

Principal Researcher	Chihiro Watanabe	Number of Researchers	2
Research Institution · Department · Title	Professor, Department of Industrial Engineering & Management Tokyo Institute of Technology	Location of Institution	Meguro-ku, Tokyo
Title of Project	An Elucidation of the Role of Institutional Systems in Characterizing Technology Development Trajectories - A Global Comparative Analysis of Manufacturing Technology and Information Technology in the Enhancement of Business Practice		
Abstract of Research Project	<p>Japan is far below the level of the USA with respect to the development and utilization of Information Technology (IT) in the knowledge and information-based global society that emerged in the 1990s. This can be attributed to Japan's non-elastic institutions, insufficient utilization of the potential benefits of IT, and economic stagnation which are institutional barriers impeding this change. Furthermore, Japan is not alone in this struggle. Many global societies are struggling to not be left behind. This struggle is largely the result of a vicious cycle arising from structural differences in socio-economic institutions which may enable vast efficiencies in leveraging and creating manufacturing technology but does not provide an environment of success for the proliferation of IT. Manufacturing technology has been developed largely by the supply side and product functionality is established relatively early with ongoing modification throughout the product life-cycle. In contrast, IT is strongly driven by the demand-side and shifts directions in extraordinary ways throughout product life-cycles. In fact, the line between producers and consumers is blurred as consumers are often co-producers of the IT product or service since they actively participate in the development process. This reality continues to transform business practice and requires different institutional structures. However, these institutional structures, their risks and benefits remain a 'black box.' This research attempts to elucidate this 'black box' using the following methodology. This methodology draws heavily from multiple disciplines including: comparative international economics, the geo-politics of technology, socio-economics and institutional economics. The analysis will involve field surveys, monitoring of technological shifts over several years, questionnaire surveys and interviews as well as the collection of relevant data focusing on typical sites of IT proliferation in Japan, the USA, Europe and APEC countries.</p> <p>Specifically, researchers will:</p> <ul style="list-style-type: none"> (i) Undertake a comparative empirical analysis of institutional 'flexibility' or "elasticity" in the transition from industrial to information-based economies, (ii) Elucidate the correlation between institutional elasticity and the development and effective utilization of IT, and (iii) Identify the governing factors and initiatives of IT versus Manufacturing Product Development comparing the supply-side and the demand-side 		

References	<p>C. Watanabe ed., Numerical Analysis of Technology Innovation-Evaluation of R&D Productivity & Profitability, JUSE Press, Tokyo, 2001.</p> <p>C. Watanabe, R. Kondo, N. Ouchi and H. Wei, "Formation of IT Features through Interaction with Institutional Systems-Empirical Evidence of Unique Epidemic Behavior," Technovation, 2001 (in print)</p>					
Term of Project	Fiscal years 2002-2006. (5 years)					
Budget Allocation	FY2002	FY2003	FY2004	FY2005	FY2006	TOTAL
(in thousand of yen)	12,700	15,800	18,200	19,000	10,300	76,000
Homepage Address	http://www.me.titech.ac.jp/~wata_lab/					