

SCUP-50 Chicago
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Enabling Collaborative Research in Health Sciences at The University of Saskatchewan

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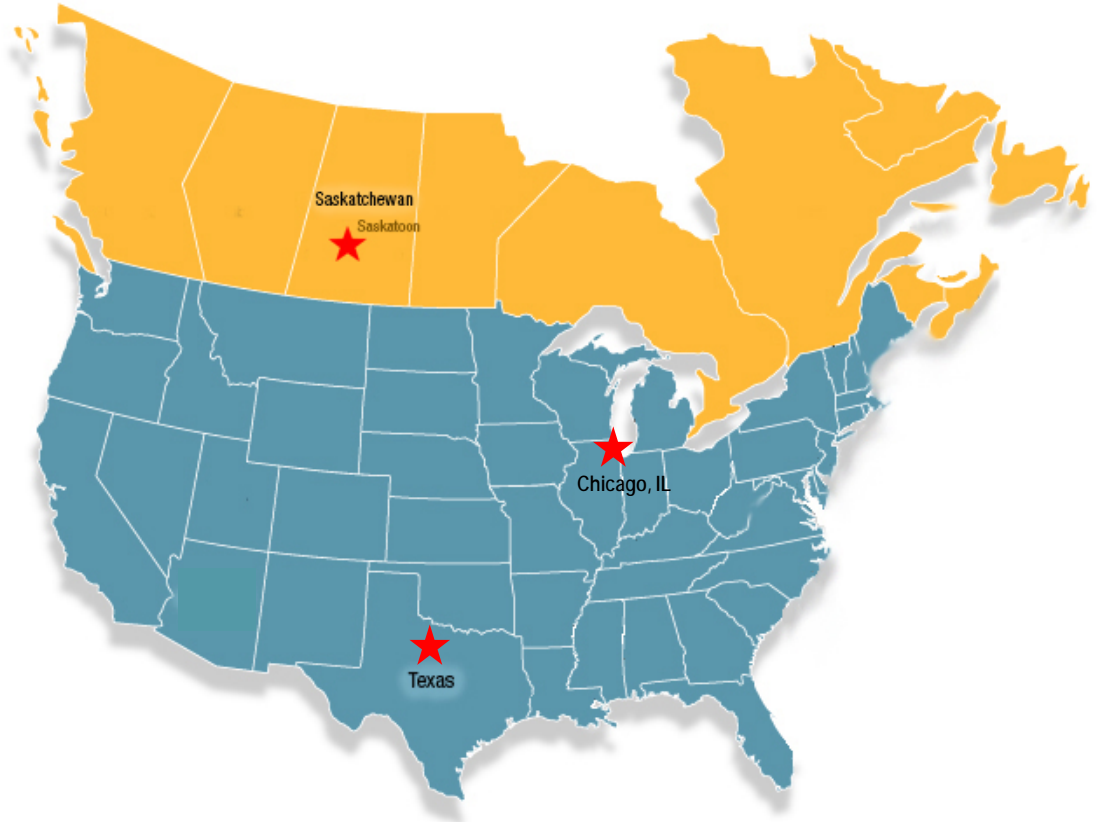
Flad Architects

Application – Focused Learning Outcomes:

1. Recognize how mission, faculty needs, institutional support, research operations, and facilities must be aligned for successful collaborative research.
2. Design strategic and tactical guidelines for change management that will successfully transition researchers from individual laboratory and core spaces to a shared environment.
3. Discuss outcomes and lessons learned from a case study of a shared research environment.
4. Describe how new and renovated buildings can be designed and operated to enhance collaborative research.

