

Analytics Report

on the Arrowhead Region of
Northern Minnesota

COMMUNITY ACCELERATOR



Intelligent Community Forum

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for the



Blandin Foundation™
STRENGTHENING RURAL MINNESOTA

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Introduction

This report presents an analysis of the performance of the Arrowhead Region of northern Minnesota on the six Factors that make up the ICF Method. It is based on 41 data points, both quantitative and qualitative, provided in questionnaires from four representative communities in the region as well as a region-wide questionnaire capturing the leading examples of progress. ICF analyzed the data and is providing this report detailing the Region's strengths, weaknesses, opportunities and obstacles, as well as identifying areas where the communities can most effectively focus its efforts to make sustainable progress.

The ICF Method

ICF evaluates communities using the ICF Method: a framework consisting of six categories of community performance that, together, provide cities, metro areas and counties with a durable advantage in building inclusive prosperity, achieving social health and enriching local culture in the disruptive digital economy of the 21st Century.

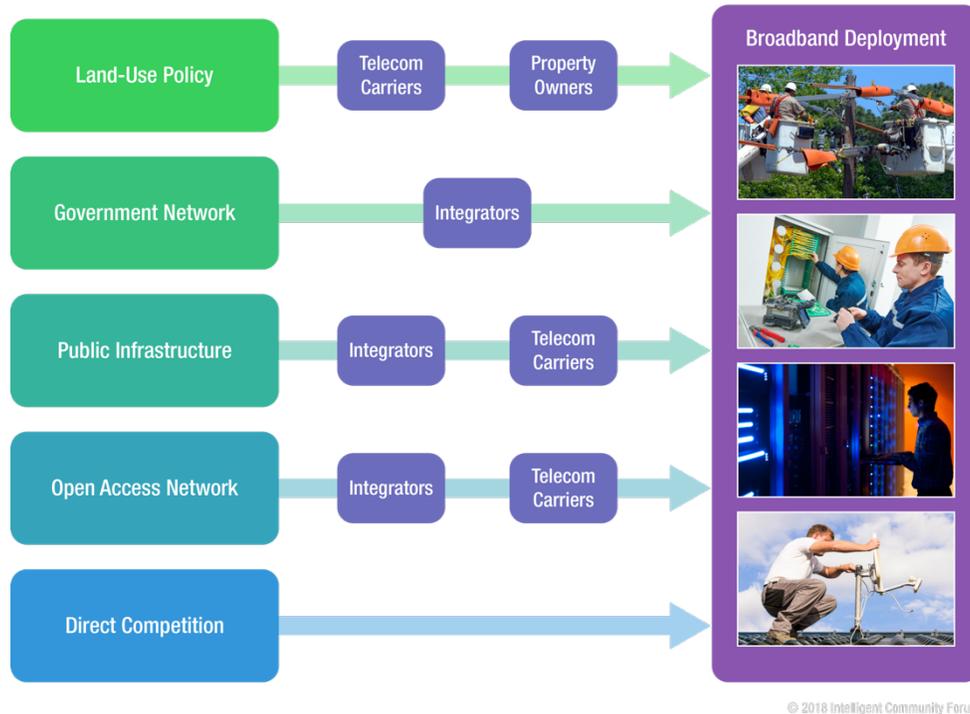


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Connect

High-speed connections for computers and mobile devices are the infrastructure no community can do without. Through those connections come employment opportunity, education, commerce, information, entertainment and community participation. Businesses depend on them to manage their operations, reach customers and attract employees. Governments and nonprofits use them to deliver better services for less money to more people. Communications is not a traditional policy matter for local government. But local gov-

ernments today cannot afford to ignore it. Broadband connections are as vital as the quality of roads, water, electricity and the other essentials of modern life.



Creative governments can direct the accepted tools of **land-use policy** to encourage broadband deployment, including mapping existing coverage, improving access policies for poles and conduct, requiring installation of conduit during street excavations and updating building codes.

In most jurisdictions, **governments can build and operate networks** to serve their own facilities. This investment is easy to justify, because it replaces monthly telecom bills and typically pays off in less than five years. Using the network, government can deploy free Wi-Fi in public locations and develop online constituent services that increase user demand for broadband.

Building infrastructure is the traditional business of government. Some local governments build **public communications infrastructure**: conduit networks, optical fibre networks and wireless towers. They market this infrastructure to carriers and organizations with major communications needs. Those buyers install equipment, activate circuits and deliver services. Lease payments from these users cover the capital, maintenance and upgrade costs of the network. This approach steers clear of concerns about government competing with the private sector while creating greater competition in the market.

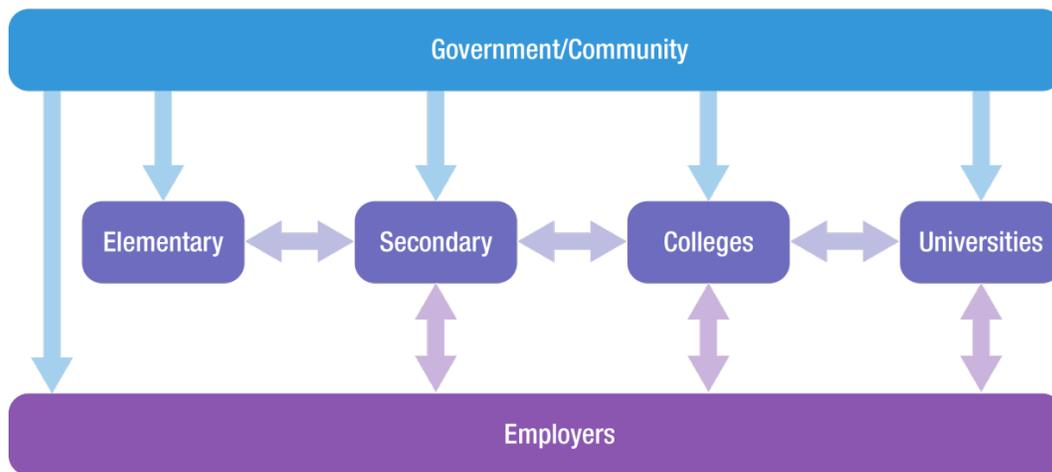
Some communities go beyond this “dark” infrastructure to create **open access networks**. They build, activate and manage a government-owned or public-private network. It provides the “transport layer” – the foundation level of digital connection between physical locations. On this foundation, companies and carriers operate the services that meet the

needs of their users. By further reducing the costs and risks for the private sector, open access networks have proven their ability in many different markets to produce a sharp increase in competition.

The most extreme step communities can take is to **compete directly** with the private sector. This typically happens when private telephone and cable incumbents oppose all efforts at collaboration, most often in rural communities where not even the construction of dark or open access networks can make the market attractive to outside competitors. It may take advantage of municipally-owned utilities whose existing infrastructure reduces the capital needs of network construction.

Work

Management consultant Peter Drucker coined the term “knowledge work” in the Fifties, when he predicted that it would soon become impossible to live in the middle class if manual work was your only skill. His prediction has come dramatically true, as all opportunity for meaningful, well-paying employment has shifted to those with skills, from the construction trades and automated factories to technology, finance and business management. Intelligent Communities create a knowledge workforce through strong and continuing collaboration among local government, employers and schools. Together, they turn education into a ladder of opportunity that teaches skills that are in demand and connects young people with opportunities in the region to strengthen the community’s economic and social foundation. They also create avenues for lifelong learning to ensure that the skills of their people continuously evolve to equip them for new job opportunities.



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Local, regional and state/provincial **governments** play a leadership role in this ecosystem. Where elementary and secondary schools are involved, government determines what can be taught and how programs can be funded. For all levels of education, government can play the crucial role of convening: bringing together educational leaders through com-

missions, advisory boards and other structures that create a permanent platform for collaboration.

Intelligent Communities build a knowledge workforce through collaboration between government, employers, and schools. Knowledge Workforce programs seek to balance the supply of skilled employees with employer labor demand.

- **Universities** interconnect with career-focused **colleges** to share research programs and career courses, and provide college students with access to 4-year degrees
- Universities and colleges interconnect with **secondary schools** to provide students with advanced learning opportunities.
- Secondary schools send students and programs into **elementary schools** to make an early introduction to content on future local careers and excite younger children about education.

At each of these levels, institutions interconnect with **employers**, bringing real-world career content, business mentors, work-study programs, internship and other programs into education. These programs expand students' awareness of their local career opportunities and create hope for the future.

Innovate

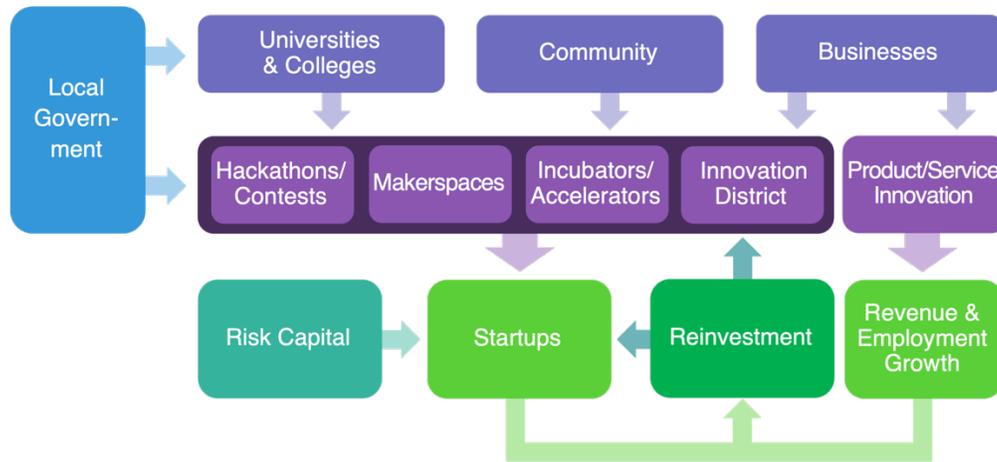
Economist Robert Solow won the Nobel Prize in 1987 for proving that 80% of all economic growth comes from developing and using new technology. That's a stunning number. It means that if the employers, institutions and government of your city or county are not creating new opportunities or putting new technology to work, you are missing out on 80% of the potential growth in today's economy. That's why every place needs an innovation strategy. Intelligent Communities pursue innovation through a relationship between business, government and such institutions as universities and hospitals. The Innovation Triangle or "Triple Helix" helps keep the economic benefits of innovation local and creates an innovation ecosystem that engages the entire community in positive change. Investments in innovative technology by government contribute to that culture and improve service to citizens while reducing operating costs.

The chart below displays a thriving local ecosystem of innovation, which draws on **vocational schools, two-year colleges, four-year universities** and **citizens** of the community who have a passion for making something new. To turn those assets into a continuing cycle of innovation, local government and institutions create programs and facilities that encourage and challenge talented people to innovate.

These range from public **hackathons, apps contests** and other STEM events to **makerspaces** where anyone can bring an idea and make it real (and potentially profitable) with the informal support of other innovators. They include **incubators** – typically academic-business or academic-government partnerships – where potential entrepreneurs go through a disciplined process to turn concepts into saleable products and services, then find their initial

customers. **Accelerators** take the survivors of incubation and help them mature into sustainable enterprises with growth potential.

Makerspaces, incubators and accelerators breed **startups** that bring innovation to market. The most successful attract **risk capital** from angels, grants, venture funds and private equity that permit them to scale the business significantly. At the end of the road for the most successful entrepreneurs is an **exit**: a transaction that transfers some or all of their ownership to investors or acquiring companies in exchange for a payout.



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The end of the road, however, is also the beginning of the next journey. Successful entrepreneurs tend to want to play the game again and, specifically, to **invest** in the innovation ecosystem from which they have benefited. That investment may go into R&D by colleges and universities. It may go to create the next makerspace, incubator or accelerator. It is succeeding generations of innovators who ultimately come to drive the innovation ecosystem that has been so carefully constructed and nurtured by leadership in local government, educators, nonprofits and businesses working in close collaboration with each other.

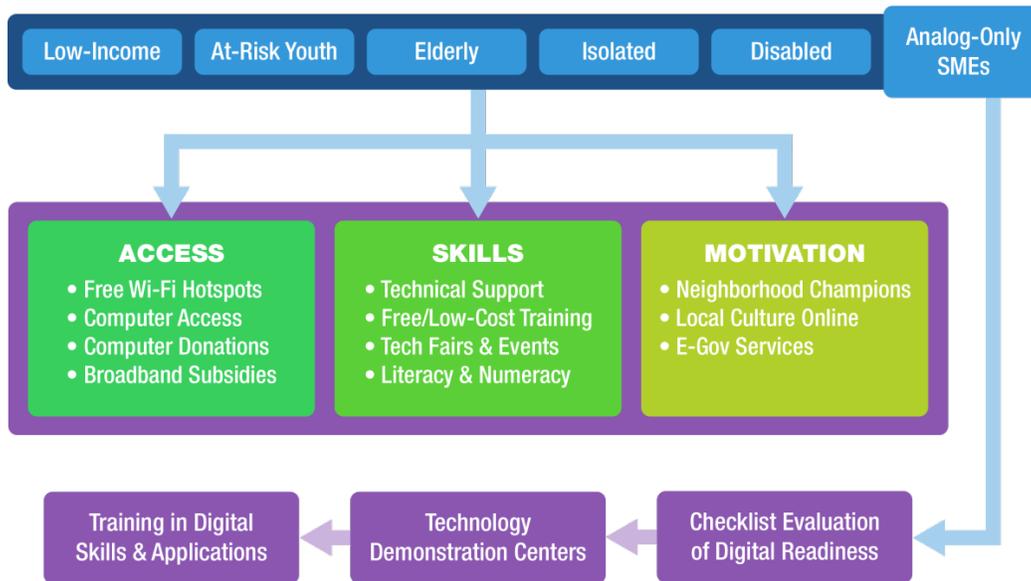
Include

The explosive advance of the digital economy has worsened the exclusion of people who already play a peripheral role in the economy and society, whether due to poverty, lack of education, prejudice, age, disability, or simply where they live. It has also disrupted industries from manufacturing to retail services, enlarging the number of people for whom the digital revolution is a burden rather than a blessing. Helping these people find a place in the digital economy is a practical as well as moral imperative. Effective digital inclusion programs target three aspects of exclusion: affordable access to digital technology and connectivity, the skills to put the technology and connectivity to work, and motivation for the unconnected to adopt digital habits.

Intelligent Communities pursue digital inclusion for reasons both moral and practical. The moral imperative is to provide equal opportunity for all citizens to benefit from the digital

economy. The practical motive is to reduce demand for social services, criminal justice and emergency healthcare, as well as the intangible contagion of social injustice.

Intelligent Communities identify their populations most in need of intervention, as well as employers that are missing the economic opportunities of going digital. They focus their efforts on providing **access** to broadband and information technology and on **equipping individuals and organizations with the ability to use them**. The most common access points are public libraries, but communities also bring technology to such meeting places as community centres, retirement homes and technology demonstration centres for business. Skills training takes place in any of these locations and may involve library staff, students or the staff of local colleges and universities.



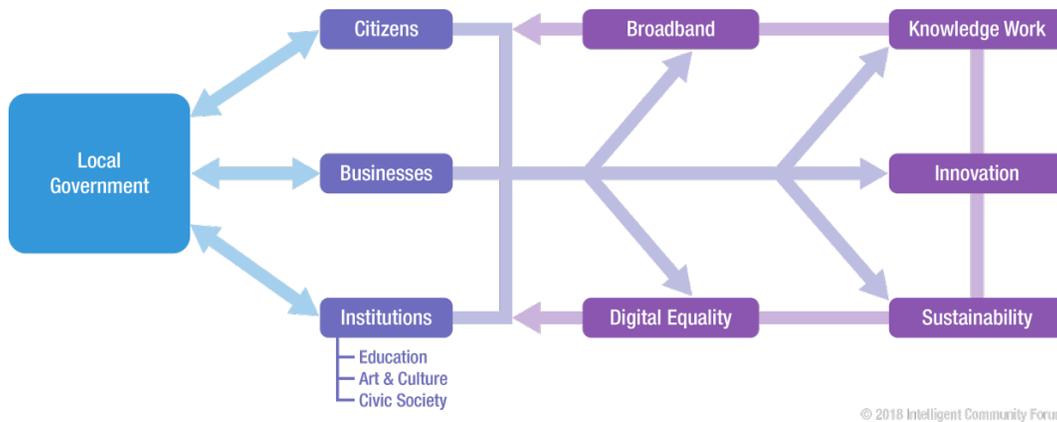
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Just as important as access and skills is the **attitude** needed to acquire them. Intelligent communities create programs that give people and organizations motives to adopt unfamiliar technology and use it to improve their lives.

Engage

More than ever before, citizens and organizations in the community have digital tools at their disposal for communicating, developing coalitions, coordinating action and turning the fears or enthusiasms of a few people into a community-wide movement. Engagement today means using the traditional tools of community development and the new generation of digital tools to educate citizens and organizations and to seek their real involvement in decision-making. It is about giving them a framework for understanding, listening to them and letting them know they have been heard. Engagement is the glue that binds Intelligent Communities to a better future. It is the deliberate effort through civic leadership to engage

citizens, business, institutions and community leaders in understanding the need for change, identifying opportunities and becoming champions of that change.



Local government connects with **citizens**, **businesses** and **institutions** through events, discussion forums and brainstorming that educate them on the challenges and opportunities facing the community. They combine physical meetings with digital interaction that ensures broad participation. They target recognized leaders of the community, who can serve as champions for their followers and convincingly explain the emerging vision and its benefits.

It is in close collaboration with these constituents that Intelligent Communities develop an **action plan** based on the framework of the Intelligent Community Indicators. Government plays its essential role at convening, turning ideas into specific strategies and plans, and marshalling resources to carry them forward. Citizens, business people and nonprofit leaders, however, provide the energy and commitment that make change possible. Taking energy from early successes, the community continuously raises its expectations and revises its vision, daring to do things that once seemed impossible.

Successful engagement provides the foundation for the community's public identity in its outreach to the world. It energizes economic development, investment attraction and business generation, because the community has built a unique vision of its character and its future. In their own eyes, its people are no longer just living in one community among hundreds of thousands like it. They are in the best place to live, work, start a business, raise a family and pass their heritage to the next generation.

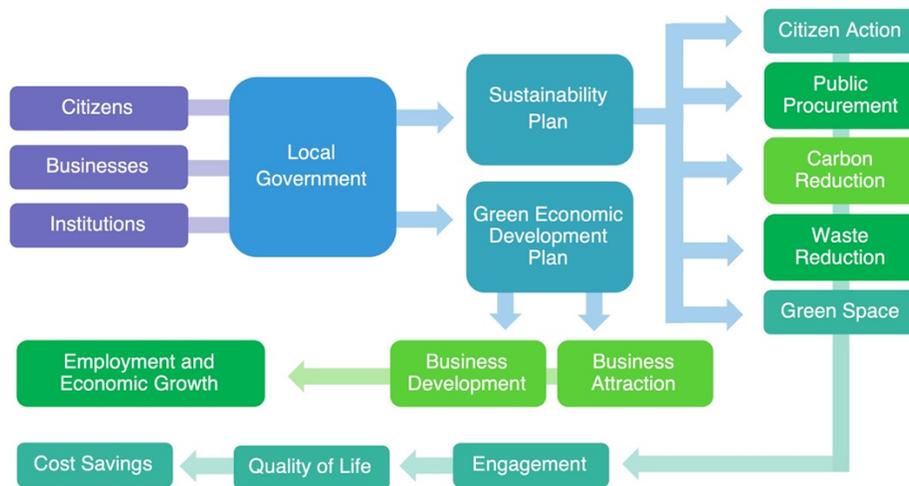
Sustain

Environmental sustainability is a global concern with local impact. A community's people experience the environment at the local level, from air quality to water pollution. When communities make sustainability a goal, they energize community groups, neighborhoods and community leaders with the promise of making a difference. The work of these groups meets sustainability goals – but just as important, it strengthens the community's identity and creates civic pride that powers more positive change. Sustainability is also good for the economy. As the world is turning its attention to reining in human impact on the planet,

sustainability is generating substantial new opportunities for technology advance, business growth and employment in green industries.

Local government engages **citizens, businesses** and **institutions** to learn their concerns and collaborate in setting priorities. The issues are environmental – but also about quality of life, property values, government budgets and the cost of living and doing business.

The vision and priorities guide the creation of a **Sustainability Plan** that sets goals and identifies specific actions. These range from citizen action groups to changes in public procurement and land-use, and from waste reduction and recycling to energy conservation. They address water quality, air quality, alternative energy, and the resilience of the community to climate change. Smart City technologies ranging from Internet of Things devices and platforms to cameras, drones and measuring devices play an important part.



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Intelligent Communities set out on the sustainability path expecting results. The Sustainability Plan documents specific objectives for cost savings, lower emissions, reduced consumption and improved quality of life. Government measures and reports on results, and works with **citizens, businesses** and **institutions** to make course corrections as needed and re-energize community participation.

What We Measure

ICF evaluates a community's performance and readiness for action along the six indicators of the ICF Method using select data provided by the community. The analysis in the following pages is based on:

Connect

- Percentage of all premises that have access to broadband (availability).

- Percentage of all premises that subscribe to and use broadband (adoption).
- Number of competitive broadband service providers
- Gaps in broadband coverage affecting a percentage of premises.
- Quality of projects to promote deployment, access or use of broadband.

The broadband metric does not measure the overall quality of service or the broadband capacity available in the community.

Work

- Educational attainment of the population today.
- Adoption of technology in elementary and secondary schools.
- Access to higher education in the community or within commuting distance.
- Quality of projects that use technology to improve educational outcomes, equip students with digital skills, and/or connect students to local employment or entrepreneurial opportunity.

The knowledge workforce metric is not able to assess the quality of educational services provided or educational policy in the community.

Innovate

- Existence of an innovation policy.
- Presence of growth industries with offices or facilities in the community.
- Public/private innovation programs available in the community.
- Online services provided by local government.
- Quality of innovation projects that involve collaboration among business, institutions and government.

The innovation metric is not able to measure outcomes of innovation in terms of business start-ups, company growth or job creation.

Engage

- Programs for educating and engaging citizens and leaders in positive change.
- Programs for communicating the economic development story to the outside world.
- Existence of an Intelligent Community strategy.
- Existence of task force or administrative unit charged with carrying out Intelligent Community initiatives.

The engagement metric is not able to measure the level of community engagement created by programs or the outcome of economic development strategies.

