Stantec

Integrating Science and Care

Empowering patients and researchers through translational medicine

1 Science in the Age of the Invisible

how did translational models evolve

2 Integrating Science and Care

proximity model

3 Integrating Science and Care

convergence model

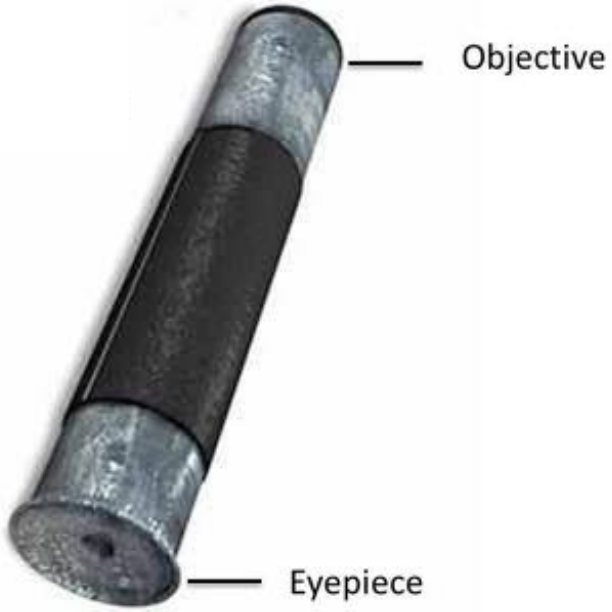
Stantec

Science in the Age of the Invisible

How did translational models evolve?

Stantec

The Ages of Science



Zacharias Janssen is generally believed to be the **first** investigator to invent the **compound microscope**….generally agreed among historians to be dated in the 1590s

Stantec

1700's
the age of enlightenment

Research and
Observation
with naked eye

?10? kbtu / sf / year

Stantec

1900's
the age of the bench

"Modern" benches, microscopes and extract devices

85 kbtu / sf / year

2000's
the age digital technologies

Dense
Technologies
and Equipment

412 kbtu / sf / year

Stantec

Today
the age of the invisible

Emerging Technologies and Increased support labs

Collaboration

Big Data

800 – 1200? kbtu / sf / year

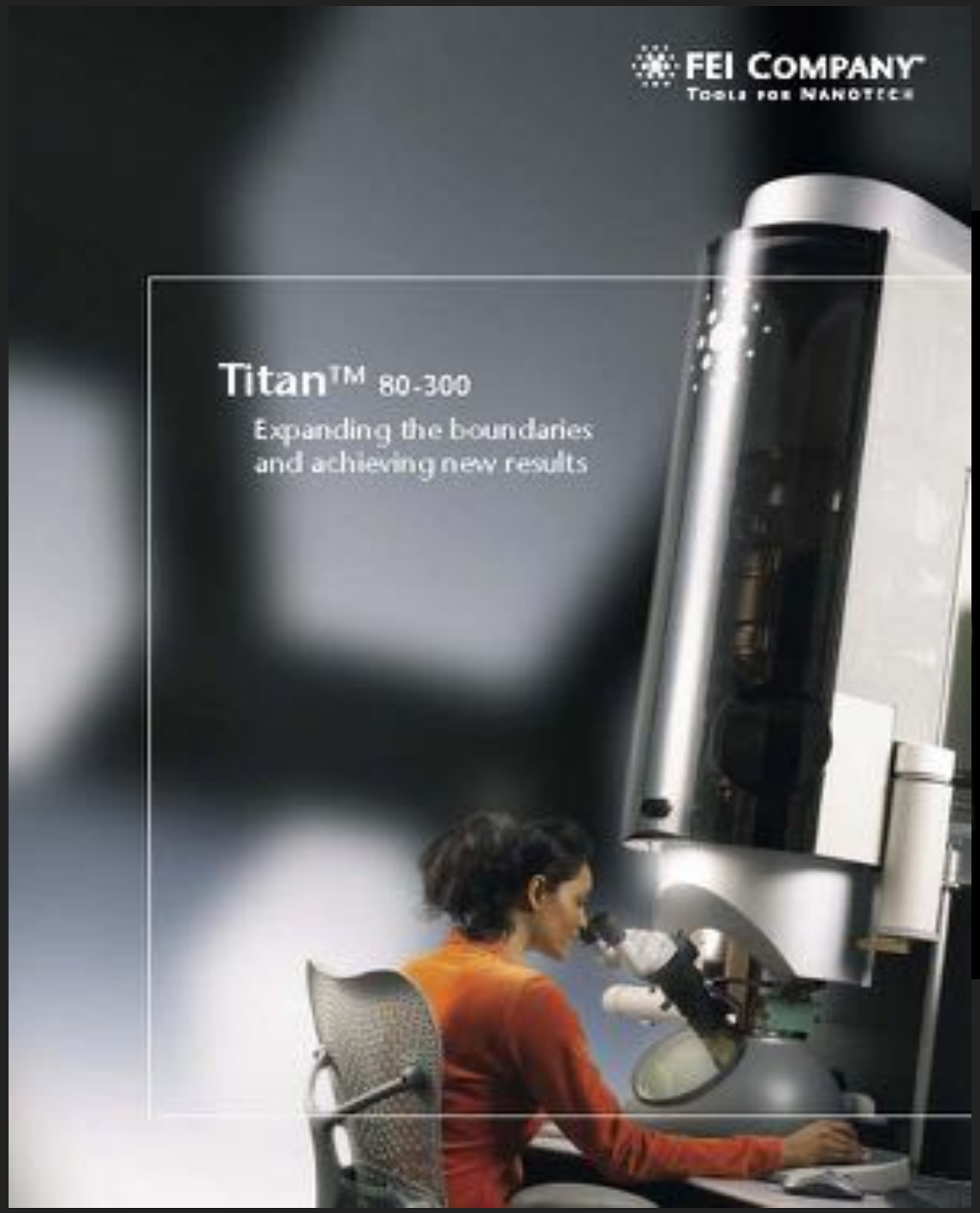
Today
the age of the invisible

Methods

More support labs
Dense equipment technologies
Intercellular and Interstellar Imaging

