COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 04.10.1996
COM(96) 468 final

96/0235 (CNS)

Proposal for a

COUNCIL DECISION

concerning the conclusion on behalf of the European Community of an agreement for international cooperation in research and development in the domain of Intelligent Manufacturing Systems between the European Community and Australia, Canada, Japan, the United States of America, Norway and Switzerland

(presented by the Commission)

EXPLANATORY MEMORANDUM

The background to the present proposal is set out in the explanatory note attached.

1. In the proposal, the Council is requested to approve and authorise the signature of the attached agreement on international cooperation in research and development in the domain of Intelligent Manufacturing Systems with the third countries of Australia, Canada, Japan, the United States of America, Norway and Switzerland, to be implemented by an exchange of letters. The agreement would establish the principles of cooperation in research and development in the domain of Intelligent Manufacturing Systems between legal entities from the Community and legal entities from the third countries. For legal entities from the Community, the multi-annual Framework Programme, in particular, the Information Technologies Programme and the Industrial and Material Technologies Programme, would be the relevant financing programmes.

   The rules proposed for allocation, dissemination and protection of intellectual property rights arising from the cooperation follow the guiding principles set out in the Joint Declaration of the Council and the Commission of 26 June 1992 (COM(92) 202 final).

2. As regards the means and modalities of implementation of IMS within the Community, the conditions set out in Annex 2 of the Council decision 5168/95 of 10 March 1995 will apply.

   Therefore the Commission invites the Council:

   - to approve the agreement; and,

   - to authorise the Commission to sign the agreement on behalf of the Community.

   The agreement will take effect on the first day of the month following the date on which all Participants will have accepted the agreement.

ANNEX

1. Research into Intelligent Manufacturing Systems (IMS) is currently being carried out world-wide on a substantial scale but largely on a national or regional basis. There can be added value from collaborating with partners from countries or regions where there is complementary expertise. A pooling of ideas and human resources can bring about a general improvement in the level of manufacturing efficiency world-wide. Such collaboration, provided it takes place within an equitable framework, can accelerate pre-normative efforts, influence directions of basic and applied research so that they focus on issues of global impact and industrial relevance, and have beneficial spin-offs for all sizes of companies, including SMEs, by facilitating their entry into new markets.

2. A two-year industry-driven feasibility study was initiated in February 1992 to explore the possibilities of international collaborative research in IMS. Participants to the feasibility study were Australia, Canada, the EC, five of the EFTA[1] countries, Japan and the USA. The results of the feasibility study proved that, under reciprocal terms and conditions, there is added value in such cooperation. The International Steering Committee, which was set up to guide and implement the feasibility study, included in its final report recommendations for a follow-up programme. The results of a subsequent survey of industrial opinion in Europe indicated support for the IMS model of collaboration.

3. On 8 September 1994, the Commission requested a mandate to negotiate an agreement for international cooperation in the field of Intelligent Manufacturing Systems with the third countries concerned (SEC(94) 1255). On 10 March 1995, the Council authorised the Commission to negotiate the agreement in question (5168/95) and approved a set of negotiation directives with the view to concluding a scientific and technical agreement. The Community's negotiation position had to take full account of the European Community's policies, in particular its RTD policy. The Community's particular objective would be to strengthen the scientific and technological basis of the Community's industry and to encourage it to become more competitive at international level.

---

[1] Austria, Finland, Norway, Sweden and Switzerland

4. The negotiations resulted in the attached agreement, to be implemented by an Exchange of Letters between the European Community and Australia, Canada, Japan, the United States of America, Norway and Switzerland. The agreement would record the common understanding on the principles of international cooperation on research and development activities in the domain of IMS and includes a description of:

- Objective;
- Technical themes for IMS cooperation;
- Forms and means of cooperation;
- Dissemination and utilisation of information;
- Financing;
- Implementation of IMS;
- Duration; and,
- Implementation of IMS in Europe.

5. As regards the means and modalities of implementation of IMS within the Community, the conditions set out in Annex 2 of the Council decision 5168/95 of 10 March 1995 will apply.

COUNCIL DECISION

of ...

concerning the conclusion on behalf of the European Community of an agreement for international cooperation in research and development in the domain of Intelligent Manufacturing Systems between the European Community and Australia, Canada, Japan, the United States of America, Norway and Switzerland

THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Article 130m, in conjunction with Article 228(2), first sentence, and the first subparagraph of Article 228(3) thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the European Parliament,

WHEREAS international cooperation in the domain of intelligent manufacturing systems will strengthen the scientific and technological bases of the Community in industry and will contribute to the competitivity of Community industry;

WHEREAS a two-year feasibility study on international collaboration in the domain of intelligent manufacturing systems proved that there is added value in such cooperation;

WHEREAS the Council has authorised the Commission to negotiate an agreement with Australia, Canada, Japan, the United States of America, Norway and Switzerland;

WHEREAS an agreement in the form of an exchange of letters was reached with the third countries;

Has decided as follows:

Article 1

The Agreement for international cooperation in research and development in the domain of Intelligent Manufacturing Systems between the European Community and Australia, Canada, Japan, the United States of America, Norway and Switzerland is hereby approved. The text of the agreement is attached to this Decision.

Article 2

The President of the Council is hereby authorised to designate the person empowered to sign the Agreement referred to in Article 1 in order to bind the Community.

Done at Brussels,

For the Council,

The President

Principles of international cooperation on research and development activities in the domain of Intelligent Manufacturing Systems between the European Community and the United States of America, Japan, Australia, Canada, and the EFTA countries of Norway and Switzerland

(Title, greeting)

I refer to discussions that have taken place concerning international cooperation on research and development activities in the domain of Intelligent Manufacturing Systems (IMS) between the Participants, i.e. the European Community, and the United States of America, Japan, Australia, Canada, and the EFTA countries of Norway and Switzerland.

The purpose of this letter is to record the common understanding reached on the principles of cooperation on IMS. The letter complements the Terms of Reference (ToR) developed by the International Steering Committee at the end of the IMS feasibility study in 1994 and modifies Article VIII of the ToR and Article 1.13 of Appendix 2 of the ToR as indicated below. The ToR, and the Appendices to the ToR, are annexed to this letter.

1. Objective

   Participants will encourage and facilitate cooperation between entities - established within their territories (within the territories of its Member States in the case of the European Community) - in the domain of Intelligent Manufacturing Systems. Such cooperation should ensure a balance of benefits and contributions, be of industrial relevance and be based on the principle of mutual interest and understanding.

2. Technical Themes for IMS Cooperation

   The cooperation will initially cover the following five technical themes:

   (a) total product life cycle issues;

   (b) process issues;

   (c) strategy/planning/design tools;

   (d) human/organisational/social issues; and,

   (e) virtual/extended enterprise issues.

   Other themes within the scope of IMS may be envisaged, however, it should be ensured that new technical themes are consistent with government policies and industrial priorities of the participating regions.

3. Forms and Means of Cooperation

Cooperation will involve participation in projects by entities, in accordance with procedures adopted in common for the creation and operation of international consortia and may include visits, training and exchanges of scientists, engineers and other appropriate personnel for purposes relevant to the successful implementation and completion of the projects.

4. Dissemination and Utilisation of Information

Intellectual property rights (IPR) resulting from projects carried out within IMS will be subject to the IMS IPR provisions given in Appendix 2 of the ToR. This Appendix will be amended in Article 1.13 to reflect that Austria, Finland and Sweden are members of the European Union.

