



The Innovation Landscape in Brunei



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01

Executive Summary



Executive Summary

Digital transformation is happening on an exponential level and changing the way many countries are approaching innovation. Technological changes and the global COVID-19 pandemic have greatly accelerated many industry disruption, forcing constant innovation to happen in order to catch up with the latest trends. Brunei, who has been paving its way towards realising Wawasan Brunei 2035, is no exception to this.

This white paper will look at the current progress of innovation in Brunei and its journey towards achieving it. It will also highlight in greater detail as to how we approach innovation as an organisation and how we can challenge the gaps using our model. While this paper will highlight certain topics from the organisation's viewpoint, the topics are meant to be food for thought and is aimed to inspire and stimulate how we can all work together to bring innovation together.

02

Introduction



“

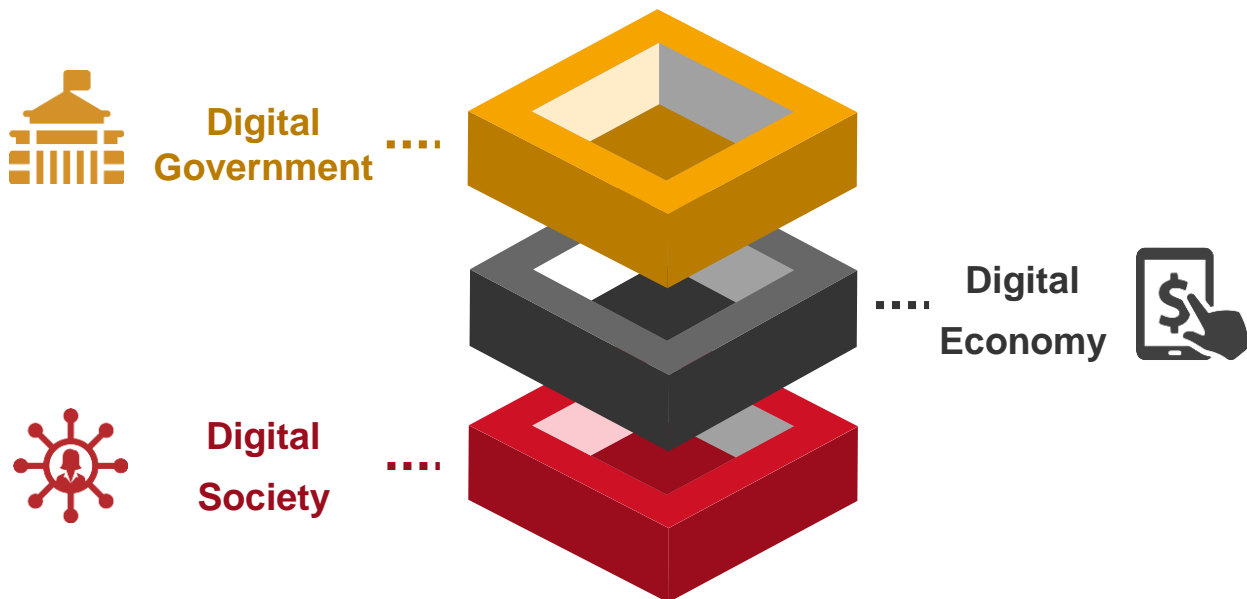
Innovation is the cornerstone of sustained economic growth and prosperity while creating something novel.

”

Introduction

In the aspiration to achieve Wawasan Brunei 2035, multiple government agencies have published their own respective masterplans to embrace the Whole-of-Government approach. Building a Smart Nation can pave the way to realising the aspiration above.

A strong and vibrant



are the main drivers for such a smart nation, all of which requires a strong ICT infrastructure to support.

Introduction

One of the monumental achievements undertaken by Darussalam Assets (DA) under the Ministry of Finance and Economy (MOFE) was to consolidate all the network infrastructure from three partner telecommunication companies (TelCos), DataStream Technology (DST), Progresif Cellular Sdn Bhd (Progresif) and Telekom Brunei Berhad (TelBru) into one wholesale network operator known as Unified National Networks Sdn Bhd (UNN).

The emergence of UNN was the beginning towards a more connected and digitally integrated future to empower a digital society. Subsequently, network infrastructure costs and expenditure have been optimised allowing better focus on modernising existing telecommunications infrastructure to give a better experience and opportunity for the nation. UNN will be looking to go beyond providing connectivity and to broaden our horizon into the world of further enabling innovation.

As the future of innovation resides heavily in the evolution of technology, UNN plays a pivotal role in building not just the foundational connectivity blocks but the overall digital infrastructure to enable innovation. Current modernisation efforts are seeing the introduction of 5G services and beyond to create a more conducive environment for innovators.

It should be stated that technology alone cannot bring innovation as it requires great collaborative efforts between both government and private sectors to achieve.

