

# Capital Projects Sustainability Framework

Version 2.0  
May 2023



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# Overview



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# Overview

This Sustainability Framework has been prepared in consultation by UNSW Estate Management to contribute to realising UNSW's vision: ***'To improve lives globally, through innovative research, transformative education and commitment to a just society'***.

The Sustainability Framework is aligned with the overall vision for UNSW as outlined in the 2025 Strategy, and in the context of UNSW Estate Management team's role in the realisation of that vision: ***'We are entrusted and empowered to create outstanding campus environments and experiences'***.

It is intended to provide guidance to project teams for fitouts, refurbishments, new buildings and infrastructure, on UNSW's approach to delivering this vision, in a way that is specific to this institution, and an expression of the unique character and history of its campuses.

The Sustainability Framework links this organisational vision to the Environmental Sustainability Plan 2022-24, which establishes the minimum requirements for projects to achieve and report against.

It has also informed UNSW's Design and Construction Standards, ensuring that the detail of the implementation is connected to the UNSW vision.

Supporting the Sustainability Framework is a suite of templates for projects for use in providing briefs, preparing contracts, and reporting on project progress on sustainable and regenerative design principles and outcomes.



# Purpose

The Sustainability Framework provides a pathway to ensure that the unique opportunities and needs of each project are addressed, and satisfying UNSW's minimum standards. The process will generate a project which is a contribution to creating **'outstanding campus environments and experiences'**.

The tension between meeting an overall standard which seeks consistency while addressing the unique requirements of every project is a familiar challenge for project teams.

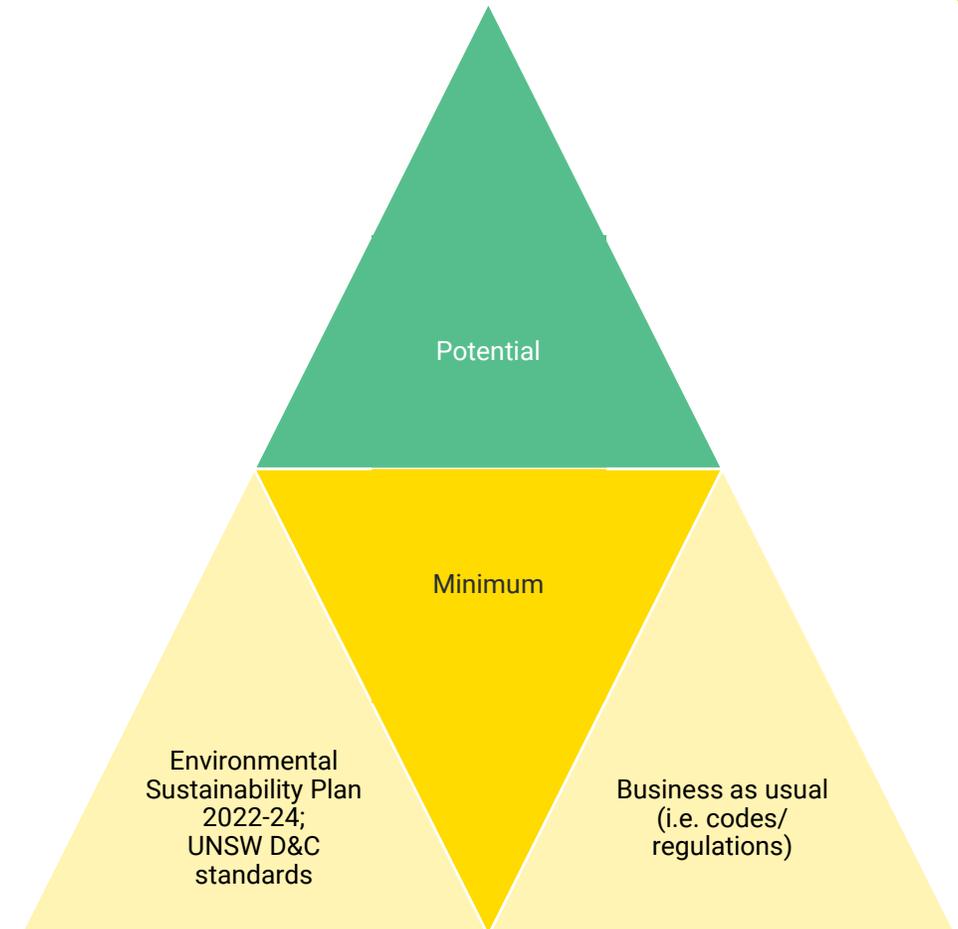
The minimum performance requirements are defined by relevant building codes and standards, UNSW Design and Construction Standards, and the Environmental Sustainability Plan 2022-24.

The potential of the project as a contribution is expressed in the UNSW Campus Masterplan Framework vision of a **'University City, creating a distinctive, vibrant, mixed use destination set within a learning landscape that connects to its surrounding communities and Partners'**.

Sustainability and regenerative design principles have a vital role to play in resolving this tension.

The purpose of this Framework is to:

- provide a detailed articulation of the vision (the 'why') so that project teams have clarity about the desired end state;
- outline the expected performance levels across specified areas of focus; and
- retain the flexibility to allow each project to explore and express what makes it vital and essential to an outstanding campus experience.



# Approach



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# Approach

The role of the physical environment

Part of the definition of **'outstanding'** as outlined in the 2025 Strategy includes:

- Attract the best minds
- Attract a diverse student and staff body
- Create an accessible campus
- Create a world class campus engaged with partners and the community.

The physical environment should be designed in a way which:

- Supports the development of individuals (i.e., students, visitors, staff)
- Integrates with place (i.e., ecology, history, larger community)
- Expresses the character of UNSW and its location, its linking past, present and future (design, operation and end-of-life).

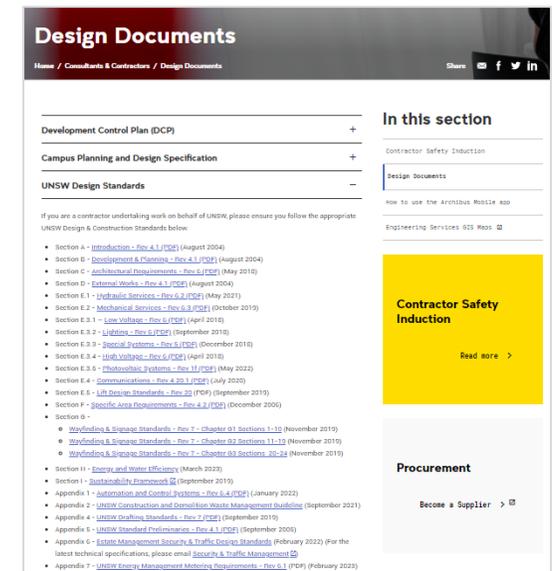
The responsibility of Estate Management is to ensure that this vision is delivered so that each project is fit for its purpose, connected to its place, and forms part of a coherent whole.

