IFATCA

HUMAN-AI TEAMING FROM AN ATC PERSPECTIVE

JOINT COGNITIVE HUMAN MACHINE SYSTEMS

IFATCA REPRESENTS AIR TRAFFIC CONTROLLERS

EUROCONTROL, ICAO, SESAR, ET AL.

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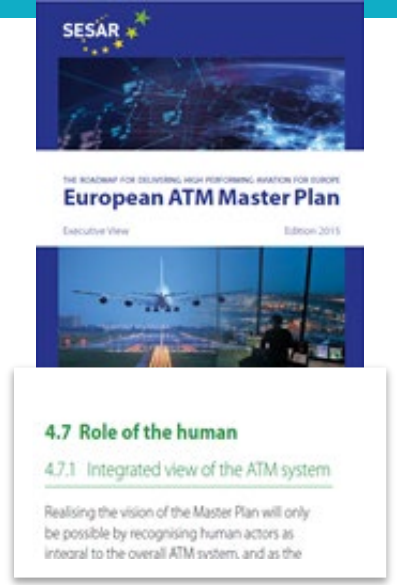
HISTORY

1997-98

2007

2008

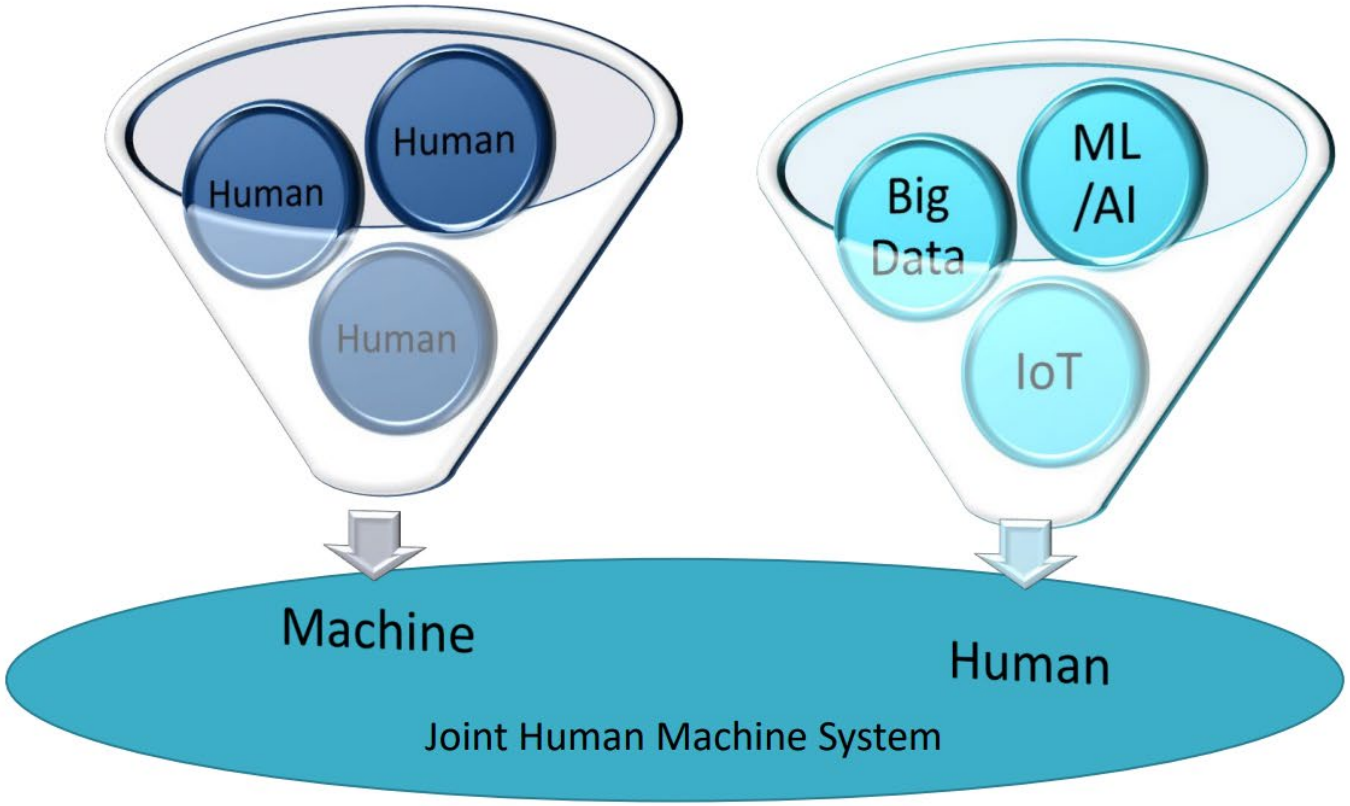
2015



2015

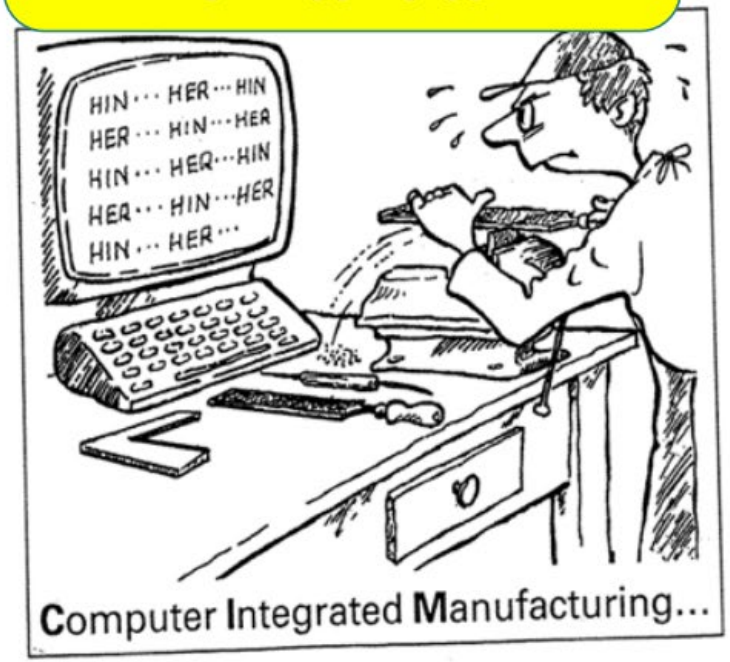
2017/18

NEW PARADIGMS



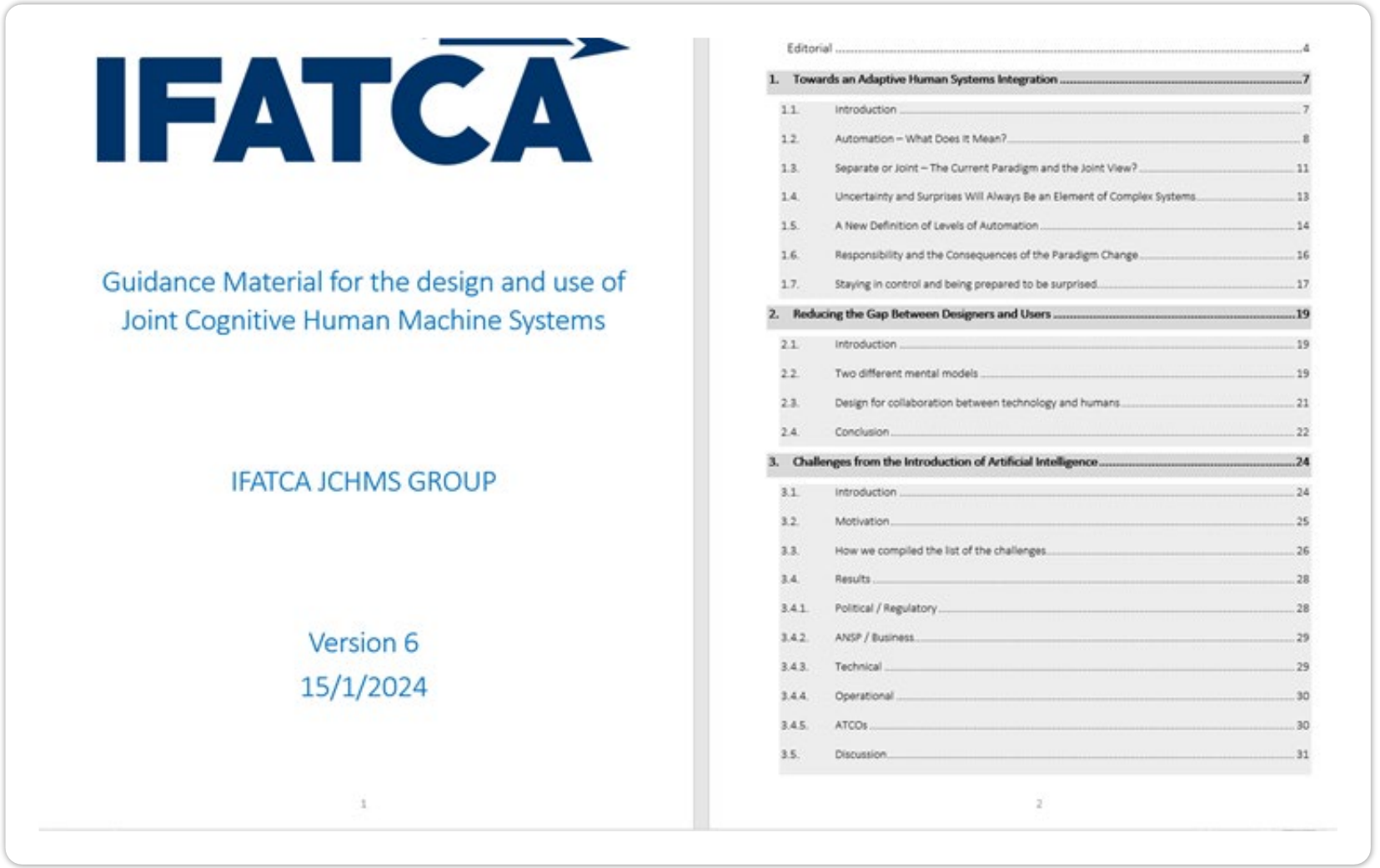
Joint: Human and Machine

Human vs. Machine
Human manages Machine
Or vice versa



Human and Machine
Complementarity of
Human and Machine

GUIDANCE MATERIAL



IFATCA

Guidance Material for the design and use of
Joint Cognitive Human Machine Systems

IFATCA JCHMS GROUP

Version 6
15/1/2024

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CHALLENGES

- Five levels of challenges identified to implementing AI/ML ‘in the wild’
  - Political/regulatory
  - ANSP/business
  - Technical
  - Operational