 **>92%*** Households ready to be connected

 **>90%*** Mobile coverage in populated areas

* Source: <https://unn.com.bn/>

03

**What is the current
innovation landscape
in Brunei?**



Brunei's innovation landscape as we see it.



Digital disruption has been occurring in Brunei on a gradual basis with many services increasingly becoming digital to meet the Smart Nation initiative. This has also greatly accelerated due to the pandemic and is evident in the digitalisation of health services and the availability to perform renewal services online to meet the new digital world demands.

This paper has identified five (5) common factors that have both direct and indirect contributions to the innovation landscape, which is also measured as part of the Global Innovation Index (GII) indicators. These factors will be discussed briefly based on this paper's perspective.

3.1. Mindset is a determinant on the adoption of innovation.

Mindset can be seen as a key component in having ideas being accepted or rejected. Any new digital innovation introduced is generally more challenging to accept within a society. The mindset of users is to stick to the status quo as they are unfamiliar and have never experienced the innovation. It has been noted that a top-down mandate from the government can be effective in adopting new changes in the nation.

Therefore, knowledge is key in ensuring that the users understand the benefits of the innovation and the vision as to why such innovation has been introduced. By doing so, we can nurture and mould the mindset of the nation to become one that accepts and enables a digital society.



Open mindset is key in adopting innovation.

3.2. The local innovative talent pool can further spur innovative growth.



Local innovation talent pool can drive innovative growth by demand.

There are a few local innovative talent pools which utilises technology to drive their businesses. The Brunei Innovation Lab (BIL), launched in July 2022, was established as the core national platform to develop an innovative ecosystem in producing digital champions and technopreneurs within in the nation.

This is a positive step to encourage more technopreneurs and digital champions in the ICT industry as this will create more demand for the introduction of innovative technology and its use.

3.3. ICT infrastructure plays a key role in driving innovation.

Digital innovation is dependent on having a strong sustainable ICT infrastructure to excel. This is also reflected in the GII index as one of the pillars in which Brunei is ranked above average.

Brunei's current modernisation efforts are seeing the introduction of 5G services to multiple urban and sub-urban locations around the country and acts as a stepping-stone for future ICT solutions to be incorporated for the country. ICT solutions can come in the form of fleet management, asset tracking, automation and much more.

UNN, being the national infrastructure provider, plays a pivotal role in laying the building blocks and enabling the future of innovation.



ICT infrastructure plays a key role in driving innovation.

3.4. Investment inputs on innovation has limited tangible outcomes.



Investment made may not correlate with outputs.

The GII index has reported that Brunei ranks 53rd in their Innovation Inputs but ranks 129th in the Innovation Outputs in 2022.

Innovation Inputs refer to elements of the national economy that enables innovative activities while Innovation Outputs refer to the results from the innovative activities within the economy.

While Brunei has performed above average in two input pillars – Institution and Infrastructure, there is much to improve across the Output pillars, in particular the Knowledge and Technology Output pillar.

3.5. Innovation requires a common approach across stakeholders.

Innovation is a continuous journey and cannot be achieved in silo. It requires the input and involvement from multiple stakeholders, both government and private alike, to achieve the bigger picture of bringing innovation to Brunei.

This is also highlighted in the Digital Economy Masterplan by the Minister of Finance and Economy II in his foreword where he stated that the realisation of the Wawasan Brunei 2035 through the opportunities of a Digital Economy can be fully leveraged upon with “strong collaboration between the Government, private sectors, academia and the consumers alike”.

All stakeholders should come together to have a common understanding of the challenges experienced by each other and to come up with a solution that can address most, if not all concerns. By doing so, any innovation implementation can have greater success with the holistic involvement and collaboration of all relevant stakeholders.



Collaboration is required for innovation to come together.

Strengthened by the spirit of solidarity and the Whole of Nation approach, the potential opportunities of a digital economy is here to be fully leveraged upon with strong collaboration between the Government, private sectors, academia and the consumers alike.

Minister of Finance & Economy II

04

**How do we approach
innovation?**



Tackling innovation from the inside out.

With aspirations to drive and accelerate ICT plans in creating modern and cost-efficient digital platforms that can support the national agenda, UNN acknowledges a need to innovate and do things differently. One of our main roles in innovation focuses to accelerate plans and actions of strengthening the ICT sector in order to:



Leverage on global leading solutions, technologies and platform to facilitate their access to Brunei



Support and being the enabler to the existing Brunei ecosystem for innovation



Create innovative solutions that are in-line with Brunei's digital plans

In recognising the above, we came up with a common approach as to how we can innovate the organisation internally to allow a creative and forward-thinking culture. The sub-sections below will share in detail as to how we have broken down our approach to adopt innovation within the organisation.

