate programs and currently still are and, but [in Fall 2022] it'll be together in one program" — Chet Jordan, Dean of Social Sciences, Professional Studies & Workforce Development at Greenfield Community College
- "Technology companies are linked with the area's universities and colleges in a number of ventures, including a precision matching initiative and the development of clean energy resources, to increase the pace of innovation and technology commercialization and to build a growth oriented economy in the Pioneer Valley region and throughout Western Massachusetts." — Pioneer Valley Plan for Progress, page 21
- "I made so many mistakes. At the beginning I didn't really have any training or anything like that or anybody ... I just happened to meet [someone] from San Francisco who was running a software company... [and] he gave me a bunch of tips and ... mentored me." — Paul Hake, Director of Penn Game Studios

2) Digital Workforce Development and Support

- Driver stage scoring
    - Community's self-assessment score: 1
    - CORI's score: 1
        - Note: All programs highlighted in yellow in the image below were confirmed as present in your community.



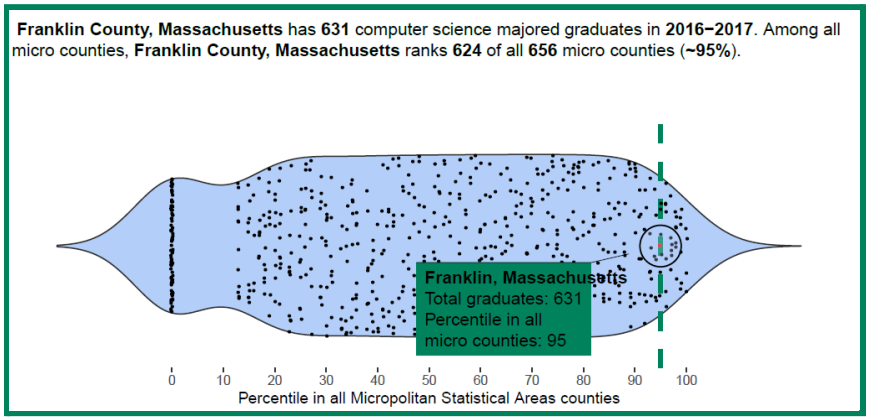
Key findings and learnings

- *Gaps & Challenges to Address*
    - Uneven opportunity for K-12 pipeline. Franklin County has a very strong private school presence with impressive CS programing and a strong Technical School. It is unclear, however, what standard curriculum opportunities exist for other local students.
    - Low demand & awareness of tech careers as an opportunity (e.g. GCC Computer Science programs / Workforce Development). Chet Jordan, Dean of Social Sciences, Professional Studies & Workforce Development at GCC, discussed in our interview that the CS programs and computer workforce development programs are underutilized by local students who tend to choose health care or manufacturing related programs, as that is what is visible to them in the community. This is in spite of the reality that opportunities exist in the region, as evidenced by the 164 tech jobs found via an Indeed Job search within 50 miles of Franklin County.

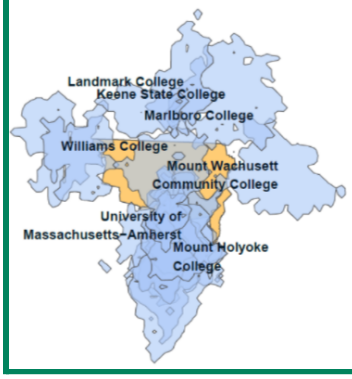
- No known coding bootcamps or other digital skilling programs are present in the county that could be alternatives to the traditional post-secondary track.
- Access to funds to support workforce development programs for non-traditional students is a challenge. Chet Jordan noted that Workforce Development programs are not eligible for the same types of tuition support that two or four year degree programs can provide.

- *Potential Solutions to Explore*
    - Build a digital skilling roundtable that includes K-12 schools (public and private), GCC, anchor employers and coworking spaces.
        - Uncover and increase awareness of current tech job demand to inform GCC's curriculum decisions and implementation of appropriate digital skilling efforts (e.g. coding camps).
    - Increase equitable access to project-based, summer / evening programming (e.g. tech summer camps, STEM RAYs).
    - Implement inclusive tech culture building activities to bring awareness of tech opportunities and accessible skill development pathways for youth and adults.
    - Provide a local presence of a national digital skilling partner that provides tuition assistance (e.g. Flatiron) that includes peer support and other wrap around services such as follow-on job search support.

- *Assets & Partners to Engage*
    - The pipeline of computer science graduates is well above the micro county median, at the 95th percentile for all micro counties in the country. A strong pipeline of computer science talent can both generate potential tech company founders and to entice tech firms to relocate and/or employ in the county (US Department of Education).



- There are multiple education and training institutions for computer and technical fields within driving proximity (30-60 minutes) to Franklin, where the top five local institutions produced nearly 500 CS graduates in the 2016-2017 academic year (US Department of Education).



