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Investments in Information Systems: A Contribution towards Sustainability

by

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Abstract:

Empirical research has determined that information systems (IS) can abate far more emissions than they produce. By using its transformative power, Green IS can build energy efficiency along the entire business value chain and thus contribute to sustainable development that goes well beyond that of Green Information Technology (Green IT). However, from a business perspective there is still prevailing uncertainty with regard to the economic viability and optimal extent of Green IS investments. In this paper, we conceptualize a decision model for an IS investment that increases a company's energy efficiency. We analyze and compare the costs associated with the investment and the realized energy cost savings. Furthermore, we examine the influence of fluctuating energy prices on investment decisions. By integrating risk and return into one decision calculus, we determine an optimal degree of investment, which avoids over-investment while promoting energy efficiency, and therefore establishes the long-term coherence of economic and environmental sustainability. Finally, we demonstrate that reduced exposure to risky energy prices results in comparatively larger investments, thereby implying a higher optimal investment degree, assuming the involvement of risk-averse decision-makers.

Keywords:

Green IS/IT, Environmental/Economic Sustainability, Business Value of IS, Energy Informatics.