

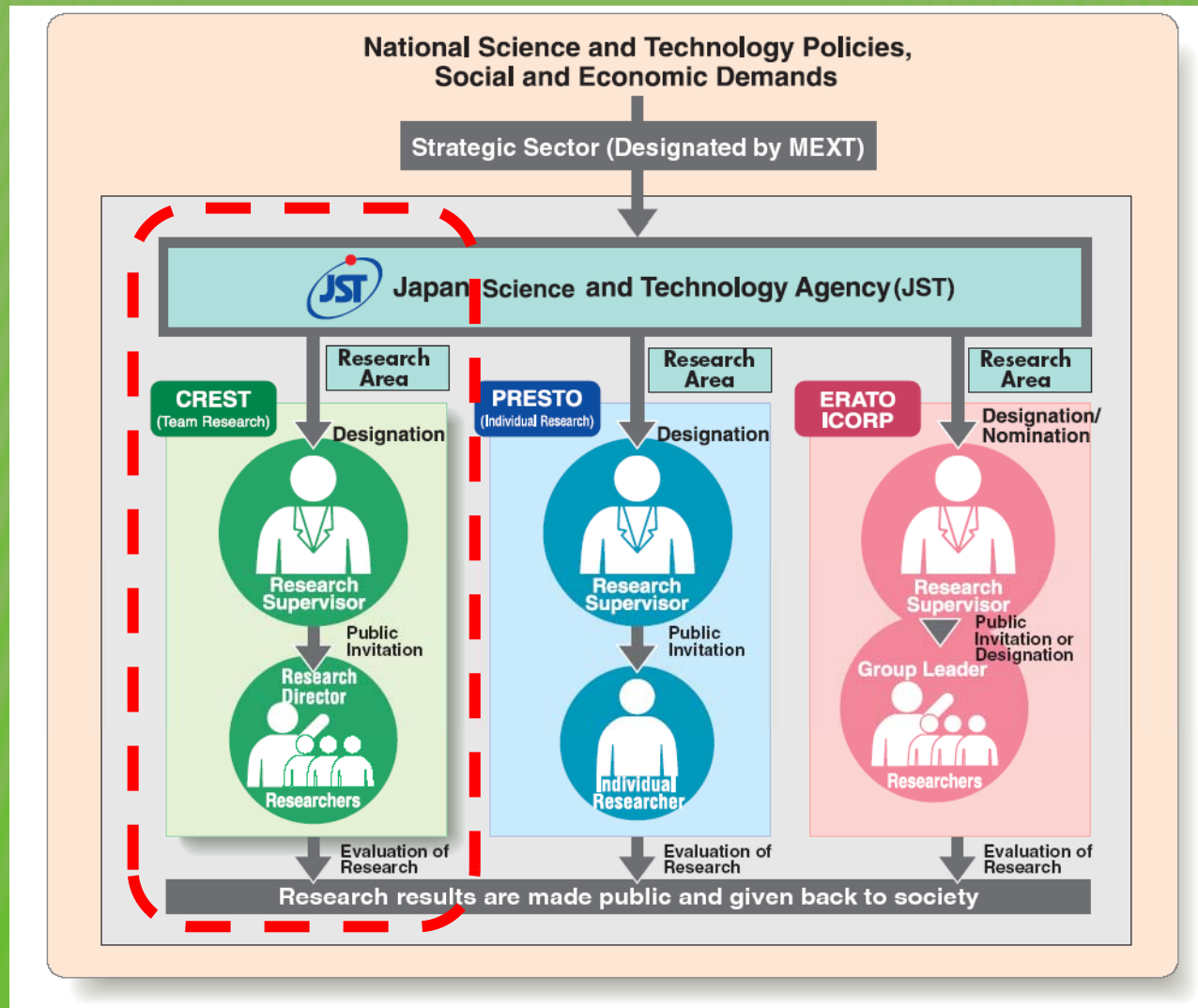
# CREST

**CORE RESEARCH FOR EVOLUTIONAL SCIENCE AND TECHNOLOGY**

Department of Inclusive Research Administration




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# WHAT IS CREST? *ONE OF JST BASIC RESEARCH PROGRAMS*



# WHAT IS CREST ?

ONE OF JST BASIC RESEARCH PROGRAMS

Program	Type of Promotion	# of Teams/ Researchers in a Research Area	Annual Budget per Team/Researcher (year)	Research Period (year)
 <b>CREST</b> (1995-)	Research Supervisor & Research Teams	10~15	0.4~1.3 M\$ (including indirect costs)	up to 5
 <b>PRESTO</b> (1991-)	Research Supervisor & Individual Researchers	15~25	~ 0.1 M\$ (Not including indirect costs)	3 or 5
 <b>ERATO</b> (1981-)	Research Director & His/Her Operating Research Groups	Director: 1 Gr. Leader: 3~4 Post-docs: 10~15	< 3 M\$ (Including indirect costs)	5

