Cybersecurity Awareness in Industrial Environments: A Comparative Study of Operational Technicians and Workers

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Abstract

The convergence of Information Technology and Operational Technology in Industry 4.0 environments has significantly expanded the cybersecurity attack surface of industrial organisations. This paper presents findings from a cross-sectional survey conducted with 815 respondents – 224 operational technicians and 591 workers – in industrial and service-sector organisations, within the framework of the European Erasmus+ InCyS4.0 project.

Using purpose-built questionnaires, we assessed cybersecurity awareness, technical security measures, and risky user behaviours across different company sizes and sectors. Results reveal a significant gap between the security posture of large and small organisations, a low rate of formal cybersecurity training (26% of workers), and concerning risk behaviours such as use of personal email on company systems (42%) and transfer of personal files to organisational computers (40%). Among technicians, strengths were found in antivirus deployment (91.5%) and physical network protection (82.3%), while gaps remain in incident response planning (48.3%) and traffic analysis tooling (59.8%). These findings inform targeted training recommendations for industrial cybersecurity education.