

The Whole Institution Approach: A Model for a Sustainable University?



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Top 10 trends of 2015

1 Deepening
income inequality

2 Persistent
jobless growth

3 Lack of leadership

4 Rising geostrategic
competition

5 Weakening of
representative
democracy

6 Rising pollution
in the developing
world

7 Increasing
occurrence
of severe
weather events

8 Intensifying
nationalism

9 Increasing
water stress

10 Growing importance
of health in the
economy

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UBC: 1915-2015



1914
Endowment Lands
14 km from Downtown



2015
4.02 km² (993-acre)
50,000 students

Musqueam Land



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We are caring for this land

Commuter Campus



Eliminating the Parking Lot



1974



2015








U-Town Sustainable Community

On-campus Population: 16,000



2012

On-campus Population: 40,000

-  FUTURE HUBS FOR UPPER YEAR SINGLE STUDENT HOUSING (Independent apartment style)
-  EXISTING SINGLE STUDENT HOUSING - FULL MEAL PLAN
-  EXISTING SINGLE STUDENT HOUSING - INDEPENDENT LIVING
-  EXISTING FAMILY STUDENT HOUSING - INDEPENDENT LIVING
-  FUTURE STUDENT FAMILY HOUSING
-  FUTURE FAMILY HOUSING (apartment style)
-  FAMILY HOUSING LOCAL AREAS

