

# **Technology Commercialization**

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# TCO Staff

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  - 18 years Dow-Jones 30 corp. + 9 years tech. ventures
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  - 23 years diagnostics industry ventures
  - Ph.D. (Microbio/Immunology) Miami Univ.
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  - 24 years Siemens Medical + 2 detection industry ventures
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- **Nowak**
  - 25 years Patent Counsel, General Counsel, CFO Biotech Corp./Ventures
  - M.S. (Biochem) USU, MBA Florida State Univ., JD Florida State Univ.
- **Bolton**
  - 20 years Corp./ Engineering Firm office manager, retail
  - Business studies Weber State Univ., USU

# USU/USURF TCO Mission

## MISSION:

To extract fair market value of university's intellectual property using best business practices for the benefit of the University, faculty/staff and community.

# USU TCO Priorities

- Economic Development
- Revenue Source
- Faculty Recruitment/Retention
- Enhance University Research
- Enhance University Reputation

# Technology Commercialization Pyramid

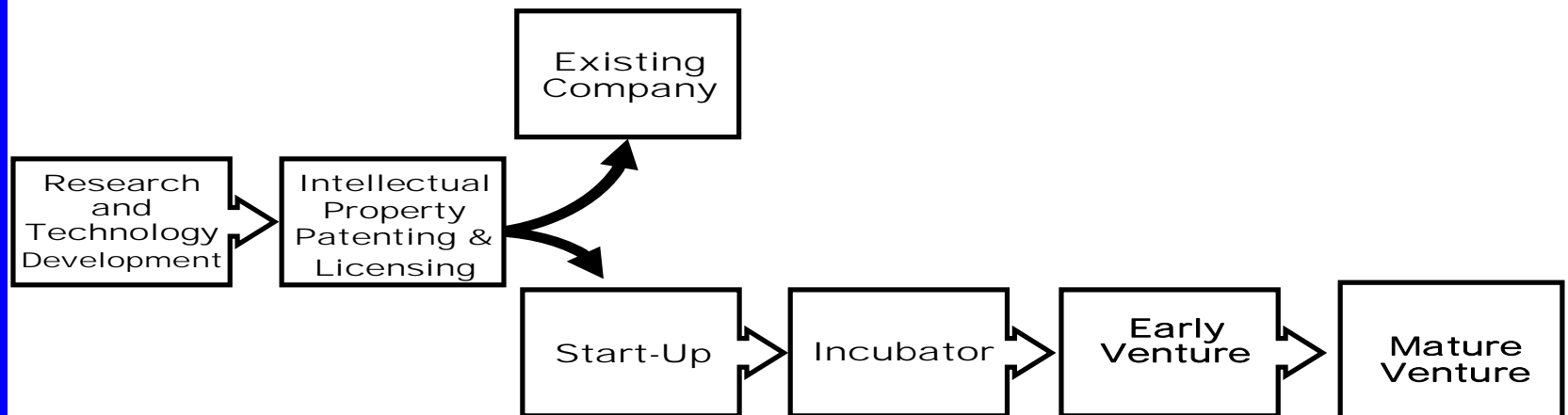
- \$100M Sponsored Research Expenditures
- 50 Invention Disclosures
- 30 Provisional Patents/Patent Filings
- 12 Issued Patents
- 3.5 Licenses

- **U.S. Average provides apparent low IP ROI**
- **License yield dependent on commercializable research/knowledge growth balance**