5. Financing

Financing of cooperative activities will be subject to the availability of funds and to the applicable laws and regulations, policies and programmes of the participating regions.

Each Participant will cover its own participation.

Each Participant will contribute - in funding or in kind - in an equitable manner to the execution of the functions and the costs of the Inter regional secretariat.

6. Implementation of IMS

Representatives of the Participants appointed to the International Steering Committee (ISC) will act as the liaison between the ISC and their respective public administrations/governments. The representatives of the Participants will monitor the implementation with respect to the purpose, principles and programme structure of IMS and they will have a facilitating role. In addition, they will have the following functions:

- facilitate good cooperation between the regional secretariats;
- exchange of information on local practices, laws, regulations and programmes relevant to the cooperation;
- facilitate participation of SMEs directly and indirectly in the IMS programme. In particular this would include access to an electronic partner search facility and an electronic register of expressions of interest; and,
- present to government/public administrations for decision the recommendations of the ISC for the admission of new Participants.

The Participants will organise, manage or designate their respective Regional Secretariats. In particular, the Regional Secretariats will include the following responsibilities:

- facilitate the timely selection of projects at regional level, according to the rules and procedures in force in the Participant's region;

- assist in consortium formation within and across respective regions; and,

- work with regional infrastructure groups to facilitate IMS.

7. Duration

The IMS programme will have a duration of ten years, each Participant may withdraw at any time subject to twelve month's notice. The Participants will review the principles of their cooperation five years after its launch in order to see whether it should be continued, modified or terminated. This replaces Article VIII of the ToR.

8. Implementation of IMS in Europe

The European Community and Switzerland and Norway reserve the option to act together as a single European Region, to be represented by a combined delegation on the International Steering Committee and to be supported by a single European IMS Secretariat.

The Commission of the European Community will provide the necessary support for its Regional Secretariat.

This letter, together with its acceptance by the Participants, complements and modifies the ToR and records the common understanding on the principles of cooperation on IMS. I would be pleased to receive your early confirmation of this understanding.

(ending)

Terms of reference for a program for international cooperation in advanced manufacturing

I. PURPOSE

This document sets forth the Terms of Reference for the Participants in the Intelligent Manufacturing Systems (IMS) Program for international cooperation in research and development in intelligent manufacturing systems. These Terms of Reference are not intended to create obligations under international or domestic law.

II. OBJECTIVES

Objectives of the IMS Program are as follows:

A. to enable greater sophistication in manufacturing operations;

B. to improve the global environment;

C. to improve the efficiency with which renewable and non-renewal resources are used;

D. to create new products and conditions which significantly improve the quality of life for users;

E. to improve the quality of the manufacturing environment;

F. to develop a recognized and respected discipline of manufacturing which will encourage the transfer of knowledge to future generations;

G. to respond effectively to the globalization of manufacturing;

H. to enlarge and open markets around the world; and,

I. the advancement of manufacturing professionalism worldwide by providing global recognition and establishing an educational discipline for manufacturing.

In achieving its objectives, the IMS Program should be a catalytic agent for:

A. Global manufacturing cooperation involving large and small companies, users and suppliers, universities, and governments;

B. The dissemination of the results of significant manufacturing improvements worldwide;

C. The development of global manufacturing recommendations for standards through cooperative work on pre-standardization topics;

D. The assessment and selection of priorities for global cooperation in manufacturing process development;

E. The dissemination, understanding, and application of consistent guidelines, provisions and model agreements that respect intellectual property rights (IPR) of Participants and project consortium partners.

III. BACKGROUND

Six Participants took part in the Feasibility Study to define the IMS Program. The Participants are:

- Australia;
- Canada;
- The European Community (EC);
- The participating European Free Trade Association Countries (EFTA): Austria, Finland, Sweden, Norway and Switzerland;
- Japan; and,
- The United States.

The EC and the EFTA countries acted together as a single European Region.

The Participants completed the Feasibility Study as defined under the Terms of Reference for the Feasibility Study on International Collaboration in Advanced Manufacturing.

The International Steering Committee for the Feasibility Study stated in their final report that the Feasibility Study proved an international cooperative program in research and development in advanced manufacturing can be created that is equitable and beneficially structured, and provides equitable and beneficial outcomes.

The International Steering Committee for the Feasibility Study in its final report recommended the commencement of the IMS Program and proposed a management structure, technical themes, and intellectual property rights provisions for it.

IV. PRINCIPLES

Manufacturing is a primary generator of wealth and is critical to establishing a sound economic basis for economic growth.

The need for excellence in manufacturing operations has become critical as a result of the establishment of global markets.

The role of research and development in the field of advanced manufacturing is increasingly pivotal to manufacturing operations. Substantial research in advanced manufacturing is being carried out worldwide.

Properly managed international cooperation in research and development in advanced manufacturing can help improve manufacturing operations.

International cooperation in advanced manufacturing should proceed upon the following bases:

A. Contributions to, and benefits from, such cooperation are equitable and balanced;

B. Collaborative projects must have industrial relevance;

C. Collaborative projects are carried out by inter-regional, geographically distributed consortia;

D. Collaborative projects can occur throughout the full innovation cycle;

E. Results of collaborative projects are shared through a process of controlled information diffusion that protects and equitably allocates any intellectual property rights created or furnished during cooperation; and,

F. IMS project activities under government sponsorship or utilizing government resources should not involve competitive research and development.

V. PROGRAM STRUCTURE AND FUNDING

The IMS Program is an international cooperation in which Participants work cooperatively to boost industrial competitiveness, to solve problems facing manufacturing worldwide and to develop advanced manufacturing technologies and systems to benefit humanity. The scope of the IMS Program is as broad as practicable.

A. The IMS Program is governed by a management structure which consists of:

   1. An International IMS Steering Committee;

   2. An Inter-Regional Secretariat; and,

   3. Regional Secretariats.

   The IMS Program will include projects that comply with the Technical Themes described in Appendix 1.

   Project partners must comply with the IPR Provisions described in Appendix 2. The IPR Provisions include a minimum set of mandatory requirements, non-mandatory provisions that need to be addressed, and optional provisions.

B. Funding for the Management Structure

1. Each Participant will fund its own participation.

2. Each Participant will determine the method by which its own participation will be funded.

3. Each Participant will contribute in an equitable manner in funding or in kind to defray the costs of operating the Inter-Regional Secretariat.

4. Each Participant will be responsible for supporting its own delegation and providing any necessary liability coverage.

C. Funding for the Projects

1. Each Participant will fund its own participation.

2. Each Participant will determine the method by which its own participation will be funded.

VI. MANAGEMENT STRUCTURE

A. International IMS Steering Committee. The IMS Program will be overseen by an International IMS Steering Committee. Members must be eminent representatives of the Participants' industrial, academic, or governmental sectors who are knowledgeable of manufacturing issues. Members must be willing and able to devote the necessary time and effort involved in guiding the IMS Program.

1. Composition. Two members and one observer from each Participant.

   The total number of members and observers will expand as additional Participants are admitted according to the procedure spelled out in Section 9.

   Delegation members may be from the industrial, academic or governmental sectors of each Participant. Strong industrial representation is encouraged. At least one of the two members must be from the industrial sector, and the head of the delegation must be non-governmental. The members should be appointed for a significant term. However, observers can be changed as the need dictates.