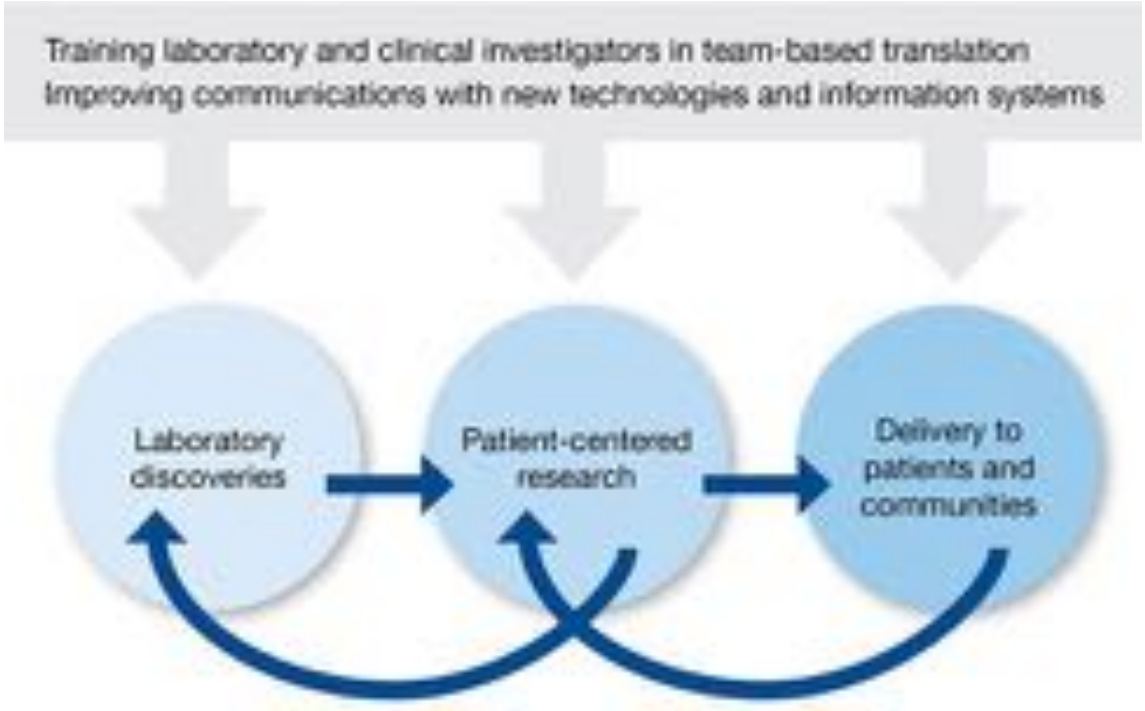
pedagogy

Transdisciplinary
Innovation through Collaboration
Emphasis on Translational Research



Stantec

Translational Research + Medicine



Translational medicine (TM) is a fairly recent concept: few clinicians and researchers used the term before the new millennium.

*"**all the steps** that are involved in getting a new remedy from the laboratory bench to the bedside as efficiently as possible, from basic research, through evaluation, to the clinical application and the development of practice guidelines".*

- British Medical Journal (2008)

Translational Research + Medicine

Removing gaps of communication and barriers between scientists, physicians, patients and industry

Bench-to-bedside enterprise of harnessing knowledge from basic sciences and transferring to:

- Produce new devices treatments and drugs
- Rapidly generate innovations for patients

The **interface between science and clinical medicine**: the conclusion of this process is the creation of new treatments for patients which can be brought to market.

Stantec

Translational Research + Medicine

Thresholds – Mind the Gap

This is how we heal people in the 21st Century: Synergies between clinicians, patients and scientists….industry partners.

