

# History and Review of the IMS (Intelligent Manufacturing System)

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- **The history and review of IMS from Japan's point of view.**
- **How did it take place.**
- **What was the achievement of IMS.**
- **Why Japan decided to end the IMS.**



# IMS



- International Research Scheme for Manufacturing Technology
- Officially started in 1995 for 10years
- Australia, Canada, EU & Norway, Japan, Switzerland and US as original member, Korea joined in 2002
- 2<sup>nd</sup> Phase 2005-2010, Japan left the scheme in 2010

# The Formation of IMS



- Strong Economy and Manufacturing of Japan in 1980s
- Idea of cooperative research in mfg. tech.
- Discussion with leading economies
- Reached agreement to start IMS from '95
- In Japan IMS Promotion Center with 100+ members organized in '90

# IMS Member Regions

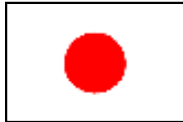
1995



Australia(~'06)



Canada(~'05,'07)



Japan(~'10)



United States

1996



Switzerland

1997



European Union & Norway

2002



Korea (applied in '98)

2010



Mexico (applied in '09)

The year means the formal ratification of IMS Terms of References (ToR)

# Objectives of IMS



- *to enable greater sophistication in manufacturing operations*
- *to improve the global environment*
- *to improve the efficiency with which renewable and non-renewable resources are used*
- *to create new products and conditions which significantly improve the quality of life for users*
- *to improve the quality of the manufacturing environment*

# Objectives of IMS (continued)

- *to develop a recognized and respected discipline of manufacturing which will encourage the transfer of knowledge to future generations*
- *to respond effectively to the globalization of manufacturing*
- *to enlarge and open markets around the world*
- *the advancement of manufacturing professionalism worldwide by providing global recognition and establishing an educational discipline for manufacturing*

# IMS Technical Terms



- *Total product life cycle issues*
- *Process issues*
- *Strategy/Planning/Design tools*
- *Human/Organization/Social issues*
- *Virtual/Extended Enterprise issues*

# Research Principles



- Focusing on pre-competitive and post-competitive research
- No cross funding – each member countries finance their own research activities
- Must comply with IMS IPR provisions

