WilsonArchitects

ISSUE
13

DESIGNING THE FUTURE OF EDUCATION

# Designing for Innovation

CASE STUDY -

JAMES COOK UNIVERSITY IDEAS LAB

*"For too long, innovation has been synonymous with technology. We are beginning to realise that it is time for digital technology to take a supporting role, and to put humans centre stage in our innovation strategies." - Hamilton Wilson*

# What kind of architecture inspires innovation?

Understanding that the environments architects design influence the way people behave, what are the spaces required to help drive new ideas, create innovation and foster a culture of invention?

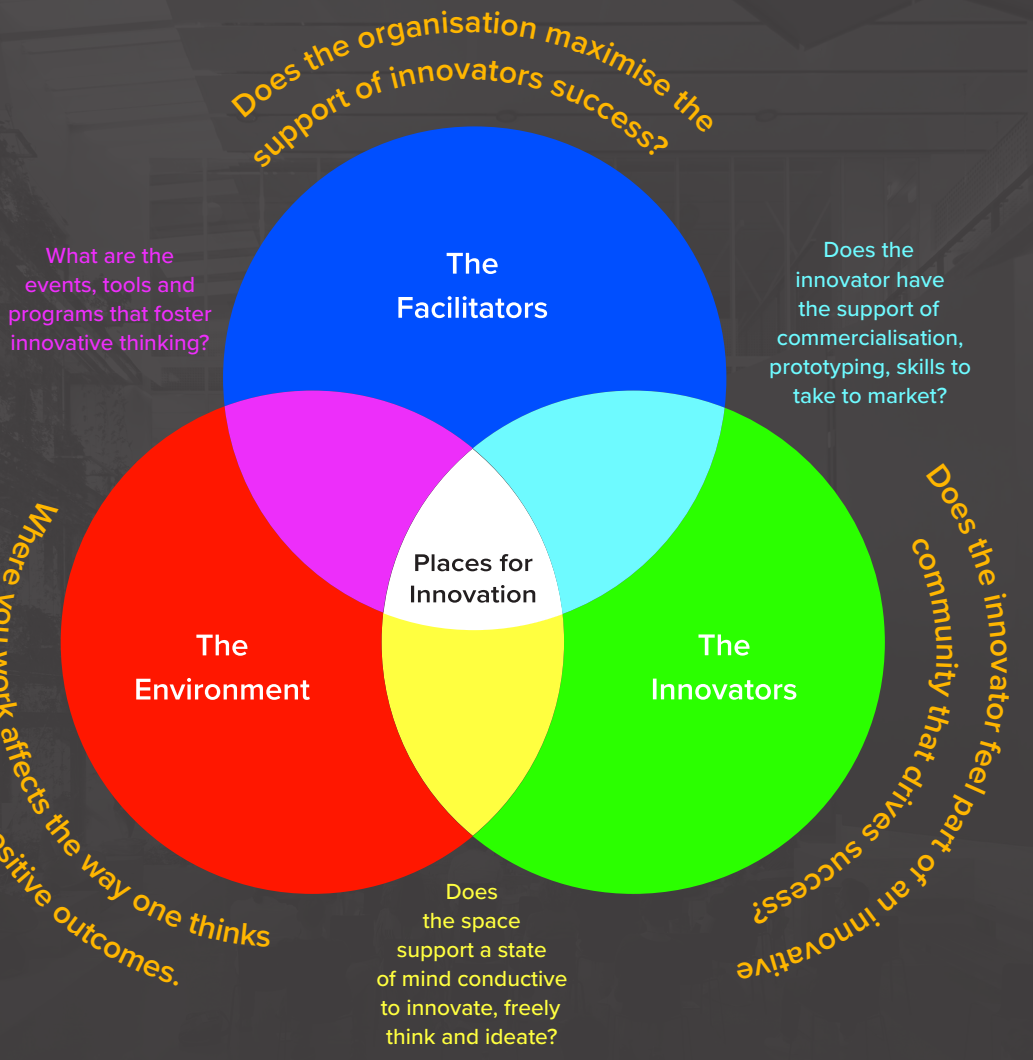
The Ideas Lab serves as a place to ‘innovate’.  However the word ‘innovation’ is much overused. To authentically innovate we need spaces that are more than the building rather an ecosystem for occupying, collaborating and, most importantly, curating and connecting people.  A comfortable place to both succeed and fail.