School	Type	CS Grads (2016-2017)
UMass-Amherst	4-year	330
Mt. Wachusett Community College	2-year	54
Mount Holyoke College	4-year	37
Holyoke Community College	2-year	34
Amherst College	4-year	33

- **To increase the K-12 pipeline,**
  - Build partnerships with K-12 STEM and computer science programming in the public school curriculum.
    - Franklin County Technical School has Programming and Web Development Program courses. Students and teachers could be leveraged to staff summer programs for elementary age summer programs.
  - Increase one-off or project-based tech programming (e.g., tech summer camp, makerspace programming):
    - Franklin County Gifted Program provides online STEM resources that could be leveraged for summer programs accessible to all youth.
    - STEM RAYS is a summer STEM Program for 4th to 8th graders that was funded by the NSF in 2007, and is listed as a partner of GCC. It is unclear if this program still exists.
    - Explore how Deerfield computer science faculty and students could volunteer to improve access to digital skilling experiences for other Franklin County youth through summer and after school programs.
  - Deerfield Academy, a private secondary institution, has a robust Science and Computer Science program and a reputation as a "workplace that lives united by giving, volunteering and advocating in support of the well-being of Franklin residents." Deerfield computer science faculty and students could volunteer to improve access to

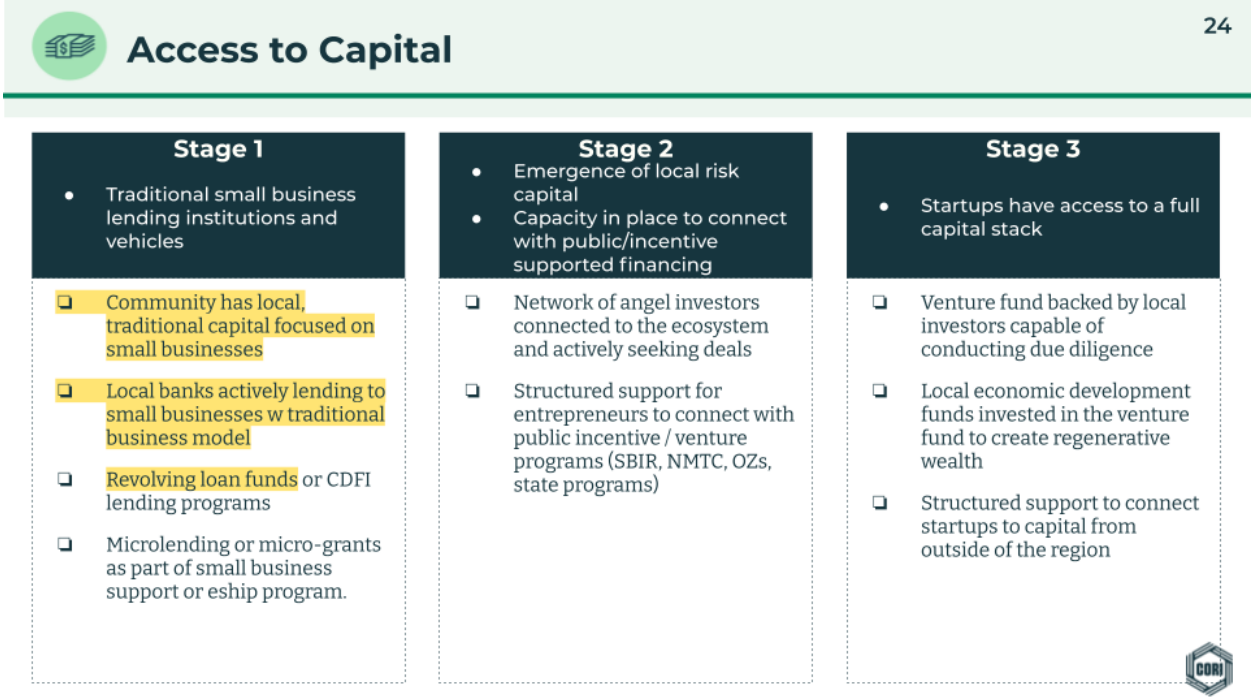
digital skilling experience for other Franklin County youth.
        - Build momentum and awareness through participating in Pioneer Valley Hackathons:
            - GCC Computer Science, Franklin County Technical School students or future summer STEM Camp secondary students could form a team to participate in the HackUMass Hackathon and share about their experiences with other youth.
        - Leverage tech culture building events with current Franklin County tech workers to volunteer as speakers at secondary school career events, summer program facilitators, etc., to increase pipeline.
    - **For adults:**
        - Engage the Tech Foundry to focus programming or learn from their best practices to apply in Franklin County. Tech Foundry's mission is "to support the region's growing need for a qualified technology workforce and evaluate the under-represented groups into sustainable careers in IT."
        - Build partnerships with local major employers to understand demand for tech careers and then establish partnerships with proven alternative programs, such as coding camps, that include internships or other workforce opportunities with local employers or early stage tech startups that need tech workers.
        - Engage local tech workers to create a developer mentor program that pairs adult students with established tech workers. These relationships can encourage program completion and open doors to more local and remote job opportunities upon completion of the program.
        - In the future, Greenfield & Franklin County could partner with the Rural Innovation Network to offer Massive Open Online Courses via Udacity, Flat Iron, Generation and others, combined with local wraparound support for participants at the Orange Innovation Center, Another Castle, Greenspace CoWork Greenfield's Rural Innovation Center.

Perspectives from the community

- "Pursue a broad array of policy reforms and aggressive program initiatives and interventions that work together to identify and implement actions that both retain and expand the Pioneer Valley's supply of educated, skilled workers by a target of +6% or the equivalent of 25,000 workers, while also striving to mitigate adverse impacts to the region's higher education, manufacturing, health care and technology clusters. Critical to this effort is the improvement of educational outcomes and graduation rates in the region's public school systems, particularly in the urban core's distressed cities." — Pioneer Valley Plan for Progress, page 19

3) Access to Capital

- Driver stage scoring
    - Community's self-assessment score: 1
    - CORI's score: 1
        - Note: All programs highlighted in yellow in the image below were confirmed as present in your community.