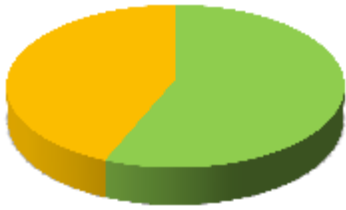


2040

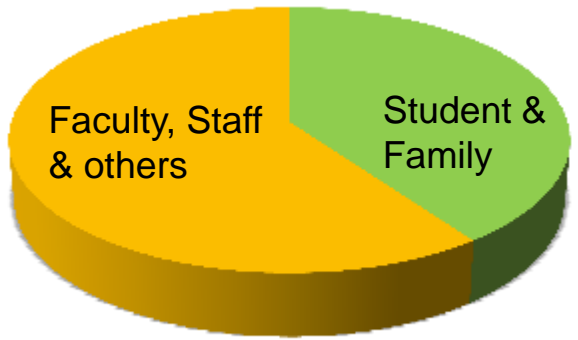
UBC Neighbourhoods



~11,000 inhabitants
2001

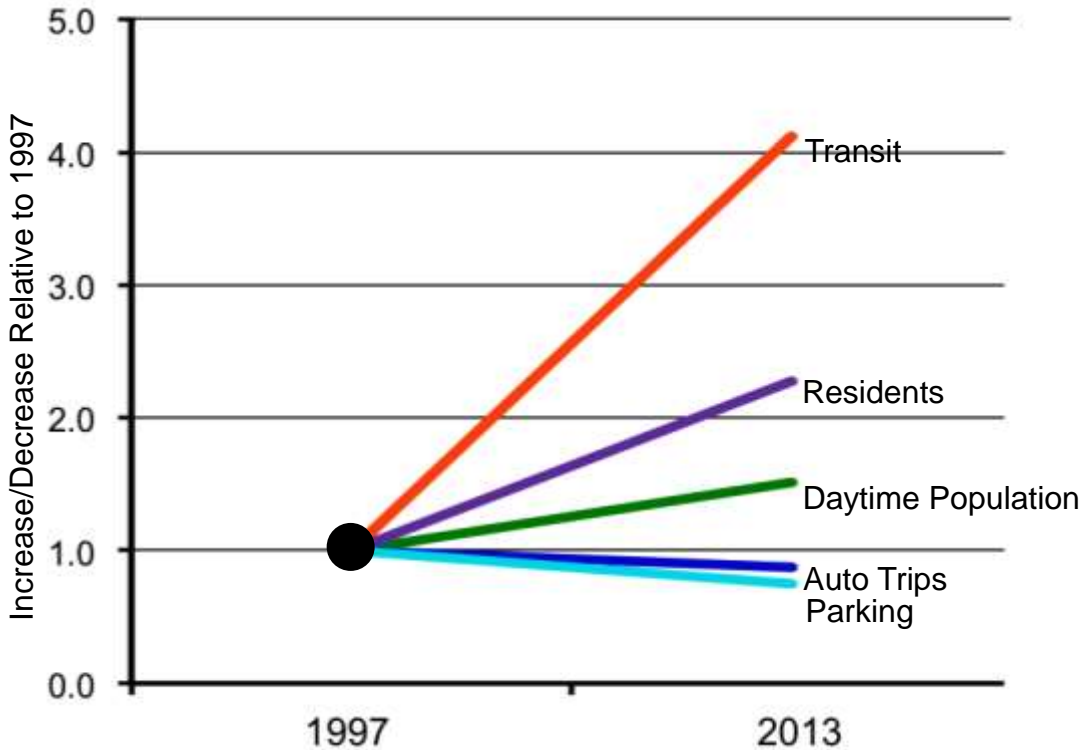


~16,000 inhabitants
2012

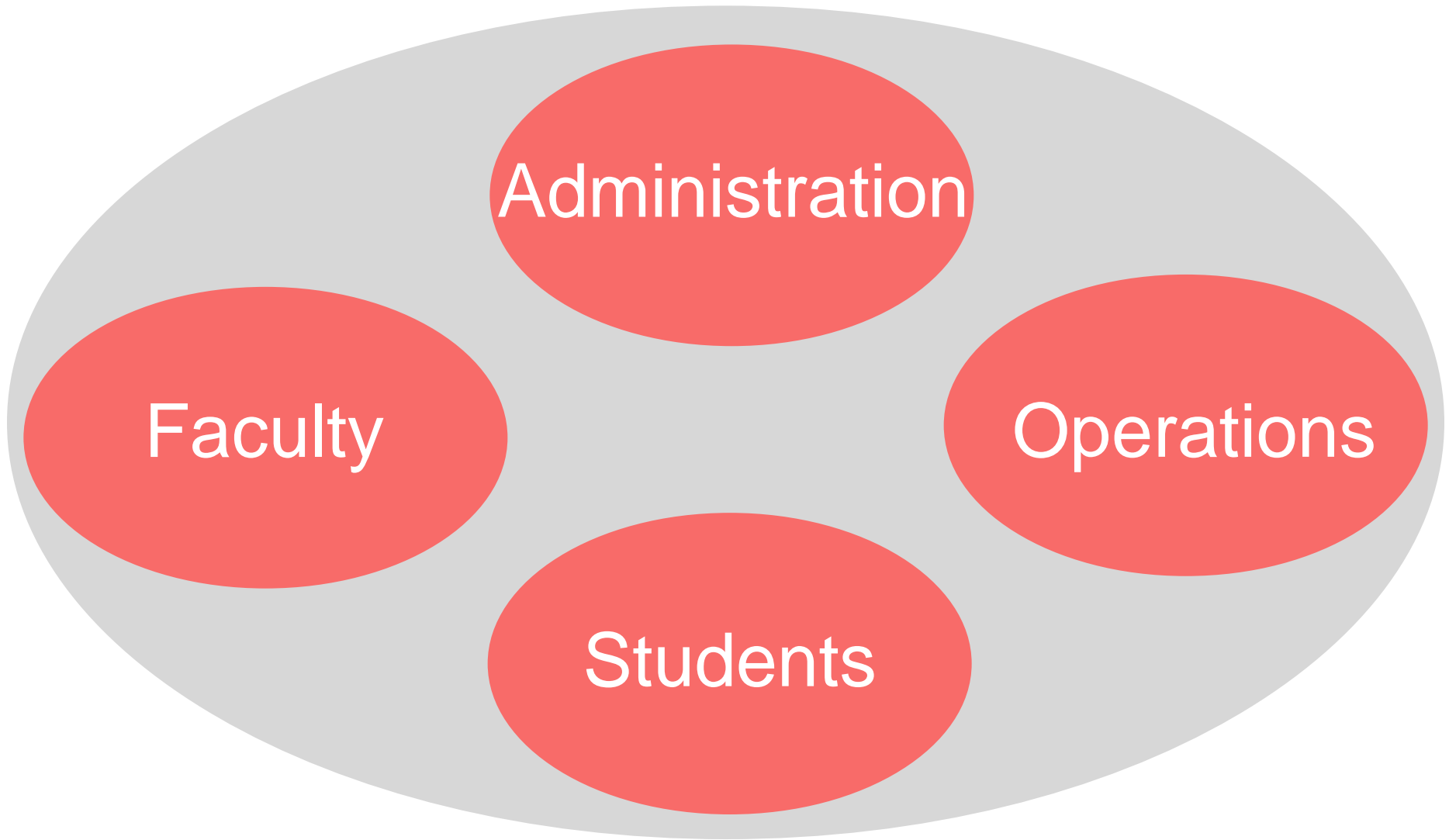


~40,000 inhabitants
2040

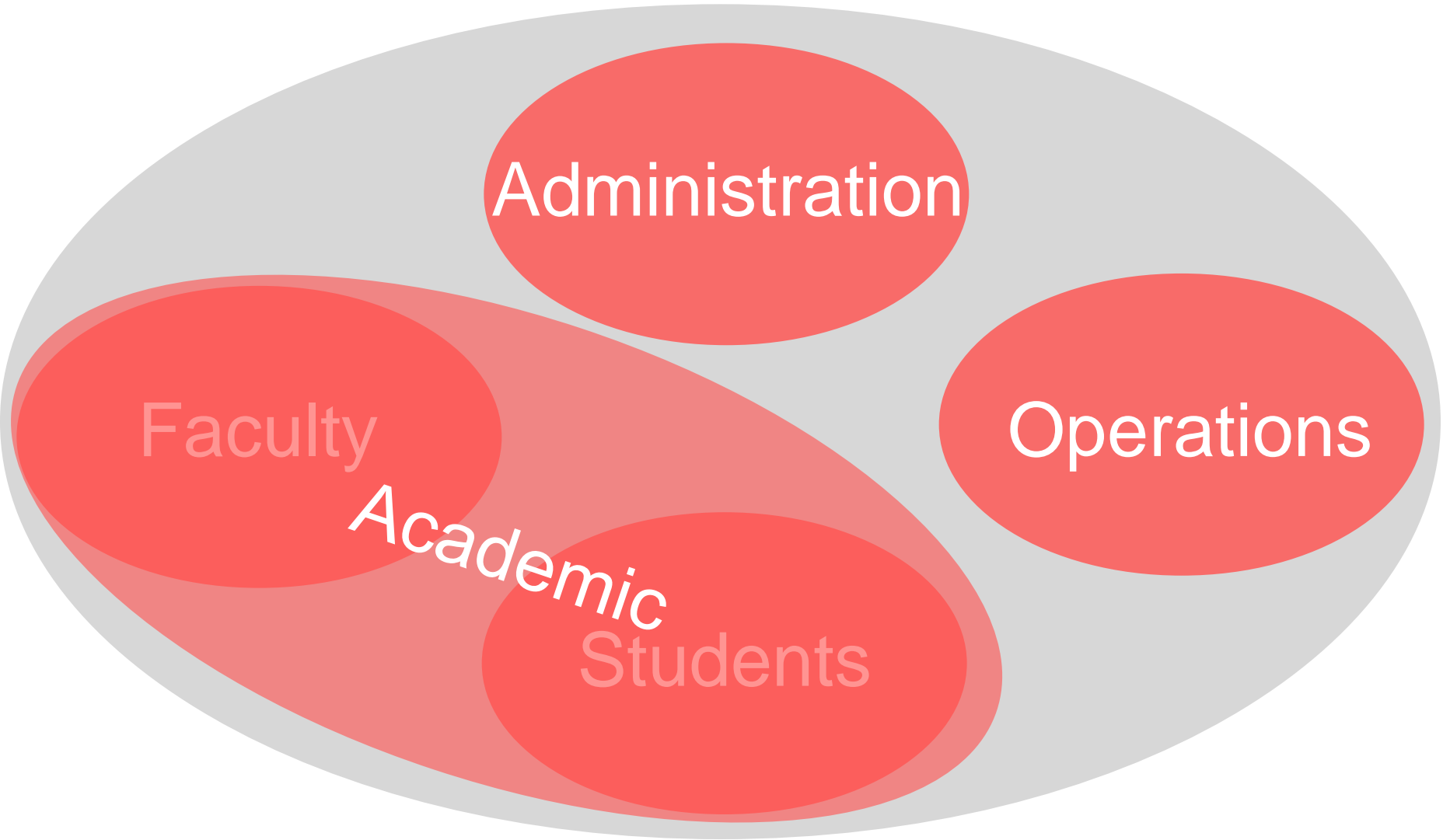
Sustainable Community Indicators



Whole Institution Approach



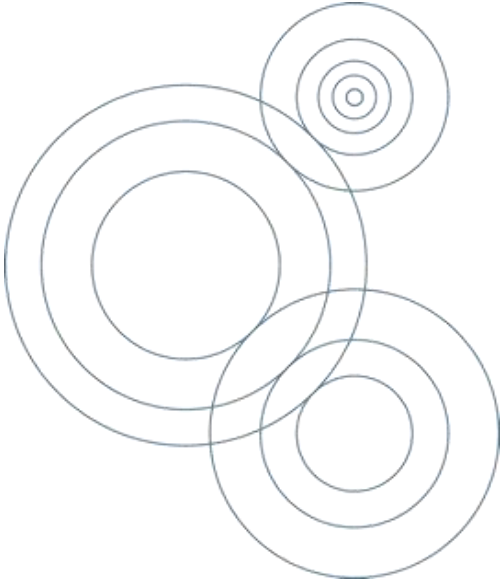
Whole Institution Approach



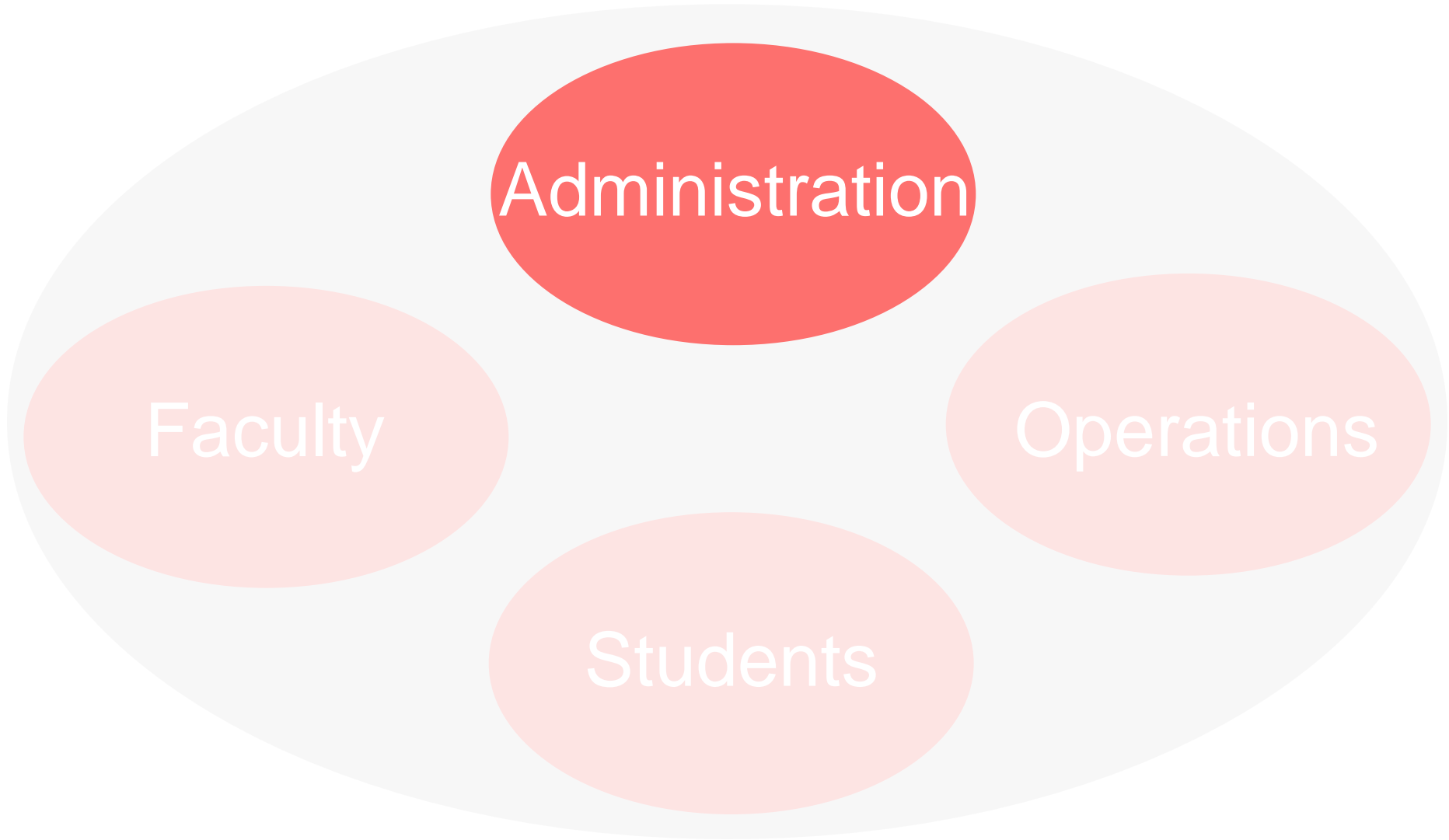
A Shared Responsibility



Visual Identity for Sustainability



Whole Institution Approach



Key Sustainability Initiatives & Outcomes

Adopts sustainable development policy

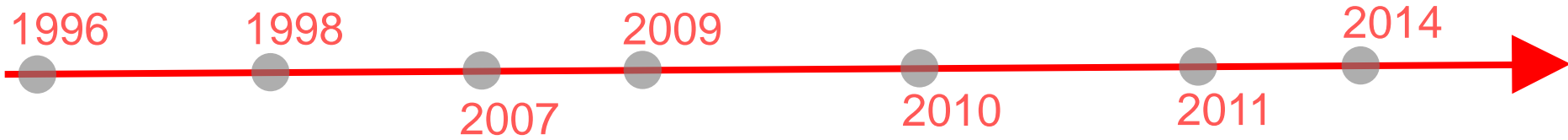
Opens Campus Sustainability Office

Integrates sustainability as core pillar in UBC's strategic plan: Place & Promise