# The Innovation System

## Following an extensive national benchmarking process and site visits of similar spaces around Australia, there appeared to be some common themes.

- Innovation needs to be supported by people who can assist in making the right connections with the right people.
- Innovation needs to attract a community of similar minded innovators.
- Innovators need to be given license to think creatively.
- Innovators need to be in a state of mindfulness for clear thinking.
- Innovators need support to make connections with other innovators, thinkers or entrepreneurs.

Based on this research an overall framework for an innovation space has been developed where the innovation ecosystem is made up of three parts, each intersecting and interconnected with each another.



# The Facilitators

**The facilitators are possibly the most important component of a great innovation space and the reason why many spaces fail. The building alone will not create results as it needs curation of people, events and spaces.**

What are the events, tools and programs that foster innovative thinking? How can the people and spaces be best curated to optimise co-location and interconnection to create a culture of innovation. Does the innovator have the support of commercialisation, prototyping, skills to take to market?

It is critical that there are facilitators with the spaces to make these connections happen. In all instances the space to support innovation needs to be conducive to think differently and to place one's mind ready to collaborate, isolate, learn, fail, scale up.

# The Innovators

The innovators need to feel part of a community that drives success and destigmatises failure.

Are the innovators given the right spaces to ideate, collaborate, prototype, pitch and independently work?

## What can facilitate innovation?

- An ideate space to bring synergenic groups together to explore ideas and develop strategies.
- A major communal gathering space to open up conversation with a screen that can be used for presentations or images to celebrate innovation outcomes.
- A highly visible maker space to prototype product as well as a demonstrable example of innovation activity.
- A hospitality kitchen that enables people to prepare food together to break down barriers and open up conversations.
- Pitching spaces that encourage industry and commerce to visit and engage with innovators.

# The Environment

Does the space support a state of mind conducive to innovate, freely think and ideate?

Is there a range of spaces emotive and physical that can support a range of activities from independent, collaborative to collective that also encourage the cross fertilisation of ideas and processes?

## The pursuit of mindfulness

We can be certain that a small windowless room, alone with no other stimulation may not be the best place to think creatively and may be in fact detrimental to productivity.

What might be the opposite of such a place where the occupant can find the best mindset to work?

In the first instance we need to recognise that we are all different and need to find a range and diversity of spaces that perform differently. There is also much research on the idea of using a biophilic approach to design that can tap into our creativity and mindfulness even further.

Approaching this problem through biophilic principles seems to be a better strategy for a more humanistic approach to occupy research places as it address the state of mind and body.  As an architectural/landscape practice Wilson Architects have been preoccupied with this approach for many of our designs.

# The Environment

“Biophilic design can reduce stress, improve cognitive function and creativity, improve our well-being and expedite healing; as the world population continues to urbanize, these qualities are ever more important.” [1]

[1] 14 PATTERNS OF BIOPHILIC DESIGN - Improving Health & Well-Being in the Built Environment

## Sensorial connections to Nature

Nature in the Space addresses the direct, physical and ephemeral presence of nature in a space or place.

### Visual

Visual connections to natural systems such as planting material, water, and natural light.

### Auditory

To be able to hear natural systems - wind, water and wildlife.

### Haptic

To able to touch natural materials.

### Olfactory

To be able to smell natural systems such as air cleaned by plant foliage filtration, and the scents of plants.

## Spatial Patterns

As with all spaces that are designed around people it is important to acknowledge the psychological patterns inherent in the diversity of the human condition.

Places to observe others.

Places to withdraw from others.

Places that are theatrically revealed.

Places that stimulate the senses.