Include

- Percentage of premises with internet access at any speed including dial-up.
- The monthly cost of a minimum, median and maximum-speed broadband connection.
- Facilities and services offered to residents to promote digital adoption.
- Facilities and services offered to organizations to promote digital adoption.
- Qualify of projects to increase digital inclusion for residents or organizations.

The digital inclusion metric is not able to measure the quality of programs or the impact in terms of citizen participation and business growth.

Sustain

- Metrics for air quality, indoor water use, recycling of municipal waste, non-auto trips and green space.
- Level of local government support for sustainability initiatives.
- Quality of projects that engage citizens, businesses and institutions in sustainability and produce meaningful results.

The sustainability metric is not able to measure the outcome of projects engaging the community in sustainability.

The Arrowhead Region



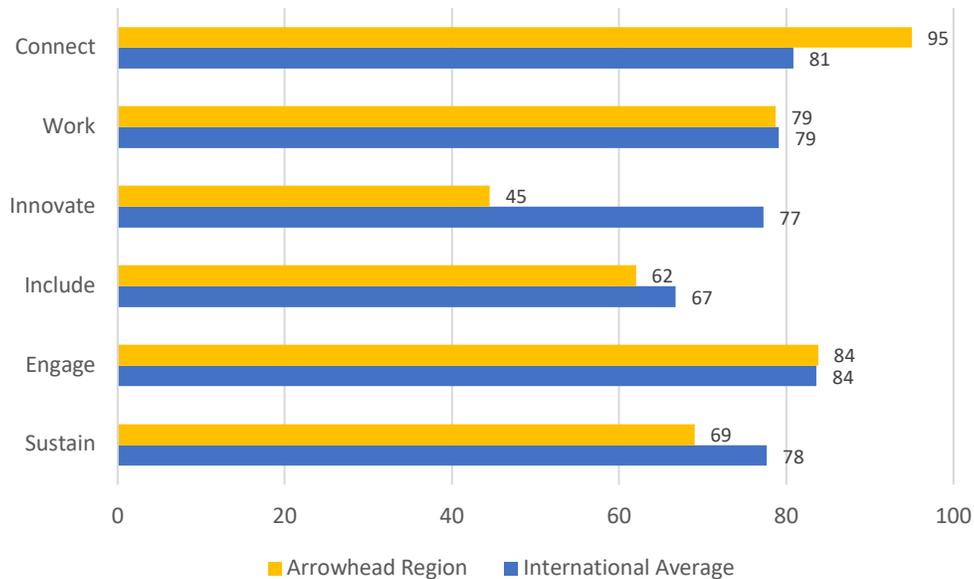
The Arrowhead Region of Minnesota, named for its shape on the map, consists of seven counties in the northeastern part of the state. The region stretches across the Boundary Waters Canoe Area Wilderness and Voyageurs National Park in the north to Lake Superior in the south, and it extends westward into counties in the heart of Minnesota's Northwoods. It is home to more than 325,000 residents spread across 18,200 square miles.

Major industries include aviation and aerospace, mining, back office, wood and paper products, shipping/transportation, health care, metal fabrication, utilities, and hospitality and tourism. The region offers convenient access to air through three commercial airports, four Class I railways, and highway transportation. This network, plus an inland seaport, offer border to border and global shipment of goods. It features excellent K-12 education and 13 higher education campuses and successful medical campuses. The four largest communities are Duluth (86,238), the Quad Cities (17,000) and Hibbing (16,300) in St. Louis County and Cloquet (12,000) in Carlton County.

Comparing the Region to ICF's Global Data Set

The following are a set of charts that compare the region to ICF's global data set of Intelligent Communities. The regional data comes from a questionnaire submitted by the Blandin Foundation that aggregates the best examples of development practice and assets across the region. It therefore represents a somewhat idealized picture of the region's performance.

Intelligent Community Index International Comparison



As represented by the assets and examples in the “best of the region” questionnaire, the Region’s greatest strengths are in connectivity (95% of available points) engagement (84%) and knowledge workforce (79%). Sustainability (69%), digital inclusion (62%) and innovation (45%) are not as strong.

In comparison to ICF’s global data set, the Arrowhead Region outscored the average in connectivity, while matching it in knowledge workforce development, inclusion and engagement. The Region underperformed the average in sustainability (by 9 points) and innovation (by 32 points). Too much should not be read into the high Connect, Work, Include and Engage scores, however: it means that the best of the Region is competitive with Intelligent Communities around the world but does not suggest that this high level of performance is evenly distributed across the Arrowhead.

Connect

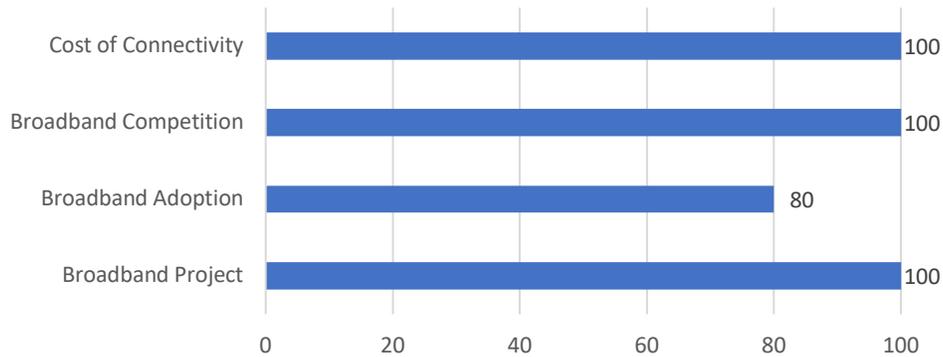
On a best-of-the-region basis, the Region received top scores on the cost of connectivity, the number of competitors in the region, and projects including:

- Northeast Service Cooperative Fiber Project, which spans eight counties to connect 332 critical site services for anchor institutions for high-speed middle-mile service.
- The broadband projects of Cook and Lake Counties, which brought fiber internet services to residents, overcoming serious barriers.
- The Blandin-IRRRB Broadband Communities program, using the ICF Method, which has led to \$35 million in connectivity investments reaching 10,000 homes, half directly

funded by the program and the other half through carrier investment and grant-funded projects. .

Adoption, at 75%, scored lower, reflecting the Region’s variances in broadband availability.

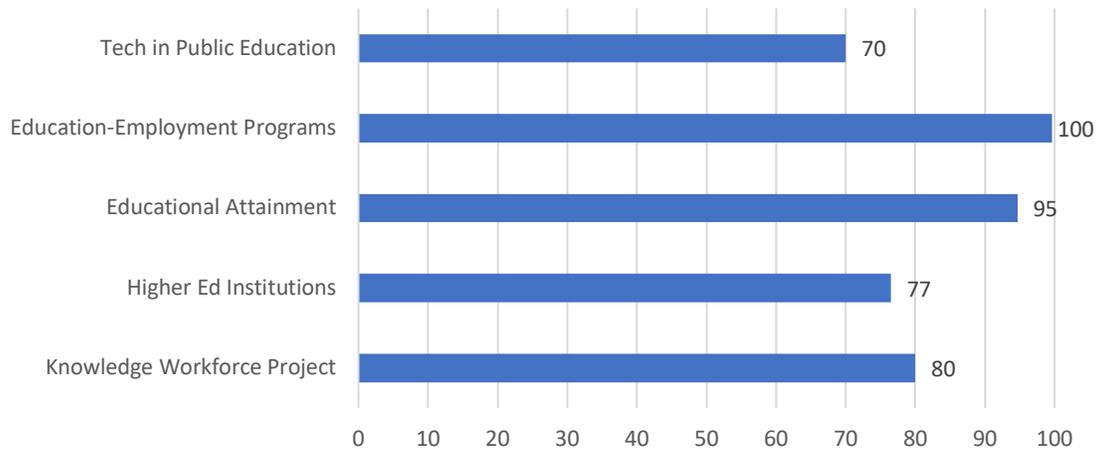
Connect



Work

In the development of a knowledge workforce, the Region scored highest in the number of education-to-employment programs it reported and the educational attainment of the population. Scoring somewhat lower were the number of technology offerings in schools and access to higher-education institutions in the large and predominantly rural area.

Work



The projects received a strong 80% score based on evaluation of:

- Northforce community-based talent retention and attraction, which has over 4,400 registered candidates (25% from outside the Region), 1,000 employers and has distributed nearly 20,000 job opportunities.

- Iron Range Engineering programs for high school students, which unites state government, schools and employers to graduate students ready for employment, with 60% finding jobs within 6 months of graduation.
- Multiple workforce development programs across the Region: a total of 14 community-based and state-funded programs helping improve skills, attract talent and ease the school-to-work transition.

Innovate

Innovation was a relatively weak point for the Region. The projects reported in the questionnaire that aim to stimulate and support innovation scored significantly higher, at 75% of available points, than the current reality as reflected in the other questions. They included:

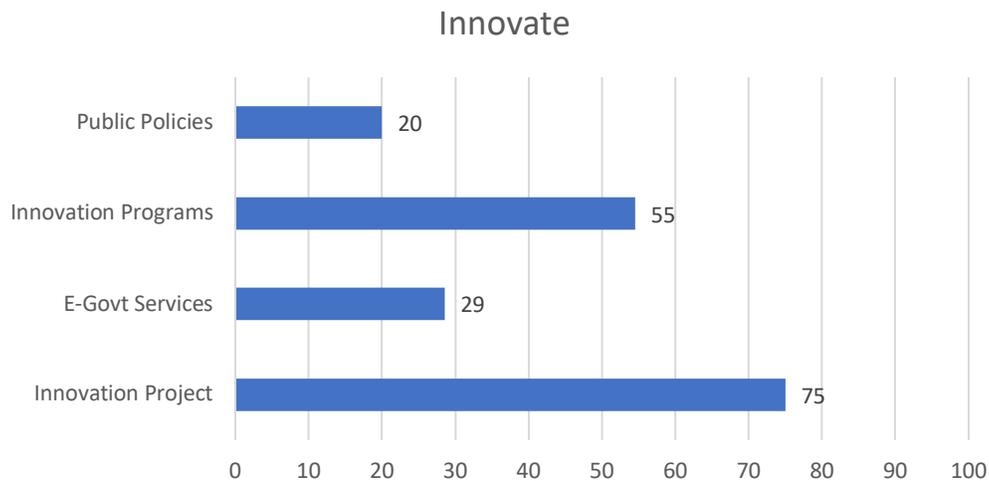
- SBDC Small Business Technology Assessment and Consulting Program, funded by Blandin Foundation and IRRRB, brings training from Northland and the Northeast MN Small Business Development Center to community-led programs across the region.
- MN Department of Iron Range Resources and Rehabilitation, a regional development agency funded by a portion of a taconite production tax, works to foster growth and economic prosperity in the Region.
- Natural Resources Research Institute, a partnership of the University of Minnesota and DIRRR, researches and identifies innovation opportunities taking advantage of regional resources and skills.
- St Louis River Estuary Cleanup project unites the work of multiple agencies and organizations engaged in remediating significant environmental damage to the river, and has overseen investment over more than \$900 million, with estimated economic impact of \$5-14 billion.
- Minnesota Natural Resources Atlas, developed by state government, provides GIS mapping of the natural resources of the Region.
- Regional Broadband Feasibility Studies in 2018-19 and 2019-20 identified specific areas for broadband deployment, which educated and engaged community leaders in the issue of availability and opened the eyes of broadband providers to opportunities to expand their networks with the help of grants.

The ICF Method puts a strong emphasis on collaboration among business, government and institutions to generate an innovation ecosystem. Relevant to that goal is the work of the Small Business Technology Assessment program, DIRRR, and the Natural Resources Research Institute. Regarding the other projects:

- The Estuary Cleanup project describe did not make any connection to innovation clear and would have been better used in the Sustainability section.

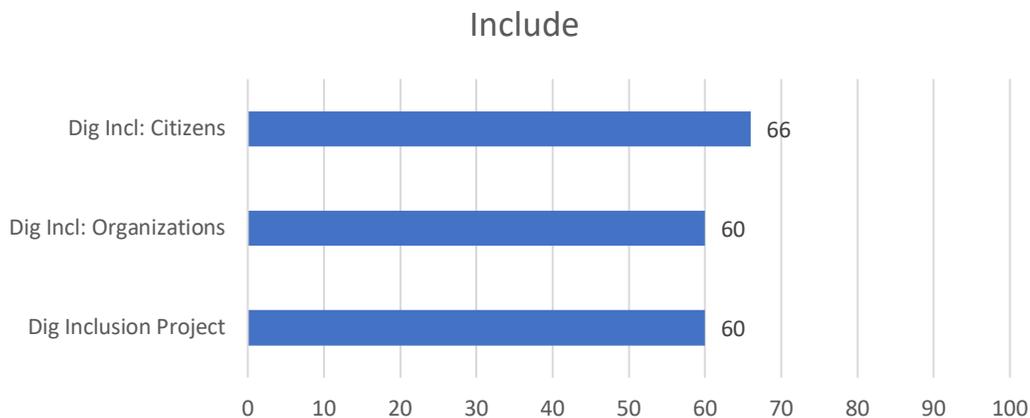
- The Natural Resources Atlas is principally a governmental planning tool, with little impact beyond such purposes, though it does relate to the overall goal of economic development.
- The Broadband Feasibility Studies are of high value in terms of broadband deployment but of limited application the creation of an innovation economy.

The Region does have a reasonable number of innovation programs taking place, earning 55% of available points. E-government services, however, are significantly underdeveloped and there are no public policies on innovation topics.



Include

Digital inclusion efforts in the Region received about 2/3 of available points across the Board. There are an adequate if not stellar number of inclusion facilities and services for citizens, and a somewhat lower number of facilities and services for organizations. (The availability of an evaluation checklist backed by general classes and customized training, however, are of high value in equipping business for online competition.).



The projects effectively target access and skills for individuals and organizations:

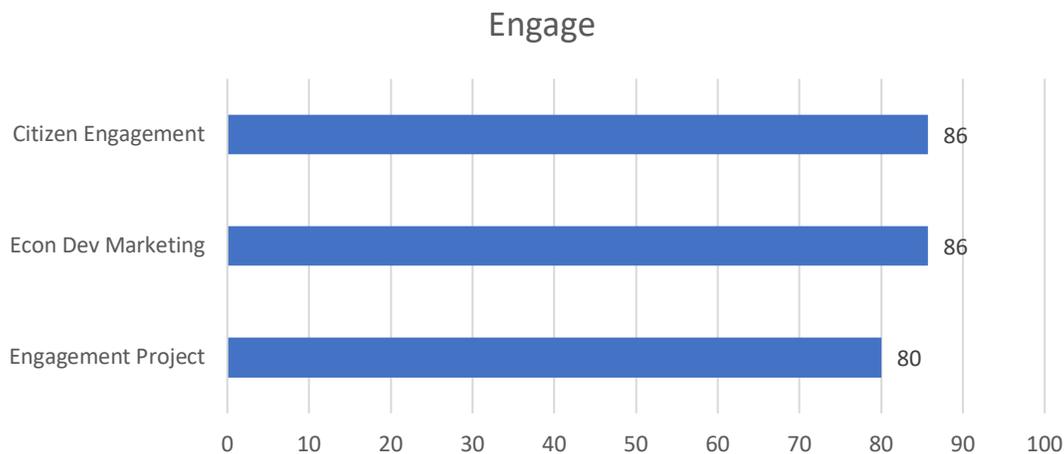
- PCs for People distributes refurbished computers to community organizations that work with low-income households, which offer technology, support and training.
- Duluth Digital Inclusion Initiative, a community-wide initiative, provides free computers and Wi-Fi hotspots to job seekers, low-income households, older adults and schools, and has funded train-the-trainer courses to build competency among educators.
- Arrowhead Libraries offer free Wi-Fi, mobile hotspots and educational support over the summer months.

All three are of value – but also represent fairly “standard issue” inclusion programs, which entitled them to 60% of available points.

Engage

The Region scored well on engagement activities, with documented strategies and task forces dedicated to carrying them out, and a large number of education and communication activities aimed both inside the Region and outside. The projects were also impressive, including:

- Iron Range Broadband Communities, bringing the ICF Method to communities across the Range
- Recharge the Range, a short-term citizen, leader and business engagement about the future of the region, and the Laurentian Vision Partnership for envisioning new purposes for abandoned mines.
- Blandin Community Leadership Program, building capacity for community leadership at the local level.



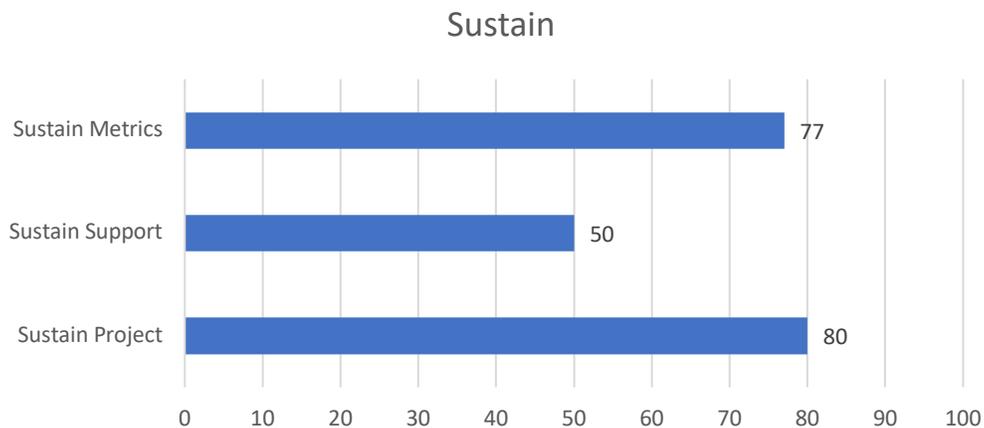
Sustain

The Region’s sustainability metrics were relatively strong, with excellent air quality and relatively low diversion of waste to landfills. Public policy at 50% of available points, has

not kept pace with the metrics, due to lack of guidelines, policies or laws approved by authorities. The projects were also relatively strong:

- Northeast MN Sustainable Partnership, a joint project of community group and the University of Minnesota, to develop projects across the region on local foods, healthy homes, peer-to-peer learning and public environmental awareness.
- IRRRB Business Energy Retrofit Program provides grants covering up to 33% of project costs for lighting, storefront improvements, roofing, insulation, HVAC and renewable energy projects.
- Reclamation of Mine Waste Dumps for Recreation and Redevelopment has engaged mining companies, local governments, IRRRB and community groups to convert abandoned mining areas into recreational and renewable energy facilities.

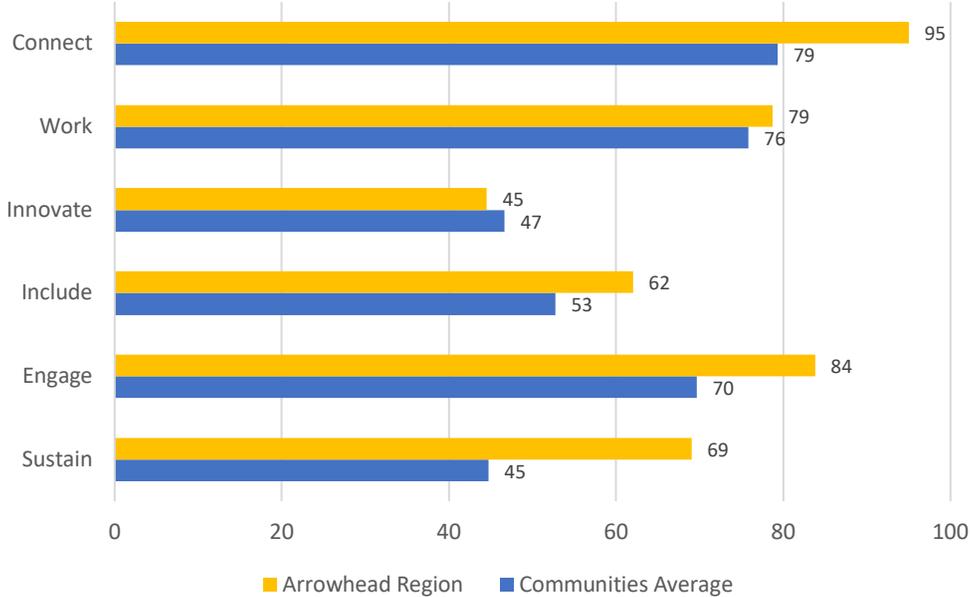
Two of the three make a major commitment to engaging the community and stakeholder organization in environmental transformation, which generates energy for other forms of engagement that powers positive change. The Energy Retrofit is presented as a principally financial program. If it includes education and engagement, there is no mention of it.



Comparison to Communities

Five communities and counties engaged in the Arrowhead Region initiative submitted ICF questionnaires, which provide the opportunity to evaluate a more representative sample of cities and counties. The following charts aggregate their results and compare them with the best-of-the-region scores.

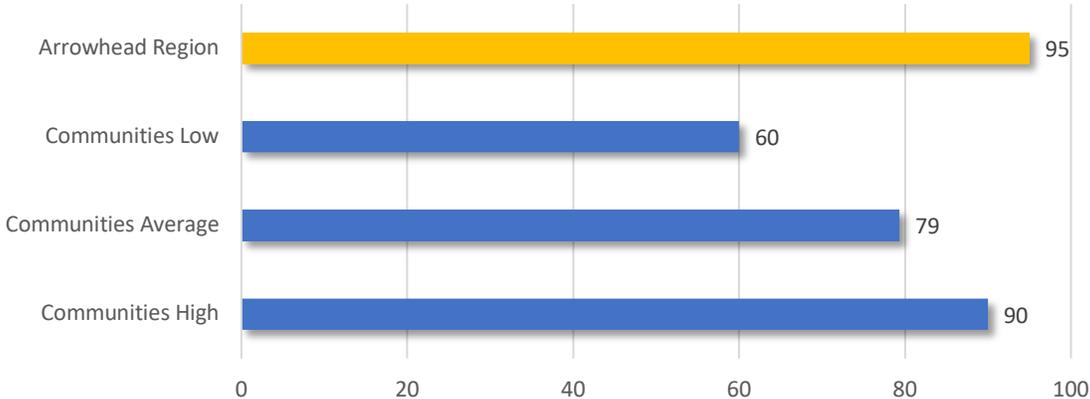
Intelligent Community Index Regional vs. Individual Communities



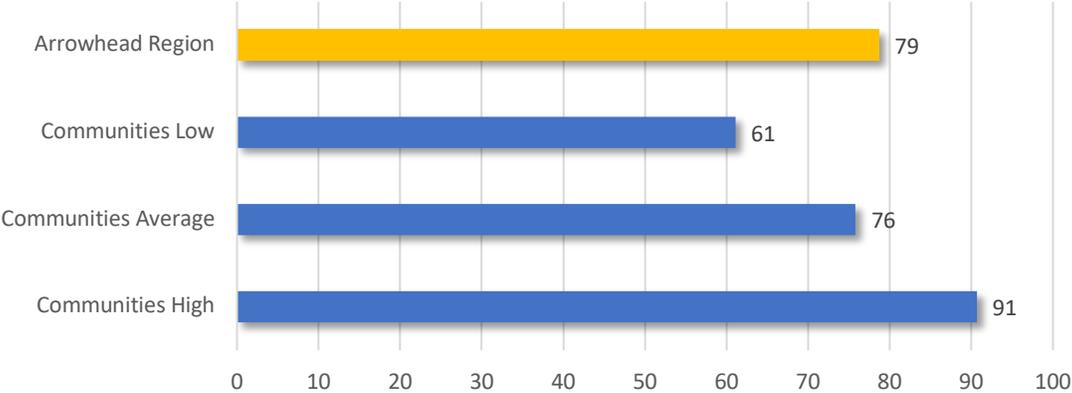
The overall pattern of relative strength and weakness is the same: both the aggregated communities and the best-of-the-Region data show strength in connectivity (where communities have concentrated most of their efforts to date), engagement and workforce development. The biggest divergence is in sustainability, where the aggregated communities scored at only 65% of the best-of-the-region level. As we will see later in the report, some of this divergence is due to submitting incomplete data, which is penalized in the analysis.