Who We Are

- **Saskatchewan:**
Area - 250,000 sq miles
Population - 1 million
- **Texas:**
Area - 270,000 sq miles
Population - 27 million



University Profile

University of Saskatchewan

- Founded in 1907
- Medical Doctoral university and one of the U15 in Canada
- Urban campus with associated farm lands (urban and rural) and a research park
- 20,000 students
- 1,000 faculty / 2,500 staff



Assets in the Health/Life Sciences

Health Science Professional Programs

- College of Medicine
- College of Dentistry
- College of Nursing
- College of Pharm/Nutrition
- College of Kinesiology
- Western College of Veterinary Medicine
- College of Arts & Science
- College of Agriculture & Bioresources

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- School of Public Health
 - School of Public Policy
 - School of Environment & Sustainability



Health Research Links/Groups

- AVP-VP Health Research Office (Patient-centered research)
- Canadian Light Source (>30 beamlines)
- Cyclotron (medical isotopes)
- Vaccine and Infectious Disease Organization (VIDO) & Intervac
- Toxicology Centre
- Saskatchewan Structural Sciences Centre
- Canadian Centre for Health & Safety in Agriculture
- Smaller, new & established biomedical, clinical and community Life/Health Research Groups (e.g. "One Health" initiative)
- Research Park - commercialization

A Unique Canadian Health Research Enterprise



CATALYST FOR CHANGE

Provincial

- **Medical Accreditation** - Defining moment – does our province need its own College of Medicine?
- **Restructuring of health districts** – changing relationships with teaching hospitals
- **Health and Human Resources Plan** - Poor Retention of graduates in rural and under served populations
- **Alignment** between health research outcomes with health needs of the province
- **New approach** - Government's willingness to provide funding for a shared lab capital project

CATALYST FOR CHANGE

University

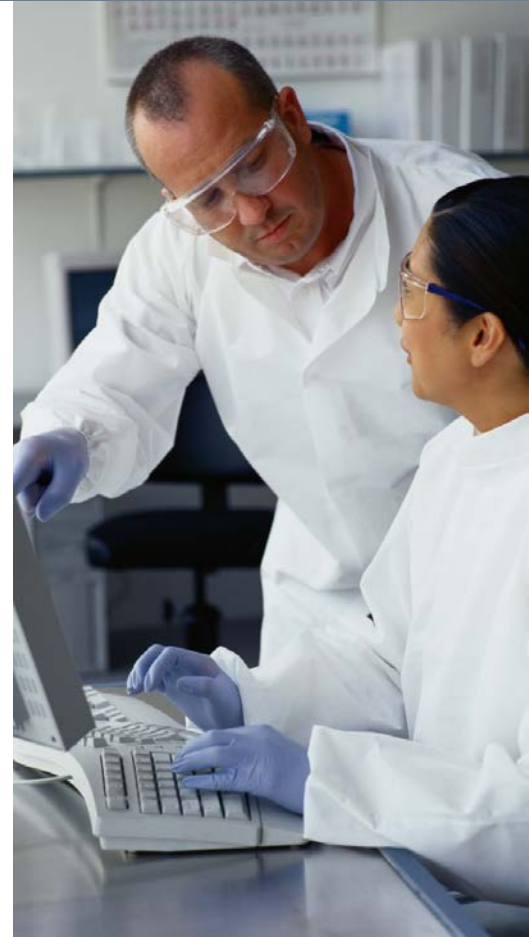
- Increase research intensiveness- poor research outcomes
- Double graduate trainees
- Enhance clinical research - opportunities for clinicians to access research space
- Resolve space deficiency for teaching and research
- Develop easily adaptable research space
- Address non compliance with regulatory codes - health and safety, animal care



CATALYST FOR CHANGE

Senior Academic, Health Region, and Government leaders developed a strategic document titled "Our Journey to Better Health" which identified the following principles:

1. Emphasis on interdisciplinary teaching in undergraduate, graduate and continuing education
2. Enhancement of clinical learning opportunities with expanded use of simulations
3. Increased attention to Aboriginal issues
4. **Greater attention for collaborative research in both wet bench and dry laboratories**
5. Expanded learning resource centre with expanded use of information technology
6. Reconfiguration of student space to include large classrooms, small meeting rooms and enhanced student social spaces
7. **Administrative & student services emphasizing interdisciplinary scholarship between Colleges and across disciplines**
8. Allow interdisciplinary health research teams to develop



