# R&D

**Fujifilm is actively engaged in research and development aimed at promoting growth in priority business fields and creating new businesses.**

## Fujifilm's Fundamental Technologies and Development

Fujifilm has a wide range of fundamental technologies such as thin-film formation and processing, organic materials, inorganic materials, optics, image and software technologies, which were cultivated in fields such as photosensitive materials and xerography, as well as core technologies that support these. By developing these technologies more deeply, we have accumulated diverse technologies that include fine chemicals, electronics, mechatronics, optics, and software.

Today, we are promoting research and development in priority business fields — highly functional materials and devices, optical devices and systems, and information systems and solutions — using product design technologies that combine these fundamental and core technologies. We are also pursuing the creation of new businesses that will play a leading role in the future.

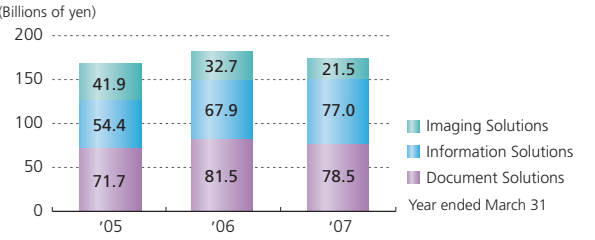
## Fujifilm's R&D Organization

In April 2006, we established the FUJIFILM Advanced Research Laboratories to play a central role in combining leading-edge research on a Company-wide basis and fundamental technology development.

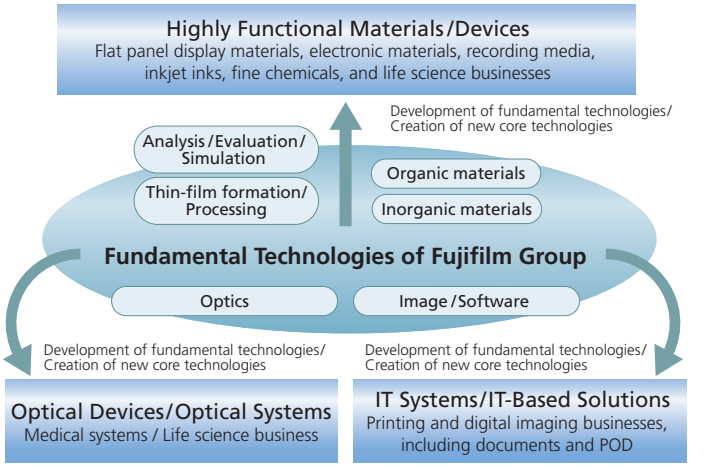
In terms of our R&D organizational structure, we have three corporate laboratories: the Frontier Core-Technology Laboratories, the Synthetic Organic Chemistry Laboratories, and the Advanced Marking Research Laboratories. These laboratories are engaged in long-term research into cutting-edge technologies that will produce further growth for Fujifilm. In addition, we have divisional laboratories — which develop products and technologies that are directly linked to respective business divisions based on short- and medium-term objectives — and Fundamental Technology Research Centers, which have accumulated technology platforms common to the whole Company.