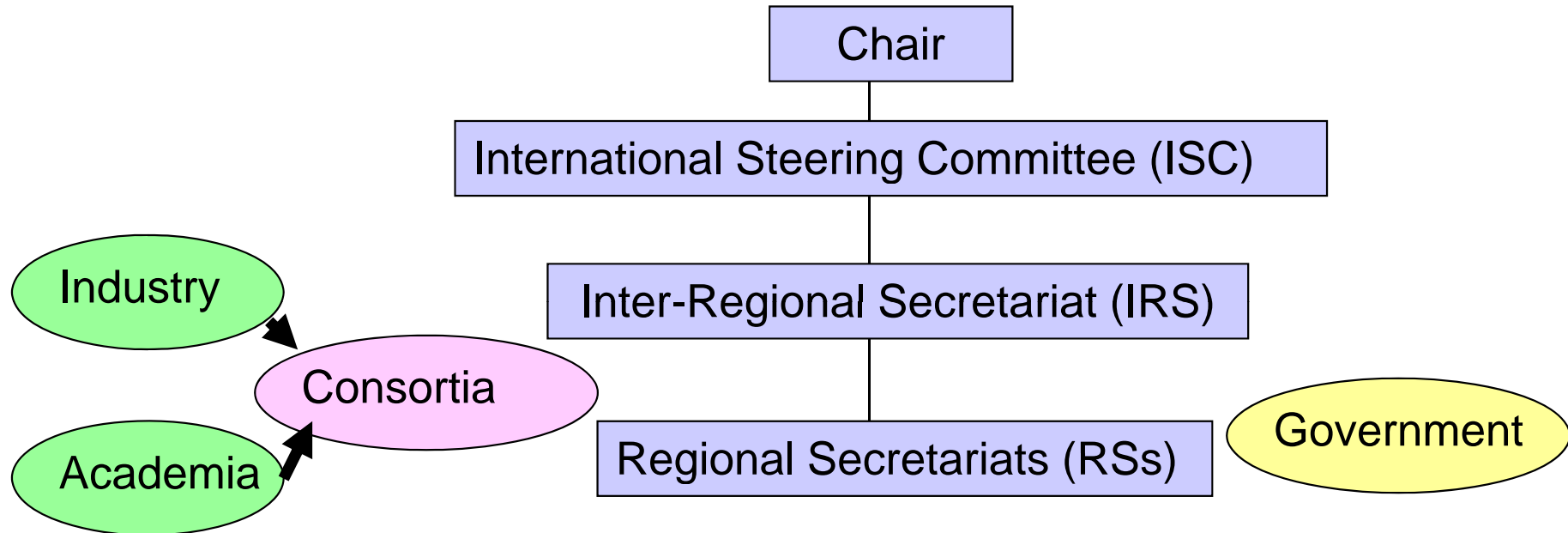


# Major IPR Provisions



- The right to use background rights owned by other partners for research
- Each partner may use foreground royalty-free for research and development and for commercial exploitation
- Background rights: existing IPR necessary for the project
- Foreground: Information and IPR created in the project

# IMS Managing Structure



Projects Proposals are submitted through RSs to IRS and IRS distribute the Proposal to other RSs.

After project members agree the CCA (Consortia Cooperation Agreement) including mandatory IPR provisions, the ISC will endorse the project as IMS Project.

# Phase 1 (1995~2005) Results

- 42 International IMS projects
- 700 companies participated
- 300 universities and research institutes
- 154 Japanese firms and institutes participated in 35 projects
- Various activities – International IPR Group, Engineering Education Working Group, Vision Forum

# Review: domestic and international

- Good achievement in creating international projects
- Provide good platform in IPR handling
- Not much visible outcome
- Is it worth funding?
- Bureaucratic management

# Transition to IMS Phase 2



- Slight change of ToR
- Extension with review every 5 years
- Promoting new participants
- Withdrawal of Australia and Canada
- 19 continued projects and 2 new projects
- IMS Strategic Working Group (ISWG) established in 2007
- MTP (Manufacturing Technology Platform) proposed

# **IMS Future Review Panel Report**

## **A Study on How IMS Should Be Changed After 2010**

**IMS Future Review Panel  
IMS Promotion Committee**

**IMS Promotion Center  
Tokyo, Japan**

August 6, 2008

# Background

- **Terms of Reference for the IMS Scheme, Article VIII:**  
***“Participants will review the scheme every five (5) years to determine whether it should be continued, modified or terminated.”***
- **ISC26 Meeting Report, Agenda 6-Strategy:**  
***Actions 5. “IRS will head a working group towards the end of the year to develop a strategy based on Japan input for IMS past 2010”***

# Chronology



- **IMS Promotion Committee (Chair: Prof. Yoshikawa ) organized IMS Future Review Panel in Nov 2007 consisting of industry and academic people engaged in IMS activities.**
- **IMS Future Review Panel (Chair: Dr. Nakamura) held meetings from February to June 2008.**
- **The Panel developed a draft report and submitted to the Promotion Committee.**
- **IMS Promotion Committee approved the report at its meeting on August 6, 2008.**
- **IMS Promotion Committee submitted the report to the Ministry of Economy, Trade and Industry (METI)**



# Contents of the Report



**Background**

**Executive Summary**

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**(2) Phase 1 of IMS: IMS Program**

**(3) Assessment by IMS Promotion Committee Before Phase 2**

**(4) Phase 2 of IMS: IMS Scheme**

**(5) Government Support of the Respective Regions**

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**3. The Role Fulfilled by International Collaborative Research**

**4. Changes in Business Environment Surrounding Manufacturing and the Limit of IMS**

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**7. Recommendations on IMS After 2010**

**8. IMS Promotion Center and Its Membership**

**9. Acknowledgement**

# Summary 1



- Phase 1 of IMS greatly contributed to shaping the state of international collaboration in manufacturing technology by way of implementing and encouraging multi-national projects.

