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The Transformative Direction of Innovation Toward an IoT-based Society - Increasing Dependency on Uncaptured GDP in Global ICT Firms

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Abstract

Driven by the possibilities of the Internet of Things (IoT), global information and communication technology (ICT) firms have taken significant steps forward in recent years.

The Internet provides extraordinary services to people while promoting a free culture. However, such services cannot be captured through gross domestic product (GDP) data that measure revenue. Consequently, advancement of the Internet leads to increasing dependency on uncaptured GDP (added value providing people utility and happiness beyond economic value) and ICT price decreases.

Against such circumstances, global ICT firms are quickly embracing digital solutions for new competitiveness that urge them to restructure their business model toward digital business strategies. Aiming at demonstrating this hypothetical view, this paper attempts to explore new approach for analyzing such dynamism and examines some optimal solutions that are co-evolving with it.

An empirical analysis of digital business solutions in 500 global ICT firms over the period 2005–2016 was conducted with special attention to their specific features.

It was identified that research and development–intensive firms have fallen into a trap in ICT advancement, resulting in a decline in their marginal productivity of ICT that could be due to increasing dependency on uncaptured GDP. As a result, these firms are endeavoring to harness soft innovation resources and activate a self-propagating function that induces functionality development sublimating sophisticated digital business strategies, such as:

- Shifting from software to network (e.g., Apple and Google),
- Merging network and real (e.g., Amazon's merging of e-commerce and brick-and-mortar retail),
- Shifting from commodity to culture (e.g., Facebook and Samsung).

All can be considered as soft value addition in response to uncaptured GDP.

This analysis explores new insights for ICT firms in their transformative strategies toward an IoT-based society.

Keywords: IoT, global ICT firms, uncaptured GDP, digital business solutions, transformative strategy

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