Key findings and learnings

- *Gaps & Challenges to Address*
    - Households with income in excess of $100K+ that are potential individual and angel investors lag adjacent counties, MA and the US (American Community Survey, US Census Bureau, 2019).
    - Capital available in Springfield and Boston may pull entrepreneurs away from Franklin county (e.g. the earlier stage of HitPoint Studios had to move headquarters to Springfield in order to gain investment).
    - Minimal early stage micro-grants or non-dilutive funds to encourage ideation and risk taking.
    - Deal flow not yet present to rally local investors around. No known early stage tech startups have received equity investments in the last three years in the County.

- *Potential Solutions to Explore*
    - Launch a "First 50K" Competition to draw in tech startups from the broader Pioneer Valley with non-dilutive funds and wraparound support (space, mentors, services, connections to interns from regional Computer Science programs) to entice them to locate and stay in Greenfield.
    - Launch a series of smaller scale pitch competitions (e.g. First 5K) to increase pipeline of local First 50K startup applicants (e.g. Ice House Challenge winners with a tech focus).
    - Build a local investment Opportunity Zone fund or Angel Investor Network of Franklin County community builders.
    - Create a list of relationships with regional investor networks to tap into when deal flow available.

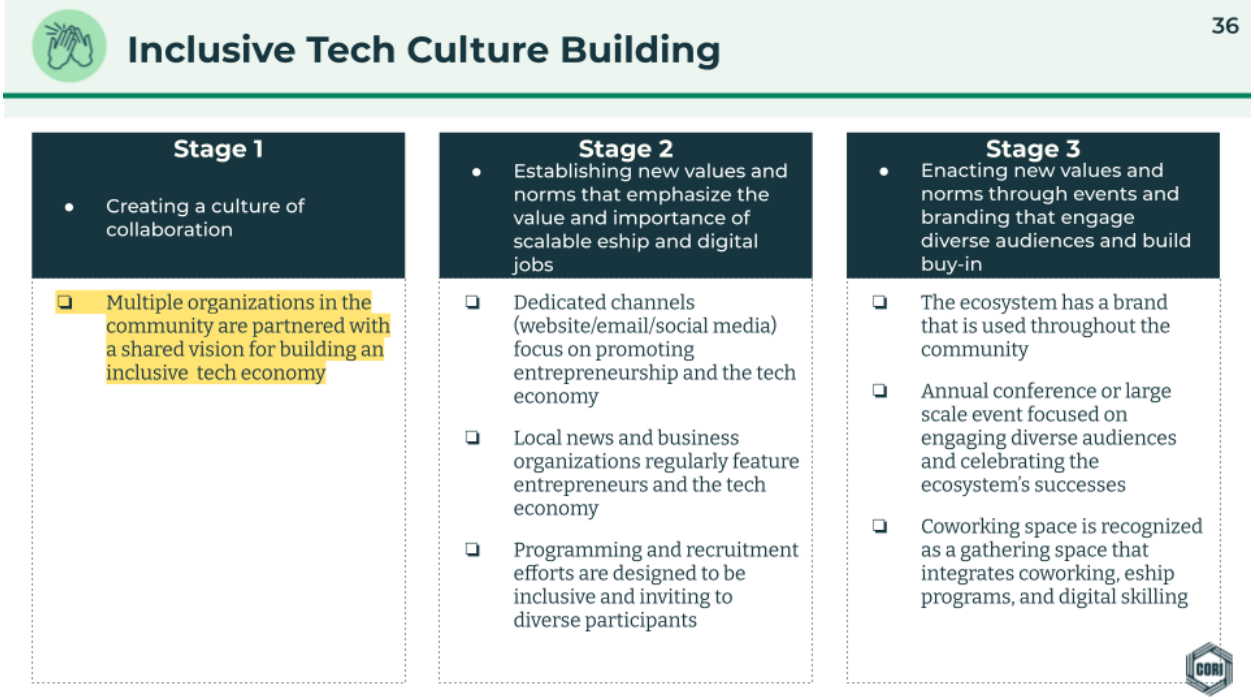
- *Assets & Partners to Engage*
    - Opportunity Zone in proximity to 631 Computer Science (CS) grads a year (2016-2017), indicating a strong presence of CS faculty or students that may have good ideas to commercialize or could be partnered with an entrepreneur with a good idea to explore. You could potentially leverage the Opportunity Zone and First 50K concept to incentivize early stage startups to locate in Greenfield.
    - Local banks as a source of financial capital to lend to small businesses, with traditional business models, such as the Co-Op banks that helped support the launch of Paul Hake's startup (through connection with bank President).
    - Revolving loan fund such as the North Quabbin Loan Fund.
    - GCC Ideation Center & Rural Innovation Center
    - Common Good & Local Banks could be sources of pitch prizes or microgrants
    - Valley Venture Mentors as a source of potential investors
    - Regional Assets to leverage: River Valley Investors, New England Angel Capital Association

- Perspectives from the community
    - "A couple of years later when we raised capital to be an injection of cash, that was a friends and family round ... Then we had to move to Springfield as part of the Mass Mutual money because it was part of the requirements of their investment ... It was the biggest mistake we made. We were diluted heavily and the only people that came out on top were the landlords in Springfield." - Paul Hake, Director of Penn Game Studios
    - "Entrepreneurs ... [do not realize], how many resources they have that are available in this area and how to access those resources ... Simply not having the tools that they need to utilize this ... has been problematic for them." — Kate Minton, Co-Founder and Director of Operations at Innovation Accelerator

- “It seems to me like most of the businesses … that have gone through VVMs accelerator, most of them don’t even … go beyond the angel investor setting. It tends to be friends, family, and angels, not a lot of Venture Capital money tends to follow the medium …. Having said that, there are a lot of businesses that seem to attract federal grants.” — Chris Bignell, Interim Chief Executive Officer, Valley Venture Mentors

4) Inclusive Tech Culture

- Driver stage scoring
    - Community's self-assessment score: 2
    - CORI's score: 1
        - Note: All programs highlighted in yellow in the image below were confirmed as present in your community.