# Summary 2



- Proposals submitted and projects conducted have decreased in number from the latter half of Phase 1 through Phase 2. This can largely be attributed to the fact that most of the recommended technical themes have already been addressed by IMS projects, and complex endorsement procedures and rigid IPR provisions specified in the TOR hindered the efforts to develop new projects.

# Current Status of the IMS International Projects

## Comparison between the end of first phase and now

June 2008  
MSTC/ IMS Promotion Center

	End of April 2005	End of June 2008	Changes
<b>Outline Stage</b>	21	14	15 Added, 4 Promoted, 18 Withdrawn
<b>Abstract Stage (pend. endors.) (endorsed)</b>	0 13	0 11	6 Added, 3 Promoted, 5 Withdrawn
<b>Full Projects (pend. endors.) (on going) (completed)</b>	0 17 (11) 25 (21)	0 7 ( 7) 38 (27)	3 Added, 13 Completed 13 Added

( ) Participated by Japan

# Summary 3



- Exclusive public funding for IMS has been decreasing in IMS Regions except Europe. This appeared to be the main reason for the withdrawal of Canada and Australia. Also, there has been a sharp decline in the number of new proposals and project partners originating in Japan as well as Korea.

# Summary 4



- On the other hand, the globalization of manufacturing has brought about a new revolution over the past twenty years. This has led to an unprecedented expansion of technical collaboration and business partnerships, distribution of production, and corporate acquisitions and mergers. International research cooperation among firms and business groups in the form of a consortium has been expanded.

# Summary 5



- Needs have been decreasing for the use of the IMS process to seek project partners, while needs actually exist for the exchange of information in an open environment, as has been recognized in the MTP workshop held in April 2008.

# Summary 6



- With the critical roles in international manufacturing shifting from advanced nations to newly emerging economies like ASEAN countries and BRICs, the former have faced a significant decrease in market share. With an expectation of expanding itself, IMS lowered the barriers for new member countries. However, despite the efforts, no interest of participation has been expressed thus far.



# Summary 7



- The manufacturing industry and manufacturing technology will remain the cornerstone of world economy. To further develop them, advanced and emerging nations will need a common platform to exchange knowledge and information with each other.

# Recommendations 1



- IMS should be terminated in April 2010 if the other Regions agree with this idea. However, if or when other Region(s) should wish to continue the scheme, Japan naturally would never reject such an intention. Instead Japan will make our own decision to withdraw from IMS Scheme at the end of April 2010.