4.1. Preparing for an innovative culture.

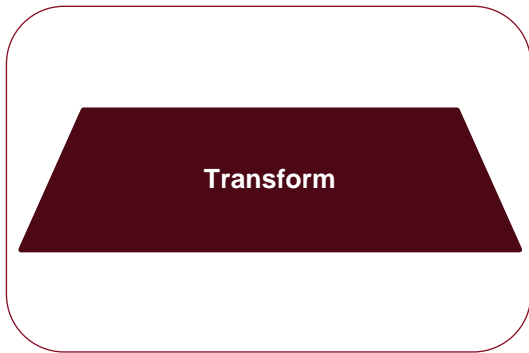


Figure 1: Transform Layer

UNN began its journey to innovate by first transforming the most important layer in any organisation – the employees. We recognise that the employees are the main asset in driving the changes and have since looked at executing transformation and change programmes to instil an empowered and innovative culture within our people.

Our approach to innovation is very clear – we are going to think big but start small. By transforming the people within the organisation, we are taking one small step to addressing the bigger goals of having an innovative and digital society. We are laying the foundation within our own organisation to enable innovation to grow by encouraging research, curiosity and breaking down silos. The perception of innovation should also be reengineered that it is not

always a grand radical scheme but also to embrace even the smallest wins such as streamlining a previously long business process. We define innovation as creating value through solutions to significant issues or situations.

With innovation defined, we create corporate visions and digital strategies to drive innovation internally but these can only be done through the employees. Therefore, it is imperative that the employees buy into the vision and strategies set out as they would be the foundation to enable it. An organisation equipped and embracing an innovative culture encourages a healthy work environment to think and do things differently.

The very same approach above can be applied to Sections 3.1 and 3.2 to address the gap in the local mindset and the local talent pool. By ensuring that the foundation is built on a sound innovative platform where the cultural mindset is orchestrated in such a way that it allows more open exchange of ideas and knowledge and to accept changes more readily can drive innovation to the next level.

4.2. Redefining the technology infrastructure in Brunei.

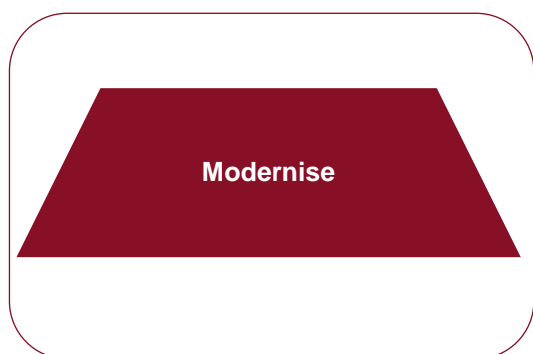


Figure 2: Modernise Layer

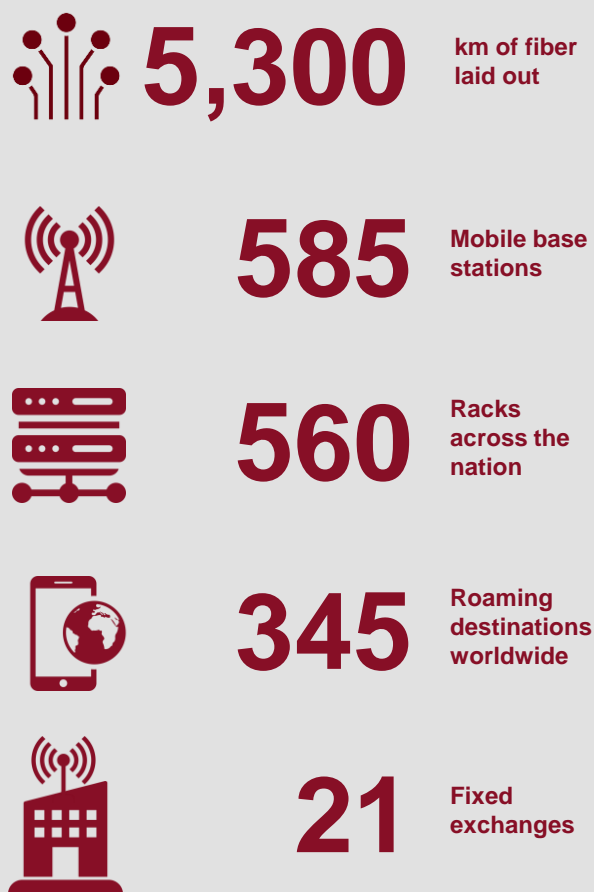
Network infrastructure has always been the core business for UNN and it is our interest and mission to create modern and cost-efficient digital platforms in Brunei. We are fully committed to doing this through modernising the network infrastructure and investing on new technologies as we understand that the infrastructure is a pre-requisite to enabling Brunei to move into the next stage as a Smart Nation.