   Each Participant's delegation to the meetings of the International IMS Steering Committee may be accompanied by two representatives from its designated Regional Secretariat.

2. The International IMS Steering Committee will reach decisions by consensus of the members.

3. Chairmanship. The chair of the International IMS Steering Committee will rotate among the six Participants. Each term will last for two years. During the term when a Participant chairs, that Participant also is responsible for organizing the Inter-Regional Secretariat. Canada will chair the first term. Australia will take the second term and serve as vice chair in the first term to

guarantee continuity. EFTA will take the third term. The sequence of subsequent chairmanships will be decided during the third year after the commencement of the IMS Program.

4. Responsibilities. The International IMS Steering Committee will recommend policies and strategies for undertaking, and for the evolution of, the IMS Program, including the matter of new Participants. It will also:

   a. provide overall guidance, set strategic priorities and oversee program implementation,

   b. sponsor and approve new IMS documents,

   c. form interim task forces or committees, e.g., for technical or legal issues, if necessary, to accomplish its work,

   d. oversee the Inter-Regional Secretariat,

   e. provide international promotion for IMS and for manufacturing as a generic discipline,

   f. endorse projects as described in Section IX,

   g. ensure projects and work undertaken under this Program are done in a manner consistent with the purpose, principles and program structure agreed upon by the Participants, and,

   h. foster communication among the International IMS Steering Committee, the Inter-Regional and Regional Secretariats, and the project consortium members.

B. Inter-Regional Secretariat. The Participant which chairs the International IMS Steering Committee will be responsible for managing the Inter-Regional Secretariat.

The Inter-Regional Secretariat will have responsibility to:

1. provide logistics for inter-regional proposals,

2. maintain and distribute IMS meeting and other documents,

3. provide logistics for inter-regional publicity at the direction of the International IMS Steering Committee,

4. educate new and prospective Participants,

5. disseminate information during, and upon the conclusion of, projects,

6. assist with inter-regional consortia formation, and,

7. organize and arrange studies and/or work as requested by the International IMS Steering Committee.

C. Regional Secretariats. The governments and/or the public administrations and public organizations of the Participants will organise and manage their respective Regional Secretariats in a manner they see fit.

In order to facilitate the IMS Program, the Regional Secretariats will have responsibility to:

1. provide regional logistics for inter-regional proposals,

2. maintain and distribute IMS meeting and other documents within respective regions,

3. provide logistics for regional meetings and promotion,

4. disseminate information during and upon the conclusion of projects within respective regions,

5. assist in consortium formation within and across respective regions,

6. support regional delegations in attending the International IMS Steering Committee meetings,

7. facilitate regional selections and reviews, and,

8. work with regional infrastructure groups to facilitate the IMS Program.

VII. COMMENCEMENT OF THE IMS PROGRAM

The IMS Program will commence upon:

(1) the ratification of the Terms of Reference for the IMS Program by each Participant,

(2) the appointment of the members of the International IMS Steering Committee, and,

(3) the designation of the Regional Secretariats.

VIII. END OF THE IMS PROGRAM

The IMS Program will end on the tenth anniversary of the agreed commencement date of the program, unless in the seventh year of the program, the governments and/or the public administration decide differently.

IX. ADMISSION OF NEW PARTICIPANTS

A. The government and/or public administration of an applicant region will first have to comply with the Terms of Reference for the IMS Program.

B. After ratification of the Terms of Reference for the IMS Program, project partners from an applicant region are allowed to form consortia with the consent of other partners. The contributions of the applicant region's partners will have to be carefully monitored over a period of time to build up a profile of the applicant region's participation.

C. After this period of time has elapsed (possibly a number of years), the governments and/or public authorities will reach a decision based on recommendations from the International IMS Steering Committee on whether the applicant region would have representation on the International IMS Steering Committee.

X. CONSORTIUM FORMATION

The Regional Secretariats together with the Inter-Regional Secretariat provide assistance in forming consortia for IMS projects.

A. Basic Consortium Formation Document

The Inter-Regional Secretariat and the Regional Secretariats together will develop, based on the Terms of Reference for the IMS Program, a basic document that explains:

- the organization of the program,
- the structure of operation and the aims,
- the requirements for project and consortium selection,
- the technical themes, and,
- the evaluation and selection process and the supporting criteria.

B. International Coordinating Partner

An international coordinating partner must be appointed by each consortium. The appointed international coordinating partner must be an industrial firm with the necessary resources to lead the project to its completion and a demonstrated capacity for managing complex international projects. International coordinating partner duties include:

1. Coordinate consortia formation,
2. Coordinate preparation of full proposal and cooperation agreements,
3. Act as the primary contact for all communication between the consortium and the International Steering Committee and Inter-Regional Secretariat,
4. Facilitate successful execution of the project, and,
5. Coordinate project review preparation and information dissemination.

C. List of Interested Entities

Within a region, its Regional Secretariat will distribute to all organizations in the industrial, academic and governmental sectors identified as potential project partners the basic document, the domestic funding opportunities, and the domestic agenda for the IMS Program. The Regional Secretariat will compile a list of interested entities. The list must include the area of interest and the capabilities of each of the interested entities.

D. Exchange of Lists of Interested Entities

This list will be routinely updated and distributed to all other regions via the Inter-Regional Secretariat. The Regional Secretariat also collects lists of interested entities from other regions. It forwards a list of interested entities from other regions to those domestic entities with potential similar interests. The Regional Secretariat cultivates common interests between domestic and foreign entities, and facilitates the formation of consortia.

E. Exchange of Project Proposals

Any interested entity can submit preliminary proposals to the regional secretariat to which it belongs for facilitating formation of international consortia.

The regional secretariat will distribute these proposals to all interested entities on the list. Based on the information, potential partners can strive to form international consortia.

XI. EVALUATION, SELECTION AND REVIEW OF PROJECTS

Proposals must be consistent with the Principles, the structure of the program and the IPR Provisions set forth in these Terms of Reference.

A. Project Selection Criteria

1. Industrial relevance.

2. Compliance With the Technical Themes in Appendix 1 as may be amended from time to time by the International IMS Steering Committee.

3. Scientific and Technical Merit.

4. Adoption and Commercialization Potential.

5. Compliance with IPR Provisions in Appendix 2 as may be amended from time to time by the International IMS Steering Committee.

6. Value-added.

B. Consortium Selection Criteria

1. Inter-Regional Distribution of Partners

Consortium partners must be from at least three Participants.

2. Balanced Contributions and Benefits

The consortium partners will show how the contributions to, and the benefits from, participation are equitable and balanced. To this end, the contributions should be identified by type (including in-kind contributions such as equipment, facilities, personnel, documentation, techniques and background intellectual property) and by value for each partner and group.

3. Inter-Regional Leadership

The inter-regional consortium must appoint the international consortium coordinator for the consortium.

4. Dissemination of Results

The consortium must commit to and submit a plan to disseminate project results, including the lessons learned in forming and managing IMS consortium, and non-proprietary technical results permitted by the IPR Provisions.

C. Project Evaluation

The proposal process consists of three stages.

1. Project Abstract Evaluation

The consortium must produce an abstract of the planned research. This abstract shall be submitted to the Regional Secretariats for initial regional reviews. Each delegation will make a recommendation to the International IMS Steering Committee. Proposers of unapproved projects will be given feedback as to why they did not receive support.

