

AI education

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Mega Trend of Education

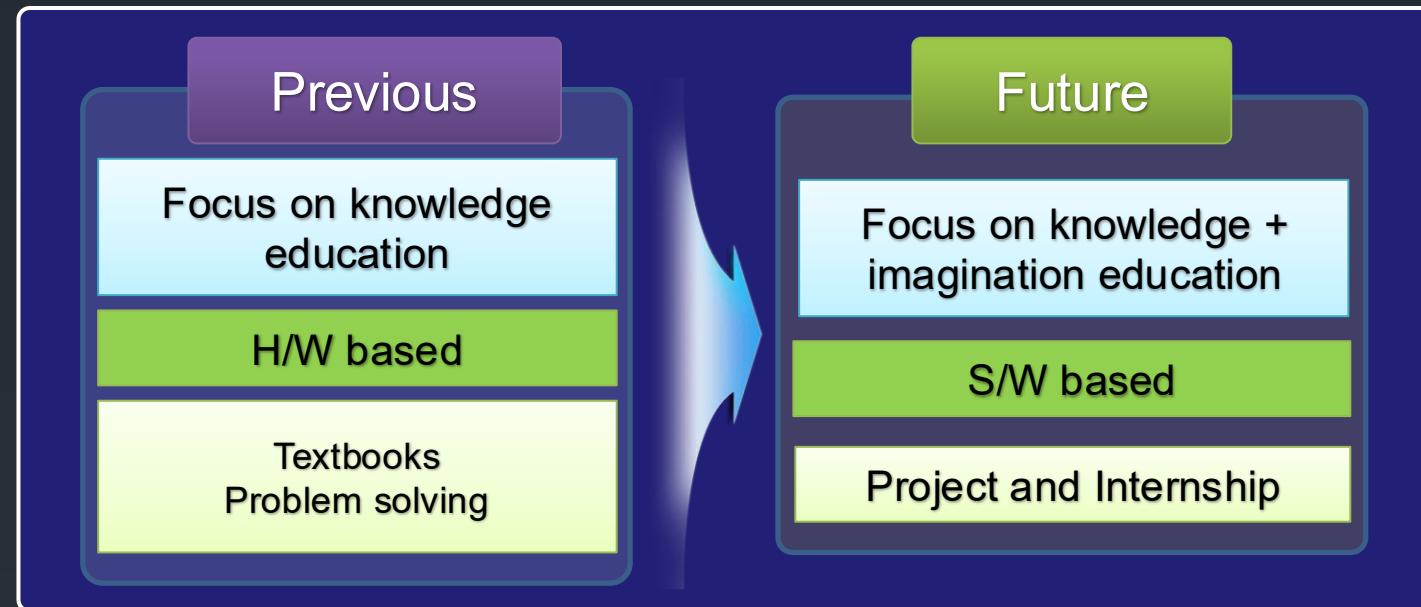
Mega trend of education



Trend of Smart Education

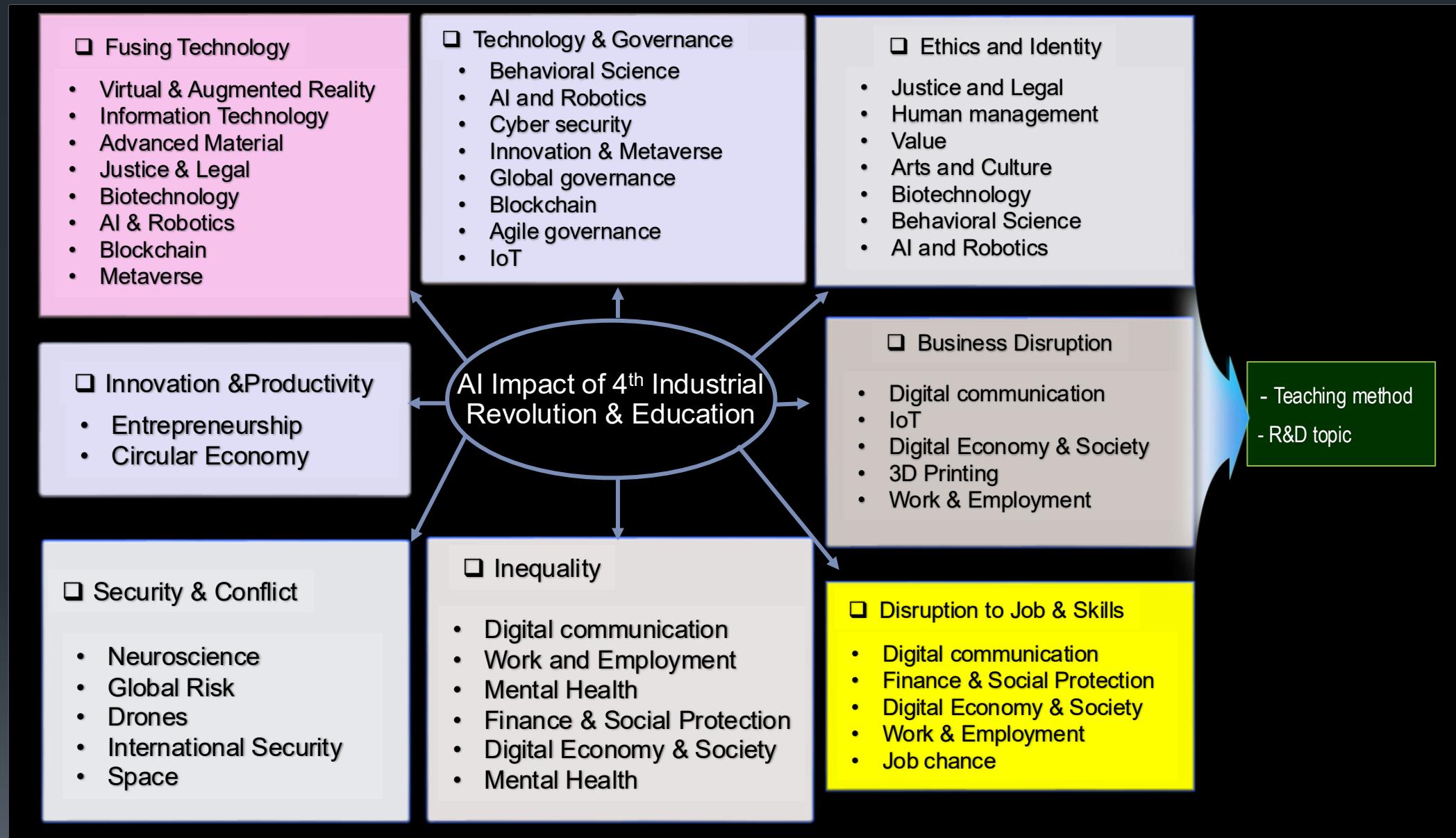


Education and R&D Paradigm

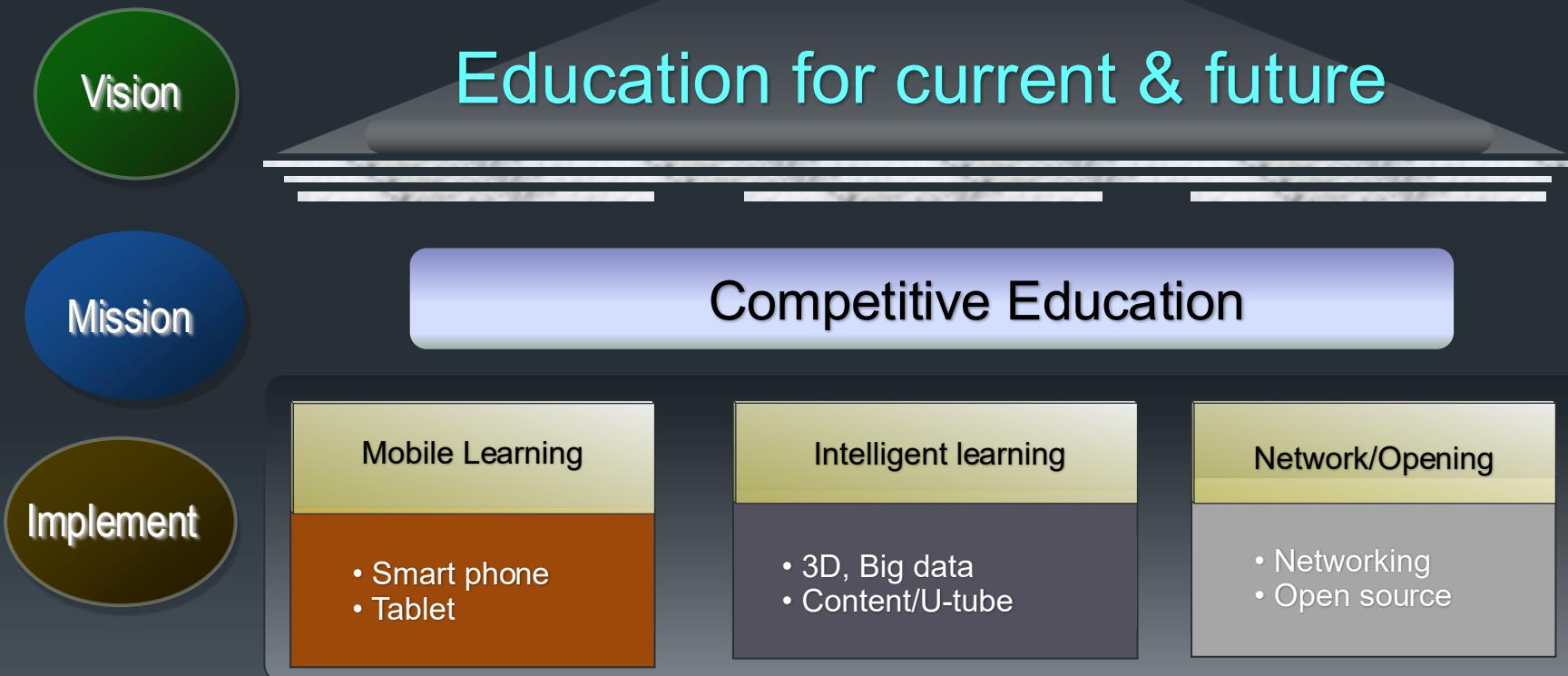


- Idea generation based education
- Open community and open source based education
- Project based education: Self-directed learning

DEVELOPMENT OF TEACHING METHOD AND R&D TOPIC FOR NEW PARADIGM



How to Teach AI? How to Learn AI?



Education Philosophy



AI SCHOOL OF MIT



- *AI College (Oct. 2018)*
- *Donation: Stephen A. Schwarzman*

AI IN JAPANESE UNIV.

- Saitama University (2019, BS)
- Tokyo University (2019, BS)
- Oosaka University (2019, BS)
- Waseda University (2019, BS)



AI IN CARNEGIE MELLON UNI

Carnegie Mellon : AI undergraduate degree

- *From Sept , 2018*
- *Class: 25-30*
- *<https://thenextweb.com/artificial-intelligence/2018/05/15/carnegie-mellon-becomes-first-us-university-to-offer-undergraduate-degree-in-ai/>*



