



BYLAWS

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The Center for Additive Manufacturing and Logistics

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The Center for Additive Manufacturing and Logistics (CAMAL) serves the industry through fundamental and applied research in the technologies of the industry and an active program of technology transfer. The Center has developed core research, non-core research, and technology transfer activities.

Core research programs are developed jointly by the Center faculty/staff and the CAMAL member companies. Core research programs focus on areas such as

- The development of process control parameters for new materials;
- Basic studies that lead to a better understanding of technologies ;
- Applied research directed at process material – property relationships;
- Applied research directed at logistic and supply chain activities in support of additive manufacturing activities;
- The development of instrumentation and test methods for additive manufacturing components;
- Basic and applied research related to finishing of metal additive manufacturing components.

The mechanisms for funding targeted Core research will be through consortia made up of CAMAL staff and member companies interested in the research or fees from CAMAL member companies. The results of the research are proprietary to CAMAL and to all member companies of the Center when general membership fees are used to fund the research. This information is placed in the public domain, through presentations and publications, poster presentations, software, and patent disclosures, only after the approval of the Industrial Advisory Board (IAB) of CAMAL. The policies governing the ownership of intellectual property are discussed under the policy section.

A non-core research program focuses on one or more of the above objectives but is carried out for an individual company. The single company sponsored programs can be proprietary and are made public only if the sponsoring company agrees. Non-core projects of special interest can also be developed for a group of CAMAL FULL or ASSOCIATE member companies. The results of such research are made public only if the sponsoring companies agree.

The Center carries out an active program of technology transfer supported by funds from industrial members and non-members interested in the services below. This program seeks to disseminate technology developed by the Center along with existing knowledge of the management of materials and processes. Such programs are provided in the form of:

- Training and assistance in the implementation of Center developed technology
- Courses taught at plant sites
- Workshops at the Center
- Industrial internships
- Focused seminars, symposia, and conferences
- One-on-one consulting.

To carry out its research mission, CAMAL seeks out talent at NC State University as well as other universities. Such cooperative research programs are undertaken by the faculty, staff, and students of these universities with the approval of the IAB.