# The Environment

## Connections to Nature

"Natural Analogues addresses organic, non-living and indirect evocations of nature. Objects, materials, colors, shapes, sequences and patterns found in nature, manifest as artwork, ornamentation, furniture, décor, and textiles in the built environment." [1]

[1] 14 PATTERNS OF BIOPHILIC DESIGN - Improving Health & Well-Being in the Built Environment

### Presence of water

A biosystem pond, i.e. plant, fish and snails, creates a calming impact upon entry into the vastness of the indoor room at the JCU Ideas Lab. The addition of a water bubbler introduces white noise that helps activate the space when empty and distracts from noise when occupied.

### Dynamic and diffuse light

Light extends deep into the space with the large north facing atrium window. Importantly additional light from above reduces glare as well as provides well balanced light for planting to thrive. Light is filtered and glare is further reduced with the tendrilled foliage from the internal and external planter beds.

### Biomorphic forms and patterns

The DNA staircase acts as a sculptural and functional object and was introduced into the atrium to not only encourage access to upper levels by foot but also to create a non-orthogonal form with organic references.

### Material connection with nature

The 'timber shuttered' formed concrete creates a sense of the 'hand made' and at the same time reflects the robustness of the buildings purpose as an incubator of ideas.

### Complexity and order

A range of opposites create patterns often found in nature. Orthogonal plan counterpointed with sculptural stairs. Suspended tendrilled planters to north window contrasts with the rigid building grid. The clean face of the building facade sits behind the folded carapace of scrim material which is constantly changing translucence throughout the day.

# The Environment

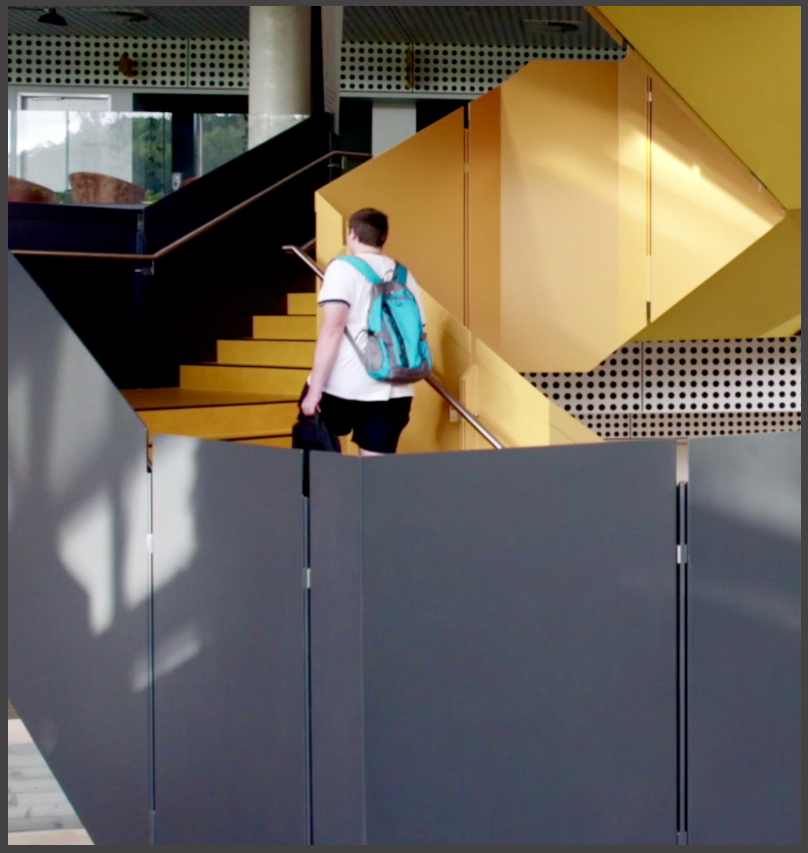
## Nature of the Space

“Nature of the Space addresses spatial configurations in nature. This includes our innate and learned desire to be able to see beyond our immediate surroundings, our fascination with the slightly dangerous or unknown; obscured views and revelatory moments; and sometimes even phobia-inducing properties when they include a trusted element of safety. The strongest Nature of the Space experiences are achieved through the creation of deliberate and engaging spatial configurations commingled with patterns of Nature in the Space and Natural Analogues” [1]

[1] 14 PATTERNS OF BIOPHILIC DESIGN - Improving Health & Well-Being in the Built Environment

### 1. Mystery

The promise of more places to explore and experience. The DNA stair changes the occupant’s perspective and views as they climb the stairs.



