

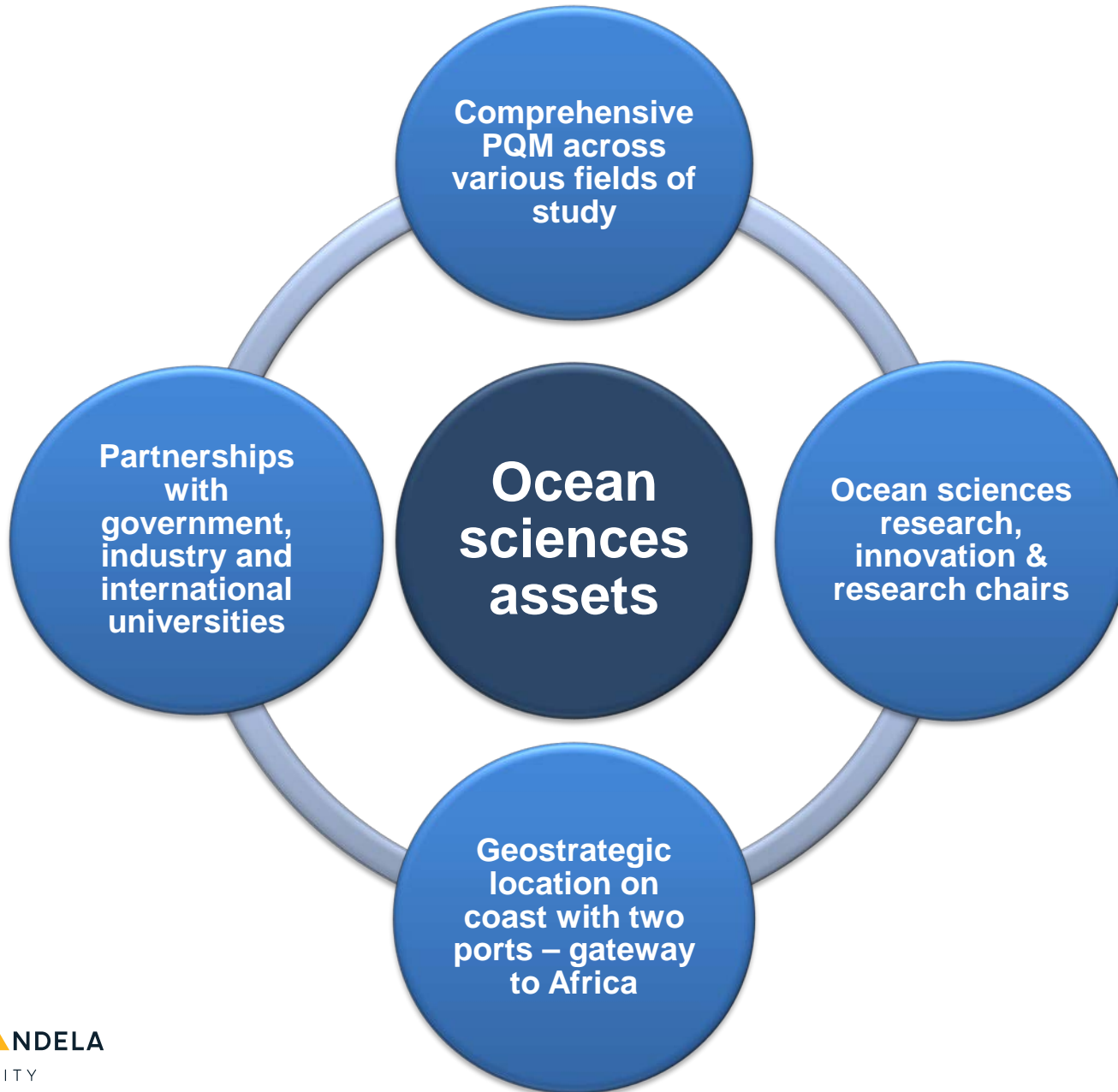
NELSON MANDELA
UNIVERSITY

Ocean Sciences Campus Phase 2

Professor Heather Nel
21 November 2017

Purpose of meeting

- Discuss the vision, principles and transdisciplinary design philosophy that inform current and future spatial planning, refurbishments and occupancy on the Ocean Sciences Campus.
- Assess strategies to further embed future trajectories for ocean sciences within institutional and divisional strategies.
- Engage with progress in refurbishing the Ocean Sciences Campus and discuss future developments in phases 2 and 3.
- Outline the way forward as it relates to organisational arrangements for and resourcing the Ocean Sciences Campus.



