

Recommendations			Key Words	General Findings														Industry Findings (if specific are explicit here)					
Theme	Key Recommendation	Enabling Recommendation		Industry has slow adoption	Lack of national coordination	Hinderance of innovation	Lack of Equity & Opportunities	Significant Barriers for "Small" businesses	Startups that drive new technology	Requires new business models / platforms to scale	Interoperability Challenge	Connectivity Challenges	Lack of Trust	AI critical to unlocking value of IoT	Insufficient people / skills	Business Ecosystem partnerships needed for solutions	Convergence of AI /IoT	Agriculture: slow adoption	Communities/ Infrastructure: limited slow to develop	Transportation: Analytics needed to improve	Healthcare: Challenges to transform	Environmental / Sustainability	Public Safety
LEADERSHIP	Key Recommendation KR1.1: Establish a strategic national approach for taking full advantage of the opportunity presented by the IoT.		Strategic national approach	X	X	X	X	X	X					X	X	X							
LEADERSHIP		Enabling Recommendation ER1.1.1: Strongly consider including IoT in the federal critical and emerging technology list.	emerging technology list (& IoT maturity)			X			X							X							
LEADERSHIP		Enabling Recommendation ER1.1.2: Further improve and elevate inter-agency coordination.	inter-agency coordination		X				X							X							
LEADERSHIP		Enabling Recommendation ER1.1.3: Fully fund existing IoT research, development, deployment and demonstrations.	fully fund research and dev	X		X	X	X									X						
LEADERSHIP		Enabling Recommendation ER1.1.4: Upgrade legacy federally-owned or operated IoT infrastructure that is integrated into government facilities, assets, and operations. (Updated)	upgrade legacy infrastructure	X					X										X				
LEADERSHIP		Enabling Recommendation ER1.1.5: Specify and use, for federally-funded projects, IoT technologies and applications that are energy efficient, sustainable, and "smarter"	specify and use IoT technologies in federal projects	X		X	X	X					X			X	X						
LEADERSHIP		Enabling Recommendation ER1.1.6: Continue to support and fund technology research, through industry, university and its national labs, to further advance and accelerate the development of IoT technologies and its enabling infrastructure.	fund research and develop technologies	X		X		X	X		X			X		X							
LEADERSHIP		Enabling Recommendation ER1.1.7: Lead the way in facilitating IoT adoption promotion by adopting IoT technologies and systems for its own internal operations and needs. (New)	lead way in adoption and promotion of IoT in existing operations	X		X				X				X		X							
LEADERSHIP	Key Recommendation KR1.2: Accelerate IoT technology adoption as well as manufacturing for small businesses and startup organizations. This can be done via policies, procedures, and funding methods that specifically target them.		Acceleration of adoption	X		X		X		X						X	X						
LEADERSHIP		Enabling Recommendation ER1.2.1: Accelerate adoption of IoT technologies manufactured by small business and startup organizations through Targeted Federal Government programs, policies, procedures, and funding methods.	policies, procedures, funding to accelerate adoption	X		X		X		X						X	X						
LEADERSHIP		Enabling Recommendation ER1.2.2: Accelerate the adoption of IoT technologies manufactured by small business and startup organizations.	focus on startup organizations					X	X	X						X							
LEADERSHIP	Key Recommendation KR1.3: Promote international collaboration in IoT adoption across global supply chains to share knowledge, best practices, and resources.		supply chain		X	X				X	X					X	X						
LEADERSHIP		Enabling Recommendation ER1.3.1: Create internationally-compatible data minimization guidance related to IoT devices, aligning with the NIST Privacy Framework and NIST Cybersecurity Framework principles.	specific data minimization guidance			X				X	X		X										
MODERNIZE	Key Recommendation KR2.1: Promote collaborative development across industries to adopt existing industry standards and protocols.			X							X		X			X	X						
MODERNIZE		Enabling Recommendation ER2.1.1: Advocate for the implementation and adoption of interoperable data standards for public safety IoT.	interoperable standard for public safety	X							X												X
