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Microelectronics and Computer Technology Corporation (MCC)

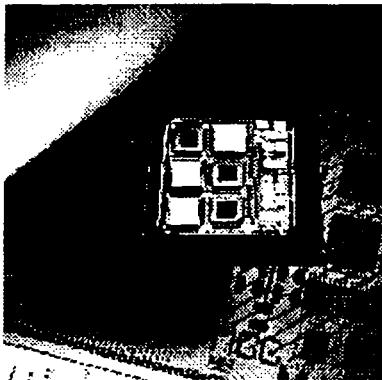
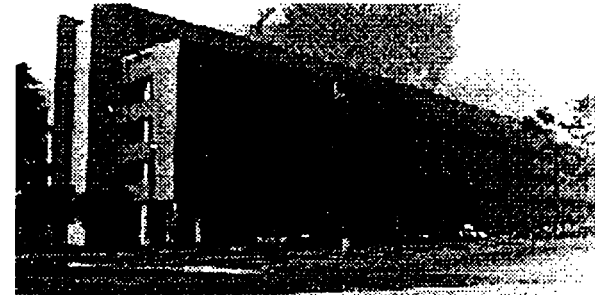
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MCC: A Brief History

- **Organized in 1982 by 10 major computer and semiconductor companies as a uniquely U.S. approach to cooperative research**
- **Created to address a wide range of emerging technologies, ranging from software engineering to integrated circuit packaging**
- **Since 1985:**
 - **More than 200 technologies transferred**
 - **160 patents issued**
 - **3,000+ technical reports**
- **Membership has now grown to more than 70 organizations, including manufacturers, suppliers, end users, government agencies, universities**

Mission and Objectives

- **Mission:** Constant innovation for information technologies, products, and services through a collaborative program of research and development, creating a sustained competitive advantage for member companies.



- **Objective:** Excellence in meeting broad industry needs through application-driven research, development and timely deployment of innovative technology.

MCC

- **MCC is about competitiveness**
 - **A sustainable competitive advantage is achievable only through innovation**
 - **The leverage of knowledge through Information Technology is one key to innovation**
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MCC Shareholder Companies

Andersen Consulting

Cadence Design System

3M

Ceridian Corporation

Eastman Kodak Company

Harris Corporation

Honeywell

Lockheed Corporation

Motorola

Northern Telecom

**AT&T Global Information
Solutions Co.**

Advanced Micro Devices

Digital Equipment Corp.

General Electric

Hewlett-Packard

Hughes Aircraft Company

Martin Marietta

National Semiconductor

Rockwell International

Westinghouse Electric Corporation

MCC Associate Members

Aerojet Electronic Systems Division

American Express Company

AMP Incorporated

Apple Computer

Bellcore

Cypress Semiconductor

Defense Intelligence Agency

Eastman hemicalCompany

E.M. Warburg, Pincus Ventures, Inc.

Embedded Computing Institute,

Naval Air Warfare Center Weapons Div.

Geophysical & Environmental Research Corp.

Internal Revenue Service

Interval Research Corporation

Lawrence Livermore Laboratory

Limited Inc./Express

Mentor Graphics C

Microsoft Corporation

National Security Agency

OGDEN Atlantic Design Co

Olin Corporation.

Projectavision, Inc.

Raytheon Company

Sandia National Laboratories

Sprint Corporation

Tandem Computers, Inc.

Teledyne Microelectronics

TRW, Inc.

Unisys Corporation

University at Albany, SUNY

The Business Environment Today

- **Compressed product cycles**
 - **Time-to-market is everything!**
 - **Shrinking research and development budgets**
 - **Intense global and domestic competition**
 - **Constant reinvention a competitive imperative**
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Conclusions:

- **Effective use of information technology vital for leveraging sustainable competitive advantage**
- **Consortial research more critical than ever**
- **Strategic partnerships provide needed leverage**