Our ocean sciences strategy

Dedicated campus,
research equipment and
facilities

Qualifications: under-
and postgraduate, inter-
and trans-disciplinary

2018-2020

Partnerships from local
to global domains

Scholarship, research
and innovation

Elements of our ocean sciences vision

Transdisciplinary postgraduate
research & innovation –
“where science meets society”

Sustainability – coastal
livelihoods, economic
development & marine
protection

Quadruple helix &
collaborative partnerships
between university,
government,
industry/business and civil
society

Leading ocean sciences
university on the African
continent

Cross-cutting ocean sciences themes informing design philosophy

Oceans and cultures

- Including coastal paleontology; deep origins; history, heritage, cultures of coastal communities; indigenous knowledge systems

Ocean governance and marine protection

- Including marine spatial planning; fisheries crime prevention; ocean governance, public policy and marine/maritime law; piracy; international relations and trade

Oceans economy

- Including coastal and marine tourism; aquaculture; ocean resource economics; ocean renewable energy; off-shore oil and gas; marine biotechnologies and novel pharmaceuticals; robotic/autonomous underwater vessels; satellite technologies; high-performance cloud computing and big data processing; composites, small vessel construction and repair; marine materials and manufacturing processes; coastal infrastructure and port development

Oceans health

- Including climate change and sea level rises; ocean acidification; sea and ocean observation, monitoring and surveillance; protecting and managing marine biodiversity and ecosystems; marine protected area; marine living resources; water quality and pollution monitoring;

Conceptualising trans-disciplinarity

Multi-disciplinarity

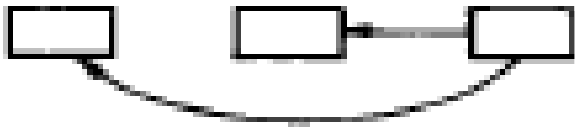
- Involvement of several disciplines, but research questions and outputs are formulated from a disciplinary perspective.

Inter-disciplinarity

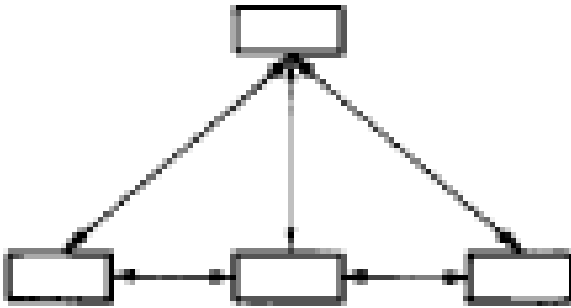
- Intensive interaction among disciplines resulting in integrating data, methods, tools, concepts and theories. It is most often connected with applied research that uses different disciplinary ideas and methods as tools to address real-world challenges in novel ways.

Trans-disciplinarity

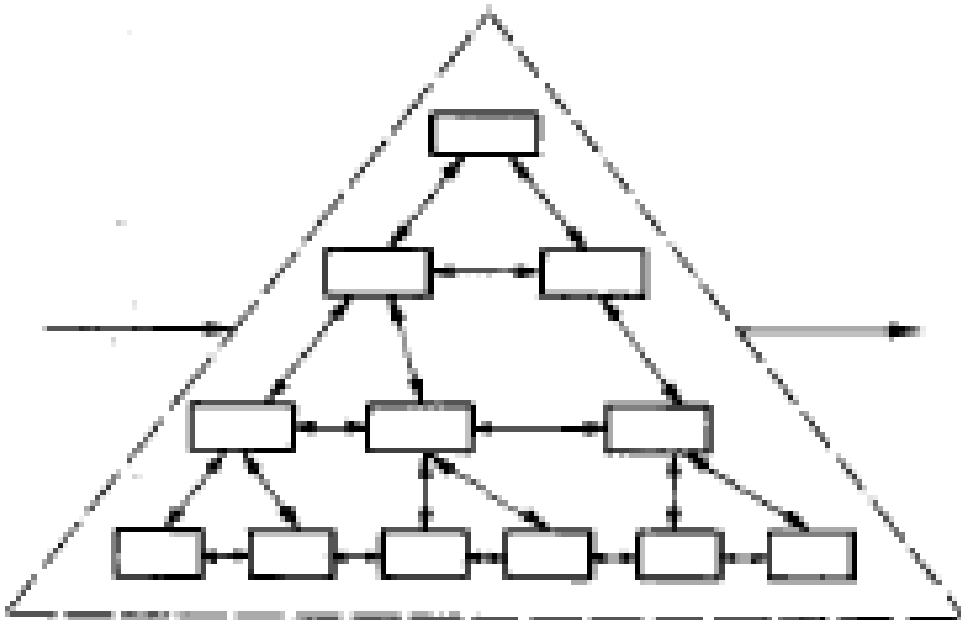
- It integrates knowledge, tools, and ways of thinking from various disciplines to tackle scientific and societal challenges that exist at the interfaces of multiple fields. It moves beyond bridging divides within academia to engaging directly with the production and use of knowledge of academics and external stakeholders. Throughout the research process academic and relevant external stakeholders are in dialogue.