2. Full Proposal Evaluation

The consortium must submit a final proposal using a standardized format for detailed evaluation by all partners' regions. The final proposal shall include the formal commitment of each partner to the Principles, the structure and the IPR Provisions of the IMS Program, including a signed cooperation agreement including an IPR agreement.

3. Final Endorsement

Final endorsement will be made by the International IMS Steering Committee based on the regional recommendations and the submitted proposals.

D. Project Review

The International IMS Steering Committee will monitor and review progress regularly. To facilitate this, each consortium will submit a summary report once a year to the International IMS Steering Committee, in a standardized format.

Any region may review progress of partner(s) from its region at any time as it sees fit.

XII. ROLE OF IMS VIS-A-VIS SMALL AND MEDIUM-SIZED ENTERPRISES (SMEs), UNIVERSITIES AND GOVERNMENT RESEARCH INSTITUTES

The Participants individually and the International IMS Steering Committee will develop mechanisms to enlist SME's directly and indirectly in the IMS Program. In addition to this, all regions should consider activities such as:

A. Clear and well documented advice on IPR issues.

B. A "road map" of existing constraints in law or custom in the Participants' territories, and their practical implications.

C. Help desks for answering simple queries.

D. An electronic partner search facility specifically oriented to SMEs.

E. An electronic register of "expressions of interest" by SME's, which are looking for opportunities to join existing or emerging project clusters.

F. An ongoing "case-book" of IMS experiences with donations from project teams.

G. Dissemination events specifically geared to various SME sectors.

The list is not exhaustive, and research should continue alongside the evolving program, to monitor the participation of SME's, and to identify further needs.

The items listed above also are useful for encouraging the participation of universities and government research institutes. Harnessing the educational role of universities in dissemination of results of research through to the next generation of practitioners is necessary.

XIII. DISSEMINATION OF RESULTS

Dissemination of information is of the utmost importance and is required in the IMS Program. However, all information dissemination must comply with the IPR Provisions

in Appendix 2. This includes the dissemination of interim and final project technical results.

Information dissemination will occur at the project, regional, and inter-regional levels. This dissemination might include written reports, international symposia, and publications by members of the academic sector.

Appendix 1

Technical themes for full scale IMS program as proposed by ITC

This framework of themes should encourage possible project applicants to develop proposals which show a clear contribution to the necessity of global cooperation. If it is shown in the project proposal that global cooperation could solve these themes better than regional efforts, the project should get priority.

1. Total product life cycle issues

- Future general models of manufacturing systems.

  Examples for that theme are the proposals of "agile manufacturing", "fractual factory", "bionic manufacturing", "holistic enterprise integration", etc.

- Intelligent communication network systems for information processes in manufacturing.

  To understand the productivity of global distribution and global sourcing, the communication networks and tools and their applications have to be improved.

- Environment protection, minimum use of energy and materials.

  Environment, energy and materials questions have reached a complexity that can only be handled via cooperation with a variety of specialists. Due to the fact that the conditions in that field are very different in different regions a common understanding and harmonized views for the response of manufacturing technologies to environment protection are necessary.

- Recyclability and refurbishment.

  Up to now it is nearly impossible to recycle a product of one region in another region. In the longer term that situation may damage the free trade between regions very much. Therefore methods and new ideas for recyclability that are globally accepted should be developed under the IMS umbrella.

- Economic justification methods.

  In spite of the efforts of the manufacturing scientists the speed of new problems arrival has by far outranged the output of troubleshooting ideas and their implementations in the manufacturing area. Very often this is caused by non harmonized assessment and economic justifications of new manufacturing systems. Therefore IMS should support projects with the development of clear specifications for monitoring and economic justification methods that can lead to common understanding in the evaluation of manufacturing systems.

2. Process issues

To realise the needs for rapid response to changing requirements and to saving human and material resources and to improving working conditions for employees the following themes can be identified.

- Clean manufacturing processes that can minimise effects on environment.

  Process emission minimised systems.

  Process disposal minimised systems.

  Factory (process) life-cycle pre-assessed systems.

- Energy efficient processes that can meet manufacturing requirements with minimum consumption of energy.

  Minimum consumption of energy.

  Integrated cycled process for less energy consumption

  Modules of energy conservation type.

  Production management technology of energy conservation type.

- Technology innovation in manufacturing processes.

  Methods that can quickly produce different products through "Rapid Prototyping Methods".

  Manufacturing processes that can flexibly respond to changes in labour conditions, changes of products or materials.

- Improvement in the flexibility and autonomy of processing modules that compose manufacturing systems.

  Open distributed systems and their modules that can match both unmanned, man-machine mixed and labour intensive systems, and can metamorphologically architect system components in correspondence with changes of products.

- Improvement in interaction or harmony among various components and functions of manufacturing.

  Pen infrastructure for manufacturing.

  Inter-connected information systems such as "remote ID" among respective modules.

3 Strategy/Planning/Design tools

Manufacturing takes place in a global economy. How and where raw materials are transformed is a strategic decision. The decision is complicated in terms of what to make and where to make or buy it, in what is becoming a single global economy.

Many of today's manufacturing organisations are designed using vertical and hierarchical structures. The move towards hetrarchical structures is and will continue to require major changes in organisations, systems and work practices. We need methodologies and tools to help us to define appropriate manufacturing strategies and to design appropriate organisations and business/work processes.

Methods and tools to support business process re-engineering. Modelling tools to support the analyses and development of manufacturing strategies.

Design support tools to support planning in an extended enterprise or virtual enterprise environment.

4 Human/Organisation/Social issues

- Promotion and development projects for improved image of manufacturing.

  Manufacturing engineers tend to be at the bottom of the pay scale relevant to other engineers, and the profession as a whole has a lower stature. Therefore ITC considers as projects globally recognised, strong professional societies and educational institutions for the promotion of manufacturing as a discipline. These proposals include the creation of international organisations to promote manufacturing.

- Improved capability of manufacturing workforce/education, training.

  Engineering education has often tended to emphasise theory over process. In addition, basic education has not always met the needs of industry, producing graduates with often inadequate skills. This has led to industries that are poor at turning innovation into successful products. This necessitates a change in priorities and closer ties between industry and educational institutions. As well, changes in system organisation means that training within companies is a continuous process which seeks to update the skills and increase the potential of employees - the crucial elements in any system.

- Autonomous offshore plants (integration of supplementary business functions in subsidiaries)

  Offshore plants were originally meant to increase market share and decrease production costs: development of the transplant labour forces were a secondary consideration. However, giving more autonomy to these plants enables them to react more flexibly to changing conditions in the areas where they are based, and is consistent with organisational ideas of decentralisation, empowerment and hierarchy flattening. It also serves to contribute to domestic development in the countries

where the plants are located and further the IMS goal of spreading widely basic manufacturing knowledge.

- Corporate Technical Memory - keeping, developing, accessing.

  Often in a manufacturing enterprise knowledge and sources of information are isolated or locked. "Organisational Learning" is a strategy for translating such knowledge into a framework or a model that leads to better decision making and could be an important theme within IMS.

- Appropriate performance measures for new paradigms.

  New paradigms of manufacturing must offer superiority in performance from the points of view of Costs, Quality, Delivery and Flexibility. The first three are familiar performance criteria used for mass production, while flexibility is a key attribute of new paradigm manufacturing. To increase the acceptance of new paradigms performance evaluation methods should be developed.

