

BUILDING THE TEMPLE RESEARCH ENTERPRISE

STRATEGIC, INTERDISCIPLINARY, USE-INSPIRED

Goals

To develop knowledge that benefits society, thereby enhancing Temple's reputation internationally for use-inspired, translational research.

We do so by:

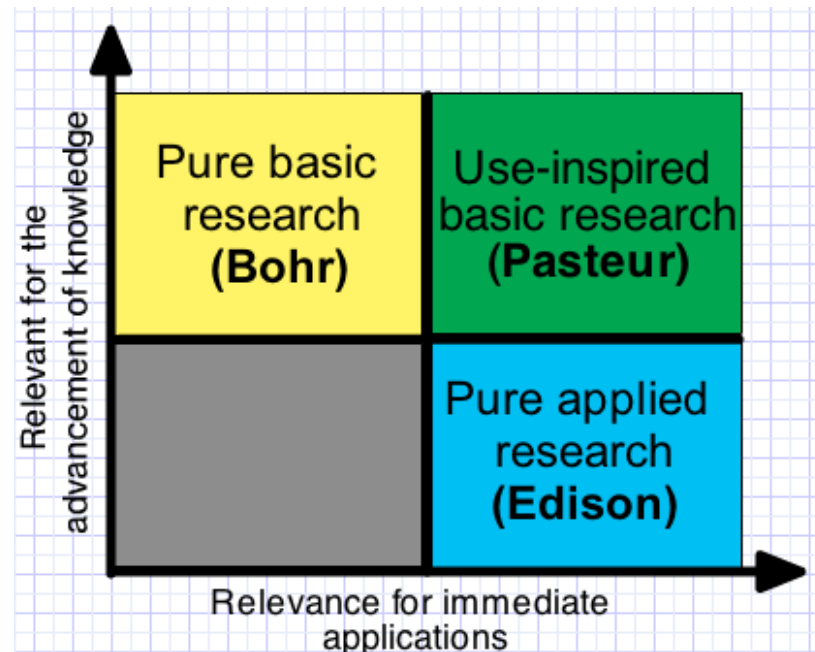
- increasing the quality and visibility of our already outstanding research programs
- increasing research awards and expenditures
- increasing the commercialization of Temple technology to benefit society

Strategic Approach To Building The Research Enterprise

- Identify research themes
 - E.g. Health, Security, Sustainability, The Creative Economy
- Focus on research thrusts within thematic areas
 - E.g. Drug discovery and development, cardiovascular, cancer, neuroscience and water quality and emerging contaminants
- Strategically focus faculty hires, Ph.D. programs, etc.
- Diversify the NIH and NSF oriented research portfolio by obtaining funding from industry and mission-oriented government agencies (e.g., DoD, DoE, DoT)

Strategic Approach To Building the Research Enterprise

Focus on interdisciplinary, “use-inspired” translational research



Strategic Approach To Building The Research Enterprise

- Identify strategic initiatives based on our core competencies with the goal of developing practical solutions to complex societal problems
- Build multi-investigator, interdisciplinary teams to implement the strategic initiatives
- Provide internal funds for new strategic initiatives
- Pursue an active business development strategy with federal agencies and industry to leverage internal funds to attain a minimum of \$3-5M/year in expenditures
- Leverage outside partners from other academic institutions, government agencies and industry

Criteria for Strategic Initiatives

- The probability that Temple will become a leader in the field in the next five years
 - The opportunity to integrate research with teaching
 - The ability to attract outstanding undergraduate and graduate students as well as postdoctoral trainees
 - The ability to build a distinctive Ph.D. program around the research topic
 - The ability to attract and retain outstanding faculty
 - The ability to sustain the program through extramural funding
 - The possibility of producing intellectual property that will lead to commercialization
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Strategic Investments

Examples of building shared instrumentation and core facilities

- Drug Screening Facility
- Medical Imaging Facility (MRI scanners)
- High Performance Computing Infrastructure

Strategic Approach for Tech Commercialization

Research and Technology Commercialization are being fused to create an environment conducive to producing highly commercializable advanced stage technologies

- The Technology Commercialization office will work closely with faculty to identify promising technologies and fully develop invention disclosures
- Faculty will be guided in the commercialization pathway for their technology
- Funding streams are being developed to produce advanced stage technologies with increased value
- Licensing technology to new companies with experienced management will result in the rapid monetization of equity

Outcomes

- Increased interdisciplinary research and education
- Identification of Temple as a major national comprehensive research university
- Increased revenues from grants and contracts and diversification of the research portfolio
- Increased technology commercialization which contributes to economic development at the local, state and national level

Measures of Success

- New awards and research expenditures from externally funded sponsored projects
 - Papers published in peer reviewed journals
 - Scholarly books published
 - Ph.D. students graduated and where they obtain positions
 - Intellectual property (IP) disclosures, patents issued, revenue from licensing fees and royalties, new companies developed to commercialize Temple technologies
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Resources at South (Main) Campus

- Bioinformatics
- Biostatistics
- Drug Development
- Healthcare Economics
- Risk Management
- Survey Research
- Bioengineering and Biomaterials
- Computational Molecular Science
- High Performance Computing

Center for Statistical Analysis-Fox School

The Center for Statistical Analysis (CSA) provides professional statistical consulting support and training to Temple University faculty, researchers, and students; and to external clients in the wider business, science, industry, and government sectors. The Center will offer an integrated, comprehensive statistical consulting service covering all aspects of a quantitative research project ranging from the initial study design through to the presentation of the final research conclusions.

Center for Statistical Analysis

Support:

The Center can provide support in the areas of:

Design of Experiments

Biostatistics

Clinical Trials

Statistical Process Control

Survey Design and Analysis

Data Mining

The Moulder Center for Drug Discovery Research-School of Pharmacy

Mission

Drug Design and Lead Optimization: Synthesis of small molecule therapeutics in multiple disease areas as lead drug candidates and/or as chemical probes to test biological hypotheses in an effort to increase understanding of the physiological and pathophysiological processes relevant to drug discovery

Facilitate collaborative research, within Temple University and with external collaborators in the US and abroad

Bridge the gap between pre-clinical and clinical research in support of Translational Medicine

Provide students, faculty, and future researchers with training and a good understanding of modern drug discovery and development

Moulder Center

General Capabilities

- Medicinal and synthetic chemistry, synthesis and purification of organic molecules.
- high throughput parallel synthesis of diverse and/or focused libraries of 10s to 1000s of compounds on 10 - 100 mg scale
- Solid Phase Peptide Synthesis (SPPS)
- Biological Screening

Biology Capabilities

- In vivo: Stereotaxic surgery, Micro dissection, Microanalysis, Seizure activity, Behavioral assessment
- Ex vivo: Radio ligand characterization, Receptor profiling, Protein characterization

Biomedical Informatics

Data Mining in BioMedical Sciences

- Predictive Modeling of Patient State and Therapy Optimization
- Extracting Patterns from Medical Image Databases
- Large Scale Data Analysis for Brain Images
- Mining Biomedical and Network Data
- Microarray Data Analysis, Analysis of Protein Disorder, Proteomics

Computational Science

- Model molecular phenomena with computer simulations.
- Develop new techniques and program code for new hardware like GPGPUs and multi-core CPUs and specific complex problems
- Provide user-ready applications which utilize GPU hardware to accelerate scientific computing
- High Performance Computing Facility