# Minimum sustainability requirements

The Environmental Sustainability Plan 2022-24 Framework establishes minimum environmental sustainability requirements for capital projects.

- New buildings and major refurbishments to achieve minimum 5 Green Star Buildings (or equivalent measurable standard aligned to its use).
- New buildings to achieve 5.5 NABERS Energy performance when applicable, or a 20% improvement compared to an all-electric reference building when NABERS is not applicable.
- New buildings to achieve 5.5 NABERS Water performance when applicable, or a 20% improvement compared to a reference building when NABERS is not applicable.
- New buildings to have onsite renewable energy generation capacity and be all-electric, producing net zero emissions in operation.
- New buildings to achieve a minimum 30% reduction in embodied carbon compared to a reference building.
- Ensure that all planting schemes use a minimum of 90% native species, with a preference for local and drought-tolerant species.
- All new water consuming fittings and appliances (including toilets, taps and shower heads) should have a minimum 5-Star WELS rating.
- Achieve minimum 90% construction & demolition waste diverted from landfill.

All projects must also align with relevant building codes and standards, and UNSW Design and Construction Standards.



# Boundaries and flows

A **systems approach** has been taken in the development of the Sustainability Framework, in contrast to many current methods which 'break the design into parts'. Two fundamental concepts with this approach are **boundaries** and **flows**.

## Boundaries

In systems thinking, we seek to push the boundary out to address the largest whole we can identify. For example, fitout projects would consider their relationship to global supply chain.

While it is important to focus on specific aspects of the design (e.g. energy use), the intent is that these aspects are seen as lenses to look through, rather than separate considerations.

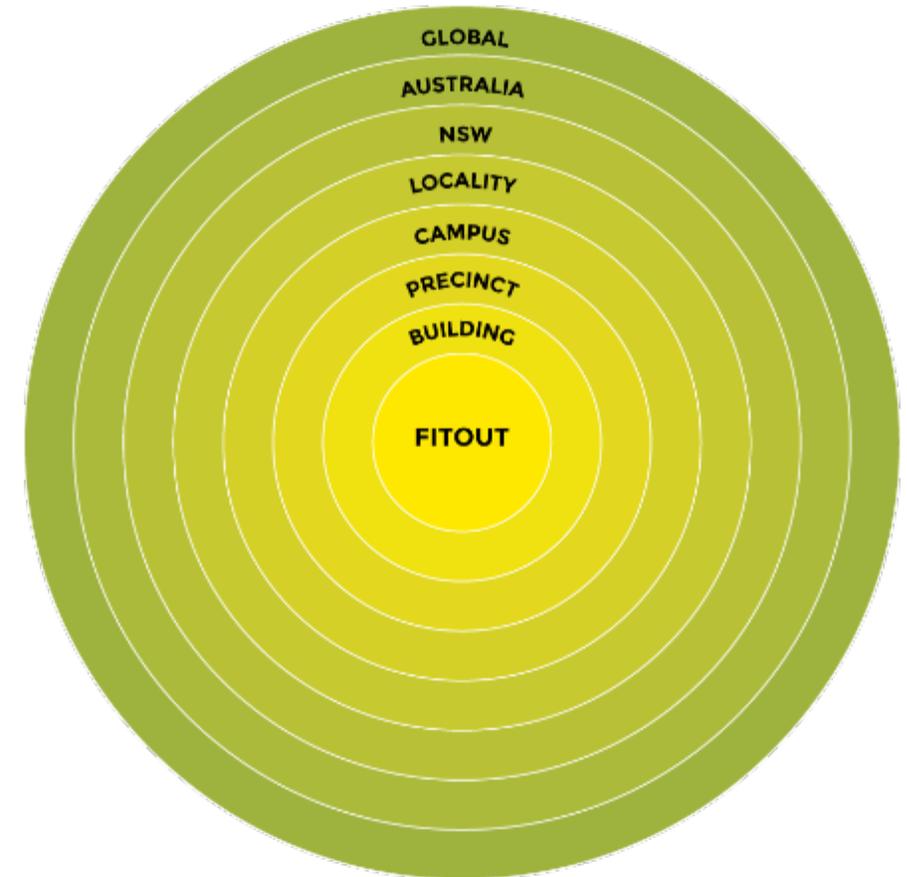
The opportunity in the design of UNSW's facilities is to consider them as part of this larger whole, thinking at several scales, from the fitout, through the building, campus, city, state, country, world.

## Flows

In systems thinking, we think about everything as a continuous process – nothing has a 'start' or a 'finish'. Buildings are not fixed, discrete objects. They are interventions into existing systems (flows) and cycles.

What existing patterns should be reinforced and supported? What patterns should be discouraged? And how can the design make these decisions from a perspective not of control, but of allowing these patterns through the design and operation of the building?

