

# From complexity to AI: Managing the ecological transition

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# EVOLUTION OF GLOBALIZATION CONCEPT

## 3 MAIN FACTORS

- ECONOMY (1947 starts the progressive enlargement of the market/space with barriers elimination. From closed to **open system**)
- TECHNOLOGY (1991 with INTERNET starts the progressive actors interconnection. Reduction of **time to ZERO**)
- DIGITIZATION (2002 with more than 92% of produced digital data starts the process of **abstraction**, from atom to bit to atom. Intelligence/knowledge get into matter transforming it)

## THE THREE CHANGES OF PARADIGM

- FROM CLOSE TO OPEN SYSTEM  
(linearity-complexity, certainty-uncertainty, wordsare-disordis, determinism-random)
- SPACE-TIME REVERSE  
(more efficiency, role, critical mass subsidiarity, decentralization, me-we)
- MATTER-INTELLIGENCE/KNOWLEDGE  
(Quality, added value, soustainabilty)

# “TABULA RASA” “NEW WINE IN NEW SKIN»

## WHERE TO START AGAIN? FOUNDING CRITERIA

### A NEW WAY OF THINKING

- GET OUT OF CARTESIAN THINKING (stop to reduce, simplify, separate, divide) and
- START WITH A REVERSE APPROACH (unifying, aggregating topics, )
- VISION (to see and to go further, to give certainty)

### NEW ORGANIZATION (INTELLIGENT/SMART NETWORK)

- DISTRIBUTED INTELLIGENCE (human capital)
- COLLABORATIVE INTELLIGENCE (social capital)
- TECHNOLOGICAL INTELLIGENCE (technological capital)

### A NEW WAY OF PRODUCING

- DIGITALIZATION (RE-ENGINEERING PROCESSES, ABSTRACTION)
- BOTTOM-UP (ADDITIVE PRODUCTION)
- FLEXIBILITY, ADAPTABILITY
- CREATIVITY, INNOVATION, ADDED VALUE

# THE KNOWLEDGE-BASED ECONOMIC MODEL

## THE BASICS:

- LIMITED PRODUCTION WITH HIGH ADDED VALUE
- USE OF KNOWLEDGE AND TECHNOLOGIES (BIG DATA AND AI)
- LOWER USE OF NATURAL RESOURCES (SIMPLIFICATION, INTEGRATION, MINIATURISATION)
- BRAIN INTENSIVE
- DIGITIZATION, DEMATERIALIZATION, IOT, IOE
- REVERSAL OF THE PRODUCTION PARADIGM (SUBTRACTIVE-ADDITIVE, PRODUCER-CONSUMER)
- NANOTECHNOLOGIES AND CONVERGENCING TECHNOLOGIES
- PERSONALIZATION
- THE PERSON AT THE CENTER OF THE PRODUCTION SYSTEM
- FROM THE INDUSTRIAL ECONOMY TO THE SOCIAL MARKET ECONOMY
- MODEL DRIVEN BY SOCIETAL DEMAND AND NEEDS
- TWO FACTORS OF PRODUCTION (CAPITAL AND KNOWLEDGE)

## SMART, SOUSTAINABLE AND INCLUSIVE GROWTH THE BIG CHALLENGE

### WHERE TO START ? FROM PROSUMER A NEW WAY OF THINKING

- AVOID TO SEPARATE THE PROBLEMS
- NO OLISTIC APPROACH NO SOLUTION
- THINK OUT OF THE BOX

### A NEW SMART ORGANIZATION

- A SMART MULTIDISCIPLINARITY TEAM (human, social intelligent network)
- A SMART TECHNOLOGICAL NETWORK (interconnecting AI, distributed AI, 4D Printing Machines, Robots and Metaverse)
- TRANSFORM 4D PRINTING IN A MULTIFUNCTION MACHINE (able to act as distributed AI and/or Robot according to the needs)

### A NEW WAY OF PRODUCING

- DEFINE PRODUCT CHARACTERISTICS AND FUNCTIONS USING METAVERSO (social and price acceptance)
- SEND DATA TO DISTRIBUTED AI (4D PM) TO COLLECT AND TO ELABORATE LOCAL DATA
- LOCAL ELABORATED DATA TO AI FROM DISTRIBUTED AI (4D P M)
- USE DATA RECEIVED FROM AI TO START ADDITIVE PRODUCTION (4D PM and/or Robot)