Stantec

Integrating Science and Care

Proximity Model

Stantec

Proximity Model

Hospital and Lab

Lab and Hospital

Institute for Regeneration and Repair

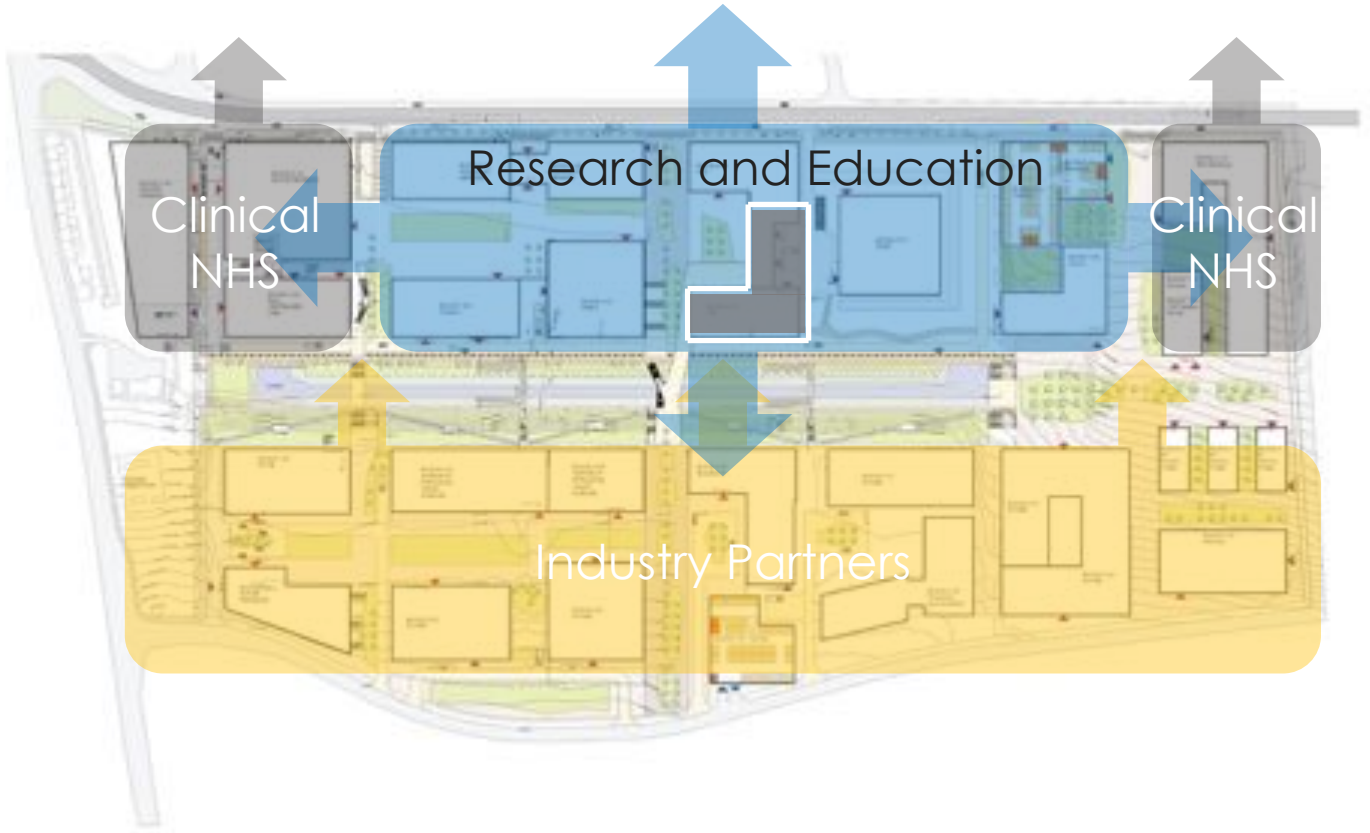
University of Edinburgh

The Edinburgh bioQuarter

Stantec

Clinical and Research Integration

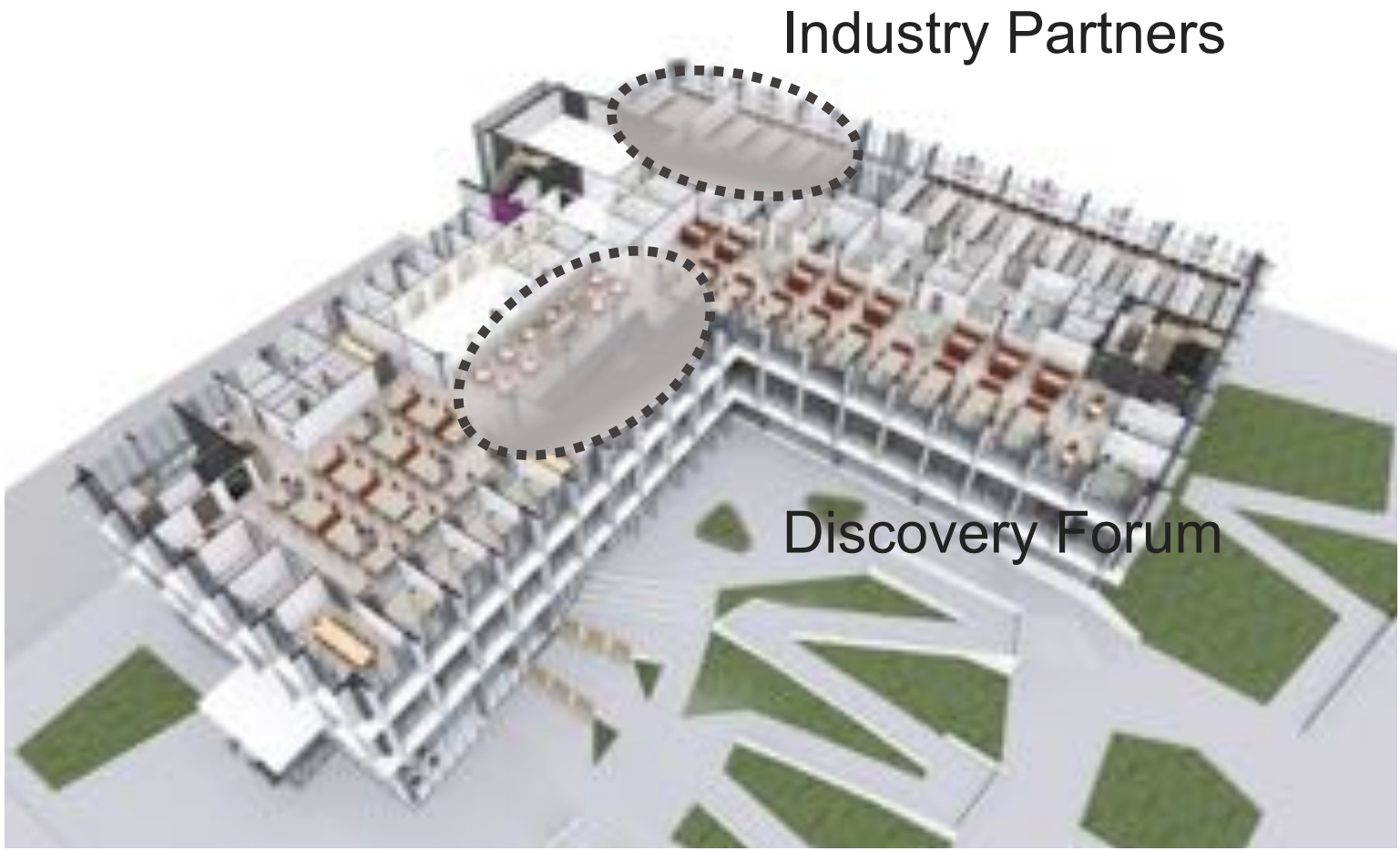
Edinburgh Royal Infirmary, School of Medicine and QMRI



Stantec

Integration

- Researchers have close proximity too the Infirmary and Trials facilities.
- Clinical researchers collaborate in Discovery Forum
- Industry partners accommodated in lab hoteling suites



