

# Thriving in Scarcity: Harnessing Intellectual Capital for Frugal Innovation

Jayamalathi Jayabalan <sup>ab</sup>, Magiswary Dorasamy <sup>b</sup>,

<sup>ab</sup> Faculty of Accountancy and Management, University Tunku Abdul Rahman, Kajang, Selangor, 43000, Malaysia

<sup>b</sup> Faculty of Management, Multimedia University, Persiaran Multimedia, Cyberjaya, 63100, Malaysia

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## ABSTRACT

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Private higher education institutions (PHEIs) in Malaysia are struggling to invest in the facilities, tools, and staff required to build a complete IR4.0 education ecosystem due to a lack of funding and technological resources. Many PHEIs are struggling with low profitability, rising short-term indebtedness, insufficient cash flow, and a lack of finances, which puts them at a larger risk of going bankrupt or failing financially. They are currently battling issues including decreased profitability, growing short-term debts, constrained cash flow resources, and insufficient money, which puts them at a high danger of going bankrupt. Private universities must understand the constantly changing digital ecosystem and embrace digital transformation to remain relevant and competitive. The Model for Frugal Innovation Through Intellectual Capital provides a solution for achieving the IR4.0 education ecosystem while minimising expenses. Private universities play a crucial role in Malaysia by fostering innovation, increasing educational accessibility, driving research and development, and offering a diverse range of academic programs. These institutions complement the initiatives of public universities and contribute to the overall growth and enhancement of Malaysia's educational and economic systems. Intellectual capital includes intangible assets like knowledge, skills, and expertise that university workers possess. By embracing frugal innovation, PHEIs in Malaysia can address cost challenges, improve accessibility, enhance collaboration, and offer innovative solutions that cater to the needs of students while maintaining financial sustainability. These strategies can aid in constructing an IR4.0 Education Eco-System by lowering costs, improving accessibility, and fostering innovation.

**Keywords:** Human capital, Relational capital, Structural Capital , Information technology Capability Higher Education Institution