Assessing the Impact of Adaptive Knowledge Systems and Operational Efficiency on Human-Machine Collaboration in Product-Based Large-Scale IT Organizations in Sri Lanka

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This study focuses on assessing the impact of Adaptive Knowledge Systems (AKS) and Organizational Operational Efficiency (OOE) on Human-Machine Collaboration (HMC) in existing Product-based Large-scale Information Technology Organizations in Sri Lanka (PLITO). To enhance daily business operations, many IT companies adopt Industry 5.0 (I5.0) technologies, including Artificial Intelligence, robotics, Internet of Things, Virtual Reality/Augmented Reality, and advanced Human-Machine Interfaces. By integrating these techniques, organizations can engage employees and clients more interactively. This concept mainly referred to as Human machine collaboration. In the Sri Lankan context, several PLITO are currently integrating various I5.0 technologies into their business operations. To gain a competitive advantage globally, businesses must adapt to the latest trends. To achieve business goals, AKS offer a range of services to support the software development process. These technologies not only improve OOE but also contribute to the enhancement of personnel, technology, and organizational objectives. By implementing AKS and OOE, organizations foster HMC. This research highlights the key factors that facilitate smooth business transition with HMC, evaluating the impact of AKS and OOE on HMC. It also examines how these factors influence the adoption of smart technologies and automation within the context of I5.0, ultimately helping organizations achieve their long-term business goals.

Keywords: *Adaptive Knowledge Systems, Organizational Operational Efficiency, Human Machine Collaboration, Industry 5.0, Sri Lankan IT Organizations.*