

I. THE DIGITAL ECONOMY AND ITS PROJECTIONS ON THE WORLD OF WORK - 4TH INDUSTRIAL REVOLUTION

The world of work 4.0 in the digital economy - four major factors:

- **1.** *The digitalisation movement itself:* Digital Connectivity and *On-line* Information Technology (NICT); Robotics; Artificial Intelligence (AI)
- **2.** *Globalisation trends:* worldwide exchange of goods and services, decentralised production facilitated by digital technologies; massive access to information for consumers; migratory movements
- **3. Demographic changes:** increase in average life expectancy; fall in the birth rate; overall increase in qualifications.
- **4.** The evolution of people's cultural and social expectations: importance of the professional component in people's lives; evolution of family models; loss of homogeneity of the subordinate worker profile; increase in practices of sharing goods (collaborative economy).

RPR/GE&AI

3

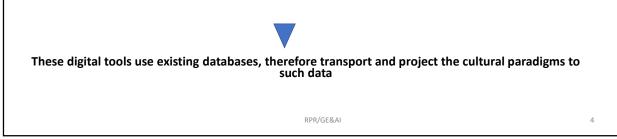
3

NEW ICTS, AI, AUTOMATED AND ALGORITHMIC DECISIONS IN LABOUR RELATIONS

New ICTs - Set of technological and digital means of supplying information and communication and that even allow new business models (mobile phones, internet, e-mail, various digital platforms)

Algorithm - finite sequence of executable actions aimed at obtaining the solution to a problem (very old mathematical concept, found for example in Euclid, and used modernly in computer science); acts from simpler instructions or complex data structures and can be simpler or more complex, including the power to make decisions and to choose between several possible solutions;

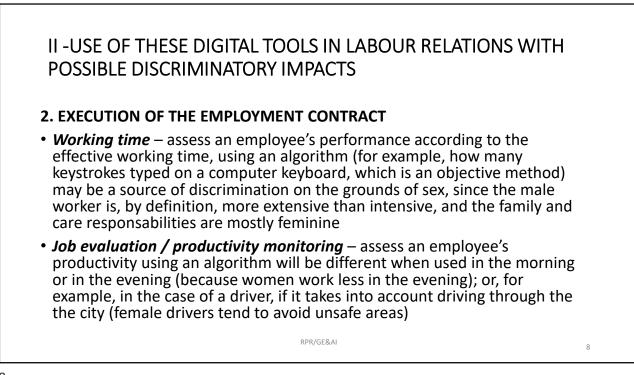
Artificial intelligence (AI) - Ability of a computer system to interpret external data, learning from it and using it in a "human-like" way (capacity for reasoning, learning, pattern recognition, logical inferences that support decision making) - automated decisions



DIGITAL ECONOMY IMPACT ON EMPLOYMENT AND LABOUR RELATIONS	
1. Level and employment quality and new business and employment models	
2. Recruitment processes	
3. Workplace and working time	
4. Organisation changes, worker-machine relations and digital activity control	
5. Personal rights; access, processing and protection of workers' personal data	
6. Vocational training	
7. Worker's health and safety	
8. In-company communication models between employees, employer and collective representatives	
9. Social security	
RPR/GE&AI	5







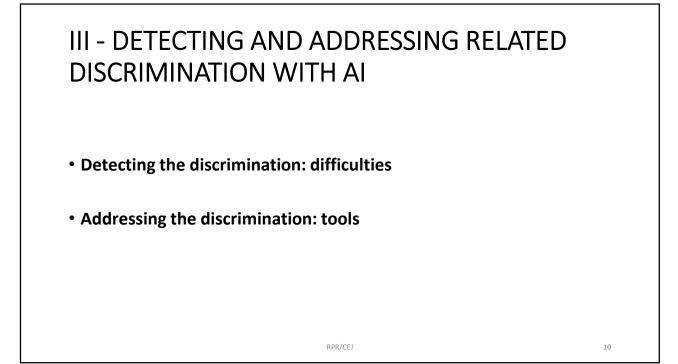
USE OF THESE DIGITAL TOOLS IN LABOUR RELATIONS WITH POSSIBLE DISCRIMINATORY IMPACTS