# WHAT IS CREST? : OUTLINE

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- ❑ Launched in October 1995
- ❑ Budget size = nearly 45% of Basic Research Programs, 20% of the entire JST budget
- ❑ CREST promotes team-based research projects under “Research Areas”
- ❑ JST determines Research Area in accordance with Strategic Sector, designates “Research Supervisor,” and act as a program manager
- ❑ 270 research projects under 27 Research Areas ongoing.
- ❑ 501 research projects and 32 Research Areas completed (Mar. 2009)

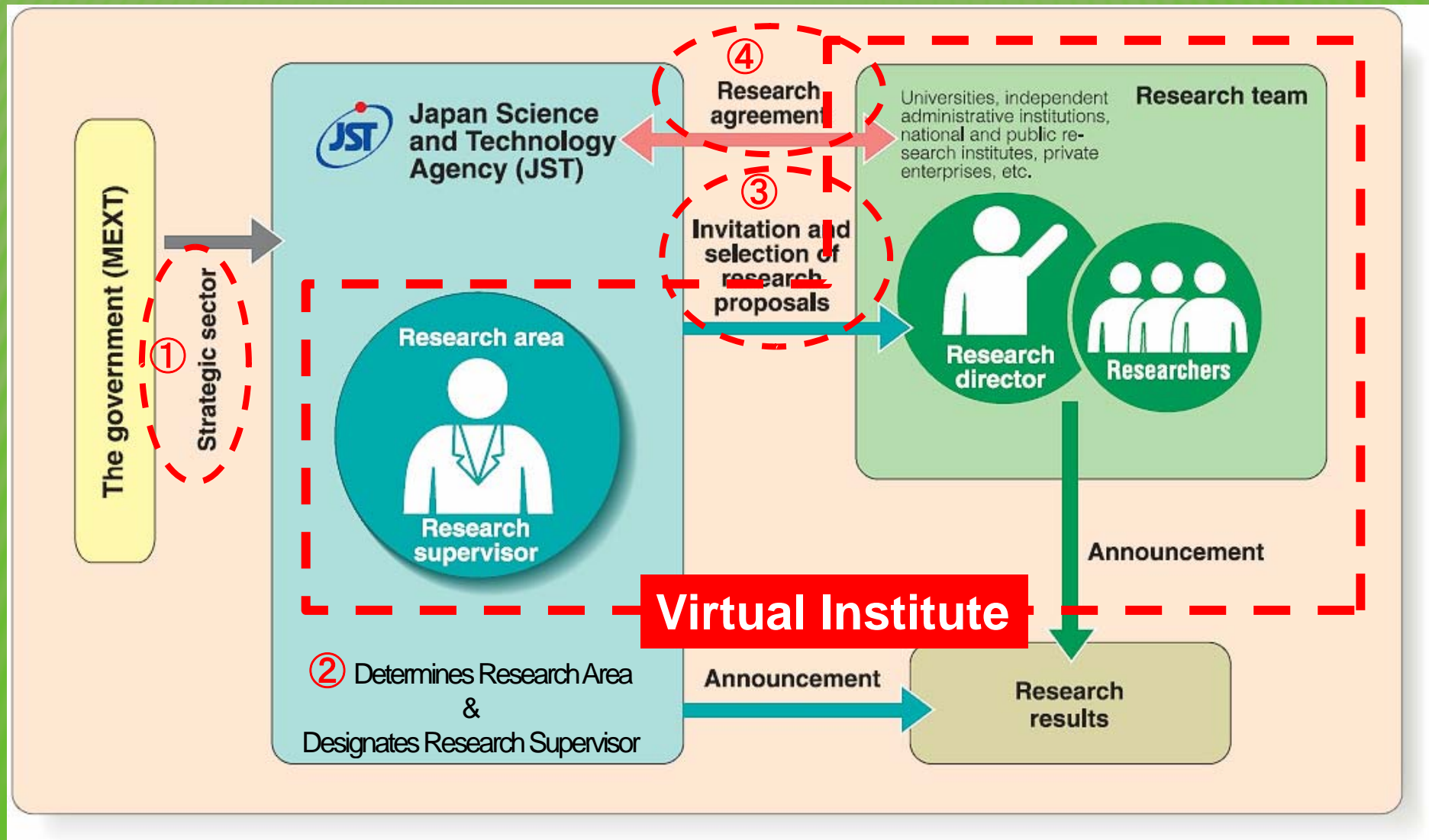


# WHAT IS CREST? : KEY CONCEPTS

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- ❑ For creation of “Innovation seeds”  
CREST aims to create technological "seeds" which are useful for industry and society.
- ❑ Strong leadership: Research Supervisor (transformative researches)  
Research Supervisor is responsible to management of Research Area including ex ante evaluation, with the aid of Area Advisors.  
→ not “peer review” or “collegial system”
- ❑ Strong leadership: Research Director (heterogeneous conglomerate)  
Research Director proposes his/her own idea and makes up a team by gathering necessary collaborators from various institutes in order to implement the project.
- ❑ “Flexible” management system (Virtual Institute)  
Depending on research progress or unexpected situations, Research Supervisor can allocate additional budgets, order reorganization of teams, connect teams in Research Area, or even terminate the project any time when necessary.