### 2. Prospect

Unimpeded view, collaboration verandas' gives the eye a range of perspectives to provide visual relief.

### 4. Risk/peril

An identifiable threat coupled with a reliable safeguard, the verandas' have what appears to be a low balustrade that makes the occupant feel more connected to the incubator below can help trigger dopamine responses.

### 3. Refuge

A place to withdraw, feel safe and secure.  A range of colour in meeting rooms provide spaces with different personalities and energies to potentially align to different thinking patterns.

# Case Study: An architectural response to innovation

The Ideas Lab serves as an innovative centre to translate research, ideas and ambition into products and processes with real commercial application to drive economic growth and diversity in far north with James Cook University's (JCU) start-up ventures and external community partners. The Ideas Lab is an exemplar case study setting a new benchmark for contemporary design in the ‘innovation’ space that attempts to create more authentic outcomes rather than simply imposed by its nomenclature.

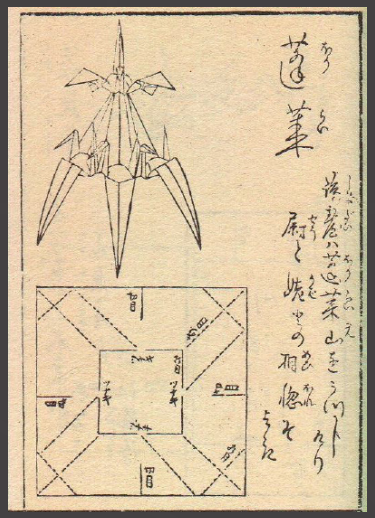
**The project is the result of extensive research in this space including a nationwide benchmarking tour and analysis.**

As a building form, the Ideas Lab sits adjacent to another very public JCU building at the entry into the campus forming a dual gateway into the University from the Captain Cook Highway. The challenge was to not compete but complement the final composition of this important building group.

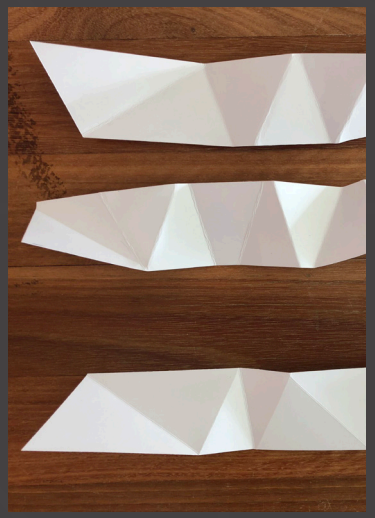
# Case Study: JCU Ideas Lab, Cairns

The facade was conceived as a metaphor of origami to reflect the idea of taking something prosaic (a sheet of paper) and being transformed, making it imaginatively evolve into something new.

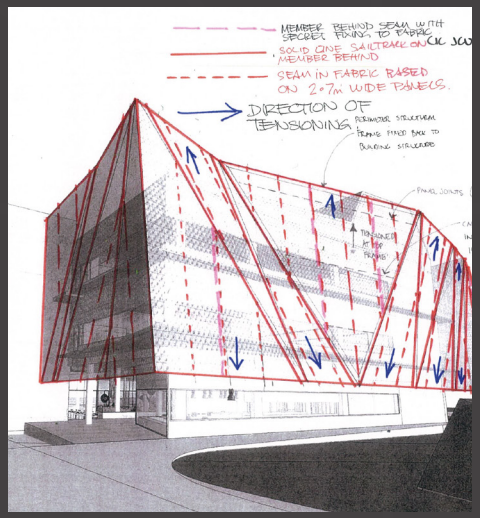
The whole of the building is wrapped in a ‘folded’ teflon fabric carapace which takes on creases and hard chines that modulate the mass and form of the building. This translucent screen performs a critical role in reducing both heat and glare into the workplace.



