

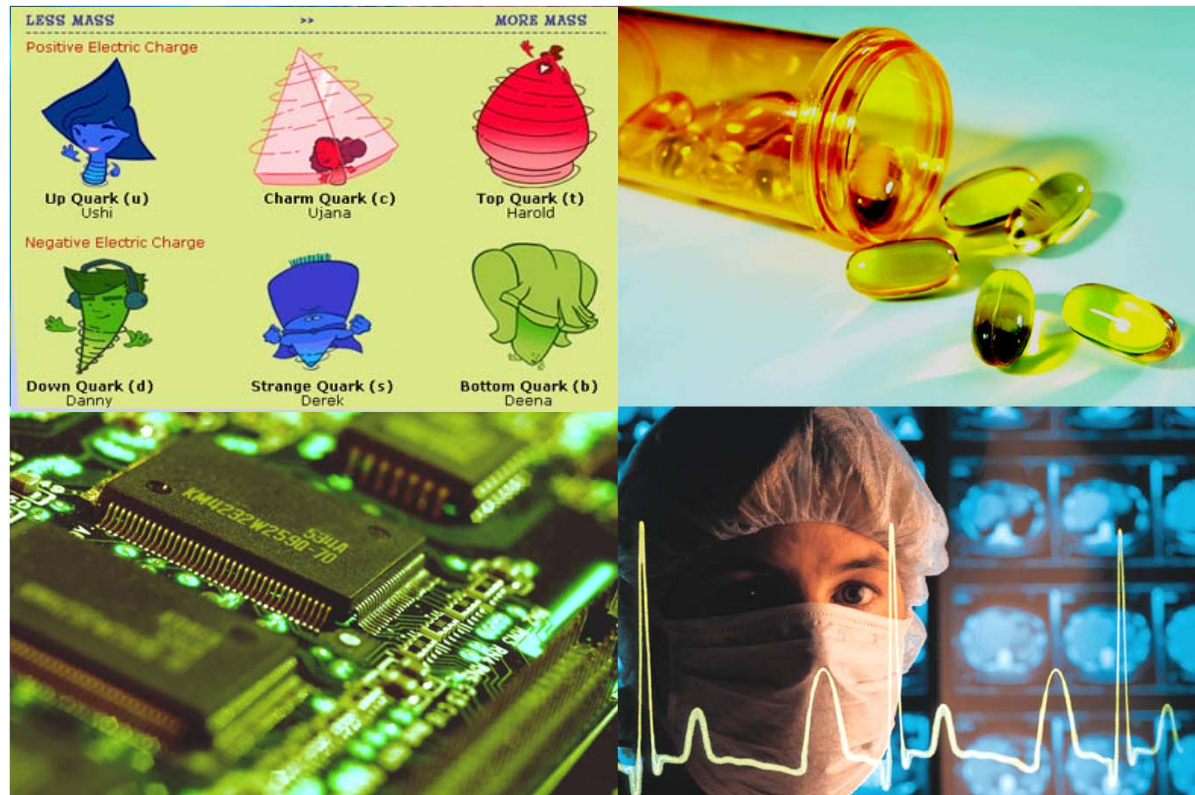


# KU Center for Technology Commercialization

*“Serving Faculty, Serving Society”*

James Baxendale

# What Is Technology Commercialization?



the transferal of university research discoveries  
and innovations to the commercial sector

# Bayh-Dole Act, 1980

## The Incentive for Technology Commercialization

- **University may retain title** - Universities may elect to retain title to innovations developed under federally funded research programs
- **Commercial collaboration encouraged** - Universities are encouraged to collaborate with commercial concerns to promote the utilization of inventions arising from federal funding.
- **Patent expectations** - Universities are expected to file patents on inventions they elect to own.
- **Small business preference** - Universities are expected to give licensing preference to small businesses.
- **Government rights** - The government retains a nonexclusive license to practice the patent throughout the world and the government retains march-in rights.