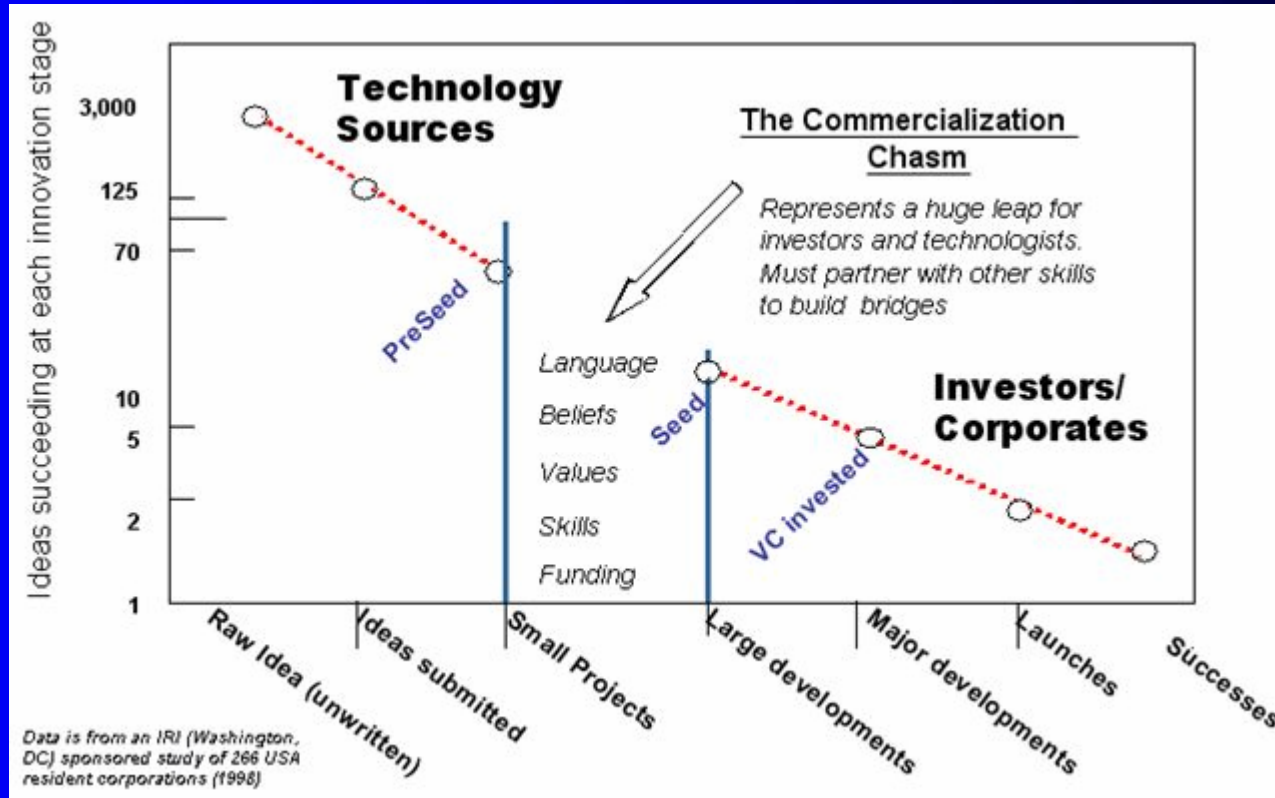
# Technology Commercialization Economics

- Per \$ 100M Sponsored Research Expenditures
  - 1.17 companies formed
  - \$ 2.5 M total license income
    - \$ 2.0 M royalty income
    - \$ 0.5 M non-royalty income
  - \$ 0.4 M legal fees expended
    - \$ 0.2 M legal fees reimbursed