The following charts break down these comparisons in more detail. For each Factor, they present the best-of-the-region score and the low, average and high scores among the four regions submitting data.

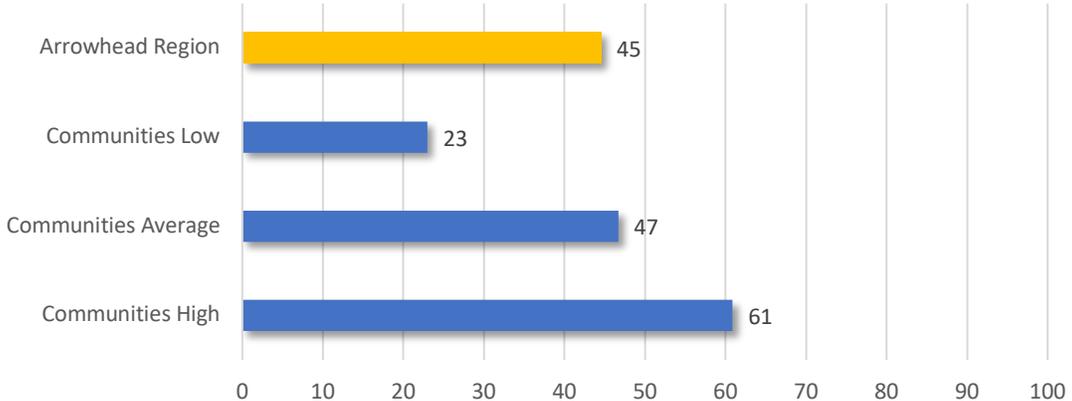
Connectivity Score



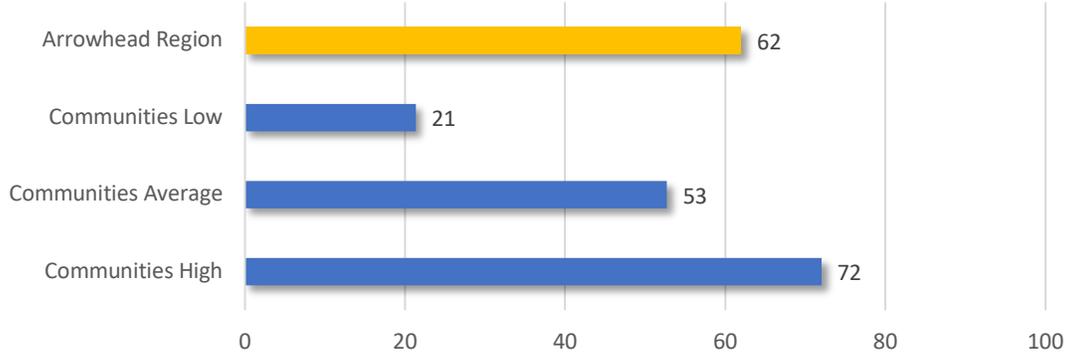
Knowledge Workforce Score



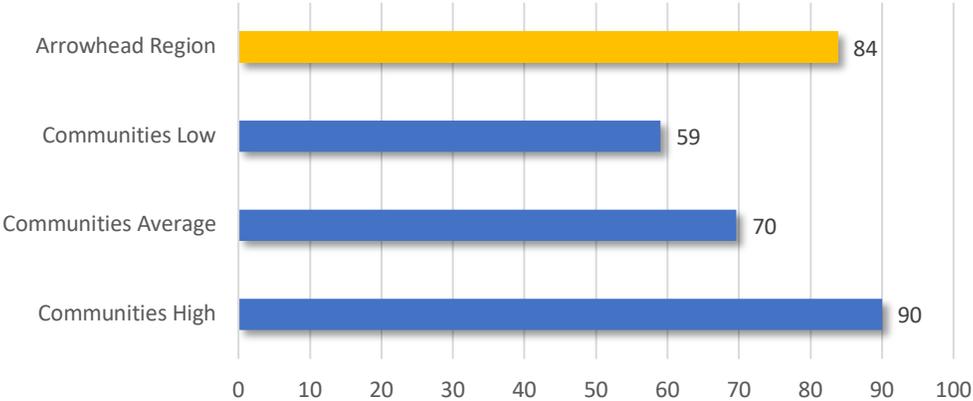
Innovation Score



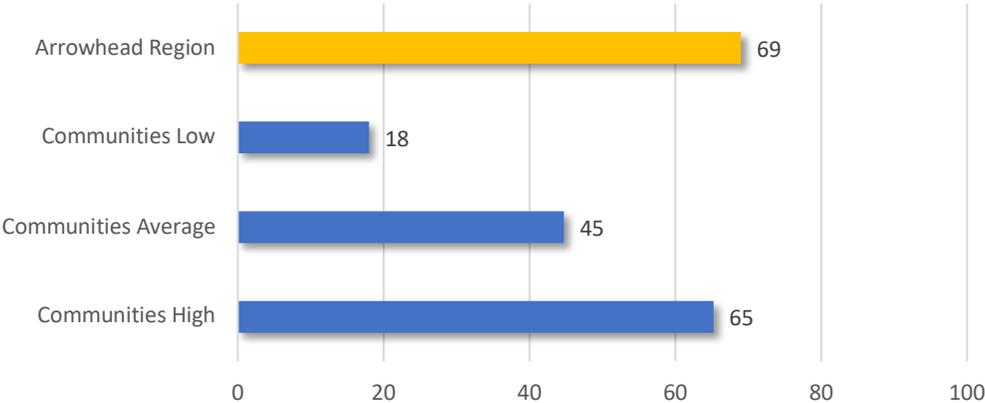
Digital Inclusion Score



Engagement Score



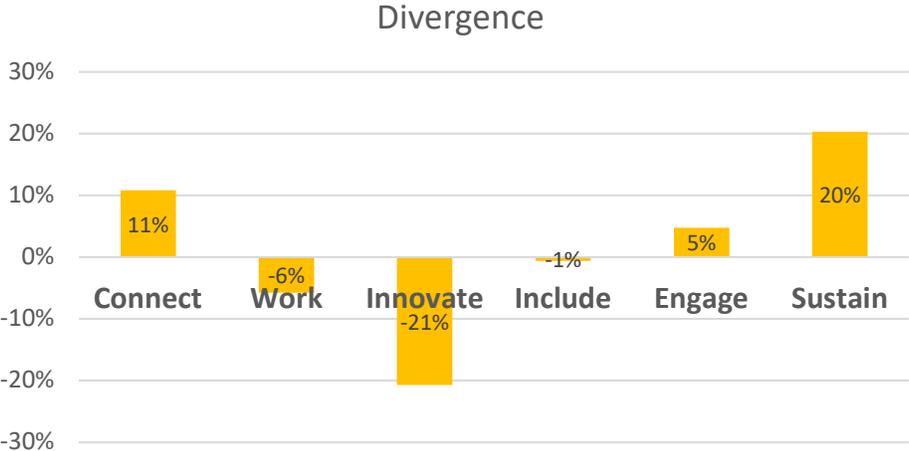
Sustainability Score



One question raised by the available data is how representative the best-of-the-Region scores really are. We can gain some insight by measuring how they diverge from those of the five communities providing more granular data. To create a meaningful comparison, the chart below shows how much the best-of-the-region score for each factor diverged from the combined high and average scores of the communities. The high-average combination was selected as likely to be closer to the best-of scoring than would be the average of the communities.

For the Work, Include and Engage Factors, the best-of-the-Region and combination of the high-average scores for the four communities were in reasonably close alignment, which suggests that the data and projects included in the best-of-the-Region questionnaire were reasonably representative.





For the Connect, Innovate and Sustain Factors, however, there was a large divergence. Positive divergencies mean that the best-of results exceeded those of the high-average, while negative divergences mean that the high-average results exceeded the best-of. The sample is extremely small, but the negative divergence for Innovate may indicate that there are pockets of innovation in the region not reflected in the best-of questionnaire.

The Communities

Duluth

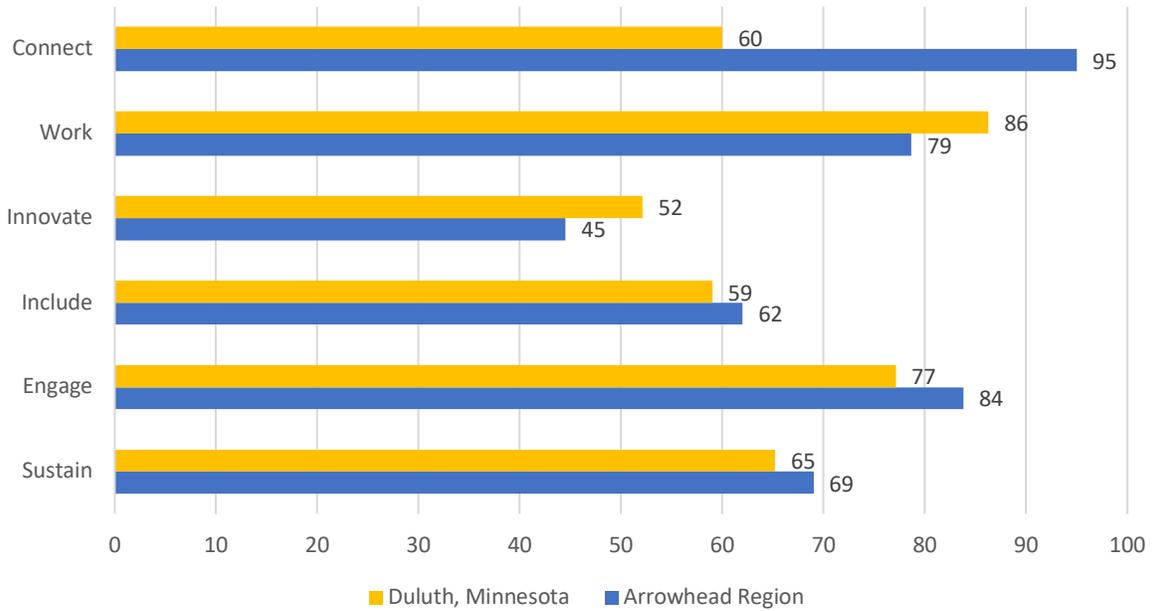


The county seat of St. Louis County, Duluth is the world’s farthest inland port accessible to oceangoing ships by way of the Great Lakes and St. Lawrence Seaway. It is Minnesota’s fourth-largest city with a population of 86,000 and the center of a two-state metropolitan area of 279,000 people. Ranked among the top 20 US ports by tonnage, Duluth ships commodities including coal, iron ore, grain, limestone, cement, salt, wood pulp and steel coil. The city is also a tourist destination featuring the Great Lakes Aquarium, Canal Park and Park Point, and is the starting point for vehicle trips touring the North Shore of Lake Superior.

Duluth is the major regional center for health care, higher education, retail and business services in northeastern Minnesota, northwestern Wisconsin and the western Upper Peninsula of Michigan. In recent years, it has seen strong growth in the transshipment of wind turbine components from manufacturers in the US and Europe, as well as industrial machinery destined for the tar sands of northern Alberta. The city has also attracted several new engineering firms and startups in field from furniture and clothing to microbrews. The University of Minnesota-Duluth has helped spawn numerous research-intensive businesses including ERA Laboratories, the ASci Corporation and Ecolab.

The chart below shows how Duluth compared with the best of the Arrowhead Region across the six Indicators.

Duluth vs. Region

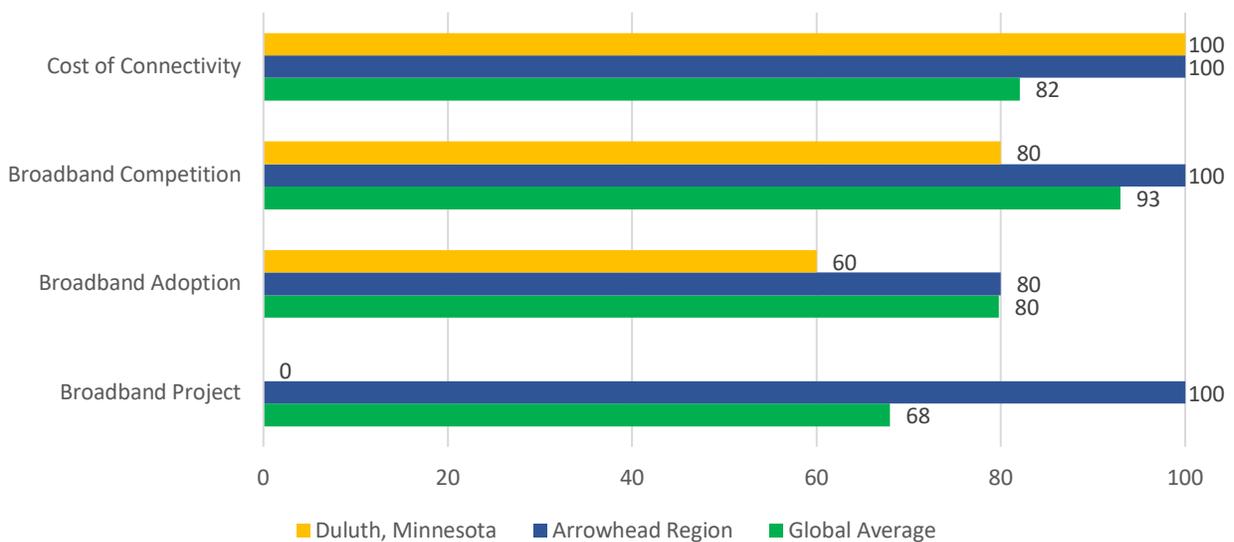


The city’s scores align with those of the Region in five factors, with an average 8% variance. The outlier is the Connect Factor, in which Duluth scored at only 58% of the Regional level for reasons explained below.

Intelligent Community Factors

Connect

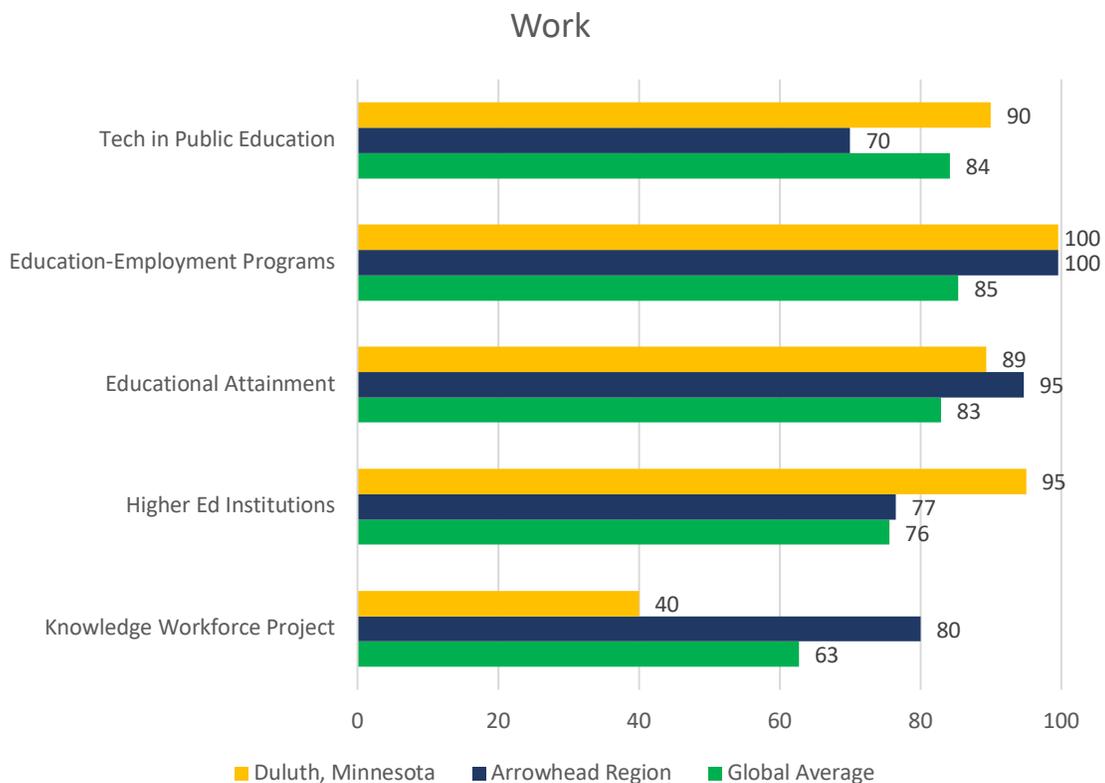
Connect



As the chart above reveals, Duluth received 100% of available points for the cost of connectivity (equal to the best-of-the-Region) and 80% for competition among providers (compared with 100%), but only 60% for premises adoption, which was reported to be 65% of premises passed by broadband. This disparity suggests a problem that needs to be addressed. However, the city did not complete the project question, which might have offered a chance to describe how Duluth is attacking this challenge. The score of zero for this question pulled down its total scoring significantly and is probably not representative of the city's approach to connectivity.

Work

Development of a knowledge workforce was an area of strength for Duluth. It equaled or outscored the best-of-the-Region statistics in technology in public education by 20 percentage points, education-employment programs (equal score) and access to higher education (by 18 percentage points). Educational attainment was within 6 percentage points of the best-of-the-Region.



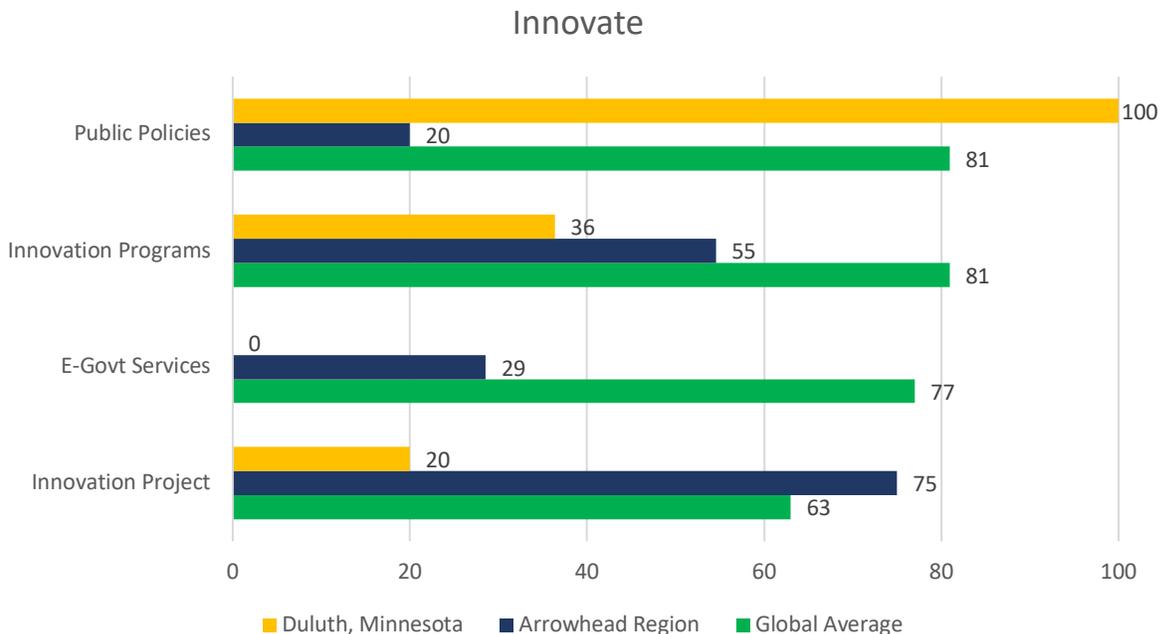
The city felt short in the projects section, scoring 40 percentage points below the best-of-the-Region. The three programs the questionnaire described focused on the twin problems of unemployment and underemployment on the one hand, and a shortage of qualified workers for the skilled jobs that do exist:

- SOAR Career Solutions, providing career planning services for job seekers and career changers seeking sustainable employment.
- NORTHFORCE, an online job matching platform matching candidates inside and outside the Region with job opportunities in the Region
- Duluth Workforce Development Board, which provides guidance and funding for workforce readiness and skills pathway programs.

Such programs clearly have value, but they address symptoms of the workforce problem rather than root causes. The ICF Method calls on communities to bring together educators and employers to rethink how education is delivered to all ages, and how employers' needs for talent can be met, so that education equips people young and old with the skills needed for a good career in the community. It is a difficult process requiring much patience, but can generate sustainable prosperity, in contrast to programs that seek to repair damage caused by economic changes and that must be continually funded to accomplish their missions.

Innovate

As represented in the questionnaire, innovation is Duluth's weakest point among the six Factors. It received 100% of available points for public policies, based on stating that policies promoting business, institution and/or government innovation have been reviewed and approved by Council and published as a public policy document.