Ancient origami instructions for creating the classic crane where the prosaic nature of flat paper is re-imagined into another form.



Creating a cost-effective and practical solution to reflect the tectonic idea.




The testing of folding an envelope to understand its characteristics

The form of the building is at the scale of the Kuranda National Park range that overlooks the JCU site.

## An indoor garden room organises the space to make all parts legible, navigable and interconnected.

The building is conceived as an interconnected three storey building which embraces an atrium, visually extending into the landscape. A screen of internal and external planters on either side of the dividing glass wall dematerialise the envelop to reinforce this landscape connection. The ground floor has an intentionally interactive program of activities all centred around this vast room with a north facing glazed wall shaded by tropical tendril hanging plants. All the parts are visible and legible from this garden room which is furnished more like an external space that encourages informal collaboration with the adjacent connected rooms such as ideate spaces, pitch spaces, maker spaces and demonstration spaces. A large communal kitchen supports events as a way to break down social boundaries.

The upper level office spaces are connected by way of a dynamic spiralling ‘DNA’ stair to verandas' where staff can work collaboratively in a relaxed communal space that looks out to the atria and campus beyond.

# Experiences

## Research and learning on display

Throughout the building and especially on the ground floor, in and around the atrium, engaging activities are visible and help animate the space to demonstrate an expectation around innovation. Maker spaces, Ideate spaces, IoT labs, collaboration spaces as well as teaching areas and meeting rooms are all transparent and visually interconnected which further supports a sense of an innovation community.

A large communal kitchen brings together all occupants and supports events as a way to break down social boundaries.

This room's northern boundary is blurred with suspended planters supporting tendriled vines to both sides of the glass. The garden at ground level also seamlessly extends to either side of this glass envelope.

# Experiences

Verandas' on each level that support interdisciplinary collaboration look out into the garden room and beyond.

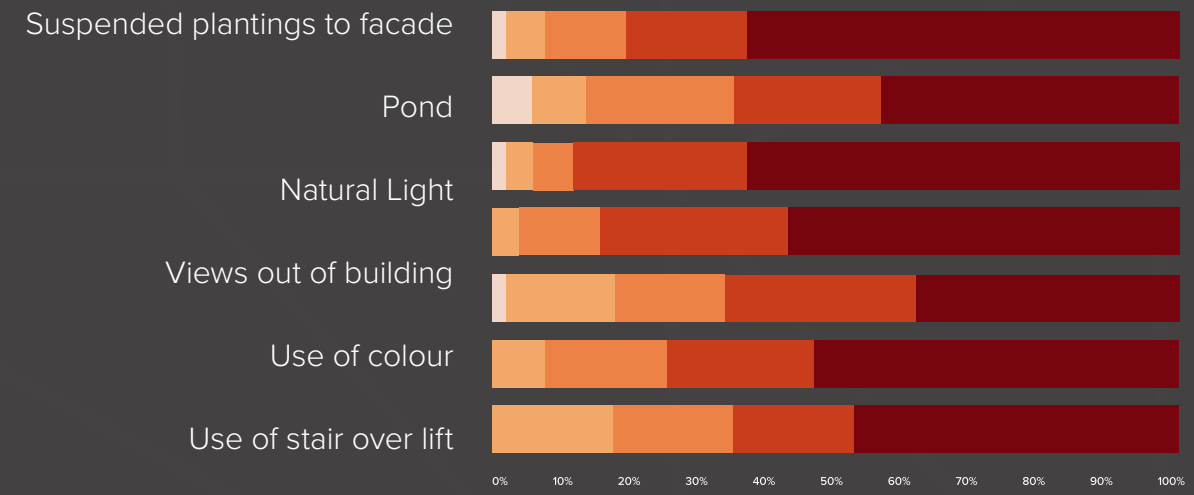
The atrium links all the spaces within the building to allow the visitor a way to both comprehend the various spaces, orientate themselves and engage with activities. A digital screen enables communicating current projects as well as an informal open presentation space.