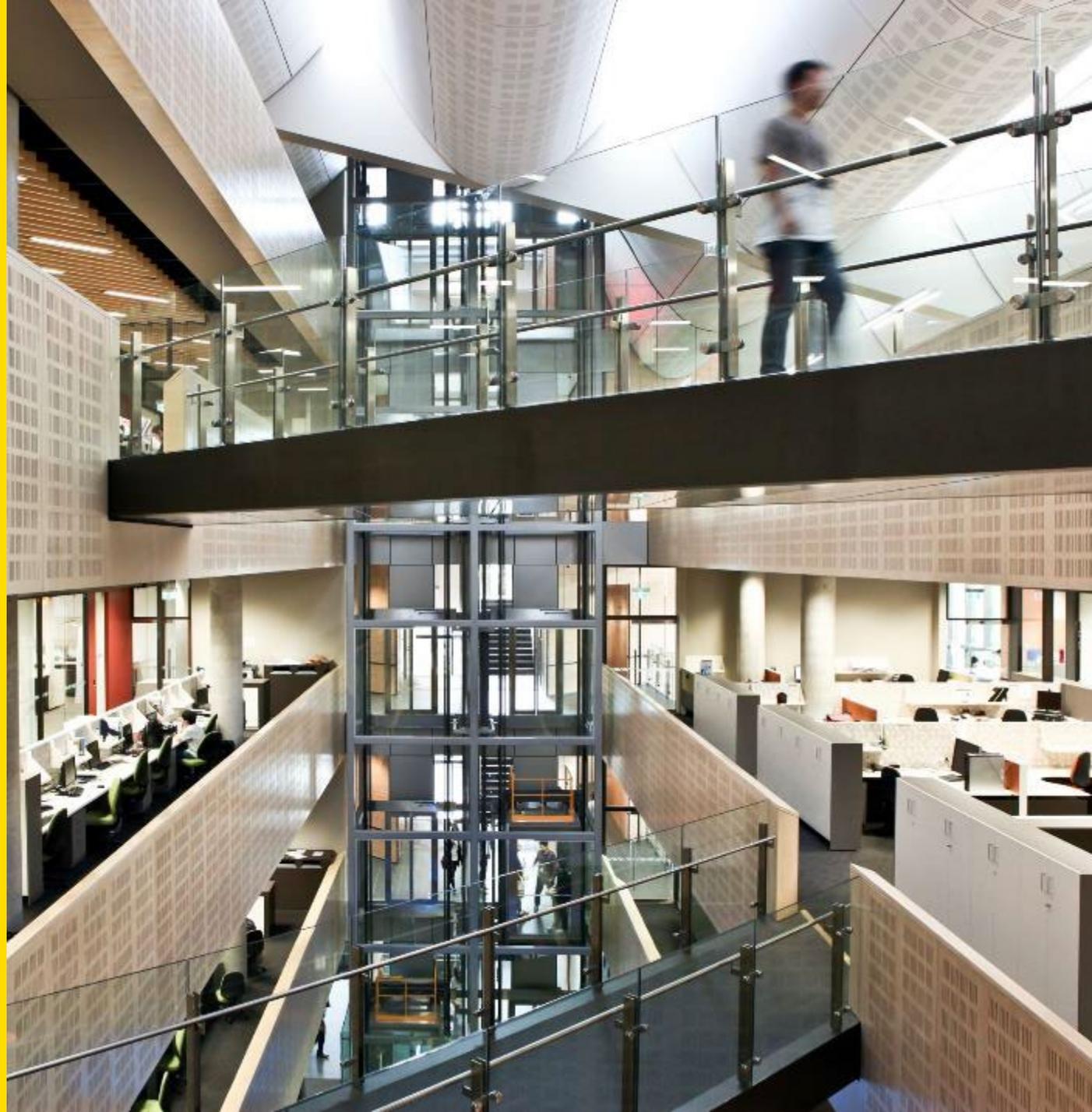
One flow that is commonly considered is the 'building life cycle', whereby the design, and construction should be approached with the operation in mind. The project team should consider natural flows (air, light, water, plants, animals), and other users in the area.



# Focus areas



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# Focus areas

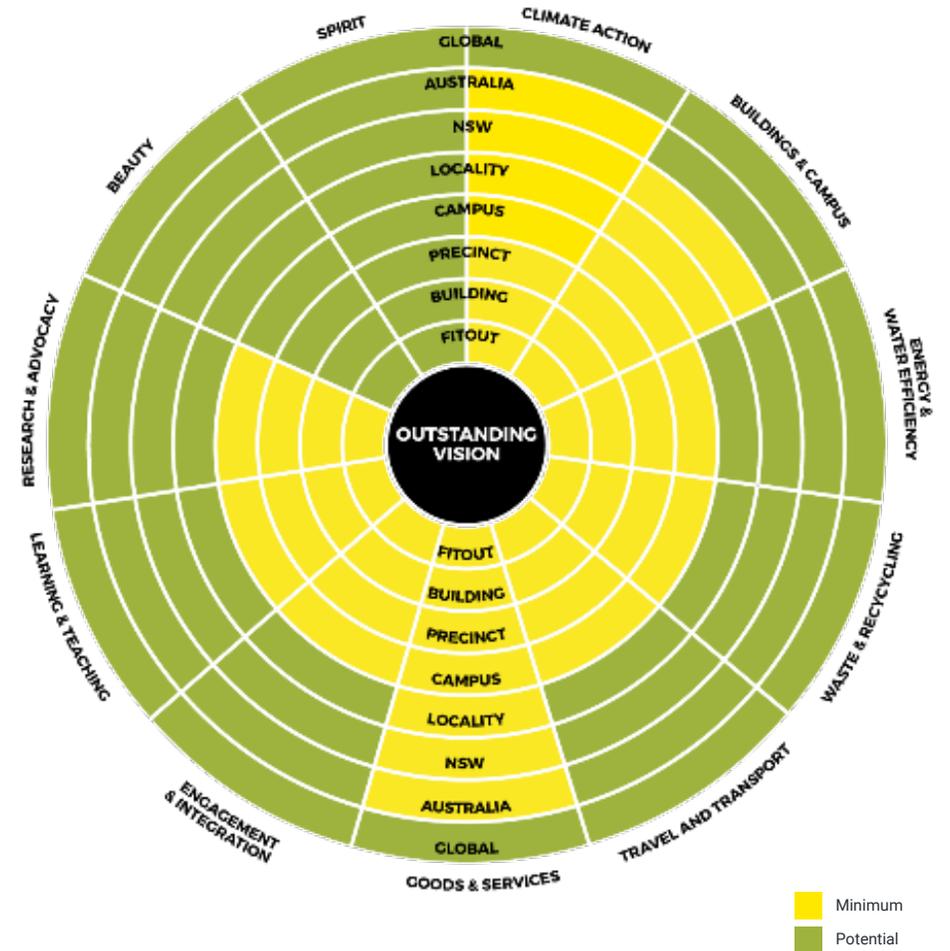
This Framework aligns with the Environmental Sustainability Plan 2022-24 focus areas and provides a way to map these areas in a wider context for each project.

The Capital Projects Sustainability Framework provides an alignment with the Environmental Sustainability Plan 2022-24 focus areas which define the commitments set out by UNSW.

These have been mapped to provide a sense of understanding in a wider context and impact within specific boundaries.

To achieve an 'outstanding' outcome, project teams can exceed any of the commitments, in collaboration with the Estate Management teams.

**Right:** The figure represents the minimum requirements and potential opportunities with regards to boundaries. Projects should consider all focus areas in consultation with Estate Management, except Estate Improvement projects which can focus on the six high-priority focus areas for smaller projects, as highlighted in the relevant templates.





