



Equipment Value in the Digital Economy

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Equipment development history

02

New intelligent equipment

03

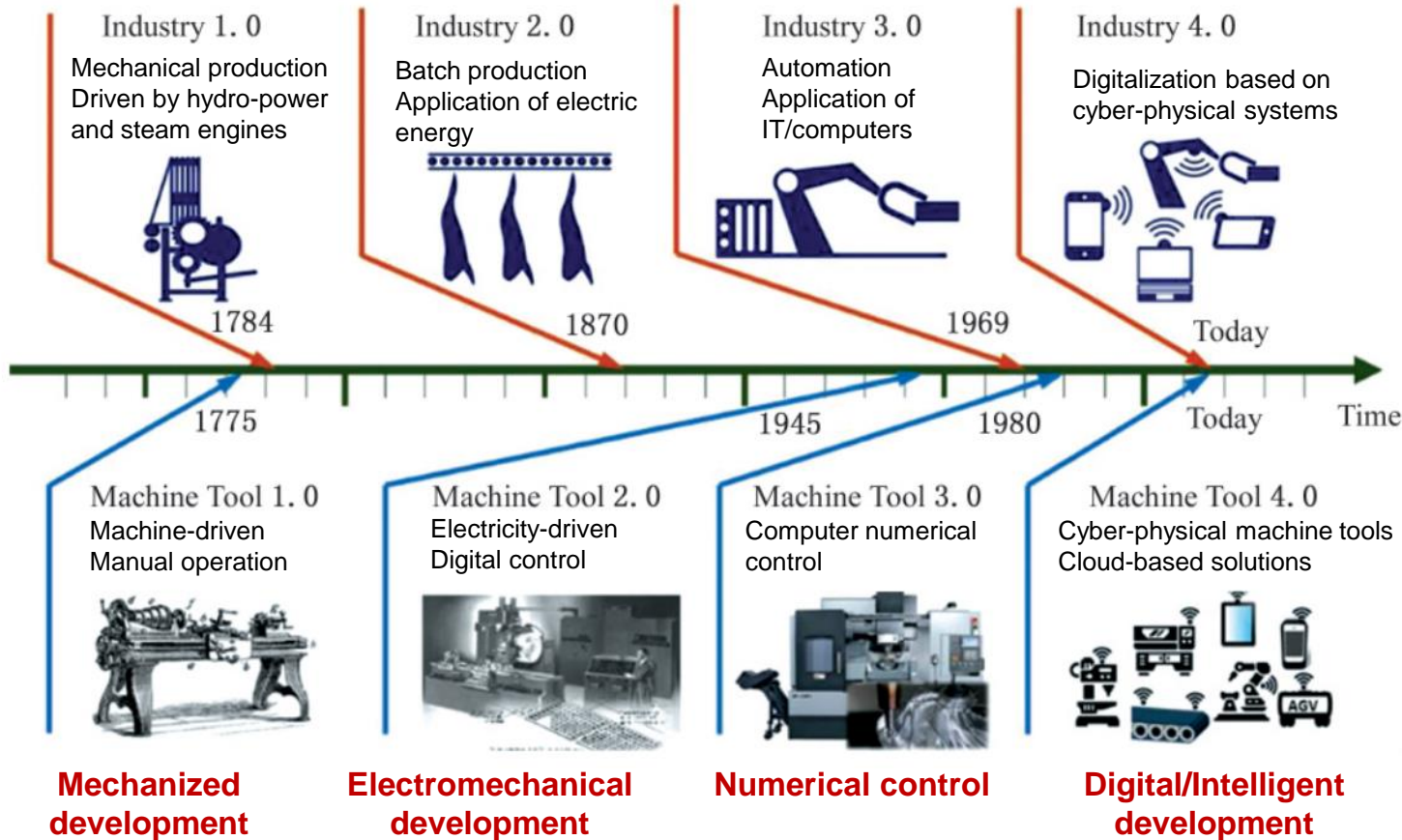
New value system

04

New models and scenarios

1. Equipment development history

From the perspective of production tool transformation, equipment has gone through four stages of development: **mechanized, electromechanical, numerical control, and digital/intelligent.**



We are entering an era in which all things are intelligent and connected, characterized by equipment digitalization and the convergence of humans, machines and things. Intelligent equipment will inevitably see widespread use as new production tools, transforming how we produce and live.