A. Organizational Structure

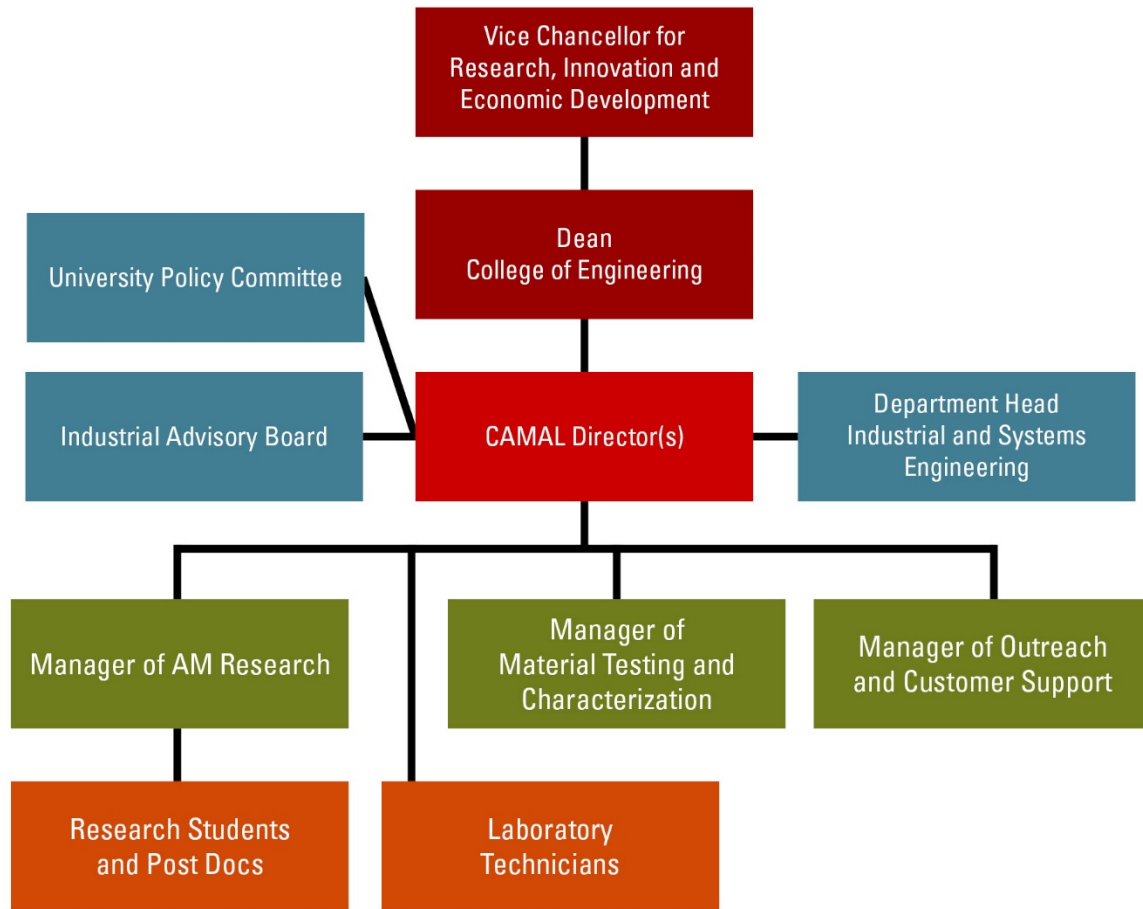


Figure 1. Organization Chart for the Center for Additive Manufacturing and Logistics

The CAMAL administrative office is headed by a Director (or Co-Directors who share in the responsibilities of the Director described herein). CAMAL is assisted by a group of Managers. The research functions of the Center are managed jointly by the Director and the Manager of Research who are supported by faculty from participating universities affiliated with the Center (henceforth called Fellows of CAMAL, Research Students and Laboratory Technicians. Services provided by the Center are managed by the Manager of Testing and Other Services and the technology transfer functions of the Center are managed by the Manager for Technology Transfer and Outreach. The principal functions of the Center are further supported by Visiting Scholars and Industrial Scientists. Other administrative, research and technology transfer staff is added as necessary and as funds permit.

1.0 - The Center Director

The Director of the Center reports to the Dean of the College of Engineering.

The Director works closely with the Center Fellows, the IAB and the University Policy Committee to identify key areas of research in support of the technology of the industry and to establish short-range and long-range goals in pursuit of the mission of the Center. In like manner, they work with the Center staff, the Center faculty, the IAB and the university to select and implement technology transfer activities of the Center. The Director coordinates membership development, research, and technology transfer activities with members of the IAB as well as other staff.

Specific responsibilities of the Director include:

- Coordination of the core and non-core research projects.
- Granting of research projects selected by the IAB
- Budgeting and administration of the CAMAL funds
- Interaction with industry participants through IAB and other formal and informal mechanisms
- Interaction with the University through the University Policy Committee
- Promotion of the research and technology transfer mission of the Center
- Seeking new participants in CAMAL
- Making the necessary policy decisions with regard to operation of the Center and implementation of the Center-related university policies
- Coordinating the annual report and meetings supportive of the mission of the Center
- Coordinating information services related to the Center activities
- Overseeing the Center day-to-day operation

The Director has administrative authority in the operation of the Center, including fiscal management, and appointment of the technical and administrative staff. The Director receives recommendations and advice from the IAB and UPC.

The Director will be appointed by the Vice Chancellor for Research, Innovation and Economic Development of NC State upon recommendation of the Dean of the College of Engineering.

The Director shall have demonstrated knowledge of the field of additive manufacturing and logistics, an established record of research and scholarship in the field, demonstrated administrative skills, and an acknowledged position of leadership in the industry.

In the absence of Director, a Co-Director will perform his functions.

Other research and administrative staff of the Center will be appointed by the Director.

The Center will undergo periodic comprehensive reviews at five (5) year intervals as specified by University regulations. Substantive revisions to the mission or structure of the Center must be approved by a majority of the IAB and codified via revisions to the Center's Charter. In turn, revisions to the Center's Charter must be approved by the Vice Chancellor of Research, Innovation and Economic Development and the Chancellor of NC State. Additional reporting requirements may be instituted as necessary by the Dean of the College of Engineering.