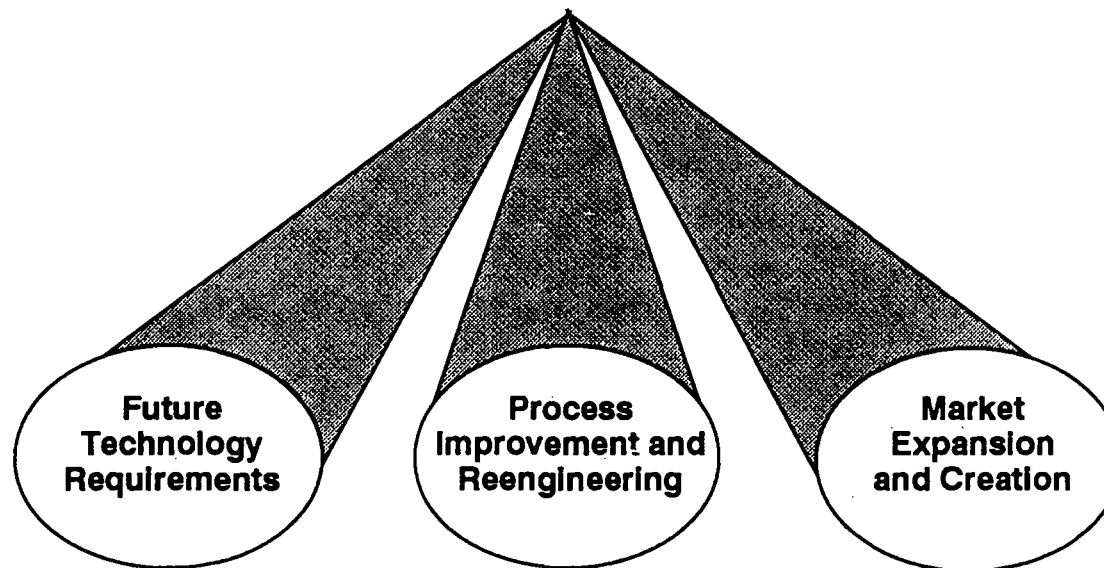
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Key Messages from MCC Participants

- **Leverage for R&D**
 - **Reduced Cycle Time for Products**
 - **Government R&D Funding**
 - **Value of University Research/National Labs**
 - **Outsourcing R&D**
 - **Desire to Purchase Technology in Product Form**
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MCC: A Source of Innovation

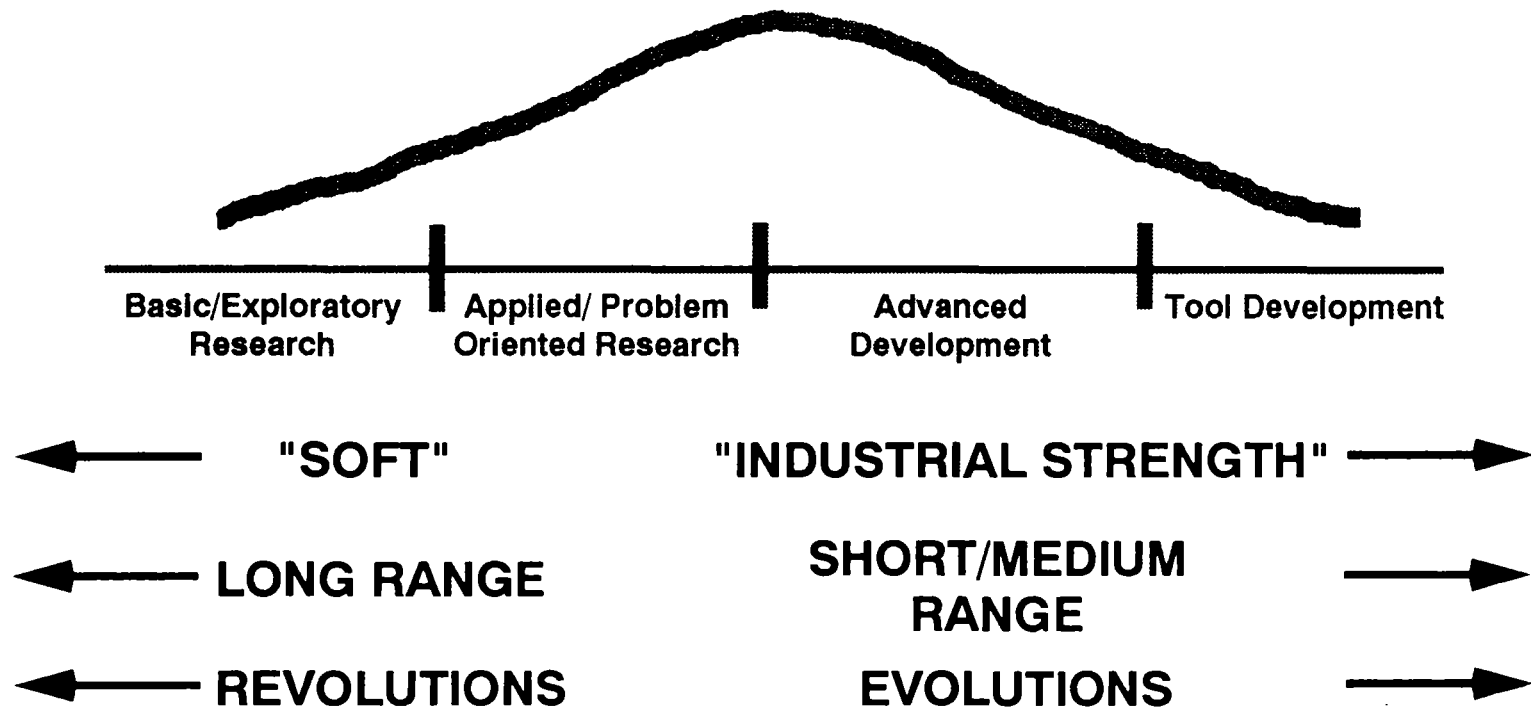
- Collaborative research and development
- Highly focused, short term studies
- Enabling technologies
- Frameworks, protocols, and standards acceleration
- Process technologies, equipment, materials, suppliers