The maker space and start-up offices can be seen in the background

# Research

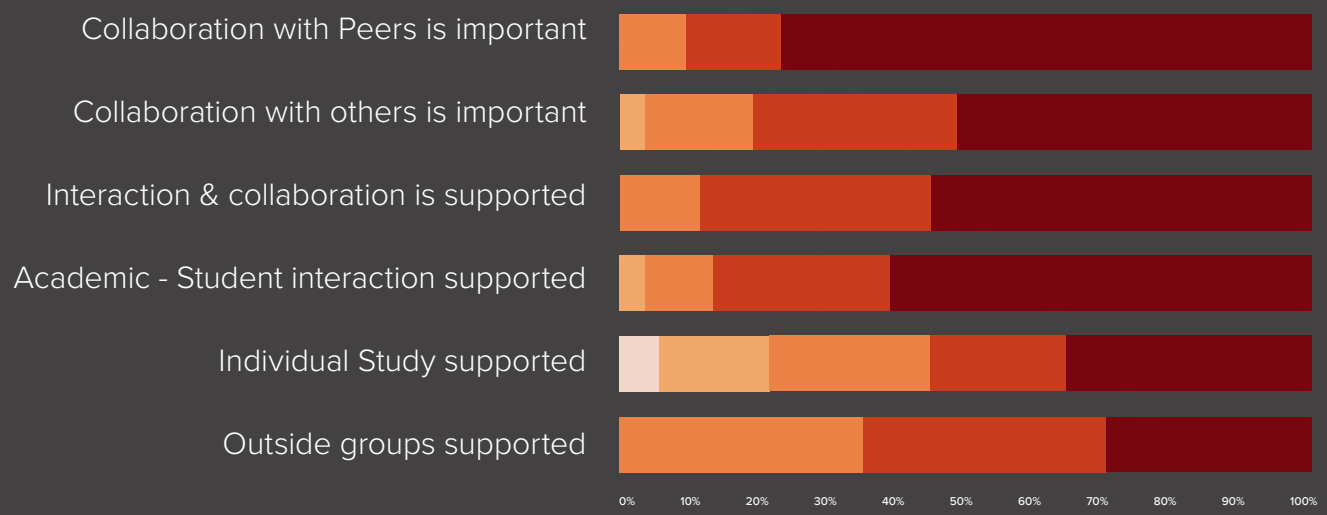
**As an extension of obtaining LEEDS environmental accreditation, Wilson Architects undertook additional surveys of students, researchers and staff to better understand the impact of innovative design strategies. The following diagrams are a small range of the results.**

## Value of Wellness design principles and affect on comfort




The importance on Biophilic design as one of the values for this project is reflected in the overwhelming positive responses to these initiatives. The Use of colour and the pond played a slightly smaller role in this perception which would be expected however they are still in the range of substantiative.

