A Use Case-Oriented Performance Measurement Framework for AI and Big Data Solutions in the Banking Sector

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Abstract : Performance measurement framework (PMF) is an essential tool in any organization to assess the performance of its processes. It guides businesses to stay on track with their objectives and benchmark themselves from the market. With the growing trend of the digital transformation of business processes, led by innovations in artificial intelligence (AI) & Big Data applications, developing a mature system capable of capturing the impact of digital solutions across different industries became a necessity. Based on the conducted research, no such system has been developed in academia nor the industry. In this context, this paper covers a variety of methodologies on performance measurement, overviews the major AI and big data applications in the banking sector, and covers an exhaustive list of relevant metrics. Consequently, this paper is of interest to both researchers and practitioners. From an academic perspective, it offers a comparative analysis of the reviewed performance measurement frameworks. From an industry perspective, it offers exhaustive research, from market leaders, of the major applications of AI and Big Data technologies, across the different departments of an organization. Moreover, it suggests a standardized classification model with a well-defined structure of intelligent digital solutions. The aforementioned classification is mapped to a centralized library that contains an indexed collection of potential metrics for each application. This library is arranged in a manner that facilitates the rapid search and retrieval of relevant metrics. This proposed framework is meant to guide professionals in identifying the most appropriate AI and big data applications that should be adopted. Furthermore, it will help them meet their business objectives through understanding the potential impact of such solutions on the entire organization.

Keywords : AI and Big Data applications, impact assessment, metrics, performance measurement

Conference Title : ICBPM 2022 : International Conference on Business Performance Management

Conference Location : Vancouver, Canada

Conference Dates : August 08-09, 2022