

# Summary of the PRISM R&D Models

## 2020 PRISM R&D Model Budget allocation target measures

Area name	Ministry/agency name	PRISM target measure name	Area name	Ministry/agency name	PRISM target measure name
<b>AI Technology area</b> (Eight measures)	Ministry of Health, Labour and Welfare	Construction and expansion of the disease database to accelerate drug discovery	<b>Bio technology area</b> (11 measures)	Ministry of Land, Infrastructure, Transport and Tourism	Research and development (R&D) project for implementation of large-scale timber construction contributing to wood demand
	Ministry of Education, Culture, Sports, Science and Technology	Development of algorithms to infer drug targets		Ministry of Health, Labour and Welfare	Development of AI for microbiome analysis to accelerate personalized prevention of diabetes
	Ministry of Agriculture, Forestry and Fisheries	Smartification of large-scale facility production and breeding utilizing AI		Ministry of Health, Labour and Welfare	Proof of concept for data linkage to establish next-generation infrastructure for biomedical data
	Ministry of Education, Culture, Sports, Science and Technology	Development of odor sensors and moisture sensors for agriculture and livestock		Ministry of Health, Labour and Welfare	Microbiome and biomarker analysis related to dementia
	Ministry of Internal Affairs and Communications National Police Agency	Survey and examination for the development of 5G networks utilizing traffic signals/Survey and study for utilizing traffic signals to build 5G networks		Ministry of Agriculture, Forestry and Fisheries	Development of data platforms for functional modules of the genome editing enzyme
	Ministry of Health, Labour and Welfare	Development of frailty prevention AI by utilizing ICT, etc., verification of its effect, and expansion of data federation		Ministry of Agriculture, Forestry and Fisheries	Acceleration of breeding in private company by the construction of GR genome database
	Ministry of Land, Infrastructure, Transport and Tourism	Productivity revolution based on the development of port-related data federation		Ministry of Education, Culture, Sports, Science and Technology	Remoteization and automation of the use of fundamental shared research facilities in materials science
	Ministry of Agriculture, Forestry and Fisheries	Development of common basic technology to accelerate the development of educational content for the succession of skills of skilled farmers		Ministry of Education, Culture, Sports, Science and Technology	Development of automation and remote control system for Spring-8
<b>Technical area of innovative construction and infrastructure maintenance/innovative disaster prevention and disaster mitigation</b> (12 measures)	Ministry of Land, Infrastructure, Transport and Tourism	Promotion of i-Construction [Data infrastructure] Establishment of "Data platforms for the entire infrastructure sector"		Ministry of Economy, Trade and Industry	Remoteization and full automation of biofoundry facility to accelerate construction of smart cells
	Ministry of Land, Infrastructure, Transport and Tourism	Promotion of i-Construction [Research/Survey/Design] 3D design system development that can be used for advanced laser surveying and construction maintenance		Ministry of Agriculture, Forestry and Fisheries	Development of remote access to shared and automated scientific instrumentation for innovation in agricultural chemicals and animal drug discovery research
	Ministry of Land, Infrastructure, Transport and Tourism	Promotion of i-Construction [Construction/supervision inspection] Automatic control/group control of construction machinery for the realization of unmanned construction sites, 3D construction of construction data, and development of inspection technology based on such data		Ministry of Land, Infrastructure, Transport and Tourism	Remote-controllable and automatic research facilities contributing to promote large-scale buildings using wood
	Ministry of Land, Infrastructure, Transport and Tourism	Realization of efficient and effective infrastructure maintenance and renewal	<b>Quantum technology area</b> (Two measures)	Ministry of Education, Culture, Sports, Science and Technology	Establishment of development environment and verification equipment for quantum AI technology development
	Ministry of Land, Infrastructure, Transport and Tourism	[Operation & Maintenance] Research and development related to early detection, cause analysis, and repair of parts requiring repair by AI analysis of infrastructure data		Ministry of Education, Culture, Sports, Science and Technology	Development of full-scale experimental environment for quantum life technology development
	Ministry of Education, Culture, Sports, Science and Technology	Construction of disaster prevention information service platform through public-private partnership and promotion of appropriate disaster response *Original measure name: Analysis of long-period seismic motion, detailed seismic intensity distribution, etc., and promotion of emergency response based on such analysis results	<b>Remoteization and automation of research facilities</b> (Four measures)	Ministry of Education, Culture, Sports, Science and Technology	"Remoteization and automation of solid/liquid high magnetic field NMR (for RIKEN)"
	Ministry of Land, Infrastructure, Transport and Tourism	Development of automatic detection and course prediction systems for tornadoes, etc.		Ministry of Education, Culture, Sports, Science and Technology	Remoteization and automation of the use of fundamental shared research facilities in materials science (for NIMS)
	Ministry of Agriculture, Forestry and Fisheries	Development of flood prevention systems utilizing the water retention function of fields		Ministry of Education, Culture, Sports, Science and Technology	Remoteization and automation of J-PARC specific neutron beam facilities (for JAEA)
	Ministry of Land, Infrastructure, Transport and Tourism	Promotion of emergency response by providing weather and river water level information		Ministry of Education, Culture, Sports, Science and Technology	Development of facilities and equipment for automation of QST quantum beam applied research (for QST)
	Ministry of Agriculture, Forestry and Fisheries	Development of forest land collapse prediction systems			
	Ministry of Land, Infrastructure, Transport and Tourism	Promotion of emergency response by early development of temporary/reconstruction housing			
	Ministry of Internal Affairs and Communications	Coordination of local government/lifeline information utilizing L alert			

\*"Quantum technology area": The Quantum Technology and Innovation Strategy was formulated in January 2020 and set up in June 2020.