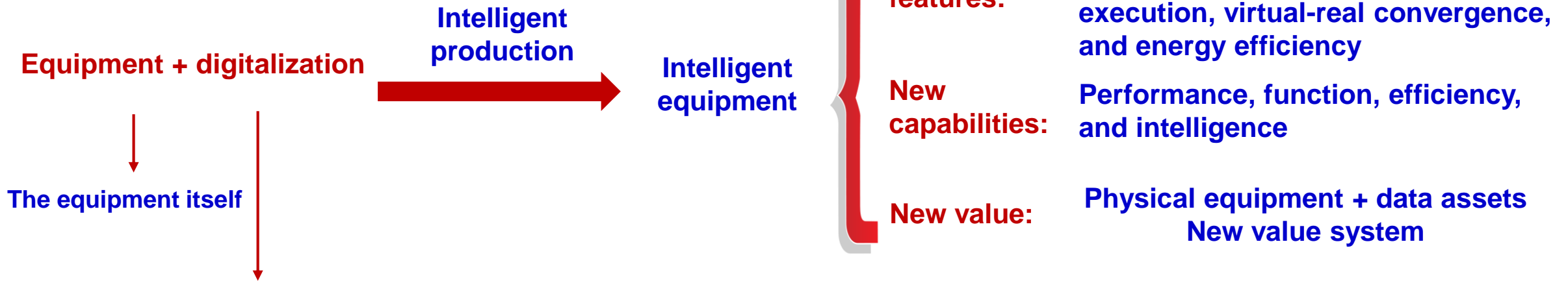
Take the evolution of machine tools as an example

—Professor Liu Qiang, The Development History and Future Trends of CNC Machine Tools

