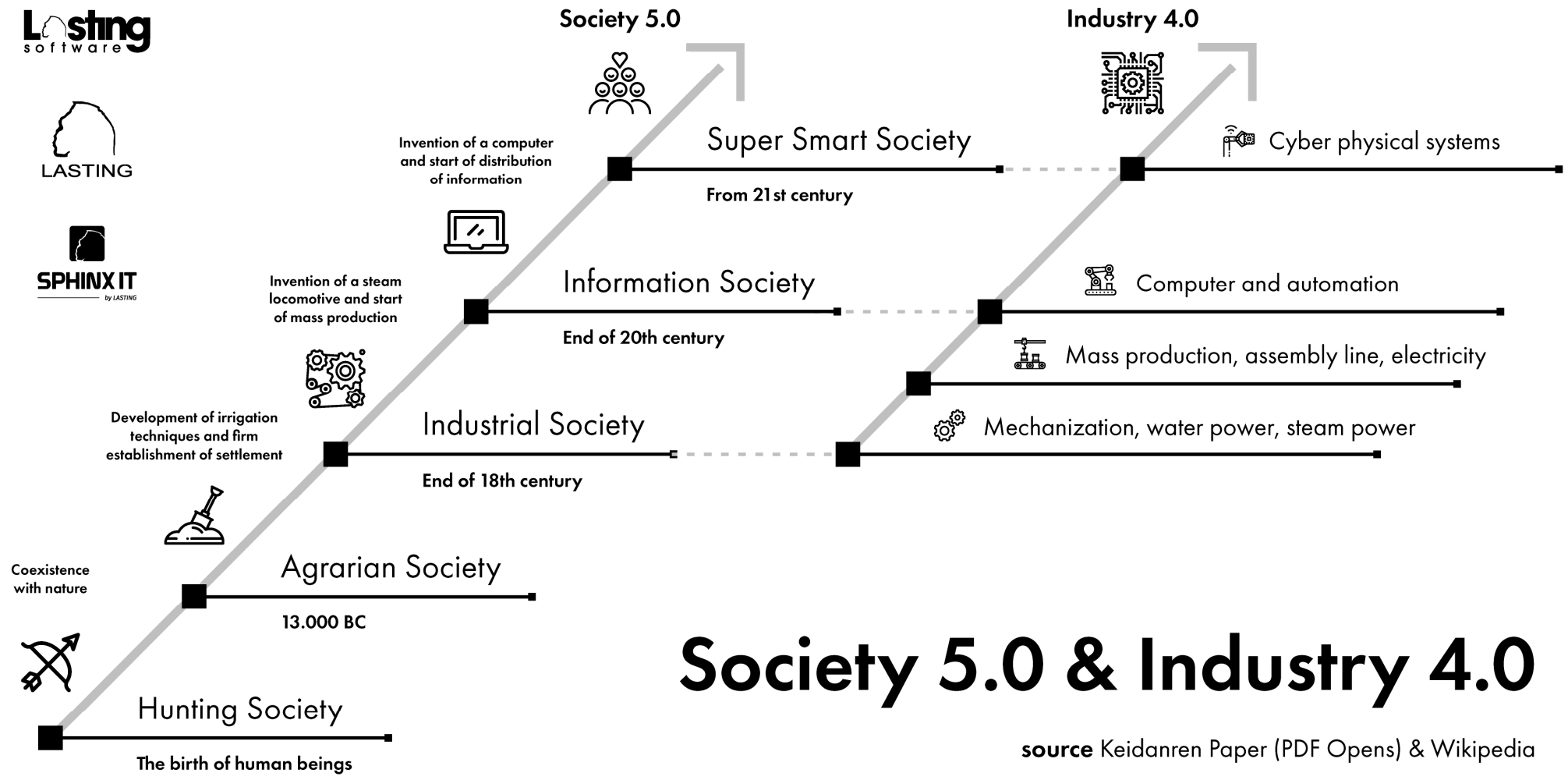


# ERA DESTRUKSI & TEKNOLOGI INDUSTRI 4.0

By: Nadirman  
(CEO & Founder Vortex-MES 4.0)

# INDUSTRI 4.0 & SOCIETY 5.0 ROADMAP



## Society 5.0 & Industry 4.0

source Keidanren Paper (PDF Opens) & Wikipedia

## PEKERJAAN PALING DIBUTUHKAN TAHUN 2025

Pekerjaan-pekerjaan paling membutuhkan tahun 2025. Hampir semua tidak ada dijenjang sekolah, sangat terbatas di Perguruan tinggi.

