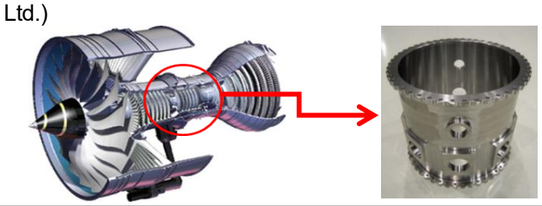
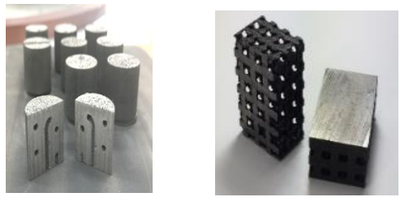
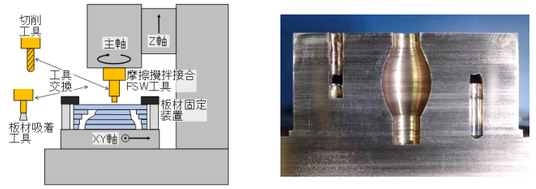
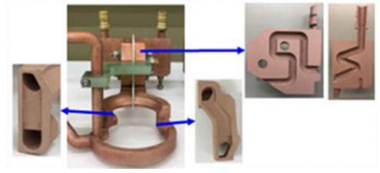
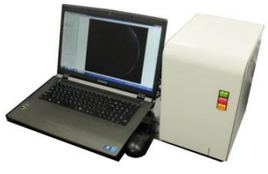
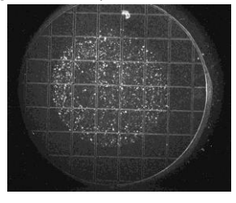
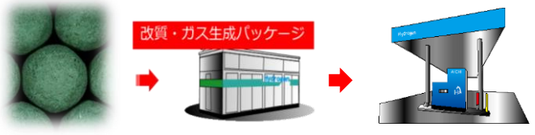
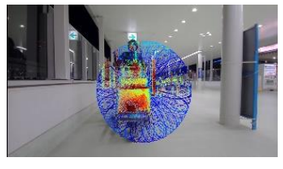
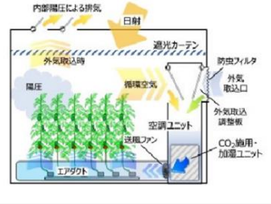
AICHI PREFECTURE

# Past achievements of the Aichi Priority Research Project (examples)

AICHI-NAGOYA "Heart" of JAPAN -Technology & Tradition

Ref. 2

| | Period-I (1st Period) | Period-II (2nd Period) | Period-III (3rd Period) | Period-IV (4th Period) |
|---|---|---|---|---|
| Period | FY2011~FY2015 (5 years) | FY2016~FY2018 (3 years) | FY2019~FY2021 (3 years) | FY2022~FY2024 (3 years) |
| Research field and Achievements overview | **“Cutting, Processing, and Materials”**<br>We are developing ultra-precise and high-efficiency processing technologies for CFRP, lightweight metal components, and difficult-to-process materials that contribute to next-generation industries such as automobiles and aircraft.<br>**< Development Example>**<br>Cutting of aircraft jet engine combustor cases (used in the engine production process at Mitsubishi Heavy Industries, Ltd.)<br>  | **“Advanced Materials and Processing**<br>We conduct research and development of advanced materials and processing technologies that support a wide range of fields, from food and biotechnology to the automotive and aircraft industries.<br>**< Development Example>**<br>Carbide powder for laser printing (commercialized by Fujimi Incorporated Co., Ltd.)<br>  | **“Manufacturing”**<br>We are engaged in the development of materials and processes using materials informatics, advanced processing technologies, and evaluation technologies to support them.<br>**< Development Example>**<br>High-efficiency additive manufacturing technology that adds functions to existing machine tools<br>  | **“Sophistication of Key Industries”**<br>We are developing processing, material, and recycling technologies that dramatically improve productivity, as well as visualization technologies that support them.<br>**< Development Example>**<br>Development of coils for quenching parts by additive manufacturing<br>  |
| | **“Food Safety and Security”**<br>We have developed a measurement device that quickly and accurately detects residual pesticides (hazardous chemical substances), solid foreign substances, and microorganisms mixed in food.<br>**< Development Example>**<br>Rapid and simple food poisoning bacteria inspection device (Productization by Tsuchiya co., ltd.)<br>   | **“Energy & Hydrogen”**<br>In addition to developing basic technologies such as the production and use of hydrogen, we are conducting research and development that will contribute to the formation of a hydrogen energy society in the near future.<br>**< Development Example>**<br>High-efficiency and high-durability hydrogen catalysts for hydrogen stations<br>(Commercialized by Itochu Ceratec Corporation)<br>  | **“AI, IoT, and Big Data”**<br>In addition to promoting the use of AI and other technologies in a wide range of fields, from manufacturing to agriculture and health and longevity, we are developing technologies for robotics and optimal energy allocation.<br>**< Development Example>**<br>Platform to control multiple robots<br>  | **“DX (Digital Transformation)”**<br>We are innovating production processes using digital technology and developing robotics and autonomous driving technologies.<br>**< Development Example>**<br>AI medical record creation support system by voice input<br> |
| | **"healthy Longevity"**<br>We are developing devices that contribute to the early diagnosis and treatment of biological information related to cerebral and cardiovascular diseases, cancer, and lifestyle-related diseases in a non-invasive and minimally invasive manner.<br>**< Development Example>**<br>Urine salt measuring device built into toilets (LIXIL Corporation is conducting demonstration tests)<br> | **“Robotics and Automotive Safety”**<br>In addition to developing and demonstrating technologies for the use of robots, we are conducting research and development of automotive safety technologies using information and communication technologies.<br>**< Development Example>**<br>Harvesting support robot for sorting and packaging large leaves (commercialized by Sinfonia Technology Co., Ltd.)<br> | **"Near-Future Vehicles"**<br>In response to the electrification of automobiles, we are developing high-performance inverters and motors, as well as developing technologies that contribute to autonomous driving and traffic safety.<br>**< Development Example>**<br>Autonomous driving and safe driving systems for MaaS<br> | **“SDGs”**<br>In order to contribute to the SDGs, we will develop decarbonization technologies such as biomass and carbon cycle, as well as life sciences and smart agriculture technologies.<br>**< Development Example>**<br>Semi-closed greenhouses for optimal environmental control<br>  |