2. New intelligent equipment



Equipment digitalization

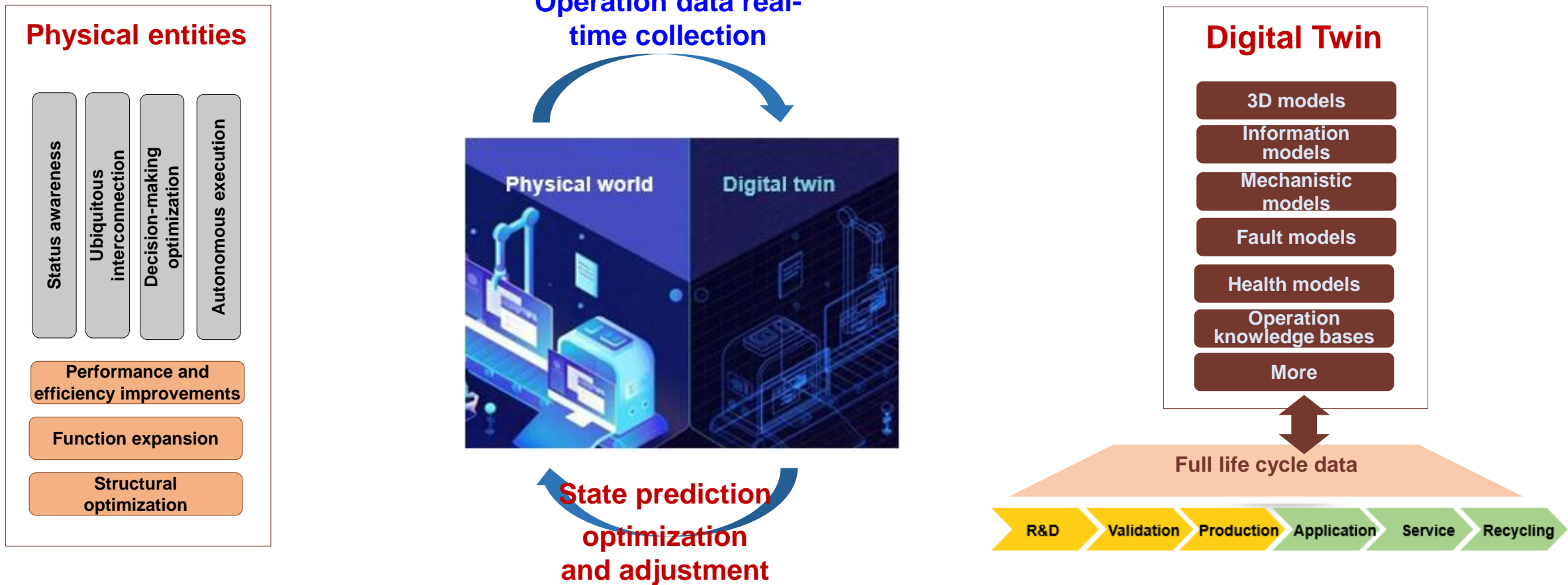


Digital technologies: intelligent sensing, Internet, big data, Digital Twin, artificial intelligence, blockchain, etc.

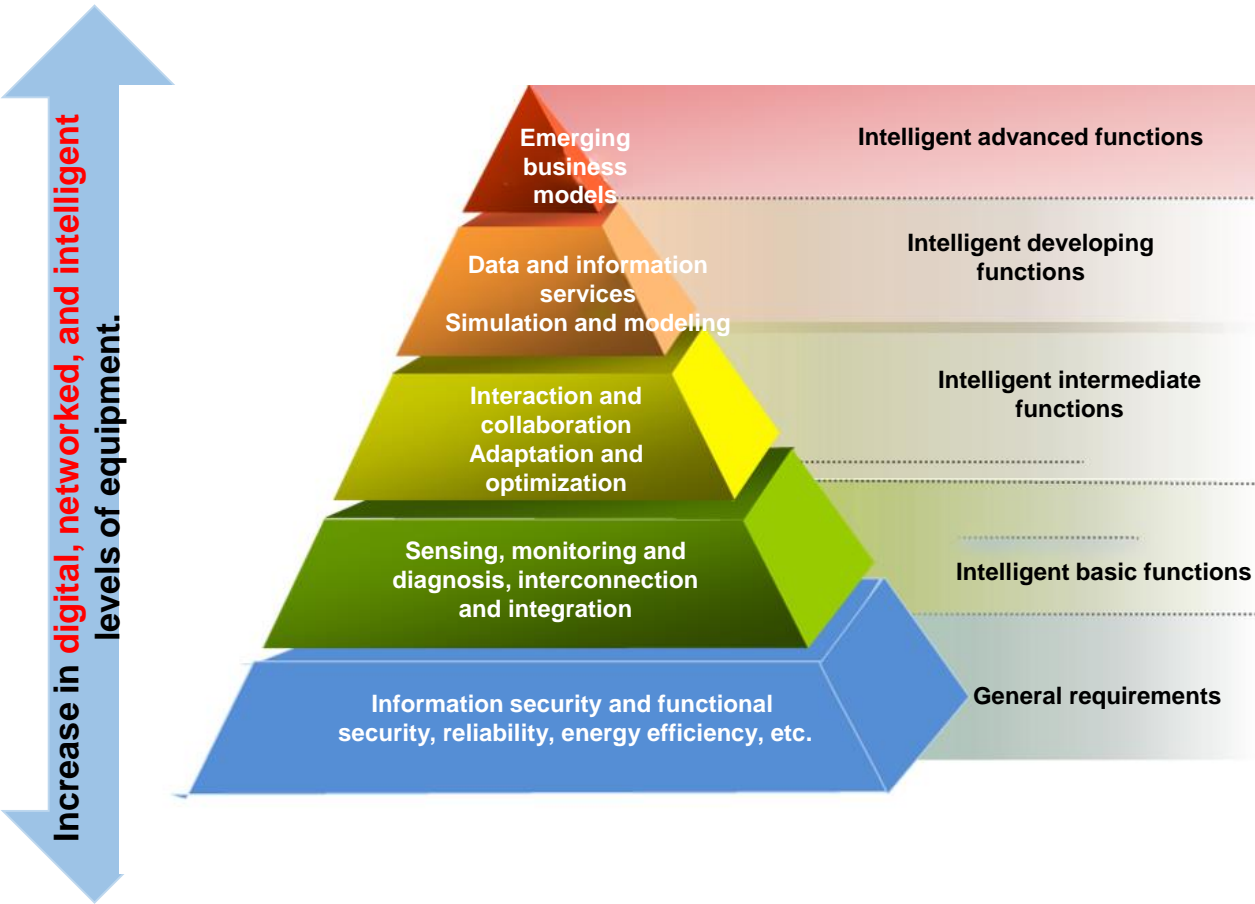
- **Equipment digitalization** deeply integrates digital and equipment technologies, promotes the transformation of equipment R&D, production, and services, and develops **intelligent equipment** with features such as state awareness, ubiquitous interconnection, decision-making optimization, autonomous execution, virtual-real convergence, and high energy efficiency, building a **new value system** of physical equipment and data assets.