# Recommendations 2

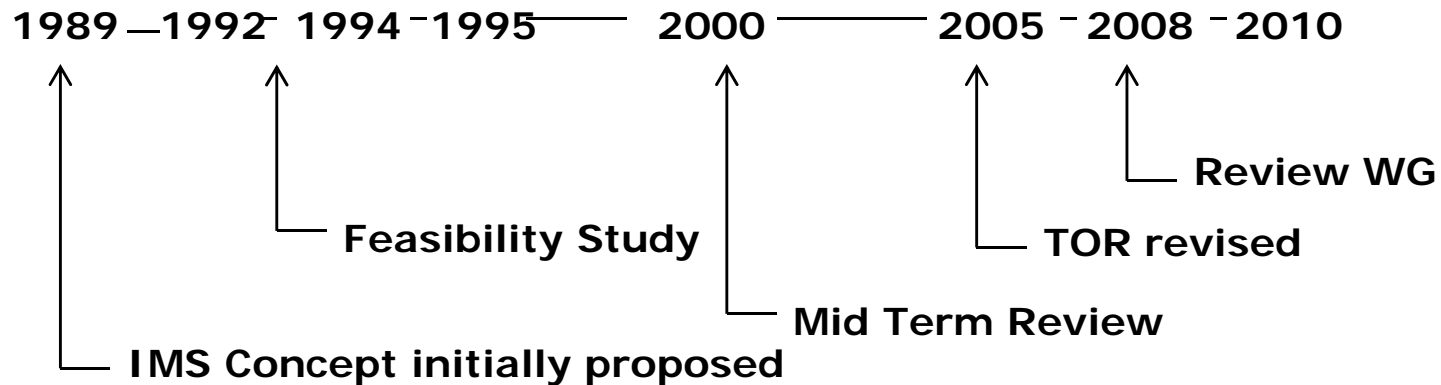
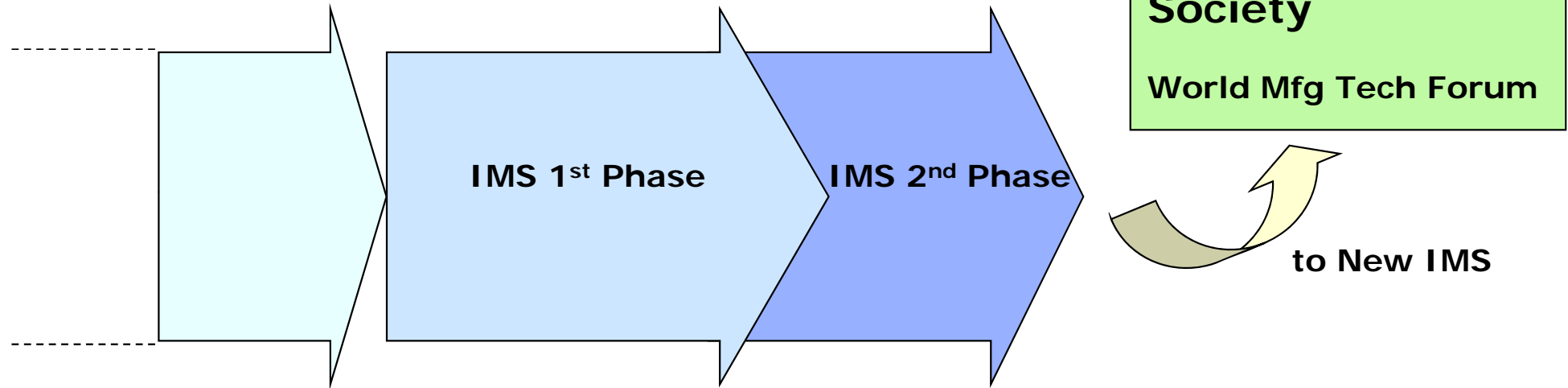


- The Regions should work together to establish a new forum like Davos Forum named “International Manufacturing Society” or new “IMS”, bringing together world manufacturing representatives annually or biennially for them to exchange views on state-of-the-art manufacturing science and technology and to achieve a global consensus on its future direction.

The regional organizations currently supporting IMS might well be able to rotate the responsibility to hold the meeting on a voluntary basis and the meeting cost could be recouped by attendance fees.

# IMS Beyond 2010

## Intelligent Manufacturing Systems



# And After



- The report was discussed at ISC April 2009
- Members except Japan decides to extend IMS based on MTP
- Japan formally left IMS April 2010
- 1<sup>st</sup> World Manufacturing Forum held in May 2011

# Questions



- What will be the future of China and ASEAN countries manufacturing industry?
- Is R&D capacity of these countries satisfactory?
- Can these countries overcome global warming and environmental issues?
- Is there needs for Asia based scheme for collaboration ?



**Thank You Very Much !**

谢谢！

감사합니다！

ขอบคุณคุณ！

ありがとうございました

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