A Calculus for Service Innovation

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Abstract

Innovation in the services area - especially in the electronic services (e-services) domain - can be characterized by six decision-oriented attributes: decision-driven, information-based, real-time, continuously-adaptive, customer-centric and computationally-intensive. These attributes constitute the decision informatics paradigm. In turn, decision informatics is supported by information and decision technologies and based on the disciplines of data fusion/analysis, decision modeling and systems engineering. Out of the nine major innovation enablers in the services area (i.e., decision informatics, software algorithms, automation, telecommunication, collaboration, standardization, customization, organization, and globalization), decision informatics is shown to be a necessary enabler. Furthermore, four innovation drivers (i.e., collaboration, customization, integration and adaptation) are identified; all four are directed at empowering the individual - that is, at recognizing that the individual can, respectively, contribute in a collaborative situation, receive customized or personalized attention, access an integrated system or process, and obtain adaptive real-time or just-in-time input. By employing this services innovation calculus, white spaces are identified for possible future innovations; they include those that can mitigate the unforeseen consequences or abuses of earlier innovations, safeguard our rights to privacy, protect us from the always-on, interconnected world, provide us with an authoritative search engine, and generate a GDP metric that can adequately measure the growing knowledge economy, one driven by intangible ideas and services innovation.

Biography

Dr. James M. Tien received the BEE from Rensselaer Polytechnic Institute and the SM, EE and PhD from the Massachusetts Institute of Technology. He has held leadership positions at Bell Telephone Laboratories, at the Rand Corporation, and at Structured Decisions Corporation (which he co-founded in 1974). He joined the Department of Electrical, Computer and Systems Engineering at Rensselaer in 1977, became Acting Chair of the department, joined a unique interdisciplinary Department of Decision Sciences and Engineering Systems as its founding Chair, and twice served as the Acting Dean of Engineering. Dr. Tien's areas of research interest include the development and application of computer and systems analysis techniques to information and decision systems. He has published extensively, been invited to present many plenary lectures, and been honored with both teaching and research awards, including being elected a Fellow in IEEE, INFORMS and AAAS and being a recipient of the IEEE Joseph G. Wohl Outstanding Career Award, the IEEE Major Educational Innovation Award, the IEEE Norbert Wiener Award, and the IBM Faculty Award. Dr. Tien is also an elected member of the U. S. National Academy of Engineering. http://www.jimtien.com, tienj(at)rpi.edu.