

**IPR-related policies with a look at AI**

**Upside Down?**  
**The Artificial Intelligence-Led  
Revolution and Its  
Wider Trade Implications**

*Laurent Manderieux*  
*L. Bocconi University*

*CIVICA Project Workshop*  
*01 July 2021*

## **OUTLINE**

### **The AI REVOLUTION**

**An “old” revolution and a new revolution**

### **MANY DEFINITIONS OF AI that provoke a Revolution**

- **The WIPO Technology Trends Report Definition and Beyond**
- **How AI may affect most key IP and Trade related concepts?**

### **A REVOLUTION LED BY EASTERN ASIA AND NORTH AMERICA**

- **Scary statistics for Europeans: thinkers rather than actors**
- **Dominance by patents**

### **FUNDAMENTAL OPEN DEBATES ON THE AI LED REVOLUTION FOR TRADE-RELATED MATTERS**

## **The AI REVOLUTION: An “old” revolution and a new revolution**

- **AI issues appear in the 1950s and the 1960s**
  - **AI: an invented term at Dartmouth Conference in 1957**
  - **Strong Government Funding / Enthusiasm**
- **Two eclipses in the 1970s and late 1980s**  
**due to limitations in computing machines**
- **AI is back in the 2000s**
  - **More powerful computing machines (IBM, Apple, etc..)**
  - **Much increased data (Google+++)**

Many definitions of AI that provoke **IN ANY CASE**  
a Revolution: **AI as a step BEYOND DIGITALIZATION**

Constant evolution of AI definition over time > No single  
accepted definition:

AI may mean “Superintelligence”

AI may mean systems that

- think like humans
- act like humans
- think rationally
- act rationally

AI may mean intelligent agents

AI may only means Machine Learning, etc...

## **Many definitions of AI that provoke in any case a Revolution (II)**

**For the purposes of the WIPO Technology Trends Report:  
“Artificial intelligence (AI) is viewed as learning systems which  
become better through training at a task typically performed by  
humans with limited or no human intervention**

**This encompasses a wide range of AI techniques and functional  
applications**

**Definition reflecting narrow AI (individual tasks performed by these  
learning systems)**

**≠ artificial general intelligence (AI performing any intellectual task  
that could be undertaken by the human brain )**

**≠ superintelligence (the hypothetical ability of a machine to  
far surpass the human brain)”**

## Many definitions of AI that provoke a Revolution (III)

**Under the WIPO Technology Trends report AI-related technologies are (for now) only categorized as follows:**

- **techniques used in AI, such as machine learning**
- **functional applications, such as speech processing and computer vision**
- **application fields, including telecommunications and transportation**

**But WIPO accepts for the time being that this is a narrow definition of AI**

## Revisiting IP Concepts beyond AI Definitions

IP adapted to technical revolutions over 150 years (including the Internet) but NOT to AI

We can consider 4 key problems

1. AI output issues: the concept of inventor /authorship, and of originality /non obviousness in IP Law are deeply changed

**EFFECTS ON TRADE /TRADE RULES?**

2. AI input issues: can even AI become an Inventor or Author on its own? If so, what about

- Liability of AI for its creations?

- IP of those who “fed” the AI Inventor or Author?

**EFFECTS ON TRADE /TRADE RULES?**

3. AI can be platforms for collective works /collective authorship: concept of “data mill”

**EFFECTS ON TRADE FLOWS?**

4. AI as a tool to support IP promotion

- Patent/TM/ID search

**EFFECTS ON TRADE ENFORCEMENT?**

- Fighting Infringement ++

## **A REVOLUTION LED BY EASTERN ASIA AND NORTH AMERICA**

**Scary innovation / patent statistics for Europeans: thinkers rather than actors?**

- **Complete dominance of Chinese universities**
  - 17 out of top 20 academic patent applicants are from China
  - Remaining 3 are the Republic of Korea
- **Out of the top 500 patent applicants:**
  - over 100 Chinese Public Research Institutions
  - U.S. and the Republic of Korea each have around 20
  - Japan and Europe have 4 each

**EFFECTS ON TRADE!!!!**



## **A RECENT DOMINANCE OF PATENTS IN AI**

**A Revolution favourable to Patent protection rather than  
Copyright protection for creativity >>>>EFFECTS ON TRADE**

- **50% of identified AI inventions published after 2013**
- **Some 340,000 patent families and over 1.6 scientific publications**
- **Scientific publications on AI blossomed as of 2001 (nearly 10 years before blossoming of patent applications)**
- **Decrease in ratio of scientific papers to inventions:  
8 vs.1 in 2010 to 3 vs.1 in 2016**
- **The market of AI is now mature: some 70% of AI inventions mention at least one AI technique, functional application or field in combination): this is a shift from theoretical research to use in AI for business and retail applications**

## **COPYRIGHT AND AI: a few fundamental open questions**

**- Imposing human authorship as a prerequisite to copyright threatens the protection and production of works that often can alternatively be produced by AI or humans**

**vs.**

**AI-generation of new creations based on training of machines can be done with little marginal costs, and explore all types of combinations and variations, thus blocking originality**

### **EFFECTS ON TRADE RULES?**

**- Academia often considers human presence essential vs. Public Authorities (Asia, but also US (despite “merger doctrine” and somehow Europe are less affirmative in this respect (international economic race?)**

### **EFFECTS ON TRADE TENSIONS?**

## **Patents, Trademark, and Design Law in Europe: a few Fundamental Open Questions**

**Identical problems, as “technicality” of AI affects novelty and originality**

**> European objective: promoting AI but avoiding all expressions/forms necessary to express an idea/obtain a technical result to be appropriated together to preserve freedom of creativity**

**cf. EPC**

**Art. 7(1)(e)(ii) of EU Trademark Regulation 2017/1001**

**Art. 8(1) of EU ID Regulation 6/2002**

**cf. ECJ: DOCERAM, C-395/16 (Design): against multiple applications barring competition**

**EUROPE vs EASTERN ASIA on this crucial Trade Matter?**

**The AI Revolution**  
*Laurent Manderieux*

**Laurent.manderieux@unibocconi.it**