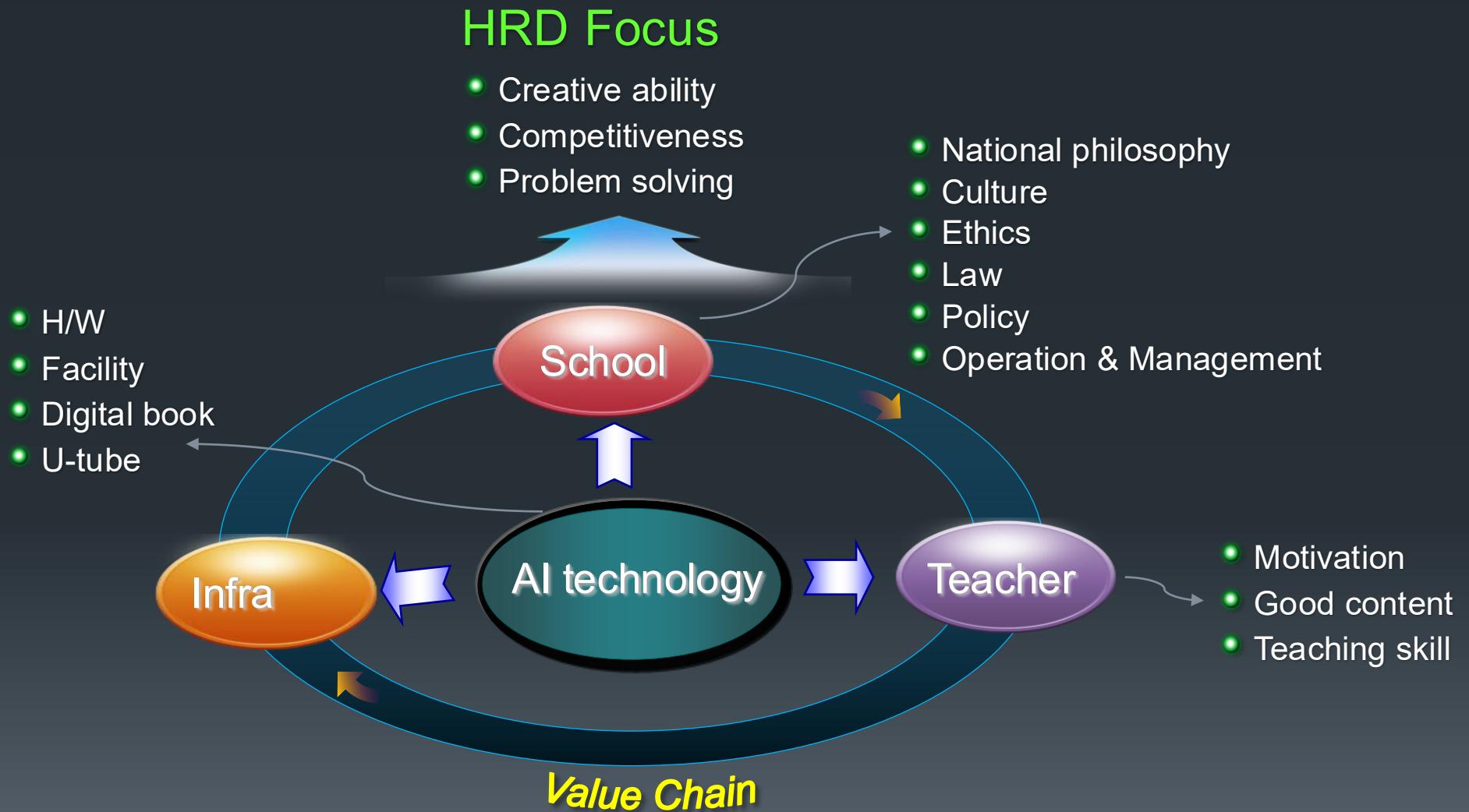
PURPOSE OF SMART EDUCATION SYSTEM

SMART Education Strategy

- To strengthen the capabilities of 21st century's learners
- To provide motivation
 - Self- directed (learning attitude): (자기주도적)
 - Motivated (interest): (동기 및 흥미)
 - Adaptive (aptitude and ability): (수준과 적성)
 - Resource enriched (plenty of learning materials): (풍부한 자료)
 - Technology embedded (ICT utilization): (정보기술 활용)

