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GOVERNMENT OF TANZANIA



WORLD INTELLECTUAL
PROPERTY ORGANIZATION

**REGIONAL SEMINAR ON THE BENEFITS OF THE
INTELLECTUAL PROPERTY SYSTEM FOR UNIVERSITIES,
UNIVERSITY RESEARCHERS AND RESEARCH
AND DEVELOPMENT ORGANIZATIONS**

organized by
the World Intellectual Property Organization (WIPO)
in cooperation with
the Ministry of Science, Technology and Higher Education
of the United Republic of Tanzania

Dar es Salaam, June 20 to 22, 2000

STRATEGIC CONSIDERATIONS RELATED TO COMMERCIAL EXPLOITATION OF
INTELLECTUAL PROPERTY AND KNOW-HOW: INTELLECTUAL PROPERTY
RIGHTS IN THE EDUCATIONAL PROCESS; INTELLECTUAL PROPERTY RIGHTS IN
THE BUSINESS DEVELOPMENT OF UNIVERSITIES; INTELLECTUAL PROPERTY
RIGHTS IN THE PROTECTION OF SELLING IDEAS IN UNIVERSITIES

*Document prepared by Mr. Wayne Watkins, Director, Technology Commercialization, Utah
State University, Utah*

Strategic Considerations - Commercial Exploitation of Intellectual Property at Universities

Wayne H. Watkins
Utah State University

Dar es Salaam, Tanzania, June 2000

Sponsored by the World Intellectual Property
Organization & Government of Tanzania

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Business Incubator Services

- OFFICE, LABS, AND EQUIPMENT RENTAL -
MONTH TO MONTH - AT COST
CONFERENCE ROOMS
- FACSIMILE, COPIER, TV/VCR/OVERHEAD
PROJECTOR, ETC.
- NETWORKING
 - ✓ FINANCING
 - ✓ TECHNOLOGY AND TECHNOLOGY SUPPORT
 - ✓ MANAGEMENT
 - ✓ ACCOUNTING

Research Parks and Business Incubators

- History
- Roles
- Effectiveness

Utah State University Research and Technology Park

MISSION STATEMENT

THE MISSION OF THE UTAH STATE
UNIVERSITY RESEARCH AND TECHNOLOGY PARK
IS TO PROVIDE AN ENVIRONMENT WITH
FACILITIES, TECHNOLOGY, SERVICES, PROGRAMS
AND EXPERTISE WHICH STIMULATES AND SUPPORTS
THE CREATION AND GROWTH OF RESEARCH AND
TECHNOLOGY BASED ENTERPRISES

Utah State University Research Park(s)

- 1,304 NON UNIVERSITY JOBS
- HIRE USU STUDENTS AND GRADUTES (@1,250)
- TWO PHYSICAL LOCATIONS
ORIGINAL - NORTH LOGAN 75 ACRES: GENERAL
RESEARCH
MILLVILLE - 265 ACRES: WILDLIFE RESEARCH
- 11 BUILDINGS
- BUILDINGS SELDOM HAVE VACANCIES
- 97% OF COMPANIES EMPLOY STUDENTS

Utah State University RESEARCH AND TECHNOLOGY PARK TENANTS

- 28 NON UNIVERSITY TENANTS AND
5 UNIVERSITY OFFICES
- EMPLOY APPROXIMATELY 2,150
- ESTIMATED REVENUES OF \$90,000,000
- ESTIMATED SALARIES AND BENEFITS
\$38,000,000

Professional Organizations

- Association of University Technology Managers (AUTM)
- Licensing Executives Society (LES)
- Association of University Related Research Parks (AURRP)
- National Business Incubator Association (NBIA)
- Various Venture Capital and Financing Organization

Why University/Industry Relationships?