Key findings and learnings

- *Gaps & Challenges to Address*
    - Interviews suggest that a significant cultural shift is required for the average Franklin County resident to have awareness that tech careers or founding a startup is "for them" and that there is a viable pathway they could follow to achieve this.
        - Tech workforce development and access to jobs are not currently highlighted or widely promoted in Franklin County.
        - Examples of successful startups do not yet represent diversity within the region.
    - Access to digital technology throughout Franklin County disproportionately disadvantages the poorest community members, as described in The Digital Divide and Challenges to Digital Equity.
    - Success stories like HitPoint Studios are not widely known, celebrated or broadly seen as part of community identity unless you are already tapped into tech or entrepreneurship.

- *Potential Solutions to Explore*
    - Start building your shared community vision now. Bring partners together with a case for change and a call to action for how to collaborate. Think broadly and beyond who you typically might engage in tech and entrepreneurship.
    - Begin to build a brand. Leverage all other ecosystem building activities to tell your story. Share widely the current tech story of Franklin County via media outlets, highlighting successes like the HitPoint Studios acquisition by Penn Game Studios, find and feature tech workers.
    - Design early pipeline awareness, inspiration, and educational events for those new to tech by meeting them where they are - leveraging local cultural traditions/events/industries.
        - Promote tech cultural belonging for those in recovery, seniors, BIPOC, women, current tech and remote workers.
    - Create a "front door" for your regional tech culture in Greenfield and other satellite locations (e.g. LaunchSpace).
    - Find ways to pair tech experts with entrepreneurs to solve local problems with tech and explore scalability.
    - Demystify tech. "Mostly it's about educating people that, hey, there's these low code and no code solutions, so let's talk about the problem and you can probably do it. It's just a lack of education ... The pandemic has changed everyone's landscape. It's a bunch of people that have some time on their hands, and they've realized I want to change careers. And there's a bunch of dollars coming down the pike to fund some of these things, I think there's a lot of people in greater Greenfield that could learn some skills, and then realize that they could make startup happen, because it's never been easier to code." — Paul Silva, Co-Founder & Instructor at Innovation Accelerator

- *Assets & Partners to Engage*
    - Bridge your creative economy development activities by including a tech focus, building awareness and opportunity for innovation with local creators. Leverage Arts Extension Service, Assets for Artists.
    - Learn from and share widely early examples of tech startup & job success, tech meetups (Another Castle).
    - Leverage local media (AOTV, GCTV, The Recorder).
    - Bring together inclusion partners to consult with in event/program design and outreach. Ask these partners how they can contribute via their own current programs to foster a culture of innovation. Partners could include: Center for Women & Enterprise, Franklin County CDC - Racial Justice program, Erving Senior Center & OASIS at GCC, YMCA, Musica Franklin, Girl Scouts, Franklin County Jail etc.
    - Build inroads with the current tech industry including local tech companies

and organizations such as the Pioneer Valley Game Developers Group, Another Castle , as well as the County's anchor industry employers that have tech jobs.
    - Partner with Main Street Business Organizations such as the Chambers, SBDC, SCORE etc. to reach current small business owners.
    - Host events at coworking spaces and maker spaces including Greenspace CoWork, LaunchSpace, and Bridge of Flowers