# The Technology Commercialization Process



# Commercialization Chasm



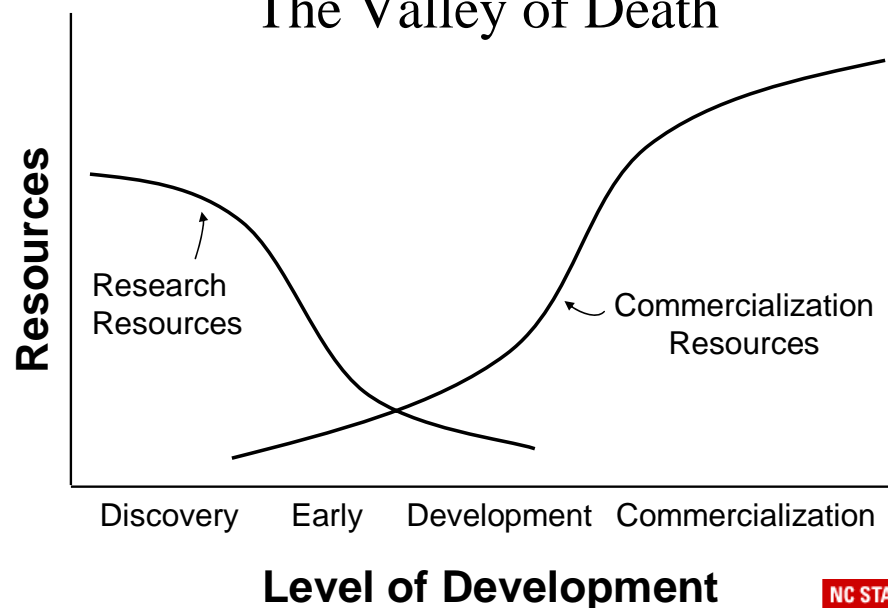
# IP Transfer in the Physical Sciences

## *Perspective and Vision*

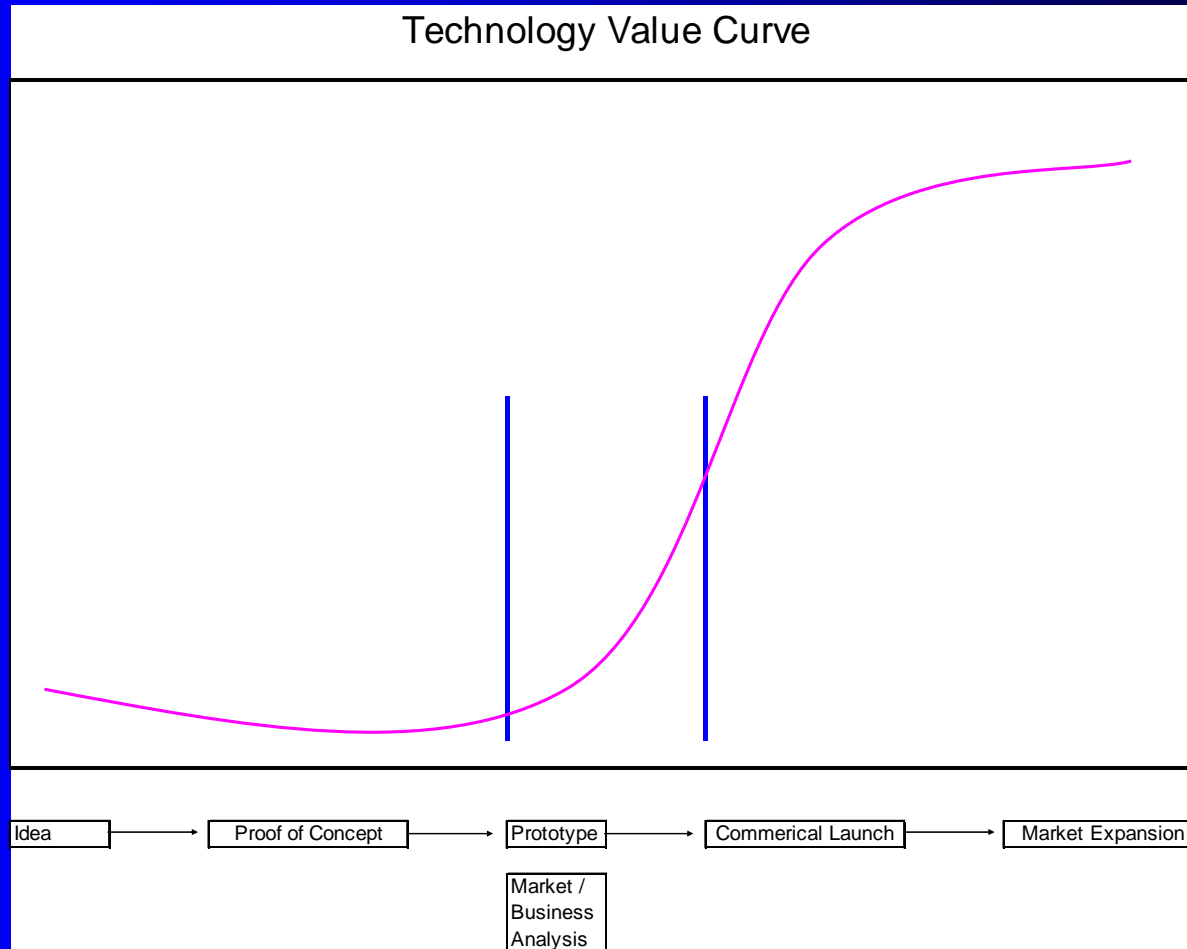


Center for Innovation Management Studies

### The Valley of Death



# Technology Value Curve

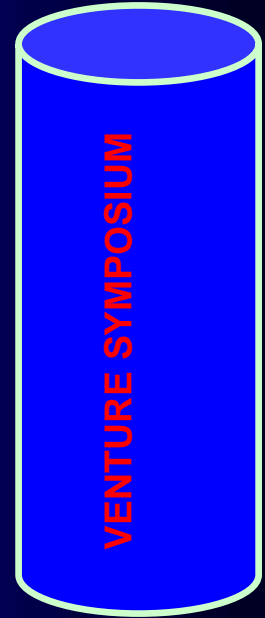
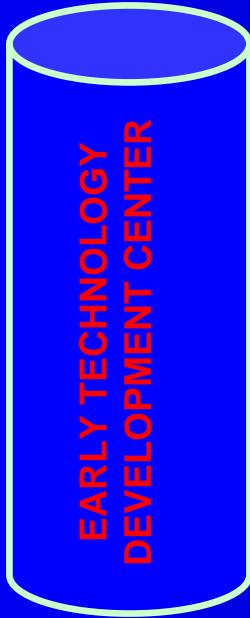
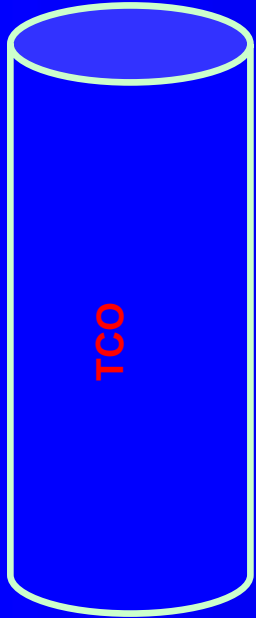


Faculty/Student Non-IP University

Small Business (New and Growth)

Recruited Businesses

**ECONOMIC DEVELOPMENT PROCESS**



University IP Based

Significant University \$ Interest

**VENTURE DEVELOPMENT PROCESS**

# VENTURE DEVELOPMENT PROCESS (FOR OUTCOME VENTURES IN ACCELERATOR)

**ACADEMIC RESEARCH**

**TECHNOLOGY DEVELOPMENT**

**EARLY VENTURE DEVELOPMENT**

**MATURE VENTURE DEVELOPMENT**

RESEARCH FUNDING

**NSF  
NIH  
NIAID  
NIEHS**

PRE SEED GAP FUNDING  
**SBIR/STTR  
COE  
USU SEED \$  
USURF SEED \$**

SEED FUNDING  
**ANGELS  
FRIENDS  
FAMILY**

INSTITUTIONAL FUNDING  
**VC'S**

TECHNOLOGY  
IP DEVELOPMENT  
INITIAL DATA SET  
USU/USURF LABS  
PUBLISH PRIORITY

TECHNOLOGY  
PROTOTYPE  
MARKET  
RESEARCH  
PEOPLE  
CHAMPION

PEOPLE  
MGMT TEAM  
TECHNOLOGY  
BUSINESS PLAN  
FINANCE  
RAISING  
SEED MONEY  
VALUATION ?

