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The impact of information and communication technologies (ICT) on agility, operating, and economical performance of supply chain

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ABSTRACT

Information and communication technologies (ICT) are widely used in supply chain (SC) due to their effects on both economic performance and operational agility. This paper proposes a structural equation model integrating 17 items into four latent variables: ICT, SC agility, operating performance, and economic performance. Data analysed in the model were gathered through a questionnaire administered to 306 managers of Mexican maquiladoras. Likewise, we used statistical software WarpPLS 5®, which is based on partial least squares algorithms, to assess the six hypotheses established in the model. Such hypotheses were validated with a 95 % confidence level, and values were standardized to avoid problems regarding the measurement scale. Findings demonstrate that ICT have a positive direct impact on the other three analysed latent variables, which together account for 63 % of the variability of SC economic performance. Similarly, we found that ICT can explain up to 40 % of the variability of SC agility.

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Izvirni znanstveni članek

Vpliv informacijskih in komunikacijskih tehnologij (ICT) na agilnost, delovanje in gospodarnost dobavnih verig

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POVZETEK

Informacijske in komunikacijske tehnologije (angl. ICT) se pogosto uporabljajo v dobavnih verigah (angl. SC), zaradi vpliva na njihovo gospodarnost in agilnost delovanja. Prispevek predlaga model strukturne enačbe, ki vključuje 17 elementov v štiri latentne spremenljivke: ICT, agilnost SC, uspešnost delovanja in gospodarnost. Podatki za analizo so bili zbrani s pomočjo vprašalnika izdanega 306 menedžerjem mehiških izvoznih podjetij. Za ocenitev šestih hipotez določenih v modelu je bila uporabljena programska oprema WarpPLS 5®, ki temelji na algoritmu delnih najmanjših kvadratov. Hipoteze so bile potrjene s 95 % verjetnostjo, vrednosti pa so bile standardizirane, da bi se izognili težavam povezanim z merilno skalo. Rezultati kažejo, da imajo ICT pozitiven in neposreden vpliv na ostale tri latentne spremenljivke, ki skupaj predstavljajo 63 % variabilnosti gospodarnosti dobavnih verig, in tudi, da ICT predstavljajo 40 % variabilnosti agilnosti dobavnih verig.

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PODATKI O ČLANKU

Ključne besede:
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Agilnost dobavne verige
Prilagodljivost dobavne verige
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