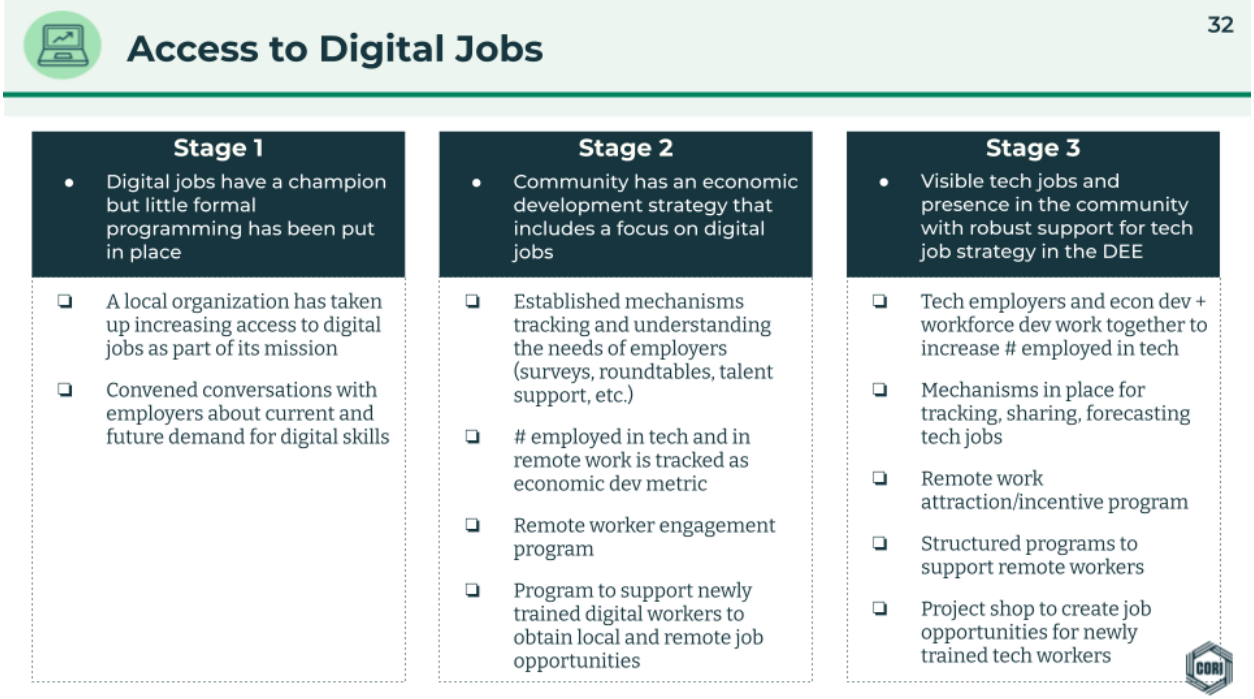
- Perspectives from the community
    - "Although I do not know a lot about the tech industry and when I think about the tech industry I think about a generation ... that's definitely not a baby boomer, such as myself, but maybe a millennial" — Traci Talbert, Racial Justice Community Engagement Leader at Franklin County Community Development Corporation (CDC).
        - Note: During the interview Traci identified a potential startup idea of her own, and became interested in building relationships with tech partners in the community for her program, indicating how quickly a mindset shift can take place when opportunities are provided to build these connections.
    - "This is an up and coming community ... I am working to bring more black-owned businesses here and increase racial equity in the businesses already present. When I say welcome and belonging, I see that hand holding. I see this chain of all these businesses physically holding hands, so if one business owner drops or makes a mistake, the next business should be there to pick them up or encourage them" — Traci Talbert, Racial Justice Community Engagement Leader at Franklin County Community Development Corporation (CDC).
    - "I [imagine] seeing the generations coming together ... maybe a grandmother and grandson are working together on a tech project to really promote that in our community." Traci Talbert, Racial Justice Community Engagement Leader at Franklin County Community Development Corporation (CDC).
    - "There's a disproportionate number of creative and builder types... [if] those two parts of the community were ... in touch with each other ... I think that would be fantastic ... folks in Franklin County ... love working together right they love the cooperative business models, you know, is there a way to kind of bring a place, five years from now, a place of bright beautiful light place downtown for these communities to come together" — Heather Bell, Co-Founder and Instructor at Innovation Accelerator
    - "We started running a group called the Pioneer Valley Game Developers Group ... for people that make games in the Western Massachusetts area ... [but now] we have 500 people encompassing Southern Vermont, Eastern Massachusetts, parts of New Hampshire, and upstate New York ... We really want to start a co-working space for game developers" — Paul Hake Director of

Penn Game Studios

- “The Franklin County Jail located in Greenfield … they’ve already started to build partnerships [and] there’s a real passion around helping folks that are on the margins of society have a real path … I think you could build a real tech path there.” — Heather Bell, Co-Founder & Instructor at Innovation Accelerator
- “Many of our clients do not have enough money to feed themselves let alone purchase internet access or equipment.” — The Digital Divide and Challenges to Digital Equity, page 54
- “The digital divide is yet another example of how the poor and low wealth populations are being excluded and discriminated against.” The Digital Divide and Challenges to Digital Equity, page 26
- “The inequities in access to digital technologies — not having computing devices, inadequate broadband, or not having proficient knowledge of how to use technologies — mirror other societal inequities: those of race, income, education, and healthcare.” — The Digital Divide and Challenges to Digital Equity (May 2021), page 4
- "A lot of … community college students or college and UMass and Hampshire or Hampshire Holyoke and sometimes Amherst. Smith, … there were 40-50 people there [in] the one suite … it was crazy … [over] 24 hours … working on a project and you stay at the office if you want, or over the weekends it's 48 hours … It's a great community building event and it was a great experience for students … There's also some others [who] have day jobs that want to get into game [design] so they'll do that for the weekend and make games independently. And then like the tech meetup or the meetups where we do talks and things like that. We're doing them right every month. … Now we just have a guest speaker every month”— Paul Hake, Director of Penn Game Studios

5) Access to Digital Jobs

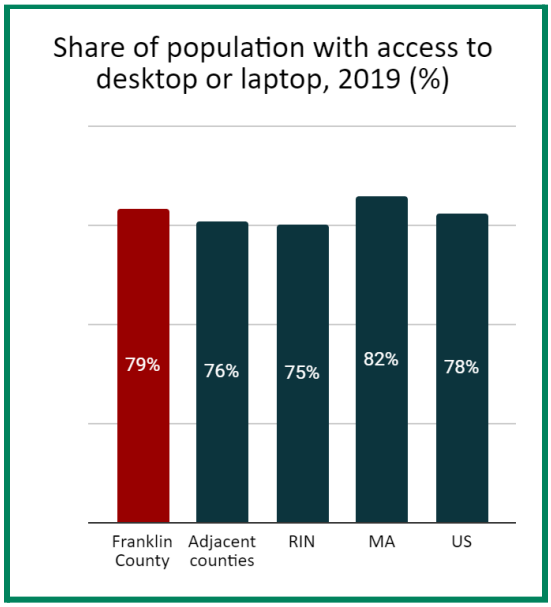
- Driver stage scoring
    - Community's self-assessment score: 1
    - CORI's score: 1
        - Note: No clear organization has yet committed to access to digital jobs as a part of their mission. Greenfield and Franklin County are at a very early stage of this driver.