TECHNOLOGY/PEOPLE  
OPERATIONAL  
SALES  
FINANCE  
RAISING  
INSTITUTION MONEY  
REAL VALUATION  
PATH 2 PROFITS

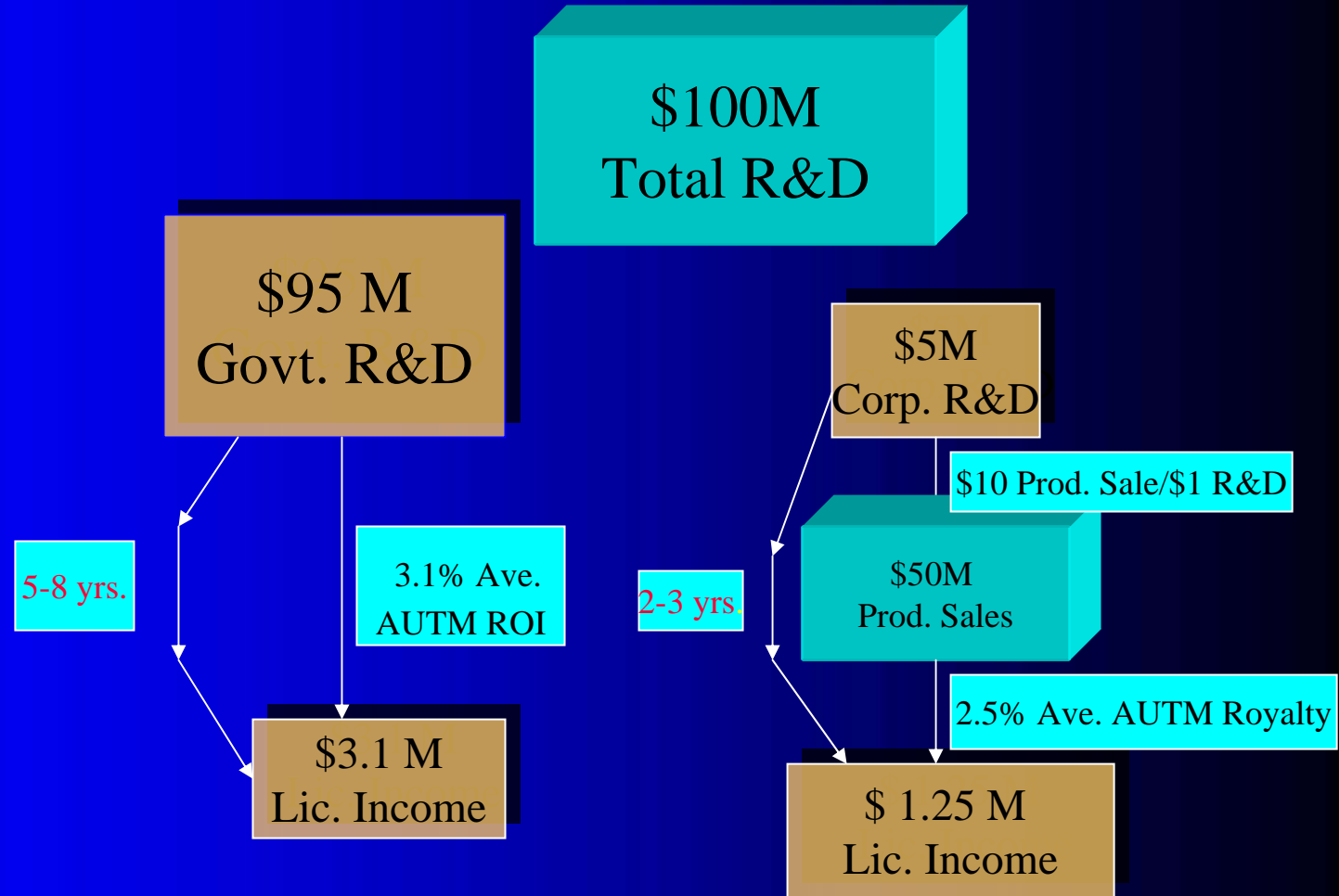
**FACULTY: RESEARCH  
TCO: IP DEVELOPMENT**

