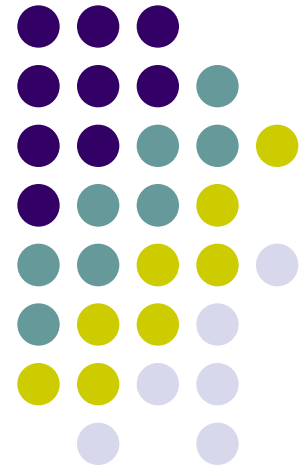




The Challenges of Business Education in the 4th Industrial Revolution Era

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- ❖ What is The 4th Industrial Revolution?
- ❖ Industrial Robots
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- ❖ Final Thoughts



What is The 4th Industrial Revolution?

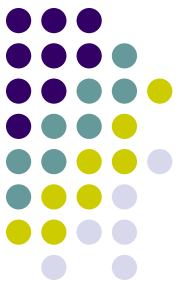
- ❖ Industry 4.0: Smart Factory
 - Computerization of Manufacturing
- ❖ A Phenomenon with The Collection of Breakthrough Technologies Built On the Digital Revolution: Disruptive Innovations
 - Robotics: Automation
 - Industrial Robots in Automobile & Electronics
 - AI: Intelligence (Smartness)
 - Alpha Go, Watson (Medical Doctor, Q&A)
 - Simulation of Human Intelligence By Computer
 - Algorithms: Machine Learning, Neural Network
 - Speech Recognition, Facial Recognition, Interpretation
 - Big Data
 - Affluence of Data: Beyond Human Capacity
 - Search for Valuable Information
 - IoT
 - Interconnected Infra with Sensors



Industrial Robots in Automobile Plants

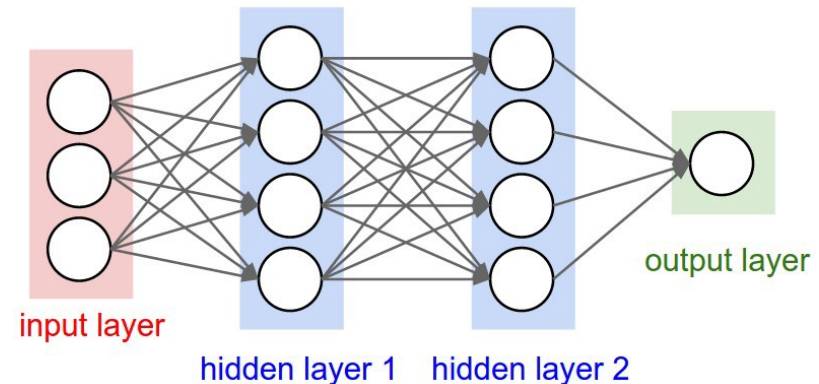
- ❖ Typical Application of Robotic Automation
 - Robots: An Essential Part of Automobile Manufacturing
- ❖ 60% of Industrial Robots: Market Share
- ❖ Late-Mover Advantage
 - Chinese Automobile Manufacturer
 - Leverage the Most Advanced Robots: Commodity
- ❖ The Level of Robotic Automation
 - Honda < Toyota < Hyundai: Reasons? Productivity?
 - Optimal Mix of Human and Robots?





Smartness by AI

- ❖ AI Approaches
 - Rules-Based Approach
 - Rules by Human Insights & Expertise
 - End-to-End Approach: Neural Network
 - From Input (Data) To Output
 - Training Data Set
 - Improved with More Data
 - Many Applications
 - Image Recognition
 - Speech Recognition
 - Language Translation
 - Limitations: Causality Question



- ❖ Great Improvements But Limitations



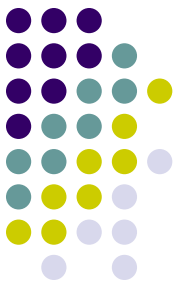
What Will Happen?

- ❖ Commoditization of Automation
 - Robots in Automobile Plants

- ❖ Importance of Human
 - Differentiation is Not by Machines But by Humans
 - Can a Robot Replace Jack Welch?
 - Can Management Be A Commodity?

- ❖ Increased Complexity
 - Beyond Human Capability
 - Unknown Cause

The Challenges of The 4th Industrial Revolution



- ❖ Inequality
 - Rich Gets Richer & Faster
 - Destroy Jobs: Physical or Routine Tasks
 - Salesperson, Accountant, Lawyer: Number & Rule
 - Police Officer, Researcher, Professor: Creative Job?
 - Unequal Society/World
- ❖ Security
 - Weaponisation: Terrorists with Drone, Autonomous Vehicle?
 - Autonomous Vehicle When Snowing/Fogging or in India
- ❖ Complexity
 - A Hyper-Connected World
 - Beyond The Human Capability of Control: No Perfect S/W

Skills Needed for The 4th Industrial Revolution: WEF



1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgement & Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility



Why We Need These Skills?

- ❖ Unclear: To Survive?
- ❖ Participation Mode
 - System User
 - Simple, Easy, & Just Enjoy
 - System Developer
 - Technical Expertise of Specialty
 - System Operator
 - Automated?
- ❖ Human Focus
 - Soft Skills: Current Trend
 - How Can We Innovate In 'Human + Machine (Smart)'?



Challenges of Business Education

- ❖ **Complex Problem Solving**
 - Structured Problem: Rules
 - Operational Decisions, Chess, Go
 - Unstructured Problem: No Rules
 - Strategic Decisions (Wisdom): Knowledge + Experience + Insight
- ❖ **Thinking Capability**
 - Creative Thinking
 - Develop ideas that are unique, useful and worthy of further elaboration
 - Brainstorming, “What if” Questions, Imagination
 - Critical Thinking
 - Question the assumptions underling customary, habitual ways of thinking
 - Scientific Skepticism: Assumptions, Logic & Rationality, Prejudice, Bias, ...
- ❖ **Social Skills**
 - Interaction, Communication, Empathy, Negotiation, Service Orientation, ...
 - What We Learned in Kindergarten
 - Teamwork: Collective Learning
- ❖ **Continuing Education**
 - New Knowledge & Survival in Changed Job Market
 - Who Are Happy?



Final Thoughts

- ❖ The 4th Industrial Revolution is:
 - Fragmented & Interconnected Technologies
 - Spontaneous But Rapidly Growing
 - Emerging The Importance of Human
 - Huge Impact On Business Education But Unknown Final Picture





Q&A