

World Fire Congress Communities of Practice

Topic Abstracts — 2026 London Congress

2. Emerging Technology and Artificial Intelligence

Technology is transforming what is possible in fire and civil defense — but the pace of change is uneven, the risks are real, and the promise remains unevenly distributed across nations. From AI-powered early detection and satellite fire monitoring to autonomous apparatus, smart PPE, and decision-support tools for incident commanders, the potential of these technologies lies in their capacity to process and synthesize vast amounts of data in real time, providing actionable intelligence when seconds matter. AI is gaining momentum throughout nearly every industry, including fire and emergency services — yet adoption is advancing fastest in high-income nations with robust digital infrastructure, while many services worldwide lack even the foundational connectivity required. Fire chiefs across the world are urging caution, recognizing that AI offers powerful tools but also carries risks if adopted without appropriate governance and human oversight. This Community of Practice exists precisely because no single nation has all the answers. It brings together fire service leaders, researchers, and practitioners to share what is working, identify what is not, explore the ethical and equity dimensions of technology adoption, and build shared frameworks that help all members — regardless of resource level — navigate the accelerating intersection of technology and fire service operations.

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