**TCO: EARLY TECHNOLOGY DEVELOPMENT CENTER  
TCO: ACCELERATOR  
TCO: PROTOTYPE CENTER  
COB: E-TEAM  
USU/USURF: FUNDS**

**TCO: ACCELERATOR  
COB: E-TEAM  
IC: INCUBATOR SPACE  
VENTURE SYMPOSIUM**

**TCO: ACCELATOR VENTURE CLUB  
IC: INCUBATOR SPACE  
IC: GROWTH SPACE**

# Govt./Corp. Sponsored R&D ROI



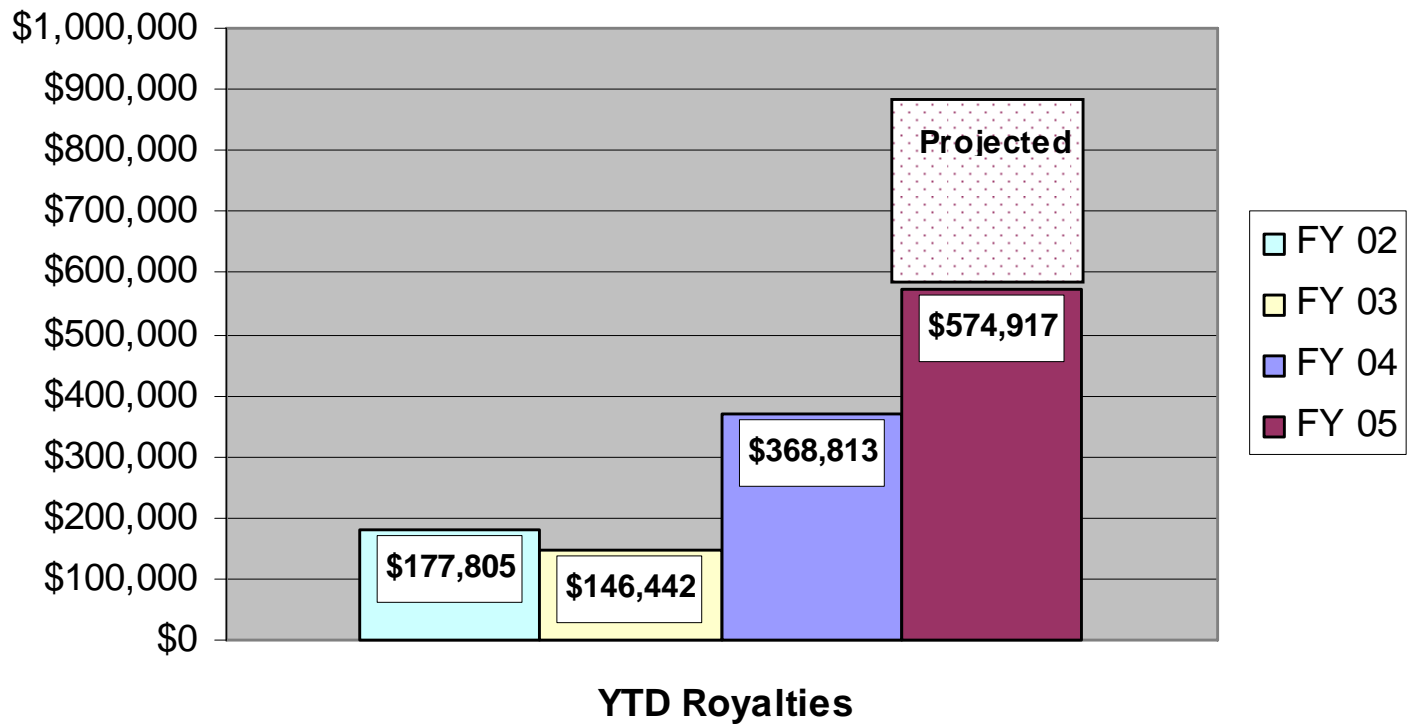
**Corporate Sponsored R&D – 7.5 X better return  
-- 2-3 X faster return**