MCC's Job is the Relevance Pipeline

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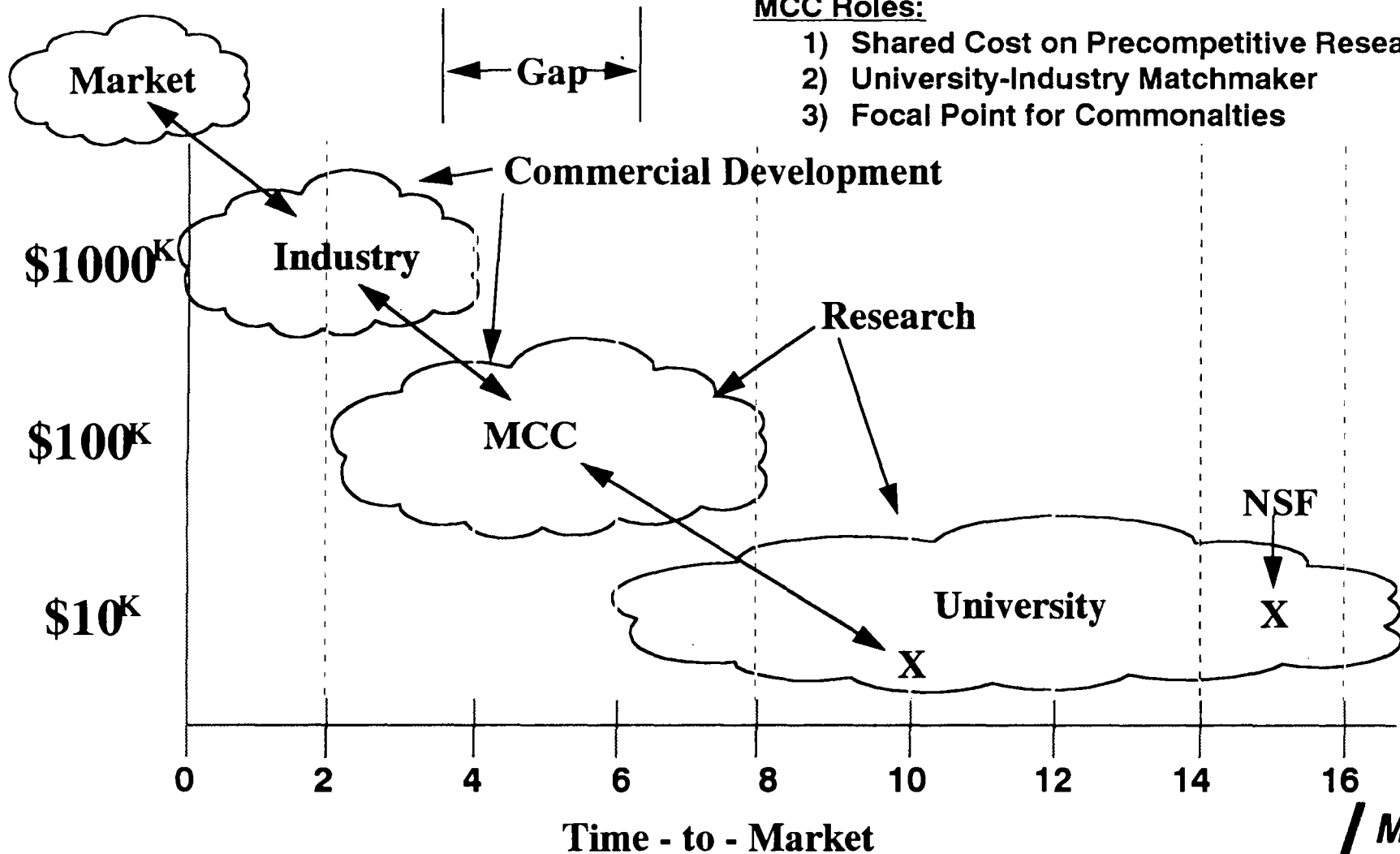
MCC's role: Spanning the growing gap in applied research and advanced development



