Abstract:

Purpose – The Japanese prefabrication industry not only has automated its processes to a high extent, but it also innovates due to the fact that it delivers buildings of outstanding quality accompanied by a multitude of services. In order to explore and specify the concepts and parameters that have driven this industry, Japan’s prefabrication industry, its cultural, economic and technological surrounding, as well as the applied processes, technologies and economic strategies, have to be illustrated and analysed. The purpose of this paper is to identify, describe and analyse these concepts and their related parameters, as well as to recognise the most influential drivers for the future that provide an indication into which direction the industry could evolve.

Design/methodology/approach – Being aware that literature does not provide relevant information and data, which would allow the authors to explore concepts and parameters explaining the success of the Japanese prefabrication industry, the authors performed field surveys, visited factories, R&D; centres and sales points of all major Japanese prefabrication companies. In some cases the authors also interviewed general managers, researchers and developers, and academicians at Japanese universities. Based on an extensive literature review in the area of product development, production technology, modularisation, mass customisation, and innovation, the
authors qualitatively and quantitatively analysed all major prefabrication companies according to a fixed scheme. Findings – The concepts and parameters identified and analysed in this paper demonstrate that the Japanese prefabrication industry, which is leading in large-scale industrialization, nowadays focuses towards services that are related to the building’s utilisation phase, rather than delivering products. By involving customers it enhances the companies’ customer relations, thus creating competitive advantages. Originality/value – Overall the paper identifies that Japanese prefabrication industry acts rather like a “production industry” than a “construction industry”. Similar to many other high-tech industries, Japan's prefabrication industry incorporates the latest product and process technologies and combines automation, products and services into complex value capturing systems.

Stichworte: Japan, Construction industry, Prefabricated buildings, Building production, Automation in construction, Product and service innovation, Mass customization, Japanese prefabrication industry

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- Einrichtungen > Fakultäten > Fakultät für Architektur > Lehrstühle und Professuren > Lehrstuhl für Baurealisierung und Baurobotik (Prof. Bock)

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