



Minnesota MedTech 3.0 will lead a needed transformation to the third frontier of the world’s medical technology (MedTech) industry. To become the global hub of “Smart MedTech,” Minnesota will apply advancements in artificial intelligence (AI), machine learning (ML),

and data science throughout our medical technology economy. It is the intersection of these disciplines that is driving the rapid advancements in MedTech. Breakthroughs in Smart MedTech are revolutionizing healthcare with integrated data, early-stage precise diagnosis, personalized treatment, in-home monitoring, and preventive care. Minnesota will lead this transformation because of our unrivaled MedTech ecosystem and proven infrastructure for commercializing technologies that improve health outcomes. We will drive global leadership in this next frontier by aligning medical device manufacturers, healthcare providers, insurers, information technology firms, private capital, research institutions, government, patients, and workers. Tech Hubs Designation from EDA will help our region catalyze equitable economic growth.

Outcomes: Through Minnesota MedTech3.0 (MMT3.0), Minnesota will achieve globally leading Smart MedTech market share of the measurable growth of firms and their products and solutions, enabling the U.S. to create global separation from emerging markets. We will produce catalytic investment across our regional economy. MMT3.0 collaboration will also create thousands of high-quality, high-wage jobs that can be more readily accessed by under-represented populations. We will continually deliver critical health outcomes through our innovation to drive equitable healthcare and will share results broadly.

Actions: MMT3.0 will create one shared operating system for faster innovation. We will accelerate the pace of Smart MedTech innovation by bringing greater visibility to the patient’s journey and assembling the collaborators that can address each innovation barrier, including regulatory approvals, payor models, and equitable access to resources. We will create structured programs for pre-competitive data and insight sharing among industry, researchers, workers, and others that provide a comprehensive view of market opportunities. Incubator programs that embed top regulatory and technical experts will reduce friction and cost for innovators. Interventions to provide career pathways, venture capital access, and input to the technological development process will be designed around communities historically excluded from the MedTech innovation economy. By syndicating existing infrastructure, private capital, and workforce programs in this new shared operating system, we can fully optimize all our region’s assets like industry lab space, investment firms, and workforce centers of excellence, while also importing proven models from around the world. We will align public and private policies to address additional barriers.

Consortium: Leadership from MedTech innovators prompted the creation of MMT3.0, recognizing that Minnesota is poised to win the next generation of medical technology with breakthrough collaboration from industry, government, economic development, higher education, and workforce. Our operating system for scaling MedTech innovation will be driven from the newly created MMT3.0 Innovation Hub, where a “Regional Innovation Officer” (RIO) and cross-organizational Leadership Council will lead an integrated strategy that centers equity and ensures strong communication, ideation, and execution across four working teams. EDA support will help us move at the speed innovation and global competition requires.

Geography: MMT3.0 is centered in the 15-county Minneapolis-Saint Paul-Bloomington, MN-WI Metropolitan Statistical Area (MSP-MSA), a geography that includes a diverse distribution of socioeconomic, geographic, racial, and ethnic communities. With leadership from statewide institutions and strong relationships throughout Minnesota, MMT3.0 will serve as an epicenter to access points across the state of Minnesota, reaching underserved rural and tribal communities.

Core Technology: MMT3.0 will innovate at the nexus of Key Technology Focus Areas (KTFAs) #7 (medical technology), #1 (AI/ML), and #4 (advanced manufacturing) to create “Smart MedTech.” Smart MedTech is defined by 1) AI-powered devices to better leverage data for remote patient monitoring, earlier and more accurate diagnosis, timely adjustment to device settings for early intervention, and personalized therapies; 2) Enabling technologies, including AI-assisted imaging and guidance, portable point-of-care

diagnostics, and robotic-assisted devices for better and remote diagnostics and procedures; and 3) Smart engagement and access through shared data and digital tools (e.g., Clinical software, portals, information sharing, data analytics, and apps) to support distributed and equity-focused approaches to market growth in the Innovation, MedTech and Healthcare Delivery sectors. Our pursuit is fueled by a complex set of healthcare challenges (e.g. increasing chronic disease burden, costs, access) and technological advancements including the development of AI/ML-based devices.