# FLOW OF CREST



# CHRONOLOGY OF RESEARCH AREAS

Category	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Research Area	Projects
[A] Environmental, Energy	Social Systems for Better Environment Performance										Creation of Innovative						10	111
	Mechanism of Global Change										Development of Technology and System for Sustainable Water Use							
	Endocrine Disruptors										Development of New Energy Generation Using Solar Energy							
	System Technologies for Resource Recycling and Minimum Energy Requirement																	
	Hydrological System Modeling and Water Resources Systems																	
	Creation of Nano-Structured Catalysts and Materials for Environmental Conservation																	
[B] Brain	Understanding the Brain(Mechanisms of Brain)																6	66
	Protecting the Brain																	
	Creating the Brain																	
	Understand the Brain																	
[C] Biological	Genetic Programming										Elucidation of Mechanisms Underlying Brain Development and Learning						8	119
	Structure and Function of Genomes										The Dynamic Mechanism of and Fundamental Technology for Biological System							
	Development, Differentiation, and Regeneration in Biological Systems																	
	Plants Function and Their Control																	
	Protein Structure and Functional Mechanisms																	
	Creation and Application of "Soft Nano-machine", the Hyperfunctional Molecular Machine																	
[D] Medical, Drug Discovery	Host Defense Mechanism										Basic Technologies for Controlling Cell Functions Based on Metabolic Regulation Mechanism Analysis						8	103
	Translational Research for Intractable Immune Disorders and Infectious Diseases										Elucidation of Mechanisms of and Technologies for Treatment of Allergic and Autoimmune Diseases							
	Creation of Bio-Devices and Bio-Systems with Chemical and Biological Molecules for Medical Use																	
	Basic Technology to Establishing Tailor-Made Medicine by Utilizing Genome Information																	
	Clarification of the Biological Functions of Sugar Chains and the Use of this Knowledge in Applied Technologies																	
											Creation of a Novel Technology Aiming at Personalized Medicine Based on Understanding Molecular Mechanisms of Individual Differences							
[E] Material	Single Molecule and Atom Level Reactions										Establishment of Innovative Manufacturing Technology Based on Nanoscience						10	124
	Phenomena of Extreme Conditions										Creation of nanosystems with novel functions through process integration							
	Creation and Functions of New Molecules and Molecular Assemblies										Development of high-performance nanosystems for process integration							
	Nano Factory and Process Monitoring for Advanced Information Processing and Communication																	
	Creation and Application of Nano Structural Materials for Advanced Data Processing and Communication																	
	Creation of Novel Nano-material/System Synthesized by Self-organization for Medical Use																	
[F] Quantum, optical	Quantum Effects and Related Physical Phenomena										Development of the Foundation for Nano-interface Technology						5	67
	Function Evolution of Materials and Devices based on Electron/Photon Related Phenomena																	
	Creation of New Technology Aiming for the Realization of Quantum Information Processing Systems																	
	Photonics and Quantum Optics for the Creation of Innovative Functions																	
[G] Computer, measurement & analysis											The Innovation of Simulation Technology and the Construction of Foundations for Its Practical Use						5	71
											Novel Measuring and Analytical Technology Contributions to the Elucidation and Application of Life Phenomena							
											Novel Measuring and Analytical Technology Contributions to the Elucidation and Application of Material							
											High Performance Computing for Multi-Scale and Multi-Physics Phenomena							
[H] Information Technology & system											Alliance for Breakthrough between Mathematics and Sciences (NEMS)						11	110
											Advanced Media Technology for Everyday Living							
											New High-Performance Information Processing Technology Supporting Information-Oriented Society							
											Creation of Nanodevices and System Based on New Physical Phenomena and Functional Principles							
											Creation of Ultrafast, Ultralow Power, Super-performance Nanodevices and Systems							
											Foundation of Technology Supporting the Creation of Digital Media Contents							
											Technology Innovation and Integration for Information Systems with Ultra Low Power							
										Advanced Integrated Sensing Technologies								
										Dependable Operating Systems for Embedded Systems Aiming at Practical Applications								
										Fundamental Technologies for Dependable VLSI System								
										Research of Innovative Material and Process for Creation of Next-generation Electronics Devices								

as of 2009 April

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# FOR BETTER CREST OPERATION

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- ❑ Designation of Research Supervisors
- ❑ Ex ante evaluation
- ❑ Management of Projects
- ❑ Management of Research Areas
- ❑ Handling outcome from Projects (how to utilize them? Where to bring them next?)
- ❑ Better fund operation
- ❑ And more...