Know-How Building for AI education

EDUCATION PREPARATION FOR 4TH INDUSTRIAL REVOLUTION

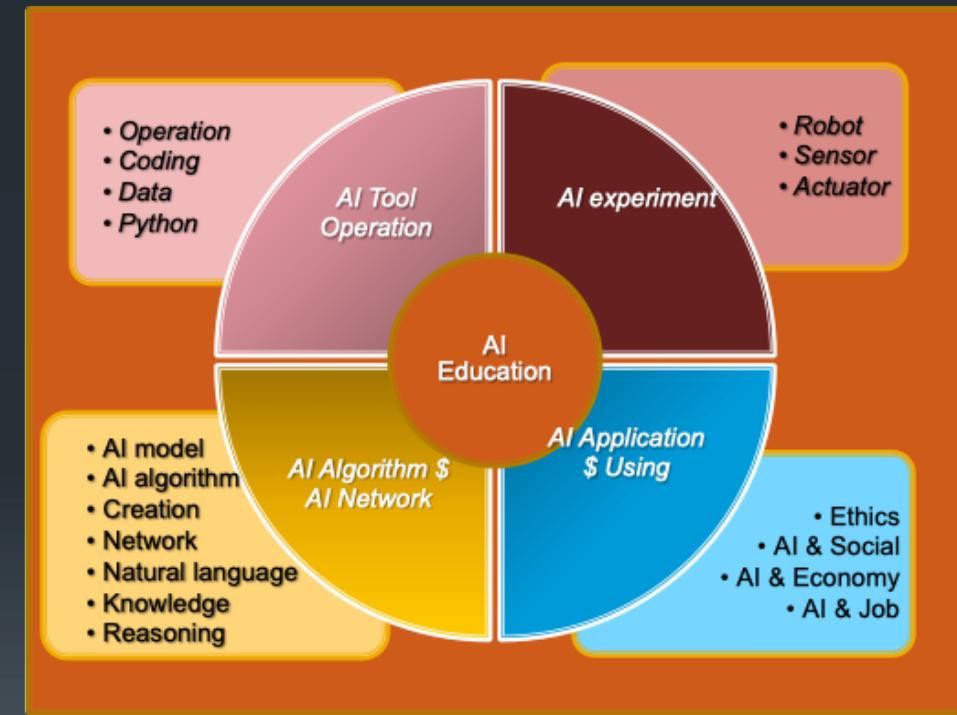
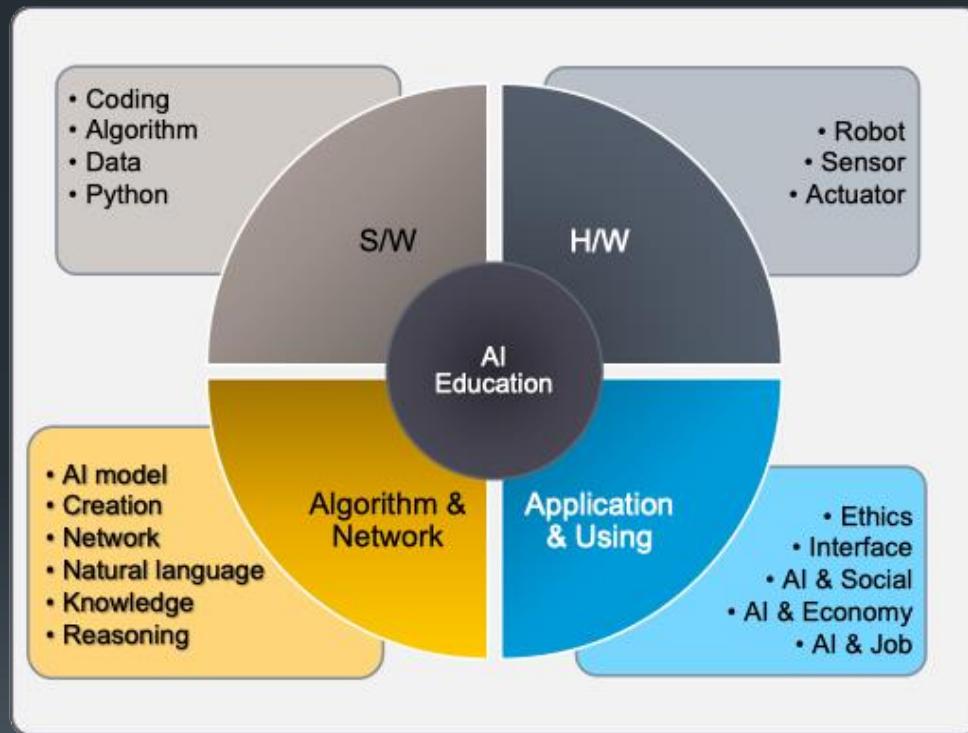


Finland K-12 AI Curriculum structure

	8: Solutions & Syntax: Programming in working life context (Data type, operator, Python, textual programming software, animation, work life skills), 24 session	
	8: ICT introduction: ICT through exploration and projects (Internet, computer security, privacy, information, communication), 24 session	
	7: AI introduction: Machine vision applications (Function, modular, AI, machine vision, processing, probability, AR), 24 session	
10: 3D Development (24 sessions)	6: Develop & Test: Developing a learning game for purpose (Variable, Boolean logic, project, product design, development process, game design, cooperative creation, creativity), 24 session	10: Web design (24 sessions)
	5: Automate: Alarms and robot intelligence (Sensor, actuator, embedded system, automation, variables, thinking), 24 session	
11: Game development (24 sessions)	4: Compute: CT and computer (Computing technology, AI, mathematics, science, language, craft, integration, multi-disciplinary projects), 24 session	11: Innovate (24 sessions)
	3: Code & Create: Interactive stories and games (Loop, condition, statement, project, design, game development, cooperative creative, creativity), 24 session	
12: Game development (24 sessions)	2: Play & Learn-2: Basics of digital creation (Visual programming, animation, pair coding, digital creation), 12 session	12: Machine learning (24 sessions)
	1: Play & Learn-1: Human robots learning to code through play and games (Sequence, command, loop, play, cooperation, gamification), 12 session	
	0: My AI robot: Basic concepts and a positive attitude towards technology (AI, technology, creativity, play, activity), 24 session	
	0: Everyday CT: Promote computational thinking in kindergarten (Thinking, Shift, Technology, AI, Play, Integration), 24 session	