Key Designation Factors

(1) Technology-based potential for global competitiveness. The global MedTech industry is projected to grow to \$768B over the next five years¹ with the global Smart MedTech market expected to reach \$150B to \$210B by 2030 with CAGR of 15-18%.² The modern MedTech industry was created in Minnesota and has thrived here. Today, we estimate the region produces roughly 3% to 5% of the global economic contribution to MedTech. However, we can increase that share to 8% to 10% over the next decade by becoming a Smart MedTech hub.³ Historically, Minnesota has had a major share of innovation (e.g. 40% of FDA premarket approvals), moving 6.5 months faster than the U.S. average.⁴ Further, FDA510k clearances move 26% faster than the national average, providing a 30-day innovation advantage.⁵ However, foreign competitors such as China are positioning themselves to compete in this next MedTech frontier. Smart MedTech innovation will require the integration of new technologies with the adoption of “ecosystem models,” or networks that more intentionally involve health actors including end users. In the U.S., Smart AI/ML-based medical device approvals are up 20x since 2015.⁶

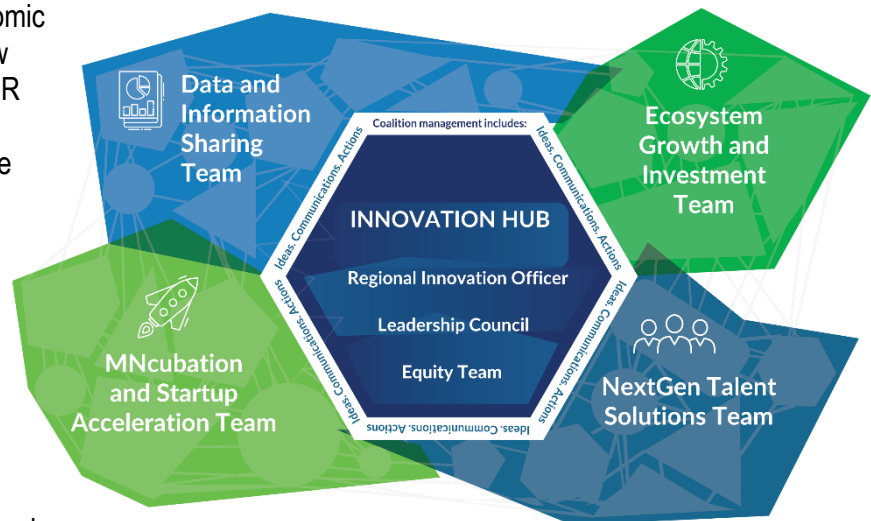
Minnesota boasts a firm foundation on which to build the next MedTech economy. The state is home to 15,000 healthcare organizations⁷ employing more than 469,740 Minnesotans.⁸ The top 15 medical device companies have a presence in the MSP-MSA, including the world’s largest (Medtronic) and many functioning as global or divisional headquarters (e.g. Boston Scientific, Abbott).⁹ Minnesota has the country’s #1 ranked hospital¹⁰ (Mayo Clinic) and features nation-leading health providers (e.g. Allina HealthPartners.) The country’s largest private health insurer, UnitedHealth Group¹¹, is based in the MSP-MSA, along with digital health leader Optum. Minnesota MedTech startups have raised \$6.28B in venture capital since 2019.¹² The University of Minnesota ranks among the top 25 universities in the U.S. for research spending (\$1B+ per year¹³) and its Venture Center has launched more than 200 tech startups since 2006.¹⁴ Private sector R&D spend is substantial (e.g. Medtronic and Boston Scientific spend \$3.7B annually¹⁵.) Minnesota is awarded an average of \$700 million in funding since 2018 from the NIH¹⁶ and features centers like the Visible Heart Lab, a partnership between the University of Minnesota and Medtronic to perform translational systems physiology research, and HealthPartners’ research institute where 400 researchers advance health and clinical practices.¹⁷ The MSP-MSA is also a MedTech talent hub with the highest concentration of medical device manufacturing workers. Advanced manufacturing is a major regional strength as well, with 8,250 companies contributing \$53B to the state economy and accounting for 10% of statewide employment.¹⁸ Minnesota ranks in the top 10 in areas including medical equipment, devices, computer terminals, and semiconductors.¹⁹ The Minnesota State Colleges and Universities system is the third largest in the U.S., serving 300,000 students across several Centers of Excellence, including Advanced Manufacturing, Engineering, Health, and IT.²⁰ Public investments complement private sector leadership in the MSP-MSA and across the state, including \$585 million for Rochester’s Destination Medical Center²¹ and \$100 million for Duluth’s Vision Northland project.²² Minnesota is also supporting MedTech growth through state economic development programs like the Launch Minnesota angel tax credit and innovation grants.²³