# What is the KUUCTC?

- The new technology commercialization entity for all KU campuses
- A separate 501(c)(3) non-profit organization
- Jointly controlled by the KU Center for Research and the KU Medical Center Research Institute
- Has its own Board with the Provost as the Chair
- Thirteen members on the Board consisting of University administration, KUMC and Lawrence faculty, and Lawrence and Kansas City community leaders
- Offices on the Lawrence and KUMC campuses
- Executive Director and Licensing Associates travel to both campuses
- Has its own corporate counsel

# Functions of Technology Commercialization

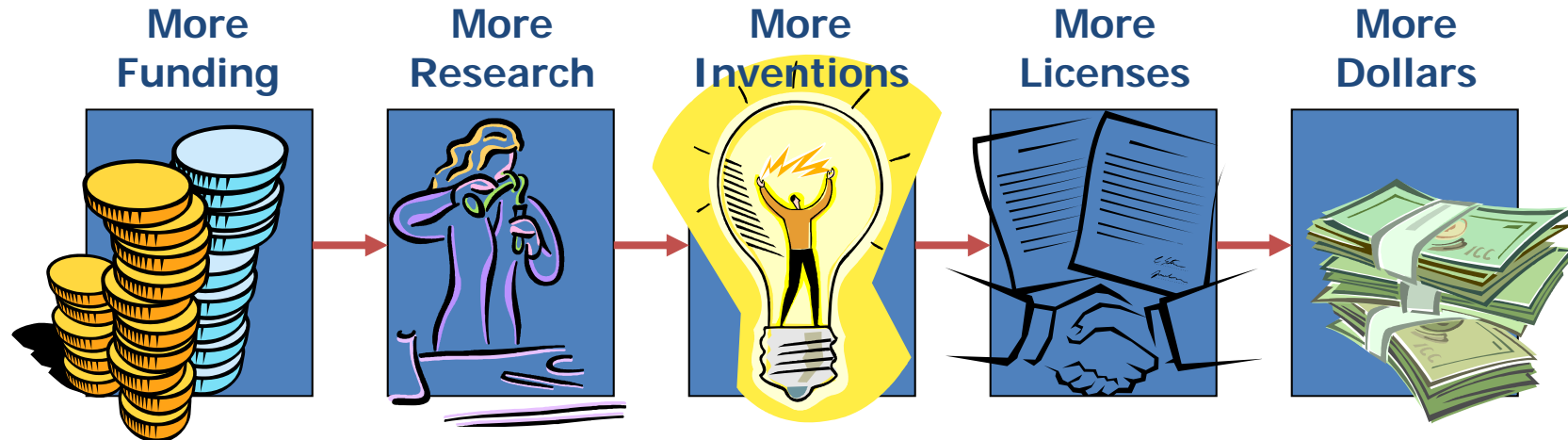
- **Ensure public benefit from KU research through commercialization of inventions created at KU**
- **Negotiate various contracts/agreements**
- **Promote collaborative research**
- **Facilitate the protection of intellectual property**
- **Educate faculty and students in intellectual property**
- **Assist with retaining and recruiting faculty**
- **Generate revenue to support research and graduate education**
- **Participate in regional and state economic development**

# National Activity, FY 2006

- **\$45 billion industry sponsored** academic R&D
- **18,874 new inventions** disclosed
- **11,622 new U.S. patent applications** filed
- **3,255 new U.S. patents** issued
- **4,963 new licenses** signed
- **64.1% new licenses** with start-ups and small companies
- **553 new start-ups** launched
- **697 new products** introduced to market from active licenses

Source: Association of University Technology Managers 2006 Survey Report

# "The strongest predictor of success...



## ...is the volume of research funding,

since the greater the funding, the greater number of researchers and research projects, the greater the number of disclosures, the greater number of patents, and the greater number of licenses...

...and eventually the greater the number of dollars."