Stantec

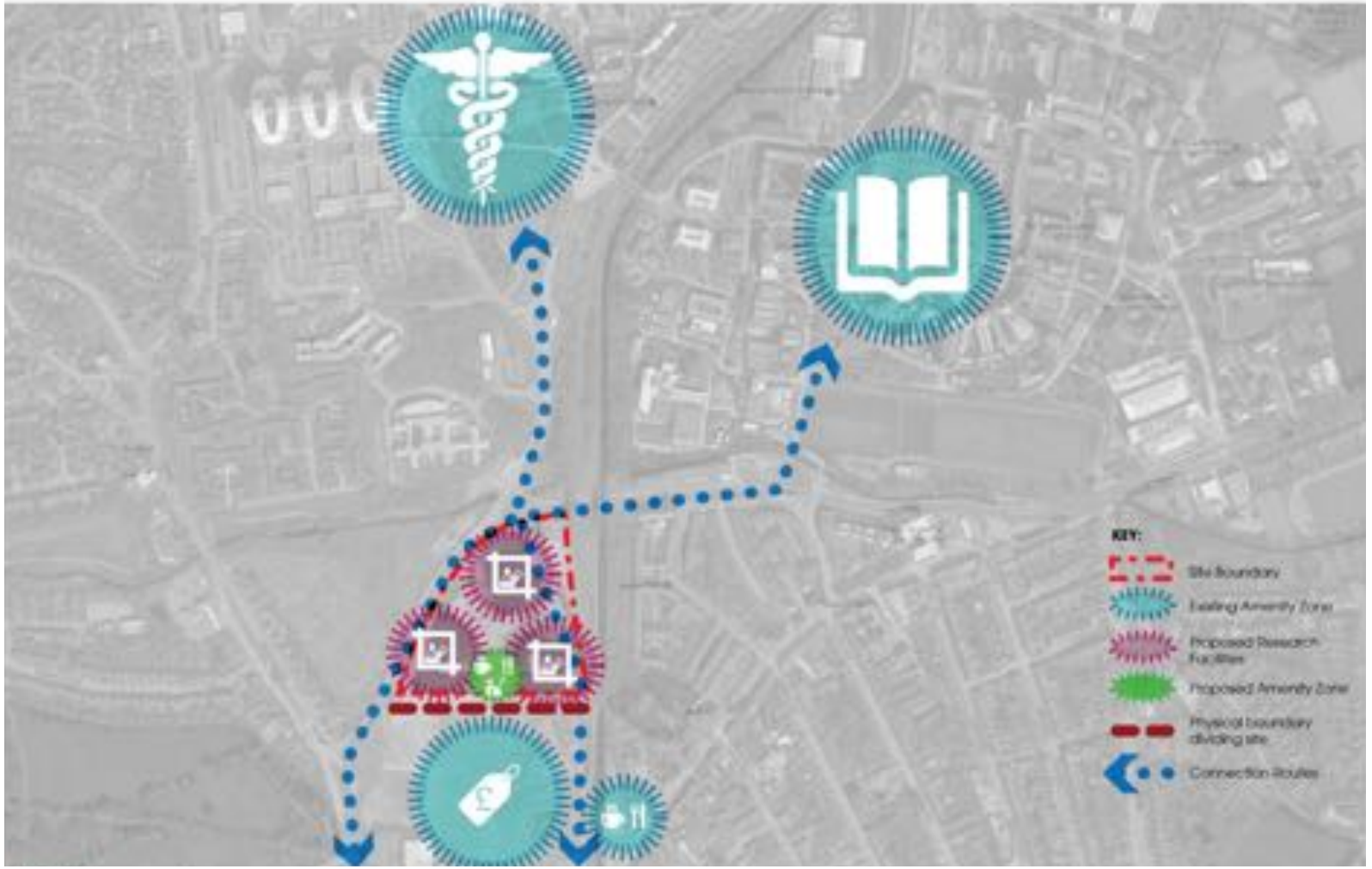
Birmingham Life Sciences Park

University of Birmingham

Campus Cohesion

Stantec

Research, Academic and Clinical Integration



Stantec

Research, Academic and Clinical Integration

Stantec

Stantec

Integrating Science and Care

Convergence Model

Stantec

Convergence Model

Mind the Gap

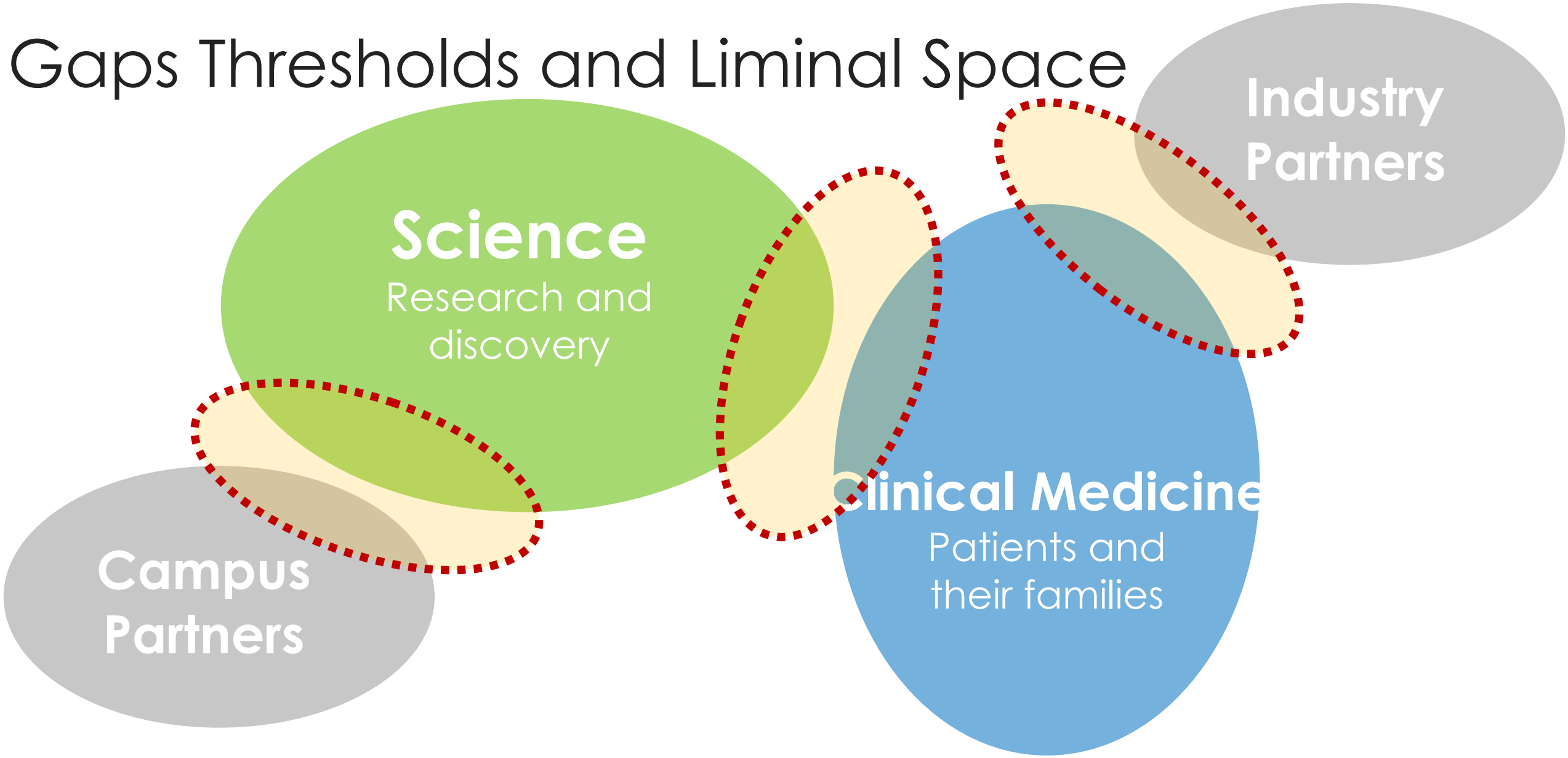
adjective lim·i·nal \ˈli-mə-nᵊl\

***1.1*:** of, relating to, or situated at a sensory threshold **:** barely perceptible or capable of eliciting a response *liminal* visual stimuli

***2.2*:** of, relating to, or being an intermediate state, phase, or condition **:** IN-BETWEEN, TRANSITIONAL in the *liminal* state between life and death — Deborah Jowitt

