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Cybersecurity in the Digital Era: A Comprehensive Framework for Safeguarding Data Integrity, Privacy and Critical Infrastructures Against Evolving Threats

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Abstract: In an increasingly digital world, the transfer of data has become seamless yet the growing reliance on technology has amplified cyber threats endangering sensitive information. Existing cybersecurity measures often fail to keep pace with the dynamic nature of cyberattacks, particularly in areas like cloud computing, the Internet of Things (IoT) and online financial transactions. This highlights critical gaps in safeguarding data, user awareness and incident management strategies. This research paper proposes a comprehensive cybersecurity framework that addresses these gaps by integrating risk management, secure configurations, user privilege control and advanced incident response mechanisms. Emphasizing critical infrastructures and emerging technologies, the study explores preventive measures, user education and advanced monitoring solutions. By bridging the gaps in current security practices, the study aims to enhance data integrity, privacy and availability offering actionable solutions to reduce vulnerabilities and foster a resilient digital environment for individuals, organizations and governments.

Keywords: Cybersecurity, Intrusion Prevention, Data Protection, Network Security, Malware Prevention, Encryption, Cyber Threats, Security Software, Phishing Prevention

