Technology Roadmap in Korea



I. Technology Foresight Activities in Korea

- ☐ National R&D programs as well as S&T development plans
 - -HAN Program: 400 experts
 - -Long-range Plan for S&T Development toward the Year 2000: 800 experts
 - -Long-term Vision for S&T Development toward the Year 2025: 200 experts
 - -Extended to other ministries: After 1990s
- ☐ Technology Forecasting
 - -The First Technology Forecasting (1993)
 - -The Second Technology Forecasting (1998)

L Technology Foresight Activities in Korea

- ☐ Technology Roadmap at Firm Level
 - -Samsung is the leader
 - -Objective: To secure seed technologies in the 21st century
 - -Many TRMs: Revised annually
- □ National Technology Roadmap(NTRM) in 2002
 - -Applying TRM approach at national level
 - -Objective: Linkage between demand and supply
 - -Identification of 99 key technologies

II. National Technology Roadmap (NTRM)

□ Objective

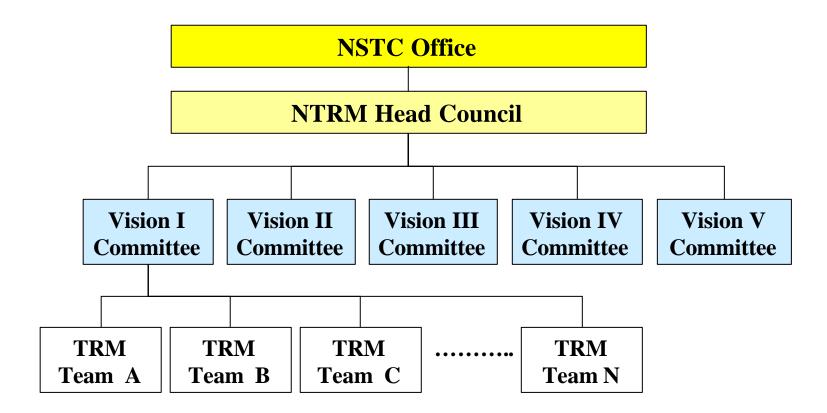
- -To build the national technology roadmap for the need of national strategy and economic growth toward 2012
- -To follow top-down vision-driven approach to the identification of key technologies

□ Contents

- -Analysis of Industrial Need → 5 Visions → 13 Directions →
- 49 Strategic Product/Functions → 99 Key Technologies → NTRM
- -NTRM include Macro Roadmaps for strategic products/functions and detailed TRM for chosen key technologies

II. National Technology Roadmap (NTRIVI)

□ Organizational Structure



III. Major Elements of NTRM

1. Building an Information-Knowledge-Intelligence Society

Meeting a variety of human needs in all areas of life by making IT service more intelligent, mobile, and user-friendly



1. Building an Information-Knowledge-Intelligence Society

Direction of Strategic Products Vision **Development** and Functions **Digital Convergence** Anytime, **Intelligent Computing** Anywhere, **Any-device Ubiquitous Network** Communication Mobile & Wearable IT Device **Contents** Innovation in E-Commerce Information-**Contents & Business Service** Service Knowledge-**Knowledge/Information Security Intelligence Society Intelligent Man-Machine Interface Intelligent Robot Intelligent Home Appliance Ambient Intelligence Intelligent Building/Home Intelligent Transport System Intelligent Medical System**

2. Aiming at Bio-Healthtopia

Building a society with a high quality of life by meeting the increased demand for high-quality therapeutic agents and timely supply of new diagnosis, prevention & therapy



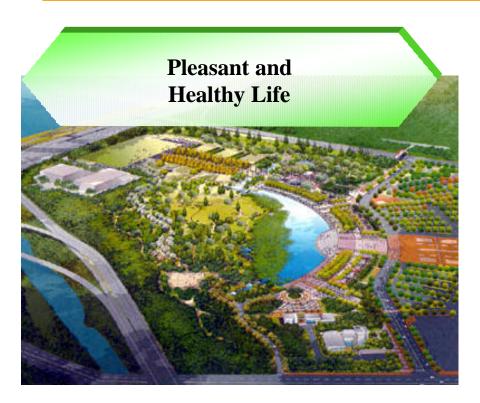


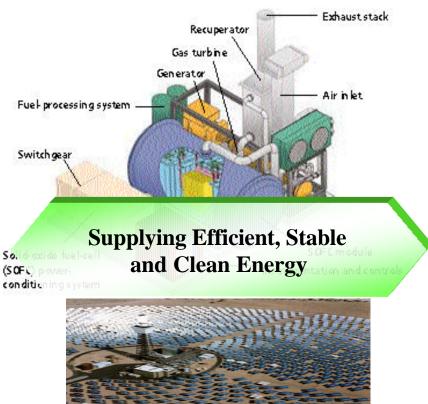
2. Aiming at Bio-Flealthtopia

Direction of Strategic Products Vision and Functions Development Cardiovascular **Anticancer Agent CNS New Drug Focused Pulmonary Discovery &** Area **Development** Metabolism **Immune System** Aiming **Vaccines** at Bio-**Diagnostics** Healthtopia Innovation **Rehabilitation System** in Disease **Medical Imaging System** Treatment, Diagnosis & **Cell Therapy Prevention Gene Therapy Prognostic System**