- ✓ Growth of Science Based Enterprises
- ✓ Growth of Technology Based Enterprises
- ✓ International Competitiveness
- ✓ Rates of Technological Advancement
- ✓ Access to Technology and Expertise
- ✓ Access to Human and Equipment Resources
- ✓ Economic Advantages

Historical Context

- ✓ U.S. Morrill Act of 1862
- ✓ U.S. Federal Funding of Defense Related Research - World War II - Cold War
- ✓ U.S. Bayh Dole Act of 1980

Bayh Dole Act

- ✓ Uniform Federal Invention policy
- ✓ University Ownership of Inventions by University Employees with Federal Funding
- ✓ Fosters collaboration
- ✓ Government March-in Rights

Effect of Bayh Dole

- ✓ Spawned Biotechnology Industry
- ✓ Significant Advances in other technology intensive industries
 - Telecommunications
 - E-commerce
 - Medical
 - Advanced Materials

Other Factors

- ✓ Slowing in growth rate of financial support for Research and Development
- ✓ 1984 National Cooperative Research Act - relaxes anti-trust limitations
- ✓ Technology Transfer Act of 1988 authorized Federal Labs to participate
- ✓ State sponsored R & D Programs

University Benefits

- ✓ Direct industry sponsorship of university research
 - 1980 - \$236 million
 - 1992 - 1,300 million
 - 1998 - 2,400 million

USU Historical Research Mix (1986 - 1987)

Current Contract Research Mix (1996 - 1997)

Mutual Benefits

- ✓ Basic Research Supporting Applied Research
- ✓ Applied Research and Development Supporting Basic Research
- ✓ Graduate Education
- ✓ Increased Awareness
- ✓ Cost-Effectiveness
- ✓ Government Funding
- ✓ Commercial Opportunities

Growth Companies Leveraging University Resources

- ✓ 70 % Student Interns
- ✓ 44 % Faculty as Technical Resources
- ✓ 40 % Student Recruitment
- ✓ 34 % Employee Training
- ✓ 29 % Cooperative R & D
- ✓ 20 % University Lab/Equipment
- ✓ 17 % Faculty for Business Planning
- ✓ 13 % Assistance with Manufacturing Technology
- ✓ 5 % License Technologies

Cultural Differences

- ✓ University Missions include education, research and service based on free exchange of ideas and public access to impartial information source
- ✓ Industry objectives include meeting customers needs in way that maximizes investor financial returns
 - Profit driven
 - Limited publication to protect competitive position

Major Discussion Points in University/Industry Agreements

- ✓ Publication & Confidentiality
- ✓ Conflict of Interest
- ✓ Protection of Public Interest
- ✓ Intellectual Property Rights
 - Ownership
 - Option to License
 - Future rights

Intellectual Property

- ✓ Conflicting interests of Industry and University

University Interests in Industry Sponsored Intellectual Property

- ✓ University is generally employer of inventor and entitled to work product of employee under work-made-for-hire doctrine.
- ✓ University desires to maintain title to assure that faculty is not blocked from continued research.
- ✓ University seeks prestige of invention title.
- ✓ University seeks title to simplify reversion of rights in the event of industry to exploit.

Industry Interests in Industry Sponsored University Intellectual Property

- ✓ Industry expects to own what they have paid for.
- ✓ Industry needs assurance that results of research is available to them for exploitation.
- ✓ Industry Desires title to help with financing.

Compromise Positions

- ✓ Generally University maintains title to inventions.
- ✓ Generally industry sponsors receive license or option to license rights.

Confidentiality and Publication

- ✓ University prefers open research with unrestricted publication.
- ✓ Industry prefers limited publication to protect proprietary position.
- ✓ Compromise.
 - Industry previews publication to identify proprietary information and is given 60 days to file patents before submitted for publication.

Conflict of Interest

- ✓ Individual and Institutional conflicts arise when either can benefit financially from exploitation of research results.
- ✓ University policies addressing:
 - Individual to disclose and remove self from representing university
- ✓ Federal Agency policies:
 - Requiring universities to provide safeguards
- ✓ Resolution still being sought.

Public Interest

- ✓ University and Industry to protect public interest of research particularly research funded from federal agencies.