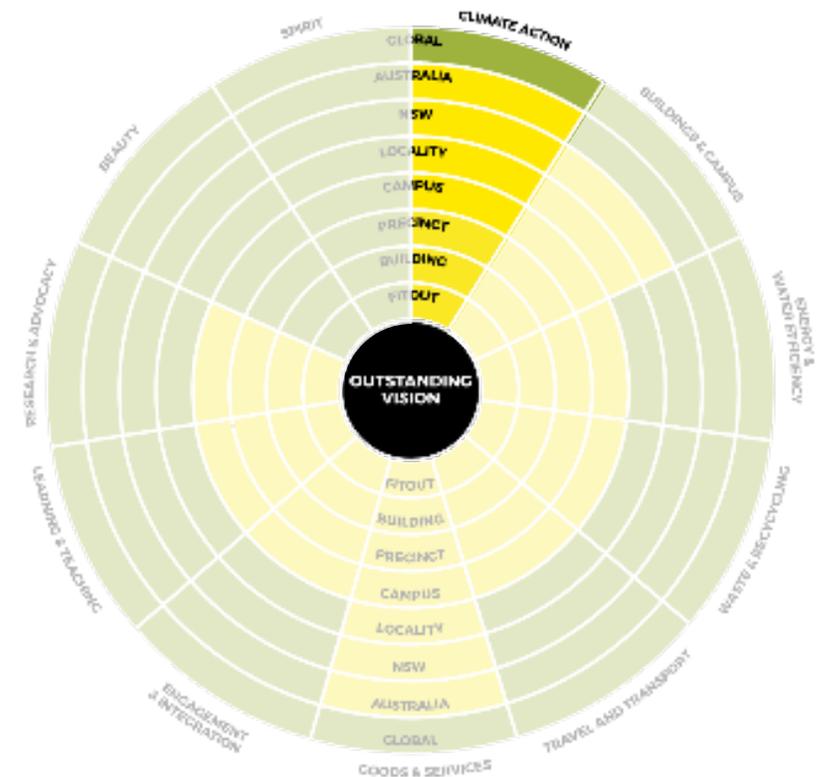
# Climate action

UNSW has set current objectives in the Environmental Sustainability Plan 2022-24 that addresses the **global challenges** and issues relating to climate.

Projects should consider their impact against efforts made at global scale to reduce anthropogenic emissions. This includes minimising not only **operational emissions** but also **embodied emissions** through careful design and selection of materials. Where building heating, cooling, ventilation, cooking, hot water or any other equipment is installed it must be all-electric to align with UNSW's **electrification** objectives.

Depending on the scale of the project, project teams should consider a life cycle carbon model including embodied carbon in order to compare the climate impacts of different project options, and ultimately minimise those impacts.

There is the opportunity for development projects to explore **resilience and adaptation** measures in the decision making process to future-proof assets and infrastructure and provide outstanding environments.





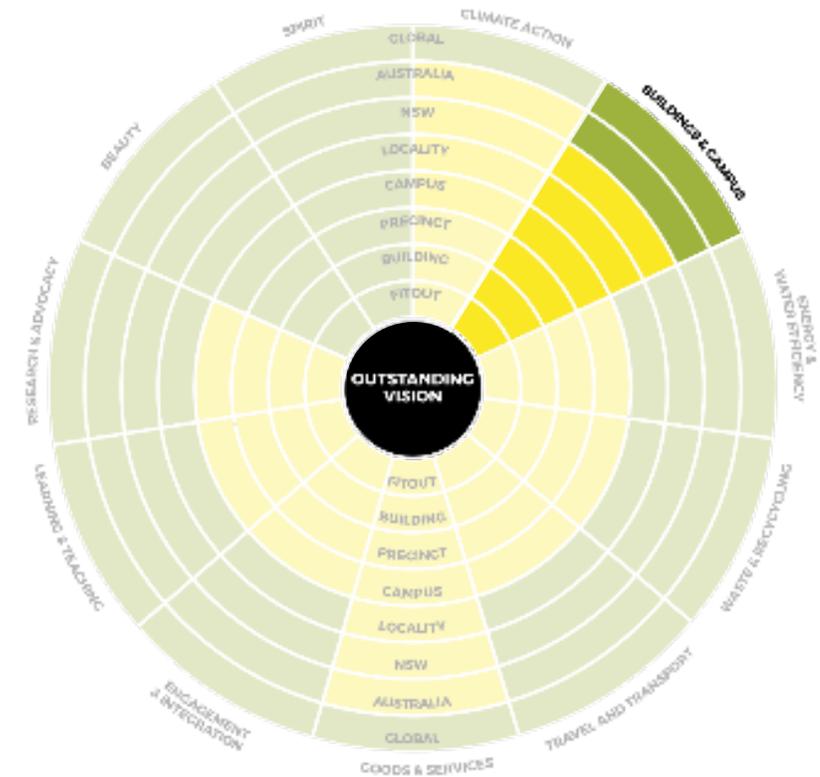
# Buildings and campuses

The vision of UNSW campuses is to provide the basis of an outstanding University City which sits in cohesion with the surrounding community. The campus should provide a **sense of place** and celebrate the existing topography and natural land. Any design response should take into consideration an appreciation of the existing ecosystems without compromising functionality and operational excellence. Projects should explicitly consider opportunities to protect, maintain and restore nature and ecosystems.

Spaces should be fully integrated and form part of the building ecosystem with natural land celebrated and the existing environment acknowledged and restored. **Natural flows** such as air, light, sound and soil should be utilised at their full potential to provide a passive system design approach. Opportunities to explore the benefits of a productive land that provides a sense of community and healthy food options should be considered.

Campuses should inherently bring people and nature together to support **wellness and learning**. The journey in the campus should be a seamless experience providing a natural flow with ease and excitement.

Campuses including buildings and infrastructure should aspire to address global challenges, be a beacon for sustainability and consider a **regenerative approach** in all aspects of design through to construction. Materials and resources should be considered against their **impact to health** and their life cycle.





# Energy and water efficiency

The intent of energy and water efficiency is to encourage projects in adopting an integrated thinking approach that considers both efficient **resource consumption** and opportunities for **energy production**.