3. Advancing E²(Environment and Energy) Frontier

Building a society that recycles and lives in harmony with nature and making an efficient and stable energy supply & utilization system corresponding to the international environment regulation



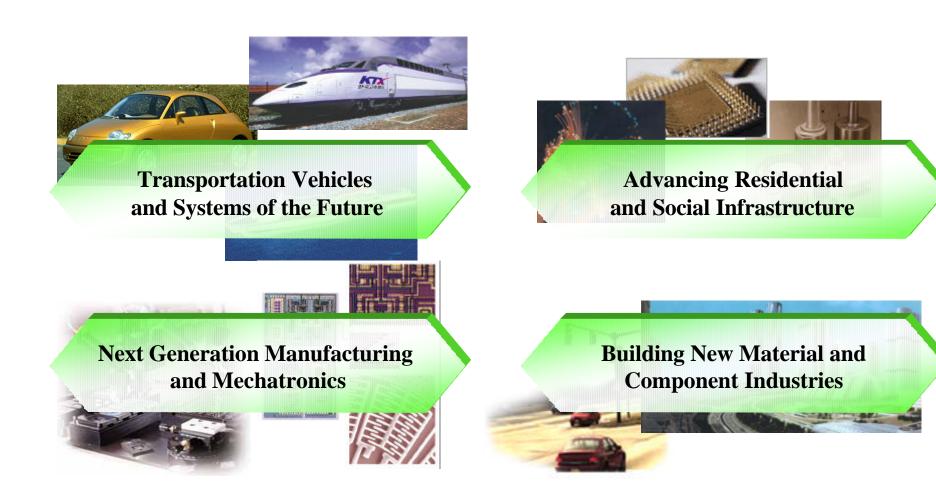


3. Advancing E²(Environment and Energy) Frontier

Direction of Strategic Products Vision and Functions Development **Reduction of Environmental Pollution** Pleasant and **Recycling System Harmonizing with Environment Healthy Life Advancing Management of Sustainable Ecosystem** Energy/ Environment Frontier **Efficient Use of Energy Supplying** Efficient, Stable and **Acquisition of Future Energy Source and High Clean Energy** Value Added Energy

4. Upgrading the Value of Major Industries of Korea Today

To pursue sustainable economic growth through strengthening the international competitiveness of the current main and infra industries



4. Upgrading the Value of Major Industries of Korea Today

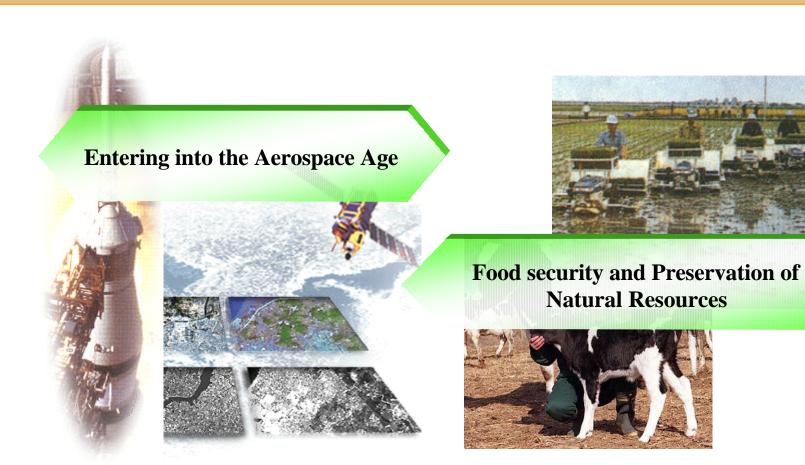
Direction of Strategic Products Vision and Functions **Development Transportation New Automotive Systems Vehicles New Ocean Transportation Systems** and Systems of **New Railway Systems (Korean Type)** the Future **Integrated Transporting System Advancing User-friendly Advanced Construction** Residential and Social **Sustainable Natural Resources and Effective Upgrading** Infrastructure **Development of National Land** Current Main **Next Generation Next Generation Manufacturing System Industries Manufacturing** and **Advanced Precision Machining System Mechatronics Building New New Functional Information Materials/Devices** Material and Nano Materials **Component**

Industries

Highly Functional Metals/ Ceramics/ Polymers/ Textile

5. Improving National Safety and Prestige

To build up technological capability in aerospace and to establish national strategy in food supply



5. Improving National Safety and Prestige

Vision

Direction of Development

Strategic Products and Functions

Improving
National
Strategy
and
Prestige

Entering into the Aerospace Age 4

Development of Helicopter

Development of Satellite

Development of UAV

Development of Launch Vehicle

Food Security and Preservation of Natural Resources

Establishment of Food Self-Sufficiency

Establishment of Bio-resources Self-sufficiency

IV. Lessons from Korean Experience

☐ Difficulties

- -Gaps between S&T factors and socio-economic ones
- -Too ambitious targets and many rosy plans:
- Gaps between knowing and doing
- -Limited technological insight and capacity: Lack of global S&T leaders
- -Vague boundary between national level and firm level
- -High technological uncertainty in the 21st century

IV. Lessons from Korean Experience

- **☐** Positive Sides
 - -Training effects to S&T experts
 - -Networking and consensus building in S&T community
 - -Increased awareness of the importance of technology foresight activities