2.0 - The University Policy Committee (UPC)

The UPC, chaired by the Vice Chancellor for Research, Innovation and Economic Development, or his/her designee, is comprised of the Dean of the College of Engineering (COE) and relevant department Heads of the concerned academic units involved in the Center.

The UPC will help ensure that the Center abides by all University policies and State laws. In particular, the University Policy Committee will assist in ensuring that the operations of the Center are consistent with faculty rights, responsibilities, and professional development as documented in the Faculty Handbook. Similarly, the Committee will assure the equitable treatment of undergraduate and graduate students, and other staff associated with the Center.

3.0 - The Membership

All companies, regardless of their geographical location/origin, or U.S. government organizations which have an interest in additive manufacturing and logistics, are entitled to be members of the Center. The IAB will review the membership categories and associated privileges from time to time and advise judicious changes, in accordance with bylaws, when necessary. Multiple-tier membership is available as defined in the memorandum of agreement. Any exception to the criteria above must be approved by the IAB.

The fee structure, the voting rights and the associated privileges are approved by the IAB and may change from time to time.

a. FULL Members

Companies meeting the criteria listed above with more than 100 employees may become FULL MEMBERS.

FULL MEMBERS of the Center pay an annual fee to support generic research carried out in the Center. FULL MEMBERS have representation on the IAB, with one vote per \$100 of the annual membership fee. They are entitled to participate in the patenting of any inventions conceived by the Center faculty, staff and students during the conduct of Core Research of the Center, as set forth in section B.2. Their representatives are entitled to attend meetings of the Center where results of the Core Research program are reported. They receive semi-annual progress reports and an annual report of the Center. Their staff is entitled to attend workshops, training seminars and research symposia organized by the Center at reduced rates as determined by IAB policies. They are entitled to use the research and production facilities of the Center for their R&D activities, based on availability, and at reduced fees mutually agreed upon by the IAB and the Center administration. They are entitled to join, at their discretion, any consortia formed by the Center for focused research activities. Personnel from FULL MEMBERS may also participate directly in CAMAL research as visiting scientists.

b. ASSOCIATE Members

The IAB assists in recruiting small companies (less than 100 employees) as ASSOCIATES. The ASSOCIATES pay an annual fee, determined by the IAB, to support generic research carried out in the Center. Their representatives attend the Center meetings where research progress is reported and receive reports. They are not entitled to participate in the patenting of any inventions made by the Center nor in the licensing of such inventions for commercial purposes, other than in accordance with section B.2. (f).

The ASSOCIATES have representation on the IAB with one vote per \$100 of the annual membership fee. They are entitled to use the research and production facilities of the Center for their R&D activities, based on availability, and at reduced fees mutually agreed upon by the IAB and the Center administration. Their staff is entitled to attend workshops, training seminars and research symposia, organized by the Center, at reduced rates as determined by the IAB policies.

They are entitled to join, at their discretion, any consortia formed by the Center for focused research activities.

c. CENTER AFFILIATES

The AFFILIATES are non-commercial organizations, such as government laboratories, R and D organizations, trade organizations, and educational institutions, interested in being supportive of and associated with CAMAL. The AFFILIATES pay no annual fee, have no voting rights and no representation on the IAB. Their representatives can attend the Center meetings where research progress is reported (after signing a confidentiality agreement) and receive annual reports. **AFFILIATES are not entitled to Rights to inventions made by the Center.**

The AFFILIATES may use the research and production facilities of the Center for their R&D activities, based on availability. Their staff may attend workshops, training seminars and research symposia, organized by the Center, at reduced rates as determined by the IAB.

