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Creating Disruptive Innovation \sim from ImPACT to Moonshot \sim

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Disruptive innovation / Sustainable innovation



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Innovation transforms industries and societies by creating new technologies, products and markets.

- Innovation includes <u>sustainable innovation</u> and <u>disruptive innovation</u>
- Balancing of R&D investments among two innovations and basic/fundamental technologies is important



Impulsing PAradigm Change through disruptive Technologies (ImPACT) program (2014-2018)

Fund for creating disruptive innovation

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This program is based on US DARPA system—

革新的研究開発推進プログラム

- For challenging creation of disruptive innovation
- Creating disruptive innovations which revolutionize industries and societies through high-risk and high-impact R&Ds.
- Program managers (PMs) have authority for planning, acting and managing of the program.
- ➢ PMs work as the producers.
- PMs are supported by ensuring job position and fund for management.





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Program Managers (PM) and their themes for ImPACT



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Ubiguitous Power Laser for Achieving a Safe, Secure and

Takane SUZUKI

Yuji SANO

Longevity Society

Super High-Function

Structural Proteins to

Industry



Kohzo ITO Realizing Ultra-Thin and Flexible Tough Polymers





Yoshiyuki SANKAI

Innovative Cybernic System for a "ZERO Intensive Nursing-care Society"

Reiko FUJITA

Recycling of High-level

Radioactive Wastes through

Keisuke GODA

Serendipity into Planned

Happenstance-

Cell Search Engine -Turning

Reduction and Resource

Reiko MIYATA Ultra-high Speed Multiplexed Sensing System beyond Evolution

Transform the Basic Materials

for the Detection of Extremely Small Quantities of Substances



Yoshihisa YAMAMOTO

Advanced Information Society Infrastructure Linking **Ouantum Artificial Brains in Ouantum Network**



Kanako HARADA **Bionic Humanoids Propelling** New Industrial Revolution

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Modified from the materials from CSTI



Masashi SAHASHI

Achieving Ultimate Green IT Devices with Long Usage Time without Charging



Satoshi TADOKORO

Tough Robotics Challenge (TRC)



Takayuki YAGI

Innovative Visualization Technology to Lead to Creation of a New Growth Industrv



Seiko SHIRASAKA

Small Synthetic Aperture Radar Satellite System for **On-Demand Observation**



Hiroshi HARADA

An Ultra Big Data Platform for **Reducing Social Risks**



Nuclear Transmutation Yoshinori YAMAKAWA Actualize Energetic Life by



Creating Brain Information Industries

Hiroyuki NOJI

Artificial Cell Reactor Technology for an Enriched and Secure Society and New Bioengineering

Achievements of the ImPACT program



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By courtesy of Drs. Ito, Sahashi, Shirasaka & Yamamoto

Features of the Moonshot program



Common points with ImPACT

- Challenging R&D programs for bringing a significant impact on industry and society
- Backcasting approach is taken to achieve future visions
- Program managers (PMs) have authority for planning, acting and managing the program.

Different points from ImPACT

- Designation of PDs (program directors) with overall responsibility
- Portfolio system of adopting multiple research proposals
- Management of progress by the STAGE UP system

Formulation of R&D strategy to create disruptive innovation



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The Moonshot R&D program in the agri-food sector



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* Super crop with high environmental adaptability* Zero chemical fertilizer and zero pesticides