Cross-disciplinary - rigid polarisation toward specific mono-disciplinary concept.



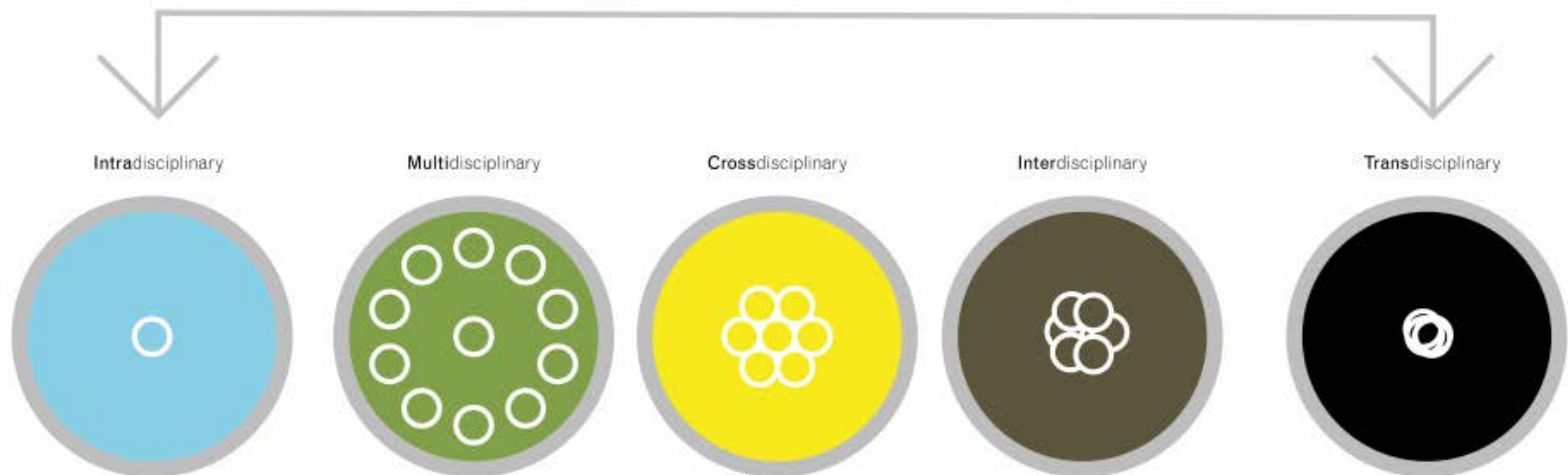
Inter-disciplinary - a group of related disciplines is coordinated by common sense of purpose; with the introduction of interdisciplinary links, the disciplines change in their concepts, structures, and aims.



Trans-disciplinary – multi-level coordination of entire system towards the common purpose of solving grand societal challenges in collaboration with external stakeholders.