4.0 - The Industrial Advisory Board

Each FULL AND ASSOCIATE MEMBER is represented on the IAB by one individual (or a designated alternate) and has voting rights as described in sections A.3.a and A.3.b. The IAB reviews proposed and existing Center programs and recommends alternatives or additions; it also reviews budgets and policies pertaining to any aspect of the Center. In particular the IAB:

- Receives annual reports of the Center
- Reviews and approves operating and research budgets annually
- Makes policy recommendations
- Consults on director/Co-director selection
- Reviews and approves fee structure, the voting rights and the associated privileges
- Assures proper balance between Core and Non-Core Research programs in the Center
- Advises on criteria for admittance as MEMBERS and AFFILIATES
- Approves in-kind membership on case-by-case basis
- Reviews all Core-Research proposals, recommends priorities to the Director/Co-Directors via voting on the projects eligible for funding in the next annual cycle
- Attends the semi-annual meetings of the Center and receives progress reports.

The IAB will have a Chair who will serve a two year term and a Vice-Chair who will serve a two year term followed by a 2 year term as IAB Chair. Elections shall occur as required to fill vacancies.

5.0 - The Industrial Interns

FULL MEMBERS (not ASSOCIATES) are encouraged to send their selected technical staff to the Center on sabbatical leaves to permit appropriate research and technology transfer activities of the Center.

B. Policies

1. Amendment Policy

These Bylaws may be amended by a two-thirds vote of IAB members present.

2. Intellectual Property Policy Regarding Core Research

(1) OWNERSHIP

(a) Title to any intellectual property conceived or reduced to practice in the performance of the Core Research shall remain exclusively with the University (“UNIVERSITY IP”), provided, however, that the University shall grant to MEMBERS a non-exclusive and non-sub-licensable royalty-free R&D license to make and use patentable University IP for internal MEMBER use only, but not for sale or commercial exploitation, MEMBERS agreeing to share in the cost of patenting such UNIVERSITY IP shall have certain additional rights and options as further discussed below.

(2) DISCLOSURE TO MEMBERS

FULL MEMBERS

Invention disclosures associated with UNIVERSITY IP shall be promptly disclosed to FULL MEMBERS by the University. FULL MEMBER(s) shall provide notice in writing to the University to acquire license rights and to support patent filings within ninety (90) days from receipt of such University invention disclosure. FULL MEMBER(s) agreeing to share in the cost of patenting for such UNIVERSITY IP (“PARTICIPATING MEMBER(s)”) shall be liable for and share all costs related to patenting including prosecution and maintenance, unless the PARTICIPATING MEMBER(s) provide a thirty (30) day notice that they do not wish to support patenting costs, after which thirty (30) days, PARTICIPATING MEMBER(s) shall not be liable for any future patenting costs and shall forfeit rights and options of a PARTICIPATING MEMBER in such UNIVERSITY IP.

ASSOCIATE MEMBERS

If no FULL MEMBERS are PARTICIPATING MEMBERS at the end of the ninety (90) day period for notice to the University to acquire license rights, UNIVERSITY IP will be promptly disclosed to ASSOCIATE MEMBERS, who will have the same opportunity to license and obligation to share patent costs as was provided to FULL MEMBERS.

(3) PATENT PROSECUTION

The University shall file for, prosecute and maintain patents for UNIVERSITY IP on behalf of the CENTER if patent protection is desired by at least one PARTICIPATING MEMBER(s). The PARTICIPATING MEMBER(s) desiring the filing, prosecution and maintenance of a patent shall equally share the cost of doing so and shall have the right to advise the University regarding the manner of filing and prosecution of the patent and its subsequent maintenance, as long as such advice does not conflict with University policies, practices, procedures and interests. Payment will be made to University within thirty (30) days of PARTICIPATING MEMBER’s receipt of an invoice for such expenses. Failure to make payment within thirty (30) days shall result in the termination of the PARTICIPATING MEMBER’s option and negotiation right.

(4) LICENSE TO NON-MEMBERS

In the event that no FULL MEMBER nor ASSOCIATE MEMBER is a PARTICIPATING MEMBER at the end of the notice period for both, or if all FULL MEMBERS and ASSOCIATE MEMBERS have declined in writing to become PARTICIPATING MEMBERS prior to the end of the notice

period, the University may make such UNIVERSITY IP available to any company for an exclusive or non-exclusive royalty-bearing license to make, use and sell associated products and services for commercial purposes.