Bringing Technology to the Market: MCC's Role

MCC Roles:

- 1) Shared Cost on Precompetitive Research
- 2) University-Industry Matchmaker
- 3) Focal Point for Commonalties



The Benefits of Collaboration

- **Save money by avoiding costly duplication of research and development efforts**
- **Save time by taking advantage of research and development tools that already exist**
- **Accelerate the development of new products and improve time to market**
- **Combine experience, expertise, and investment**

Leverage is the key!

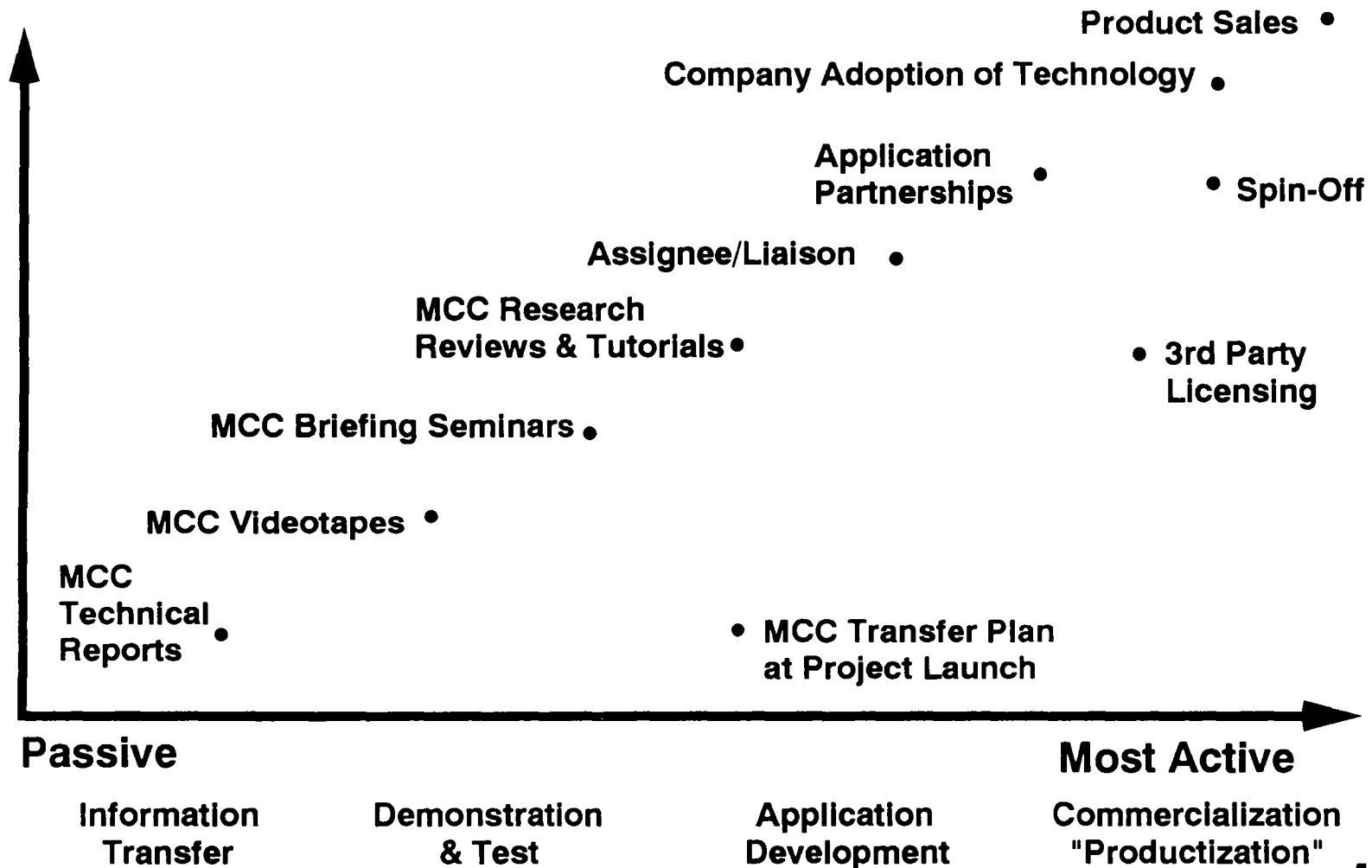
Operating Strategies

- **Sharing the cost and risk of technology development, resulting in highly leveraged research and development investments**
- **Bringing together companies -- often competitors -- who share common requirements for new technology**
- **Forming innovative partnerships with government and universities, further enriching the leverage of industrial collaboration**
- **Analyzing and benchmarking global trends in technology**
- **Adapting technology transfer and deployment to the commercial needs of the industry**
- **Helping to build a network of suppliers and customers in order to speed time-to-market**

MCC: A Source of Strategic Partnerships

- **A rich mix of organizations, sharing common requirements for advanced technologies**
- **Vertically integrated, multi-disciplinary, cross industry**
- **A priority on government/industry cooperation**
- **A strong respect for national laboratories and universities**

Technology Transfer: A Constant Focus



MCC Spin-offs

- **Evolutionary Technologies, Inc.**
 - **Product: EXTRACT Tool Suite** which automates the migration of data between dissimilar data storage environments
- **Corporate Memory Systems**
 - **Computerized groupware tool and process** to support group decision making and documentation of decision processes
- **Pavilion Technologies**
 - **Adaptive technology/neural net-based software tools** for modeling, optimizing, and controlling complex processes
- **Tamarack Storage**
 - **Commercializing holographic storage technology** for use in the personal computer and workstation markets



