**GPAI WG FoW: Criteria used to analyze real use cases at workplace**

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| --- | --- | --- | --- | --- | --- | --- |
| **General data** | | | | | | |
| Respondent *(Designer/Employee/Manager/Employer)*  Gender  Age  Years of experience in digital  Ethnicity (optional) | Country | Sector  *(private/public/non-profit/academia)* | Industry | Size  *(SME, Big firm…)* | Company’s Service *(production, services, HR etc.)?* | Application |
|  |  |  |  |  |  |  |

|  |  |  |
| --- | --- | --- |
| **AI system definition** | | |
| **What sort of AI system is used? *( if you don’t know, please write it)***  *See Taxonomy below* |  | |
| **Process of planning** | | |
| **Process of planning existence (yes/no)? If yes:** |  | |
| What are the purpose and goals of AI application in the company? (Process or product optimization, new business model etc., automation/substitution of jobs? |  | |
| Are workers/representative bodies involved in goals setting? |  | |
| Is cooperation with researchers / developers and external experts given? |  | |
| Are there Social Partners’ guidance – on what level? |  | |
| Are there approaches regarding collective agreements (Co-government) on goals and possibly conflicting objectives? What is the starting point of information and bargaining? Are there regulations on co-determination and if so, in what respect? |  | |
| Are there general agreements on AI usage in the company (ethic boards, codes of conduct etc.)? |  | |
| **Employees’ personal data** | | |
| **Are employees’ personal data required for operational use or affected by operational use?** (if yes, what kind of datas…) |  | |
| **Human Machine Interface** | | |
| **Is HMI intended – in what respect?**  (empowerment of employees, traceability, explainability, etc.) |  | |
| **The ethical factors considered while designing the AI system** | | |
| To what extent and at what time transparency of the AI system for the company (and for the user in the company) is required and given? | |  |
| Who in the company is involved – workers and representatives?  Is the required information logged?  Who has got access to information? | |  |
| Sort of AI: Functions / Analytic opportunities? | |  |
| Usability, Fairness, Data quality, used technics and methods (learning capability)? | |  |
| Options of intervention and limits? | |  |
| Questions of accountability? | |  |
| **Implementation** | | |
| What are the measures put in place (for training / required skills, safety, responsibilities (HMI)? | |  |
| Are employees involved in developing of measures? | |  |
| Are there Social Partners’ guidance – on what level? | |  |
| **Impact assessment : Ex Anterior Analysis** | | |
| What working areas / working groups are affected in respect of the number and quality of jobs (reorganizations etc.)? | |  |
| Are there Impacts on qualification demands and skill management? | |  |
| Are there impacts on the workload, working conditions and health management? | |  |
| Are there impacts regarding the use of personal data of workers (privacy, data protection and trade-offs; realize benefits to employees)? | |  |
| Are there regulations on using personal data and if so, in what regard? | |  |
| **Reviews and adjustments (Ex Post Evaluation)** | | |
| **Are there experiences, reviews and adjustments (Ex Post Evaluation)?** | |  |
| Effects on number of jobs, quality of jobs, job satisfaction, workload, skills? | |  |
| Are there unintended outcomes for workers situation and prospects? | |  |
| Are there opportunities and ways to redesign the AI system and work organization? | |  |
| Logged principles of transparency? | |  |
| Usage of employees’ personal data (Surveillance) | |  |
| Predictive analytics? | |  |
| Are there feedback and participation opportunities for the employees? | |  |
| **Any other comment** | | |
|  | |  |

**Guidance for filling the template**

**Methodological precautions (for GPAI members only, based on the first two tests):**

1- Specify that the answers to the questions refer to a specific professional application of AI (and not to an AI technique in general). Indeed, many questions relate to uses, organizational and social contexts or design methods.

2- This template should be used as a questionnaire: in this configuration, the professional answers alone to the questions directly on the template.

* + Warning:
    - If the interviewer does not know the answer, he must write "I don't know". This is important information.
    - If the interviewer does not understand the question, he must write "I do not understand".
    - Advise the professional that an exchange will probably be necessary to complete or clarify his or her answers.

1. The anonymity is guaranteed. No personal data or firm data is required. This questionnaire is reserved for research purposes.