2. New intelligent equipment

The most substantial feature - constructing **physical + digital twin** featuring virtual and real convergence



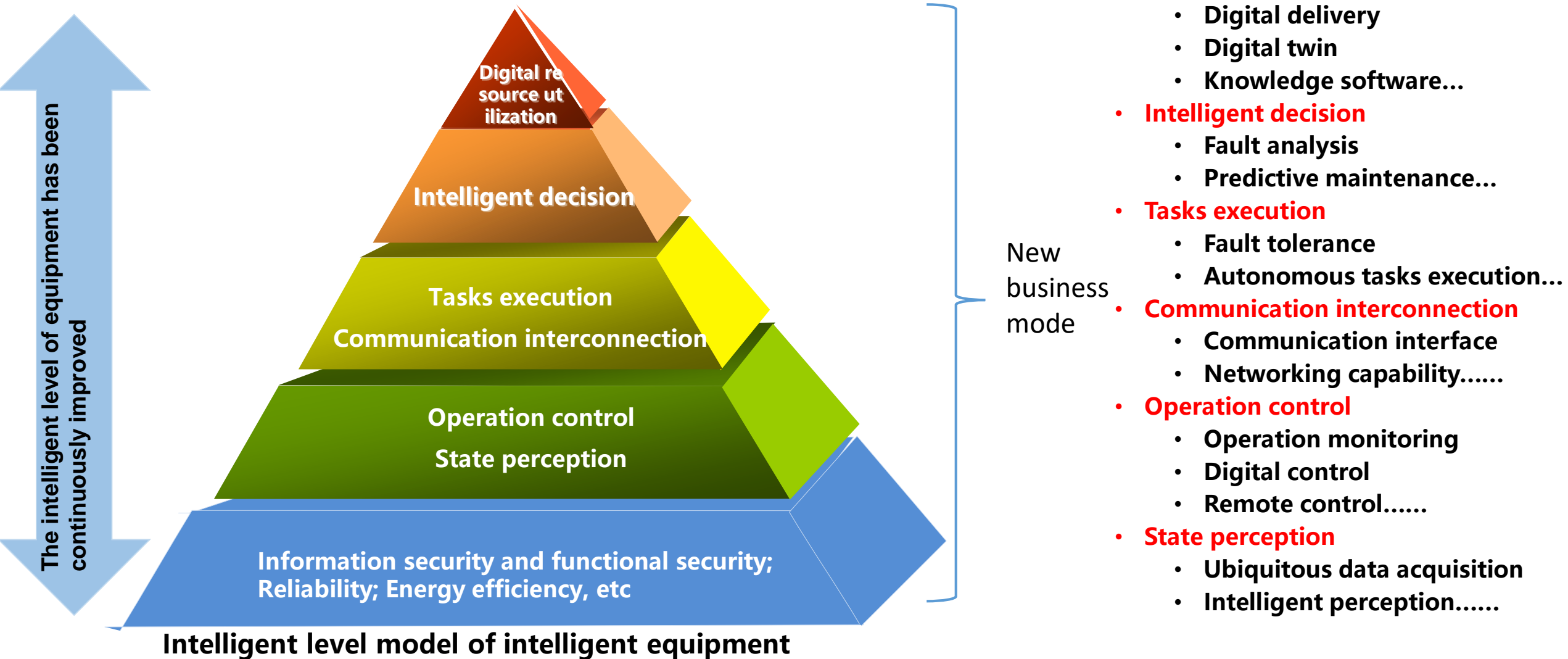
2. New intelligent equipment



Equipment IQ evaluation index system (the top two levels of indicators)