5 Virtual/Extended Enterprise issues

The extended enterprise is an expression of the market driven requirement to embrace external resources in the enterprise without owning them. Core business focus is the route to excellence but product/service delivery requires the amalgam of multiple world class capabilities. Changing markets require a fluctuating mix of resources. The extended enterprise, which can be likened to the ultimate in customisable, reconfigurable manufacturing resource, is the goal. The process is applicable even within large organisations as they increasingly metamorphasise into umbrellas for smaller units/focused factories.

The operation of the extended enterprise requires take up of communications and database technologies which are near to the current state of the art. However, the main challenge is organisational rather than technological.

Research and Development opportunities in this area are:

- methodologies to determine and support information processes and logistics across the value chain in the extended enterprise.

- architecture (business, functional and technical) to support engineering co-operation across the value chain, e.g., concurrent engineering across the extended enterprise.

- methods and approaches to assign cost/liability/risk and reward to elements of the extended enterprise.

- team working across individual units within the extended enterprise.

Appendix 2

Intellectual property rights provisions for research and development projects

Objectives

These provisions lay down mandatory requirements as well as recommended principles for PARTNERS which wish to participate in a PROJECT conducted within the Intelligent Manufacturing Systems Program (IMS PROGRAM). The objectives of these provisions are to provide adequate protection for intellectual property rights used in and generated during joint research and development PROJECTS under the IMS PROGRAM while ensuring:

(a) that contributions and benefits by PARTICIPANTS, from cooperation in such PROJECTS, are equitable and balanced;

(b) that the proper balance is struck between the need for flexibility in PARTNERS' negotiations and the need for uniformity of procedure among PROJECTS and among PARTNERS; and,

(c) that the results of the research will be shared by the PARTNERS through a process that protects and equitably allocates any intellectual property rights created or furnished during the co-operation.

Article 1: Definitions

1.1 **ACCOUNTING.** The sharing of any consideration such as royalties or other license fees by one PARTNER with another PARTNER when the first PARTNER which solely or jointly owns FOREGROUND discloses, licenses or assigns it to a third party.

1.2 **AFFILIATE.** Any legal entity directly or indirectly owned or controlled by, or owning or controlling, or under the same ownership or control as, any PARTNER. Common ownership or control through government does not in itself create AFFILIATE status.

Ownership or control shall exist through the direct or indirect:

(a) ownership of more than 50% of the nominal value of the issued equity share capital, or

(b) ownership of more than 50% of the shares entitling the holders to vote for the election of directors or persons performing similar functions, or right by any other means to elect or appoint directors, or persons performing similar functions, who have a majority vote, or

(c) ownership of 50% of the shares, and the right to control management or operation of the company through contractual provisions.

1.3 **BACKGROUND:** All information and INTELLECTUAL PROPERTY RIGHTS except BACKGROUND RIGHTS owned or controlled by a PARTNER or its AFFILIATE and which are not FOREGROUND.

1.4 **BACKGROUND RIGHTS:** Patents for inventions and design and utility models, and applications therefor as soon as made public, owned or controlled by a PARTNER or its AFFILIATES, a license for which is necessary for the work in a PROJECT or for the commercial exploitation of FOREGROUND, and which are not FOREGROUND.

1.5 **CONFIDENTIAL INFORMATION:** All information which is not made generally available and which is only made available in confidence by law or under written confidentiality agreements.

1.6 **CONSORTIUM:** Three or more GROUPS which have agreed to carry out jointly a PROJECT.

1.7 **COOPERATION AGREEMENT:** The one or more signed agreements among all PARTNERS in a CONSORTIUM concerning the conduct of the PROJECT.

1.8 **FOREGROUND:** All information and INTELLECTUAL PROPERTY RIGHTS first created, conceived, invented or developed in the course of work in a PROJECT.

1.9 **GROUP:** All PARTNERS in a given PROJECT from the geographic area of a PARTICIPANT.

1.10 **IMS PROGRAM:** The Intelligent Manufacturing Systems Program.

1.11 **INTELLECTUAL PROPERTY RIGHTS:** All rights defined by Article 2(viii) of the Convention Establishing the World Intellectual Property Organization signed at Stockholm on July 14, 1967[1], excluding trademarks, service marks and commercial names and designations.

1.12 **NON-PROFIT INSTITUTIONS:** Any legal entity, either public or private, established or organized for purposes other than profit-making, which does not itself commercially exploit FOREGROUND.

1.13 **PARTICIPANT:** Australia, Canada, the EC, the group of participating EFTA countries (Austria, Finland, Norway, Sweden and Switzerland), Japan and the U.S.A. and any other country or geographic region whose participation in the IMS PROGRAM may be approved in the manner determined by the PARTICIPANTS.

1.14 **PARTNER:** Any legal or natural person participating as a contracting party to the COOPERATION AGREEMENT for a given PROJECT.

---

[1]See Appendix 3

1.15 **PROJECT:** Any research and development project carried out by a CONSORTIUM within the IMS PROGRAM.

1.16 **SUMMARY INFORMATION:** A description of the objectives, status and results of a PROJECT which does not disclose CONFIDENTIAL INFORMATION.

Article 2: Mandatory Provisions

Each COOPERATION AGREEMENT must contain substantive terms and conditions that are fully consistent with each of the provisions 2.1 through 2.13 in this Article and the definitions used in each COOPERATION AGREEMENT shall be those specified in Article 1 of this document.

Where a PROJECT or a potential PARTNER or its AFFILIATES is subject to government requirements, whether by law or agreement, and such requirements will affect rights or obligations pursuant to the COOPERATION AGREEMENT, the potential PARTNER shall disclose to the other PARTNERS all such requirements of which it is aware prior to signing the COOPERATION AGREEMENT. PARTNERS must ensure that ownership, use, disclosure and licensing of FOREGROUND will comply with these mandatory provisions if the PROJECT is subject to government requirements.

PARTNERS will, at the outset of a PROJECT, promptly notify one another of their AFFILIATES which will be involved in the performance of the PROJECT, and will notify one another of any changes in the AFFILIATES so involved during the life of the PROJECT. At the time of entering into a COOPERATION AGREEMENT, and immediately after new legal entities have come to meet the AFFILIATE definition, PARTNERS may exclude AFFILIATES from the rights and obligations set forth in these provisions in accordance with the terms of the COOPERATION AGREEMENT.

Written Agreement

2.1 PARTNERS shall enter into a written COOPERATION AGREEMENT that governs their participation in a PROJECT consistent with this document.

Ownership

2.2 FOREGROUND shall be owned solely by the PARTNER or jointly by the PARTNERS creating it.

2.3 A PARTNER which is the sole owner of FOREGROUND may disclose and non-exclusively license that FOREGROUND to third parties without ACCOUNTING to any other PARTNER.

2.4 A PARTNER which is a joint owner of FOREGROUND may disclose and non-exclusively license that FOREGROUND to third parties without the consent of and without ACCOUNTING to any other PARTNER, unless otherwise agreed in the COOPERATION AGREEMENT.

2.5 A PARTNER may assign its sole and/or joint ownership interests in its BACKGROUND, BACKGROUND RIGHTS and FOREGROUND to third parties without the consent of and without ACCOUNTING to any other PARTNER.