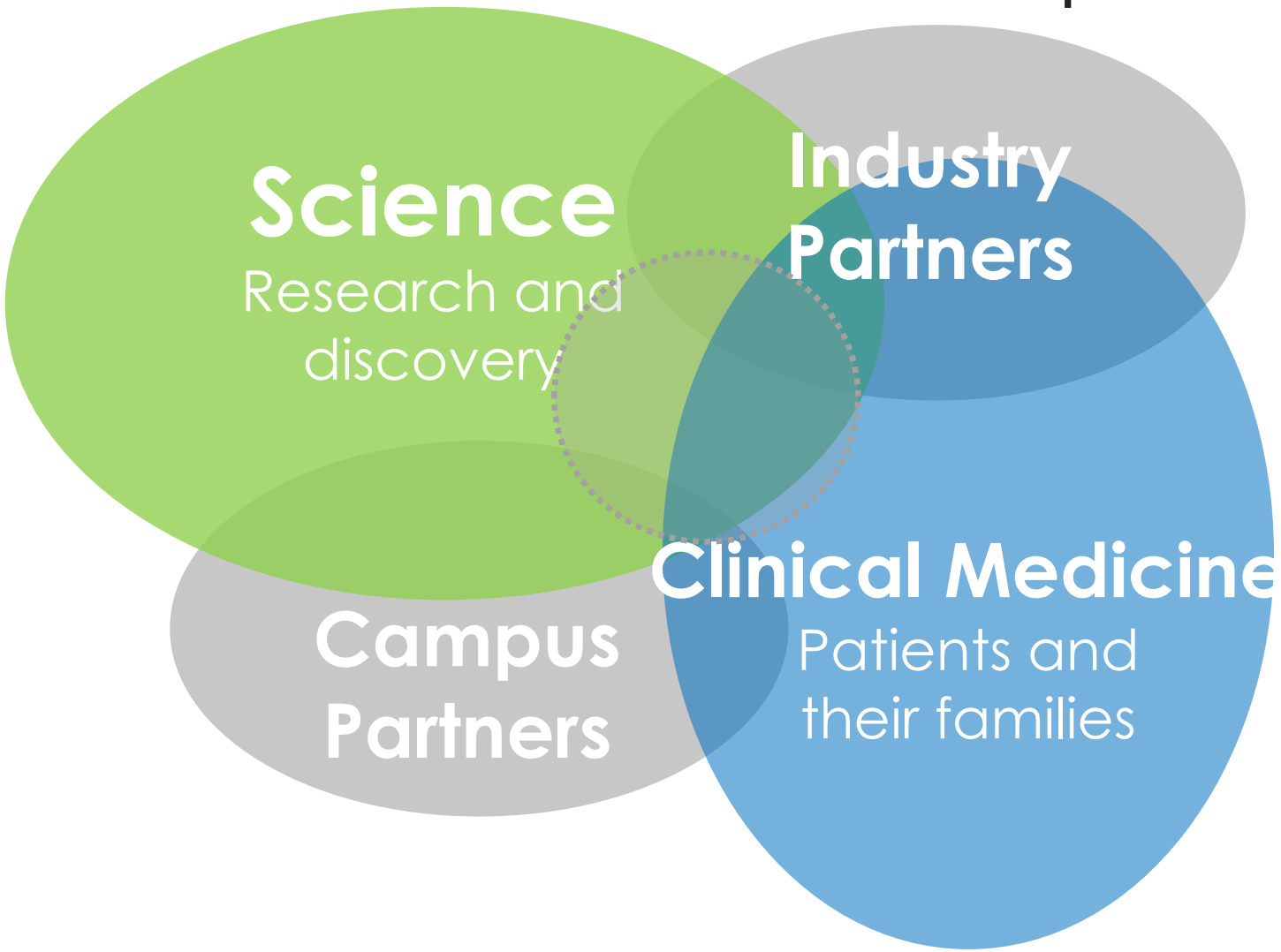
Stantec

Gaps Thresholds and Liminal Space



Stantec

Gaps Thresholds and Liminal Space



Stantec

Centre for Brain Health

University of British Columbia

Stantec

Create a new kind of centre

"The science of curing and the art of caring"