THE PROJECT

- Government provided funding for the project as defined by the vision
- Budget \$350+ million
- Needed to develop *strategies* to fulfill the vision and the goals of the project

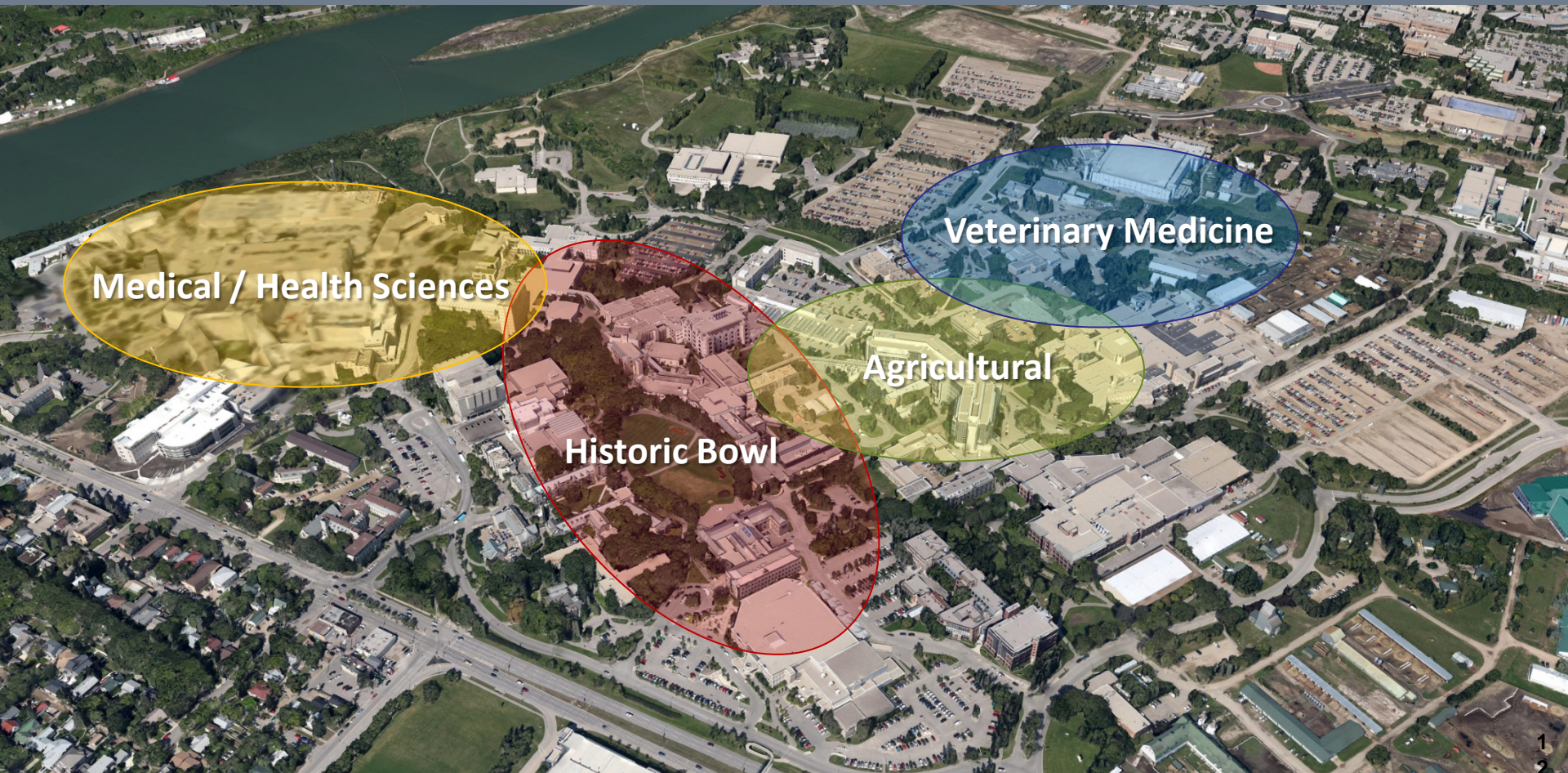


HEALTH SCIENCE PRECINCT

- Physical connection to Royal University Hospital
- New Children's Hospital planned and now under construction
- Optimum location to support inter-professional education and research



CAMPUS PRECINCTS



Medical / Health Sciences

Veterinary Medicine

Agricultural

Historic Bowl

STRATEGY

Enhance **Interdisciplinary Research**

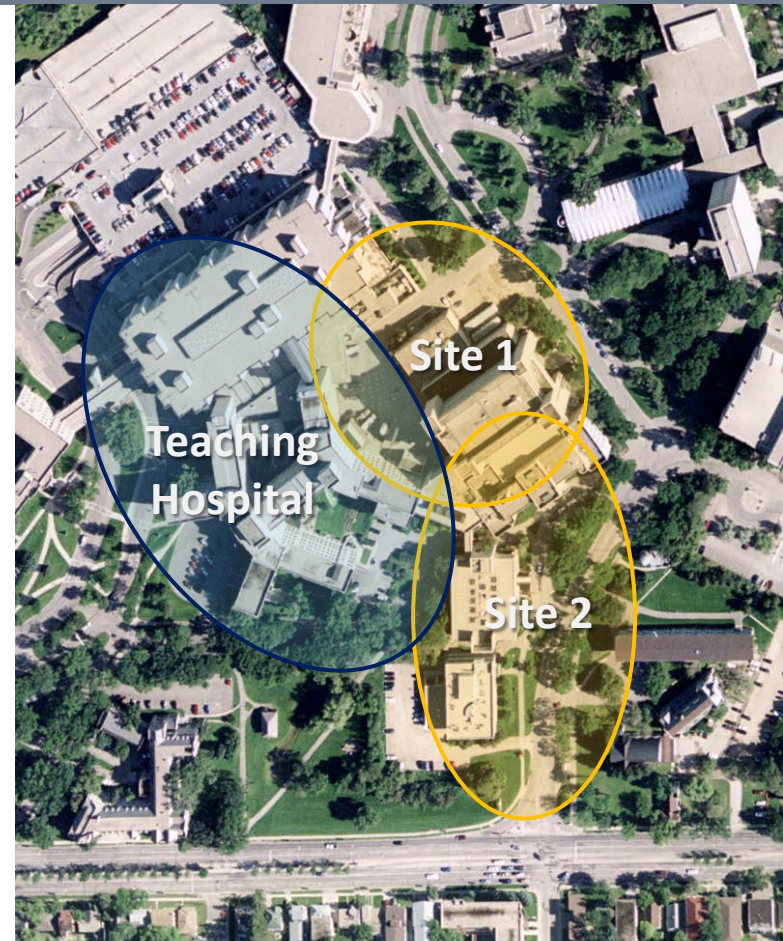
- To build a culture of collaborative Team Science in place of a culture of the individual researcher *to attract enhanced research funding and enhance the overall quality of research outcomes*
- To increase opportunities *for trainees in all programs and at all levels* (i.e., UG, graduate students, MD students, clinical fellows, postdoctoral researchers) to participate in research



RESPONSE

- Develop new spaces for research based on a model of shared resources – people, space, and equipment, and reach across disciplines
- Differences in building requirements between biomedical and psychosocial research led to a two site model
- Site 1 – Biomedical research (“wet”)
- Site 2 – Educational Resources and Research (“dry”)