  - Air Traffic Controllers

IFATCA POLICY

- Artificial Intelligence and/or Machine Learning based systems should only be implemented as decision support systems and shall not replace the decision of the ATCO.
- Where an ATCO is responsible for decision making, and in the event that system tools fail or are not available, the ATCO should always have the capacity to safely manage their area of responsibility.

IFATCA POLICY

- The introduction of AI systems shall be tested and validated with the assurance of appropriate standard levels of operations in terms of safety, security, robustness, and reliability.
- In case of disruption and in addition to backup and continuity systems, appropriate procedures and training shall be put in place to assist ATCOs in emergency situations.

IFATCA POLICY

- With special attention to airspace capacity, traffic complexity and available backup systems, a safety risk assessment shall be carried out to determine the possibility for ATCOs to intervene in case of disruption.
- IFATCA and MAs shall undertake actions to raise awareness at an international and national level about the impact of automation in ATM and hasten for appropriate legal changes in ATCO’s responsibility.

IFATCA POLICY

- ATCO's responsibility shall be proportionally decreased in accordance with the level of automation and their ability to intervene and control automated systems.
- AI systems or applications in ATM shall be human-centred throughout the whole development process. ATCOs shall be thoroughly trained and introduced to the new concepts, including AI systems and ML algorithms, to be able to handle all traffic situations, and also during unforeseen situations such as emergencies or system failure.

THE WAY FORWARD ACCORDING TO IFATCA

- Human Machine Teaming (HMT)
- Principles for operator-centred design
- Project implementation steps
- Challenges and considerations
- Conclusion