PARTNERS who assign any of their rights to BACKGROUND RIGHTS or FOREGROUND must make each assignment subject to the COOPERATION AGREEMENT and must require each assignee to agree in writing to be bound to the assignor's obligations under the COOPERATION AGREEMENT in respect of the assigned rights.

Dissemination of Information

2.6 SUMMARY INFORMATION shall be available to all PARTNERS in other PROJECTS and to the committees formed under the IMS PROGRAM.

2.7 The CONSORTIUM will make available at the end of the PROJECT a public report setting out SUMMARY INFORMATION about the PROJECT.

License Rights

Foreground

2.8 Each PARTNER and its AFFILIATES may use FOREGROUND, royalty-free, for research and development and for commercial exploitation. Commercial exploitation includes the rights to use, make, have made, sell and import. However, in exceptional circumstances,

(a) PARTNERS may agree in their COOPERATION AGREEMENT to pay a royalty to PARTNERS which are NON-PROFIT INSTITUTIONS for commercial exploitation of FOREGROUND which is solely owned by such NON-PROFIT INSTITUTIONS; and

(b) PARTNERS may agree in their COOPERATION AGREEMENT to pay a royalty to PARTNERS which are NON-PROFIT INSTITUTIONS for commercial exploitation of FOREGROUND which is jointly owned with such NON-PROFIT INSTITUTIONS, provided such royalties are both small and consistent with the principle that contributions and benefits in the IMS PROGRAM must be balanced and equitable.

2.9 A non-owning PARTNER and its AFFILIATES may not disclose or sub-license FOREGROUND to third parties except that each PARTNER or its AFFILIATES may, in the normal course of business:

(a) disclose FOREGROUND in confidence solely for the purposes of manufacturing, having manufactured, importing or selling products;

(b) sub-license any software forming part of FOREGROUND in object code; or

(c) engage itself in the rightful provision of products or services that inherently disclose the FOREGROUND.

Background

2.10 A PARTNER in a PROJECT may, but is not obligated to, supply or license its BACKGROUND to other PARTNERS.

2.11 PARTNERS and their AFFILIATES may use another PARTNER'S or its AFFILIATES' BACKGROUND RIGHTS solely for research and development in the PROJECT without additional consideration, including, but not limited to, financial consideration.

2.12 PARTNERS and their AFFILIATES must grant to other PARTNERS and their AFFILIATES a license of BACKGROUND RIGHTS on normal commercial conditions when such license is necessary for the commercial exploitation of FOREGROUND unless:

(a) the owning PARTNER or its AFFILIATE is by reason of law or by contractual obligation existing before signature of the COOPERATION AGREEMENT unable to grant such licenses and such BACKGROUND RIGHTS are specifically identified in the COOPERATION AGREEMENT; or

(b) the PARTNERS agree, in exceptional cases, on the exclusion of BACKGROUND RIGHTS specifically identified in the COOPERATION AGREEMENT.

Survival of Rights

2.13 The COOPERATION AGREEMENT shall specify that the rights and obligations of PARTNERS and AFFILIATES concerning FOREGROUND, BACKGROUND and BACKGROUND RIGHTS shall survive the natural expiration of the term of the COOPERATION AGREEMENT.

Article 3: Provisions that need to be addressed in the Cooperation Agreement

PARTNERS shall address each of the following items in their COOPERATION AGREEMENT:

Publication of Results

3.1 PARTNERS shall address the issue of the consent required, if any, from the other PARTNERS for publication of the results from the PROJECT other than SUMMARY INFORMATION.

3.2 PARTNERS shall address the issue of whether PARTNERS which are NON-PROFIT INSTITUTIONS may, for academic purposes, publish FOREGROUND

which they solely own, provided that adequate procedures for protecting FOREGROUND are taken in accordance with Articles 3.3 and 3.4.

Protection of Foreground

3.3 PARTNERS shall identify the steps they will take to seek legal protection of FOREGROUND by means of INTELLECTUAL PROPERTY RIGHTS and upon making an invention shall notify other PARTNERS in the same PROJECT in a timely manner of the protection sought and provide a summary description of the invention.

3.4 PARTNERS shall address the issue of prompt notification of all other PARTNERS in the same PROJECT and, upon request and on mutually agreed conditions, disclosure of the invention and reasonably cooperate in such protection being undertaken by another PARTNER in the same PROJECT in the event and to the extent that a PARTNER or PARTNERS which own FOREGROUND do not intend to seek such protection.

Confidential Information

3.5 PARTNERS shall identify the measures they will take to ensure that any PARTNER which has received CONFIDENTIAL INFORMATION only uses or discloses this CONFIDENTIAL INFORMATION by itself or its AFFILIATES as far as permitted under the conditions under which it was supplied.

Dispute Settlement and Applicable Laws

3.6 PARTNERS shall agree in their COOPERATION AGREEMENT on the manner in which disputes will be settled.

3.7 PARTNERS shall agree in their COOPERATION AGREEMENT on the law which will govern the COOPERATION AGREEMENT.

Article 4: Optional Provisions

PARTNERS may, but are not required to address each of the following provisions in their COOPERATION AGREEMENT:

AFFILIATE PROVISIONS

ANTITRUST/COMPETITION LAW ISSUES

CANCELLATION AND TERMINATION

EMPLOYER/EMPLOYEE RELATIONSHIPS

EXPORT CONTROLS AND COMPLIANCE

FIELD OF THE AGREEMENT

INTENT OF THE PARTIES

LICENSING PARTNERS IN OTHER PROJECTS

LICENSOR'S LIABILITY ARISING FROM LICENSEE'S USE OF LICENSED TECHNOLOGY

LOANED OR ASSIGNED EMPLOYEES AND RESULTING RIGHTS

NEW PARTNERS AND WITHDRAWAL OF PARTNERS FROM PROJECTS

POST COOPERATION AGREEMENT BACKGROUND

PROTECTION, USE AND NON-DISCLOSURE OBLIGATIONS REGARDING CONFIDENTIAL INFORMATION

RESIDUAL INFORMATION

ROYALTY RATES FOR BACKGROUND RIGHT LICENSES

SOFTWARE SOURCE CODE

TAXATION

TERM/DURATION OF AGREEMENT

There are likely to be other provisions the PARTNERS will need to put into their COOPERATION AGREEMENTS depending on the particular circumstances of their PROJECT. PARTNERS should seek their own expert advice on this and note that no additional terms may conflict with Articles 1 and 2 of these provisions.

Appendix 3

Convention establishing the World Intellectual Property Organization (Stockholm, 14 July 1967)

Article 2(viii) defines Intellectual Property to include:

"...the rights to literary, artistic and scientific works; performances of performing artists; phonograms, and broadcasts; inventions in all fields of human endeavour; scientific discoveries; industrial designs; trademarks, servicemarks, and commercial names and designations; protection against unfair competition; and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields."

Sir,

I acknowledge receipt of your letter of ... which reads as follows:

Principles of international cooperation on research and development activities in the domain of Intelligent Manufacturing Systems between the European Community and the United States of America, Japan, Australia, Canada, and the EFTA countries of Norway and Switzerland

(Title, greeting)

I refer to discussions that have taken place concerning international cooperation on research and development activities in the domain of Intelligent Manufacturing Systems (IMS) between the Participants, i.e. the European Community, and the United States of America, Japan, Australia, Canada, and the EFTA countries of Norway and Switzerland.