Library, social/population health research

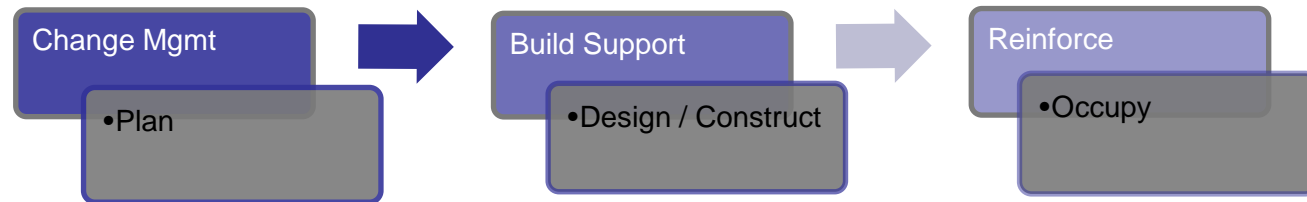


CASE STUDY OF NEUROSCIENCE CLUSTER

- New building planned and configured to support research “clusters”, by research interests, rather than departmental homes
- Neuroscience cluster was formed from faculty and students in Physiology, Pharmacology, Psychology, Psychiatry, Pharmacy, Nutrition, Neurology, Surgery
- Cluster comprises 19 faculty and about 50 trainees, includes basic scientists and MD clinicians
- Many people had no previous relationship with others
- Move from individual labs to shared spaces and core facilities
- Since 2013, group has published more than 120 papers and 15 faculty now hold national research funding

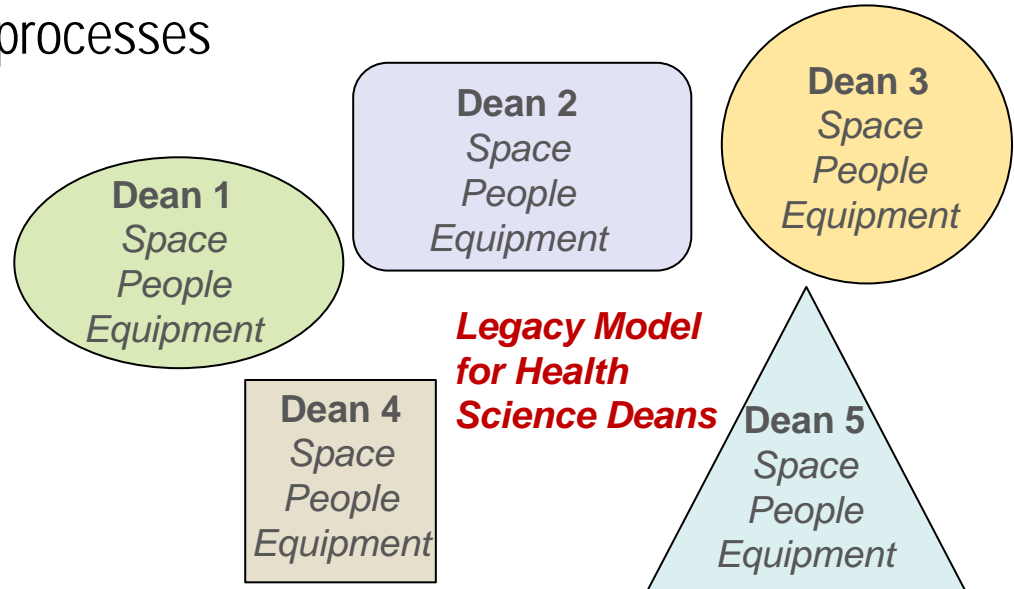
LESSONS LEARNED

- Start as early as possible to implement cultural shift and change management for a successful transition
- Support and advocacy of senior Institutional Leadership is essential in making fundamental change
- Emphasis on the research and deemphasizing the academic home requires as much planning as the building itself
- Change creates anxiety: need to be patient but persistent
- Space is not enough, need organized cluster activities to build relationships