MODERNIZE		Enabling Recommendation ER2.1.2: Promote and, if necessary, develop a protocol for data exchange standards for IoMT (Internet of Medical Things) for interoperability, and promote the adoption of these standards.	data exchange interoperability and standards IoMT	X							X									X			
MODERNIZE		Enabling Recommendation ER2.1.3: Promote the development and use of standards for supply chain logistics, traceability, and assurance.	standards for supply chain / logistics	X						X	X					X	X						
MODERNIZE		Enabling Recommendation ER2.1.4: Promote standards and protocols for IoT technology in supply chain management to provide assurance of interoperability, reliability, and security across various IoT systems and devices.	Standards for IoT technology in supply chain management	X							X		X		X	X							



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TRUST		Enabling Recommendation ER3.3.9: Follow NIST sanitization standards for government automobiles before resale, and encourage NIST sanitization standards for automobiles before resale.	sanitization standards for government resale of automobiles	X							X		X							X				
TRUST	Key Recommendation KR3.A: Support trusted IoT architectures and infrastructure that enable supply chain provenance, and traceability of IoT systems starting from chip design and manufacturing. (Updated)			X	X					X			X			X								
TRUST		Enabling Recommendation ER3.4.1: Incentivize trusted multi-stakeholder alliances and collaboration networks to speed development and adoption of connected end-to-end IoT solutions. (Updated)	incentivize stakeholders and speed adoption end to end	X	X					X			X			X								
TRUST		Enabling Recommendation ER3.4.2: Promote collaborative IoT platforms that align stakeholder business incentives and encourage businesses to work together, fostering innovation, efficiency, and competitiveness. (Updated)	promote collaborative IoT platforms	X	X					X			X			X								
TRUST		Enabling Recommendation ER3.4.3: Encourage trusted digital twins and digital threads for accelerating IoT adoption across supply chains and IoT application markets. (Updated)	digital twins and threads across markets	X	X					X			X			X								
TRUST		Enabling Recommendation ER3.4.4: Facilitate the creation of IoT business ecosystems that enable new business models and revenue streams. (Updated)	creation of ecosystems to enable models and revenue	X	X					X			X			X								
TRUST		Enabling Recommendation ER3.4.5: Promote consistent levels of IoT device hardware and software identity documentation information included in trusted digital threads for Software IoT supply chains. (Updated)	consistent levels of IoT documentation in digital threads	X	X					X			X			X								
WORKFORCE	Key Recommendation KR4.1: Integrate the needs of the future IoT workforce into existing initiatives and programs with industry, academia and state and local government efforts. (Updated)			X	X		X	X							X									
WORKFORCE		Enabling Recommendation ER4.1.1: Review the National Cyber Workforce and Education Strategy and align and integrate any special or unique needs and considerations of the IoT workforce. (Updated)	Align and integrate workforce needs to strategy	X	X		X								X									
WORKFORCE		Enabling Recommendation ER4.1.2: Collaborate with industry, academia, and state and local government to create an IoT trained workforce embedded in target high priority industry sectors. (Updated)	collaborate and create workforce	X	X		X	X							X									
WORKFORCE		Enabling Recommendation ER4.1.3: Collaborate with industry, academia, state and local governments and private investors to create and place workforce in industries and areas of opportunity. (Updated)	collaborate and place workforce in areas of opportunity	X			X	X							X									
WORKFORCE		Enabling Recommendation ER4.1.4: Establish "student loan forgiveness" programs in exchange for providing critical emerging technology (IoT, data science, cybersecurity, etc.) skills to municipalities and agencies.	student loan forgiveness programs				X								X									
ADOPTION	Key Recommendation KR5.1: Consider new financial models for sustaining and supporting programs when considering IoT project feasibility.			X		X	X	X																
