



ASSESSMENT OF OSH CHALLENGES AND OPPORTUNITIES ASSOCIATED WITH AI-BASED SYSTEMS FOR THE AUTOMATION OF COGNITIVE TASKS

Robert Donoghue / Dr. Sascha Wischniewski
University of Leicester / BAuA

14th September 2021



Framework: The automation of tasks

- The narrowness of most AI technologies means it is more appropriate to talk about the automation of tasks, not occupations
- The report is structured around a tripartite taxonomy of automation
- Person-related tasks: teaching, care work, customer support
- Information-related tasks: code generation, data processing, decision-making
- Object-related: self-driving vehicles
- Routine versus non-routine tasks

Automation of person-related tasks

- **Routine tasks**
 - Customer support
 - Well-being management
 - Teaching
 - Assessment and supervision
- **Non-routine tasks**
 - Care work
 - Social interaction

Automation of information-related tasks

- **Routine tasks**
 - Health monitoring
 - Decision-making / diagnosis
 - Personal finance advice
 - Data classification
 - Software development / code generation
 - Automated text generation
- **Non-routine tasks**
 - Organisational decision-making processes

Automation of object-related tasks

- **Routine tasks**
 - **Driving (smart intersection warning and rear-end warning, lane departure, driving takeovers, or cruise control with the specific focus on collision prevention)**
- **Object-related tasks are the least prevalent for AI automation**

OSH impact of Artificial Intelligence

- Impacts are taxonomized into three categories
 - Physical risks
 - Organizational risks
 - Psychosocial risks
- The OSH implications of AI are shown to be predominantly psychosocial
- Heightened stress and precarity are the most prominent threats associated with AI in workplaces

Impact: Job Loss

- Job loss is a risk of computerization and automation of work — including all kinds of occupations
- Optimists versus pessimists
- Large numbers of workers believe their jobs will be automated
- Strong link between job insecurity and poor mental health outcomes
- Long-term unemployment is associated with a range of psychosocial harms



Photo by Lenny Kuhne

Impact: Job Transformation

- The specter of deskilling (some groups will be more heavily effected)
- The necessity of 'upskilling' or 'reskilling' ('learn to code')
- The problem *and the solution* present psychosocial OSH risks
- Different kinds of deskilling, including moral deskilling
- Benefit: reduction in menial tasks



Photo by MR Brochelly

Impact: Loss of Privacy

- At root, AI systems require massive inputs of data
- AI designed to optimize production requires data about the production process, including worker activity
- There has been a recent proliferation of surveillance technologies in the workplace
- OSH risks related to loss of privacy: unknown data forfeiture, GDPR violations, risk exposure and job insecurity, anxiety



Photo by Emiliano Ciciero

Impact: Loss of Autonomy

- **Artificial intelligence advances new managerial powers for instruction and surveillance**
- **These enhanced managerial powers poses threats to the autonomy of workers**
- **Restricted choice over one's work**
- **Encouragement of self-censorship due to heightened monitoring**
- **These tendencies foster worker alienation**
- **Benefit: increased efficiency, help improve performance**



Photo by Daniel Caniban

Impact: Depersonalization

- Smart technologies will continue to automate tasks presently completed by humans
- In certain industrial contexts, this will depersonalize social relations
- The care industry is uniquely illustrative
- Patients/customers as bodies, not subjects
- Technological, not human, surroundings
- Benefit: less burdensome work, elimination of difficult or uncomfortable tasks



Photo by Andy Kelly

Impact: Arbitrary managerial prerogative

- **AI systems, in a managerial function, introduce new kinds of problems**
- **Algorithmic management is susceptible to problems of implicit bias that can lead to unjust discrimination**
- **It is also lacks transparency if the decisions of the algorithm are inexplicable**
- **Discrimination and opaque exercises of power are OSH risks**
- **Benefit: could reduce human bias**



Photo by Kelly Sikkema

Thank you