\*"Remoteization and automation of research facilities": In order to respond flexibly to COVID-19, based on the operational guidelines of Public/Private R&D Investment Strategic Expansion Program, the Governing Board directly selected and decided the measures in June 2020.

# Summary of the PRISM R&D Models

## 2021 PRISM R&D Model Budget allocation target measures

Area name	Ministry/agency name	PRISM target measure name	Area name	Ministry/agency name	PRISM target measure name
AI technology area (Eight measures)	Ministry of Internal Affairs and Communications National Police Agency	National Police Agency Survey and examination for the development of 5G networks utilizing traffic signals/Survey and study for utilizing traffic signals to build 5G networks	Bio technology area (10 measures)	Ministry of Health, Labour and Welfare	Development of AI for microbiome analysis to accelerate personalized prevention of diabetes
	Ministry of Agriculture, Forestry and Fisheries	Acceleration of the construction of agricultural data aggregation measures and the development of AI technology for pest diagnosis using them		Ministry of Health, Labour and Welfare	Proof of concept for data linkage to establish next-generation infrastructure for biomedical data
	Ministry of Agriculture, Forestry and Fisheries	Acceleration of smart breeding technique development using next-generation cultivation system		Ministry of Health, Labour and Welfare	Microbiome and biomarker analysis related to dementia
	Ministry of Education, Culture, Sports, Science and Technology	Development of odor sensors for agriculture and livestock		Ministry of Agriculture, Forestry and Fisheries	Establishment of genome editing enzyme data platform for functional modules
	Ministry of Health, Labour and Welfare Ministry of Education, Culture, Sports, Science and Technology	Construction and expansion of the disease database to accelerate drug discovery/ Development of algorithms to infer drug targets		Ministry of Agriculture, Forestry and Fisheries	Acceleration of breeding in private company by the construction of GR genome database
	Ministry of Health, Labour and Welfare	Development of frailty prevention AI by utilizing ICT, etc., verification of its effect, and expansion of data federation		Ministry of Land, Infrastructure, Transport and Tourism	Research and development (R&D) project for implementation of large-scale timber construction contributing wood demand
	Ministry of Internal Affairs and Communications	AI technology that estimates perceptual information from brain information (Acceleration of social implementation of the AI strategy 2019/core basic research)		Ministry of Education, Culture, Sports, Science and Technology	Development of "You on a chip" for precision analysis
	Ministry of Agriculture, Forestry and Fisheries	Advanced smart agriculture through data-driven soil maintenance		Ministry of Agriculture, Forestry and Fisheries	Development of high-performance bio-plastics containing high biomass
				Ministry of Education, Culture, Sports, Science and Technology	Sustainable agriculture through agri-biotech of nutrient flow control
Technical area of innovative construction and infrastructure maintenance/ innovative disaster prevention and disaster mitigation (12 measures)	Ministry of Land, Infrastructure, Transport and Tourism	Promotion of i-Construction [Data infrastructure] Establishment of "Data platform for the entire infrastructure sector"		Ministry of Agriculture, Forestry and Fisheries	Development of biopharmaceutical supply technology targeting animal drugs
	Ministry of Land, Infrastructure, Transport and Tourism	Promotion of i-Construction [Research/Survey/Design] 3D design system development that can be used for advanced laser surveying and construction maintenance	Quantum technology area (Four measures)	Ministry of Education, Culture, Sports, Science and Technology	Ultra-high-speed, high-performance cooling atomic quantum simulator/computer sophistication
	Ministry of Land, Infrastructure, Transport and Tourism	Promotion of i-Construction [Construction/supervision inspection] Automatic control/group control of construction machinery for the realization of unmanned construction sites, 3D construction of construction data, and development of inspection technology based on such data		Ministry of Education, Culture, Sports, Science and Technology	Advancement of neutron diffractometers for acquisition of biopolymer structure information using quantum technology (Formation of quantum life science research facilities)
	Ministry of Land, Infrastructure, Transport and Tourism	[Operation & Maintenance] Research and development related to early detection, cause analysis, and repair of parts requiring repair by AI analysis of infrastructure data		Ministry of Education, Culture, Sports, Science and Technology	Improvement of the efficiency of biological function measurement using quantum technology (Formation of quantum life science research facilities)
	Ministry of Internal Affairs and Communications	Coordination of local government/lifeline information using L alert		Ministry of Education, Culture, Sports, Science and Technology	Acceleration of deviceization of quantum functional materials
	Ministry of Education, Culture, Sports, Science and Technology	Construction of disaster prevention information platforms through public-private partnership and promotion of appropriate disaster response *Original measure name: Analysis of long-period seismic motion, detailed seismic intensity distribution, etc., and promotion of emergency response based on such analysis results	*As of June 2021 Budget allocation target measures are scheduled to be added during FY2021		
	Ministry of Land, Infrastructure, Transport and Tourism	Promotion of emergency response by providing weather and river water level information			
	Ministry of Land, Infrastructure, Transport and Tourism	Development of automatic detection and course prediction systems for tornadoes, etc.			
	Ministry of Land, Infrastructure, Transport and Tourism	Promotion of quick recovery by determining damage to buildings utilizing digital data			
	Ministry of Land, Infrastructure, Transport and Tourism	Realization of efficient and effective infrastructure maintenance and renewal utilizing data			
	Ministry of Agriculture, Forestry and Fisheries	Development of reservoir resilience and flood control function enhancement technology for basin hydraulic control			
	Ministry of Land, Infrastructure, Transport and Tourism	Development of flood damage control technology for wooden houses to reduce damage in basin hydraulic control			