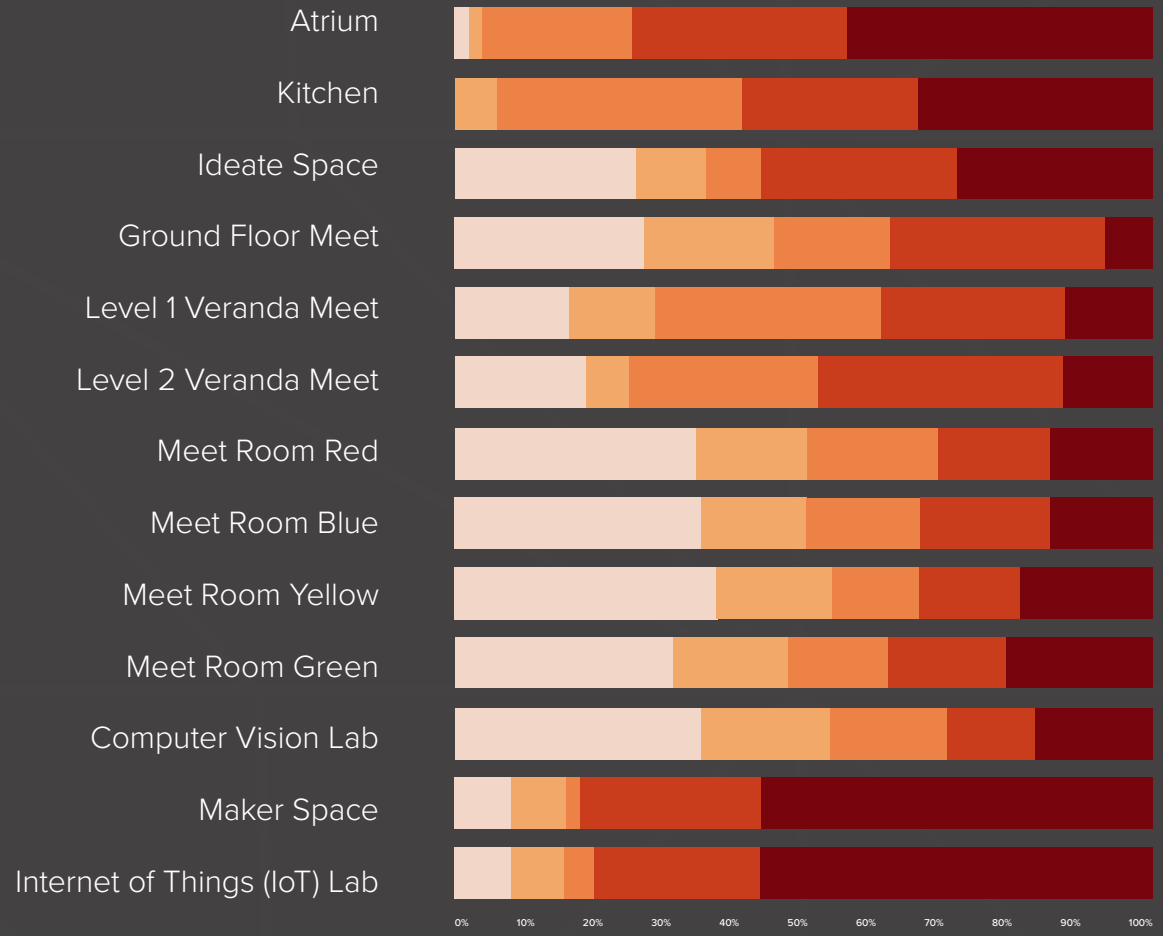
## Collaboration and Interaction




The expectation that space be provided for collaboration is encouraging and that the building provides the spaces for this activity. The design was weighted toward collaboration and the lower rating for individual study space is consistent with this initiative. Outside groups are well catered for in terms of meeting and collaborating.

# Research

## Importance of spaces within the building




It is of interest to note that the atrium and the kitchen are perceived to be critical spaces within the building. There are some issues with noise generated from the kitchen at times but the two often work in tandem. Maker space and Internet of Things (IoT) space importance is reflected in the dominance of student respondents.

Questions regarding meeting rooms was to illustrate whether colour plays any role in comfort or choice. The results are marginal but it is generally understood that the colour yellow is conducive for creative thinking yet there is no real perceivable preference for any of these spaces.


Large format projectors cast images onto the screen at night further animating the facade to become a beacon in the landscape for the University.


## Making Places for Life to Flourish

Wilson Architects has been in continuous architectural practice for over 135 years. We are a design and research-led practice at the forefront of educational architecture for the new generations, focussing on teaching, learning and research environments.

Watch the video here

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**Founded 1884**

The JCU Ideas Lab was completed in collaboration with Clarke & Prince Architects.

Left - Meeting rooms off the Ideas Lab verandas' each have their own character.