Answers to the rest of the questions, however, leave this claim in some doubt:

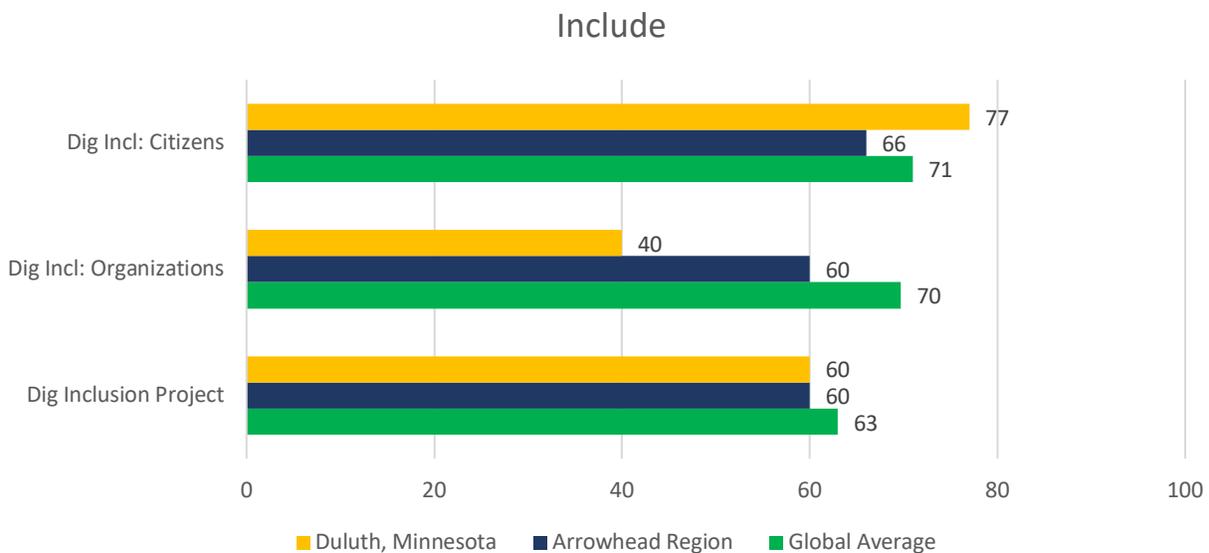
- The questionnaire identified only 4 out of a potential 11 innovation programs, resulting in a score of 36 out of 100 available points.
- The question about e-government services was left blank, resulting in a score of zero.
- Questions about projects offered six opportunities to provide examples, but only two were completed, one describing the Duluth Maker Space and the other a University of Minnesota program that partners the state with the German state of North Rhine-Westphalia to work toward greater energy efficiency.

The ICF Method guides communities in developing a self-sustaining ecosystem for business innovation, to which government contributes by investing in e-services among other actions. Maker spaces are one common element in such an ecosystem but without connection to other programs are largely of benefit to hobbyists. The questionnaire did not provide enough information for a meaningful assessment of innovation in Duluth.

Include

Duluth outscored the region and the global average for programs delivering facilities and services to citizens who do not have their own online access. Programs for organizations on the wrong side of the digital divide, however, are lacking, earning only 40% of available points compared with 60% for the Region and 70% for the global average.

Duluth’s projects – Digital Inclusion Partnership, Achievement and Integration for Minnesota and LISC Duluth – scored at about the same level as the Region and global average. It is worth noting, however, that only one of the three examples, the Inclusion Partnership, addressed digital issues. The other two address the broader issue of inclusion for low-income and marginalized citizens, which is admirable but less relevant to the analysis.

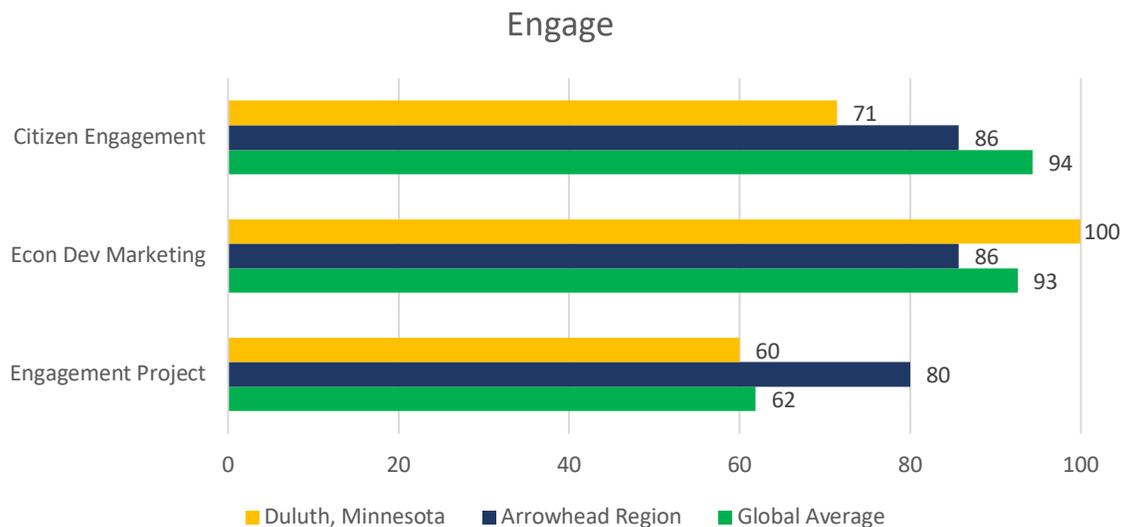


Engage

In its engagement efforts aimed at citizens, Duluth was awarded 71% of available points compared with 86% for the best-of-the-Region and 94% for the global average. This was based on the number of programs the city provides. Economic development communication, in contrast, received the top score on the same basis, compared with 85% for the best-of-the-Region and 93% for the global average. Duluth described three projects in this section:

- Area Partnership for Economic Expansion, a regional economic development organization focused on attracting site selectors.
- Arrowhead Growth Alliance, which provides a bi-annual forum for higher educational institutions, state and city economic development leaders, and port authority and electric utility executives.
- Minnesota Young Leaders Program, a capacity-building program from a partnership of educational institutions aiming to train business, nonprofit and government leaders from across Minnesota in economic development best practices.

Together, these programs scored at 60% of available points, matching the global average, compared with the 80% score of the best-of-the-Region.



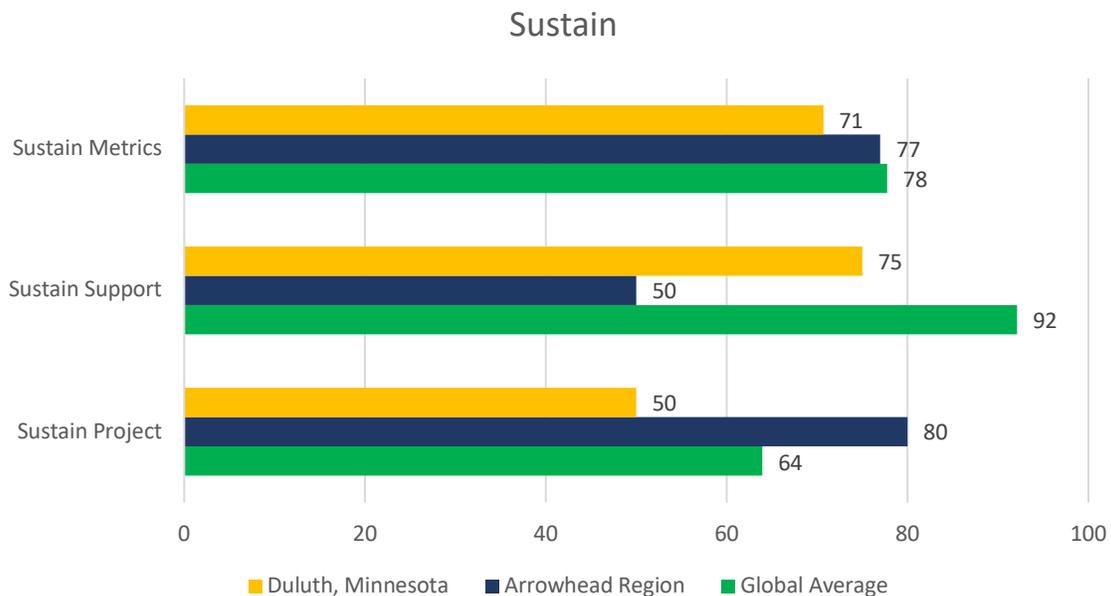
In the ICF Method, engagement means a deliberate effort to help citizens, businesses, institutions and community leader understand the need for change, identify opportunities and become champions of positive change. By engaging the passions and concerns of the community, engagement also energizes economic development, investment attraction and business generation, because the community has built a unique vision of its character and its future. Of the Duluth examples, the Young Leaders and Growth Alliance most nearly reflect that aim, while the Area Partnership is a sensible approach to encourage individual communities and counties to join forces on investment attraction. It is notable that these are

all state or regional programs, and there is little evidence of a commitment in Duluth to an engagement strategy.

Sustain

Duluth reported on four of five sustainability metrics, earning 71% of available points, only 6-7 below the best-of-the-Region and global average scores. Support for sustainability scored significantly higher, at 75% of available points, than the best-of-the-Region average, though lower than the global average of 92%. The three projects described by Duluth included:

- Duluth Natural Areas Program, which designated lands with environmental value as protected natural places.
- Duluth Energy Fund, which funds energy-efficiency projects to reduce GHG emissions.
- Duluth Energy Efficiency Program, which connects residents to financial assistance for home energy improvements and increased the percentage of households making these improvements from 2% in 2011 to 65% in 2014.



The city received only 50% of available points for these projects, compared with 80% for the best-of-the-Region and 64% for the global average. The missing ingredient in these programs was the involvement of citizens, local business and institutions in creating and carrying out the programs as well as making sustainability an economic development focus. For ICF, sustainability is important at the local level for reasons that go beyond preserving the environment on which we all depend. Because it concerns local quality of life, it has the power to engage the community in building a better future, and the habit of engagement inevitably crosses over into other development priorities. It also improves

quality of life, which makes the community more attractive to investors and new businesses. And sustainability is becoming a significant growth sector with enormous potential. It should be part of every community's economic development strategy – but can only succeed with genuine community support.

Recommendations

Duluth has the potential to accelerate its transformation into an Intelligent Community in a number of areas:

- **Connect.** The city appears to have a solid broadband foundation but has not yet generated the widespread adoption that can have a transformative impact in many areas. Programs to promote subscription and use, including those focusing on the digital divide, can pay dividends in that area. Failing to complete the projects section of the questionnaire, if it reflects actual conditions in the city, represents a missed opportunity that should be addressed.
- **Work.** This is an area of strength for the city. Its current roster of projects, however, addresses the symptoms of the workforce problem rather than root causes. Duluth will achieve much more over the long term from a sustained effort to rethink and redesign how education is delivered to all ages in close partnership with employers, as outlined in the ICF Method.
- **Innovate.** Duluth has strong policies promoting innovation but has not, based on the questionnaire, translated those policies into actual project and programs. These need to be generated at the local level and to be developed with vision and ambition suitable to a city of 86,000 people that is already an economic hub in the region. The partnerships with the educational community and the economic development relationships with employers that are described elsewhere in the questionnaire can be tapped to build a true innovation ecosystem.
- **Include.** Duluth is a strong performer in digital inclusion – and overall economic inclusion – aimed at citizens. The same is not true of its business community, where small-to-midsize companies predominate and are typically slow adopters of digital technology. Motivating, training and equipping these employers with digital know-how and applications can make a meaningful boost in their revenue and profits, benefitting the entire city.
- **Engage.** When it comes to engagement, Duluth appears to rely excessively on regional and state programs, at least as reflected in the questionnaire. Effective engagement is always local, based on the needs and passions of citizens. Energy devoted to engaging citizens and organizations in understanding the city's issues and contributing to solutions will power every other aspect of the city's development.

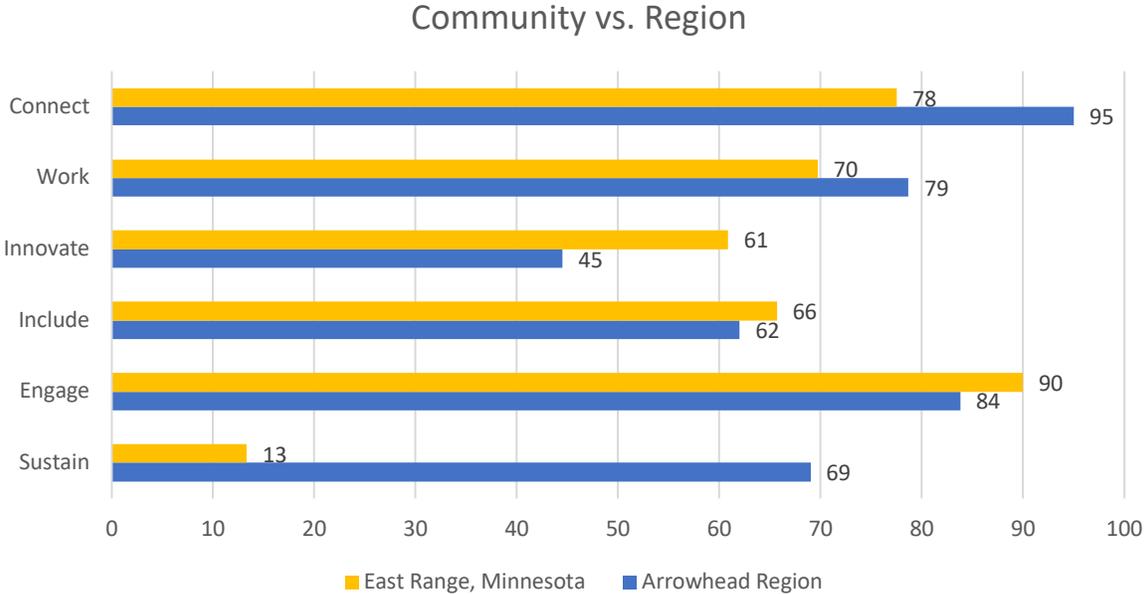
- **Sustain.** Engagement is the missing ingredient in Duluth’s sustainability efforts, as reflected in the questionnaire. Keeping sustainability programs inside the four walls of government is a major missed opportunity to increase citizen commitment. Duluth also needs to make the development and attraction of sustainability businesses a priority, because it is currently a missed opportunity.

East Range



The East Range is a cluster of small communities – the cities of Aurora, Biwabik, Hoyt Lakes and the Town of White) – with a combined population of 5,900. Located in northeastern Minnesota’s Mesabi Range, the area produced a large quantity of the nation’s iron and taconite ore. Today, tourism is a major industry, featuring the Superior National Forest, Giants Ridge Golf and Ski Resort numerous ATV and snowmobile trails, and festivals including the Northern Lights Music Festival in Aurora and Weihnachtsfest in Biwabik.

The chart below shows how the East Range compared with the average of the Arrowhead Region across the six Indicators.



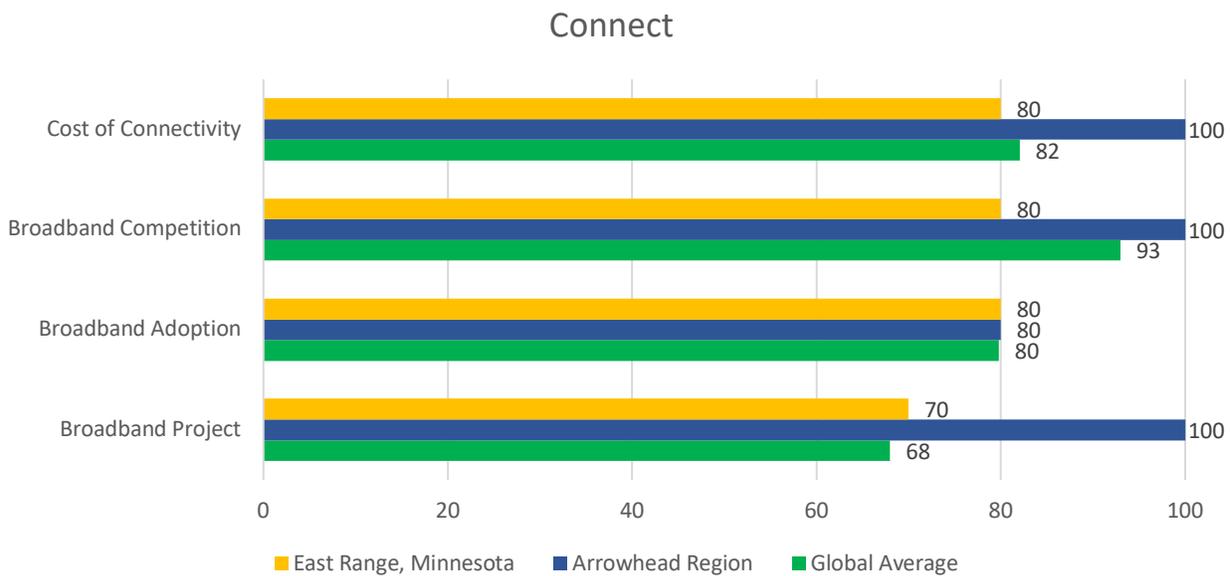
The city's scores align with those of the best-of-the-Region in three Factors – Work, Include and Engage – with an average 8% variance. The outliers are:

- Connect, where the East Range scored 17 percentage points below the Region
- Innovate, where the East Range scored 16 points below the Region
- Sustain, where the East Range scored 56 points below the Region

The analysis of the individual Factors below goes into more detail on these outcomes.

Connect

The East Range received 80% of available points for the cost of connectivity and the competition among providers that helped create those costs, compared with 100% for the best-of-the-Region. It received 80% of points for broadband adoption, equal to the best-of-the-Region and the global average.



The East Range received 70% of available points for two projects (out of three examples that were requested), compared with 100% for the Region and equivalent to the global average:

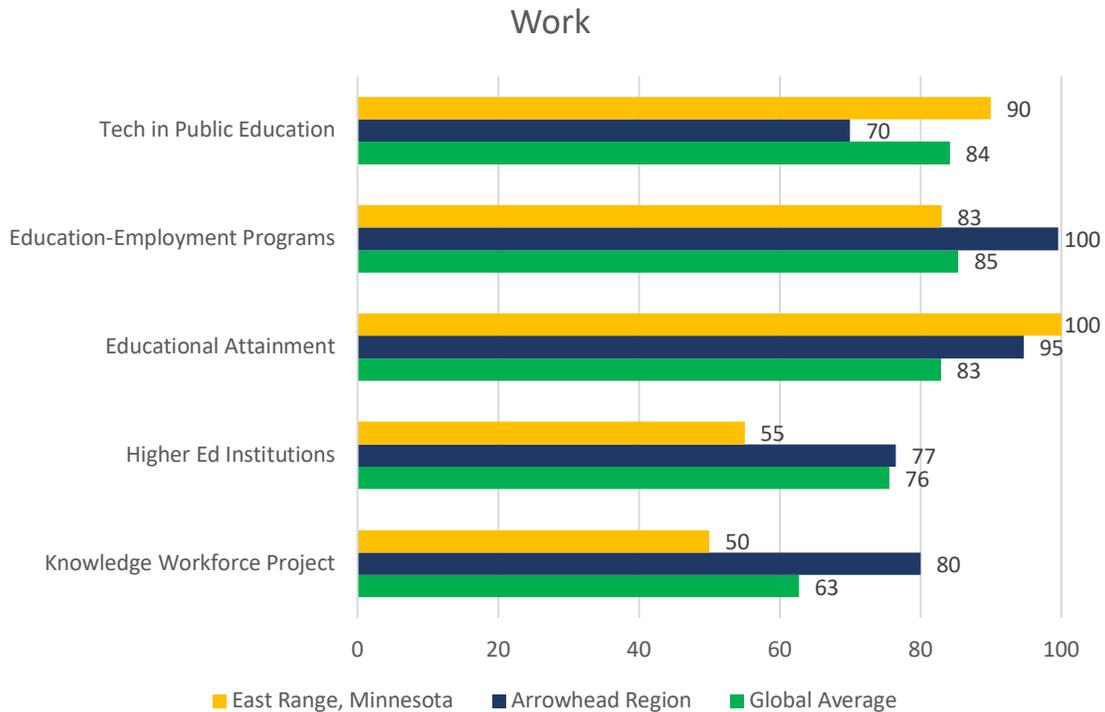
- LTE Feasibility Study, which used grant funding to create a business case for fixed wireless broadband solutions for rural and underserved communities.
- Blandin Broadband Communities Program, through which the East Range worked to define its technology goals, measure broadband access and use, and seek technical assistance, completing a total of six projects.

Both projects appear to align with the ICF Method and offer value in expanding broadband access and adoption. The descriptions, however, are so sparse that it is difficult to measure their impact. Funding the Feasibility Study is an achievement, but the real point is to carry

forward its business case and try to implement solutions, and the questionnaire should have included results to date. Funding and completing projects within the Broadband Communities Program is good, but absent any description of the projects, it is not possible to determine their true value. One fact jumps out: if the Broadband Communities Program seeks, among other things, to measure access and use, the East Range should have information available on current levels of adoption.

Work

The East Range outscored the best-of-the-Region by 20 percent points for technology in public education and 5 percentage points for educational attainment of the population. In other categories, it scored below the Region: by 17 points for education-to-employment programs, 22 points for access to higher education and 30 points for its knowledge workforce development projects. Its scoring largely tracked the global average, with the variance across all categories averaging only 3%.



These comparisons mask strengths. For education-to-employment programs, the East Range received 83% of available points based on identifying five out of seven types of programs. Access to higher education is largely a matter of geographic luck, and the East Range identified 9 technical, community, undergraduate and graduate schools within commuting distance. Given the lack of local institutions, the high educational attainment of the population is impressive.

The three knowledge workforce projects scored lower in the analysis, receiving only 50% of available points. They were:

- Mesabi East Foundation, which funds post-secondary scholarships for high school students.
- Mesabi East Wi-Fi on Buses, which has equipped four school buses with onboard Wi-Fi to let students complete schoolwork on the way to and from school and events.
- Mesabi East – Communications, which installed TV screens and technology throughout a school to allow for easier updating of announcements.

The ICF Method calls on communities to bring together educators and employers to rethink how education is delivered to all ages, and how employers' needs for talent can be met, so that education equips people young and old with the skills needed for a good career in the community. Though a challenging process, it generates sustainable prosperity over the long term while equipping the next generation with marketable skills. The Mesabi East Foundation takes this long-term view but is small in scale and does not provide local transformation. The other two projects have value in terms of technology upgrade but do not appear to be guided by a larger strategy for engaging educators and employers in creating a ladder of opportunity from the classroom to the workplace.