To become a Smart MedTech Hub, Minnesota’s leading MedTech assets need to be both better connected and upgraded with AI/ML capabilities. MMT3.0 members are acting. For example, Mayo Clinic Platform aims to become the coordinating epicenter for hundreds of digital healthcare initiatives like an end-to-end, open, and connected AI-driven ecosystem to digitally transform the practice of pathology²⁴ and a

digital endoscopy platform automates image and video acquisition so clinicians can train AI. The University of Minnesota’s Program for Clinical AI connects its Medical, Public Health, and Science and Engineering schools to investigate AI-enabled tools in real-world settings including monitoring AI model performance.²⁵

(2) Role of the private sector: MMT3.0 builds off strong private sector collaboration in Minnesota. Consortium letters illustrate the innovative partnerships across Minnesota’s MedTech ecosystem (e.g. Medtronic and UnitedHealth Group on diabetes patient access, or Allina and HealthPartners partnering on value-based care.) However, MMT3.0 will move Minnesota from existing pairwise industry partnerships to a more deeply collaborative model built with a sustained operating system. In this new model, executive leaders and subject matter experts will engage in the MMT3.0 Innovation Hub, aligning resources such as financial investments and in-kind contributions like lab space. MMT3.0 members will connect their own innovation strategies to MMT3.0 and integrate the job duties of team members with the broader regional coalition. These design principles are informed by other GREATER MSP-led industry coalitions like MBOLD (e.g. General Mills, Cargill) and Minnesota CHIPS (e.g. semiconductor manufacturers, suppliers.) In addition to collaboration among large medical device manufacturers, providers, insurers, and IT companies, MMT3.0 will also enable more complex collaboration among innovation firms supporting MedTech startup growth. Minnesota-based venture capital firms (e.g. Vensana Capital, Brown Venture Group, MSP Equity Fund) currently invest in different business stages, while accelerator programs (e.g. gener8tor, Discovery Launchpad, MNSBIR) provide supportive programming that addresses different barriers. Through MMT3.0 and with EDA support, these and other organizations can connect their actions to maximize their collective impact. Minnesota can also import new programs like Fogarty Innovation that bring new capabilities. Additionally, MMT3.0 will expand upon industry collaboration happening in associations such as the Medical Alley Association, which can expand initiatives like Medical Alley Starts, which provides a global front door and concierge solutions for startups, private equity firms, foreign delegations, and others. The Minnesota Technology Association will align its work leading technology firms to expand talent solutions.

(3) Regional coordination & partnerships: MMT3.0’s lead entity GREATER MSP is a national leader in coordinating regional economic development efforts and building new partnerships. For example, GREATER MSP has helped coordinate 52 MedTech expansion projects over the past dozen years involving leaders from state and local governments, workforce organizations, higher education, and industry. These projects added and retained 6,800 jobs to the regional economy and \$705 million in capital investment.²⁶ As an Accredited Economic Development Organization that develops the region’s Certified Economic Development Strategy, GREATER MSP is uniquely equipped to build the MMT3.0 coalition and work with partners to design a regional operating system that produces equitable economic and health outcomes. Regional innovation strategy will be developed in the MMT3.0 Innovation Hub, where the RIO, additional staff, and cross-sector Leadership Council – which features senior executives with authority to align their organization’s key personnel, infrastructure, and investment – will monitor goals, oversee evidence-based implementation, and assure multi-year funding and in-kind commitment. An Equity Team of DEI leaders