Q1: We consider the OECD AI definition for this template:

*An AI system is a machine-based system that is capable of influencing the Environment by making recommendations, predictions or decisions for a given set of Objectives. It does so by utilizing machine and/or human-based inputs/data to: i) perceive real and/or virtual environments; ii) abstract such perceptions into models manually or automatically; and iii) use Model Interpretations to formulate options for outcomes.*

The taxonomy of most relevant keywords within each AI domain:

|  |  |  |  |
| --- | --- | --- | --- |
| **AI domain** | **AI subdomain** | **Keyword** | |
| **Reasoning** | **Knowledge representation;**  **Automated reasoning;**  **Common sense reasoning** | case-based reasoning | inductive programming |
| causal inference | information theory |
| causal models | knowledge representation & reasoning |
| common-sense reasoning | latent variable models |
| expert system | semantic web |
| fuzzy logic | uncertainty in artificial intelligence |
| graphical models |  |
| **Planning** | **Planning and Scheduling;**  **Searching; Optimisation** | bayesian optimisation | hierarchical task network |
| constraint satisfaction | metaheuristic optimisation |
| evolutionary algorithm | planning graph |
| genetic algorithm | stochastic optimisation |
| gradient descent |  |
| **Learning** | **Machine learning** | active learning | feature extraction |
| adaptive learning | generative adversarial network |
| adversarial machine learning | generative model |
| adversarial network | multi-task learning |
| anomaly detection | neural network |
| artificial neural network | pattern recognition |
| automated machine learning | probabilistic learning |
| automatic classification | probabilistic model |
| automatic recognition | recommender system |
| bagging | recurrent neural network |
| bayesian modelling | recursive neural network |
| boosting | reinforcement learning |
| classification | semi-supervised learning |
| clustering | statistical learning |
| collaborative filtering | statistical relational learning |
| content-based filtering | supervised learning |
| convolutional neural network | support vector machine |
| data mining | transfer learning |
| deep learning | unstructured data |
| deep neural network | unsupervised learning |
| ensemble method |  |
| **Communication** | **Natural language processing** | chatbot | natural language generation |
| computational linguistics | machine translation |
| conversation model | question answering |
| coreference resolution | sentiment analysis |
| information extraction | text classification |
| information retrieval | text mining |
| natural language understanding |  |
| **Perception** | **Computer vision** | action recognition | object recognition |
| face recognition | recognition technology |
| gesture recognition | sensor network |
| image processing | visual search |
| image retrieval |  |
| **Audio processing** | computational auditory scene | sound synthesis |
| music information retrieval | speaker identification |
| sound description | speech processing |
| sound event recognition | speech recognition |
| sound source separation | speech synthesis |
| **Integration and Interaction** | **Multi-agent systems** | agent-based modelling | negotiation algorithm |
| agreement technologies | network intelligence |
| computational economics | q-learning |
| game theory | swarm intelligence |
| intelligent agent |  |
| **Robotics and Automation** | cognitive system | robot system |
| control theory | service robot |
| human-ai interaction | social robot |
| industrial robot |  |
| **Connected and Automated vehicles** | autonomous driving | self-driving car |
| autonomous system | unmanned vehicle |
| autonomous vehicle |  |
| **Services** | **AI Services** | ai application | intelligence software |
| ai benchmark | intelligent control |
| ai competition | intelligent control system |
| ai software toolkit | intelligent hardware development |
| analytics platform | intelligent software development |
| big data | intelligent user interface |
| business intelligence | internet of things |
| central processing unit | machine learning framework |
| computational creativity | machine learning library |
| computational neuroscience | machine learning platform |
| data analytics | personal assistant |
| decision analytics | platform as a service |
| decision support | tensor processing unit |
| distributed computing | virtual environment |
| graphics processing unit | virtual reality |
| **AI Ethics and Philosophy** | **AI Ethics** | Accountability | safety |
| Explainability | security |
| Fairness | transparency |
| Privacy |  |
| PPP | Artificial general intelligence | Weak artificial intelligence |
| Strong artificial intelligence | Narrow artificial intelligence |

Source: JRC Technical reports – AI Watch Defining Artificial Intelligence P16-17

Some references to help filling the template:

* The US Census Bureau recently did a survey of AI adoption in the US economy which provides a useful starting point: <https://conference.nber.org/conf_papers/f138039.pdf>