Embeds Regenerative Sustainability into 20-year Plan

Develops Sustainability Academic Strategy

Establishes University Sustainability Initiative (USI)

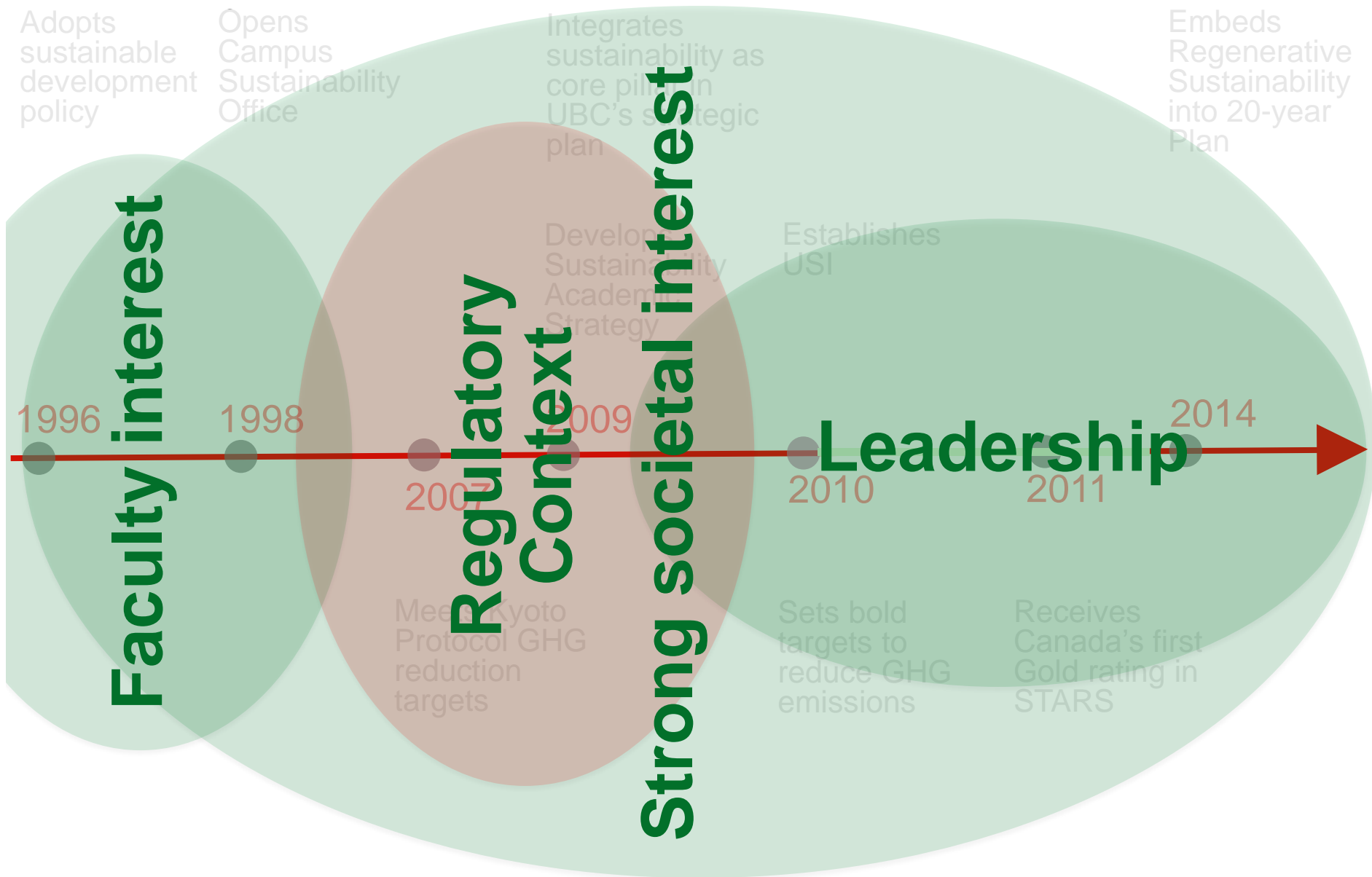


Meets Kyoto Protocol GHG reduction targets

Sets bold targets to reduce GHG emissions

Receives Canada's first Gold rating in STARS

Key Sustainability Initiatives & Outcomes



Faculty interest

Regulatory Context

Strong societal interest

Leadership

Key Sustainability Initiatives & Outcomes



Place & Promise

- Create exceptional learning environment that advances a civil and sustainable society.



Sustainability Academic Strategy

- Explore various dimensions of sustainability through research, teaching and learning
- Exemplify sustainability in its operations

Regenerative Sustainability

Goal:

To simultaneously increase human & environmental well-being.

Questions:

For what processes? At what scale? Over what time-scales?

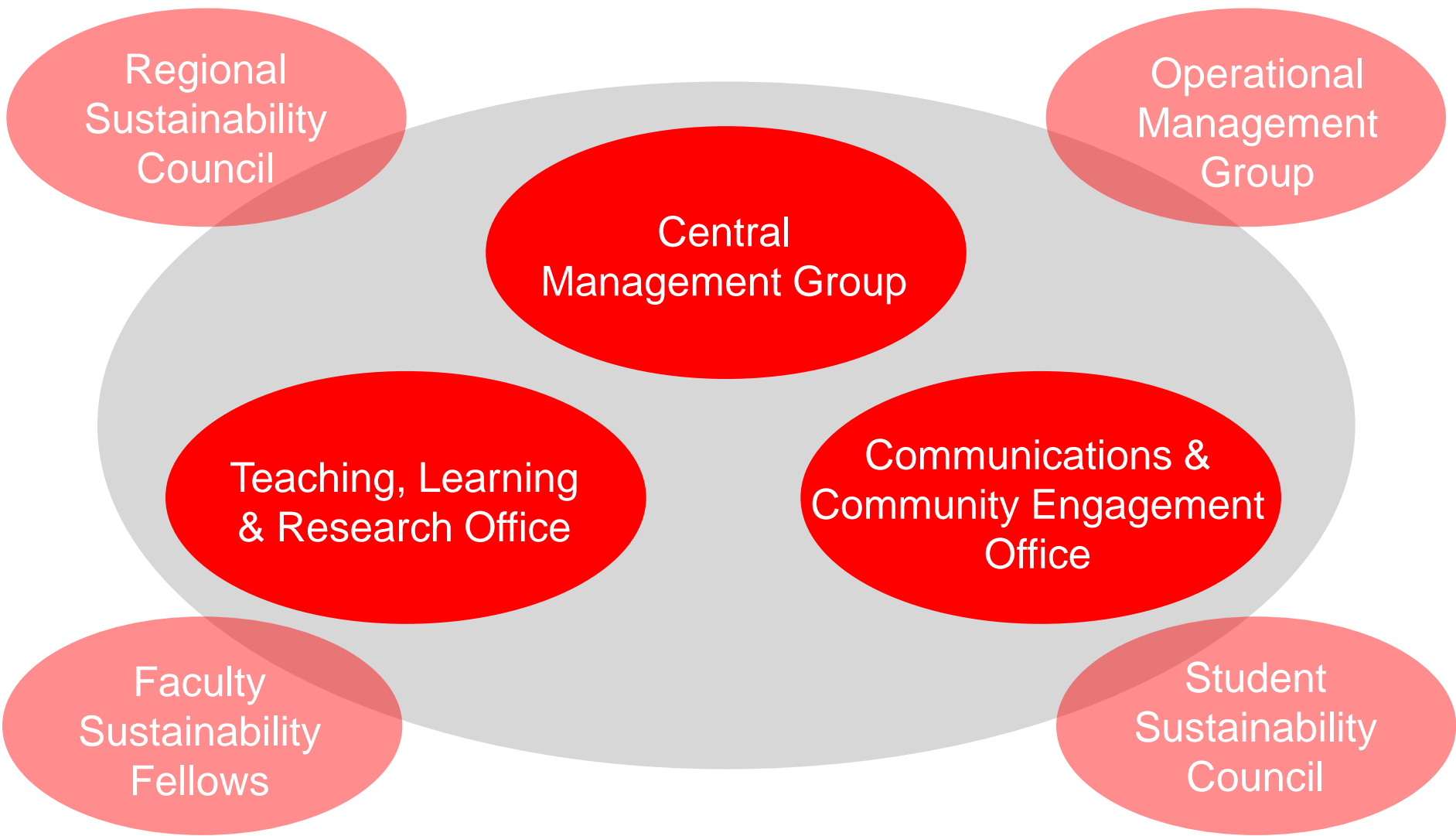
What is the role of universities?