Intelligent Feature	Level-1 Indicator	Level-2 Indicator
Awareness	Status awareness	Intelligent sensing
Interconnection and integration	Communication interconnection	Communication interfaces
		Networking capability
Monitoring	Operation control	Operation monitoring
		Digital control
Adaptation and optimization	Analysis and decision-making	Remote control
		Fault diagnosis
Adaptation and optimization, and interaction and collaboration	Operation execution	Predictive maintenance
		Fault tolerance capability
		Adaptive operation execution
Simulation and modeling, and interconnection and integration	Manufacturing processes	Autonomous operation execution
		Digital design
Data and information services, and emerging business models	Digital resources	IT-based production
		Digital delivery
		Digital Twin
		Software-based knowledge
Other	Other	Data resource collection
		Other

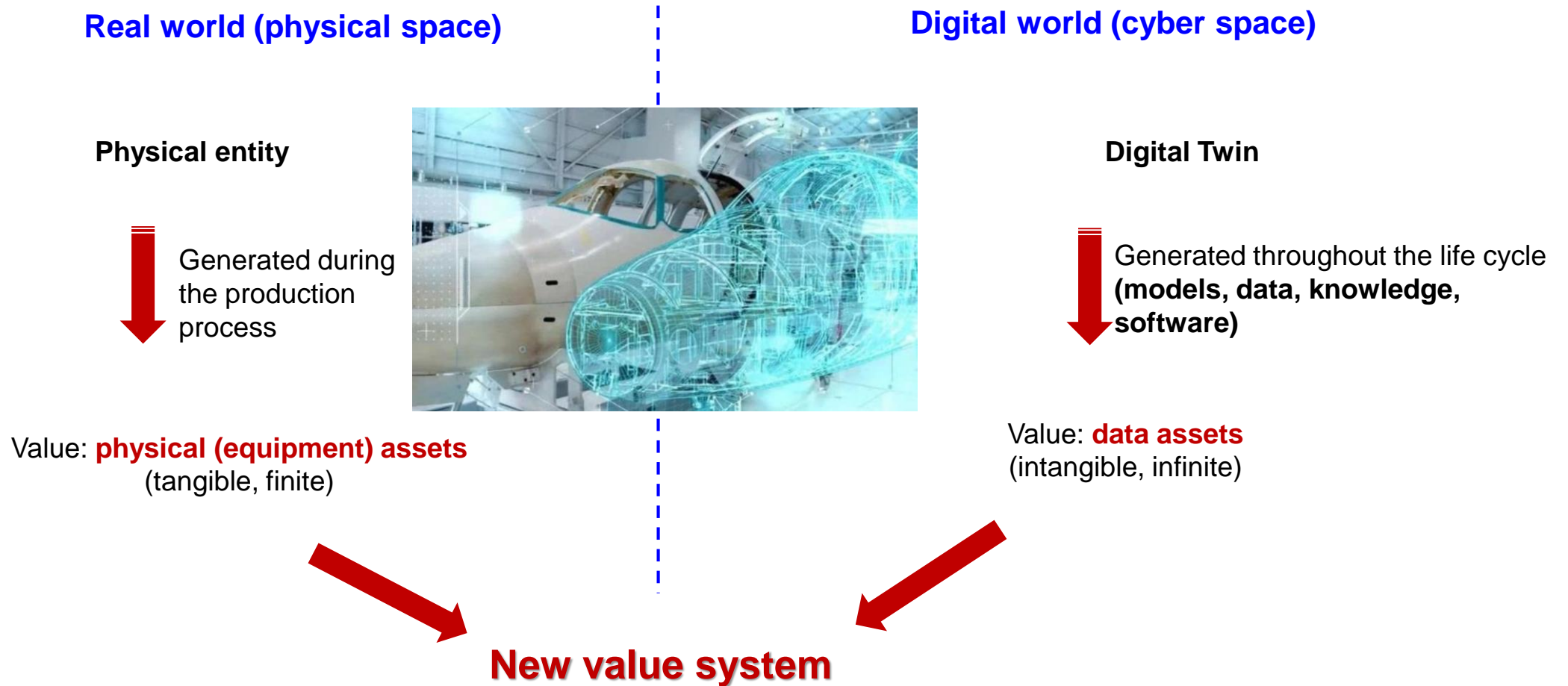
二、New intelligent equipment



3. New value system

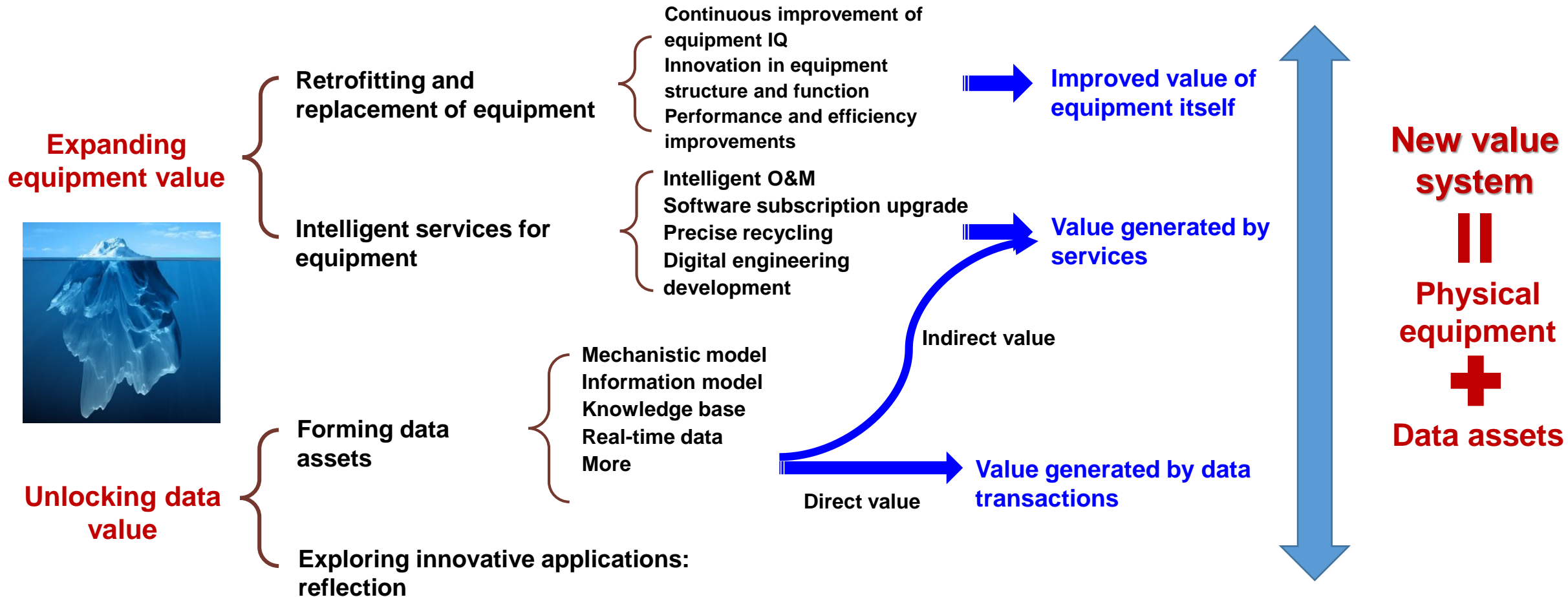


With the rapid development of the digital economy, data has become a new production factor.
Data inevitably becomes an asset.



3. New value system

The value of equipment has evolved from that of equipment itself, supplemented by value of services, to a new value system of "physical equipment + data assets".