### **Versi Bappenas:**

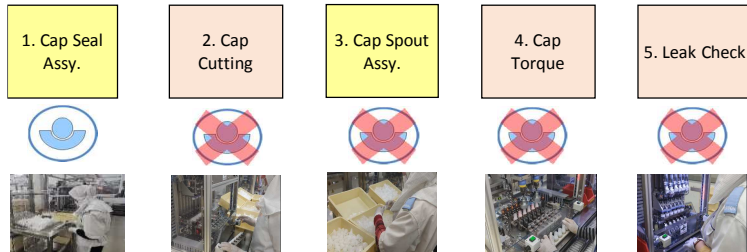
1. Data Analyst and Scientist
2. Big Data Specialist
3. AI and Machine Learning Specialist
4. Digital Marketing and Strategy Specialist
5. Renewable Energy Engineers
6. Process Automation Specialist
7. Internet of Things Specialist
8. Digital Transformation Specialist
9. Business Services and Administration Managers
10. Business Development Professionals

### **Versi World Economic Forum:**

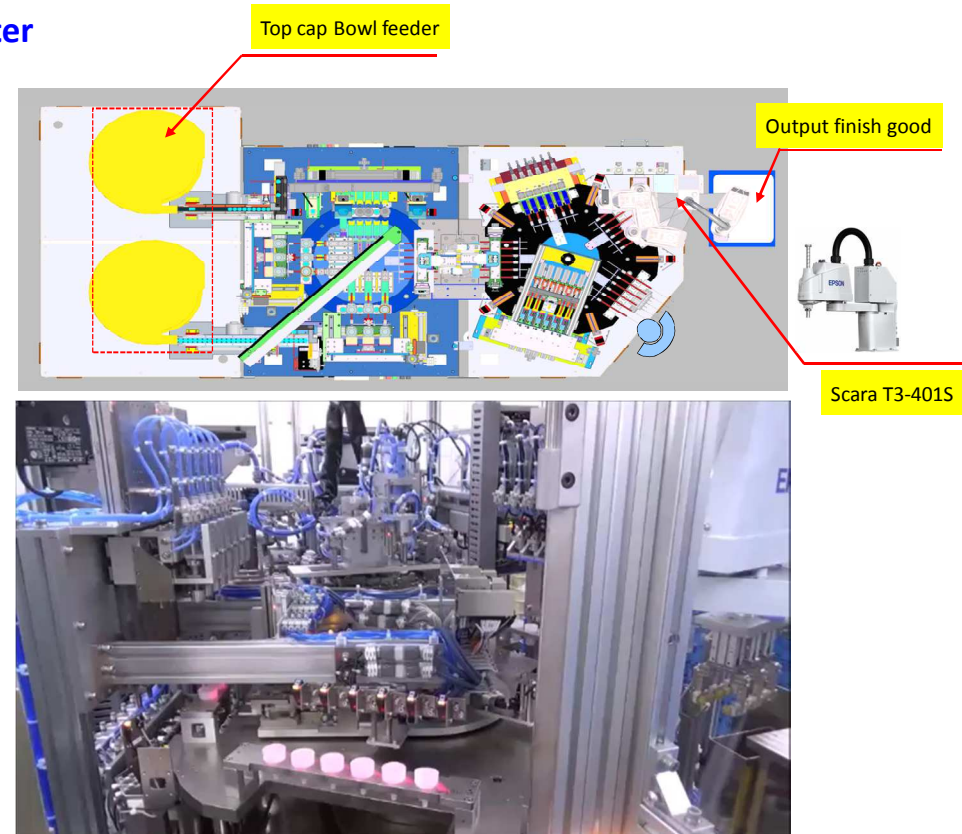
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4. Digital Marketing and Strategy Specialist
5. Process Automation Specialist
6. Business Development Professionals
7. Digital Transformation Specialist
8. Information Security Analyst
9. Software and Application Developer
10. Internet of Things Specialist