Campus as Sustainability Test-Bed

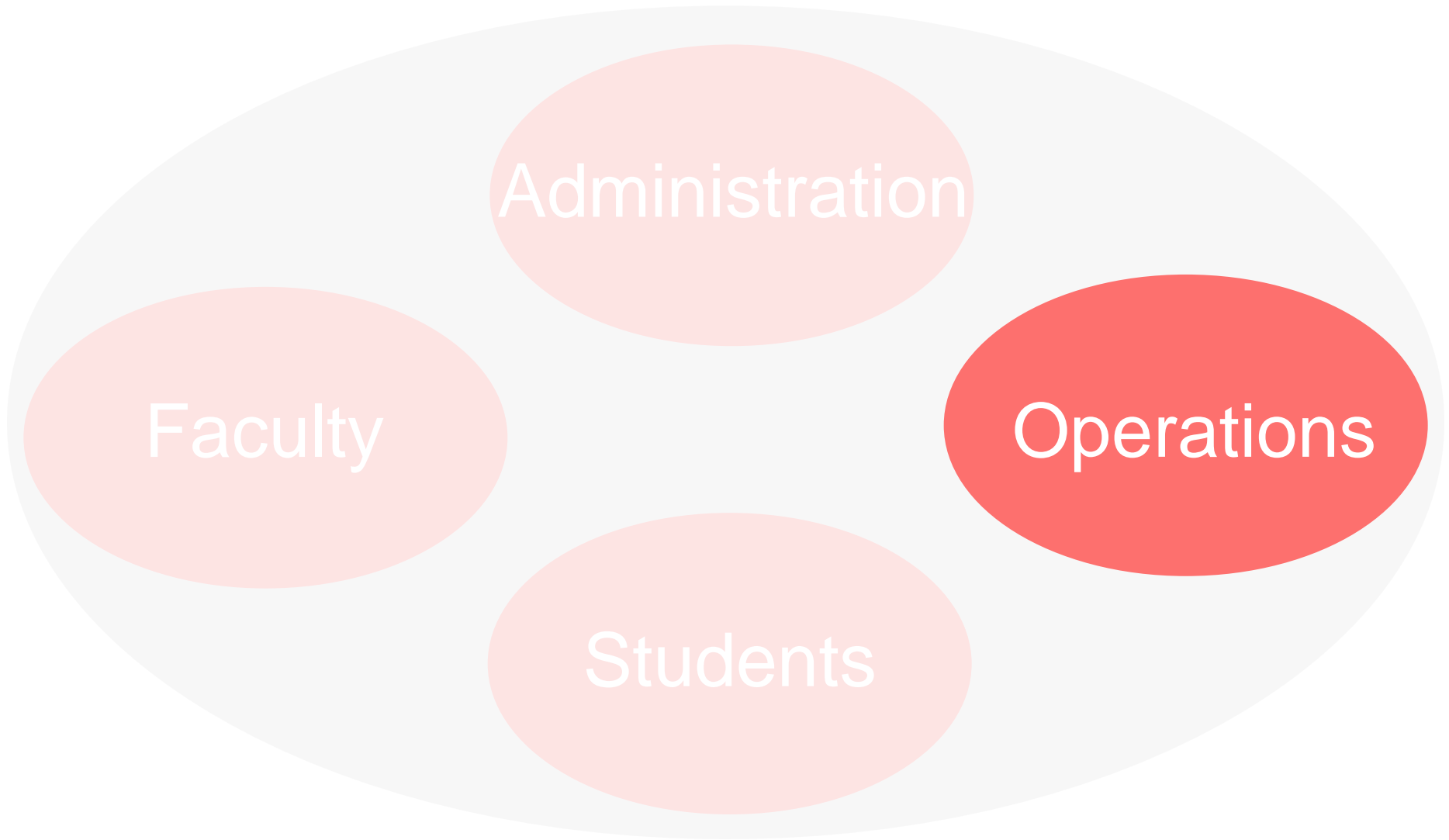
Universities uniquely suited to explore & test regenerative sustainability:

- Are single (owner-) occupiers
- Have a public mandate
- Teach
- Research

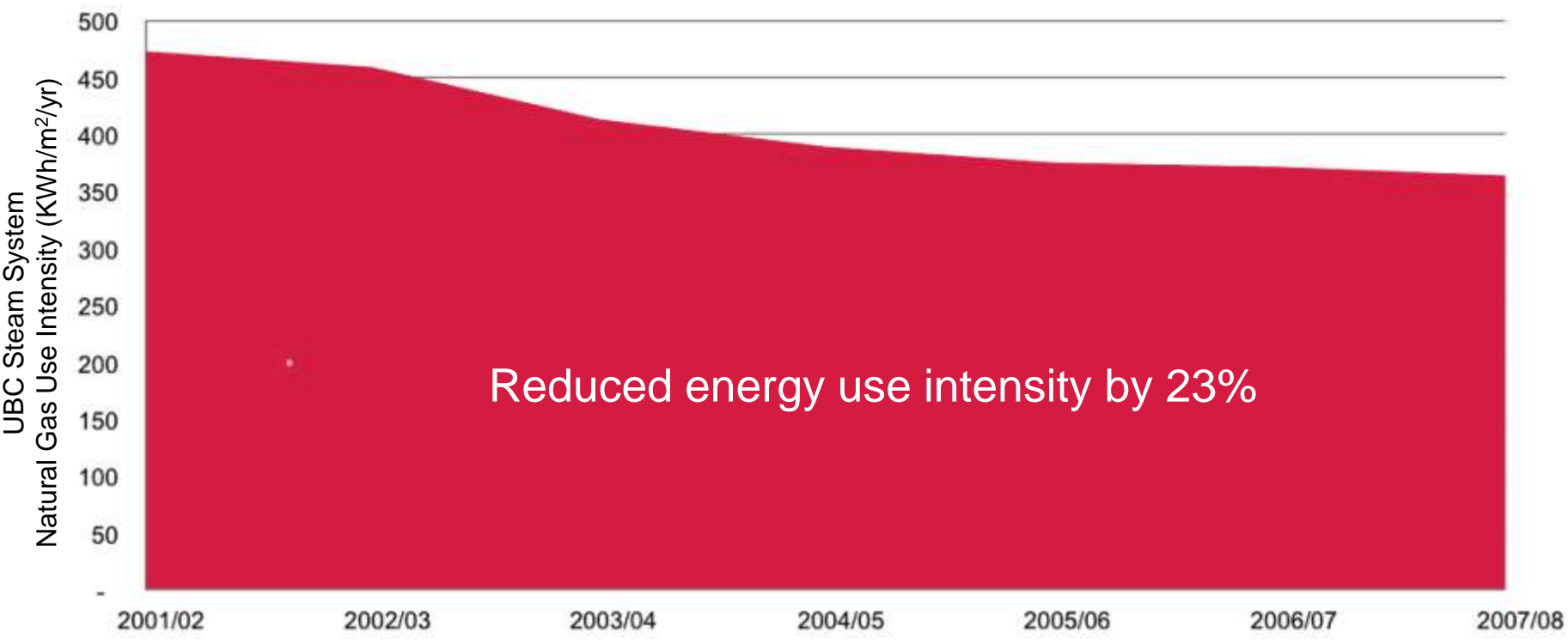
University Sustainability Initiative



Whole Institution Approach



2002 Ecotrek Project



150,000 GJ Savings in Natural Gas per year

Current Signature Projects

Demand-Side



Supply-Side



Continuous Optimization of Campus Buildings



Centre for Interactive Research on Sustainability (CIRS)