Source: Martha Luehrman, Massachusetts Institute of Technology, September, 1998

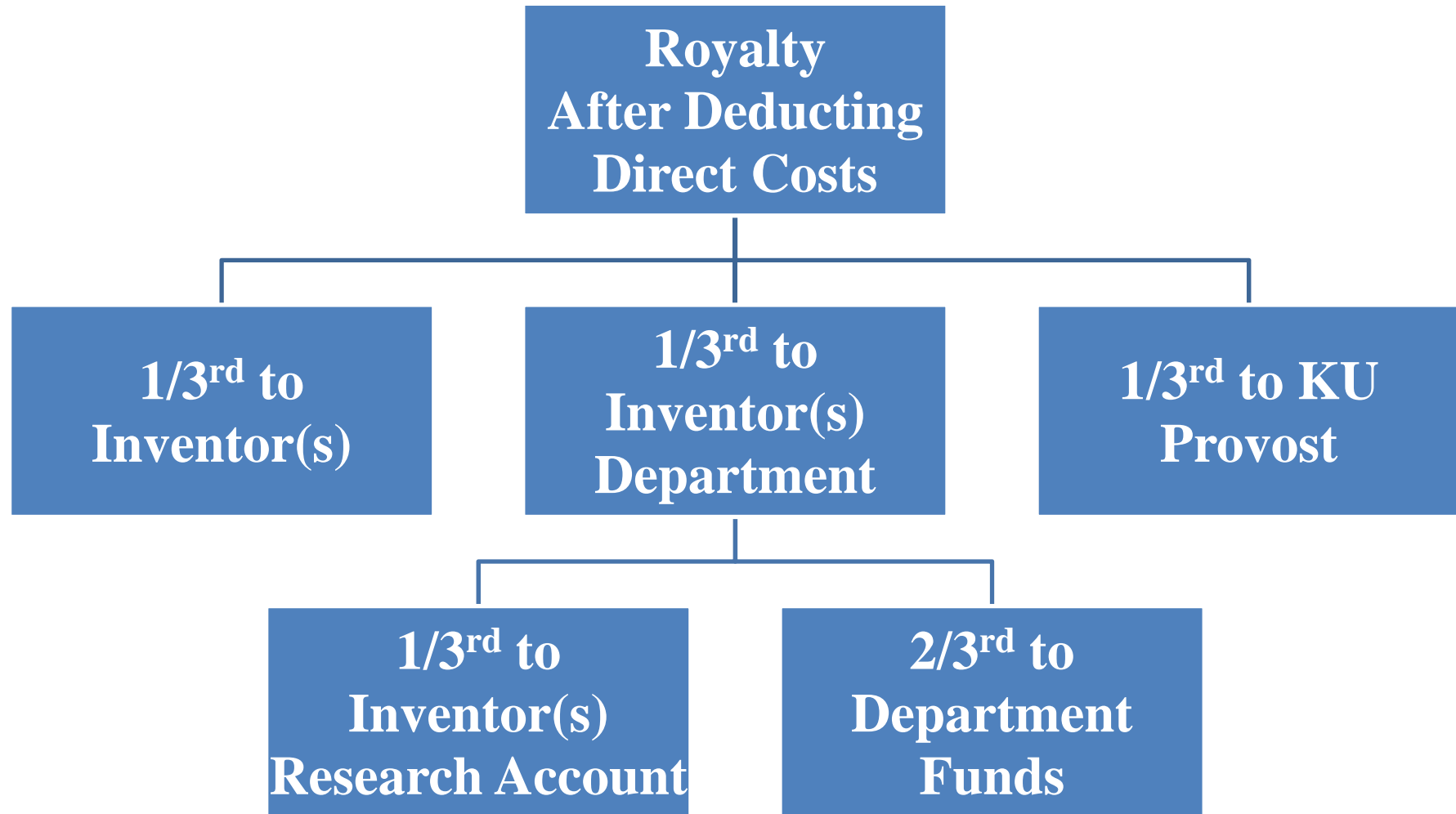
# Kansas Board of Regents Intellectual Property Policies