Characteristics of trans-disciplinarity

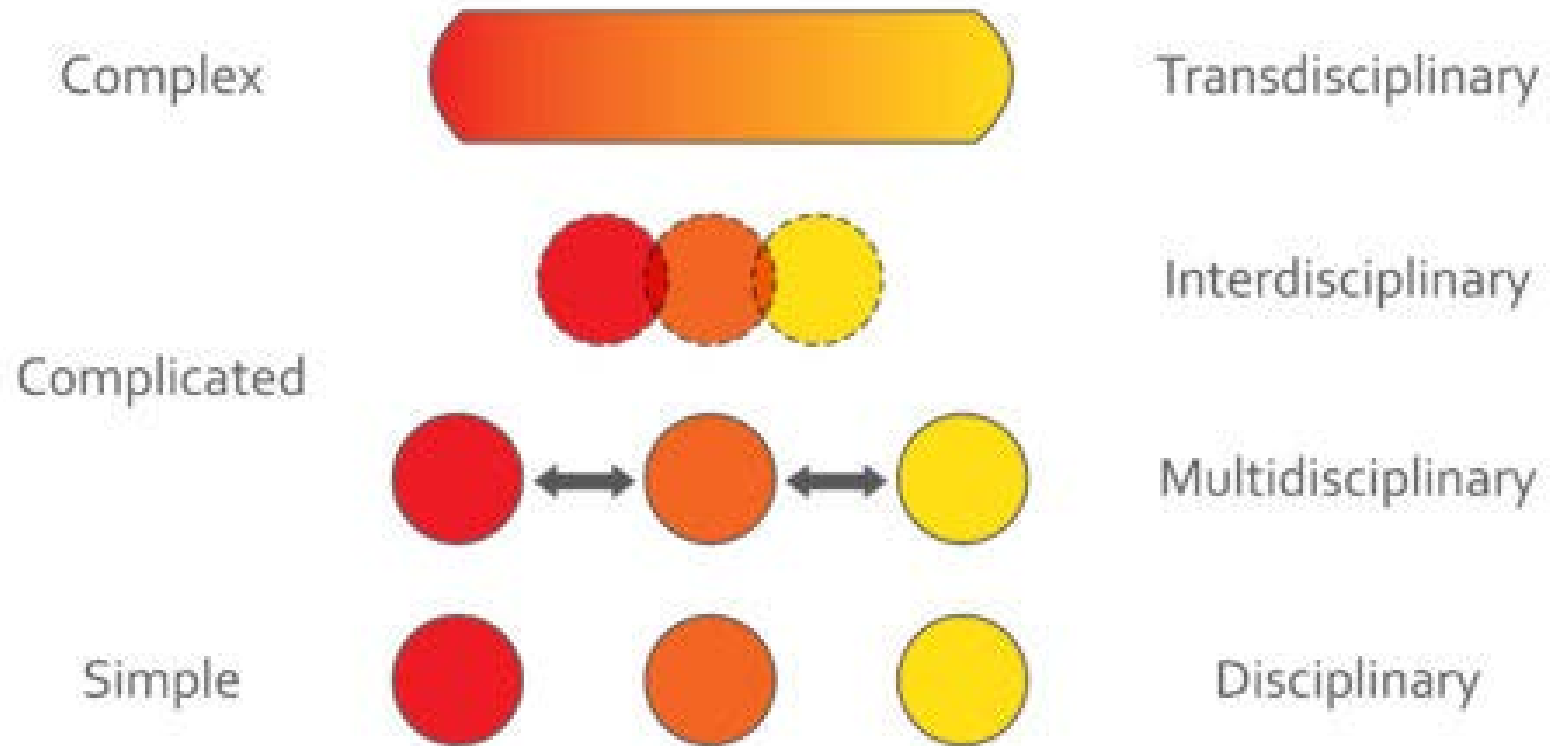
- Best applied to complex problems
- Place-based and time intensive
- Requires well-developed leadership skills
- Intensely collaborative, including external stakeholders
- Merges multiple knowledge streams and different value systems to create new knowledge