The unique, cutting-edge technologies that the

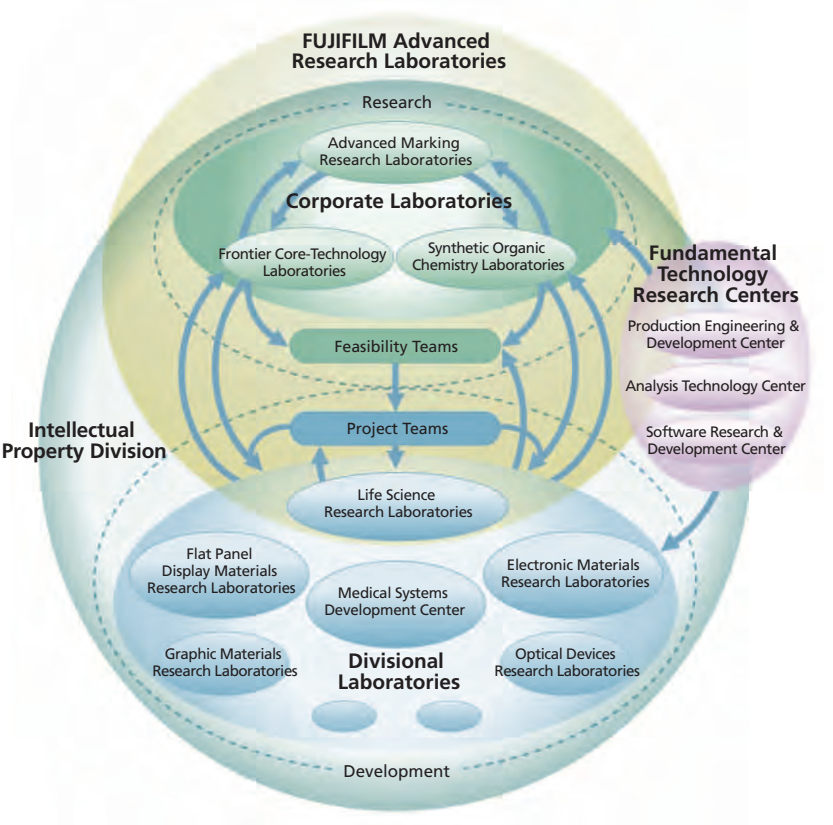
### R&D Expenses by Operating Segment




### Fujifilm Group's Fundamental and Core Technologies and Development




### Fujifilm Group's R&D Organization



three corporate laboratories possess are being fused with each other at the FUJIFILM Advanced Research Laboratories. The goal is to promote the establishment of highly distinctive technologies, especially in the areas of highly functional materials, devices, and systems.

In a recent development, Fuji Xerox Co., Ltd. announced plans to open a new integrated R&D facility in the Minato Mirai 21 district in Yokohama, Kanagawa Prefecture. This new facility will consolidate existing R&D sites currently dispersed across several locations, with the aim of reinforcing collaboration in R&D functions that transcends the boundaries of technology fields and strengthening customer contact.

Illustration of Fuji Xerox's new integrated R&D base

# Main R&D Achievements in the Fiscal Year Ended March 2007

## Life Sciences

### Fastest in the world, fully automatic gene analysis system Fujifilm's "Rapid SNPs Diagnostics System"

Methods of analyzing single nucleotide polymorphisms (SNPs) currently in use consist of extracting DNA from blood or other samples, adding reaction reagents, and analyzing in instruments. These operations require specialist knowledge and a time frame of several hours to several days. Fujifilm's "Rapid SNPs Diagnostics System" uses the most advanced isothermal amplification of target genes, called SMart Amplification Process (SMAP)*1. This is the first system that can obtain analyzing results from blood samples using fully automatic processes at a world-record speed*2 (30 minutes for all processes).

It is constructed from several unique technologies: micro-mechanical technology for building up micro-channels on plastic substrate, microfluidics technology for controlling chemical reactions of fluids in fluid channels, and high-sensitivity detection and analytical technology accumulated in the development of image sensors and other products.

*1: The SMart Amplification Process (SMAP) was jointly developed by the RIKEN Institute and K.K. DNAFORM. It is a unique isothermal amplification method that amplifies target genes and detects differences in SNPs. As amplification takes place at constant temperatures in a short period of time, this outstanding system is able to accurately detect differences in SNPs.

*2: As of January 31, 2007, Fujifilm survey

Rapid SNPs Diagnostics System (above) and disposable-type microchip incorporating all processes of DNA extraction, amplification, and detection (below)

## Documents

### Fuji Xerox's "Security Paper Technology" that uses a sensor to detects paper being taken out

Fuji Xerox Co., Ltd. has developed technology that physically detects even a single sheet of paper being taken out of the office, which would ensure the security of paper documents. This is achieved by embedding extremely thin amorphous magnetic wires, which are finer than a human hair, in plain paper that can be used in multifunction devices. The wires are coated with glass, preventing static electricity when used in a copy machine. The amorphous magnetic wires emit an electric pulse due to application of an oscillating magnetic field from an excitation coil installed in a separate location. By installing equipment that detects this pulse at doorways of buildings and offices, it is possible to keep a record of confidential documents taken outside business premises and also prevent them from being taken out without authorization by closing security gates. Another possible application of this technology is to embed the wire in labels affixed to merchandise to control it being taken out of stores.This technology, could be installed at a lower cost than IC tags.


Wire-embedded "security paper" and enlarged amorphous magnetic wire