Innovate

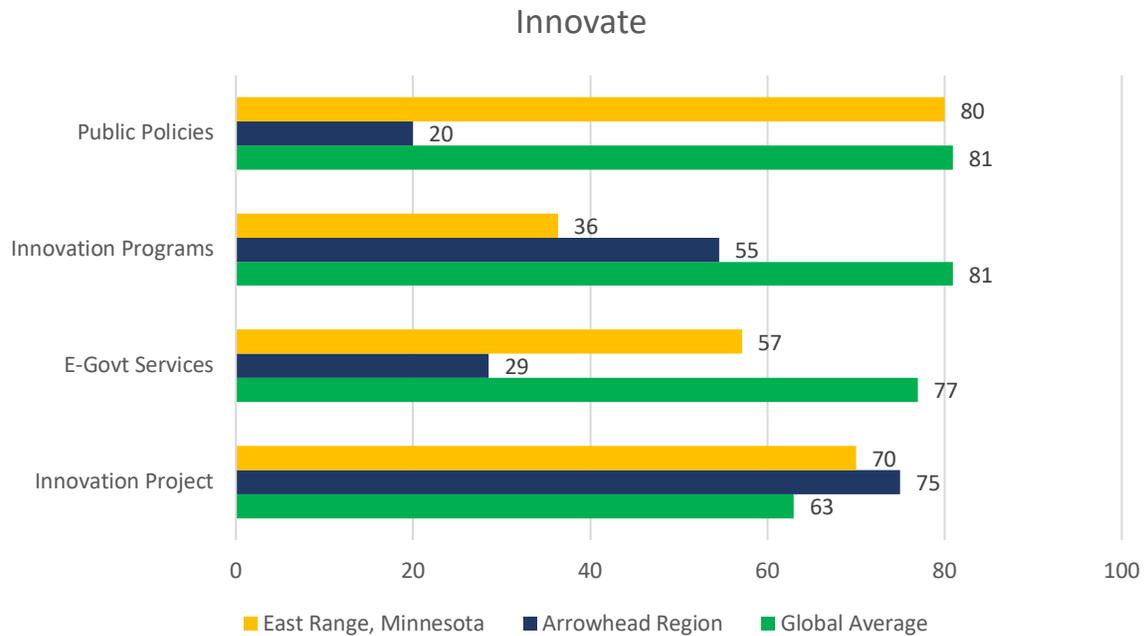
In terms of innovation, the East Range differed significantly from the best-of-the-Region, both positively and negatively, across categories:

- Public policies received 80% of available points, equivalent to the global average but 60 points higher than the region, based on having written policies approved by Council.
- Despite the strength in policy, actual innovation programs received only 36% of available points compared with 55% for the best-of-the-Region and 81% for the global average. Out of 11 possible programs, the questionnaire identified only 4 in operation.
- E-government services received 57% of available points compared with only 29% for the best-of-the-Region and 77% for the global average. The questionnaire identified 4 of 7 possible categories of e-government services in operation.

The East Range received 70% of available points for the innovation projects it described, compared with 75% for the best-of-the-Region and 63% for the global average. Included in the questionnaire were:

- East Range Police Department and Hoyt Lakes Fire and Ambulance Tech Upgrades, funded by a Blandin Broadband Community grant, replaced outdated software and equipment in police, fire and ambulance vehicles to produce quicker response times, improved coordination among departments and better outcomes for the communities.

- Palo Volunteer Fire Department Tech Initiative replaced paper-based processes with mobile and fire office IT, and training in the new system.



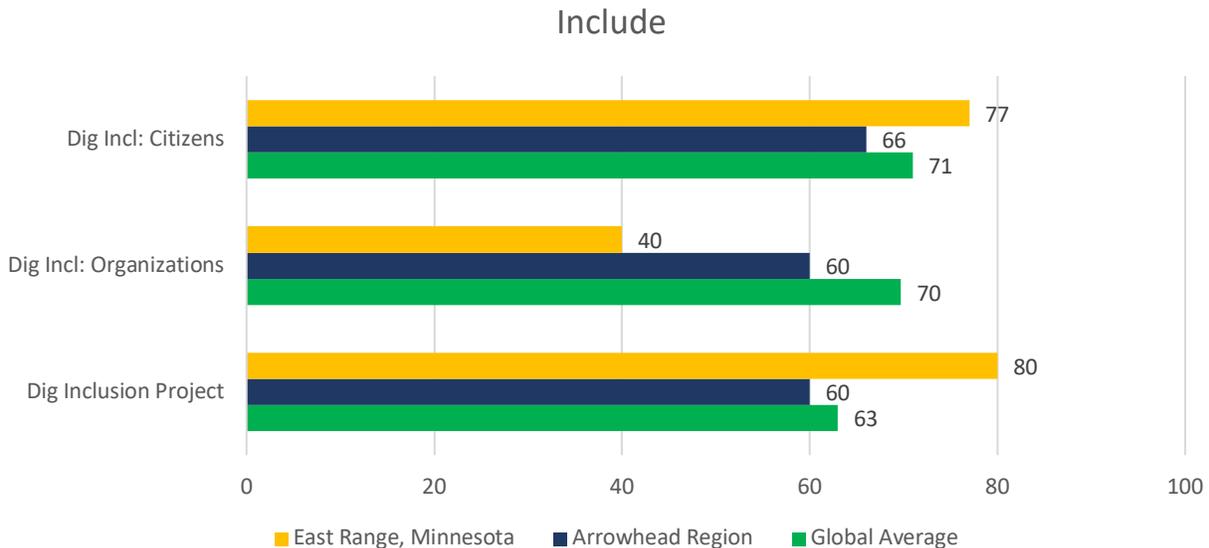
- Hoyt Lakes Public Library created STEM Kits to Go for community members of all ages to borrow for learning about coding, apps and virtual reality.
- Golden Paws Dog Training implemented virtual training services in response to the pandemic, which has expanded their service area far beyond the East Range.
- East Range Joint Powers Board creates joint services, facilities and programs based on collaboration among local, regional, state and federal communities and agencies to develop new resources and align projects that contribute to quality of life.
- Minnesota Power Community Advisory Panels attract local and regional government officials, local business owners, community representatives and school officials to a regular education program on local projects and regional industries.

The ICF Method guides communities in developing a self-sustaining ecosystem for business innovation, to which government contributes by investing in e-services among other actions. The projects described in the questionnaire represent individual elements of such an effort. What appears to be lacking to date is a strategy to coordinate these elements and develop new ones, and a specific focus on connecting local companies with educational resources to help them develop new products and services, while targeting local entrepreneurs and potential entrepreneurs for development support. Organizations like the Joint Powers Board and Community Advisory Panels represent structures that could be used to advance this more ambitious mission for the long-term benefit of the East Range economy.

Include

Digital inclusion is a strength for the East Range, though there is a significant gap when it comes to helping businesses adopt digital technology and practices:

- Inclusion for citizens received 77% of available points compared with 66% for the best-of-the-Region and 71% for the global average, based on identifying 7 out of 9 categories of program in operation.
- Inclusion for offline employers, however, earned only 40% of available points compared with 60% for the Region and 70% for the global average. This reflected the availability of only two out of five programs.
- Inclusion projects gained 80% of available points, significantly higher than the best-of-the-Region at 60% and the global average at 63%.



The projects described included:

- East Range Business Technology Audits and Grants, which funds technology consultants to work with business owners to audit and upgrade their technology and training.
- Hoyt Lakes Public Library Training Lab, which brings equipment and trainers to individuals and groups in the East Range, though it has been postponed in the interests of pandemic safety.
- PCs for People, a state-wide nonprofit that distributes computers to libraries and families lacking technology and access.

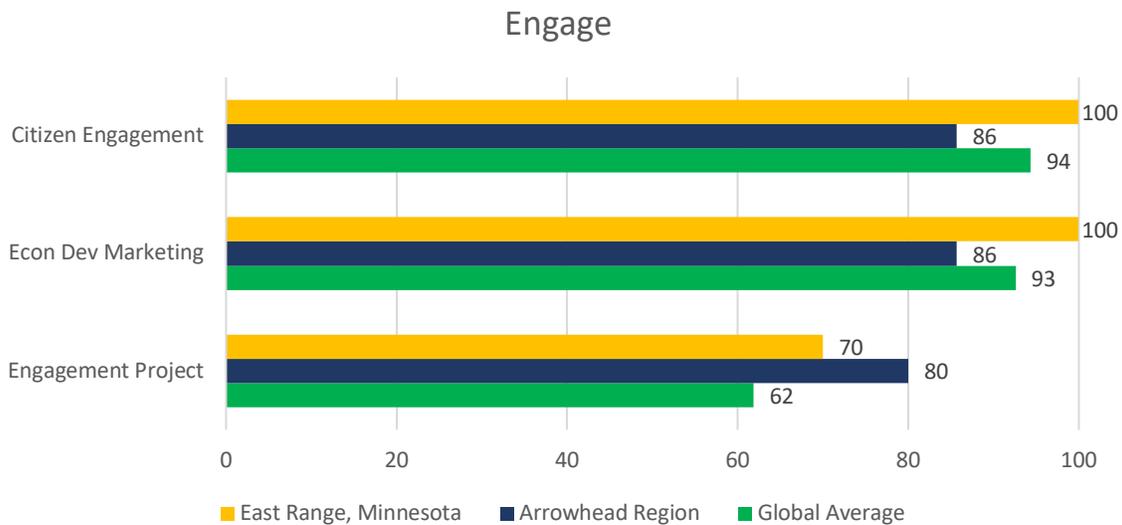
All are solid programs that deliver meaningful results. They also represent, however, a foundation on which more ambitious and innovative programs can be built.

Engage

The East Range communities scored strongly in engagement. They received top scores for citizen engagement and economic development marketing activities. Engagement projects received 70% of available points compared with 80% for the best-of-the-Region and 62% for the global average. The engagement projects were:

- Blandin Leadership Program, which has trained 31 community leaders in the skills needed to build and sustain healthy communities.
- East Range Broadband Steering Committee, made up of public and private-sector individuals who cooperate on advertising grant opportunities, approving grant applications and promoting broadband.
- East Range COVID Response Team, made up of city and town officials, school board representatives, police and healthcare staff, who managed public communications and response to the pandemic.

All are good examples of engaging citizens in understanding and advising on issues of importance to the community. They would have scored higher if there was evidence of a strategy to engage the passions and concerns of the community across many fronts. This can energize economic development, investment attraction and business generation, because the community has built a unique vision of its character and its future.

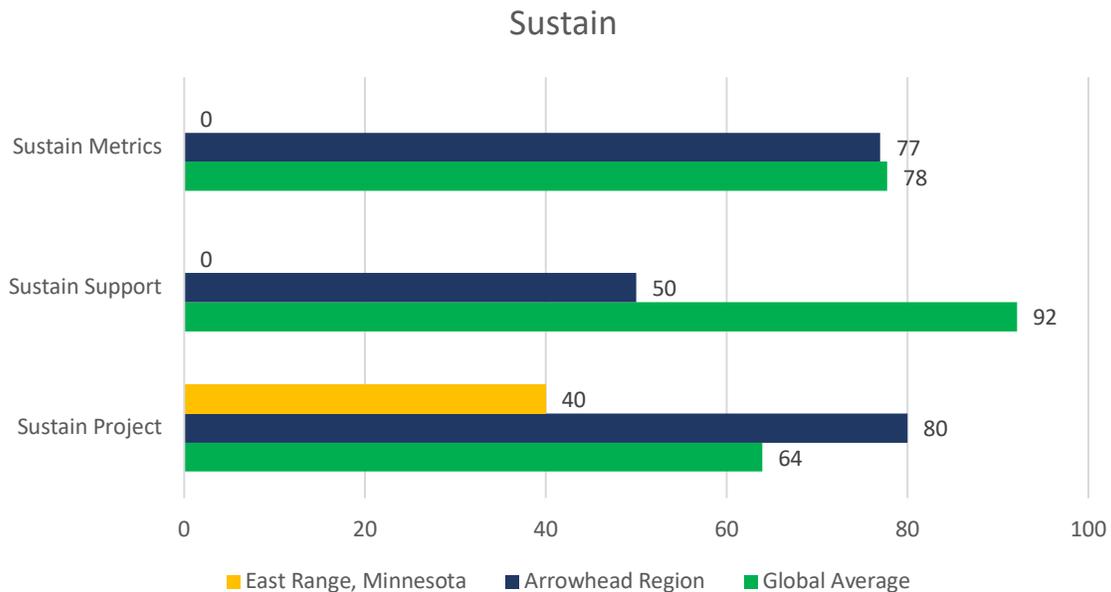


Sustain

The extremely low score of the East Range was the result of inability to provide any of the metrics requested in the questionnaire. It is an old adage that you can only manage what

you can measure, and if sustainability is to be a priority for the community, it must track its performance on a substantial range of factors.

The projects described in the questionnaire – Electric Vehicle Charging Station in Aurora and the Ranger Snowmobile ATV Club Trail Groomer Safety Enhancements – did not contribute much to a higher score. The groomer safety enhancements bore no relationship to sustainability, and installation of a single charging station for electric vehicles is more of a symbolic than substantive project. For ICF, sustainability is important at the local level for reasons that go beyond preserving the environment on which we all depend. Because it concerns local quality of life, it has the power to engage the community in building a better future, and the habit of engagement inevitably crosses over into other development priorities. It also improves quality of life, which makes the community more attractive to investors and new businesses. And sustainability is becoming a significant growth sector with enormous potential. It should be part of every community’s economic development strategy – but can only succeed with genuine community support.



Recommendations

The East Range has both strengths and weaknesses from the perspective of the ICF Method, and we recommend the following steps to improve its long-term performance.

- **Connect.** The inability to report on broadband adoption puts the East Range at a disadvantage in promoting broadband to its citizens and employers. We recommend that its communities launch a survey project to assess adoption, following the best practices described by the Blandin Foundation and other supporting groups, and repeat it periodically to make adoption a benchmark for success in this Factor.

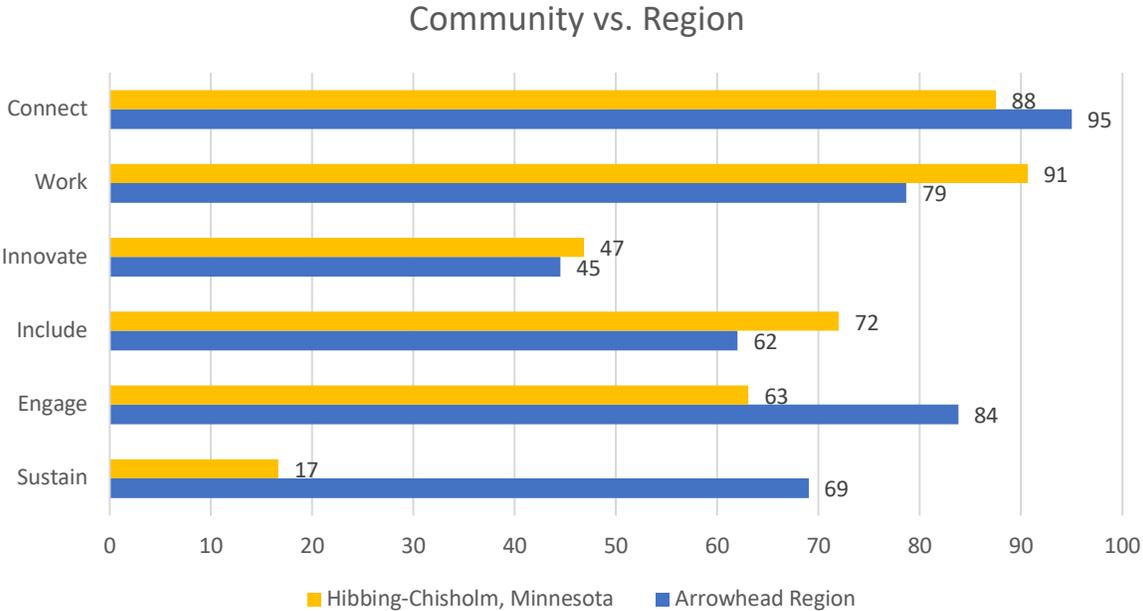
- **Work.** The East Range has in place many of the programs needed to develop a knowledge-based workforce. Its next step is to develop a larger strategy involving local governments, educators and employers to rethink how education is delivered to equip people of all ages with the skills needed for a good career in the community. The ICF Method provides a specific roadmap for this work, and reports and books available on our website go into detail.
- **Innovate.** The East Range has good policies supporting innovation in business and government but a significant lack of programs to carry out that policy. As with Work, what's needed is time and energy put into a strategy that coordinates what is already going on and identifies new initiatives to be developed. On the positive side, organizations like the Joint Powers Board and Community Advisory Panels offer structures that could be used to advance this more ambitious agenda.
- **Include.** This is a strength for the East Range, and our only recommendation is to continue and increase the ambition and reach of programs that bridge the digital divide.
- **Engage.** This is another area of strength. At the risk of repetition, the same emphasis on developing an ongoing strategy for strengthening community engagement overall will power progress in all other Factors in the ICF Method.
- **Sustain.** From review of the questionnaire, it would appear that the East Range has not made sustainability a priority in its most basic environmental sense and has therefore not used it as a tool for engagement, for improving local quality of life and for attracting or developing companies working in the field. Starting at the beginning will mean identifying people and organizations that are already championing sustainable practices and inviting them into consultation with local government.

Hibbing-Chisholm Area



The Hibbing-Chisholm Area in Saint Louis County includes the cities of Hibbing and Chisholm, with a combined population of more than 21,000. They had long been mining towns in the Mesabi Iron Range, and Hibbing is home to the largest open-pit iron mine in the world, whose development caused the city to relocate in the early part of the 20th Century to open up more land for the mine. Hibbing is home to Hibbing Community College, a two-year community and technical institution.

The chart below shows how Hibbing-Chisholm compared with the average of the Arrowhead Region across the six Indicators.



The Area's scores align with those of the best-of-the-Region in two Factors, Connect and Innovate, while diverging in four others:

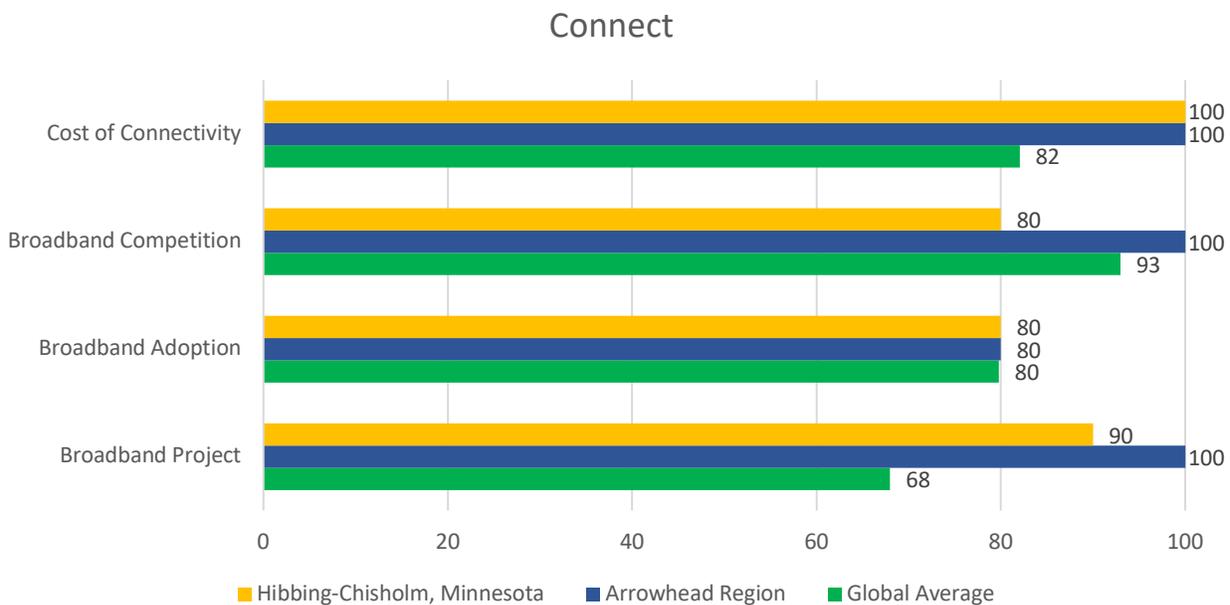
- Work, where the Area scored 12 points below the Region
- Include, where the Area outscored the Region by 10 points
- Engage, where the Area scored 21 points below the Region
- Sustain, where the region scored 52 points below the Region

The analysis of the individual Factors below goes into more detail on these outcomes.

Connect

Hibbing-Chisholm was a strong performer in this Factor. The Area –

- Received 100% of available points for the cost of connectivity, equal to the best-of-the-Region and compared to 82% for the global average.
- Scored 80% for the competition that helped achieve those costs, compared to 100% for the best-of-the-Region and 93% for the global average.
- Received 80% for broadband adoption, equal to the best-of-the-Region and the global average.
- Gained 90% for its broadband projects compared with 100% for the best-of-the-Region and 68% for the global average.



The three broadband projects described in the questionnaire were:

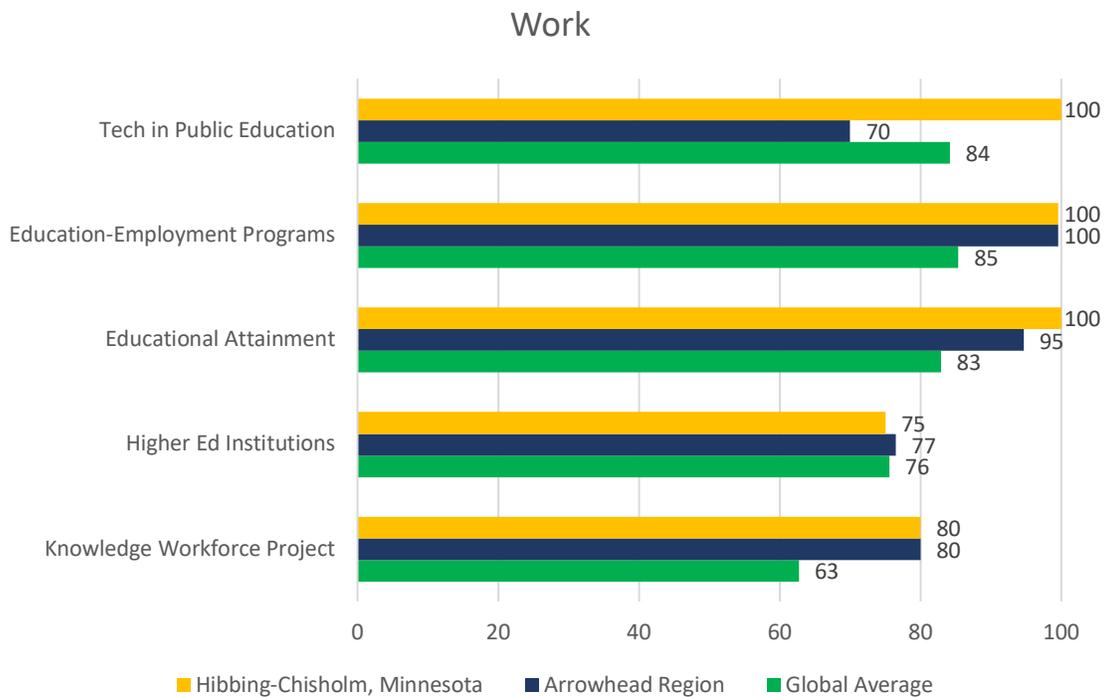
- Iron Range Feasibility Study, which provided a data-based roadmap for broadband solutions for unserved and underserved households in the Central Iron Range, and played a significant role in educating and engaging community leaders in the issue of

broadband availability, and in transforming the competitive environment by engaging carriers in competing for community interest and partnership in grant programs.