and the Center for Economic Inclusion will work with the RIO and Council to ensure the MMT3.0 operating system is equitably designed. The RIO will be an experienced cross-functional leader with trusted MedTech innovation insight. GREATER MSP will recruit and hire the RIO with a cross-sector regional recruiting team, as it has for several other regional economic coalitions. Across MMT3.0, members are working in four overlapping teams – Data-Enabled Innovation, MNCubation and Startup Acceleration, Ecosystem Growth and Investment, and NextGen Talent Solutions. Consistent communications, decision-making processes, and execution across MMT3.0 will provide increased visibility and results-based accountability throughout the innovation process. EDA investment is critical to driving the integration of so many stakeholders.

(4) Equity and diversity: MMT3.0 reimagines how MedTech innovation occurs and who benefits from its development, including jobseekers, entrepreneurs, and patients. Redesigning the MedTech innovation model opens the door to new products and solutions that solve unmet needs and improve health outcomes while also growing the economy. Here in the MSP-MSA, populations historically underrepresented in MedTech innovation include BIPOC communities and underserved rural communities. Today, BIPOC Minnesotans comprise 26.2% of the region’s population²⁷, including the country’s largest Somali²⁸ and Hmong²⁹ populations and a large urban Native American population. Major economic disparities are illustrated by the racial wage gap of 36.5% between White and BIPOC residents.³⁰ MedTech, with its outsized position in the Minnesota economy and impact on health outcomes, presents a unique opportunity to connect individual actions into an equitable regional strategy. This starts with inclusion. For example, the Shakopee Mdewakanton Sioux Community will coordinate engagement across Minnesota’s tribal nations. New access for entrepreneurs will remove barriers to economic contribution. For instance, Brown Venture Group will expand pioneering work with federal technology transfer offices like NASA and NIH to create licensing agreements for BIPOC entrepreneurs, then partner with U.S. PTO to fast track IP. Career pathways, such as new apprenticeship models, can reach urban and rural campuses in the MSP-MSA and locations like Crookston, Duluth, Morris, and Rochester (University of Minnesota system), MedTech centers like Saint Cloud Technical and Community College and Minnesota State College Southeast (Minnesota State), and Minority-Serving Institutions across Minnesota. Members bring many capabilities to the MMT3.0 Innovation Hub. Allina will apply its approach to Whole Person Care, Medtronic brings supply chain expertise, and the State of Minnesota’s Chief Equity Officer and One Minnesota Council on Inclusion and Equity will bring attention to how people are impacted by decisions across all parts of the state, including rural areas. The MMT3.0 Equity Team, DEIA experts helping the RIO and Council implement an equitable strategy, features leadership from the Center for Economic Inclusion, experienced in helping groups build historical understanding and drive shared accountability.

(5) Composition and capacity of the regional workforce: MMT3.0 will sustain and build upon our region’s leading MedTech workforce. MedTech employment concentration in the MSP-MSA is 4.3x higher than the national average with more than 35,000 workers and an additional 86,000 jobs in MedTech adjacent areas, including AI/ML roles.³¹ These jobs also pay roughly 60% higher than the state average.³² Through MMT3.0, Minnesota will prioritize the sector and key occupations through the development of a comprehensive talent strategy that concentrates resources and scales proven approaches and programs that already exist in the region and in other sectors. Future workforce gaps exist for key Smart MedTech occupations, including skilled technical roles (e.g. software developers, engineers, and data scientists) and frontline roles (e.g. supplier jobs, healthcare support workers, and maintenance).³³ Sales, marketing, and management roles are also in demand. Diversity is already driving current MedTech employment growth, but the region’s comprehensive talent strategy must center equity to realize Minnesota’s potential. (e.g., only 2% of the region’s highly in-demand software developers are Black compared to 9% of the population.)³⁴ The Governor’s Workforce Development Board (GWDB) will bring industry together with labor unions, higher education institutions, local workforce boards, and training providers to co-create the regional talent strategy, applying learnings from these actors’ co-creation of the Minnesota CHIPS