Promote synergies

Creating a Community

Empower patients

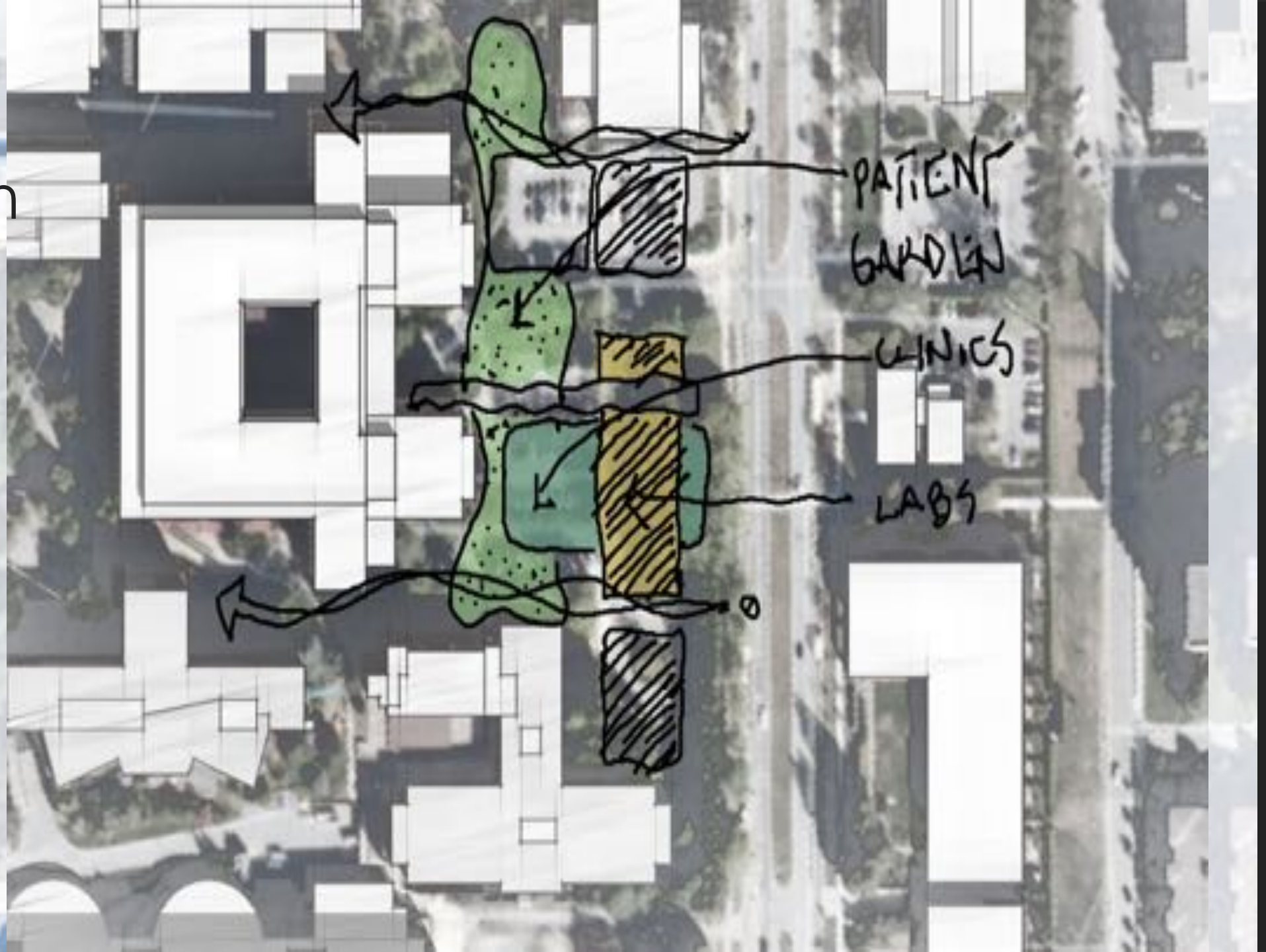
100% Patient Participation

Stantec

Edge and Garden

Stantec

Edge and Garden



Campus Cohesion

8,500

Students and faculty venture past the Institute per day……

Stantec

Stantec

Visual Connections to instil sense of confidence and optimism

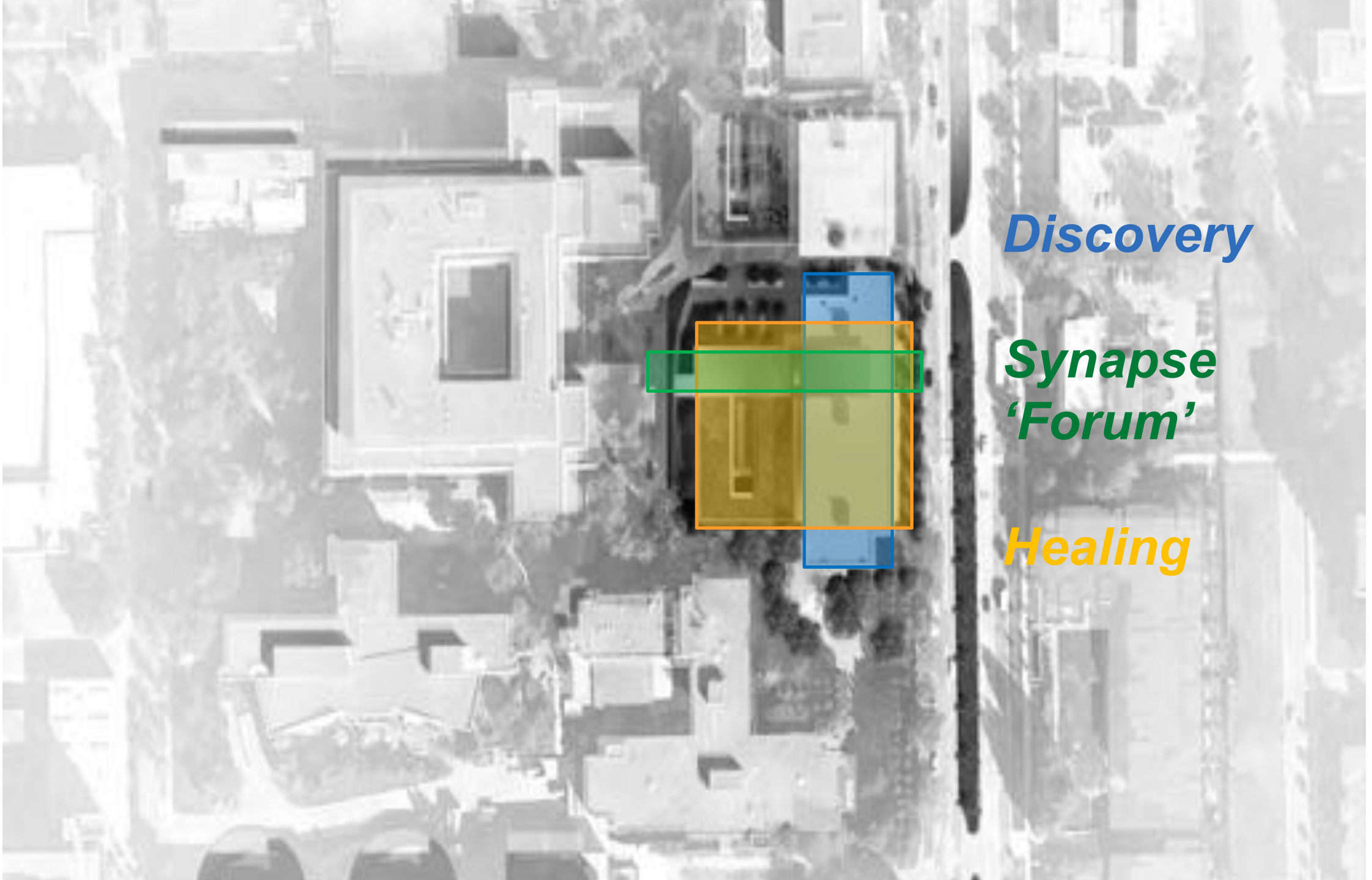
Collison Zones to promote exchange of ideas

