

# KU Research Directions



## Current Strengths and Future Opportunities

Provost's Council  
September 13, 2005



# Prior Efforts at Setting Strategic Research Priorities

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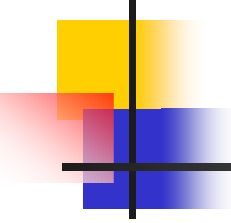
- Research Theme Initiative (1998)
- Objective: “Create and promote a national research identity for KU by defining programmatic areas that currently are at world class status or have the potential to become world class.”
- Messages: “Where KU research is going.”
  - Build interdisciplinary collaborations
  - Find creative ways to join in
  - KU excellence goes beyond just these specific research directions



# KU Research “Megathemes”

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- Overall emphasis: “Quality of Life”
- Three megathemes emerged:
  - Information Sciences / Technologies
  - Biotechnology / Biomedicine
  - Improving the Human Condition
- Emerging theme: Environmental Sciences and Technologies



# What Megathemes Did: Big, Strategic Research Investments

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- Multidisciplinary Research Building (MRB)
- Life Sciences Research Laboratories (LSRL)
- Structural Biology Center (SBC)
- Malott Hall Transgenic Facility
- NSF Engineering Research Center (CEBC)
- NSF Science and Technology Center (CReSIS)
- Federal appropriations
- Tuition enhancement faculty
- KU research centers



# What Megathemes Did: Focus on Research Centers

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- Schiefelbusch Institute for Life Span Studies
- Higuchi Biosciences Center
- Biodiversity Research Institute
- Information and Telecommunication Technology Center
- Center for Environmentally Beneficial Catalysis
- Center for Remote Sensing of Ice Sheets
- Hall Center for the Humanities
- Center for Research on Learning
- Plus: Connections to KCALSI, KTEC, KansasBio, the Kansas Bioscience Authority, Lawrence Biosciences Task Force, etc.



# Related to KU's Megathemes

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- Sen. Pat Roberts' Advisory Committee on Science, Technology and the Future (1996)
- Seven areas “strategic to Kansas’ future”:
  - Biotechnology
  - Agriculture
  - Aviation
  - Information Technology
  - Energy
  - Manufacturing
  - Materials Science



# “Strategic Initiatives Memo”

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- Signed by Hemenway, Wefald, Beggs and KTEC director (1999)
- Laid out four strategic initiatives for the state:
  - Information Technology
  - Human Biosciences
  - Agricultural Biotechnology
  - Aviation



# Echoes of KU's Megathemes

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- Higuchi Biosciences Center and ITTC are KTEC “Centers of Excellence”
- Collaborative KU Life Sciences Task Force
- Bi-Campus Task Force focuses KU on two areas of research: Cancer, Neurosciences



# Rationale Behind KU Research Futures Initiative

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- Observation by Arizona State University President Michael Crow:
  - Only a handful of national research universities (c. five) can do everything well. Another 75 will thrive by meeting niche needs. Together, these universities will obtain almost all the competitive federal funding.
- Only those universities which are flexible in their approach and which have clear goals and expectations will do well or have any chance of being among Crow's top universities.
- KU wants to be one of them.

# Research Futures Committee

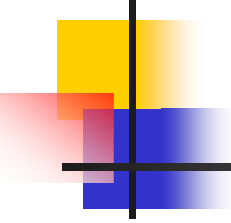




# Previous Committee Actions

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- **KEGA**
  - Evaluated numerous research possibilities
  - Selected best near-term candidate for April 2005 Bioscience Authority meeting: vaccine stabilization
- **Technology Transfer**
  - Report complete
  - Incorporated into Bioscience Authority presentation
  - Combined with Lawrence Biosciences Task Force
- **Space and Infrastructure**
  - Preliminary report complete
  - Long-range plan yet to come
- **Scholarship and Research**
  - Report complete
  - Vetted by OVPR and approved by the Provost
  - Presentation today



# Scholarship and Research Sub-Committee

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- **Kim Wilcox**, College of Liberal Arts and Sciences
- **Jane Aldrich**, Medicinal Chemistry
- **Nancy Baym**, Communication Studies
- **Stella Bentley**, Libraries
- **Diana Carlin**, Graduate School
- **Chuck Epp**, Public Administration
- **Steve Hedden**, School of Fine Arts
- **Bill Tsutsui**, History
- **Chriss Walther-Thomas**, Special Education
- **Joy Ward**, Biological Sciences



# Charge to the Sub-Committee

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- Make “recommendations to the broader university community about intellectual engagement.”
- Consider “how the university could best structure itself to maximize knowledge/creation across campus.”
- Defining question: “balance of resources to support research and scholarly activity.”
- Key issue: collaboration.
- “KU must demonstrate it is capable of engaging a broad array of disciplines in approach to complex problems.”
- Select KU Lawrence campus directions for research



# Four Research Directions

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- Tied closely to KU's mission
- Build on strength
- Intent is to help shape the future of KU
- Directional, not merely descriptive
- Should be valid for 10-20 years



# #1: Environment

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- Focus on:
  - Improving our understanding of the world around us
  - Increasing insight into issues, ranging from biodiversity and global ecology to the chemical, physical and biological underpinnings of life on earth



# Goal and Areas of Investment

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- Goal: “Expand basic knowledge of our changing planet and capitalize on that knowledge in improving our environment.”
- Specific areas of investment will include:
  - Global Ecology
  - Biodiversity



# #2: Human Cultures and Institutions

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- Focus on:
  - Development and application of scientific knowledge
  - Critical analysis
  - Creative reflection
  - World's diverse traditions
  - Arts, peoples, and organizations
  - From local to global



# Goal and Areas of Investment

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- Goal: “Develop knowledge aimed at increasing our collective ability to understand, anticipate and manage the complex processes and consequences of change.”
- Specific areas of investment will include:
  - Area Studies, International and Global Processes
  - Design, Implementation, and Impact of Public Policy
  - Social Dimensions of Science, Technology, and Engineering



# #3: Human Health and Development

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- Focus on:
  - Describing human biology and its development
  - Molecular and cellular processes
  - Biological systems
  - Complex behaviors



# Goal and Areas of Investment

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- Goal: “Expand our basic understanding of the life processes that are common to all organisms and apply that understanding to improving the lives of humans, e.g., cancer.”
- Specific areas of investment will include:
  - Life Span Studies
  - Drug Discovery and Delivery
  - Genetics of Organismal Development
  - Neuroscience
  - Bioengineering



# #4: Information and Technologies

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- Focus on:
  - Communication as “one of the defining characteristics of humans”
  - Expanding the impact of this basic human capacity
  - Efforts to design and refine information and technology systems



# Goal and Areas of Investment

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- Goal: “Facilitate human collaboration and enhance communication through improvements in both the composition and representation of the message.”
- Specific areas of investment will include:
  - Energy
  - Information, Technology, and Social Change
  - New Communications Media
  - Bioinformatics
  - Remote Sensing and Imaging