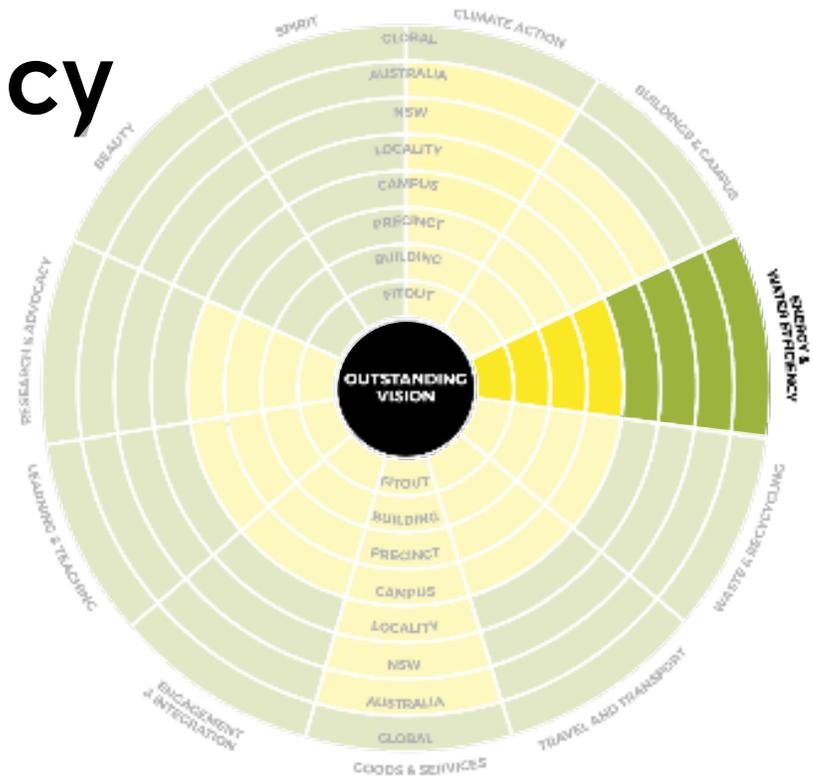
An energy and water life-cycle approach would provide a holistic understanding of the connection to place, enhance any restorative opportunities and inspire thoughtful consumption.

Indigenous knowledge and traditional methods for land management can provide a **restorative balance** especially to the hydrological condition of the campus.

Other opportunities for water recycling and reuse and avoidance of 'once-through' water uses should be reviewed to ensure appropriate matching of treatment level to use, and responsible management of the aquifer.

Opportunities to eliminate impacts from construction activities should be explored together as a team. Lessons learned can then be shared as part of the project legacy for the wider construction industry and culture through awareness and training of the workforce.

Showcasing such opportunities would also provide an important **awareness and educational opportunity** for the students, staff and the wider community.





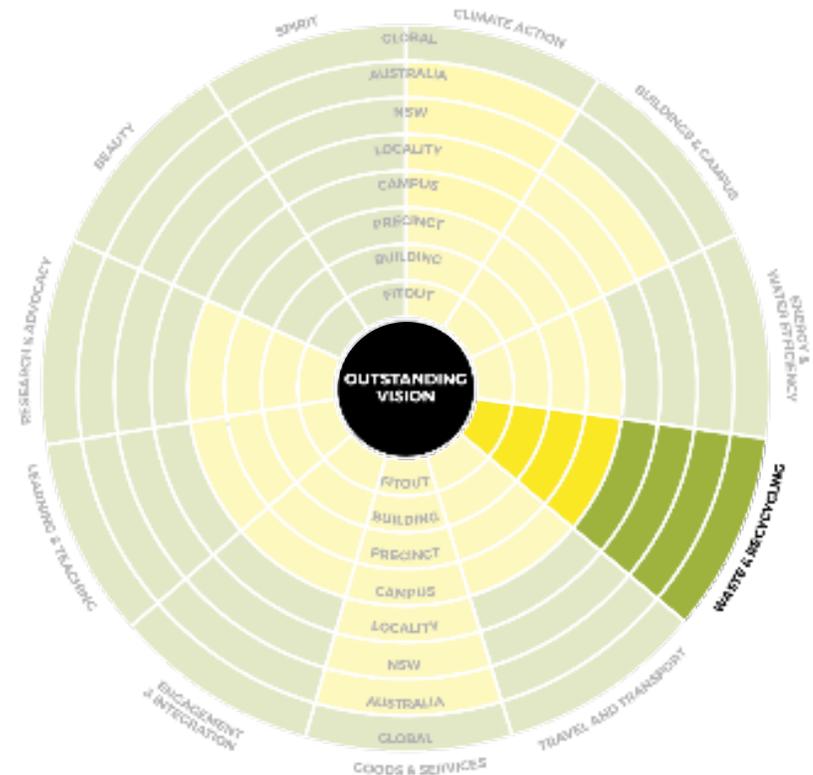
# Waste and recycling

Resource efficiency and circular economy are considered a priority by UNSW. Innovative approaches during design, construction and operation phases should be considered to **eliminate demand and wastage** of materials.

Waste should be embraced as a resource and utilised where appropriate in the physical and visual fabric of the campus to enhance the messaging for future generations.

A **whole-of-life approach** should be adopted to assess the efficiency and viability of technologies and processes including construction methods as a platform to reduce further reliance to virgin resources and materials.

Project teams should investigate appropriate infrastructure solutions to address operational waste and practices in line with UNSW Environmental Sustainability Plan 2022-24 and its mission for an outstanding campus.





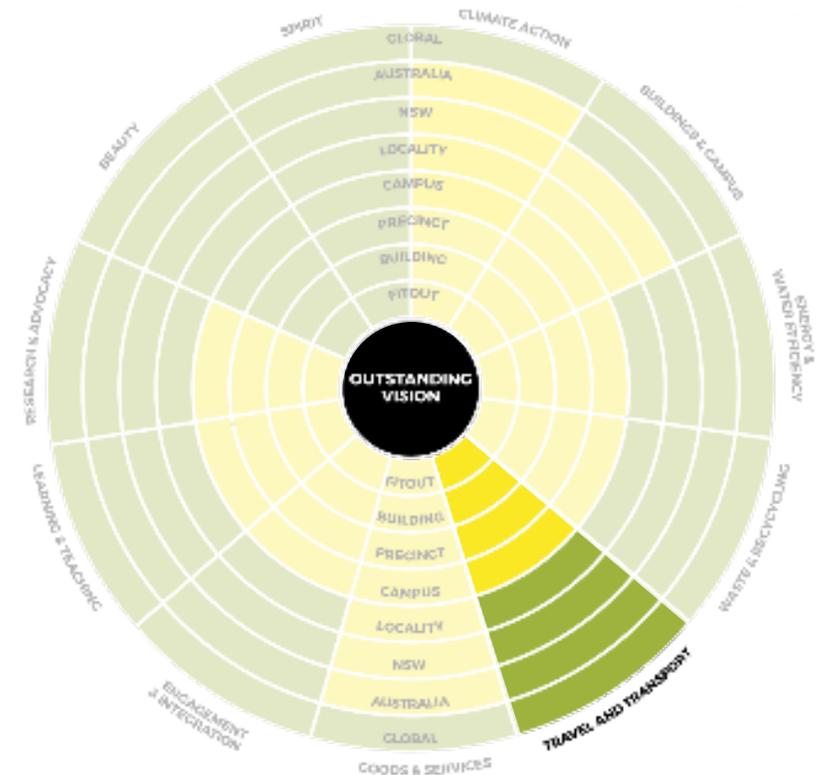
# Travel and transport

Sustainable and active transport choices are considered within the campus together with mass transport options (i.e. Light Rail) provided by government.