Key findings and learnings

- *Gaps & Challenges to Address*
    - Both broadband availability and usage in Franklin County as a whole are below the US average. 20% of Franklin County does not have access to broadband and less than 50% of the population utilizes the broadband that is available ("Usage" is sourced from Microsoft Corp. "Availability" is sourced from the Federal Communications Commission (FCC). Ubiquitous broadband and user uptake are key factors to developing and growing a scalable tech economy and fostering remote work. Low broadband usage could be in part a result of lack of access to equipment for low income households, noted in "The Digital Divide and Challenges to Digital Equity" (May 2021, p. 56).
    - Per the American Community Survey, one in five residents of Franklin County were without access to a desktop or laptop in 2019, roughly on par with

Massachusetts (slightly less than 1 in 5 without access) as a whole and slightly better than Rural Innovation Network communities (1 in 4 without access).



- While there is an overabundance of CS graduates in the area, recent industry and sector trends show little shifts towards tech-adjacent business activities. From 2013-2018, shifts in employment skewed towards non-traded sectors, and growth in the IT sector is currently flat (US Bureau of Labor Statistics).
- While there is not significant growth in the IT sector currently, all industries have some degree of tech jobs that support their efforts. According to the core team from Franklin county, however, there is "scarce awareness" of local tech opportunities, or tech as a career path, and companies are "not looking for local talent" (Self-assessment).
- The number of current tech workers in the county remain unknown, with no leading organization currently focused on understanding current tech job demand or fostering local tech startups that could provide new opportunities for employment.

- *Potential Solutions to Explore*
    - Identify if Franklin Hampshire Career Center has taken up increasing digital job access as part of its mission, or what other organization locally or regionally could make this a focus of their work in Franklin County. Identify if they conducted a survey of local employers to understand their current and future demand for digital skills that you can leverage.
    - To understand current demand and number of remote and/or tech workers in the area, this organization or collaborative could:
        - Establish a mechanism for tracking and understanding tech demand from local employers via surveys, roundtables, etc.
        - Track # employed in tech and remote work as part of your local economic development metric. Building a list with contact information of known tech and remote workers is an important step in fostering a tech community.
        - Consider a remote worker engagement program and marketing campaign that would draw people to the area.
        - Build a program to link newly trained digital workers to remote and

local job opportunities and internships.
        - Create a one-stop shop for local professionals and potential newcomers to the community to learn about tech opportunities in the region.
    - Reach out to the post-secondary institutions in the area to learn where their students are going to work after graduation and if there is desire for more opportunity within Western Mass that Greenfield and the county could intentionally attract.

- *Assets & Partners to Engage*
    - While Franklin county has lower than average broadband access, Greenfield has gigabit fiber available that is very attractive to tech and remote workers (Paul Hake interview).
    - Remote workers can be found and leveraged to build a strong sense of community of knowledge and tech professionals. Even pre-pandemic, Franklin county showed strength in remote work and home-based workers, at a much higher rate than the adjacent counties (American Community Survey, US Census Bureau).
    - Mass Hire Career Center: A total of 28 tech jobs were posted within the last two months for the Franklin/Hampshire counties, identified via a MassHire JobQuest search for the keyword "software" in the job category "Computer & Mathematical Occupations." Only <u>one</u> was in Franklin County (Wendell, MA).
        - When widening the search to all "Computer & Mathematical Occupations" in Franklin/Hampshire counties, the search yielded 70 results — Deerfield, MA, and Wendell, MA, were the only communities noted within Franklin County
        - Key employers from this job search included Dell, Machinemetrics, University of Massachusetts Amherst, Smith College, & Servicenet.
    - CORI identified 165 remote jobs that require a Bachelor's Degree in Computer Science in MA via an Indeed search
    - GCC Career Services could help promote more local tech jobs and remote internships by featuring tech jobs on their job board.
    - Other known employers to target to understand tech job demand include Starrett in Athol, Valley Steel Stamp, NE Biodiesel, Bete Fog Nozzle, HitPoint Studios (Now Penn Game Studios) and other major employers in the area (hospital, GCC, schools, local government, etc.) to better understand current and future demand for tech jobs, current hiring processes.
    - <u>Another Castle</u> is a co-working space that caters to game developers and designers for the Pioneer Valley, boasting the highest speed internet in the area, a strong attraction for remote tech workers and tech meetups.
    - Penn Game Studios is hiring in the near future ~10 new tech workers, and has attracted new workers from other parts of the country to Greenfield
    - <u>Tech Foundry</u>, while based in Springfield, could be an excellent resource to

leverage in better understanding and leveraging tech job opportunities for Franklin County. Tech Foundry's mission is to support the region's growing need for a qualified technology workforce and elevate under-represented groups into sustainable careers in IT.

- Perspectives from the community
    - "People are … immediately thinking about the opportunities right in town … people don't think [that there are] other software companies in the county … Right now, we have employees all over the country. There are 15 of us in Western Mass but the other 15 are scattered everywhere … I can't tell you apart from it's just like not in the collective consciousness of the area to think about tech, high tech as a career" — Paul Hake, Director of Penn Game Studios