ADOPTION		Enabling Recommendation ER5.1.1: Encourage other financial or funding models to help adopting organizations to sustain and support IoT projects.	financial for funding models to sustain projects	X		X		X																
ADOPTION		Enabling Recommendation ER5.1.2: Develop programs and grants to help underserved and less developed communities benefit from IoT adoption.	program and grants to underserved	X			X	X																
ADOPTION	Key Recommendation KR5.2: Develop a comprehensive Agricultural IoT Strategy.			X	X	X			X	X	X	X				X		X						
ADOPTION		Enabling Recommendation ER5.2.1: The government should consider fully funding the deployment of a "farm of the future" setup in representative universities nationwide. This nationwide test farm IoT network should span different forms of agriculture, including, but not limited to: broadacre, horticulture, livestock, and aquaculture.	farm of future	X		X			X	X		X				X		X						
ADOPTION		Enabling Recommendation ER5.2.2: Support and promote industry and Standards Development Organization (SDO) efforts to address interoperability of agricultural systems and machinery.	interoperability of agriculture machines			X					X	X						X						
ADOPTION		Enabling Recommendation ER5.2.3: Facilitate small farm/ranch adoption of IoT technologies.	small farms/ranch adoption of IoT technologies			X	X											X						
ADOPTION		Enabling Recommendation ER5.2.4: Support enactment of federal "right to repair" legislation to address the inability of agricultural producers to service their smart equipment.	federal right to repair legislation to address inability			X				X			X					X						
ADOPTION		Enabling Recommendation ER5.2.3: Provide overarching regulatory guidance for the drone industry. (Updated)	provide overarching drone guidance		X	X					X							X						
ADOPTION	Key Recommendation KR5.3: The government should implement specific actions to further promote IoT adoption through smart communities.			X	X	X				X	X					X		X						
ADOPTION		Enabling Recommendation ER5.3.1: The government should facilitate and support the development and use of smart community and "IoT-related sustainable infrastructure" reference models.	smart community infrastructure reference models	X		X				X	X								X					
ADOPTION		Enabling Recommendation ER5.3.2: Develop Smart Community and Sustainability Extension Partnerships (SCSEPs).	partnerships						X	X						X			X					

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ADOPTION		Enabling Recommendation ERS 3.3: The government should facilitate opportunities for adoption and equity of benefits of IoT and smart technologies for local communities.	facilitate opportunities and equity of benefits for local communities		X		X												X					
ADOPTION		Enabling Recommendation ERS 3.4: Facilitate smart community opportunities and IoT adoption for rural communities that have broadband infrastructure, have received broadband infrastructure funding or have completed broadband infrastructure build-outs.	broadband infrastructure buildout	X					X			X							X					
ADOPTION		Enabling Recommendation ERS 3.5: Support and promote industry and SDO efforts to address interoperability of smart communities (including smart buildings, energy and utilities, traffic).	interoperability of smart communities cross sector	X	X						X							X	X	X	X	X	X	
ADOPTION		Enabling Recommendation ERS 3.6: Facilitate small to medium city adoption of smart community technologies.	small to medium city adoption of smart community technologies	X				X											X					
ADOPTION		Enabling Recommendation ERS 3.7: Facilitate equity in realization of smart community benefits.	equity in community benefits				X	X											X					
ADOPTION	Key Recommendation KRS 4: Promote IoT adoption that will improve public safety.				X		X	X					X										X	
ADOPTION		Enabling Recommendation KRS 4.1: Create a stockpile of public safety IoT devices that is available for immediate access. (Revision needed)	stockpile		X																		X	
ADOPTION		Enabling Recommendation KRS 4.2: Include privacy and data usage policies in federally-funded public safety and smart community projects that use IoT technologies.	privacy and data use policies in fed funded public safety / cmm projects										X						X				X	