- ❖ 앞의 숫자는 학년이 아니고 단계별 교육임
- ❖ 단계별 교육의 핵심 주제를 설정하고 이 주제에 적합한 교육 내용을 키워드로 제시

Example of Curriculum



Suggested AI Korea Curriculum structure for K-12

AI and solution	9: AI & Solutions & Network: AI and society (Safety, Impact), AI and Economy (Job, Impact), Speech and Image recognition, Knowledge and Inference, AI Programming in working life, AI ethics, Data governance, Python, Team multi-disciplinary project, AI and Innovation, Work life skills for Targeted project, and GaptGPT (Network operation, textual programming software, animation, Web design,)
Deeper AI develop and implementation	8: AI and ICT/network: Network and AI, AI robot, AI ethics, ChatGPT, AI and ICT (Internet, computer security, privacy, information, communication, Team multi-disciplinary project and Current AI)
Wide understanding AI	7: AI deep technology: AI category and implementation method, AI ethics, ChatGPT, AR/VR, and Machine/Deep learning (Function, modular, AI, machine vision, processing, probability, Team multi-disciplinary project)
AI deep understanding	6: AI and developing: Developing a learning, AI ethics, Knowledge development, and ChatGPT (Variable, Boolean logic, project, product design, development process, game design, cooperative creation, creativity, knowledge development, Team multi-disciplinary project)
AI foundation	5: AI and implementation: AI and intelligent robot, coding (Python and scratch), Knowledge inference, AI ethics, ChatGPT (Sensor, actuator, embedded system, automation, variables, knowledge and creative thinking, Team multi-disciplinary project)
Kindergarten	4: Computing and AI: Computing technology, Coding and AI, AI robot, AI ethics, and ChatGpt (AI, mathematics, science, language, creativity, integration, Knowledge inference, multi-disciplinary projects)
Kindergarten	3: Code & Creative AI: Code AI, game AI, AI ethics, AI speech and recognition, AI and Data, and ChatGPT(Loop, condition, statement, project, design, game development, cooperative and creative,)
Kindergarten	2: Coding & Learn AI: AI basic principle and coding, Code and robot (Smart machine), Data principle and AI, AI and Smart life, AI Ethics, and Chat GPT (Visual programming, animation, coding and playing, digital creation, cooperation, Team multi-disciplinary project)
Kindergarten	1: Play & Coding AI: Human robots and code introductions through play and games, Data, AI ethics, and Chat GPT (Sequence, command, loop, play, cooperation, animation)
Kindergarten	0: Playing game AI: Basic concepts and creative knowledge, Basic programming, ethics (AI, technology, creativity, play, activity, Useful using)
Kindergarten	0: AI play and Game: Computational & Knowledge thinking, AI definition (Thinking, Technology, AI play, and Cooperation with AI, Ethics and AI)

Course	Content	Student Evaluation	Teacher Evaluation	Course	Content	Student Evaluation	Teacher Evaluation
Adult Informal	<ul style="list-style-type: none"> • Ethics, culture • Application • Using method • Technology pattern 	Adult	No	High school (3-year)	<ul style="list-style-type: none"> • Ethics, Culture • 4th Concept, crisp math. Fuzzy math, Natural society, Computer science, Internet & network, Optimization concept, Robot & AI basic, Economic & High tech. Personal characteristics and work, Science & Engineering, Data science, Network principle, Distributed system, Network device, IoT society & Job, Leadership, Digital money, VR, AR, Knowledge thinking, Project and Creative 	The level of student's understanding of subject	The level of student's understanding of subject
University (4-year)	<ul style="list-style-type: none"> • Ethics, culture • 4th Concept, crisp math. Fuzzy math, Natural society, Computer science, Internet & network, Optimization concept, Robot & AI essential, Economic & High tech. Personal characteristics and work, Science & Engineering, IoT, Data science, Blockchain, Distributed system, Digital money and Economy, Leadership, Science & Technology policy, Technology pattern, Economy & Job & Modern technology, AI application, AI & Data & IoT & Blockchain network technology • Technology application, • AR/VR • Chat GPT using • Natural & AI • Knowledge & AI 	Student's self evaluation (Test or project)	No evaluation for teacher (prof.)	Middle school (3-year)	<ul style="list-style-type: none"> • Ethics, Culture • 4th Concept, crisp math. Fuzzy math, Natural society, Computer science, Internet & network, Optimization concept, Robot & AI basic, Economic & High tech. Personal characteristic and work, Data principle, Network principle, Digital money, Knowledge & creative thinking Project 	play and toy	Evaluation for teacher's playing
				Primary Course (6-year)	<ul style="list-style-type: none"> • Ethics, Culture, 4th concept, toy-based AI, Tech. & Leadership, AI algorithm, Data, Creative thinking project 		
				Kinder-garten	<ul style="list-style-type: none"> • AI-thinking, Positive tech. • Play & Toy based AI learning & Teaching 		

Thanks for your attention