The campus is an open and safe environment which encourages walking habits due to the proximity of community services and other diverse uses within the campus including accommodation and healthcare.

Such accessibility encourages wider **community integration** and makes the campus a destination for exploring new ideas and its relation to history.

The form of the urban environment should enable the flow of universal access and the opportunities for **agile, resilient and attractive** travel options to support the functionality of buildings and open spaces with a sense of exploration and wonder.





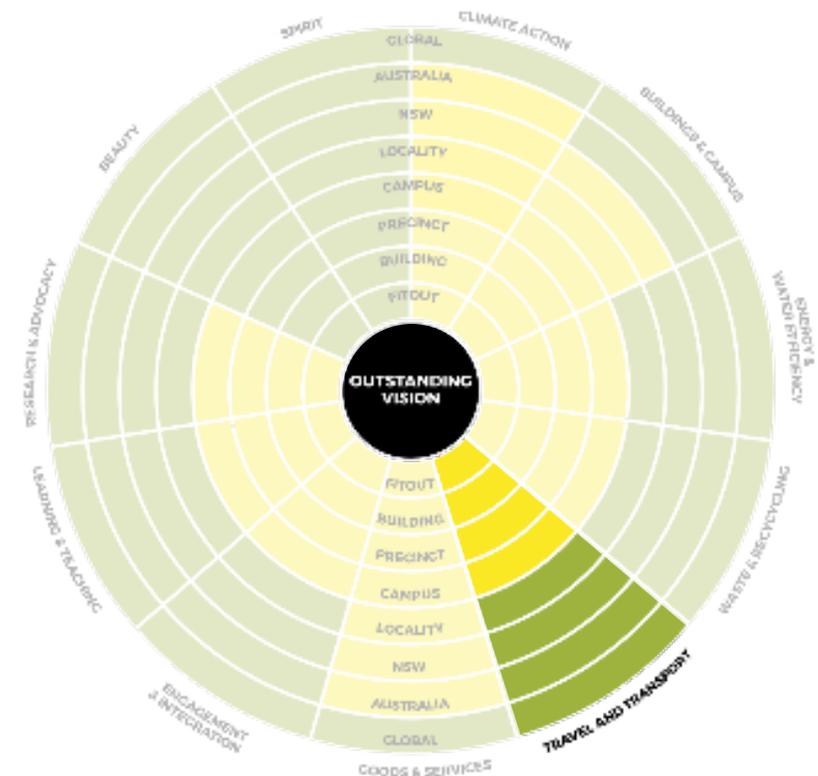
# Goods and services

The purpose of **sustainable and ethical procurement** for UNSW is to provide the basis to reduce environmental impacts and enhance economic and social benefits. Local and global systems exist to provide the basis for ethical and environmentally sustainable choices that align with UNSW's vision and ethos.

Procurement of goods and services should align with UNSW's vision and set an example for the industry by providing a transparent and robust process of selection.

Projects should be the catalysts for **economic growth** at regional level as well as opportunities to accelerate business growth in disadvantaged areas and cultures.

Materials and services should be sourced with consideration to life cycle environmental impacts and a **sense of place** and inclusion, to provide cohesion with the existing ecosystem and environment.



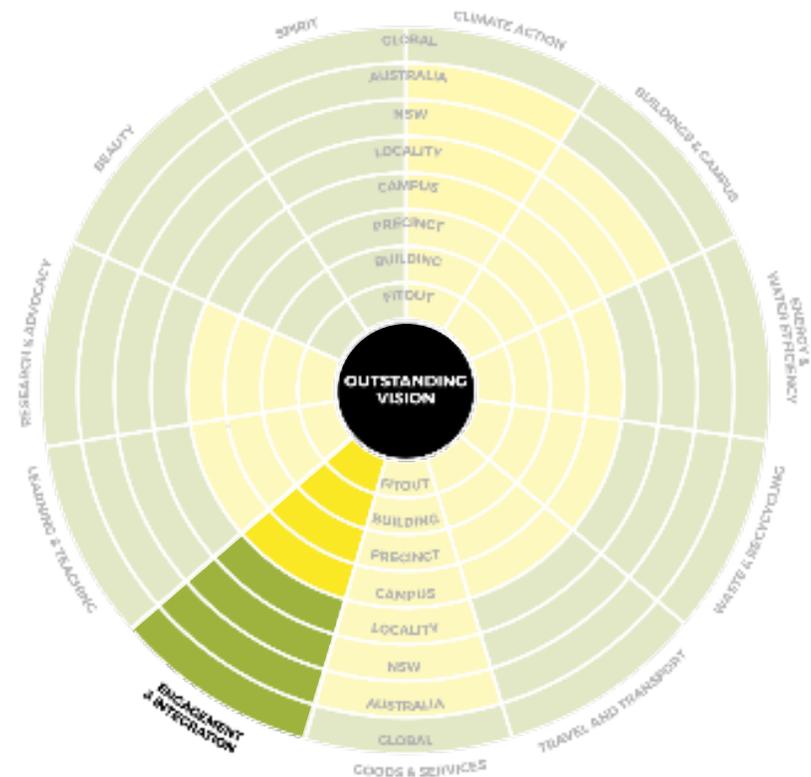


# Engagement and integration

The campus provides an opportunity for engagement and integration between UNSW campuses, its people and the surrounding communities. The urban context and its components (i.e. buildings and infrastructure) should provide the platform for such engagement with any interior and exterior barriers dissolved.

The purpose of **openness and direct availability** of place and space shall be evident and clear to the wider community to explore opportunities of further learning and celebrate interaction. Such places should be flexible with a clear and open awareness messaging. The community should be able to identify and appreciate the **history of place** and its connection to the cultural values that bound the community together.

Projects should embrace the value of internal and external community members to identify opportunities in design and construction and provide a common understanding on purpose and pride. This would enable a cohesive and integrated approach to create outstanding diverse spaces and places for use by all.