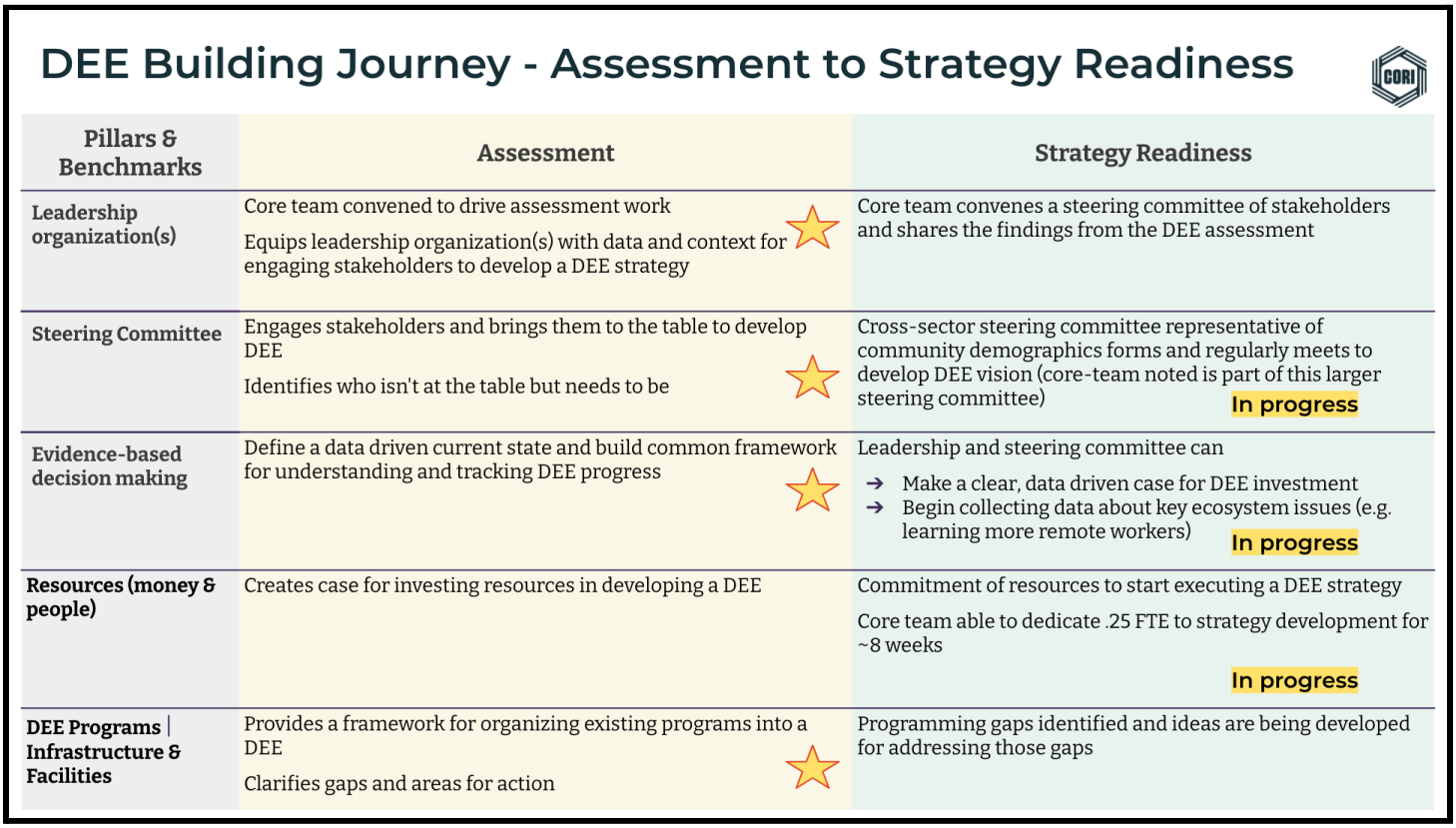
05) Conclusions and Next Steps

Greenfield & Franklin County have enviable assets, strong potential ecosystem partners, and the foundational elements and infrastructure necessary to build a robust Digital Economy Ecosystem. The Pioneer Valley Plan for Progress and local leadership are aligned with this focus. However, without intentional focus and resources, this potential could remain unrealized due to strong pull factors towards more developed tech ecosystems in the Pioneer Valley and beyond in Massachusetts. To combat this challenge and gain a few quick wins to jumpstart the ecosystem, Greenfield and Franklin County should explore how to leverage some of the unique assets present to draw early stage startups to the area from the talent pool in the region, such as a First 50K program. This type of program can quickly spread awareness of the opportunity within the tech industry, inspiring more local residents to explore and pursue their own startups. Simultaneously, it will be key to widen the top of the funnel through inclusive tech culture building strategies that will develop a clear pathway to pursue those ideas while fostering a culture of innovation where all Franklin County residents feel welcome.

Potential Outcomes:
Building a Digital Economy Ecosystem by tying together these assets and strategically filling in the identified gaps will:

- Produce homegrown tech startups that create new, higher than median income paying jobs for the county.
- Shift industry concentrations towards higher growth, tech-focused, and tech-enabled sectors.
- Attract and retain more tech workers with a desire for rural life, and regain family-age expats that want to return to their home community.
- Create an inclusive, viable pathway for local kids and adults towards high paying tech employment or entrepreneurship.

Next Steps:
As noted in the image below, Greenfield and Franklin County have achieved the majority of the benchmarks associated with CORI's assessment phase of the Digital Economy Ecosystem Building journey. We recommend that the core team evaluate this assessment report to determine if there is a clear and compelling case to prioritize investing the required resources to develop and implement a strategy. If this is the case, steps should be taken to create a cross-sectoral steering committee that can be engaged in strategy development and implementation, as well as identifying staff and financial resources required to participate in a strategy building process with CORI.