(5) LICENSING TO PARTICIPATING MEMBERS

(i) PARTICIPATING MEMBER(s) shall have an option to acquire a royalty-bearing license to make, use and sell products, services or processes associated with UNIVERSITY IP for commercial purposes.

(ii) In the event that there is only one PARTICIPATING MEMBER, then that PARTICIPATING MEMBER who has said option shall have the right to negotiate for and execute a commercial royalty-bearing fully sublicenseable exclusive license for all fields of use ("EXCLUSIVE LICENSE") or a commercial royalty-bearing field of use specific license with ability to grant sublicenses in said specific field of use ("FIELD EXCLUSIVE LICENSE") within six (6) months of the filing of a patent application, extendable solely at the University's discretion.

(iii) In the event that there are multiple PARTICIPATING MEMBERS exercising option rights to acquire a license to UNIVERSITY IP, University shall provide a joint notice of such multiple options to said PARTICIPATING MEMBERS. PARTICIPATING MEMBERS may then elect the right to negotiate and execute a commercial royalty-bearing non-exclusive license with the limited ability to grant sublicenses for said PARTICIPATING MEMBERS's own manufacturing purposes only ("NON-EXCLUSIVE LICENSES") or FIELD EXCLUSIVE LICENSES. Any such election to acquire FIELD EXCLUSIVE LICENSES must be made by unanimous mutual agreement between said PARTICIPATING MEMBERS within two (2) months of the receipt of the joint notice of multiple options from University ("ELECTION PERIOD"). The said unanimous election shall be in writing and identify the mutually exclusive fields of use, as agreed to by said PARTICIPATING MEMBERS. This ELECTION PERIOD is extendable only once by an additional two (2) months by unanimous written request of said PARTICIPATING MEMBERS and solely at University's discretion.

(iv) If a unanimous written election for Field Exclusive Licenses is received, said PARTICIPATING MEMBERS have six (6) months from the day of election to negotiate for and execute the FIELD EXCLUSIVE LICENSES. If no such unanimous election for FIELD EXCLUSIVE LICENSES is made within the ELECTION PERIOD, and there are two or more PARTICIPATING MEMBERS, said PARTICIPATING MEMBERS shall be eligible to negotiate for and execute NON-EXCLUSIVE LICENSES within six (6) months of expiration of the ELECTION PERIOD. If there is only one PARTICIPATING MEMBER remaining at the end of the ELECTION PERIOD, said PARTICIPATING MEMBER shall be eligible to negotiate for and execute either a FIELD EXCLUSIVE LICENSE or EXCLUSIVE LICENSE within six (6) months of expiration of the ELECTION PERIOD. If only one PARTICIPATING MEMBER executes a FIELD EXCLUSIVE LICENSE or a NON-EXCLUSIVE LICENSE, the said PARTICIPATING MEMBER shall have an additional three (3) month option to re-negotiate and convert the NON-EXCLUSIVE LICENSE or FIELD EXCLUSIVE LICENSE to an EXCLUSIVE LICENSE. PARTICIPATING MEMBER(s) who do not execute licenses within six (6) months from the expiration of the ELECTION PERIOD shall have no further commercial rights to the UNIVERSITY IP.

(v) If two or more NON-EXCLUSIVE LICENSES are executed as provided above in Section B.5 (iii), University shall offer no additional licenses as long as two or more such NON-EXCLUSIVE LICENSES are in effect.

(6) LICENSE TO NON-MEMBERS

In the event that the time period for negotiating an EXCLUSIVE, FIELD EXCLUSIVE or NON-EXCLUSIVE LICENSE(s) has expired and the University has not extended such negotiation period or executed such licenses, or all such licenses have terminated, the University may make such UNIVERSITY IP available to any company for an exclusive, field exclusive, or nonexclusive royalty-bearing license to make, use and sell associated products and services for commercial purposes. However, if one or more FIELD EXCLUSIVE LICENSES have been executed, then University can offer additional FIELD EXCLUSIVE LICENSES for fields of use not already licensed to other MEMBERS.