- Leveraging Federal and State Funding for Rural Broadband Expansion to serve 1,000 unserved or underserved households.
- NESC Backhaul & Business Connectivity in Opportunity Zones, bringing fiber broadband and technology auditing and support to opportunity zone business centers.

The high score of these projects reflects their range of realistic approaches to expanding broadband connectivity for offline residents and businesses with high-level connectivity needs. Feasibility studies do not typically score well in our process, because they represent only a modest step toward real change, but the questionnaire clearly explained how the study results have been used to drive greater awareness and engagement with the issue and equip broadband champions to make their case and broadband providers to see their opportunities in a new light.

Work



Knowledge work was another area of strong performance for Hibbing-Chisholm. The Area:

- Received 100% for its deployment of technology in schools, compared with 70% for the best-of-the-Region and 84% for the global average.
- Gained 100% of available points for its education-to-employment programs, compared with 100% for the Region and 85% for the global average.



- Received 100% for the educational attainment of the population, compared with 95% for the Region and 83% for the global average.
- Was awarded 75% of available points for access to higher education, equivalent to both the best-of-the-Region and the global average.

The knowledge workforce projects received 80% of available points, equal to the Region, and compared with 63% for the global average. The three projects were:

- Iron Range STEAM Summer Institute Collaboration, a new collaboration among nine school districts to create a financially sustainable summer program for students in grades 5-8.
- Hibbing Career Academy, which provides education, guest instructors from local business and work experience in a set of career pathways in demand in the Area.
- Chisholm Connected Classrooms, which piloted online education in local schools just in time for the arrival of the pandemic.

The Summer Institute and Career Academy are ideal implementations of the ICF Method for this Factor. They target two distinct needs: to offer young people in the crucial years of 5-8 grade the opportunity to engage in STEAM learning, and to connect older students with real-world career training and employer engagement with a clear on-ramp to employment. The Connected Classroom project is also of high value – not just for equipping students with technology at home but training and equipping teachers in classrooms to integrate online learners into their teaching. The questionnaire did not indicate that these projects were part of a comprehensive strategy, but they are well aligned with such a strategy when it is fully developed and activated.

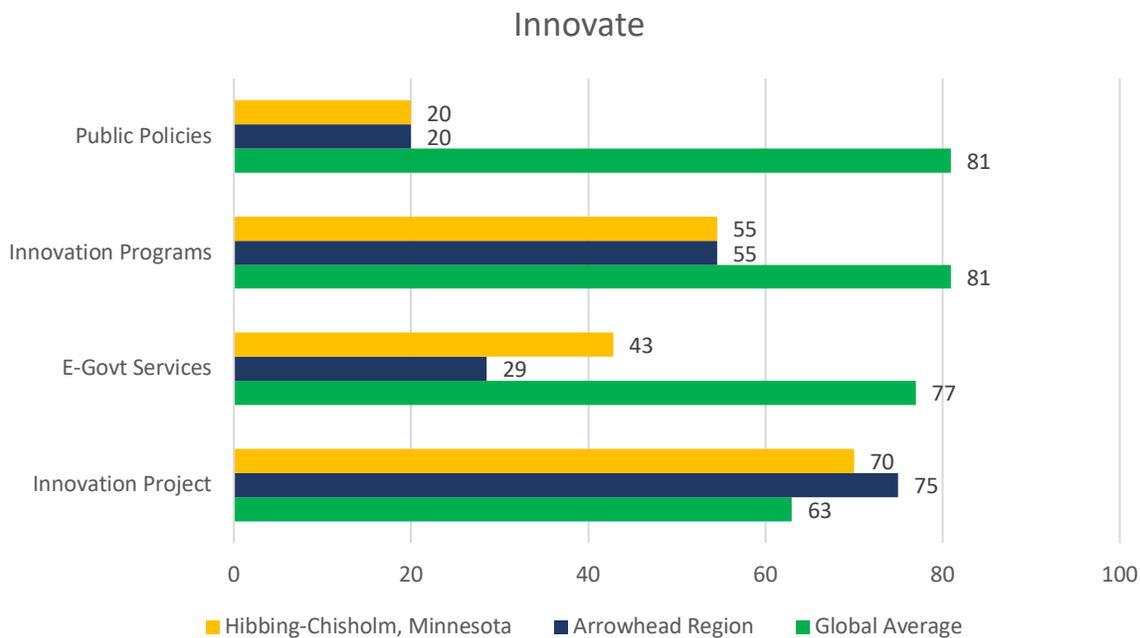
Innovate

The Area's performance in the Innovate Factor did not reflect the same level of creativity and commitment seen in Work. Hibbing-Chisholm received:

- 20% of available points for the lack of any innovation policy from local government, equal to the best-of-the-Region and compared with 81% for the global average.
- Despite the policy gap, 55% of available points for innovation programs, based on identifying 5 of 11 possible programs, equal to the Region and compared with 81% for the global average.
- 43% of points for e-government services, based on identifying 3 of 7 possible services, compared with 29% for the Region and 77% for the global average.

The Area's highest score, however, was for projects, which received 70% of available points compared with 75% for the best-of-the-Region and 63% for the global average. They included:

- Chisholm Community Portal 55719, a collaboration between the Chisholm Chamber, school district and city for a deliberately simple landing page showing a shared community calendar, social media feeds and links to each partners’ website.
- Online broadcasting of Council Meetings and non-real-time posting of Council meetings to Vimeo and YouTube to increase public access to decision-making.
- Fairview Health Technology, which distributed iPads for use by patients undergoing cancer treatment, first responders and emergency room staff to improve communication and allow remote screening of patients.
- Northforce Regional Talent Portal with Local Services, a regional job listing service that attracted more than 1,000 businesses and served 4,300 job candidates in 2020.
- Iron Range Makerspace, a regional co-working and business incubation facility in Hibbing with 300 members that has led to the startup of six new businesses.
- Technology/Marketing Technical Assistance, providing 1-to-1 digital marketing consulting to businesses in Chisholm and Hibbing to equip them for successful online marketing and sales.



The ICF Method guides communities in developing a self-sustaining ecosystem for business innovation, to which government contributes by investing in e-services among other actions. In this context, the projects presented a mixed group rather than a coordinated strategy – but one aiming at the right objectives.

The Chisholm Portal and online broadcast of Council meetings are simple e-government services, though they lack interactivity that would give them greater value. Northforce, the Makerspace and Technical Assistance program aim to make matching talent to opportunities

more efficient, to stimulate business formation and to increase the digital capacity of existing businesses. These are vital parts of a working innovation economy. The Fairview Health Technology example is not at the same level, being a small-scale effort to use digital technologies to improve outcomes.

Include

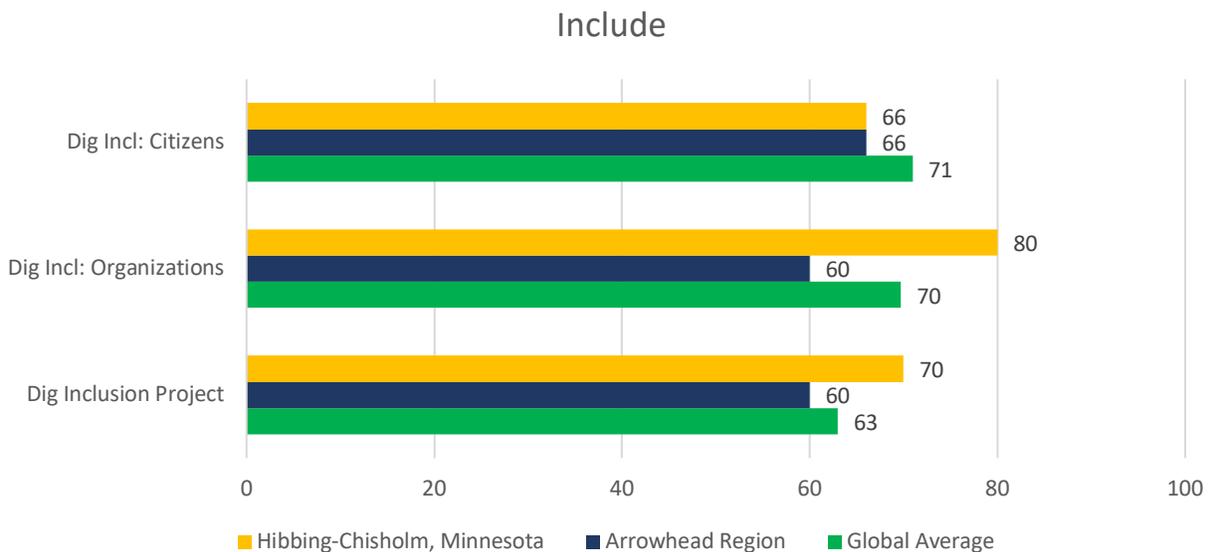
Digital inclusion was another area of strength for Hibbing-Chisholm:

- Its digital inclusion programs for citizens received 66% of available points, equal to the best-of-the-Region and only slightly below the global average of 71%.
- Digital inclusion programs for organizations scored even higher, receiving 80% of available points compared with 60% for the Region and 70% for the global average.

The Area's digital inclusion projects earned 70% of points, outscoring the Region's 60% and the global average of 63%. They included:

- Access North Age-in-Place Project, which provides improved routers and digital technology that allows senior to safely remain in their homes longer while enjoying a good quality of life.
- Small Business Training and Tech Assistance has been provided by multiple organizations in the Area over the past 30 years, ranging from training to audits to 1-to-1 assistance.

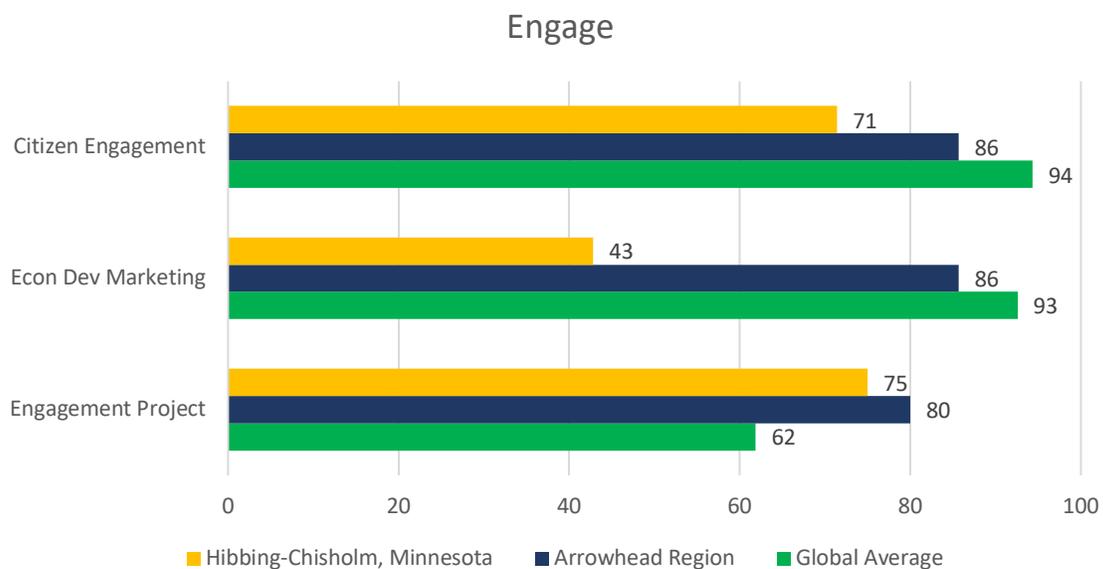
The relatively high score for the projects reflects how they targeted specific digital inclusion needs for both residents and organizations.



Engage

Hibbing-Chisholm scored somewhat lower on engagement questions than on digital inclusion:

- The Area does not have a documented strategy or group dedicated to carrying it out, which is required to make engagement an ongoing priority for the communities.
- It received 71% of available points for citizen engagement, citing 5 of 7 possible programs, compared with 86% for the best-of-the-Region and 94% for the global average.
- For communicating its economic and community development story outside the region, the Area cited only 3 of 7 programs and received 43% of points, compared with 86% for the Region and 93% for the global average.



The Area's engagement projects earned 75% of available points compared with 80% for the best-of-the-Region and 62% for the global average. They included:

- Community Wide Leadership Programs, including the Blandin Community Leadership Program, which has graduated 100 residents of the Area, and the Hibbing Chamber Leadership Program, which has had 700 participants.
- Local Chamber Candidate Forums, which provide a non-partisan format at which the public can learn about local, state and congressional candidates, with in-person participation augmented by television and online streaming coverage.
- Iron Range Blandin Broadband Communities Program, which has launched over 20 projects in broadband, workforce, digital inclusion, sustainability and innovation.

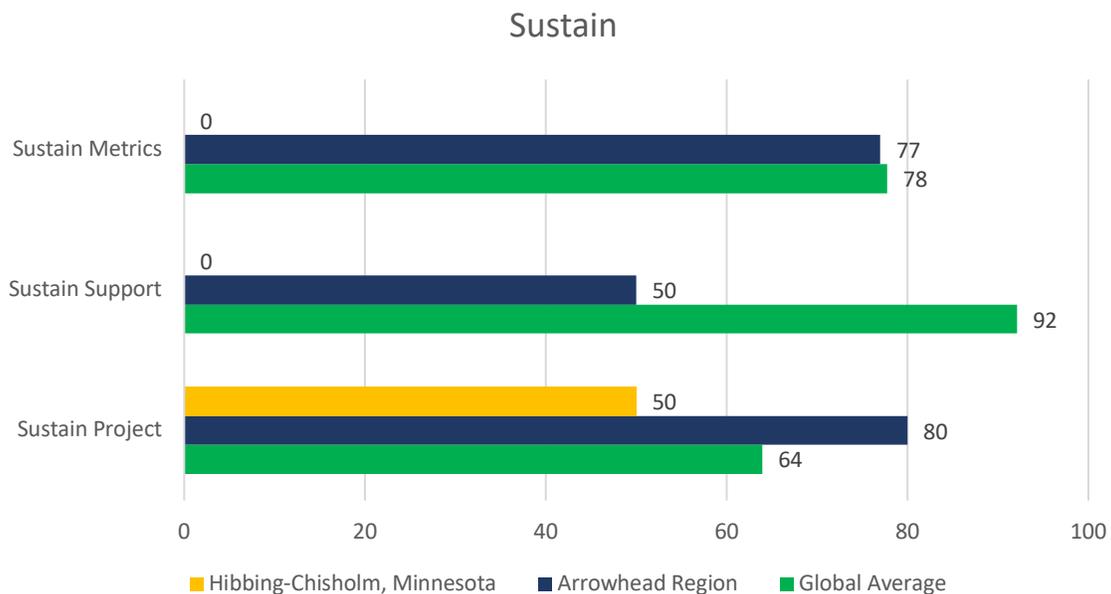
Of these programs, only the Candidate Forums seek to directly engage the public. The Leadership Programs train citizens in community leadership, and we assume that

development projects, attracting volunteers and resources, and building capable teams are all part of the training. The Broadband Communities Program creates many valuable projects improving quality of life on a broadband foundation, some of which may involve public engagement.

In the ICF Method, engagement means a deliberate effort to help citizens, businesses, institutions and community leader understand the need for change, identify opportunities and become champions of positive change. By engaging the passions and concerns of the community, engagement also energizes economic development, investment attraction and business generation, because the community has built a unique vision of its character and its future. As with other Factors, the Area has components of this approach but lacks an overall structure to make engagement a driver of change on multiple fronts.

Sustain

Hibbing-Chisholm scored extremely low for sustainability, largely because it provided no information about such sustainability metrics as air quality, indoor water use and municipal waste diverted from landfills, or on governmental commitments to sustainability practices. The impression created is that sustainability is a low priority for the Area.



Hibbing-Chisholm cited three sustainability projects:

- Business Energy Retrofit Grant Program, which incentivizes businesses to invest in energy efficiency improvements.
- Recreation via Reclamation, a series of project to reclaim abandoned mining sites as recreational areas offering hiking, off-road cycling and the Minnesota Discovery Center.
- Champions of Sustainability, a grassroots community group that educates, engages and organizes residents on sustainability issues.

Together, these projects received 50% of available points, compared with 80% for the best-of-the-Region and 64% for the global average. For ICF, sustainability is important at the local level for reasons that go beyond preserving the environment on which we all depend. As a quality-of-life concern, it the power to engage the community in many parts of building a better future. It makes the community more attractive to investors and new businesses and represents a significant growth industry for the future. The Area's projects represent components of this more ambitious approach and provide a foundation for progress.

Recommendations

The Hibbing-Chisholm Area has made substantial progress as measured by the ICF Method and has numerous opportunities to accelerate its efforts.

- **Connect.** The Area has strong metrics for broadband connectivity but lacks a vital measure of its success: adoption of broadband by households and businesses. The lack of adoption tracking leaves decision-makers in the dark when evaluating the success of programs. Periodic surveying requires effort and some expense but will pay off in the ability to direct support programs where they are most needed.
- **Work.** The Area has an excellent foundation for development of a knowledge workforce. Local government now needs to enlarge its collaboration with employers and educators to establish a shared vision of next steps, based on ICF's roadmap for the knowledge workforce, and unite these programs with others to be developed to fill gaps.
- **Innovate.** As with Work, the Area has a multi-project foundation for progress in creating an innovation economy. What is needed is a set of policies and a development strategy based on ICF's roadmap to tie them together and develop new capabilities.
- **Include.** Digital inclusion is an area of strength for the Area. The questions in this section did not directly address digital inclusion for people who are not seniors, but information in the Work section suggests that reaching families with school-age children is another priority. We have no significant recommendations in this Factor.
- **Engage.** The Area has effective programs engaging the community in specific areas. We recommend a broader-based view of engagement for its power to create positive change. As with other Factors, a strategy to tie project together can have a large impact on overall outcomes.
- **Sustain.** The absence of sustainability metrics or policy calls into question the degree to which sustainability is a priority for the Area. It is ultimately a question to be decided by leadership, citizens and employers. If sustainability is important, there is much value that Hibbing and Chisholm can gain from a more comprehensive approach to it.

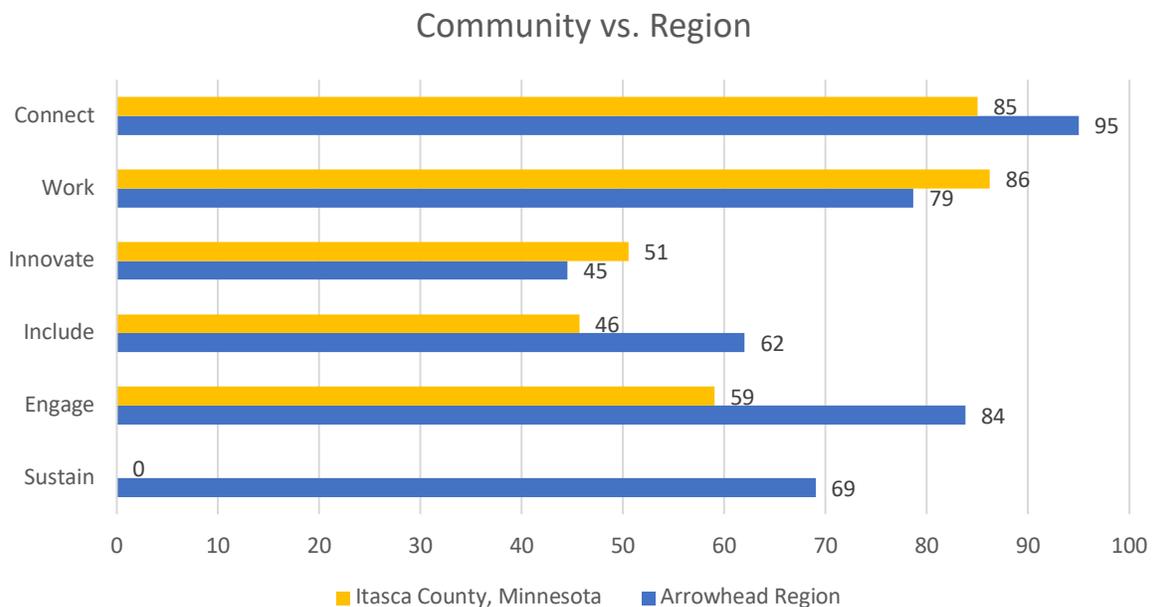
Itasca County



Itasca County is named for Lake Itasca, the true source of the Mississippi River, though the lake is no longer within the county's borders. With a population of 45,000 people, it is home to Itasca Community College and the Edge of the Wilderness Resort Area. Portions of the Bois Forte and Leech Lake Native American reservations are in the county.

According to Itasca County Economic Development Corporation, the county's leading industries include education, forestry, healthcare, manufacturing, mining, professional services, recreation, hospitality and retail. Its five public high schools graduate 94% of their students and the Itasca Area Schools Collaborative joins seven school districts with Itasca Community College to offer a consistent set of curriculum opportunities.

The chart below shows how Itasca County compared with the average of the Arrowhead Region across the six Indicators.



