

# משרד המדע, הטכנולוגיה והחלל

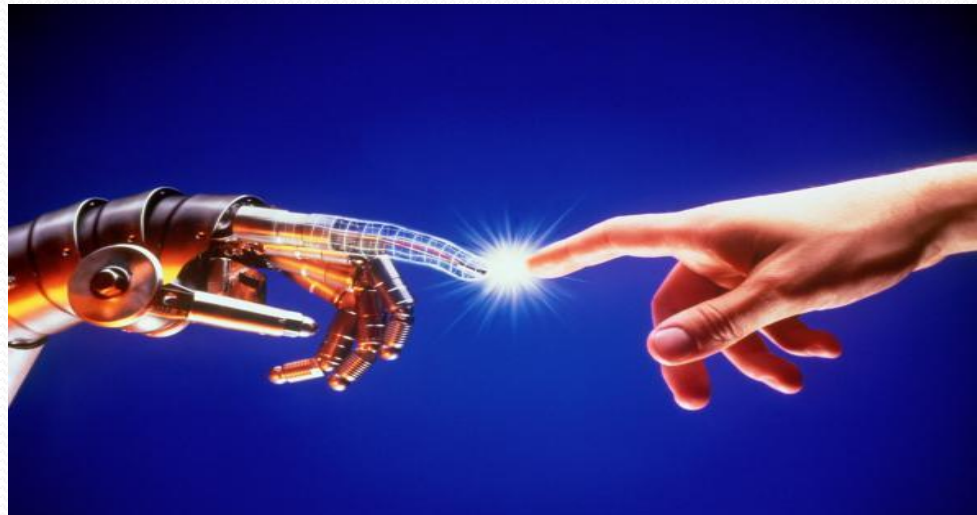
Ministry of Science, Technology & Space

המועצה הלאומית למחקר ופיתוח

Israel National Council For Research & Development



## Robotics for a better Society



# New Trends in Robotics

- More autonomous
- Clusters of “Robots”
- Wider span of applications
- Focus on implementation

# New Trends in Robotics

## The Goals of Robotics plans

- To build a better society
- To revitalize industrial manufacturing competitiveness
- To boost economical growth.

# New Trends in Robotics

application domains:

- Industrial automation
- Medical instruments
- Healthcare and nursing
- Daily services to human
- Energy
- Defense and security
- Transportation
- Agriculture

# New Trends in Robotics

## Relevant Technologies:

- Sensors
- Electro-optics
- Mems and Nems
- Artificial Intelligence
- Big Data
- Learning and Cognitive Systems
- Decision making algorithms

# New Trends in Robotics

## National Robotics Initiatives

- National robotics Initiative –USA - \$50M annually (2011)
- EU SPARC Project – 2.8 B Euro (2014)
- New Robot Strategy –Japan - \$350M (5 years) (2015)
- Robotics Strategy Road Map – Singapore (2014)
- Development Plan for Intelligent Manufacturing Industry –China (2012)

# New Trends in Robotics

## The US National Robotics Initiative

Funded \$50M annually by : NSF, NASA, NIH  
,USDA



National Robotics Initiative (NRI)

**The realization of co-robots acting in direct support of individuals and groups...** manufacturing, exploration, discovery, agriculture, security, .....

**THEMES**

- Fundamental research
- Controls and dynamical systems
- Computational models of human cognition
- Application-inspired topics
- Micro- and nano-robotics, neuro-robotics, humanoid robotics, & networked multi-robot team
- Understanding of the long term social, behavioral and economic implications of co-robots across all areas of human activity
- Use of co-robots for STEM learning

**USDA**

**NRL**

**NIH**

A collage of four images: top-left shows a humanoid robot in a white suit; top-right shows an orange mobile robot in a field with the label 'USDA'; bottom-left shows a laboratory setting with a large robot and the label 'NIH'; bottom-right shows a large white building with the label 'NRL'.



## Intelligent Society

# The Israeli National Robotics Initiative (INRI)

Proposal by the National Council for R&D



# The Israeli Robotics Initiative -INRI

## The Israeli Robotics Ecosystem

- Strong industry basis
  - Robotics companies
  - Large companies with robotics activities (Defense)
  - Companies with strong relevant technology basis
- Research activities in most of the universities. About 30 senior researchers.
- Activities are not coordinated. No national goals.

# The Israeli Robotics Initiative - INRI

## The vision

- To build R&D capabilities in robotics in order to impact economics, defense and welfare aspects of the Israeli society
- To implement the Robotics solutions into the Israeli society
- To create an economical growth engine
- To position the Israeli research in Robotics in the highest world standards
- To encourage STEM education in schools

# Israeli National Robotics Initiative - INRI

## Highlights

5 application oriented programs will be launched, in 5 different areas :

- Healthcare
- Transportation
- Personal services and Nursing
- Industrial Automation (Traditional Ind.)
- Security

# Israeli National Robotics Initiative – INRI

## Program characteristics

- Innovative, with major impact on the Israeli society
- Cooperation between academia, industry, users.
- Cooperation with international agencies . Employing of returning Israelis
- Results available to all relevant organizations in Israel

# Israeli National Robotics Initiative – INRI

## Supporting Elements

- Robotics R&D institute will be established as the innovation center for each program
- Annual competition on robotics for school students
- Annual conference on technology and implementation with world leaders
- Steering committee for : long term policy, program approvals and execution monitor