DEE Building Journey - Assessment to Strategy Readiness

Pillars & Benchmarks	Assessment	Strategy Readiness
Leadership organization(s)	Core team convened to drive assessment work Equips leadership organization(s) with data and context for engaging stakeholders to develop a DEE strategy	Core team convenes a steering committee of stakeholders and shares the findings from the DEE assessment
Steering Committee	Engages stakeholders and brings them to the table to develop DEE Identifies who isn't at the table but needs to be	Cross-sector steering committee representative of community demographics forms and regularly meets to develop DEE vision (core-team noted is part of this larger steering committee) In progress
Evidence-based decision making	Define a data driven current state and build common framework for understanding and tracking DEE progress	Leadership and steering committee can → Make a clear, data driven case for DEE investment → Begin collecting data about key ecosystem issues (e.g. learning more remote workers) In progress
Resources (money & people)	Creates case for investing resources in developing a DEE	Commitment of resources to start executing a DEE strategy Core team able to dedicate .25 FTE to strategy development for ~8 weeks In progress
DEE Programs | Infrastructure & Facilities	Provides a framework for organizing existing programs into a DEE Clarifies gaps and areas for action	Programming gaps identified and ideas are being developed for addressing those gaps

06) Appendix

Interviewees

Name	Title	Organization	Location of Org
Chet Jordan	Dean of Social Sciences, Professional Studies & Workforce Development	Greenfield Community College	Greenfield, MA
Heather Bell	Co-Founder, Instructor	Innovation Accelerator	Springfield, MA
Paul Silva	Co-Founder, Instructor	Innovation Accelerator	Springfield, MA
Kate Minton	Co-Founder & Director of Operations	Innovation Accelerator	Springfield, MA
Chris Bignell	Interim Chief Executive Officer	Valley Venture Mentors	Springfield, MA
Paul Hake	Director	Penn Game Studios	Greenfield, MA
Traci Talbert-Gaynor	Racial Justice Community Engagement Leader	Franklin County Community Development Corporation (CDC)	Franklin County, MA

Identified Areas of Alignment with Regional Strategy & Planning Documents

The following quotes summarize areas of alignment with your overall region's economic development vision and strategy with the development of a robust Digital Economy Ecosystem:

- "[We should] enhance the system of business support services provided to the Pioneer Valley's critically important small and mid-sized enterprises and develop new and more flexible sources of growth capital. As part of this effort, enhance supply chain and vendor opportunities for existing Pioneer Valley businesses, with special attention to connections with new major employers in the region." — Pioneer Valley Plan for Progress, page 13
- "Technology companies are linked with the area's universities and colleges in a number of ventures, including a precision matching initiative and the development of clean energy resources, to increase the pace of innovation and technology commercialization and to build a growth oriented economy in the Pioneer Valley region and throughout Western Massachusetts." — Pioneer Valley Plan for Progress, page 21
- "Pursue a broad array of policy reforms and aggressive program initiatives and interventions that work together to identify and implement actions that both retain and expand the Pioneer Valley's supply of educated, skilled workers by a target of +6% or the equivalent of 25,000 workers, while also striving to mitigate adverse impacts to the region's higher education, manufacturing, health care and technology clusters. Critical to this effort is the improvement of educational outcomes and graduation rates in the region's public school systems, particularly in the urban core's distressed cities." — Pioneer Valley Plan for Progress, page 19

Other Sources/Resources

"Computer Science." Greenfield Community College, December 22, 2020. https://www.gcc.mass.edu/academics/programs/computer-science/.

"Feasibility Study," *Rural Innovation of Greater Franklin County*, November 2020, https://drive.google.com/file/d/1XiSF4RC9sBYyyWeNErUIpJsxSeG4THN9/view?usp=sharing

"Franklin County Community Development Corporation's Community Investment Plan," 2020, https://www.mass.gov/doc/franklincountycdccip/download

"Franklin County Economic Resiliency and Recovery Plan (ERRP): Stakeholder Feedback on COVID-19 Crisis, Responses, and Recovery Priorities," *Hodge Economic Consulting*, March 26, 2021,

https://frcog.org/wp-content/uploads/2015/05/FRCOG-Econ-Resiliency-Plan-Stakeholder-Input-032621.pdf

MA and Pioneer Valley WIOA Regional Planning and Labor Market Blueprint *MassHire Hampden County Workforce Board*, 2021, https://www.google.com/url?q=https://masshirehcwb.com/ma-and-pioneer-valley-wioa-regional-planning-and-labor-market-blueprint/&sa=D&source=editors&ust=1625692962821000&usg=AOvVaw0xM7YCVd6nZtBLdHPfuFoin

"Pioneer Valley Plan for Progress 2015-2025 Building on Success: Economic Strategies for the Region," *Pioneer Valley Planning Commission*, 2015 http://www.pvpc.org/sites/default/files/PFP_2015_Final_Adjusted_web.pdf
"Sustainable Greenfield," *Vanasse Hangen Brustlin, Inc.* January 2014 https://greenfield-ma.gov/files/Sustainable_Greenfield-Greenfields_2014_Comprehensive_Sustainable_Master_Plan.pdf

"The Digital Divide and Challenges to Digital Equity in Hamden, Hampshire, and, Franklin Counties, MA", *www.AllianceforDigitalEquity.com*, May 2021, https://drive.google.com/file/d/1AWVeMCV6bw6E8MC7yRFYtvDRp9lpjf1R/view

"2020-2025 Comprehensive Economic Development Strategy (CEDS) Five-Year Plan for Franklin County, MA," *Franklin Regional Council of Governments*, June 11, 2020. https://frcog.org/wp-content/uploads/2015/05/2020-2025-CEDS-Plan-FRCOG-FINAL.pdf