Coalition's semiconductor workforce strategy. MMT3.0 members will align existing assets and capabilities to the MedTech talent strategy. For example, the Minnesota State system includes eight Centers of Excellence serving industries such as healthcare, IT, and advanced manufacturing.³⁵ MMT3.0 will also develop new solutions including a Registered Apprenticeship Program that creates new pathways into the MedTech industry for underserved populations. Career opportunities will align with Good Jobs Principles such as recruitment and hiring, DEIA, organizational culture, and family-sustaining pay.

(6) Innovative “lab to market” approaches: The conventional MedTech innovation cycle involves three stages: 1) initial innovation and funding, 2) development and approval for clinical trials, and 3) regulatory approval and commercialization. Today, all innovators rely on ad hoc collaboration within the healthcare ecosystem to transform a promising idea into an economic growth engine. Currently, innovators lack visibility to patient and provider perspectives, have limited access to capital and lab space, face regulatory uncertainty, and can lack experience navigating non-technical aspects such as business model development and manufacturing. Smart MedTech innovators also face additional barriers due to their unique dependencies on data sharing and stakeholder collaboration. MMT3.0 will transform Minnesota MedTech from a set of strong but disconnected solutions to an integrated strategy that scales existing programs and supports the creation of new solutions. For example, programs that include key stakeholders early and often in the process, create equitable access to resources, and improve lab-to-market success rates for innovators throughout Minnesota. MMT3.0 will create a groundbreaking shared operating protocol for networked and pre-competitive data where device manufacturers, providers, insurers, technology firms and others can collaboratively share information and engage on a case-by-case basis in specific disease or technology areas. An expanded concierge model will support innovators at every step of the journey, provide support for clinical trial and reimbursement approvals and facilitate technology exchange from startups to larger members. MMT3.0 will scale proven incubator programs that accelerate the integration of new technologies into care pathways by assuming financial risk of development, clinical trials, and regulatory approval, while involving FDA reviewers and scientists to expedite approvals. Increased access to space and greater access to early-stage entrepreneur support will also nurture a self-perpetuating and accessible innovation ecosystem for business growth. MMT3.0 fellowship and entrepreneur mentorship and training programs will open doors to business ownership. MMT3.0 will also help minimize policy and regulatory barriers, attract private equity for focused populations, incentivize workforce innovations, and build key infrastructure, ensuring the world's globally leading ecosystem for Smart MedTech

(7) Impact on economic and national security of the entire United States: MedTech innovation is paramount to the country's economic and national security, as clearly evidenced during the global pandemic. The U.S. developed the modern MedTech industry and still leads in this technology, but the industry is changing fast. Other nations are developing their capabilities quickly by accelerating their pace of innovation. China especially has developed a national industrial policy to achieve leading global competitiveness in the MedTech sector with more than 3,500 Chinese MedTech startups reaching public offering in 2022.³⁶ In addition to accelerating innovation, MMT3.0 will strengthen supply chain resilience as U.S.-based startups and market growth are catalyzed along the medical device value chain from sub-component part suppliers to MedTech manufacturers, all the way to deployment, monitoring, and maintenance technologies. Driving American supply chain growth will aid national security by securing the domestic value chain and providing resilience against the cascading impacts of supply chain disruptions caused by climate-driven disasters (e.g. Hurricane Maria). Finally, ensuring the integrity of a U.S. based Smart MedTech ecosystem protects data privacy and cybersecurity, as well as public health.

