Call for papers – Special Issue

Artificial Intelligence and the Economics of Innovation

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Over the course of the last decade, the digitalisation of the economic activity worldwide, has experienced a drastic acceleration through the advancement of automation and artificial intelligence (AI). The drastic improvement in AI capabilities and machine learning, surpassing human performance also on strategic and decision-making tasks, has spurred a dramatic increase in the investments related to AI and in mergers and acquisitions of AI-related firms. The range of applications of AI surpasses the boundaries of the ICT sector. The advances in AI are allowing for the digitalisation and automation of tasks requiring human-like intelligence, in most sectors.

This wide range of potential applications confers to AI the potential status of a general purpose technology (GPT) (Trajtenberg 2018). Such as earlier GPTs (such as the steam engine, electric power or the computer) AI may drastically transform production, consumption, income distribution of income and employment. Such as earlier technological transformations AI generates at the same time fears and excitements. The most optimistic focus their excitement on the potential for growth, development and the creation of new jobs. The most pessimistic point to the destruction of existing jobs and to underemployment. Somewhere in between, some notice that during previous industrial revolutions triggered by major technological changes, the interplay between the human resources made available by the automation of menial tasks and job destruction paved the way to the creation of complementary jobs. This was also accompanied by the transition of labour to complementary sectors surged to overcome bottlenecks in existing economic activities. Overall, this gave way to economic growth and creation of new jobs (see Keynes 1930, Leontief 1983, Mokyr 1990, Autor 2015).

However, differently from previous waves of disruptive technological change, the most recent job displacements induced by the automation taking place in the 1980s and 1990s has led to

structural unemployment or underemployment (Katz and Krueger 2016) and job polarisation (see Autor, Kearney and Katz 2006). This potential difference lends credit to the pessimistic view. The growing complexity of recent waves of automation might have drained out the potential for further complementary job creation that compensate for the job destruction. AI related automation may not be different, as it may replace as well the supervision of activities automatized in earlier waves.

Beyond the job creation and destruction debate, AI may lead to a new productivity paradox. Despite AI is being slowly adopted (or perhaps at a too early stage of adoption), productivity in most OECD economies remains stagnant. The impact of AI on economic performance is still unclear. On the one hand, because adoption of AI is still low, the impact on productivity cannot yet be identified. On the other hand, the intangible nature of AI may require to revise the measurement of productivity and economic performances more in general (Brynjolfsson et al 2017).

Beyond OECD economies the digitalisation of economic activities has led scholars to question the integration of developing economies and their development in a globalised economic environment. On the one hand, several scholars have proposed that services might have replaced manufacturing as an engine for economic development and integration in the global economy (see Dasgupta, Singh 2005, Rodrik 2015, Di Meglio, Gallego, Maroto, Savona 2015). On the other hand, some authors propose that the labour-saving impact of automation and AI instead induce reshoring of production (see among others Dachs, Kinkel, Jäger (2019), Hallward-Dreimeier, Nayyar, 2019). Recent evidence also shows that AI firms outsource the activities related to training the AI algorithms to low income countries [ADD REFS]. It is therefore possible to imagine a scenario in which developing economies might be trapped in providing low-cost labour to train algorithms, which may induce very little learning and acquisition of capabilities that were fundamental in the catching-up of Japan, Korea or China. On the other hand, there is also growing evidence that digital technologies such as additive manufacturing may provide tools and capabilities that facilitate structural transformation in low income countries (AAF 2018).

All these issues boil down to interrogating the scholarship on the ability of AI-related activities and automation to nurture and benefit economies and manage the transformations that they induce. Scholars in economics of innovation have developed both theoretical, conceptual and empirical tools to address these issues. From the mapping of technological trajectories and the socio-economic conditions for them to emerge, to the measurement of the impact of technological change on economic performances and employment.
        The aim of this special issue is to gather theoretical, conceptual and empirical contributions that investigate: the trajectories of development and adoption of AI; the impact of AI on employment; the impact of AI on the firm performance; and the impact of AI on regions and countries. More specifically, we welcome contributions along the following lines:

1. AI as GPT and its diffusion: we particularly welcome scientometric and patent analysis mapping of AI trajectories and the adoption of AI in scientific and technological development.

2. The influence of AI on productivity and economic performances and the measurement of AI in the data: we particularly welcome contribution on the debate on the measurement of AI and intangibles in productivity and output measurements.

3. The influence of AI on employment and income distribution. We welcome contributions also studying the nature of employment and income distribution at the macro- meso- or micro-level.

4. The role of AI in catching-up and development: we welcome contributions mapping the economic and institutional factors favouring or hampering the technological catching-up and their impact on the development path or on the integration of developing economies in the globalised digitalised economic exchanges.

Timetable for submission and acceptance of papers:

- **January 8th, 2021**: Deadline for complete manuscripts through online paper submission: http://jiem.manuscriptmanager.net/

Guideline for authors: http://www.cairn.info/docs/Instructions_for_authorsGB110816.pdf

- **December, 1, 2021:** Final notification for acceptance:

Submit abstracts or questions to: alorentz@unistra.fr

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