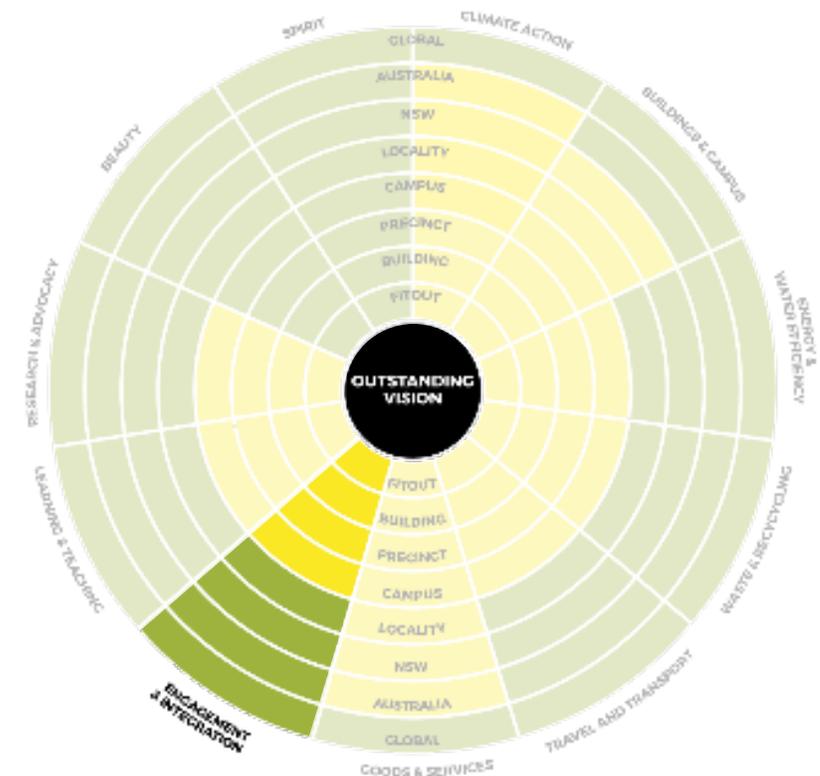


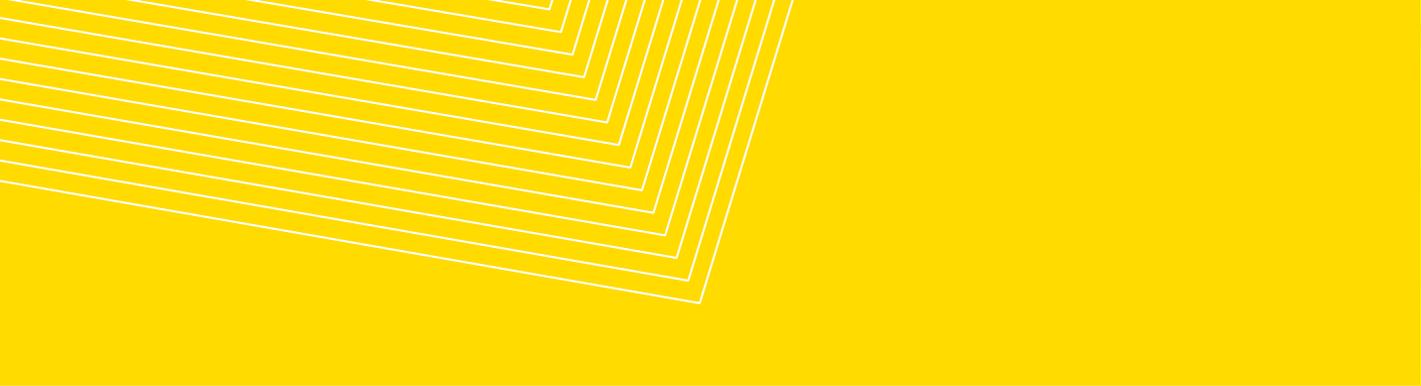
# Learning and teaching

The campus and its ecosystem inherently provides a unique opportunity for learning and teaching. Buildings and infrastructure should be learning tools and play a pivotal role in shaping the messaging for future generations.

Spaces should be **interactive and intuitive**, and showcase a sense of place, transparency and belonging. Buildings and the natural environment should foster **adaptive, collaborative and stimulated spaces** to facilitate learning for everyone. Technology should be used as an enabler to support teaching and learning.

The flow of information and learning through the physical environment should be **apparent and accessible** to enable a clear understanding of benefits and awareness to the community.

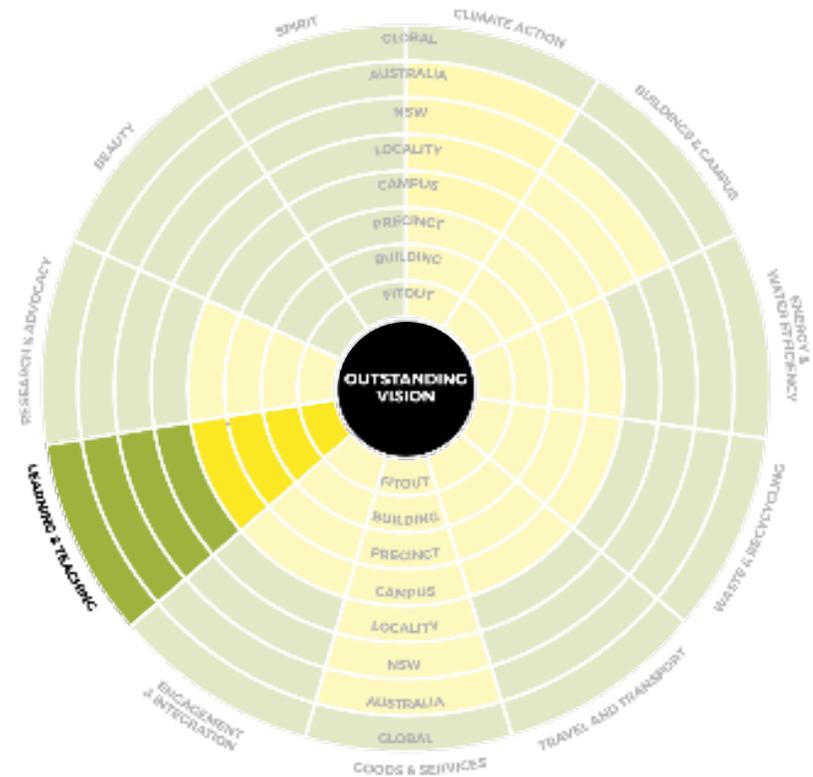




# Research and advocacy

The intent of research and advocacy is to identify opportunities where projects could benefit from the application of **knowledge and innovation** situated within the physical boundaries of UNSW. Open collaboration with students/faculty and industry would benefit both sides of the spectrum and provide a platform for integration of ideas and innovation.