## Seal Automation

Before



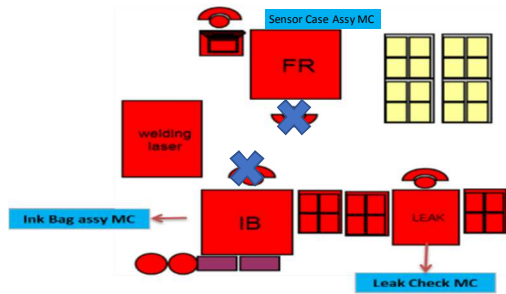
After



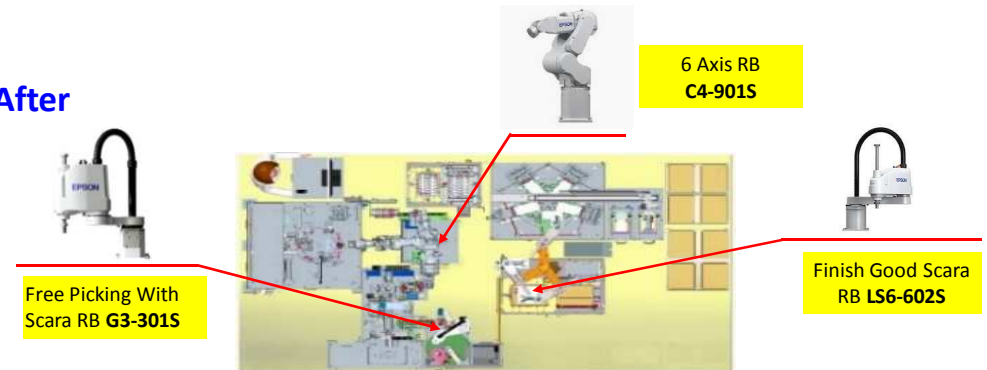
# SMART MANUFACTURING INDUSTRI 4.0

## Part Assembly Process

Before



After



# MATERIAL HANDLING & WAREHOUSE AUTOMATION



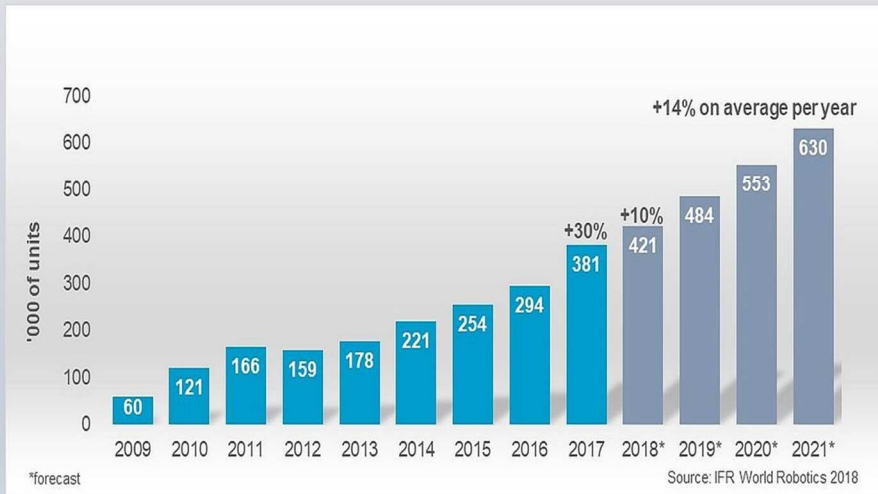
## 7 Advantages of Robots in the Workplace

1. **Safety** - Heavy machinery, machinery that runs at hot temperature, and sharp objects can easily injure a human being
2. **Speed** - Robots don't get distracted or need to take breaks
3. **Consistency** - Robots never need to divide their attention between a multitude of things
4. **Perfection** - Robots will always deliver quality. Since they're programmed for precise, repetitive motion, they're less likely to make mistakes
5. **Productivity** - Robots can't do everything. Some jobs absolutely need to be completed by a human.
6. **Job Creation** - Robots don't take jobs away. They merely change the jobs that exist. Robots need people for monitoring and supervision
7. **Happier Employees** - Since robots are often assigned to perform tasks that people don't particularly enjoy, like menial work, repetitive motion, or dangerous jobs, your employees are more likely to be happy



