

Japan's technology management legacy impacting its IoT leadership

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Abstract: The objective of this study is to identify the factors in traditional Japanese corporate management style which are impacting Japan's leadership in IoT on global platform. To-date, Japan has 18% of worldwide share of IoT patents assigned. Fujitsu is the only Japanese company at 8th place in world's top ten patents assignee ranking. Top places are filled by US, Chinese, Korean and European companies (Trappey, A. 2016). Japan envisioned the concept of an "Intelligent Object Network" TRON (*The Real-time Operating system Nucleus*), an open real-time operating system kernel - similar to IoT - as one of the Tokyo University's objectives as far as back in 1987 (Sakamura J, 2015). However, Japan simply let Germany initiate 'Industry 4.0' policy and standards while allowing the United States to lead the IIC (Industrial Internet Consortium) despite years of experience and lead in embedded systems and high level proficiency in ubiquitous computing. Exploratory research revealed that management-related factors such as catch-up and mass production roll out policies were the largest inhibitors to setting international software standards whereas local focus related policies were considered major hindrances for Japanese gadgets to succeed worldwide. Local focus of gadgets and unwillingness of management into development of open source IoT software were found to be interlinked that Japan is not leading Industry 4.0. Institutional arrangements of Japan's catch-up system in most key industries are the primary cause of Japan's software firms' competitive weakness. The very arrangements that help explain Japan's success in steel, machine tools, semiconductors, and computer hardware are found to be the source of its weakness in computer software (Anchordoguy, M 1999). Insularity is a long-standing problem in Japan, often referred to as the "Galapagos Syndrome." Products are highly evolved but don't survive well beyond the water's edge (Pesek, W 2013). Many Japanese gadgets fail to make it successfully in international markets because they are designed too narrowly to domestic requirements. Japanese industrial leader's engineering-focused business model is becoming obsolete. This "monozukuri" (making things) model has worked wonders for many decades when global competition revolved around stand-alone products. In the world of inter-connected products, digital electronics with open architecture IoT is the only way forward. "Monozukuri" is Japan's past, not its future.