ADOPTION		Enabling Recommendation KRS 4.3: Include IoT considerations (including IoT adoption and utilization plans) in federal procurements that support public safety applications.	IoT adoption considerations in procurement	X		X							X										X	
ADOPTION		Enabling Recommendation KRS 4.4: Create a program that enables local communities to purchase IoT systems or IoT enabled systems for public safety applications.	program that enables local communities to purchase IoT systems	X			X	X															X	
ADOPTION	Key Recommendation KRS 5: Promote IoT adoption in the health care industry			X	X	X	X					X	X	X	X	X					X			
ADOPTION		Enabling Recommendation ERS 5.1: Promote IoTMT as an enterprise priority, including to healthcare facilities' leadership teams.	Promote IoTMT as enterprise priority to leadership teams	X												X					X			
ADOPTION		Enabling Recommendation ERS 5.2: Facilitate cybersecurity in IoT in smart medical devices and equipment, including wearables, in-home devices, community IoT-related systems, and a continuum of care.	cyber in IoT in healthcare devices	X	X								X								X			
ADOPTION		Enabling Recommendation ERS 5.3: Facilitate and support the use and adoption of healthcare IoT in rural communities.	use and adoption of healthcare IoT in rural	X	X		X					X									X			
ADOPTION		Enabling Recommendation ERS 5.4: Facilitate the adoption of AI in IoT in healthcare through improved AI research, development and workforce incorporation.	AI in IoT healthcare research and workforce	X										X	X						X			
ADOPTION		Enabling Recommendation ERS 5.5: Enact HIPAA-like protection for users' medical data in mobile applications and IoT devices.	HIPAA like protection for users' medical data in mobile/IoT devices			X							X								X			
ADOPTION	Key Recommendation KRS 6: Promote IoT adoption that will improve sustainability and environmental monitoring.			X	X	X			X	X				X		X						X		
ADOPTION		Enabling Recommendation ERS 6.1: Support development of IoT environmental data repositories to better enable open and available data. (Needs discussion)	support development of IoT data repositories keeping data open/avail	X		X			X							X						X		
ADOPTION		Enabling Recommendation ERS 6.2: Facilitate and support the research, development and deployment of low cost Air Quality sensors.	research/dev of low cost air quality sensors	X	X				X	X												X		
ADOPTION		Enabling Recommendation ERS 6.3: Implement a nationwide IoT-based Water Monitoring Infrastructure) to expand the nationwide water monitoring system, including water treatment facilities.	Imp nationwide IoT based water monitoring infrastructure			X								X		X						X		
ADOPTION		Enabling Recommendation ERS 6.5: Facilitate and promote the use and integration of IoT technologies to complement and support wide area environmental situational awareness capabilities to monitor and inform on a variety of environmental conditions and hazards in environmentally sensitive areas.	promote use of IoT technologies to complement wide area situational awareness capabilities for hazards	X	X	X			X					X		X						X		
ADOPTION	Key Recommendation KRS 7: Promote IoT adoption in Smart Transit and Transportation.			X	X			X												X				
ADOPTION		Enabling Recommendation ERS 7.1: Promote development and adoption of policies, procedures and funding methods that can accelerate the adoption of smart, connected, and electrified transportation technologies.	policies for smart transport	X	X			X												X				
ECONOMY	Key Recommendation KRS 1: Monitor and evaluate progress of IoT adoption for supply chain logistics.			X	X				X							X								
ECONOMY		Enabling Recommendation ERS 1.1: Establish and provide financial incentives to encourage businesses to adopt IoT technologies in their supply chain operations by reducing the initial investment costs and perceived risks associated with the implementation of IoT solutions. (Revised)	financial incentives to encourage businesses	X	X				X							X								
ECONOMY		Enabling Recommendation ERS 1.2: Apply an appropriate mix of policies, incentives, and requirements to support sustainable and scalable growth in the domestic IoT manufacturing supply chain. (Revised)	mix of policies incentives and req to support sustainable IoT supply chain	X	X											X								



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