Letter from the editor

There is an essential difference between “analysis” where the partial knowledge is extracted from the entirety of the known subject and “synthesis” where the entirety of the new subject is built up from partial knowledge.

The papers of this issue are interesting. The subjects are air conditioning system, water purification system, automotive navigation, electron microscope, and service. All of them deal with the creation of some new artifact. They describe the consortia or joint researches that practice the integration of known elements, or the new development of the necessary elements.

Why are artifacts created? It is because we expect them to be valuable. The synthesized artifact exerts its function by interacting with the environment. However, excellent function does not necessarily increase the value of the artifact. It merely remains to be an artificial object unless it works in the environment, exerts function, is traded in the market, satisfies the people’s subjective utility, and increases the social value. Only then, it becomes valuable. The value not only encompasses market diffusion, but also involves social acceptance and a cultural ripple effect. In either case, it is social because the essence of value is “spread”. A treasure stored secretly is not necessarily valuable. Therefore, social value cannot be discussed only in terms of functional maximization and cost minimization.

From this viewpoint, the paper “Integrated development of automotive navigation and route guidance system” describes in detail the author’s activities for international standardization to obtain social acceptance. This is a valuable

paper from which we can learn much. In the paper “Designing products and services based on understanding human cognitive behavior”, the statements that the interaction between an artifact and humans is necessary to create values in the real world which is a complex open system, and that it is accepted by society through this awareness, are very important.

In the roundtable discussion “The R&D of system science and technology” with Dr. Hidenori Kimura, many important points are mentioned. One is the reference to “social expectation” stated by Dr. Hiroyuki Yoshikawa, former President, AIST. Whether the “discovery of social expectation” is an analysis by the observer or a synthesis by the participation of the acting body is the future theme for *Synthesiology*.

Finally, I would like to discuss the positioning of the papers published in *Synthesiology*. The word “analysis” has the meanings of division methodology as well as the objective of clarification. “Synthesis” has the meanings of integration methodology and the objective of construction. Therefore, there are four categories: analysis by analysis, analysis by synthesis, synthesis by analysis, and synthesis by synthesis. I think the statement of the paper will become clearer if the papers submitted to the journal clarify in which category the reasoning is developed.

Editor
Kanji UEDA

Synthesiology - English edition Vol. 4 No. 3, Jan. 2012

Edited by *Synthesiology* Editorial Board

Published by National Institute of Advanced Industrial Science and Technology (AIST)

Synthesiology Editorial Board

Editor in Chief: A. ONO

Senior Executive Editor: N. KOBAYASHI and M. SETO

Executive Editors: M. AKAMATSU, K. NAITO, H. TAYA

Editors: S. ABE, K. IGARASHI, H. ICHIO, K. UEDA, A. ETORI, K. OHMAKI, Y. OWADANO, M. OKAJI,

A. KAGEYAMA, T. KUBO, T. SHIMIZU, H. TATEISHI, M. TANAKA, E. TSUKUDA,

S. TOGASHI, H. NAKASHIMA, K. NAKAMURA, Y. HASEGAWA, J. HAMA, K. HARADA,

N. MATSUKI, K. MIZUNO, N. MURAYAMA, M. MOCHIMARU, A. YABE, H. YOSHIKAWA

Publishing Secretariat: Website and Publication Office, Public Relations Department, AIST

Contact: *Synthesiology* Editorial Board

c/o Website and Publication Office, Public Relations Department, AIST

Tsukuba Central 2, 1-1-1 Umezono, Tsukuba 305-8568, Japan

Tel: +81-29-862-6217 Fax: +81-29-862-6212

E-mail: synthesiology@m.aist.go.jp

URL: http://www.aist.go.jp/aist_e/research_results/publications/synthesiology_e

*Reproduction in whole or in part without written permission is prohibited.