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- ¹ Evaluate Ltd, Total WW Medical Device Market Report. Report pulled on July 19th, 2023.
- ² Market size and growth rates calculated by comparing industry vendor reports and modeling future U.S. Smart MedTech sales using NAICS codes 334510, 334517, and 32541 and scaling to the global market size. Reports include [Market Research Future](#), [Allied Market Research](#), [Data Bridge Market Research](#).
- ³ Lightcast, Q2 2023 Data Set, Report pulled July 2023, was used to quantify the number of MedTech jobs in MN based on the NAICS codes 334510, 334517, 339112, 339113, 339114, 339115, 339116, 325413. MN share of the global MedTech market was quantified by building a model to estimate MedTech sales attributable to MN-based MedTech jobs over the next decade if MMT3.0 is established and market growth achieves rate comparable to the Smart MedTech industry (CAGR of 15% to 18% over the next decade).
- ⁴ Medical Alley analysis based on Evaluate database of FDA approval of pre-market approval devices.
- ⁵ Medical Alley analysis based on Evaluate database of FDA approval of pre-market approval devices.
- ⁶ <https://www.medtechdive.com/news/FDA-AI-ML-medical-devices-5-takeaways/635908/>
- ⁷ Medical Alley analysis based on Bureau of Labor Statistics Quarterly Census of Employment and Wages.
- ⁸ GREATER MSP analysis using Lightcast
- ⁹ <https://www.medicaldesignandoutsourcing.com/2022-big-100/>
- ¹⁰ <https://www.newsweek.com/rankings/worlds-best-hospitals-2023/united-states>
- ¹¹ [Insurance Business, "The largest insurance companies in the US" \(link here\)](#)
- ¹² Medical Alley analysis based on PitchBook venture capital investment database.
- ¹³ <https://president.umn.edu/research-powerhouse>
- ¹⁴ <https://research.umn.edu/units/techcomm/startups/university-startups>
- ¹⁵ See: Consortium letters from Medtronic, Boston Scientific
- ¹⁶ [NIH Awards by Location and Organization \(link here\)](#)
- ¹⁷ See: Consortium letter from HealthPartners
- ¹⁸ <https://mn.gov/deed/joinusmn/key-industries/advanced-manufacturing/>
- ¹⁹ <https://mn.gov/deed/joinusmn/key-industries/advanced-manufacturing/>
- ²⁰ <https://www.minnstate.edu/system/index.html>
- ²¹ Rochester Post Bulletin. February 6 2023 ([link here](#))
- ²² <https://www.mprnews.org/story/2019/06/05/duluth-readies-for-massive-medical-investment>
- ²³ <https://mn.gov/launchmn/>
- ²⁴ <https://www.mayoclinicplatform.org/>
- ²⁵ <https://med.umn.edu/clhss/clinical-ai>
- ²⁶ GREATER MSP analysis
- ²⁷ U.S. Census Bureau's Population Estimates for the Minneapolis-St. Paul-Bloomington MSA.
- ²⁸ [MinnPost, July 11, 2023 \(link here\)](#)
- ²⁹ [Pew Research Center, Top 10 metropolitan areas by Hmong Population \(link here\)](#)
- ³⁰ Analysis of the 2021 American Community Survey (ACS) for Minneapolis-St. Paul MSA.
- ³¹ Lightcast, Q2 2023 Data Set. Report pulled July 2023. NAICS codes for this analysis included: MedTech industry= 334510, 334517, 339112, 339113, 339114, 339115, 339116, 325413; MedTech adjacent= 325411, 325412, 325414, 339920, 541380, 621511, 621512, 621111, 621112, 621210, 621310, 621320, 621330, 621340, 621391, 621399, 621511, 621512, 532283, 423450, 541715.
- ³² (See: Previous citation)
- ³³ Lightcast, Q2 2023 Data Set. Report pulled July 2023. MedTech industry NAICS codes for this analysis included 334510, 334517, 339112, 339113, 339114, 339115, 339116, 325413.
- ³⁴ Lightcast, Q2 2023 Data Set for Minneapolis MSA. Report pulled July 2023.
- ³⁵ <https://www.minnstate.edu/coe/index.html>
- ³⁶ Internal Medtronic analysis on Hong Kong, Shanghai, and Shenzhen Stock Exchange Markets.