Natural Light and Sustainability to enhance experience

Stantec

Collaborative Environments

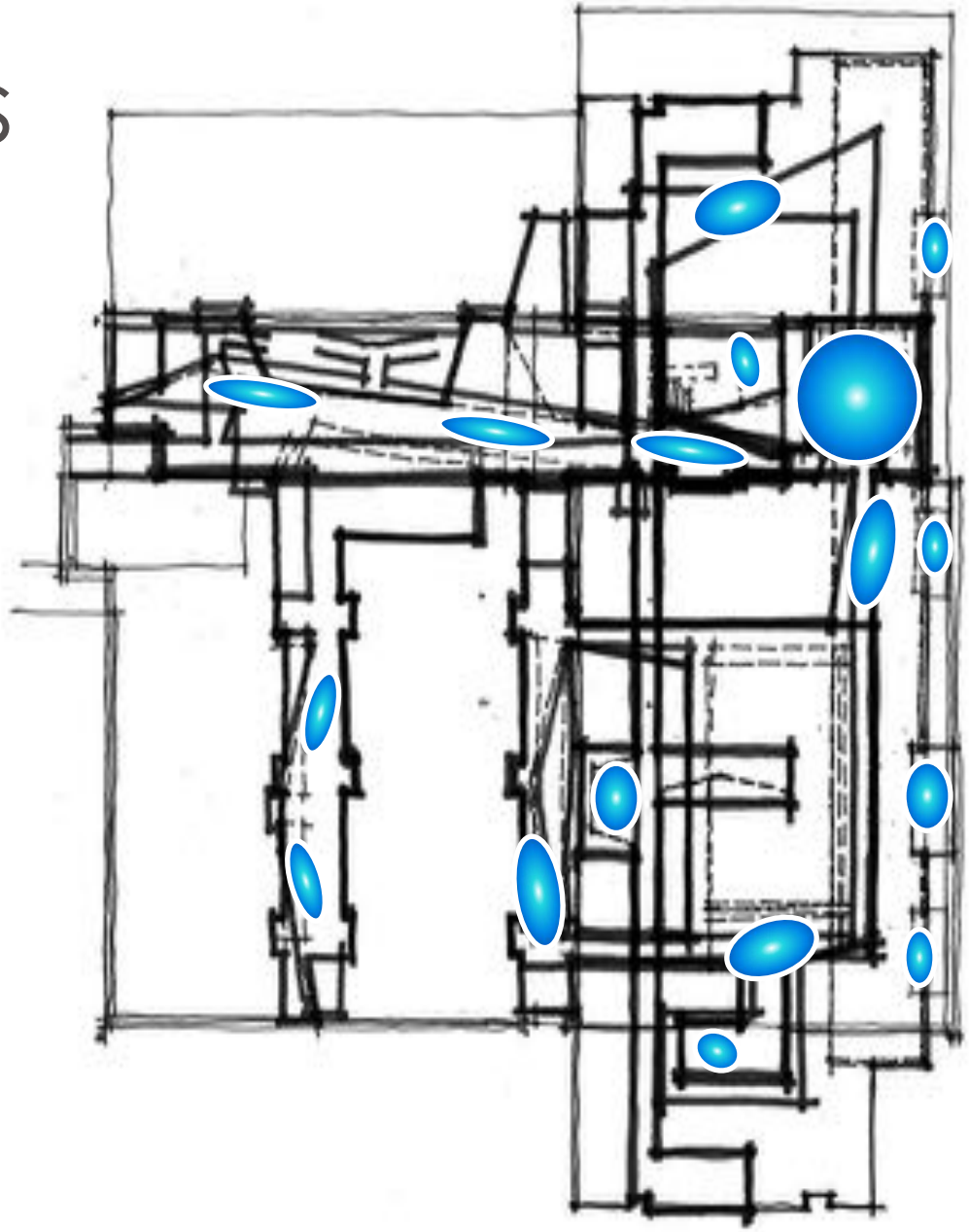

Frequency
Quantity
Quality
of interaction


Discovery
Synapse
‘Forum’
Healing

Planning for several populations

Stantec

Collision Zones



CBH neural network

Stantec

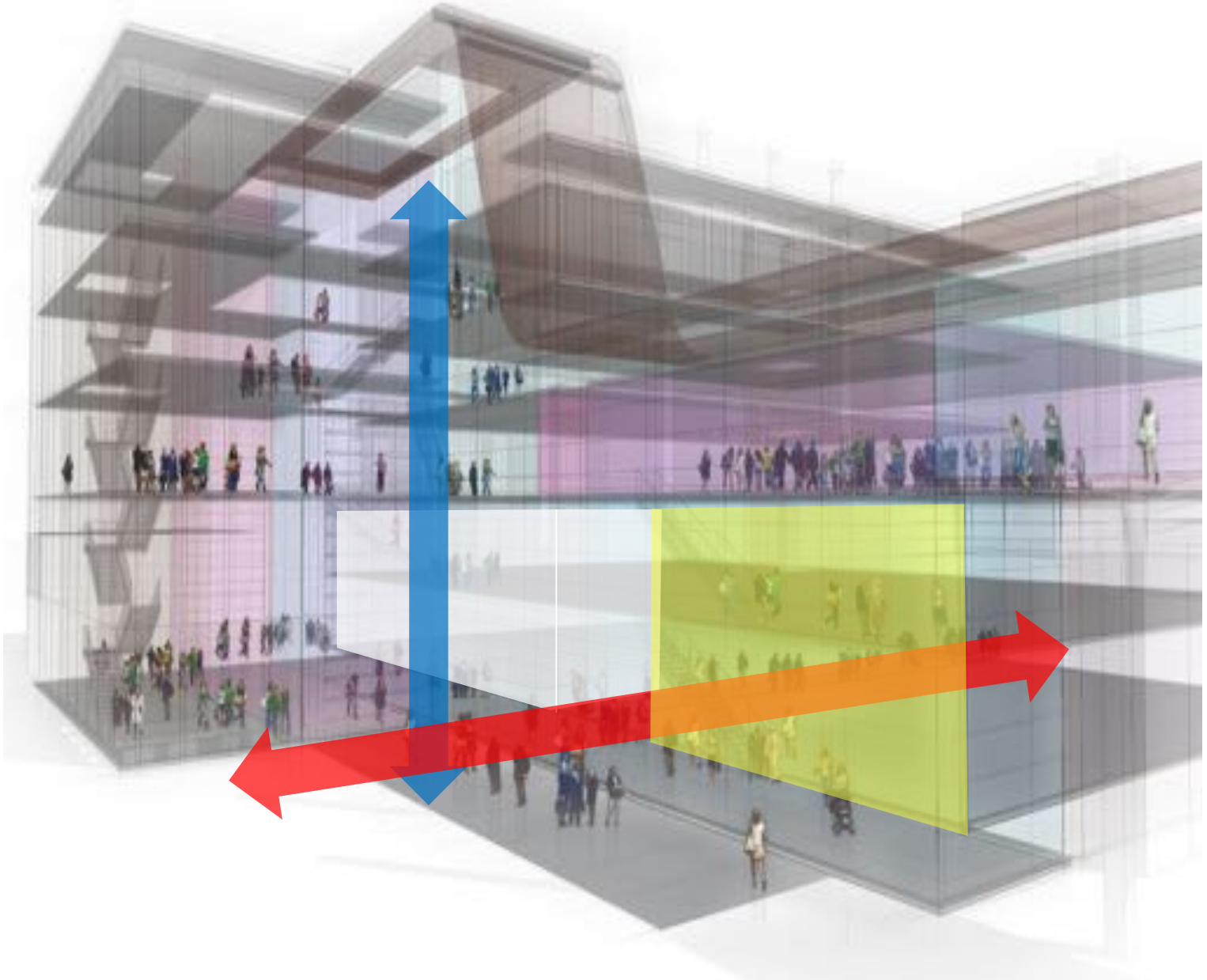
Collaboration – community scale

Synapse Hall

Clarity and ease of circulation
Atrium is hub for all public circulation and all entries