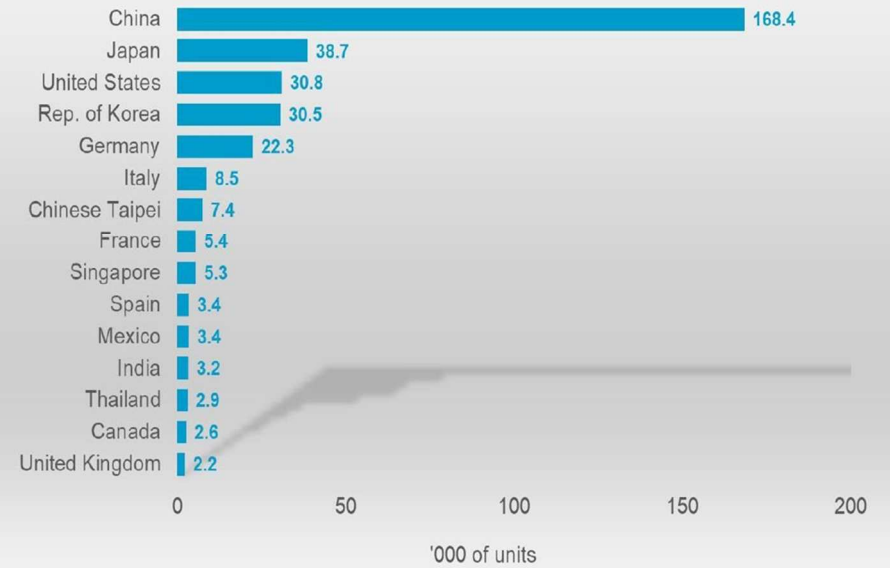
***“ROBOTIC PROCESS AUTOMATION will help humans become more human at work”***

## Estimated annual worldwide supply of industrial robots 2009-2017 and 2018\*-2021\*



## China increases its lead

### Annual installations of industrial robots 15 largest markets 2020



Source: World Robotics 2021




# Factories Relocation From China to SE Asia

**ROBOT MKT POTENTIAL IN SOUTHEAST ASIA**

EPSON  
EXCEED YOUR VISION

✓ Factories started Relocation & Decentralization from China to SE Asia



**Thailand**  
3C: Western Digital, Seagate, CISCO  
Foamtec, Minebea, Fujikura  
Auto parts: Bosch, Magna, Valeo, Continental  
Pharma: Nipro  
Education: Colleges

**Malaysia**  
3C: HP, Western Digital, Finisar, MURATA,  
Samsung, Jabil, Wistron  
Parma: Dexcom

**Indonesia**  
3C: TDK, Philips, Excelitas, SiX, Panasonic,  
Samsung, Foxconn, Pegatron  
Auto parts: Daihatsu, Honda, Astra Otoparts  
Pharma: Kalbe, Bintangtoedjoe, Dexa  
Education: Colleges

**Vietnam**  
3C: Samsung, LG, Liteon, Jabil, ICT, Goertek,  
BYD, Pegatron  
Auto parts: Sumitomo, Bosch, Vinfast  
Pharma: Mani  
Education: Colleges

**Philippines**  
3C: Western Digital, Samsung, Dyson, Murata,  
Toshiba, TDK, Panasonic, SiX  
Auto parts: Continental, Suzuki, Honda  
Pharma: Transition Optical, Terumo

**Singapore**  
3C: Micron, Western Digital, HP

VISION  
BEYOND

EPSON  
EXCEED YOUR VISION

## TIPS, MANAJEMEN KRISIS

1. *Push you people to stay current* (org muda, org tua tetap harus kekinian)
  - Harus belajar dgn teknologi baru
  - harus menciptakan ide2 baru
2. *Evaluation & refresh staff*
  - Training, dilatih (karena jenuh, malas belajar)
  - Perubahan sosial, dulu muda blm punya anak, kemudian sibuk, dst
3. *Education*
  - Harus selalu belajar hal-hal baru
  - Kuntit pesaing baru/ pendatang baru
4. *Reinvent your product/ company*
  - Minimarket, digabung dgn restoran
  - Rubah bangunan, orgnya, warna cat, lampu
5. *Combine old & new*
  - Org muda adalah sumber insprirasi
  - Empower mereka, latih supaya memberi kontribusi
  - Org lama agar tetap fresh

## CONTOH PELUANG KERJA

<https://www.tesla.com/careers/search/job/senior-automation-controls-engineer-79072>

[https://www.tesla.com/careers/search/job/robotics-engineer-gigafactory-texas-93688\](https://www.tesla.com/careers/search/job/robotics-engineer-gigafactory-texas-93688)

[https://www.youtube.com/watch?v=8\\_lfxPI5ObM](https://www.youtube.com/watch?v=8_lfxPI5ObM)



**Terima Kasih**

**Q & A**