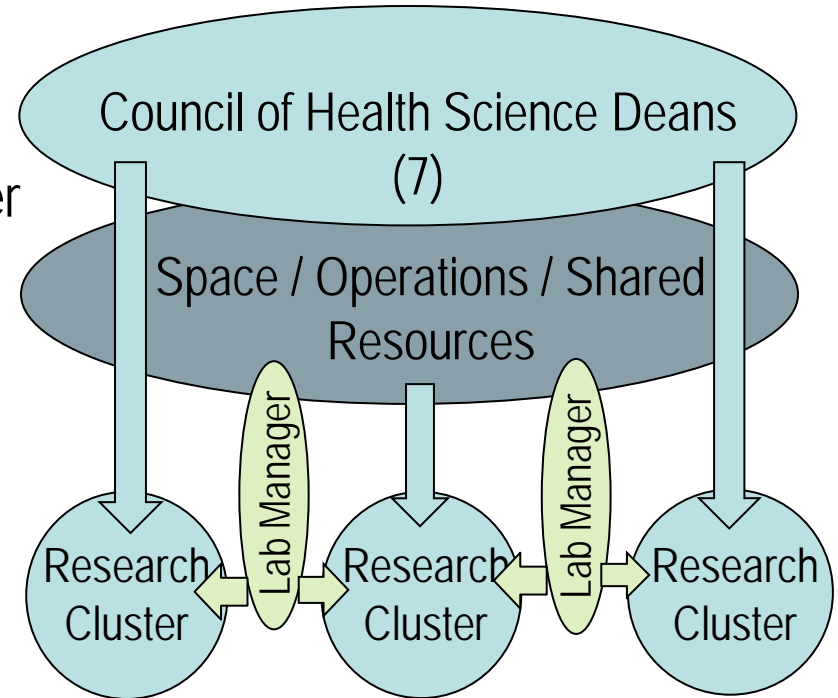
STRATEGY

- Restructure governance of ownership, assignment, management, and operations of space and services
- Ensure that research funds are spent on research, not on administrative processes or on common support services
- Ensure institutional support for research is in place



RESPONSE

- Transfer space ownership from departments and Colleges to Deans' Council
- Create Director of Operations position and Lab Manager for each research cluster
- Provide operational support services unit to allow researchers and their teams to focus on research



CASE STUDY FOR NEUROSCIENCE CLUSTER

- Created position of Cluster Leader, and an executive committee to manage decisions
- Faculty elected to these positions for 3-year term
- Developed policies for space assignments and sharing and maintaining core equipment
- Lab manager plays a vital role
- Develop cluster brand, informational displays outside lab, website, annual report
- This work is essential to provide a backbone for the cluster, need people who are willing to provide leadership within cluster

LESSONS LEARNED

- Challenging internal politics
- Operational committees comprised of researchers are essential to assist operations and need to have the delegated authority
- Develop transparent policies for assigning space and sharing equipment
- Cost of maintaining shared equipment an issue
- Lab managers provide expertise and continuity to support the common shared labs and equipment – roles will evolve



STRATEGY

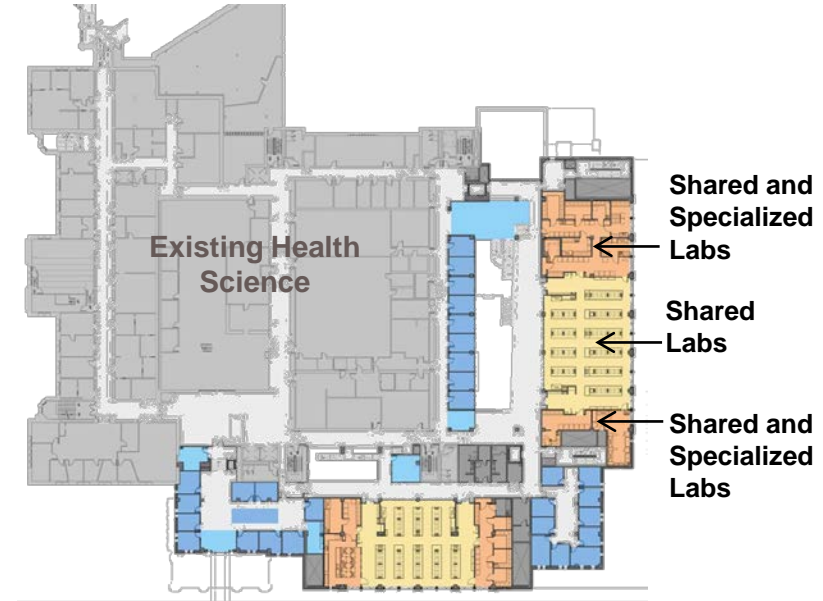
Provide modern research space...