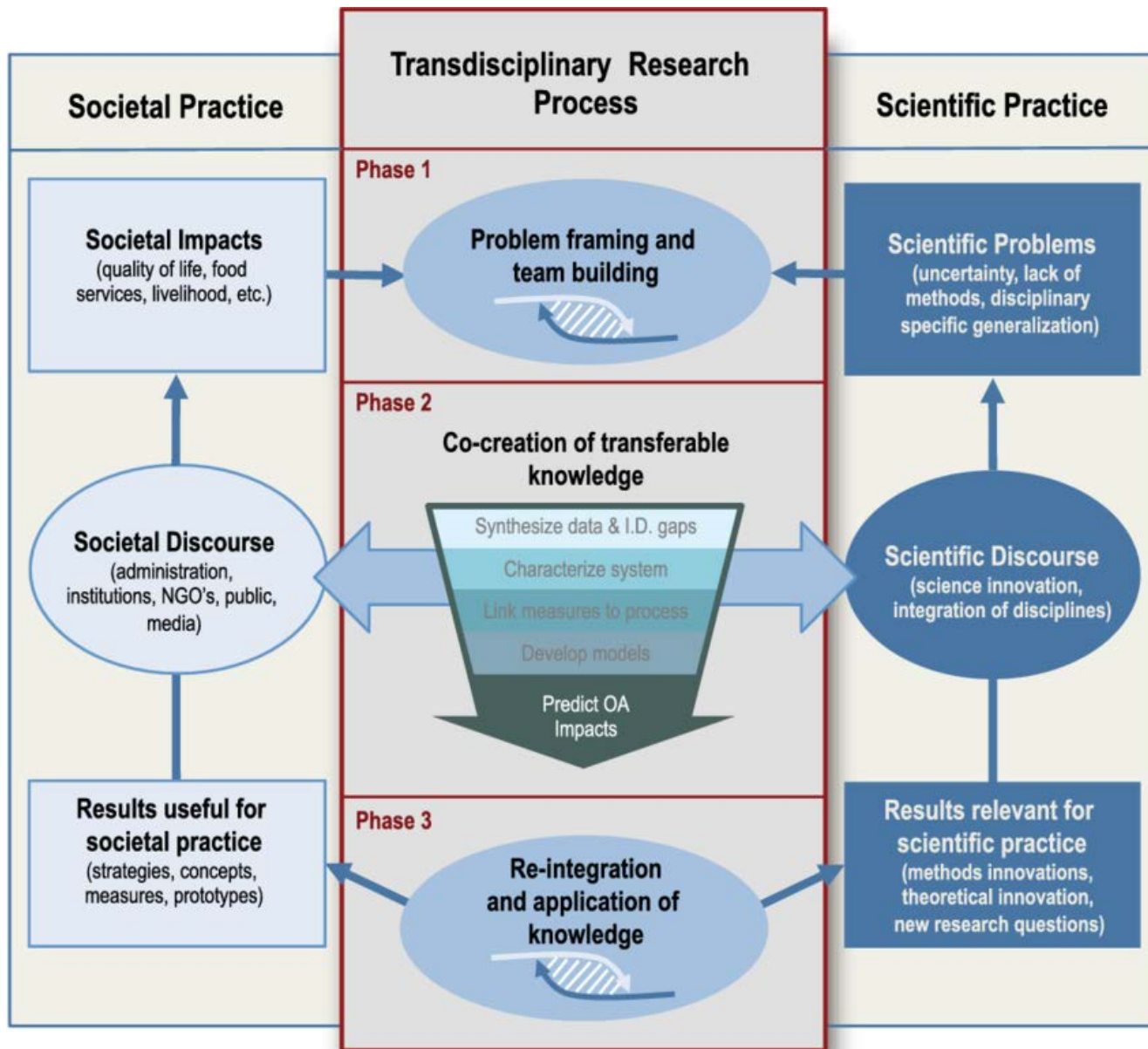


Trans-disciplinarity

Problem Difficulty

Research Approaches





Barriers to trans-disciplinarity (TD)



Existing educational structures tend to “funnel” students into disciplines or professions to ensure that graduates are able to prosper within their specific fields.

Academics whose work spans disciplinary divides are often regarded as unfocused “dabblers” and it can be more difficult for them to get promotions or to be given as much recognition as their counterparts who specialise in more traditional ways.