Clearly identified programs / destinations
Clinic side treated differently than lab side and eases issues of safety, security and privacy

Vertical integration
Fosters visual connectivity between researchers, clinicians and patients



Stantec

Collaboration – lab studio scale

Collaboration – agile theme based labs

Collaboration – impromptu exchange

Motivating, Inspiring and Empowering Patients

Guiding Principles

Consolidation of patients, researchers, physicians, staff and students in one building to promote rapid innovation dissemination and to empower patients

Patients First
All patient activities occur on a single day at a single place

Innovation & Teaching
Integration of clinical research & teaching missions into the design

Healing Environments
Peaceful, calm, warm, and inviting environment with daylight and views

Operational Efficiencies
Close adjacencies among clinics, Infusion, Pharmacy, and clinical trials

Stantec

Empowering Patients

Patients must feel they are being cared for:

- *Architectural environment which is **comfortable** so willing to give time, donate tissue….*
- ***Part of something** bigger than just themselves*
- *Patient focused – design for unique **patient-population determined needs***
- *Interior design and furniture to create **sense of sanctuary** to support all of the above*

Stantec

Stantec

Empowering Patients

Interior design

The basics – natural light, generous spatial environment, visual markers and convenient flow….all table stakes.

Celebrate Asymmetry wherever possible - interior plays off classic left brain / right brain distinctiveness, in celebrating asymmetry and in turn reinforcing way finding and orientation for all users and complemented by material and colour selection within a neutral palette

Tailor specific furniture selection - furniture is significant portion of and requires attention which is specific to patient population

Stantec

Interior Design – design with empathy

Neurological Patient Population has extreme **mobility issues** (MS, Lou Gehrig's & Parkinson) and the furniture was selected to support their weak upper body, awkward ability to transfer, difficulty 'stopping & starting', and of course, ensure safety (no casters)

Cognitive Patient Population has subtle and unpredictable confusion (Alzheimer's & dementia) and the furniture was selected to offer **clear visual** cues such as not selecting white chairs for areas with a white floor, or not selecting a black seat with white arms that could be perceived as a chair with a hole in it;

Psychiatric Patient Population has very extreme psychiatric problems (acting out & aggression) and the furniture was selected to **passive**, such as no parts that can be pulled off & thrown.

Empowering Patients

Year 3 – how is it working

Stantec

Empowering Patients

Year 3 – how is it working

Participation – 86% patient participation and climbing

Empowerment - 65% of patients now visit the 'Forum' to meet with researchers as part of their appointment

Outcomes

24% decrease in anxiety stabilization
28% increase in family member's rating of patient's personal Doctor
30% increase in individual engagement
32% increase in patients reporting shared decision-making as part of experience
18% decrease in suicides

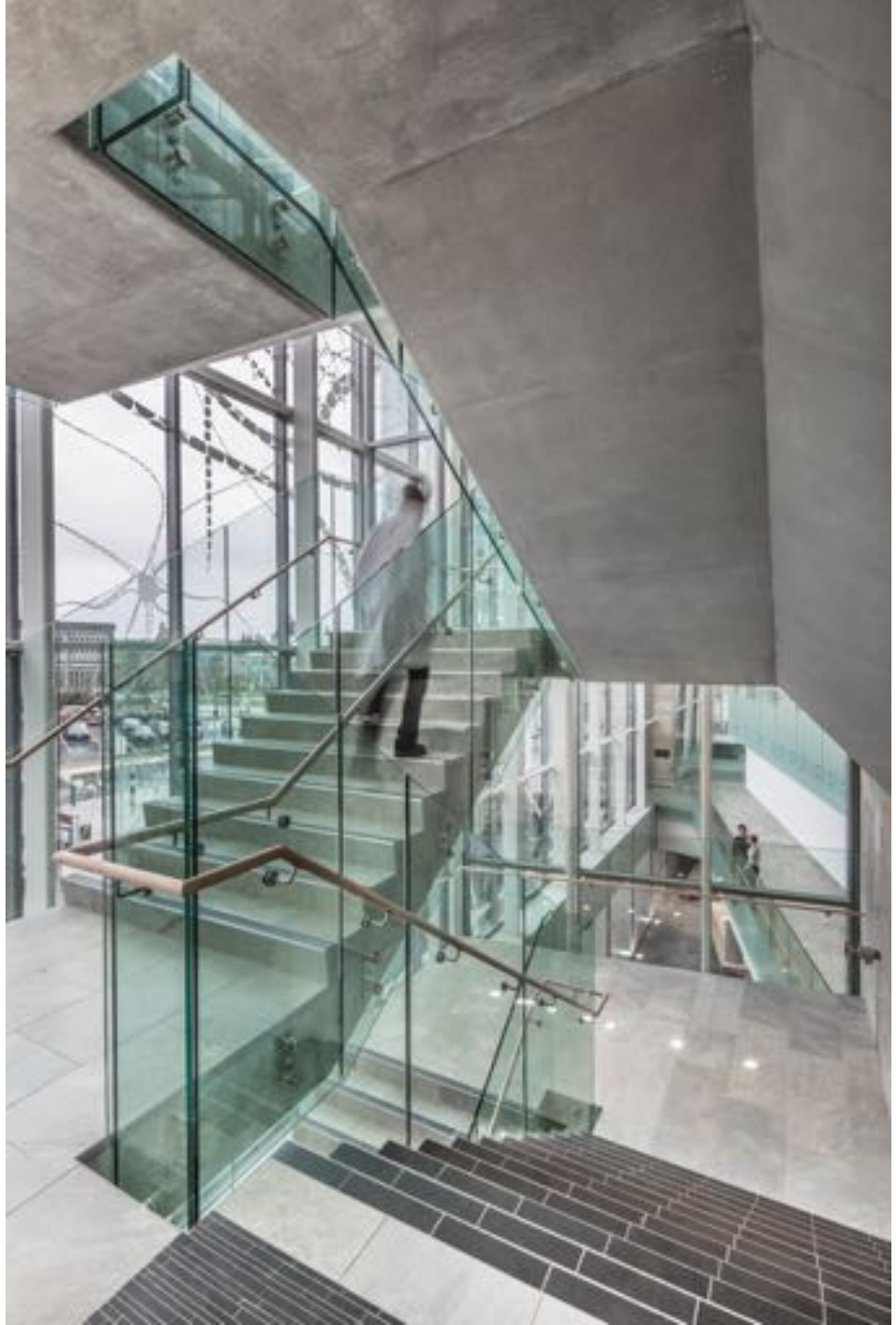
Research Efficacy –

35% increase in published papers
25% increase in retention
2 spin-offs through industry partners

Stantec

Thank-you

Questions??



Stantec