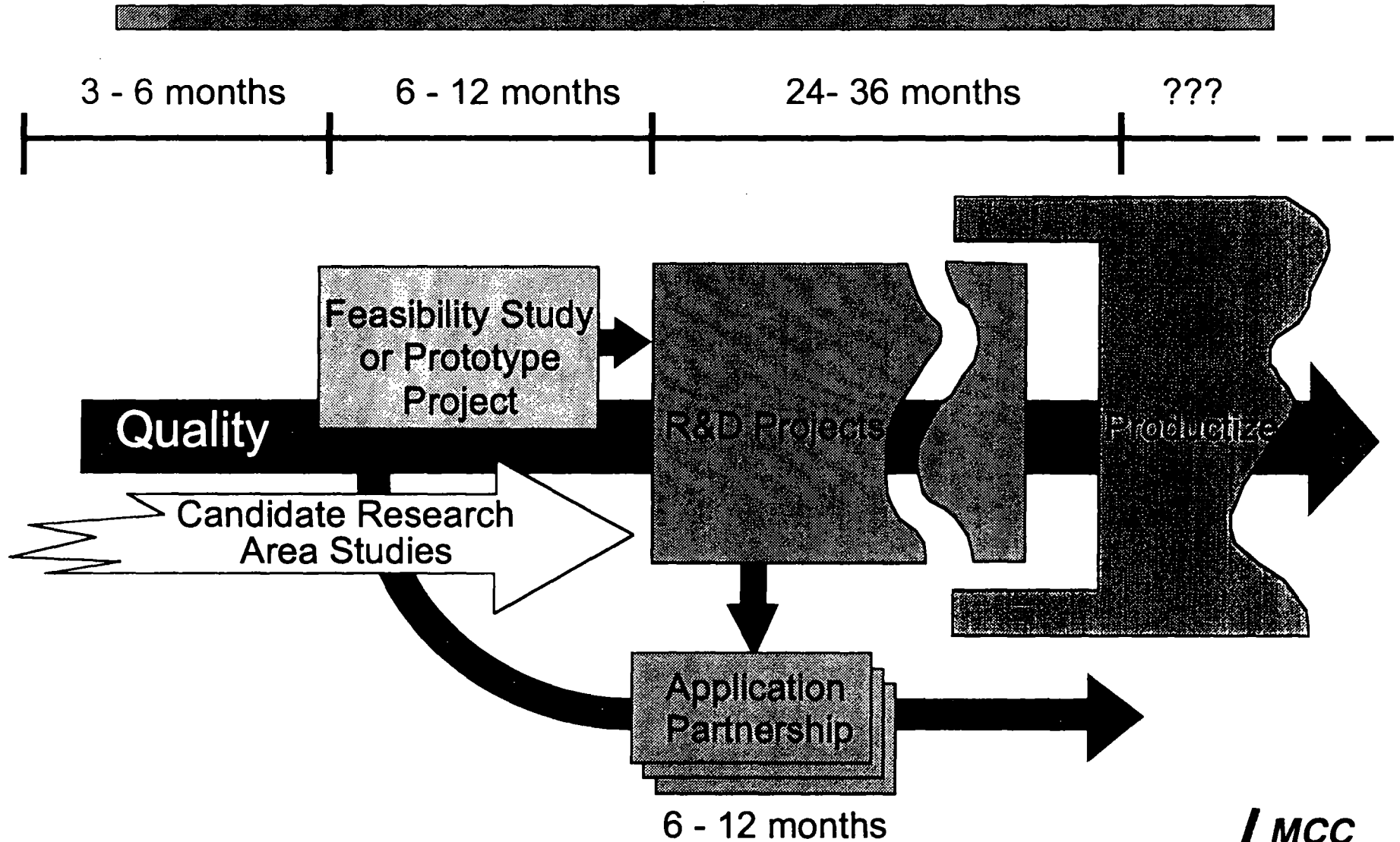
MCC 1995 Projects

- **Packaging for Portables**
- **High Performance, High Reliability, Mobile Electronics**
- **Packaging for Parallel Processing**
- **Packaging/Interconnect Integration (CORE)**
- **Infosleuth**
- **MUIR - Multiple-Media Understanding, Integration, and Recognition**
- **CYC**
- **Environmentally Conscious Electronic Manufacturing (Gov't)**
- **ASEM CAD (Gov't)**
- **MOSC (Gov't)**
- **MADE (Gov't)**
- **Arabic OCR (Gov't)**

Research Transition Study Model Goals

- **Sort Out and Unify Research Results**
 - **Understand Applications Better, including Needs and Obstacles to Use**
 - **Establish Criteria for Progress in the Field and Establish Measurement Baseline**
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MCC's R&D Life Cycle



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1995 Studies

1st Quarter:

- **HyperMedia Presentation Authoring and Composition Technologies (HyMPACT) *Launched***
- **Human Language Technology for User Access *Launch February 1***
- **Commercial Off the Shelf (COTS) Software Integration *Launch ~March 1***
- **Commercial Off the Shelf (COTS) Hardware *Launch ~ March 1***
- **Electronic Product Recycling *Launch ~ March 1***

2nd - 4th Quarter:

- **Technology for Improving Software Test & Evaluation**
- **Co-Design of Hardware/Software Systems**
- **Simulation for Electronic System Design**
- **Interoperability in Global Networks**

Expanding Relationships

- **SEI - (1) COTS Workshop/Testbed (2) Software Roadmap**
- **Sematech - Joint Briefing in Mid-November**
- **NSA**
- **ARPA**
- **NIST**
- **FBI**

IT Application Domains of National Interest

- **Simulation Design**
- **Health Care**
- **Intelligent Transportation**
- **Environment**
- **Entertainment/Training**
- **Energy**

Prospective Core Competencies Building on MCC's Strengths

- Strengthening software migration/legacy systems competencies
- Strengthening environmental competencies: disposition, information access
- Strengthening software system architecture/requirements analysis and design capabilities
- Strengthening optoelectronics and telecommunications capabilities
- Building User Access expertise: speech recognition, interface customization, natural language interface, autonomous intelligent agents
- Building hardware/software system designing/co-designing at the system level
- Building simulation capabilities: modeling, system analysis and design tools, multimedia, visualization, authoring, groupware and distributed systems
- Building embedded systems design, test and integration capabilities

MCC

Evolving Definition of Consortial Renewal

- **Restructuring MCC Operations and Business Practices**
 - **Emphasis on Creating Value for a Smaller Set of Active Participants**
 - **Focus on Selected Technical Areas Where We Can be "Best of Breed"**
 - **Restructured Board**
 - **New Consortial Participants, Including Foreign/Global Companies**
 - **Increased Government Business**
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