Green information technology and green information systems: science mapping of present and future trends

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Abstract

Purpose – This study provide an in-depth review on the knowledge structure of green information technology (GIT) adoption and behavior. Environmental degradation has escalated even further with information and digital technology development. Researchers have come up with a new concept of GIT to dampen the carbon emission due to the excessive use of IT in today's everyday usage. A similar terminology, green information system (GIS), is a rather broad understanding of GIT, which relates to the environmental management system to improve operations in the organization and will be included in the scope of the study.

Design/methodology/approach – This study presents a science mapping analysis through a bibliometric review to explore emerging trends and predict future trends based on 293 publications in the Web of Science.

Findings – The bibliographic coupling analysis discovered five themes related to the theoretical foundation of GIT and the determinants of their adoption. The five themes are (1) theoretical foundation in GIT, (2) determinants of green IT and IS adoption, (3) fundamental of GIT and information science, (4) green technologies and green computing and (5) determinants of managers green IT adoption behavior. While co-word analysis presents the impact of GIT, driving performance and energy efficiency through the adoption of GIT producing four themes, (1) GIT acceptance through the theory of planned behavior, (2) impact of GIT's: strategies for sustainable implementation, (3) driving sustainable performance through green innovation in information systems and technology and (4) energy efficiency and sustainability in green computing and cloud computing.

Research limitations/implications – The finding is relevant to managers, researchers and stakeholders bounded by environmental responsibilities to mitigate its impact on the socioeconomic and environment through GIT adoption.

Originality/value – The contribution of this study is presenting an in-depth analysis of the knowledge structure through bibliometric analysis by providing network visualization on one of the crucial pro-environmental behavior.

Keywords Green information technology, Green information systems, Science mapping, Bibliometric review, Web of Science

Paper type Literature review