The county's scores align with those of the best-of-the-Region in only two Factors, Work and Innovate, while diverging in four others:

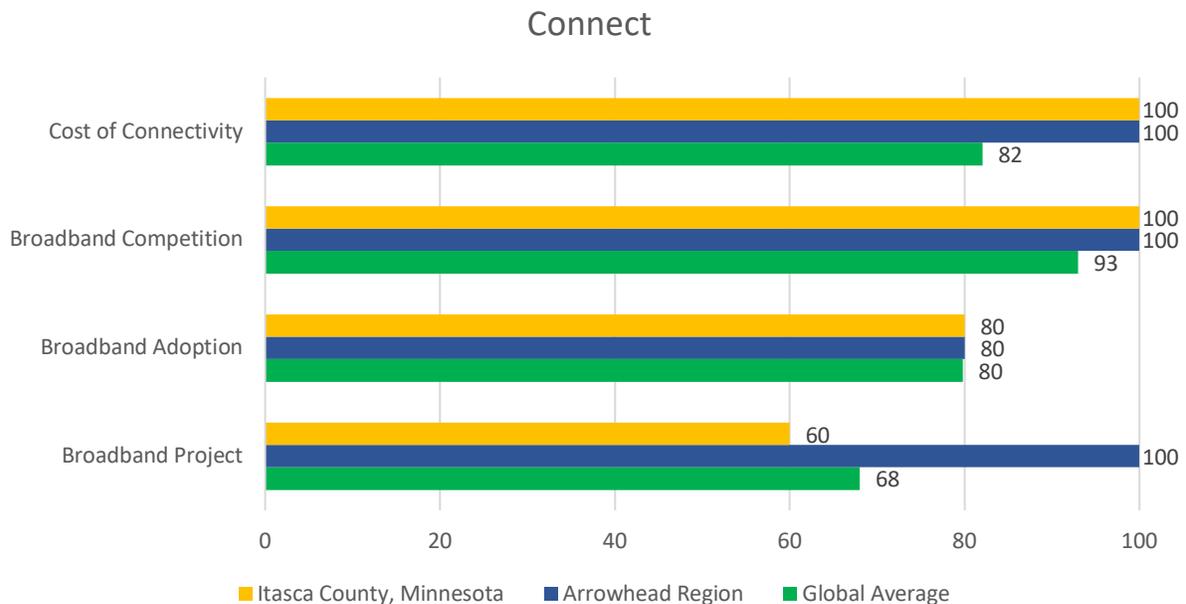
- Connect, where the county scored 10 percentage points below the Region
- Include, where the county scored 16 points below the Region
- Engage, where the Area scored 25 points below the Region
- Sustain, where the region scored 69 points below the Region

The analysis of the individual Factors below goes into more detail on these outcomes.

Connect

Itasca County scored very well in the quantitative portions of the questionnaire, receiving:

- 100% of available points for cost of connectivity and broadband competition, equal to the best-of-the-Region and 7-18 percentage points better than the global average.
- 80% of available points for adoption, equal to both the Region and the global average

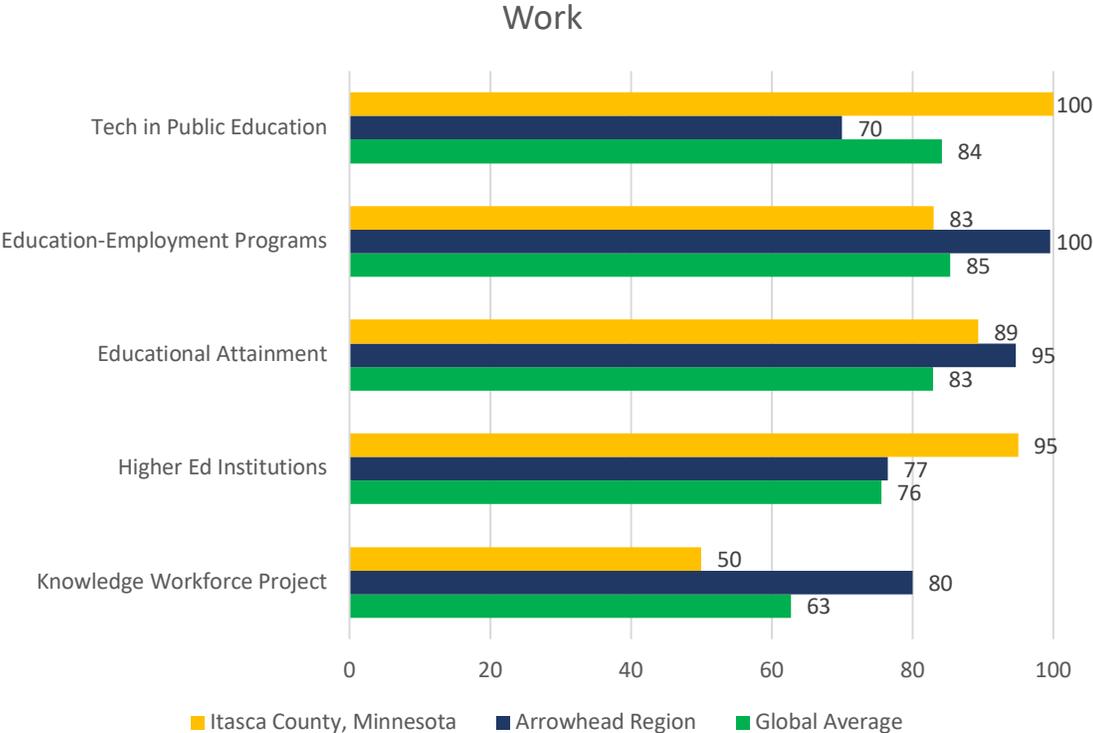


Itasca's broadband project, however, received 60% of available points compared with 100% for the best-of-the-Region and 68% for the global average. The example given was the Itasca Blandin Broadband Community project, which conducted a county-wide survey to identify pockets of high population not served by an ISP, making the cast for expansion and helping to obtain state grants. Since 2014, the project has brought broadband to several hundred households. The relatively low score for the project stems from the limited ambition of a single survey and only moderate result after more than six years of work.

Work

Knowledge work received largely positive scores in the analysis, including:

- 100% of available points for its deployment of technology in schools, compared with 70% for the best-of-the-Region and 84% for the global average.
- 83% for its education-to-employment programs, compared with 100% for the Region and 85% for the global average.
- 89% for educational attainment, compared with 95% for the Region and 83% for the global average.
- 95% of available points for access to higher education, compared with 77% for the Region and 76% for the global average.



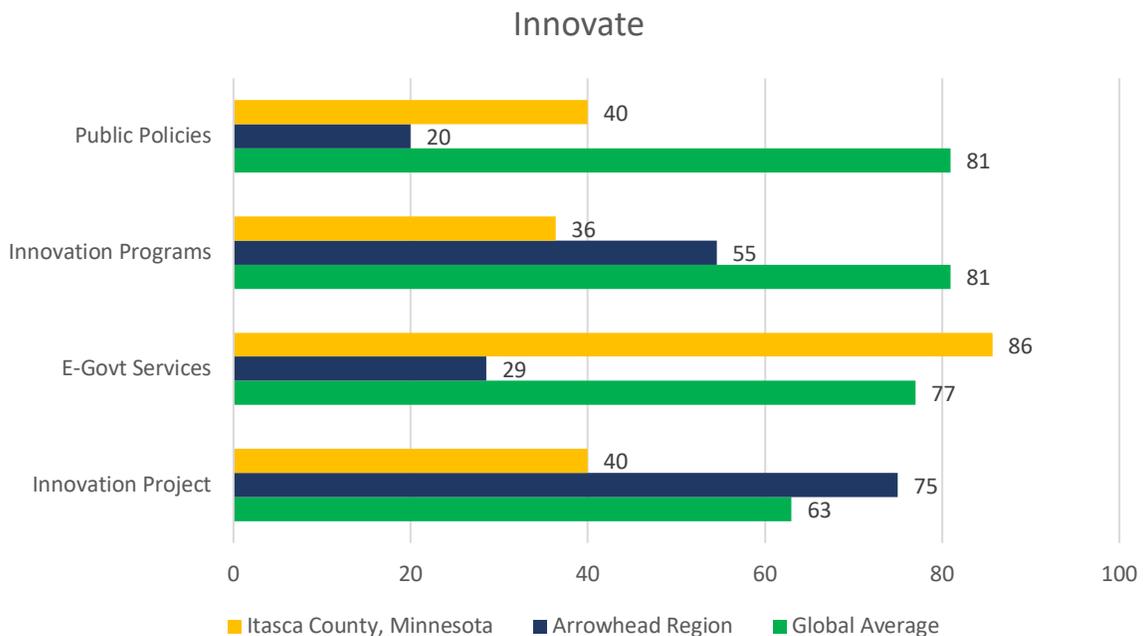
The knowledge workforce project, however, received 50% of available points, compared with 80% for the Region and 63% for the global average. The questionnaire described a Career Pathways project that helps rural students training for high-quality employment in manufacturing, healthcare, natural resources, agriculture, education, business and skilled trades. The low score results from the extreme brevity of the information provided, with no explanation of how the program came about, how it functions and what its results have been since its launch in 2019. Other communities in the Region have received higher scores for similar programs, and it is possible that Career Pathways in Itasca County deserves the same.



Innovate

The county outperformed the best-of-the-Region in some categories and was outperformed in others. Itasca County received:

- 40% of available points for innovation policy provided in administrative guidelines only, compared with 20% for the best-of-the-Region and 81% for the global average.
- 36% of available points for innovation programs, based on identifying 4 of 11 possible programs, compared with 55% for the Region and 81% for the global average.
- 86% of points for e-government services, based on identifying 6 of 7 possible services, compared with 29% for the Region and 77% for the global average.



The county's innovation project received just 40% of points, compared with 75% for the best-of-the-Region and 63% for the global average. Its example was a plan to build a spec building as start-up space for an anchor tenant and additional startups, with the plan resting on the county's ability to win a Federal EDA grant.

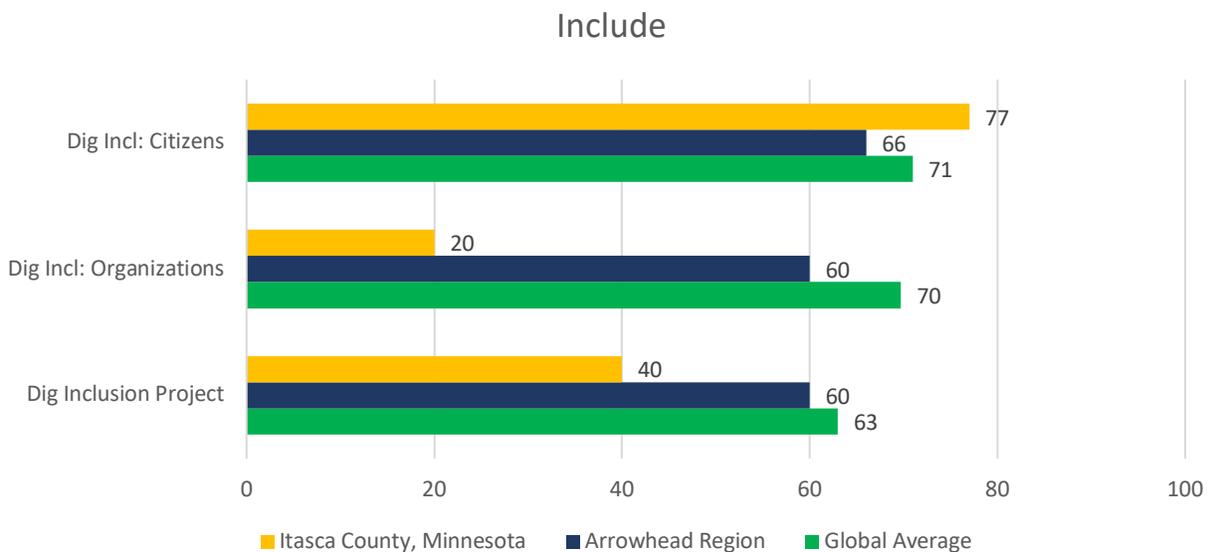
The ICF Method guides communities in developing a self-sustaining ecosystem for business innovation, to which government contributes by investing in e-services among other actions. Creating an incubator space is one component of such an ecosystem, but the unwillingness or inability to marshal local resources for it, depending instead on Federal generosity, does not express any meaningful commitment to innovation. Given the presence of knowledge workforce development programs and partners like the community college, much more should be possible for the county.

Include

Digital inclusion also presented a mixed picture from Itasca County. It received:

- 77% of available points for digital inclusion programs for citizens, based on identifying 7 of 9 programs, compared with 66% for the Region and 71% for the global average.
- 20% for digital inclusion programs aimed at organizations, based on identifying only 1 of 5 programs, compared with 60% for the Region and 70% for the global average.

The Area's digital inclusion project earned 40% of available points for an extremely terse description of the work of PCs for People in Grand Rapids and the cooperation of Itasca Economic Development with area ISPs to support their expansion. Despite the project being in operation since 2014, the questionnaire provided no information on results.



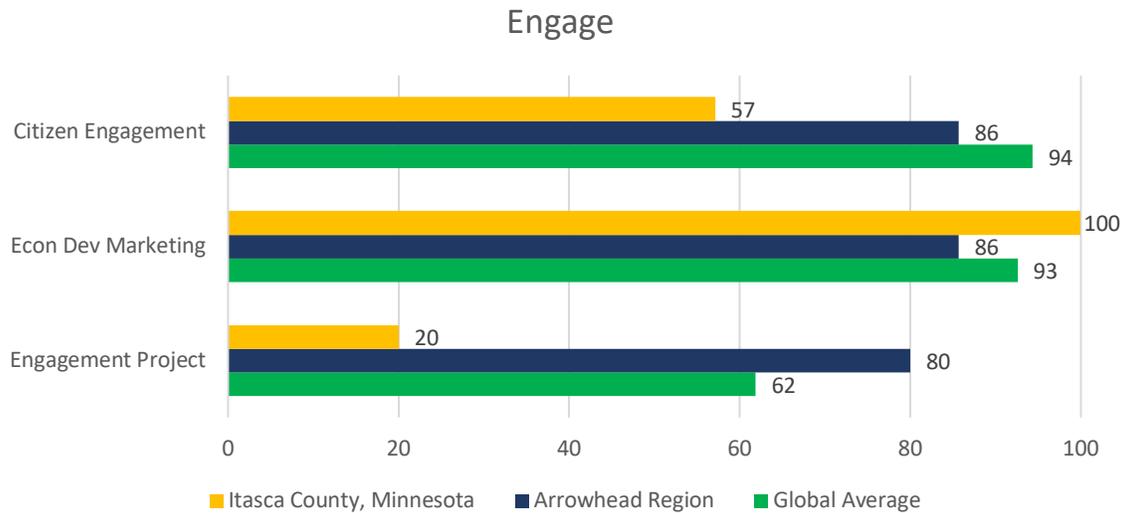
Engage

Itasca County's scoring on engagement showed a wide variance in performance, including:

- 100% of available points for having a documented engagement strategy and a task force or group charged with carrying it out.
- 57% of available points for citizen engagement, citing 4 of 7 possible programs, compared with 86% for the best-of-the-Region and 94% for the global average.
- 100% of available points for communicating its economic development story outside the region, compared with 86% for the Region and 93% for the global average.

The county's engagement project received 20% of points, compared with 80% for the best-of-the-Region and 62% for the global average. The questionnaire described ENGAGE with IEDC, launched in 2020, which provides monthly sessions with information on COVID-related issues including health regulations, closings, safety, grants and loans. The results

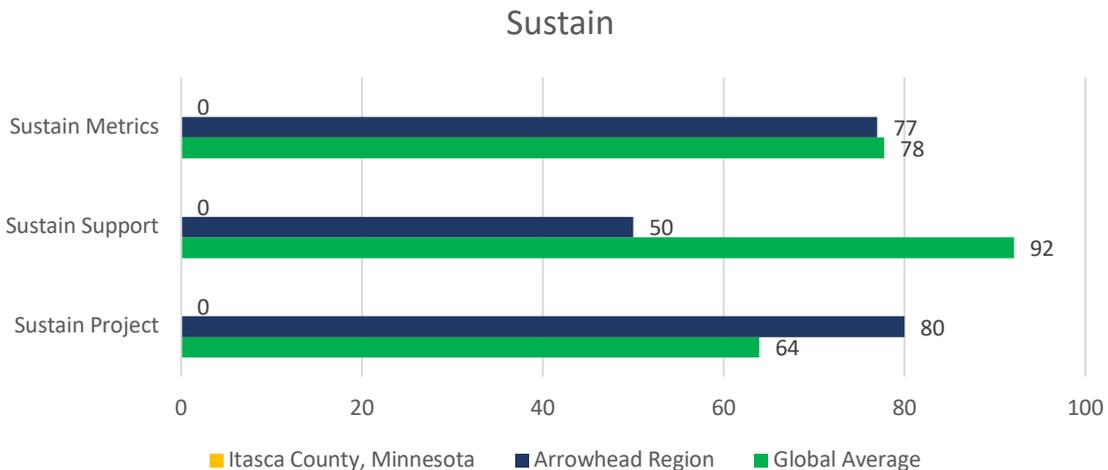
cited were, strangely, entirely about the positive impacts on IEDC: increased awareness, new clients, and an increase in web and social media traffic.



In the ICF Method, engagement means a deliberate effort to help citizens, businesses, institutions and community leader understand the need for change, identify opportunities and become champions of positive change. Engagement also energizes economic development, investment attraction and business generation, because the community has built a unique vision of its character and its future. The ENGAGE program, with its short-term focus on COVID19, is not a good example of a continuing and comprehensive effort.

Sustain

Itasca County did not complete any of the questions in the sustainability section and therefore received a score of zero. This conveyed the clear impression that sustainability is a low priority for the county.



Recommendations

Itasca County's questionnaire reflects both strengths and weaknesses in its progress, as measured by the ICF Method, but it is difficult to tell how much of this is the result of an obviously rushed completion of the questionnaire and how much represents reality on the ground.

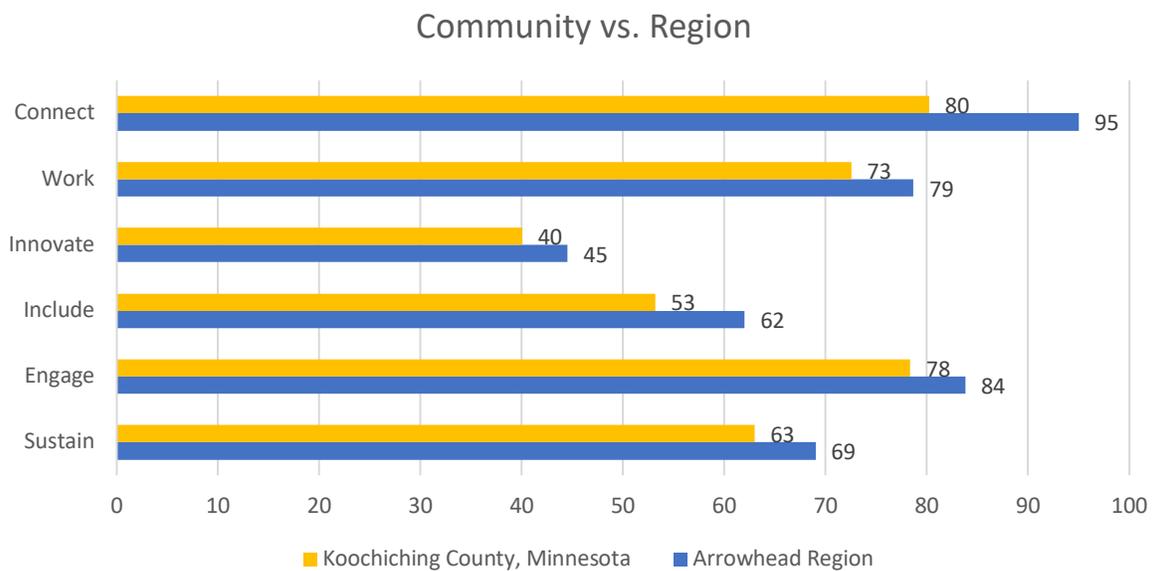
- **Connect.** The county has strong metrics for broadband connectivity. It is not clear from the description of the project how significant the issue of underserved population pockets may be, or what the long-term goals of this project are. It has proven some degree of effectiveness and a serious effort to measure and manage it – and to publicize its impact – could accelerate its progress.
- **Work.** The same comments apply to Work Factor. The county has many strengths in this area, but its project description provided so little information that it is impossible to assess its value or impact on the futures of the young people moving through it.
- **Innovate.** E-government is a strength for the county. Developing online government services is not easy but is straightforward enough, because it takes place entirely within the four walls of government offices. There is a much larger opportunity to boost the innovation rate of the private sector in the county, which is the single biggest contributor to economic growth. The county has considerable work to do in this area and we recommend the many resources of ICF to guide development of a strategy.
- **Include.** Itasca County is effective in delivering digital inclusion programs to citizens, partly in partnership with PCs for People. It has given far less attention to helping offline businesses – mostly small to midsize – take advantage of digital technologies to grow their businesses, and this is an area where a modest effort and expenditure can produce meaningful gains in economic growth.
- **Engage.** The county has a strong focus on traditional economic development, as reflected in its many communication programs aimed at the business community and inward investment. It does not appear, from the questionnaire, that there is an overall strategy for citizen engagement in county-level issues. We recognize that, as a county government, it is one step removed from municipal residents, which limits what is possible.
- **Sustain.** It is impossible to make recommendations on this Factor because the questionnaire was left blank in this section. The county almost certainly tracks at least some sustainability metrics and operates sustainability programs, but we do not have access to this information.

Koochiching County/International Falls



Koochiching County, with a population of 13,000, has International Falls as the county seat, and the Bois Forte Reservation and Voyageurs National Park extending into the county. It also borders Canada to the north and has been established as a Foreign Trade Zone, providing duties and logistics benefits to companies importing products into the country, with business parks in three communities, an airport and Rainy River Community College.

The chart below shows how Koochiching County compared with the average of the Arrowhead Region across the six Indicators. This chart and the rest of this section are based on a questionnaire submitted to ICF by the county in 2020, because the questionnaire submitted as part of this project was incomplete in many sections.