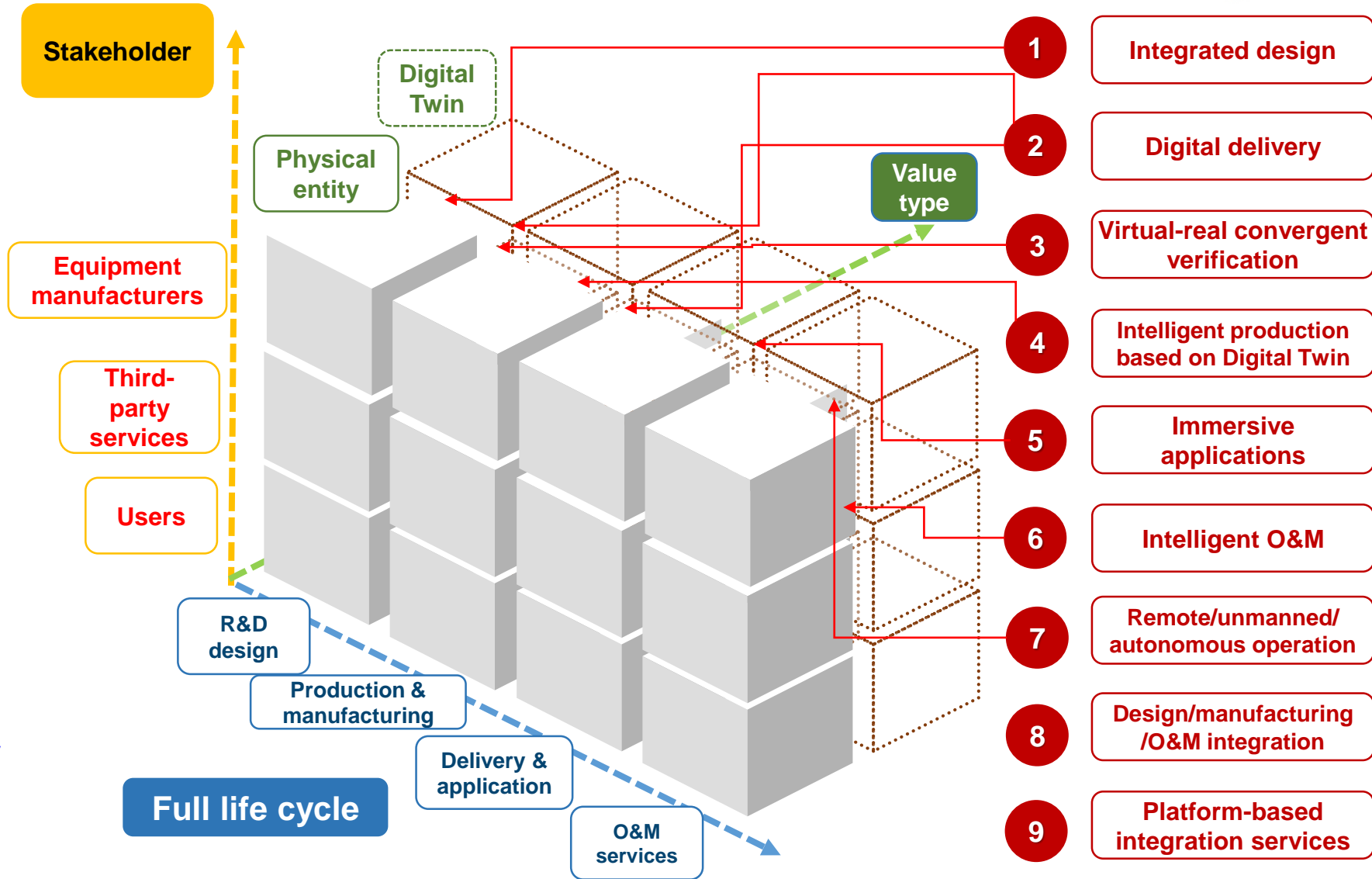


4. New models and scenarios



New models and new business forms

- **Essence:** new management models and new service forms derived from the convergence of new technologies
- **Coverage of entire product lifecycle:** R&D, manufacturing, application, service, and cross-phase
- **Stakeholders:** equipment manufacturers, users, and third-party services
- **Value type:** value of physical entity and value of Digital Twin



4. New models and scenarios



Typical digital application scenarios

Smart manufacturing, smart transportation, smart energy, smart agriculture, smart healthcare, smart engineering and other scenarios



- Autonomous operation of ports
- Autonomous driving in campuses
- Airport V2X
- Material control on trunk lines
- More

Smart manufacturing



Smart energy

- Precision seeding
- Smart crop management
- Weather forecast
- More



Smart healthcare

- Remote control
- Smart construction
- Predictive maintenance
- More

- Man-machine interaction
- Device health management
- Smart warehousing and logistics
- Smart detection and traceability
- Remote O&M
- More