(7) BAYH-DOLE ACT COMPLIANCE

All MEMBERS acknowledge and agree that the University shall grant the U.S. Government a non-exclusive, nontransferable, paid-up, worldwide license to practice or have practiced any CENTER Intellectual Property developed or resulting from federally funded research.

3. Confidentiality Policy

(a) Members and CENTER will limit disclosure of proprietary information to the amount necessary to carry out CENTER research. However, in the normal and routine operation of the CENTER as detailed in the Membership Agreement and these Bylaws, there may be the need for a party to disclose information that is confidential and proprietary to the discloser. All such information shall be disclosed by the disclosing party in writing and designated as "Confidential" at the time of disclosure, or, if disclosed orally, shall be identified as confidential at the time of disclosure and confirmed in writing as being "Confidential" within thirty (30) days of such disclosure. ("Confidential Information")

(b) Subject to Article 3, the CENTER and Members shall, for a period of three (3) years following the date of such disclosure, use the Confidential Information only for purposes of CENTER research and exercise the same degree of care to prevent inadvertent or unauthorized disclosure that it applies to its own trade secrets and/or confidential and proprietary information. However, neither CENTER nor Member shall be liable for disclosure of such Confidential Information which:

- i. is, or becomes, available to the public other than by breach of any obligation herein assumed by the recipient; or
- ii. is furnished to a third party by discloser without restriction of the third party's right to disseminate the Confidential Information; or
- iii. is disclosed with the discloser's written permission; or
- iv. Is already known to the recipient other than from any previous unexpired confidentiality obligation with Center as evidenced by tangible records; or
- v. Is independently developed by the receiving member as evidenced by tangible records; or

vi. Is disclosed to the receiving member by a third party having the right to make such disclosure.

If members wish to use Center developed Confidential Information in filing their patent applications, the members will request permission from University to allow the inclusion of such Confidential Information in such patent application(s), and such permission will not unreasonably be withheld.

(c) The obligations described in Article 3(b) above shall continue with respect to any Confidential Information disclosed hereunder for a period of three (3) years from the date of disclosure thereof, regardless of whether FULL MEMBER and/or ASSOCIATE remains a FULL MEMBER and/or ASSOCIATE of the Center during said period.

4. Export Control

It is not anticipated that Members will exchange any information, data, software, or materials that are Export Controlled under the Export Administration Regulations (EAR), Title 15, sections 730-774 of the Code of Federal Regulations (CFR) or the International Traffic in Arms Regulations (ITAR), 22 CFR sections 120-130. Member agrees to provide the CENTER at least ten (10) business days in advance with **written** notice of its intention to deliver any information, data, software, technology or materials that are Export Controlled. Member and CENTER each agree to take such measures as may be necessary to ensure that any Export Controlled information, data, software or materials provided to CENTER shall not be exported from the United States or re-exported to any other country without first complying with applicable Export Control laws and regulations.

5. Publication Policy

For the purposes of this Article 5, "Publication" shall be deemed to mean any written, oral, or other public divulgence of research results, including the public use or sale of an invention based on the research results, to the extent that any such event could bar the availability of patent protection in foreign jurisdictions or trigger the one-year grace period in the U.S. within which a U.S. patent application must be filed.

Publication of research results in scientific journals is encouraged. In order to prevent untimely publication of patentable research, a publication-delay mechanism has been established. Notification of intent to publish must be sent to each member of the Industrial Advisory Board. Any member of the board can request a maximum six-month delay in publication from the date of notification to determine whether the paper contains patentable material, or if the company making the request has a justifiable reason. If it is determined that patentable material is contained in the proposed publication, such material will be either deleted and publication will be allowed to proceed, or publication will be suspended until all necessary intellectual property rights have been secured through filing of patents. The IAB member must respond within thirty (30) days of receipt to request a publication delay. Failure to respond by a given IAB member shall be construed as approval of the publication by that member.

Under no circumstances will a student's thesis, for which funds are derived from the Center, be delayed in degree confirmation; provided, however, that student theses shall be subject to a six-month delay provision following their approval before they are made publicly available in University libraries; and provided, further, that the University may be released from this six-month delay period if the IAB members unanimously acknowledge that the thesis does not disclose patentable subject matter, or if a U.S. patent application is placed on file which covers the subject matter of the thesis.