The purpose of this letter is to record the common understanding reached on the principles of cooperation on IMS. The letter complements the Terms of Reference (ToR) developed by the International Steering Committee at the end of the IMS feasibility study in 1994 and modifies Article VIII of the ToR and Article 1.13 of Appendix 2 of the ToR as indicated below. The ToR, and the Appendices to the ToR, are annexed to this letter.

1. Objective

   Participants will encourage and facilitate cooperation between entities - established within their territories (within the territories of its Member States in the case of the European Community) - in the domain of Intelligent Manufacturing Systems. Such cooperation should ensure a balance of benefits and contributions, be of industrial relevance and be based on the principle of mutual interest and understanding.

2. Technical Themes for IMS Cooperation

   The cooperation will initially cover the following five technical themes:

   (a) total product life cycle issues;

   (b) process issues;

   (c) strategy/planning/design tools;

   (d) human/organisational/social issues; and,

   (e) virtual/extended enterprise issues.

Other themes within the scope of IMS may be envisaged, however, it should be ensured that new technical themes are consistent with government policies and industrial priorities of the participating regions.

3. Forms and Means of Cooperation

Cooperation will involve participation in projects by entities, in accordance with procedures adopted in common for the creation and operation of international consortia and may include visits, training and exchanges of scientists, engineers and other appropriate personnel for purposes relevant to the successful implementation and completion of the projects.

4. Dissemination and Utilisation of Information

Intellectual property rights (IPR) resulting from projects carried out within IMS will be subject to the IMS IPR provisions given in Appendix 2 of the ToR. This Appendix will be amended in Article 1.13 to reflect that Austria, Finland and Sweden are members of the European Union.

5. Financing

Financing of cooperative activities will be subject to the availability of funds and to the applicable laws and regulations, policies and programmes of the participating regions.

Each Participant will cover its own participation.

Each Participant will contribute - in funding or in kind - in an equitable manner to the execution of the functions and the costs of the Inter regional secretariat.

6. Implementation of IMS

Representatives of the Participants appointed to the International Steering Committee (ISC) will act as the liaison between the ISC and their respective public administrations/governments. The representatives of the Participants will monitor the implementation with respect to the purpose, principles and programme structure of IMS and they will have a facilitating role. In addition, they will have the following functions:

- facilitate good cooperation between the regional secretariats;
- exchange of information on local practices, laws, regulations and programmes relevant to the cooperation;
- facilitate participation of SMEs directly and indirectly in the IMS programme. In particular this would include access to an electronic partner search facility and an electronic register of expressions of interest; and,
- present to government/public administrations for decision the recommendations of the ISC for the admission of new Participants.

The Participants will organise, manage or designate their respective Regional Secretariats. In particular, the Regional Secretariats will include the following responsibilities:

- facilitate the timely selection of projects at regional level, according to the rules and procedures in force in the Participant's region;

- assist in consortium formation within and across respective regions; and,

- work with regional infrastructure groups to facilitate IMS.

7. Duration

The IMS programme will have a duration of ten years, each Participant may withdraw at any time subject to twelve month's notice. The Participants will review the principles of their cooperation five years after its launch in order to see whether it should be continued, modified or terminated. This replaces Article VIII of the ToR.

8. Implementation of IMS in Europe

The European Community and Switzerland and Norway reserve the option to act together as a single European Region, to be represented by a combined delegation on the International Steering Committee and to be supported by a single European IMS Secretariat.

The Commission of the European Community will provide the necessary support for its Regional Secretariat.

This letter, together with its acceptance by the Participants, complements and modifies the ToR and records the common understanding on the principles of cooperation on IMS. I would be pleased to receive your early confirmation of this understanding.

(ending)

I have the honour to confirm that my Government is in agreement with the contents of your letter.

(end)

FINANCIAL STATEMENT

1. TITLE OF OPERATION

Agreement for international cooperation in research and development in the domain of Intelligent Manufacturing Systems with the third countries of Australia, Canada, Japan, the United States of America and the EFTA countries of Norway and Switzerland.

2. BUDGET HEADING INVOLVED

B6-7113 (Information Technologies), B6-7121 (Industrial Materials Technology).

3. LEGAL BASIS

- Article 130i and Article 130m of the Treaty on European Union.
- Council Decision No 1110/94/EC concerning the fourth framework programme of Community activities in the field of research, technological development and demonstration (1994 to 1998).
- Council Decision No 94/802/EC on the specific programme of research and technological development, including demonstration, in the field of information technologies (1994-1998).
- Council Decision No 94/571/EC on the specific programme for research and technological development, including demonstrations in the field of industrial and materials technology (1994-1998).
- Decision No. 616/96/EC of the European Parliament and of the Council of 25 March 1996 adapting Decision No. 1110/94/EC concerning the fourth framework programme of the European Community activities in the field of research and technological development and demonstration (1994 to 1998) following the accession of the Republic of Austria, the Republic of Finland and the Kingdom of Sweden to the European Union.

4. DESCRIPTION OF OPERATION

4.1 General description of operation

(i) to contribute to the competitivity of European industry by improving its flexibility;

(ii) to strengthen the scientific and technological base of European industry;

(iii) to contribute to the quality of life by addressing global problems;
(iv) to enable international cooperation in the domain of intelligent manufacturing systems.

The technological domain depends largely on developments in Information and Manufacturing Technology and includes the development of modules and technologies for intelligent, flexible and clean manufacturing and their application.

4.2 **Duration**

10 years - the extension of the agreement on the Community side beyond the Fourth Framework Programme will be subject to a favourable decision from the Legislative Authority acting on a proposal from the Commission. Withdrawal is subject to 12 months notice.

4.3 **Target population**

Industrial organisations, universities and research institutes of the European Union and similar organisations in Australia, Canada, the participating EFTA countries, Japan and the US.

5. CLASSIFICATION OF EXPENDITURE OR REVENUE

- Non–compulsory expenditure/differentiated appropriations.

6. TYPE OF EXPENDITURE OR REVENUE

Studies/subsidies

- In principle, the direct activities will be 100% funded.
- The concerted activities may qualify for a contribution of up to 100% of the coordination costs.

Subsidy for joint financing with other sources in the public and/or private sector:

- The shared-cost activities comprising RTD projects will qualify for a contribution of not more than 50%.
- Universities and other research centres participating in RTD projects and unable to substantiate their total costs in sufficient detail for the Commission, based on an analytical accounting system, will qualify for 100% funding of the additional costs.
- Other shared-cost activities (for example, networks, training, feasibility awards or accompanying measures) will qualify for up to 100% of the additional costs or of the costs of the measure.

Staff, administrative and operating costs:

These also cover the costs of personnel covered by the Staff Regulations and other staff, studies, meetings of experts, conferences and congresses, information and publications, administrative, technical and operating costs, and certain other internal infrastructure and operating costs for attainment of the objective of the activity of which they are an integral part.

7. FINANCIAL IMPACT

7.1 Method of estimating total cost of operations

The yearly cost of the IMS agreement consists of two parts, i.e. the Community's contribution to the execution of the functions and the costs of the Inter-Regional Secretariat (IRS), and the costs related to execution of the European IMS Secretariat (EIS).

The contribution to the execution of the IRS is established at 280,000ECU and will be similar for the years following. The contribution would be 1/3 of the total operating costs of the IRS estimated as follows:

- personnel of IRS (including travel, administrative support and overhead) estimated at 504,000ECU;
- conferences estimated at 168,000ECU;
- promotion estimated at 42,000ECU;
- other costs, including studies, estimated at 126,000ECU.