- to improve success in recruiting and retention of faculty and students
- to enable modern and safe research efforts and instruments
- to be adaptable for a changing future, or changing science and technology
- that enables the effective use of Core Facilities



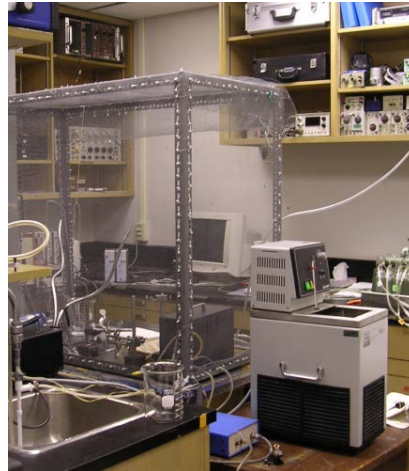
RESPONSE

- Program new building closely with research teams to support research mission, shared and specialized equipment
- Planned building to support functional adjacencies including vivarium core
- Provide researchers choices in lab configuration through moveable components



CASE STUDY FOR NEUROSCIENCE CLUSTER

- Space allocations done in advance, several drafts of occupancy plan
- Cluster leader ensured that individual faculty needs were taken into account
- Cluster needs included dedicated vivarium rooms, wet bench space, and custom designed rooms for specialized work (e.g., histology, electrophysiology, tissue culture)
- Core facilities created
- Only modern equipment was moved into new facility



LESSONS LEARNED

- Flexibility in lab benches allows researchers to put their mark on a generic lab design, use mockups to build confidence
- Initial anxieties dissipate once people adjust to the new space
- Researchers need less overall space for their work when that space is well designed



LESSONS LEARNED

- Vivarium - balance between holding rooms and generic and specialized procedure rooms
- Storage is an issue, but it does not need to be in a prime location
- Consider hoteling write-up spaces within the lab



STRATEGY

Enhancing the Student/Faculty Relationship

- Provide interactive workspaces and opportunities for grad students that did not exist
- Strengthen access between students and faculty
- Create workspace for faculty external to (but close to) primary lab
- To provide a day-lit environment



RESPONSE

- Provide desk space outside labs for all research trainees with visual access to labs and collaborative space
- Cluster faculty offices per floor adjacent to labs
- Distribute faculty on all floor levels
- Abundant day-lighting



CASE STUDY FOR NEUROSCIENCE CLUSTER

- All neuroscience faculty and students housed adjacent to the lab spaces
- Faculty offices in office pod indicated by green circle
- Student offices in red circle
- Laboratory spaces indicated by black circles



LESSONS LEARNED

- Grad student offices as close to faculty as possible
- Office assignments are complex - varying numbers of students, faculty opinions on occupancy
- Combination of windowed and windowless faculty offices are a challenge to assign
- If using a pod design, you may run out of offices
- Availability of excellent office space encouraged some students to spend less time in the lab



COLLABORATIVE RESEARCH at U of S TODAY

Academic Health Science Complex has realized institutional aspirations of an integrated, mission based health sciences community, and an asset for the entire campus....

but we still have work to do!