Smart transportation

- Smart wind power
- Unmanned oil production
- Smart mining
- More



Smart agriculture

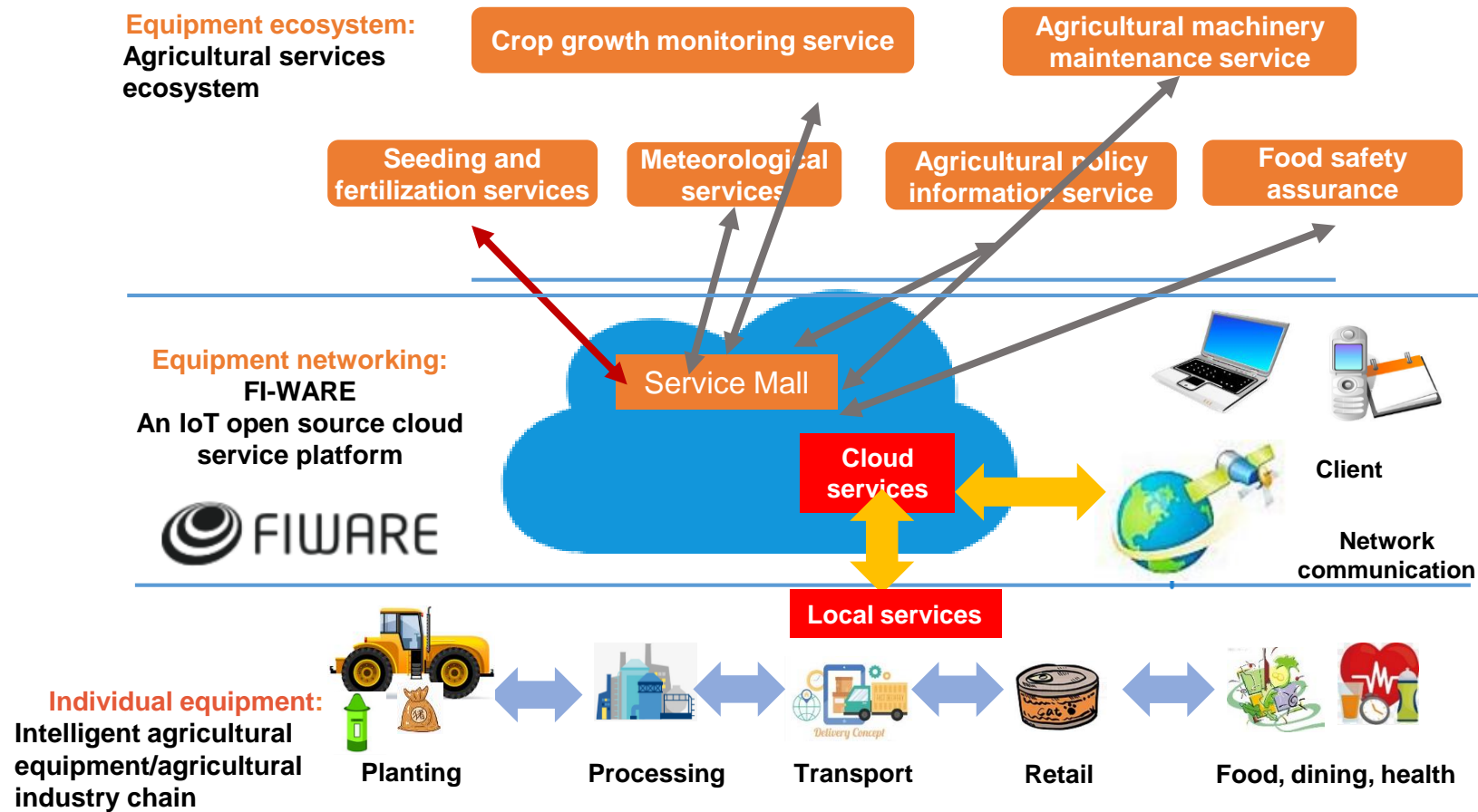
- Clinical auxiliary diagnosis
- Remote consultation
- Smart health management
- More



Smart engineering

4. New models and scenarios

- An innovative business model based on intelligent equipment – the agricultural services ecosystem of John Deere, an American company





Thank you!

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