Steam to Hot Water Conversion of Campus District Energy System



Bioenergy Research and Demonstration Project

\$150 million of capital investment

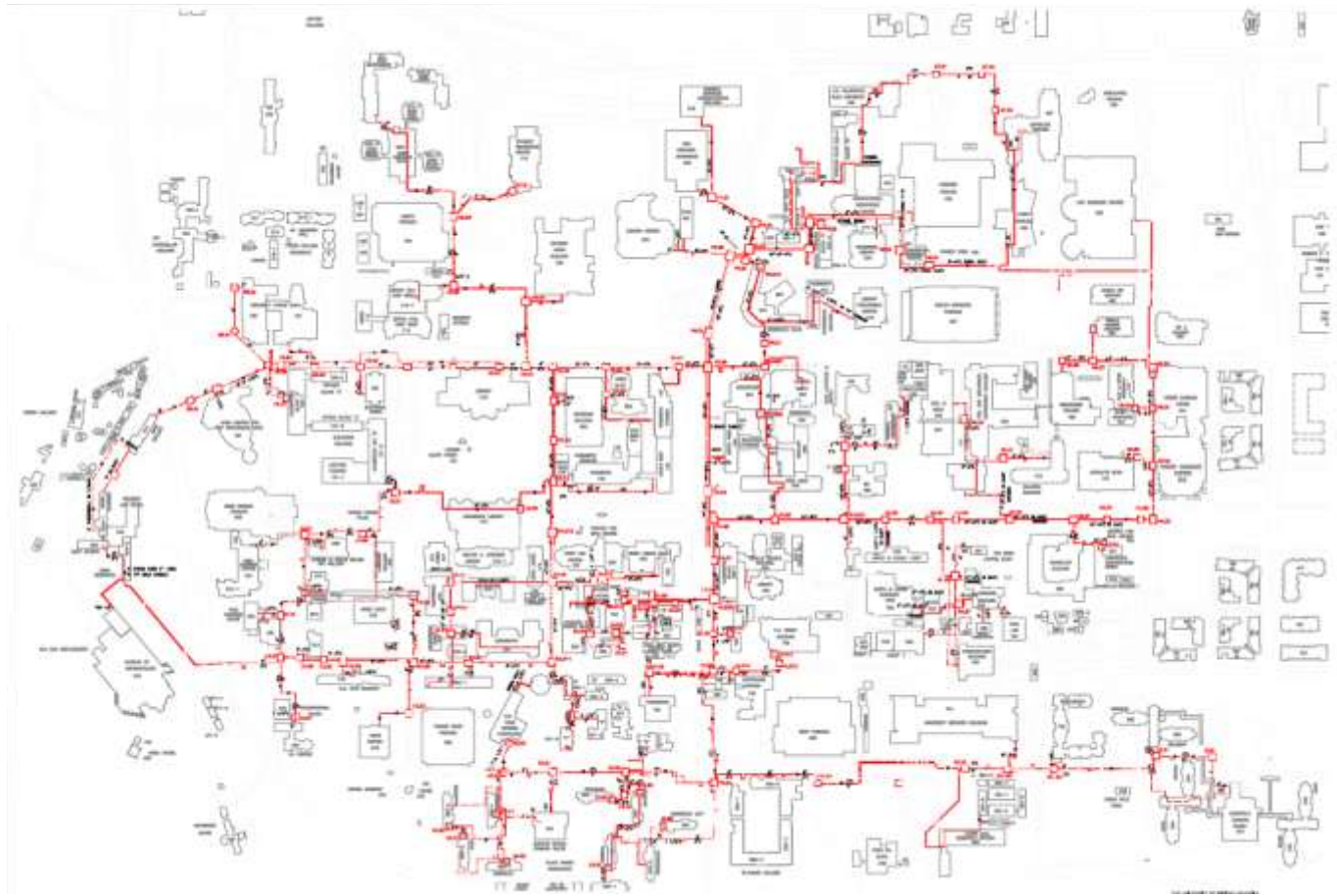
Continuous Optimization in Buildings

- \$3 million investment
- Partnership with BC Hydro & Pulse Energy
- 72 academic buildings completed in 4 phases 2010-16