The costs related to the EIS is established at 302,500ECU and will be similar for the years following. The estimate is as follows:

- mission for experts to attend international meetings estimated at 15 international trips @ 3,500ECU for a total of 52,500ECU;
- service and assistance contracts: 100 mandays @ 600ECU/day giving a total of 60,000ECU;
- meetings with participation of external experts: 8 x 15 x 750ECU giving a total of 90,000ECU;
- results reporting/awareness events: 3 x 25,000ECU giving a total of 75,000ECU;
- miscellaneous: 25,000ECU.

The Commission's staff and administrative expenditure related to the implementation of IMS will be within the maximum amounts foreseen for staff and administrative expenditure of the IT and the IMT specific programmes.

No extra staff to administer the IMS agreement is foreseen.

Cost forecasts beyond the Fourth Framework Programme might be subject to modifications in view of the extension of the agreement (see 4.2).

7.2 **Itemised breakdown of costs**

Commitment appropriations ECU million (at current prices)

Breakdown	**Year n**	**n+1**	**n+2**	**n+3**	**n+4**	**n+5 and sub. years**	**Total**
Inter-Regional Secretariat	0,280	0,280	0,280	0,280	0,280	1,400	2,800
European IMS Secretariat	0,302	0,302	0,302	0,302	0,302	1,510	3,020
Total	0,582	0,582	0,582	0,582	0,582	2,910	5,820

7.3 **Operational expenditure for studies, experts, etc. included in Part B of the budget**

Commitment appropriations ECU million (at current prices)

	Year n	**n+1**	**n+2**	**n+3**	**n+4**	**n+5 and sub. years**	**Total**
Studies	0,042	0,042	0,042	0,042	0,042	0,210	0,420
Meetings of experts	0,142	0,142	0,142	0,142	0,142	0,710	1,420
Conferences and congresses	0,056	0,056	0,056	0,056	0,056	0,280	0,560
Information and publications	0,075	0,075	0,075	0,075	0,075	0,375	0,750
Total	0,315	0,315	0,315	0,315	0,315	1,575	3,150

The annual costs of 0.315MECU is part of the annual costs of 0.582MECU referred to in 7.2.

7.4 **Schedule of commitment and payment appropriations**

ECU million

	Year n	**n+1**	**n+2**	**n+3**	**n+4**	**n+5 and sub. years**	**Total**
Commitment appropriations	0,582	0,582	0,582	0,582	0,582	2,910	5,820
Payment appropriations							
Year n	0,400						0,400
n+1	0,182	0,400					0,582
n+2		0,182	0,400				0,582
n+3			0,182	0,400			0,582
n+4				0,182	0,400		0,582
n+5 and sub. years					0,182	2,910	3,092
Total	0,582	0,582	0,582	0,582	0,582	2,910	5,820

The commitments and payments will be shared on a 50:50 basis between IT (B6-7113) and IMT (B6-7121).

8. WHAT ANTI-FRAUD MEASURES ARE PLANNED?

Numerous administrative and financial controls have been introduced at every stage of the procedure for awarding and implementing research contracts. These include:

- *Prior to conclusion of the contract:*
  - Shortlisting of the proposals on the basis of their scientific merit and of how realistic the research costs are, considering the nature, duration and potential impact of the project;
  - Analysis of the financial data submitted by the proposers in the negotiation form.
- *After signature of the contract:*
  - Examination of the statements of expenditure before and after payment at various levels (financial controller and scientific manager);
  - On-the-spot inspections of the supporting documents to detect any errors or other irregularities. To tighten up these controls, the Commission has set up a

central audit unit which is responsible for all the inspections. The inspections are carried out either by members of the audit unit or, under their supervision, by firms of auditors with which the Commission has concluded framework contracts.

9. ELEMENTS OF COST-EFFECTIVENESS ANALYSIS

9.1 Specific and quantifiable objectives; target population

Overall objectives at European level are:

- to enable international cooperation in the domain of intelligent manufacturing systems
- to contribute to the quality of life by addressing global problems related to the environment, health and safety
- to strengthen the scientific and technological base of European industry
- to contribute to the competitivity of European industry by improving its flexibility

In general, an international IMS would aim:

- 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
- to develop a recognised and respected discipline of manufacturing which will encourage the transfer of knowledge to future generations
- to respond effectively to the globalisation of manufacturing
- the advancement of manufacturing professionalism world-wide by providing global recognition and establishing an educational discipline for manufacturing

and be a catalytic agent for:

- global manufacturing cooperation involving large and small companies, users and suppliers, universities and governments
- the dissemination of the results of significant manufacturing improvements world-wide
- the development of global manufacturing recommendations for standards through cooperative work on pre-standardisation topics
- the assessment and selection of priorities for global cooperation in manufacturing process development
- the dissemination, understanding and application of consistent guidelines, provisions and model agreements that respect intellectual property rights (IPR) of Participants and project consortium partners.

9.2 Grounds for the operation

Manufacturing is a primary generator of wealth and is critical to establishing a sound economic basis for growth.

The need for excellence in manufacturing operations has become critical as a result of the establishment of global markets.

The role of research and development in the field of advanced manufacturing is increasingly pivotal to manufacturing operations. Substantial research in advanced manufacturing is being carried out world-wide.

Properly managed international cooperation in research and development in advanced manufacturing can help improve manufacturing operations.

9.3 Monitoring and evaluation of the operation

9.3.1 Relevant criteria

Performance indicators selected (process criteria)

- number of organisations participating in the agreement
- majority of participants from industry, particularly small businesses
- number of new collaborative partnerships
- number and impact of the technical results obtained by the projects and other activities
- demonstrations at conferences and international exhibitions
- publication of articles and other scientific and/or technical reports.

9.3.2 Details and frequency of planned evaluation

- each project is evaluated at least once a year, with the cooperation of outside experts against criteria including valued added, cost effectiveness and impact.
- the initiative as a whole is regularly evaluated by panels of independent experts against metrics that will be established at the launch of the initiative.

9.3.3 Assessment of the results obtained from the activities in progress

In the now completed feasibility study, six test cases were carried out in the period 1993 to 1994. The results of the test cases were reviewed at international and European level. The main results are summarised as follows:

Through the test cases, the viability of setting up international consortia, including a strong awareness of the overheads, communication tools and cultural requirements in the process has been proven.

Through the test cases, the framework for international collaboration was thoroughly tested and valuable feedback obtained.

Cultural (technical and managerial) and language barriers were overcome. Cultural diversity added to the success of the test cases.

The test cases were industry led and the results were relevant to industry.

European participants involved in test cases have gained considerable insights into the work methods, mechanisms and approaches used by the other IMS regions in manufacturing. European companies have been impressed by the openness of their international partners, in particular those in Japan, where they were able to place their personnel in industrial laboratories and have used the feasibility study to identify potential partners for longer-term industrial collaboration.

10. ADMINISTRATIVE EXPENDITURE (Part A of the Budget)

None.

ISSN 0254-1475

COM(96) 468 final

DOCUMENTS

EN 11 15

Catalogue number : CB-CO-96-477-EN-C

ISBN 92-78-09267-3

Office for Official Publications of the European Communities

L-2985 Luxembourg

43