

## MESSAGES FROM THE EDITORIAL BOARD

There has been a wide gap between science and society. The last three hundred years of the history of modern science indicates to us that many research results disappeared or took a long time to become useful to society. Due to the difficulties of bridging this gap, this stage has been recently called the valley of death or the nightmare stage<sup>(Note 1)</sup>. Rather than passively waiting, therefore, researchers and engineers who understand the potential of the research should actively try to bridge the gap.

To bridge the gap, technology integration<sup>(i.e. Type 2 Basic Research – Note 2)</sup> of scientific findings for utilizing them in society, in addition to analytical research, has been one of the wheels of progress<sup>(i.e. Full Research – Note 3)</sup>. Traditional journals, have been collecting much analytical type knowledge that is factual knowledge and establishing many scientific disciplines<sup>(i.e. Type 1 Basic Research – Note 4)</sup>. Technology integration research activities, on the other hand, have been kept as personal know-how. They have not been formalized as universal knowledge of what ought to be done.

As there must be common theories, principles, and practices in the methodologies of technology integration, we regard it as basic research. This is the reason why we have decided to publish “*Synthesiology*”, a new academic journal. *Synthesiology* is a coined word combining “synthesis” and “ology”. Synthesis which has its origin in Greek means integration. Ology is a suffix attached to scientific disciplines.

Each paper in this journal will present scenarios selected for their societal value, identify elemental knowledge and/or technologies to be integrated, and describe the procedures and processes to achieve this goal. Through the publishing of papers in this journal, researchers and engineers can enhance the transformation of scientific outputs into the societal prosperity and make technical contributions to sustainable development. Efforts such as this will serve to increase the significance of research activities to society.

We look forward to your active contributions of papers on technology integration to the journal.

*Addendum to Synthesiology-English edition,*

*“Synthesiology-English edition” is a translated version of “Synthesiology”, which is published quarterly, ISSN 1882-6229, by AIST.*

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*Synthesiology Editorial Board*  
(written in January, 2008)

**Note 1 :** The period was named “nightmare stage” by Hiroyuki Yoshikawa, the then President of AIST, and historical scientist Joseph Hatvany. The “valley of death” was used by Vernon Ehlers in 1998 when he was Vice Chairman of US Congress, Science and Technology Committee. Lewis Branscomb, Professor emeritus of Harvard University, called this gap as “Darwinian sea” where natural selection takes place.

**Note 2 :** *Type 2 Basic Research*

This is a research type where various known and new knowledge is combined and integrated in order to achieve the specific goal that has social value. It also includes research activities that develop common theories or principles in technology integration.

**Note 3 :** *Full Research*

This is a research type where the theme is placed within the scenario toward the future society, and where framework is developed in which researchers from wide range of research fields can participate in studying actual issues. This research is done continuously and concurrently from *Type 1 Basic Research*<sup>(Note 4)</sup> to *Product Realization Research*<sup>(Note 5)</sup>, centered by *Type 2 Basic Research*<sup>(Note 2)</sup>.

**Note 4 :** *Type 1 Basic Research*

This is an analytical research type where unknown phenomena are analyzed, by observation, experimentation, and theoretical calculation, to establish universal principles and theories.

**Note 5 :** *Product Realization Research*

This is a research where the results and knowledge from *Type 1 Basic Research* and *Type 2 Basic Research* are applied to embody use of a new technology in the society.