2. EXECUTION OF THE EMPLOYMENT CONTRACT

- **Career** considering the objective promotion criteria using an algorithm can have different results for men and women because it incorporates their career history: so if it weights in the same way, for example, technological literacy or experience in management positions (both of which are statistically higher for men), the algorithm will choose to promote men, perpetuating the gender discrimination that already exists in career advancement
- **Dismissals on objective grounds (collective dismissal)** the criteria for choosing workers to be dismissed, when applied by algorithm, may be discriminatory if it does not exclude, for example, attendance or productivity due to parental leave, part-time work and time-off for family reasons

RPR/GE&AI

9



III - DETECTING AND ADDRESSING RELATED DISCRIMINATION WITH AI

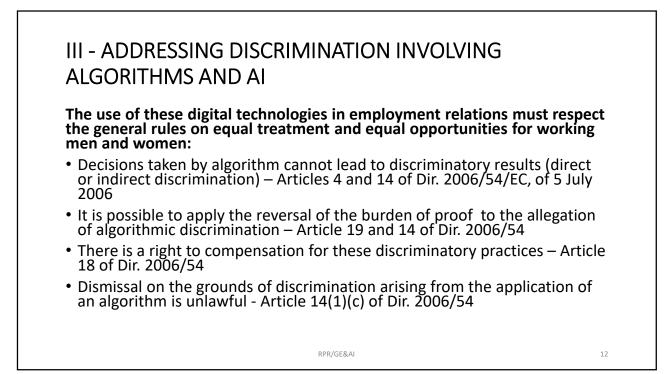
The simple detection of discrimination can be difficult for several reasons:

- Opacity of the system algorithms are complex mathematical and computing system that are difficult to understand
- The employer may not be responsible for the computer programme that applies the algorithm, as he asks experts to build the program
- Often discrimination is indirect (because the criteria used by the algorithm are apparently neutral) and systemic (i.e. not individualised)

Detection will almost always come afterwards, by evaluating the results of the algorithm implementation to the present situation

RPR/GE&AI

11



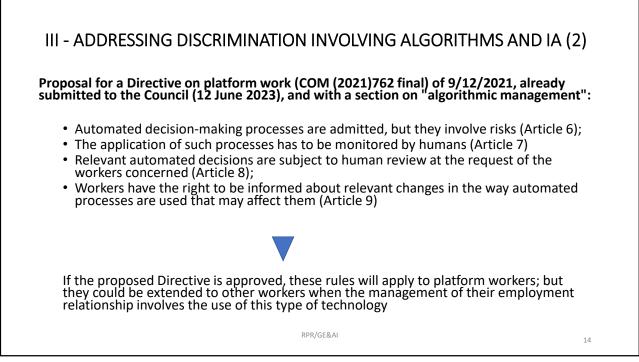
III - ADDRESSING DISCRIMINATION INVOLVING ALGORITHMS AND AI

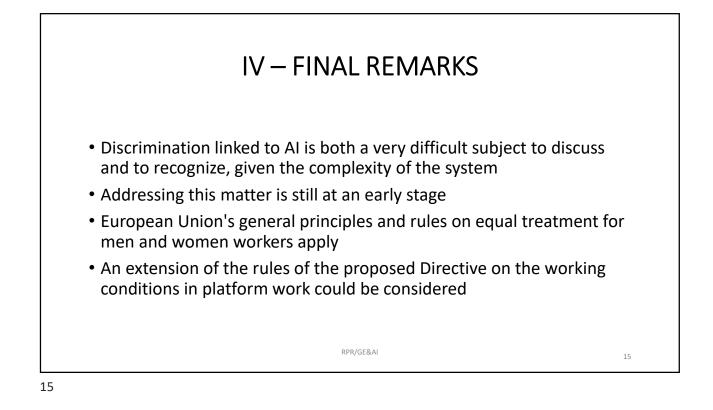
Some measures are especially relevant :

- The job evaluation systems must be transparent and based on objective criteria, common to women and men and nondiscriminatory - Artice 4 of Dir. 2006/54. These rules aply in the case of algorithmic evaluation.
- Working conditions should be transparent and predictable (Dir. 2019/1152/EU of 20 June 2019, which is more demanding on the employer to provide information on working conditions) thus the use of algorithms should not be an impediment to this transparency.

RPR/GE&AI

13







ARTIFICIAL INTELLIGENCE AND ALGORITHMS IN EMPLOYMENT RELATIONS: NEW SOURCES OF DISCRIMINATION

Maria do Rosário Palma Ramalho

PhD in Law Full Professor at the Faculty of Law of the University of Lisbon

RPR/GE&AI

17