# Technology Commercialization Best Practices

- **Stakeholders**
  - Balance interests
  - Technologists, Company, Owner (University/Community)
- **Technology**
  - Reduce barriers for disclosure
  - Provide means to develop early technologies
  - Improve linkage with societal needs
  - Explore bundling of technologies
  - Explore export and import of technologies
  - Focus
- **Human resources**
  - Tech-savvy business people to bridge “Commercialization Chasm”
  - Embed business entrepreneurs
  - Grow business entrepreneurs
  - Foster a team approach
  - Partner with other universities, state econ. Dev., companies, VCs
  - Target Markets and Companies
- **Financing**
  - Internal Bridging Funds
  - SBIR, STTR funding
  - Angel, VC partnerships

# Appendix

## USU Licensing Income as of Mar 31, 2005



# Innovation Pipeline

Idea	Proof of Concept	Prototype	Market/Business Analysis	Commercialization Plan	Monitor
<i>Pneumatic Particle Separation</i>	<b>Neutron Source/Fusion Energy</b>	<i>Non-Integer Order Controller</i>	Twisteron		<b>Gemini (Apomyx)</b>
<i>SuperBugs</i> <i>Man-made Snow</i>	Surgical Device Small Satellite Design/Mfg.	Improved Medical Implants		<b>*Wire Testing – SSR</b>	<b>Andigen</b>
Water Resource Mgmt.	<i>Hydrogen from Biomass</i>	Audio System	School of the Future	<b>*Platform Stabilization</b>	Unifoods
Relationship Auditing	Antibiotic Target			<b>*Speaker Phone</b>	Textured Whey/ Whey Krunchers
	Mechanical Strain Modeling	Hands-Free Phone	C.H.I.P.S.	<b>*Design &amp; Development Center</b>	ODIS™ Robots
<i>Pyranamycin Antibiotic</i>	Phosphatase Inhibitors	Thermoacoustic Cooling System	Anti-viral Screening Res. Tool	<b>Lidar 3-D Imaging</b>	Aggie Ice Cream
Ordered Microstructures	Laulimalide	New Cloning Method	Aerospect	<b>Hi*Track</b>	<b>Eduserver</b>
	Genomic Based Drug Disc. Tool		<i>New</i>	<b>Advanced</b>	4/1/05

# Commercialization Score Card

License Options	License	Internal Spin-outs	External Spin-outs
Medical Device*	Lidar3-D Imaging <i>Eduserver</i>		*Aggie Ice Cream
Audio System*	IR Imaging  Water Mgmt. Software	Hi*Track	Gemini (Apomyx)*
Speaker Phone*	Debt Redn. Software <i>Speaker Phone</i> <i>Virtual Sniper</i>		*Andigen
Surgical Device*	<i>Cloning Selection Criteria</i>  Wire Testing	Design & Development Center	Speaker Phone
Cattle Cloning*	<i>Robotics</i> <i>Home Automation</i> Web-Based Math Education Tools Apomictic Seed*		Wire Testing
<i>Fluid Valves/Couplings</i>	Anaerobic Digestor*		<i>Home Automation</i>
	Whey Products Cheese Bitterness Reduction		<i>Lidar 3-D Imaging</i>
* Includes Development Funding	Deal Completed	New	4/1/05