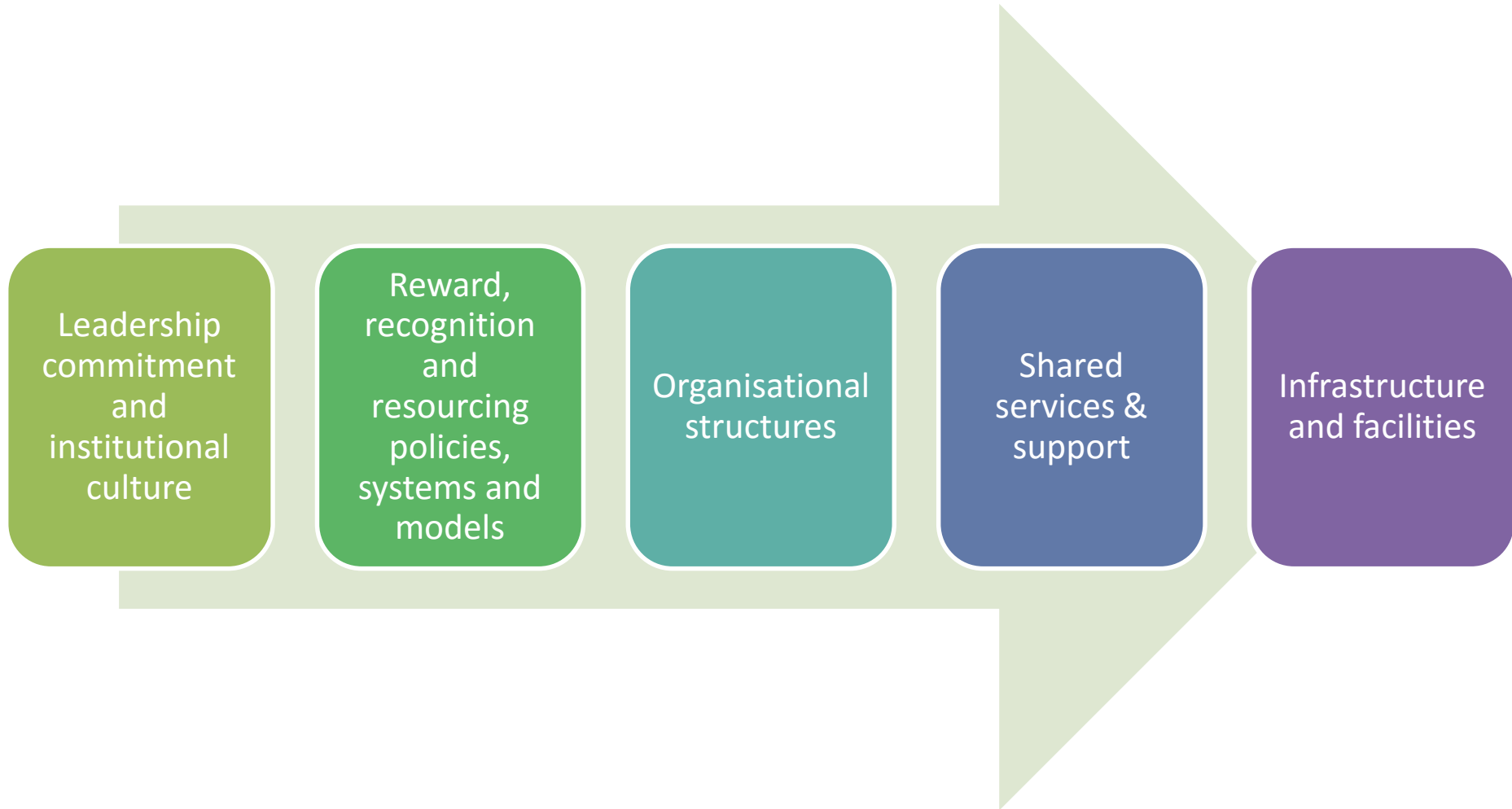
Universities tend to reward prolific publishing and third stream income generation, rather than collaboration and the development of creative ideas.

Often TD teamwork and collaboration takes more time and effort and can be more costly than working alone.

It is challenging to share staff and resources across multiple disciplines or departments.

Many funding agencies, foundations, and professional societies tend to identify by discipline or profession which encourages and reinforces disciplinary silos.

Towards trans-disciplinarity



Facilitating trans-disciplinarity (TD)

- **Leadership** commitment to supporting TD at all levels.
- **Institutional culture** supports TD convergence – open and inclusive, supports mutual respect across disciplines, and encourages opportunities to share knowledge formally and informally across existing disciplines.
- TD embedded in **performance, promotion and reward policies and criteria**. Evaluate, support and reward disciplinary and TD research equally.
- Research and innovation organised around **common themes**, problems, or scientific challenges.
- **Organisational structures and resourcing models** tailored to address the challenges associated with TD.
- **Centralised “shared services” infrastructure** with dedicated staff and structured processes that provide optimal and integrated support to TD research groups.
- **Development and support for early career TD scholars**.
- **Facilities, infrastructure, laboratories and work spaces** designed to foster TD collaboration.
- **Partnership arrangements and funding** that support TD are actively explored.

Key questions for the way forward



What is the vision for the Ocean Sciences campus and how do we respond through our T&L, programme mix, research, innovation, engagement and partnerships?



What innovative governance, management and organizational support structures and arrangements are required to foster the TD vision for Ocean Sciences?



How will our TD design philosophy inform academic, spatial, infrastructural, financial and HR planning in future phases?



How should the current resourcing, revenue mobilisation and partnership arrangements support TD on the Ocean Sciences Campus while not stripping resources from the faculties?

Enkosi! Thank you!



With its **800km**

of coastline, South Africa's **Eastern Cape** is set to become South Africa's leading hub of maritime economic activity. The province is home to the two major port cities of **Port Elizabeth** and **East London**, both established industrial manufacturing coastal centres.