10% Reduction in GHG emissions

Steam Distribution

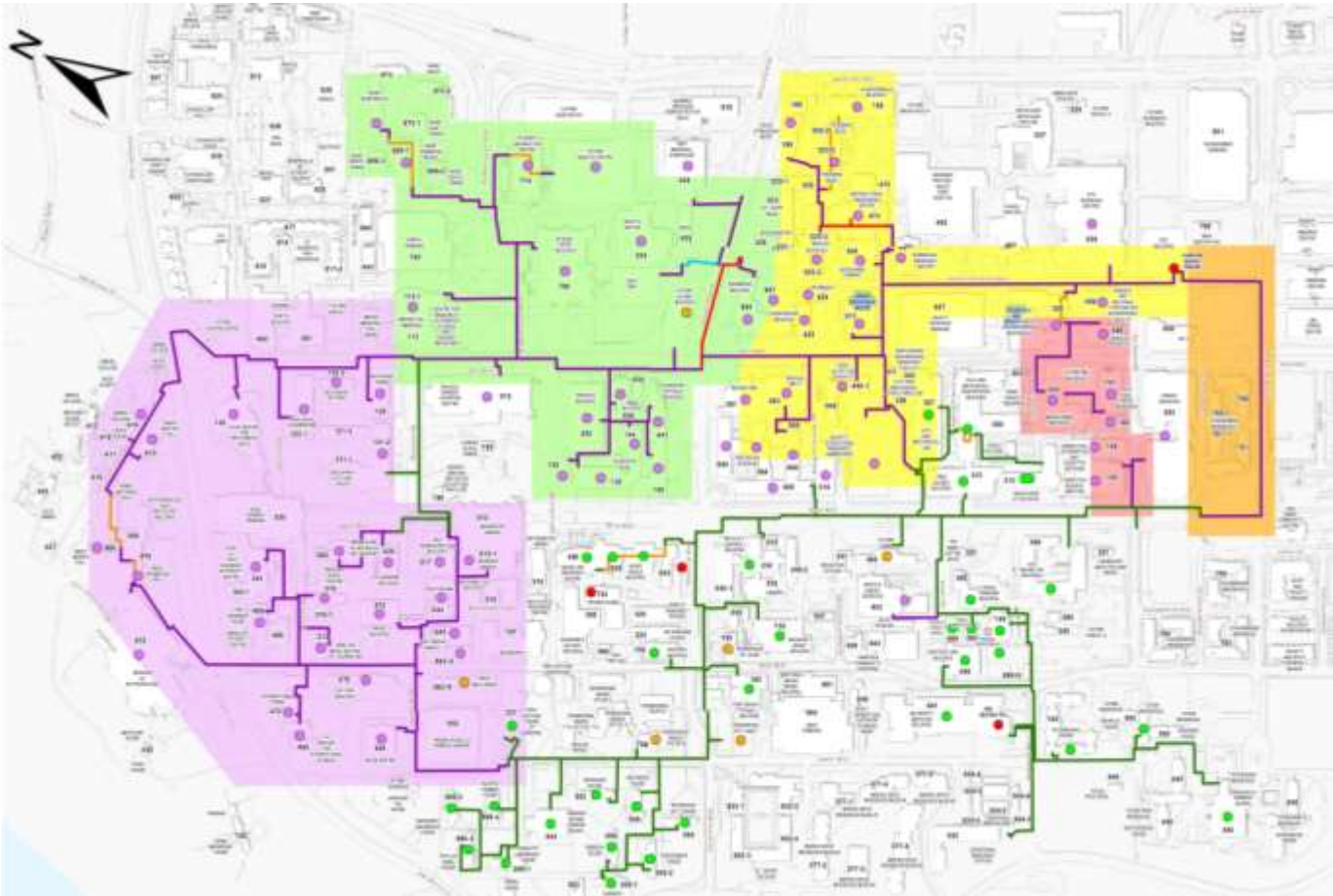


190 °C



~270 core buildings

Academic District Energy System: Steam to Hotwater conversion



80 °C



24% ↓
Thermal energy use

22% ↓
GHG emissions

\$5.5m ↓
Annual operational &
energy cost savings

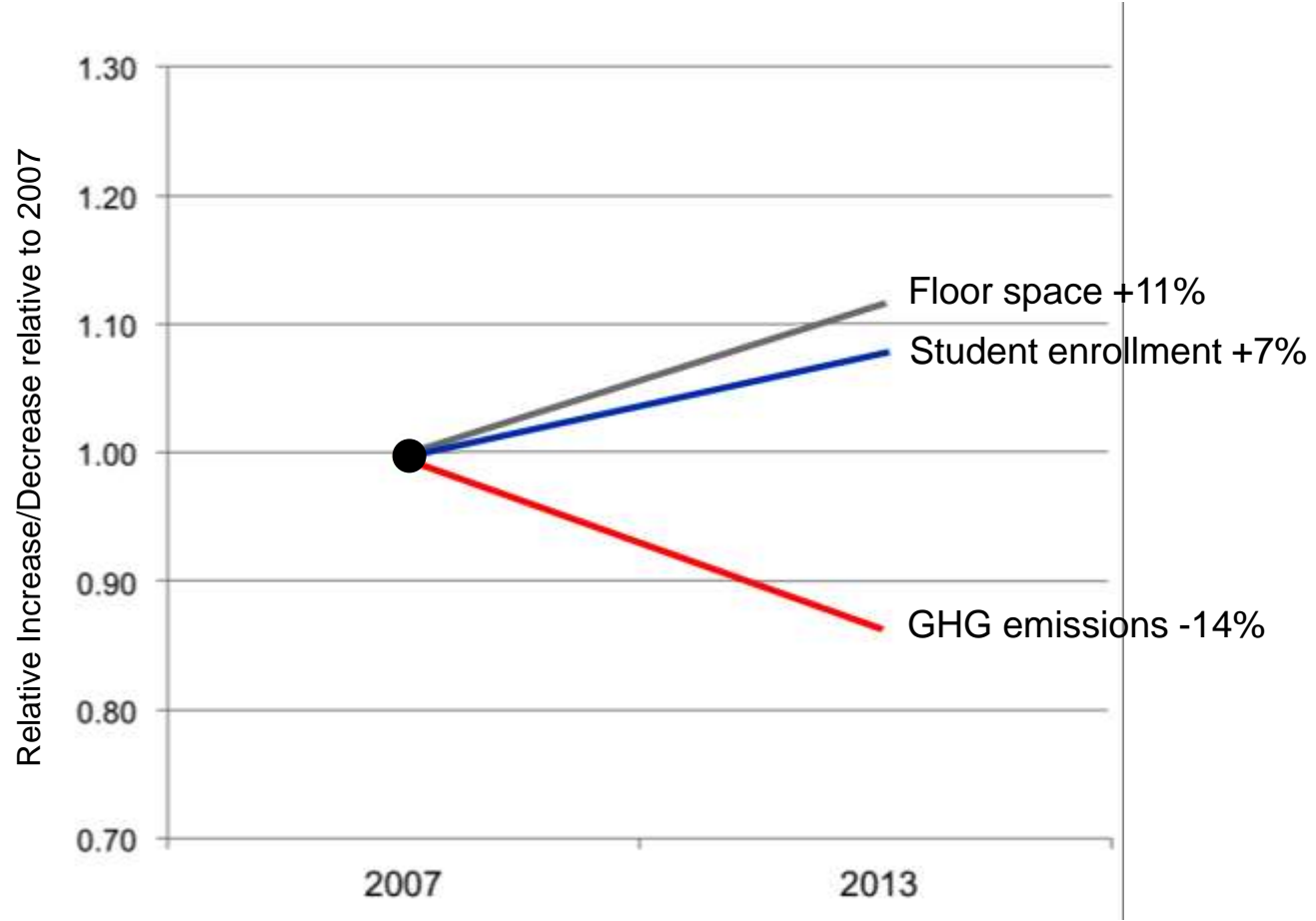
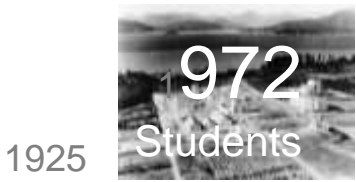
UBC Bioenergy Research & Demonstration Facility

- \$28 million investment
- Cogen mode: `
 - 2MW (elec)
 - + 6MW (heat)
 - + 2.4MW (heat recovery)

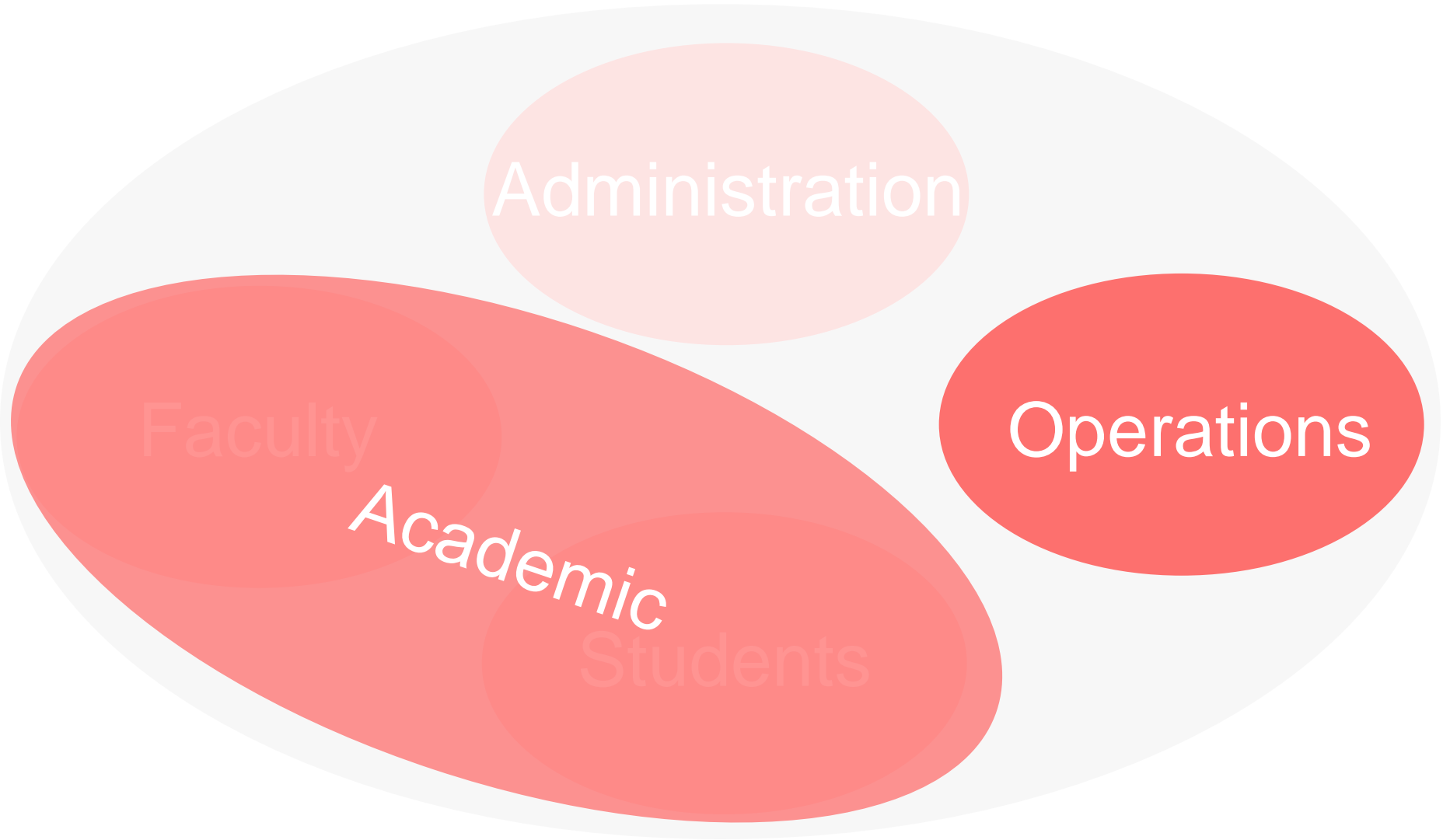


9-15% Reduction in GHG emissions

GHG Emissions & Drivers: 2007-2013



Whole Institution Approach



Universities & Sustainability



Sustainability Education



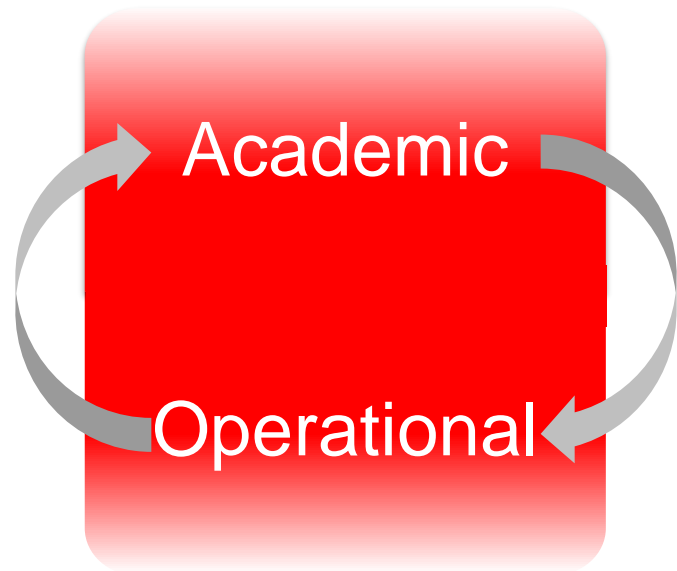
Improving buildings & Operations

Institutional Culture Change

Academic

Operational

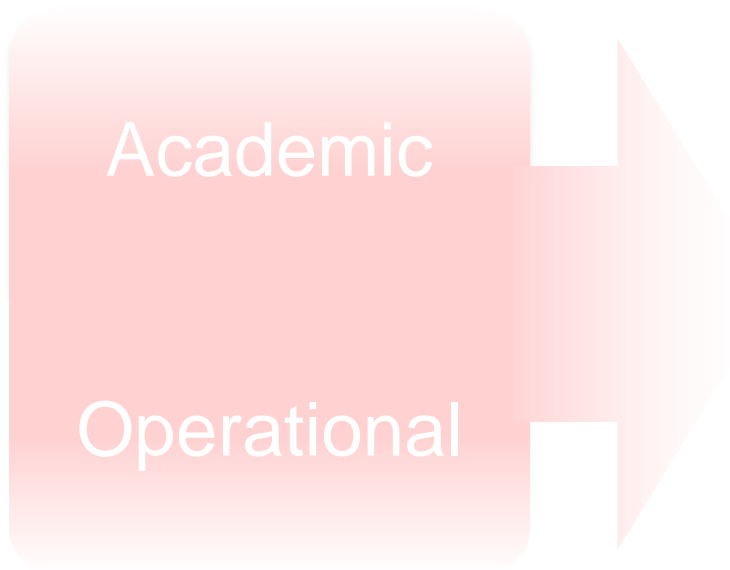
Institutional Culture Change



Institutional Culture Change



Institutional Culture Change



Campus as a Living Lab



“...a kind of giant sandbox in which there is the freedom to explore—creatively & collaboratively—the technological, environmental, economic & societal aspects of sustainability.”