Models of University - Industry Relationships

- ✓ Sponsored research
- ✓ Collaborative research
- ✓ Consortia
- ✓ Options and License Agreements
- ✓ Start-up Companies
- ✓ Material Transfer Agreements
- ✓ Confidentiality Agreements
- ✓ State Centers of Excellence
- ✓ Federal Advanced Technology Program

Research Funding

USU Research Characteristics

- ✓ Tripled in Last Decade From \$30M to 90M
- ✓ Past Growth Was Based On Aerospace and Defense Related Research Opportunities
- ✓ Historically Very Imbalanced and Needs To Be Re-focused on Both Traditional and Newly Emerging R&D Strengths
- ✓ Has Undergone Drastic Downturn Due to Defense Downsizing
- ✓ Rebounded Modestly During the Last Current Year

Role of Research Mission

- ✓ Should Effectively Incorporate and Underpin the Teaching Mission of the Institution
- ✓ Produce a Platform for the Generation of Scholarly Work
- ✓ Support the Graduate and Undergraduate Experience
- ✓ Continue to Push the Frontiers of Knowledge in all Disciplines

National Research Trends

- ✓ Increased Need to Diversify Research Efforts Beyond Traditional Agency Based Support
- ✓ Move Away From Single-Investigator or Traditional Research Model
- ✓ Increase Emphasis Placed on Team, Interdisciplinary and Consortial Research
- ✓ Focus University Research Strengths and Market These Capabilities Aggressively

Local, National and International Thrusts

- ✓ Electronic Highway, Distance Education, Learning Resources
- ✓ Environmental Research and Policy
- ✓ Global Food and Fiber Production
- ✓ Space and Communications, Geographic Information Systems (GIS), Imaging and Graphics Systems, Remote Sensing Systems
- ✓ State Centers of Excellence
- ✓ County and Regional Economic Development Programs Through Mineral Lease and Similar Resources

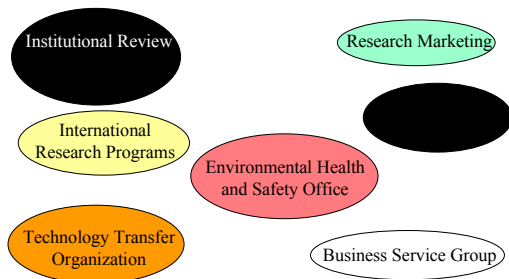
Strategic Research Opportunities

- ✓ International Programs
- ✓ Electronic Highway
- ✓ Agri-Business and Biotechnology
- ✓ Environmental Problems and Systems
- ✓ Defense Conversion, Dual Use and Demilitarization
- ✓ Telecommunications/remote Sensing and Intelligent Systems
- ✓ Information Systems and Databases
- ✓ Health, Aging and Disabilities

Current Research Strategies

- ✓ Partnering with Agencies Institutions and Industry
- ✓ Continue to Proactively Work with Entire Delegation in Washington, D.C.
- ✓ Provide Increased Internal Support to Faculty Seeking Funds and to Those Who are Succeeding
- ✓ Improve Investigator Opportunities Through Outreach and Marketing
- ✓ Increased Support For Technology Transfer Activities
- ✓ Identify Strategic Research Thrusts

USU University Wide Research



Research Business Focus

- ✓ Geographic Information Systems (GIS) - Natural Resources - Environmental Management/Surveillance/Intelligence
- ✓ Agribusiness - Precision Agriculture - Food Processing
- ✓ Aerospace - Domestic/International - Small Satellites & Remote Sensing
- ✓ Telecommunications - Hardware & Software Development
- ✓ Data & Image Compression - Utah and National Partners
- ✓ Biotechnology
- ✓ Distance Learning & Education/Instructional Technologies - Synchronous & Asynchronous
- ✓ International Development - The World Banks (Panama, Ecuador, Indonesia, Bangladesh, Thailand, India & Hungary)
- ✓ Transportation & Water Systems - Dam & Irrigation Systems - Intelligent Highways & Autonomous Vehicles
- ✓ Aging Populations

Research Expenditures 1998

- ✓ \$24.4 Billion (up 7% from prior year)
- ✓ \$15.3 Billion from U.S. Federal Government (5% increase)
- ✓ \$2.4 Billion from Industry (9% increase)

Erosion of Disinterested Inquiry

Role of University in Emerging Technology Hotspots

- ✓ E-Commerce
- ✓ Genetic Engineering
- ✓ Telecommunications
- ✓ Human Genomics
- ✓ Virtual Education

Celebrate the Differences

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