6. Software Copyright Policy

Copyright to the software developed by the Center will belong to the UNIVERSITY. All software developed pursuant to Core Research shall be disclosed to the University as required by the Patent and Tangible Research Policy and the Copyright Policy. During the term of their membership, the FULL and ASSOCIATE MEMBERS (not AFFILIATES) will be granted a non-exclusive, royalty-free, end-user license for internal use only to all software resulting from Core Research. Commercialization rights will be the same as those outlined under the Patent Policy above.

7. Communications Policy

FULL and ASSOCIATE MEMBERS receive a semi-annual technical report of research progress. The Center also publishes the CAMAL Annual Report in which Center accomplishments, financial status and prospects for the future are reviewed. Center investigators transmit project manuscripts, preprints and theses in accordance with the above publication and patent policies. Reports are distributed at the scheduled meeting.

Two meetings per year of IAB are held. The meetings deal with technical and administrative topics, and minutes of the meeting are taken to support decisions of the IAB and provide documentation to NC State. The Center hosts one annual meeting for all members at the NC State campus, to present an executive summary of the year's accomplishments. Scientific results from the Center are discussed in presentations and demonstrated visually. The Director shall review presentations prior to presentation to ensure that any intellectual property is protected from a disclosure that would preclude patent or other intellectual property filing. Involvement of graduate students, postdoctoral fellows and research associates is utilized under appropriate conditions of confidentiality. Due to the fact that some attendees may not be UNIVERSITY employees, it may be necessary to obtain signed confidentiality agreements. The CENTER Director should make this determination prior to any presentation and if there is any doubt, should contact the Office of Technology Transfer.

8. Compliance with United States Antitrust and Competition Laws

The CENTER includes among its members parties who are business competitors. It is the policy of the CENTER to comply with United States antitrust and competition laws that apply to each of its members and to encourage its members to do so as well. Accordingly, in connection with any meeting or activity sponsored by the CENTER, no members shall reach any agreement or exchange any information concerning cost or pricing information, sales or marketing strategies, terms and conditions of purchase or sale, the allocation of customers or territories. All members shall avoid even the appearance of such agreements or exchanges of information. If discussions prohibited by this rule take place in any such meeting or activity, all members should cease participation immediately. In order to minimize the likelihood of such an occurrence, all meetings and activities sponsored by the CENTER shall be conducted in accordance with a published agenda and shall be documented in appropriate meeting minutes.

9. "Phase-out" Policy

If following periodic 5 year review or internal discussions a decision is made to disestablish the Center, then the Chancellor will forward such a recommendation to the NC State Board of Trustees.

Subject to the availability of funds, the "phase-out" period for the Center will be sufficient to permit an orderly termination or transfer of contractual obligations and will allow ample time to find alternate

employment for full-time staff. Normally, the "phase-out" period will be no more than one year after the end of the membership cycle in which the decision is made to discontinue the unit.

C. Industry-University Interactions

1. Enhancement and Non-Core Research Projects

Some members that have particular interest in certain aspects of the CAMAL Core Research program may want to accelerate or further reinforce a particular project, approved by the IAB by granting additional funds for the purpose. Such projects are considered Enhancements projects (of the Core Research program) and require signing of a short Enhancement project Agreement between each sponsoring member and NCSU (Enhancement Project results are subject to the same policies as those governing Core research).

A **Non-Core** research program focuses on one or more of the above objectives but is carried out for an individual company. Non-Core projects of special interest can also be developed for a group of members or affiliate members. These projects carry indirect costs at the university-determined rates. The terms of these specific research contracts with UNIVERSITY will govern the intellectual property ownership and licensing rights in the intellectual property arising from these agreements. The results of these Non-Core projects will be available to the CENTER members only on the same basis as to any non-member, unless the sponsoring company and the University agree otherwise.

2. Industry Personnel as Visiting Scientists

Industry personnel from FULL MEMBERS (not ASSOCIATES) can have the opportunity to participate directly in CAMAL research as visiting industrial scientists. Lengths of assignments and responsibilities will be determined on an individual basis.