Campus as a Living Lab



Campus as Living Lab



Building as Research Instrument

Center for Interactive Research on Sustainability



Resource Exchange between Buildings



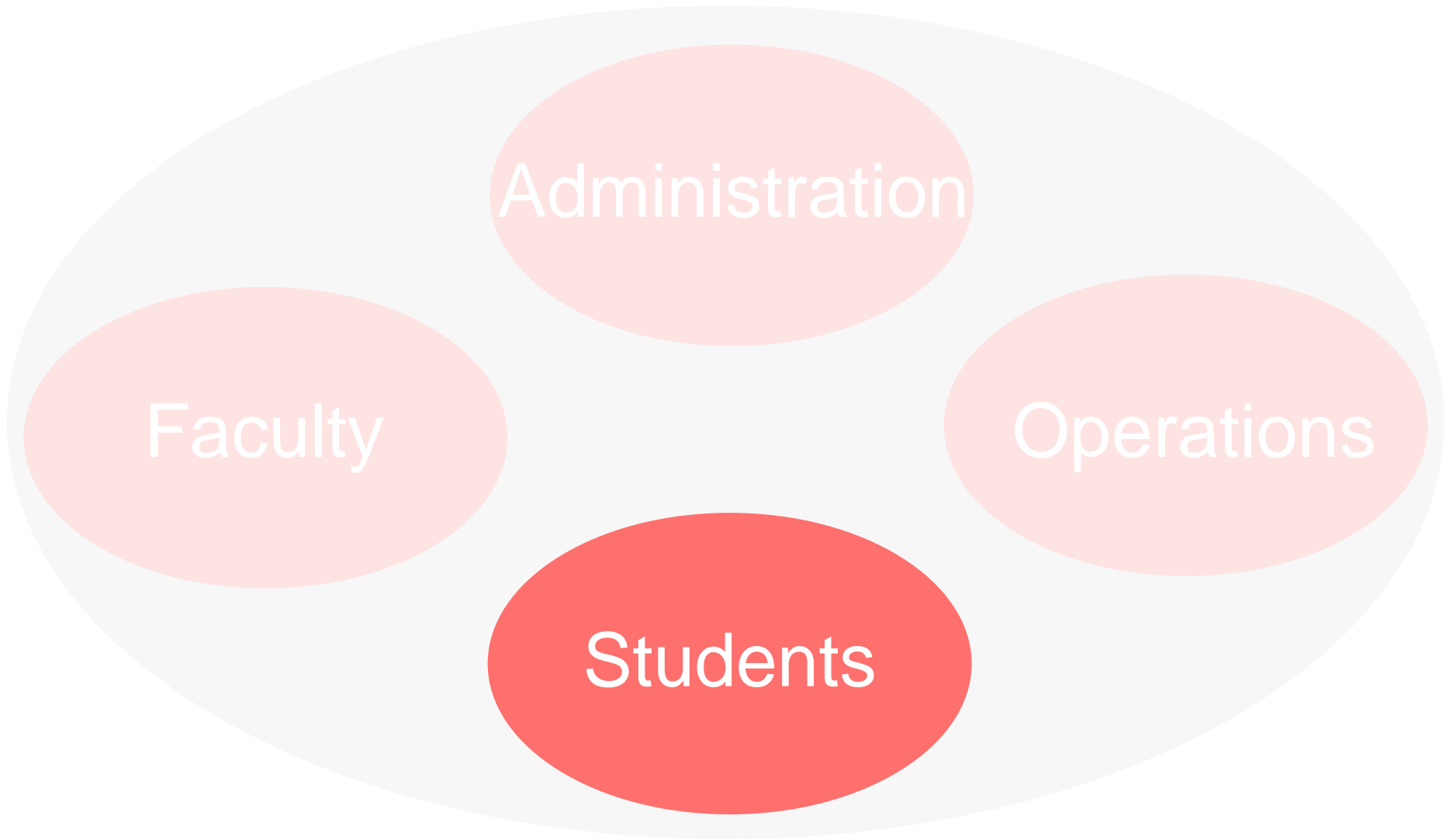
Expanding Boundaries



Co-evolution of Performance & Process



Whole Institution Approach



Starting a University



Saving what is important



UBC Farm



Select UBC Student Initiatives



UBC/COV Sustainability Collaborative



UBC
Sustainability Initiative

Shared
Sustainability
Goals



Greenest City Scholars Program



59 students (2010-14); 8/40 hired in first four years

Teaching & Learning Vision: Integration across the University

Sustainability Learning Pathways

Each student, regardless of their degree program, should have access to an education in sustainability via a “sustainability learning pathway”

UBC Sustainability Academic Strategy, 2009

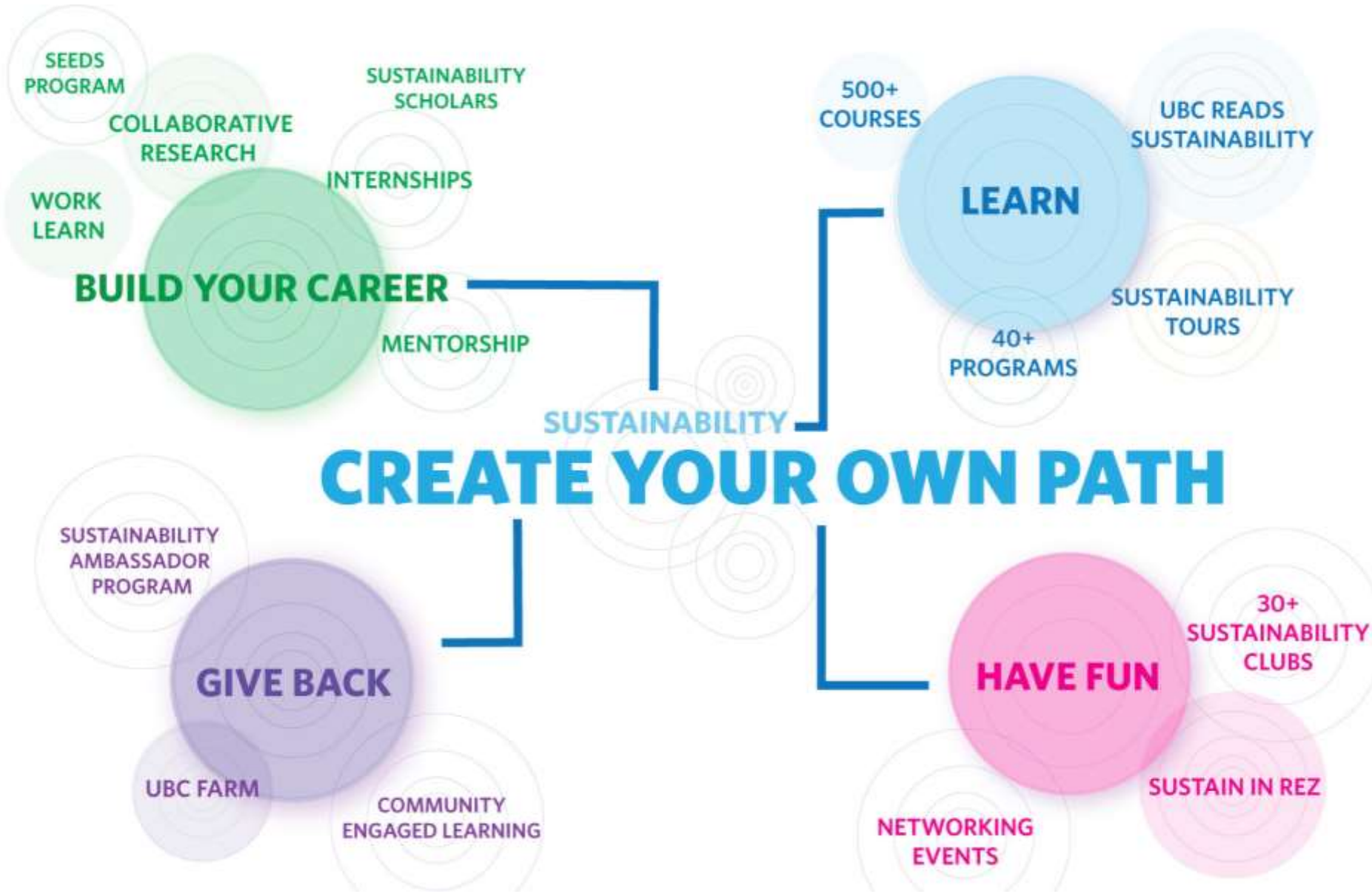
Sustainability Learning Pathway

Equip students with:

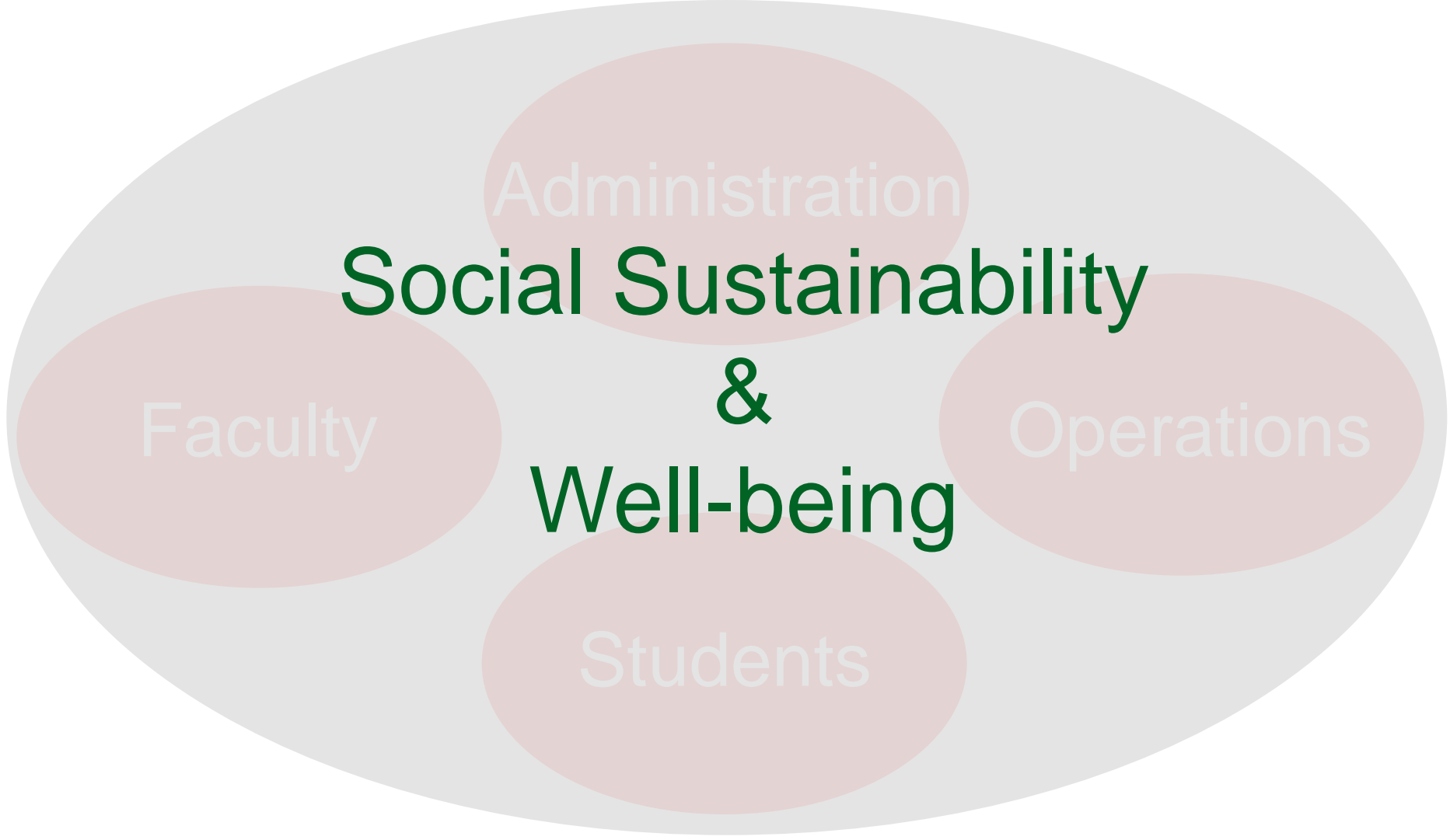
- Holistic Systems Thinking
- Sustainability Knowledge
- Awareness & Integration
- Acting for Positive Change

YEAR 1/2	INTRODUCTORY COURSE		SUSTAINABILITY LEARNING COMMUNITY
YEAR 3/4	SUSTAINABILITY ELECTIVES	REAL WORLD EXPERIENCE	
YEAR 4	CAPSTONE/LEADERSHIP COURSE		

Sustainability Learning Pathway



Whole Institution Approach



Administration

Social Sustainability

&

Well-being

Faculty

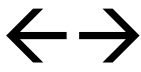
Operations

Students

Social Sustainability



Social Sustainability



Human Wellbeing

<http://sustainability.umw.edu/dot/social-sustainability/>

www.wikigender.org

UBC Well-being Initiative:

Promote wellbeing, health & social sustainability



Social Sustainability



Human Wellbeing

<http://sustainability.umw.edu/dot/social-sustainability/>

www.wikigender.org

Social Sustainability

UBC
Wellbeing Initiative

- Mental health
- Physical activity
- Inclusion & connection
- Food & nutrition
- Transportation
- Natural & built environments

The Well-being Initiative

UBC

Wellbeing Initiative

- 
- Access & diversity
 - Intercultural understanding
 - First Nations
 - Sport & Sustainability
 - Healthy Campus initiative
 - Community Engagement initiative
 - Community Service Learning

A Higher Education Imperative



“[Sustainability] is a problem in which the discovery and dissemination of knowledge will play a critical role. And it is a problem that must be faced ... in ways that universities are uniquely suited to model.”

President Drew Gilpin Faust, **Harvard University**



“...we have a responsibility to promote sustainability for our planet. Our goal is to lead the way—through research, educational programs and campus operations.”

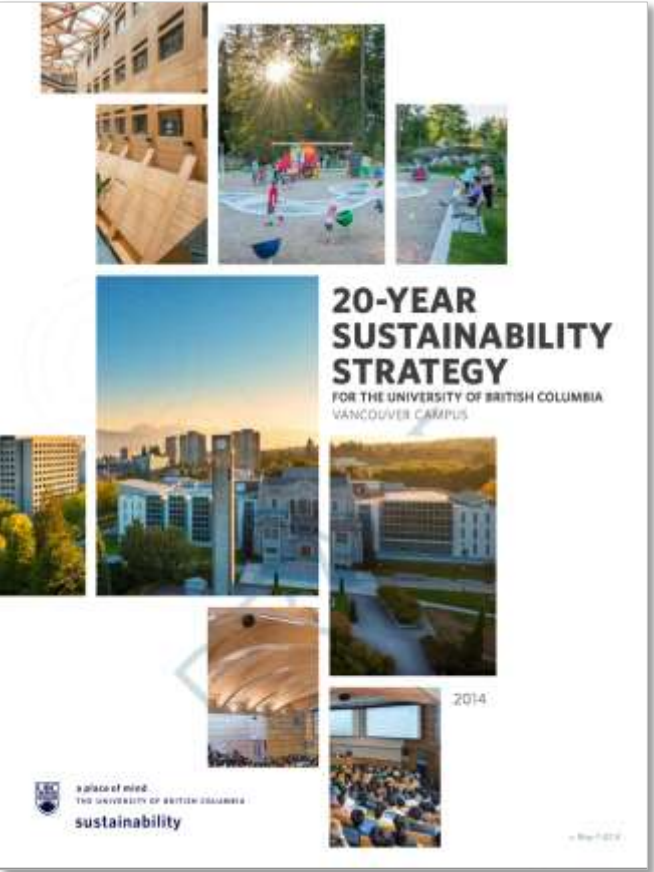
President John Leroy Hennessy, **Stanford University**



“We have a responsibility to future generations to ensure that sustainable practices are at the heart of our university.”

President Peter Salovey, **Yale University**

UBC 20-Year Sustainability Strategy



VISION At UBC’s Vancouver campus, sustainability means simultaneous improvements in human and environmental wellbeing, not just reductions in damage or harm.

By 2035, such regenerative sustainability is embedded across the University throughout teaching, learning, research, partnerships, operations and infrastructure, and the UBC community.

UBC is a vibrant, healthy and resilient community deeply engaged with its neighbours, surrounding region, partners around the world, and in a supportive and mutually respectful relationship with the Musqueam people.



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

sustainability