**Board of Regents set policy November, 1998**

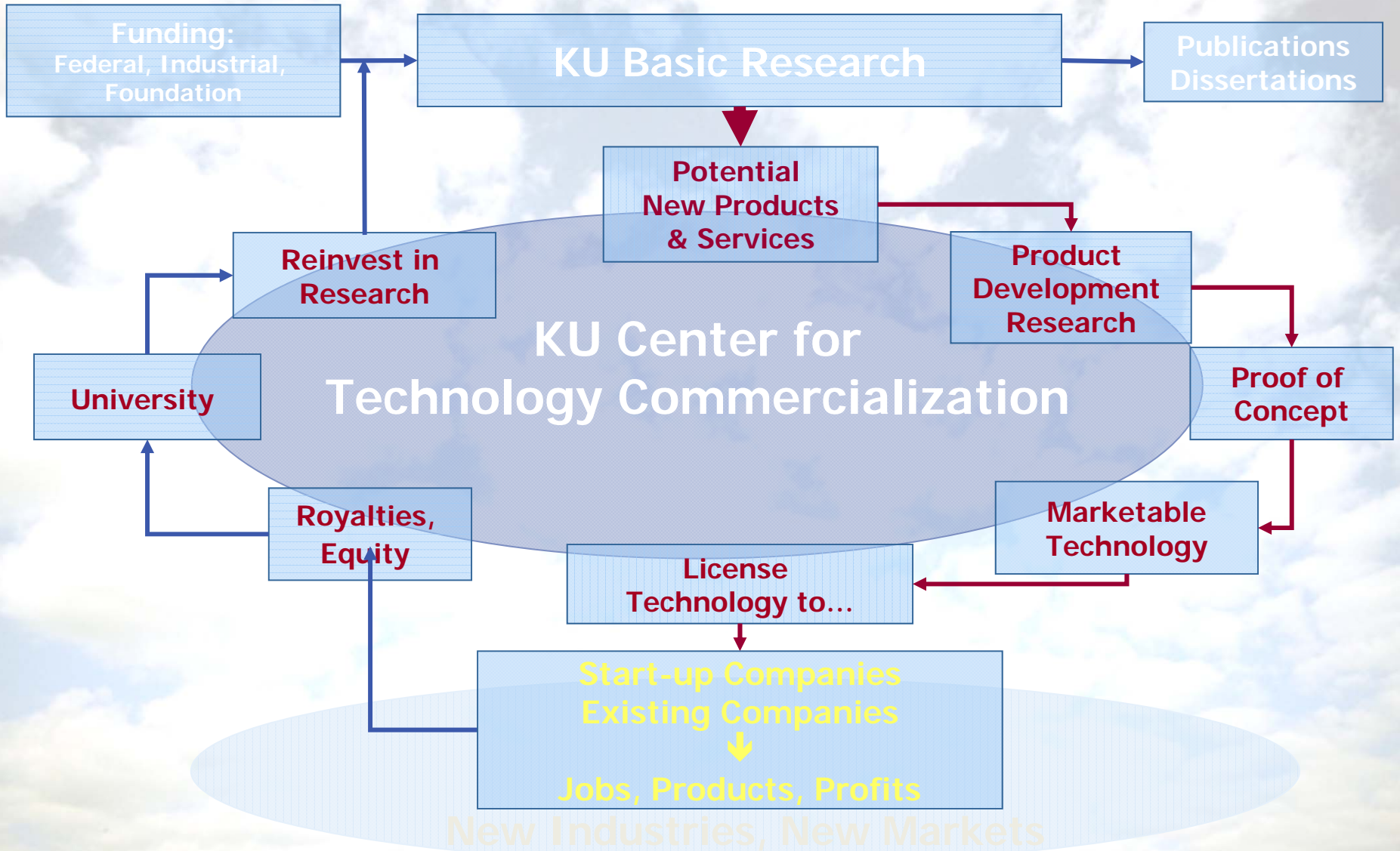
**Minimum 25% of revenue to inventors, after direct costs recouped**