Projects should engage with academia at suitable project stages, to explore the immense opportunities available for the creation of spaces and identify potential **forward thinking processes** to achieve excellence and outstanding environments.





# Beauty

Places and spaces within the campus should be inspirational and evoke a **sense of beauty, happiness, delight, harmony and inspiration**. The internal and external environments should be welcoming and agile with their physical form and adaptable to senses and seasonal changes.

The design and construction process should identify opportunities (i.e. biophilia, art) to integrate spaces and places with the **natural environment and cultural heritage** of the campus. This will provide a direct connection to the community for an inclusive and inspirational campus environment with a sense of celebration and achievement.

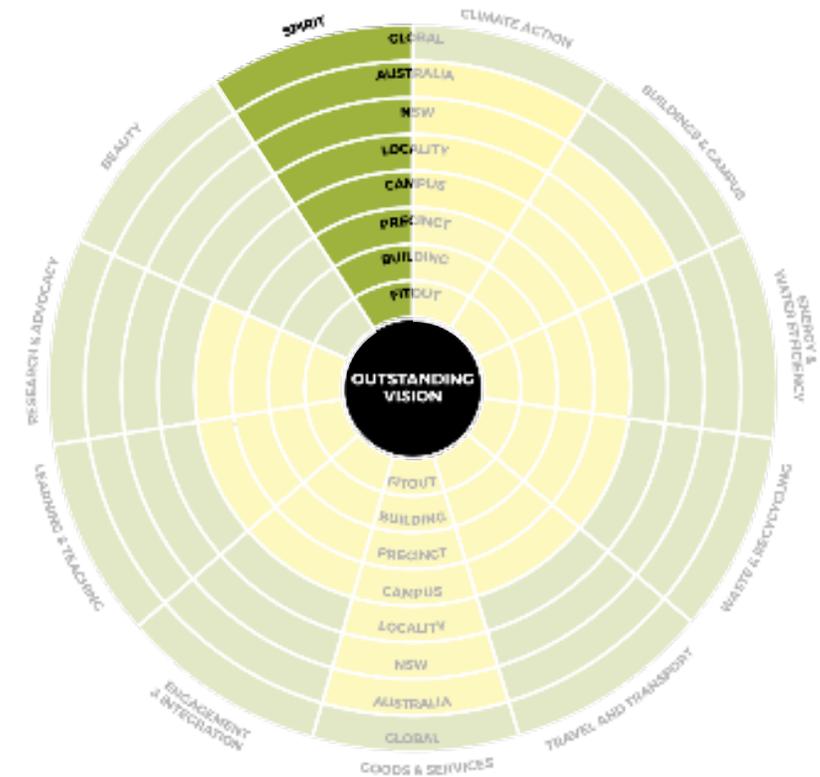




# Spirit

The intent of spirit is to provide outstanding places that inspire and elevate the spirit of the occupants and the community. The physical form should exude a **sense of place** and evoke excitement and wonder. Internal and external spaces should emanate a sense of **vitality, abundance and thrift** for occupants and the community.

Projects should explore the connection to the **indigenous history** and express it in the physical environment by providing a sense of empathy for the past and its relation to place.



# Process



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# Process

Success using the Sustainability Framework relies on intense collaboration between the members of the project team, and unified commitment to producing extraordinary results.

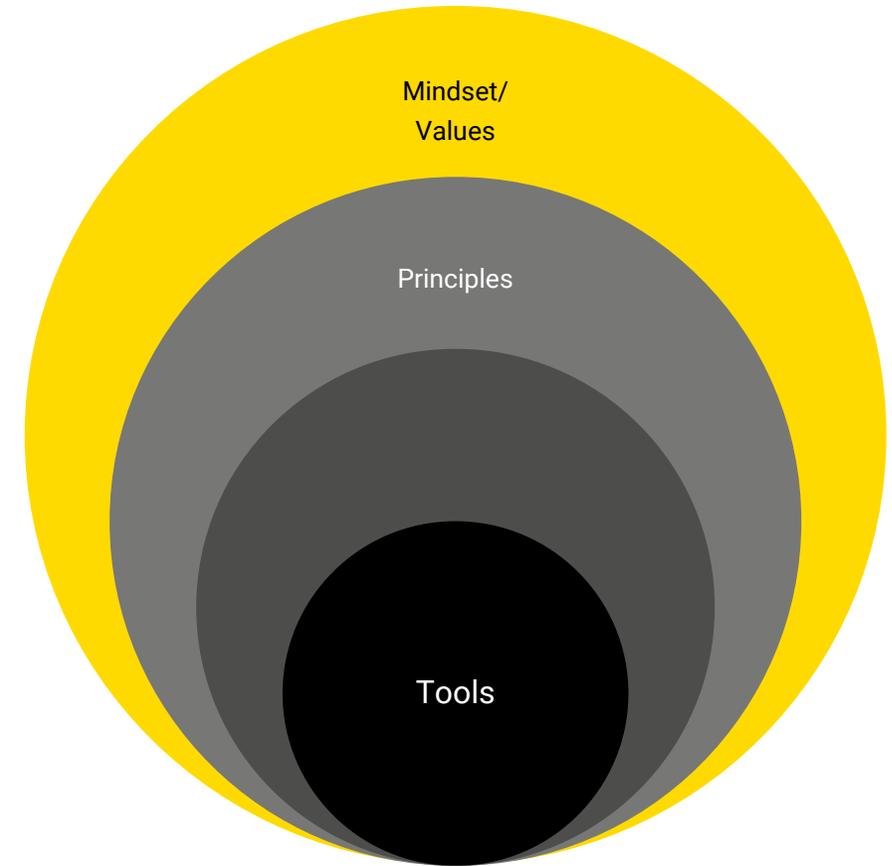
As an example of this approach, the Agile method of project management is based on collaboration for enhanced results. The higher the level of alignment within the team, the greater the potential for results that meet UNSW's definition of 'outstanding'.

**Mindset/values** = move towards learning, learn through discovery, fail early, strive for continuous delivery, focus on value

**Principles** = requires structural and cultural change, do just enough documentation/ team could be co-located

**Methodologies/tools** = to be selected and adopted in appropriate situations and used within this context.

The intent is that the design team's process for working together is in keeping with the design outcomes the projects should deliver. It is based on the belief that the most robust processes are created with a variety of stakeholders, and even though it seems counterintuitive, seeking out different perspectives early – and often - will increase the chances of a robust solution which reconciles numerous considerations into a coherent whole.



**'The agile onion'**



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