The county's scores align with those of the best-of-the-Region in four Factors – Work, Innovate, Engage and Sustain (scoring within 6 points) – while diverging in two others:

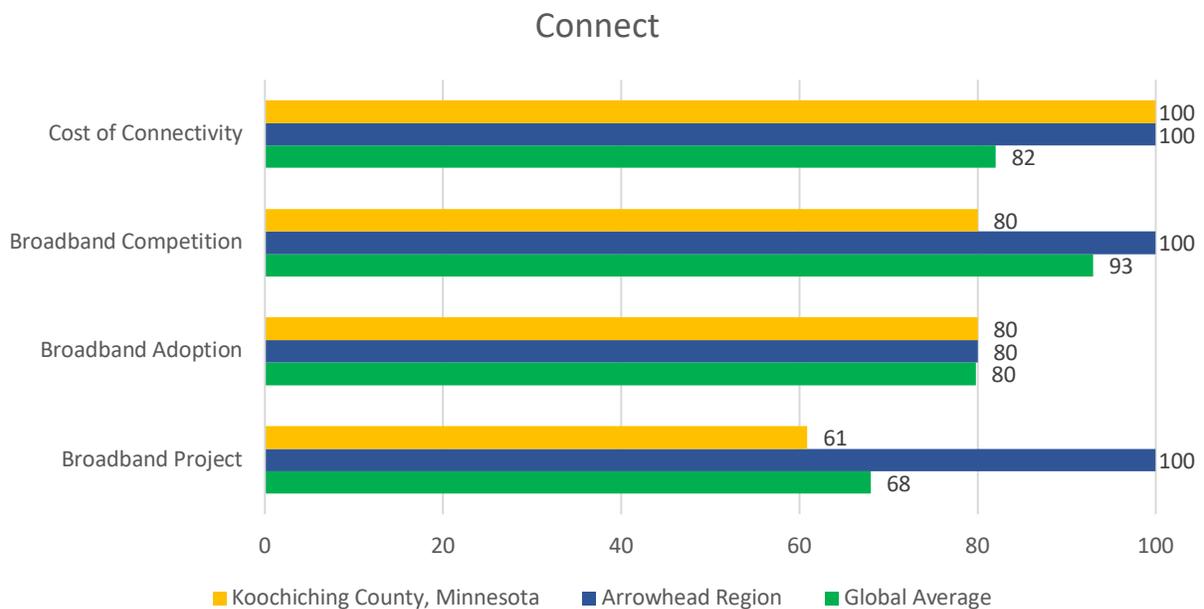
- Connect where the county scored 15 percentage points below the Region
- Include, where the county scored 9 points below the Region

The analysis of the individual Factors below goes into more detail on these outcomes.

Connect

Koochiching County scored very well in the quantitative portions of the questionnaire, receiving:

- 100% of available points for cost of connectivity, equal to the best-of-the-Region and 18 percentage points better than the global average.
- 80% for the degree of broadband competition, compared with 100% for the Region and 93% for the global average
- 80% of available points for adoption, equal to both the Region and the global average.



Koochiching's broadband projects received 61% of available points compared with 100% for the best-of-the-Region and 68% for the global average. The example project was the Koochiching Technology Initiative (KTI), launched in 2018, which aimed to use the ICF Method to bring high-speed internet to the 19% of unconnected households in the county. With funding from the Bland Broadband Initiative, KTI mobilized community stakeholders and champions around technology access and goals. This foundational work led to a proposal by Paul Bunyon Communications to invest \$2.6 million in bringing broadband to

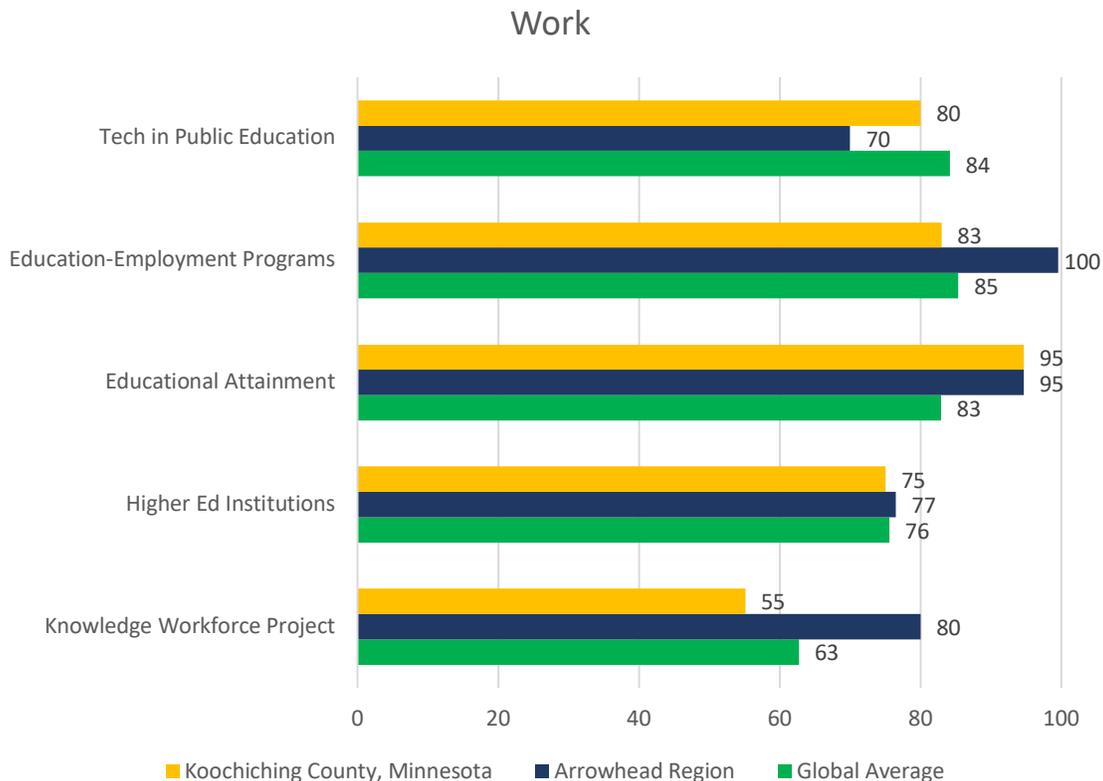
half the unserved households if the county could attract more than a million additional dollars. That process is underway, with a goal of completing the deployment in 2021.

If successful, the project will have a major positive impact on the county and will encourage additional deployment. It received 60% of points because it remains conditional on funding, which we certainly hope will be forthcoming

Work

With one exception, Knowledge work received positive scores in the analysis, including:

- 80% of available points for its deployment of technology in schools, compared with 70% for the best-of-the-Region and 84% for the global average.
- 83% for its education-to-employment programs, compared with 100% for the Region and 85% for the global average.
- 95% for educational attainment, equal to the Region and 8 points higher than the global average.
- 75% of available points for access to higher education, equivalent to both the Region and the global average.



The knowledge workforce project received 55% of available points, compared with 80% for the Region and 63% for the global average. The project was a successful public vote in the 361 District to increase school funding to pay for technology upgrades as well as upgrade



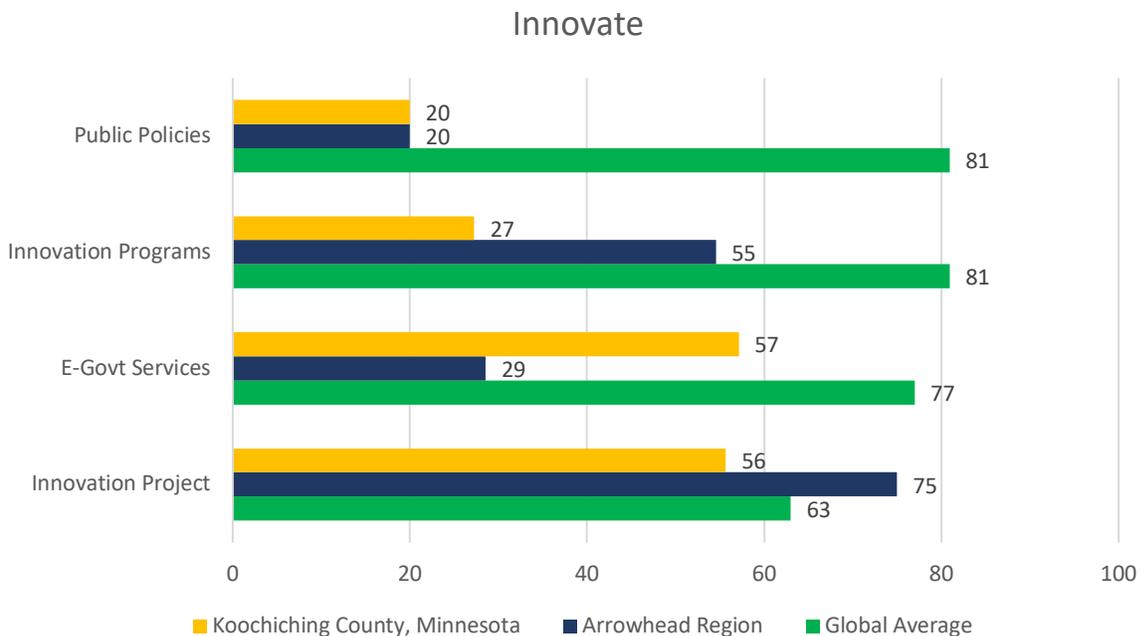
of aging buses, curriculum, pre-K funding, and maintaining low class sizes. The purchase of new tablets and laptops made possible a 1-to-1 ratio of devices to students in grades 7 to 12 and major technology purchases for lower grades, affecting 1,000 students in all.

The ICF Method calls on communities to bring together educators and employers to rethink how education is delivered to all ages, and how employers' needs for talent can be met, so that education equips people young and old with the skills needed for a good career in the community. Though a challenging process, it can generate sustainable prosperity, in contrast to programs that seek to repair damage caused by economic changes and that must be continually funded to accomplish their missions. Upgrading technology in schools is a significant but small part of this larger mission which lays a foundation for digital literacy but does not address the larger question of creating a ladder of opportunity.

Innovate

The county equaled the best-of-the-Region score in one category and outperformed the Region in another, gaining:

- 57% of points for e-government services, based on identifying 4 of 7 possible services, compared with 29% for the Region and 77% for the global average.
- 20% of available points for innovation policy (because of the lack of any policy), compared with 20% for the best-of-the-Region and 81% for the global average.



The county otherwise scored below both the best-of-the-Region and the global average, receiving:

- 27% of available points for innovation programs, based on identifying 3 of 11 possible programs, compared with 55% for the Region and 81% for the global average.

- 56% of available points for its projects, compared with 75% for the best-of-the-Region and 63% for the global average.

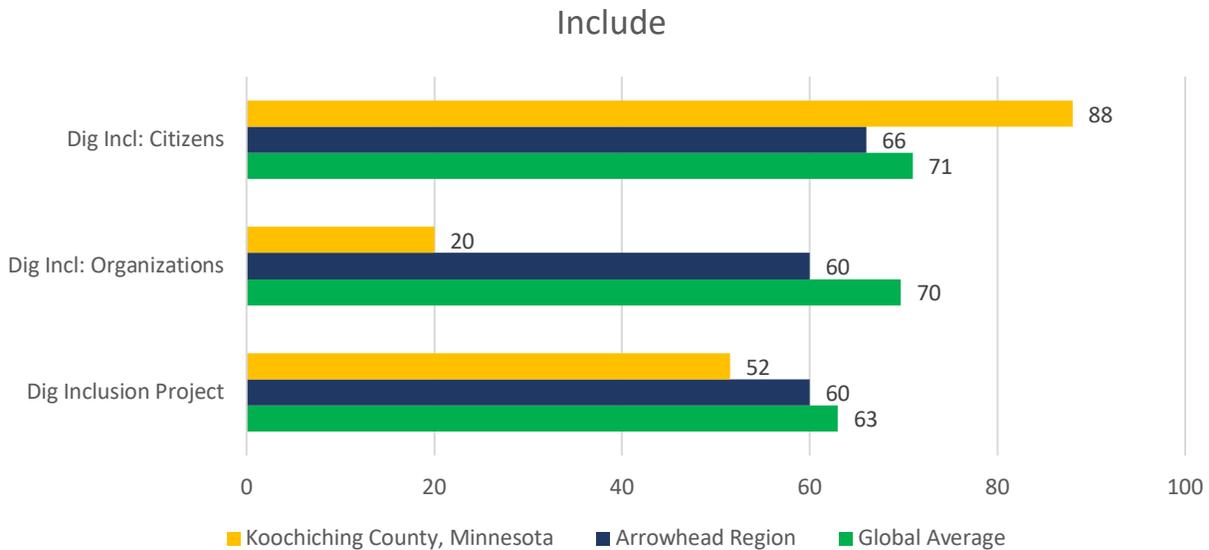
Koochiching County engaged with the US Customs and Border Protection agency to gain extension of the ROAM pilot project – which enables US citizens to cross the Canadian border using a phone app – to county residents, with significant local adoption and support from locals, tourists and outfitters.

The ICF Method guides communities in developing a self-sustaining ecosystem for business innovation, to which government contributes by investing in e-services among other actions. This example shows skill in lobbying for access to a Federal program but little other connection with the complex task of raising the innovation level of business and government to spark economic growth and grow or attract a new generation of innovators.

Include

Koochiching County presented a mixed picture in digital inclusion. It received:

- 88% of available points for digital inclusion programs for citizens, based on identifying 8 of 10 programs, compared with 66% for the best-of-the-Region and 71% for the global average.
- 20% for digital inclusion programs aimed at organizations, based on identifying only 1 of 5 programs, compared with 60% for the Region and 70% for the global average.



The county's inclusion project earned 52% of available points compared with 60% for the Region and 63% for the global average. Its example was CareerForce, the 2018 relaunch of the Workforce Center. The program offers mobile-friendly, content-rich resources to help the unemployed match skills and interests to careers, get tips on marketing themselves and search thousands of open positions. Support services include job search coaching, technical

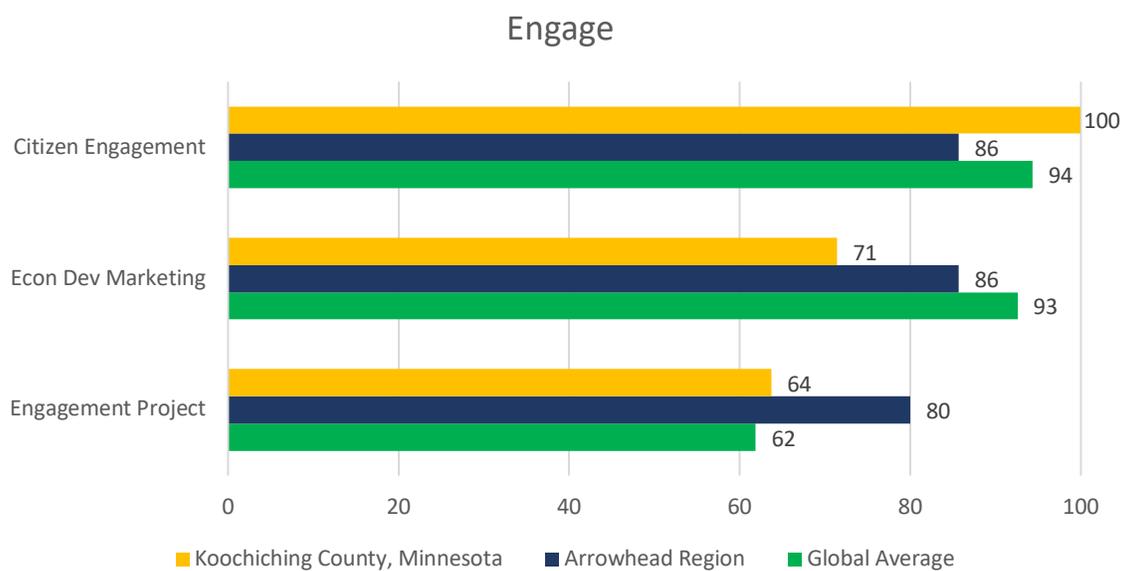
and on-the-job training, access to the computer, printing and scanning equipment at a staffed Career Lab, subsidized work experience and data on wages and demand. The goal of the program is to help fill labor shortages by better matching available individuals with appropriate jobs. The program has yet to publish its results, but its design reflects the current best thinking on increasing labor force participation. The scoring would have been higher, however, if this were specifically a digital inclusion program rather than an employment program making effective use of digital technology.

Engage

Itasca County's scoring on engagement was significantly stronger, including:

- 100% of available points for having a documented engagement strategy and a task force or group charged with carrying it out.
- 100% of available points for citizen engagement, compared with 86% for the best-of-the-Region and 94% for the global average.
- 71% of available points for communicating its economic development story outside the region, compared with 86% for the Region and 93% for the global average.

The county's engagement project received 64% of points, compared with 80% for the best-of-the-Region and 62% for the global average. Its example was Voyage Forward, a response to the closing of the county's largest employer in 2013. Work began with the commissioning of a report on economic development opportunities and challenges prepared by a national consulting firm. It led to collaboration among the county, the city of International Falls and volunteer-led groups focusing on development by 2023 of a strategic plan to develop a skilled, trained and educated workforce. The relatively strong score reflects the collaborative nature of the program and its focus on an issue of burning importance.

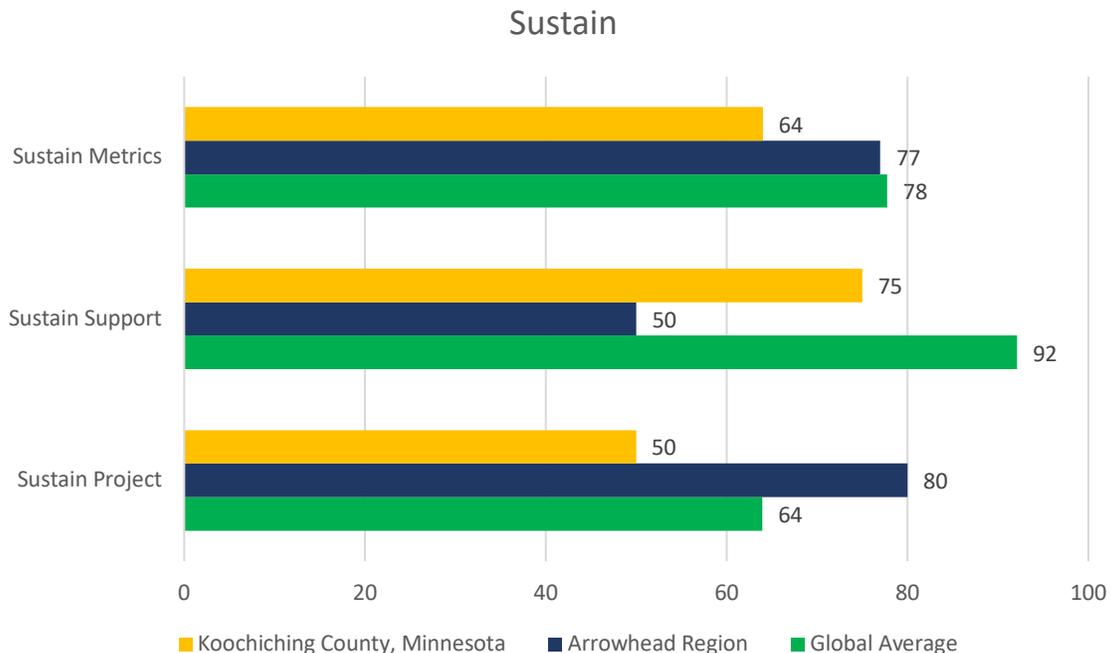


In the ICF Method, engagement means a deliberate effort to help citizens, businesses, institutions and community leader understand the need for change, identify opportunities and become champions of positive change. By engaging the passions and concerns of the community, engagement also energizes economic development, investment attraction and business generation, because the community has built a unique vision of its character and its future. If Voyage Forward accomplishes its 2023 goal, it will have produced much more than a plan: a new community commitment to not be left behind by economic change.

Sustain

Koochiching County provided complete sustainability metrics and described a project, which received the following scoring:

- 64% of available points for its sustainability metrics, compared with 77% for the Region and 78% for the global average
- 75% of points for governmental support of sustainability, based on the existence of policies approved by elected officials, compared with 50% for the Region and 92% for the global average.
- 50% for its sustainability project, compared with 80% for the best-of-the-Region and 64% for the global average.



The county's project was Island View Sanitary Sewer Project, which provided new sewer service to 162 residents and 8 resorts, funded by Federal, state and local monies and homeowner and business assessments. This eliminated the use of septic tanks having a negative impact on the Voyageurs National park region.

For ICF, sustainability is important at the local level for reasons that go beyond preserving the environment on which we all depend. Because it concerns local quality of life, it has the power to engage the community in building a better future, and the habit of engagement inevitably crosses over into other development priorities. It also improves quality of life, which makes the community more attractive to investors and new businesses. And sustainability is becoming a significant growth sector with enormous potential.

The Sewer Project clearly had environmental value, and the project description cited multiple public hearings and leadership by a committee of property owners. The scoring reflects these factors as well as its limited reach, affecting only the residents of Island View, though having an environmental impact much greater than that.

Recommendations

Koochiching County's questionnaire reflects both strengths and weaknesses in its progress, as measured by the ICF Method, though the half-completed questionnaire does not suggest a serious commitment to improvement.

- **Connect.** The county has strong metrics for broadband connectivity, competition and adoption. While waiting to gain the funding needed for a commitment from Paul Bunyon, we recommend the county explore a variety of strategies for extending broadband to unserved households, making selective use of county funds to reduce the risk for private-sector carriers to invest. Satellite internet has also become a compelling option for hard-to-connect locations, with services available from Viasat, Hughes and most recently Starlink with good performance and reasonably competitive costs.
- **Work.** Koochiching County appears to have valuable educational assets, with a commitment to technology in education, high educational attainment and reasonable access to higher education. What is missing is an effort to connect its educational assets with employers and employment opportunities in the county – as well as with a robust innovation program – to help young people find high-quality jobs in the region and encourage the creation of those jobs by employers.
- **Innovate.** E-government is a moderate strength for the county, but it is only one aspect of the creation of an innovation-based economy and by no means the most important one. There is a much larger opportunity to boost the innovation rate of the private sector in the county, which is the single biggest contributor to economic growth. The county has considerable work to do in this area and we recommend the many resources of ICF to guide development of a strategy.
- **Include.** The county appears to be successful at digital inclusion for residents but has missed the opportunity to help offline businesses gain the benefits of digital sales, marketing and operations. With relatively little time and expense, such programs can

generate meaningful new economic growth for employers in the region and should be a priority. Models of successful programs are available from ICF.

- **Engage.** The county received high scores for its engagement strategy and citizen engagement programs, and a moderately high score for its economic development communication. The project description was a strong and inspiring response to a major economic blow. If the momentum can be maintained, it has the potential to empower progress in the Work and Innovate Factors that will generate substantial results.
- **Sustain.** We congratulate the Koochiching County on tracking its environmental metrics, because management is only possible with measurement. Evidence of governmental support is also encouraging. But sustainability can contribute much more to the county than a new sewer system if properly pursued. Success begins with imagination, and ICF can offer multiple examples of successful programs in this area.

Conclusion



As a large rural region of many municipal and county governments, the Arrowhead is diverse in terms of people, landscape, infrastructure and economic activity. The recommendations in this report are based on the ICF Method, which applies the same framework to understanding every community's challenges and recommends similar strategies to all, regardless of size or location.

How those strategies are carried out – and the extent to which they are already in motion – will be different in each one. The goal is not to make all the municipalities and counties within the Arrowhead into identical units; it is to help each fulfill its potential as determined by the ambitions of its leaders and the wishes of the people who call that community home.