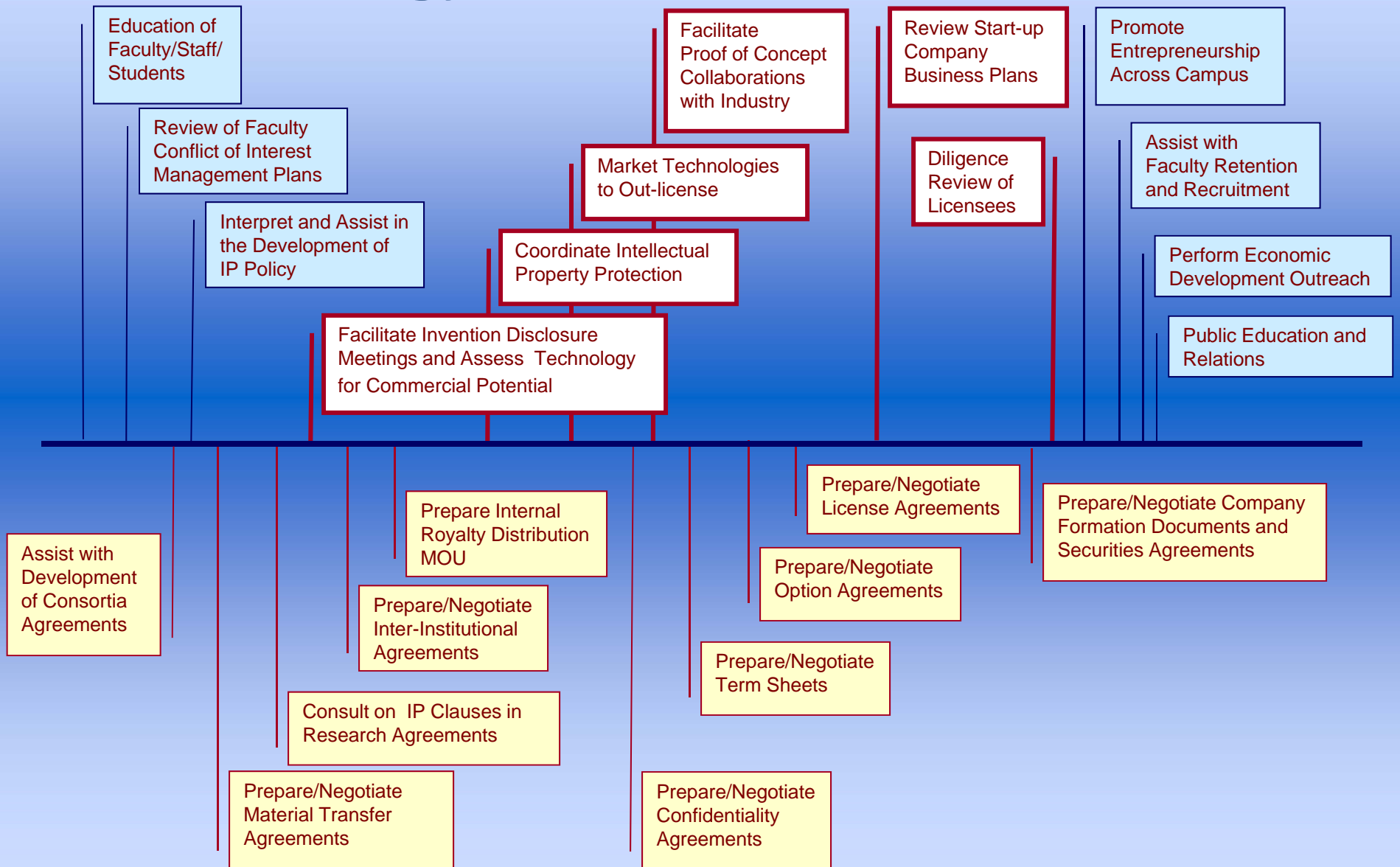
# Kansas University Intellectual Property Policy



# Technology Commercialization Cycle



# Technology Commercialization Activities



# Technology Commercialization Process

- **Disclosure of invention**
- **Initial evaluation and market research**
- **Patentability Search**
- **Commercialization strategy**
- **File patent/copyright/trademark**
- **Potential enhancement of technology**
- **Material Transfer/Research Agreements**
- **Out licensing or Company spin-off**

