Establishing a
Korean Robot Ethics Charter

2007. 4. 14

Robot Division,
Ministry of Commerce, Industry and Energy,
KOREA
H.B.Shim (shbs@mocie.go.kr)
Outline

- Trends of the Robot Industry in Korea
- Trends of Robot-Developing Technologies in Korea
- Why Korea Wants to Establish the Robot Ethics Charter
- Process of Establishing the Korean Robot Ethics Charter
- Contents of the Korean Robot Ethics Charter
Trends of the Robot Industry in Korea

**Domestic Market, approx. $600 million USD**

[Graph showing increasing trend from 2003 to 2005]

MOCIE, Korea, 2006

**World Market Share, 3 %**

- Japan: 28%
- USA: 22%
- Germany: 18%
- Italy: 11%
- Korea: 3%

IFR, 2004

**Overview of Business and Technology**

- Have a Potential Market and Technology for Robots
- Spin-off Small or Venture Businesses

**No. of Robot Companies (180)**

<table>
<thead>
<tr>
<th>Business</th>
<th>Manufacturing</th>
<th>Services</th>
<th>Components</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>13 (7)</td>
<td>5 (-)</td>
<td>4 (-)</td>
<td>22 (7)</td>
</tr>
<tr>
<td>Small</td>
<td>47 (2)</td>
<td>64 (-)</td>
<td>47 (-)</td>
<td>158 (2)</td>
</tr>
</tbody>
</table>

* ( ) : Selling over $10 Million USD for a Year

MOCIE, Korea, 2006

**Overview of Infrastructure**

- Good Environment for the Introduction of Robots
- Positive National Character for a New Culture

**Impression of Robot Image**

- 90.8%

**Buying Intent of Personal Service Robot**

- 78.0%

Embrain marketing research in Korea, 2005
### Trends of Robot-Developing Technologies in Korea

<table>
<thead>
<tr>
<th>Year</th>
<th>Cleaning / Educational Robot</th>
<th>Coexistence with Humans</th>
<th>Home Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>Vacuum Cleaning, Education, Entertainment, Pet</td>
<td><img src="image" alt="Coexistence with Humans" /></td>
<td><img src="image" alt="Home Service" /></td>
</tr>
<tr>
<td>2010 ~ 2015</td>
<td>ChairBot, RideBot, Siverbot, Subar</td>
<td><img src="image" alt="Silver-Mate assisting Senior Citizens" /></td>
<td><img src="image" alt="Silver Care" /></td>
</tr>
</tbody>
</table>

### Silver/Life Care

- ChairBot
- RideBot
- Siverbot
- Subar

### Disaster Recovery/ Rescue/ Military Robot

- Robhaz
- Border-Guard
- Fibot
- Hovering

### Extension to Practical Applications
Trends of Robot-Developing Technologies in Korea

**Prototype Robots**
- Ara & Maru
- Robonova-1
- Transbot
- Hubo
- Albert Hubo
- EveR-1 Muse

**URC (Ubiquitous Robotic Companions)**
- PGR
- uPostMate
- iRobi Q
- Jupiter
- Mir-H
- EGIS-SR

**Network Robots for an ubiquitous presence in society**

**Humanoid/Android**

**Industrial Robots**

**Cooperative / Intelligent Works**

**Like Bicentennial Man**

**Nano/High-precision**
Korea’s IT (Information Technology) electronics market is very attractive: mobile phones, DMB, PMP, digital TV, etc. Our consumers demand rapid technology advancement.

Korea will be able to serve as a test bed country for robots, just as with the IT electronics market.

Futurist Jim Dator evaluated Korea highly for its dynamic society and its people’s determination to accomplish goals. Many dynamic changes are occurring within Korean society. It is estimated that every household in Korea will have one robot by 2020.

Preparing for the future, now is the time to establish an ethical guideline on partnership between people and robots.
Korea is headed towards an aging society with low birth rates: one possible solution is the use of robots. Various intelligent service robots, including robots to assist senior citizens, have been developed: ‘Silver Mate’ robots will soon be seen. Social demand for robots is forecasted to increase.

The social demand has created a need to enhance partnership between people and robots, and a need to consider ethical issues in Korea.
Why Korea Wants to Establish the Robot Ethics Charter

- Characteristics of a Test Bed Country for Robots
- Preparation of the Future Society according to Dynamic Changes
- Social & Consumer Demand for Robots

Confirmation of National Consensus on Robot Ethics in Korea
Process of Establishing the Korean Robot Ethics Charter

**Activity of WG on Robot Ethics**
Robot developers, CEOs, psychologists, futurists, writers, government officials, users, lawyers, and doctors: more than 10 members

**Deliberation of the ‘Robot Industry Policy Forum’**
38 Members

**Deliberation of the ‘Industrial Development Council’**
29 Members

**Draft**

**opinion / feedback**

**By the end of this year**

**The Korean Robot Ethics Charter**

**Official Announcement**

**In the near future**

**The Detailed Guideline**

**Public Relations / Follow-up Activities**

**Online Community**

**Public Hearings**

**Global Cooperation**
Value and respect the outcome of the EURON Roboethics Roadmap

Reflect the unique situation in Korea

Conceptual & Proclamatory Contents on Korean Robot Ethics
We value your ongoing concern & cooperation.

Thank you.