# Breadth of Invention Disclosures

- **Nursing** – Videotapes for addressing congestive heart failure
- **Chemistry** – Compounds as anti-cancer drugs, glucose sensor
- **Business** – Software to tag financial data for customized reports
- **Journalism** – Software and web design for presenting the news
- **Education** – Distance education modules, software tools for teachers
- **Biodiversity Resource Center** – Predictive software for invasive species
- **Civil Engineering** – Biodiesel Production
- **Life Span Institute** – Medical devices for premature infants
- **Mechanical Engineering** – Synthetic functional spine
- **Aerospace Engineering** – Fiber design software, UAV
- **ITTC** – Communication system for remote regions, RFID
- **Higuchi Biosciences Center** – Inhalation drug delivery technique
- **Architecture** – Copyrighted building plans
- **Physics** – Instrumentation to detect defects in semiconductor coatings
- **Medicine** – Software algorithm to predict epileptic seizures
- **Occupational Therapy** – Stroke rehabilitation device
- **Physics** – Cartoon characters and website for teaching science to children
- **Business** – Software to tag financial data for customized report
- **Civil and Environmental Engineering** – New antibiotic compound
- **Chemical & Petroleum Engineering** - nanoparticles used for O<sub>2</sub> separation and storage

# KU Products in the Marketplace

- Bioreversible derivatives to overcome limitations of parent drugs
- Software enables broadcasters to detect local commercial insertions by cable operators and gather valuable marketing information
- Technology to help newborns get to oral feeds sooner
- Testing, assessments and psychometric applications for schools
- Technique for examining metabolism of drugs, adverse drug-drug interactions.
- Online instructional and learning tools
- Compound enhances water solubility and effectiveness of drugs
- Environmental and agricultural applications of remote sensing technology
- Signal Analysis for Seizure Detection and Prediction
- Curriculum for community health and development

# Marketing

- **Faculty/Staff member is often a good resource**
- **Database searches, associations lists, conventions, publications and personal networking**
- **Non-confidential disclosures**
- **Confidential disclosures**
- **Corporate Partner for licensing and/or additional funding**

# Protecting Intellectual Property

- **Patents**
- **Copyrights**
- **Trademarks**
- **Trade Secrets**



# What is Patentable?

- **Products**
- **Processes**
- **Plants**
- **Designs**
- **Ideas vs. Application**

# Lab Books/Inventor Records

- **Keep complete, detailed records**  
first idea through commercial products
- **Describe the invention clearly-**  
words, photos, graphs, drawings, etc.
- **Explain operation or use fully**
- **Witnessed** by trustworthy colleague “Read and understood by...”
- **Dates noted, signed in ink**

# Patent Basics

- **Demonstrate novelty**
- **Demonstrate utility**
- **Demonstrate non-obviousness**
- **Prevent others from making, using and selling invention**

# Patent Process

- **Original and authentic inventor**
- **Duty of candor**
- **Enabling disclosure**
- **Specifications**
- **Claims**
- **Response to rejection**

# Universities create start-ups to...

- **Develop platform technologies** and revolutionary discoveries in an entrepreneurial environment
- **Promote local economic growth** (jobs)
- **Further research on discoveries** too embryonic to be of interest to large companies (risk-reward)
- **Generate a quicker financial return** (equity liquidation before royalties flow)

# Issues for KU Start-ups

- **Management**
- **Capitalization**
- **Market**
- **Product/Services**
- **KU Equity/Royalty**
- **License Agreement**
- **Business Incubator Needs**

# KU Start-up Company Examples

- **Savara Pharmaceuticals**— Pulmonary drug delivery technology platform
- **Crititech** — Particle-size reduction techniques for pharmaceuticals
- **CyDex** — Compounds that improve drug solubility
- **Flint Hills Scientific** — Automated seizure detection and prediction
- **Immunogenetix Therapeutics** — Prevention / treatment of HIV infection
- **Kansas Analytical Services** — Compound analysis by nuclear magnetic resonance
- **KC BioMedix** — Neonatal medical devices
- **NephroGenex** — Treatment of end stage renal disease (ESRD)
- **ProQuest** — Developed prodrugs to reduce delivery barriers
- **XenoTech** — Develop pre-clinical safety information
- **eLearning Creations** — Interactive online environment for learning

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<http://www.ctc.ku.edu>