Above and beyond laying down fibre cables and mobile towers, UNN is now expanding beyond the basic connectivity infrastructure and exploring the different digital industry solutions on a global scale. We have invested in building Tier 3 compliant Data Centres offering a suite of data centre, colocation and cloud hosting services. As many global industry players investing in cloud services, it is one of our interest to ensure that

the nation has access to store and host data locally to ensure reliability and security.

The strides we take in modernising the infrastructure is done continuously to address Section 3.3. Only with the right infrastructure in place can it enable the next layers of the building block to function in an innovation ecosystem.

Technology fun-facts



4.3. Portfolio diversification and enhancement



Figure 3: Diversify & Enhance Layer

With the modernisation of infrastructures well underway, this has opened up opportunities where we can expand and enhance our product and services portfolio. It is also through this diversification and enhancement that the nation can work towards closing the innovation input-output gap as mentioned in Section 3.4.

This enhancement is also applied internally within the organisation where there have been many efforts to innovate the business processes and business models. One such example would be the customer experience programme to improve our service level agreements with our partner TelCos and their interactions with the end users.

An extension from innovating

our internal processes and our connectivity infrastructure has created many creative tariff creations from our three partnered TelCos to the end users. We are now able to offer improved connectivity experiences at affordable rates as compared to the past.

We have also created international networks for improved service experiences especially in the areas of OTT (Over-The-Top) through our Borneo-IX platform. Through this platform, it allows our nation to be better connected internationally to our peers and we will continue to build and expand this network to allow better customer experience.

The introduction of ICT solutions such as Infrastructure-as-a-Service (IaaS) for cloud services are now possible through the modernisation and investments in our infrastructure. These ICT solutions will only expand further with time as we look to create more opportunities for end-to-end solutions being made available to our end users through the support of our TelCo partners.

4.4. Creating value through partnerships.

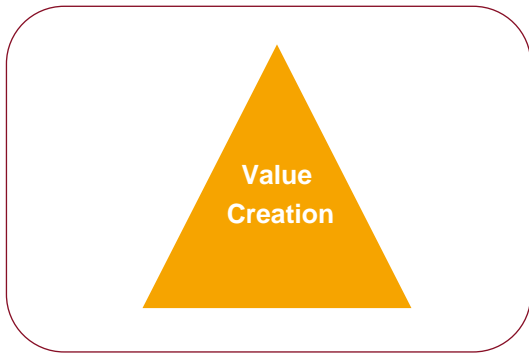


Figure 4: Value Creation Layer

Our final approach as illustrated in Figure 4 is focused on creating values in the innovative activities we pursue. The values should come in the form of a relief or betterment to the nation especially on the problems they face. This can only be achieved through market research and stakeholder engagements.

Active participation and contribution from partner TelCos is vital as they have the market competence and knowledge on the end consumers. It is through these symbiotic relationships that we can better create valued propositions through them, for them, to then come up with novel solutions.

Partnerships with authorities and industry players will allow us

to drive the nation's innovation ecosystem further forward by supporting the different strategic plans in place by the government. In tandem, UNN will also look to work with ICT companies, start-ups and students to better develop capacity building for research and development, implement prototyping of new digital solutions. These partnerships and co-innovation can further close the gap in the innovation input-output gaps further, particularly on innovation linkages, knowledge and technology outputs along with the creative outputs.

A key point that UNN has adopted throughout all the different layers in the pyramid is stakeholder engagements, be it internally or externally. We recognise that the innovation scope is so vast that there are gaps to bridge and this can only be done through partnerships. This holds true to Section 3.5 as the nation will need to come together as one and have a common approach so we can drive towards the same goal.

4.5. Stakeholders at the heart of innovation.

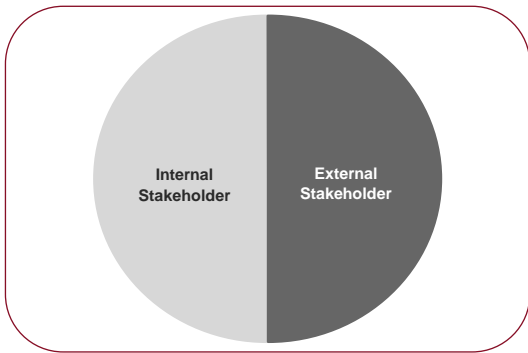


Figure 5: Stakeholders Layer

Innovation cannot be driven alone. It requires the involvement of stakeholders, both government and private to come together and drive it. There are various stakeholders who play different key roles in ensuring innovation can be achieved. It needs to be emphasized that there should not be only one stakeholder dictating

or imposing roles on other stakeholders, but a multi-way interaction and support systems need to be established.

In our view, the stakeholders engaged are divided into two categories, internal stakeholders (within UNN) and external stakeholders. The figure below demonstrates a high-level illustration on how innovation can be translated through the different stakeholders within UNN.

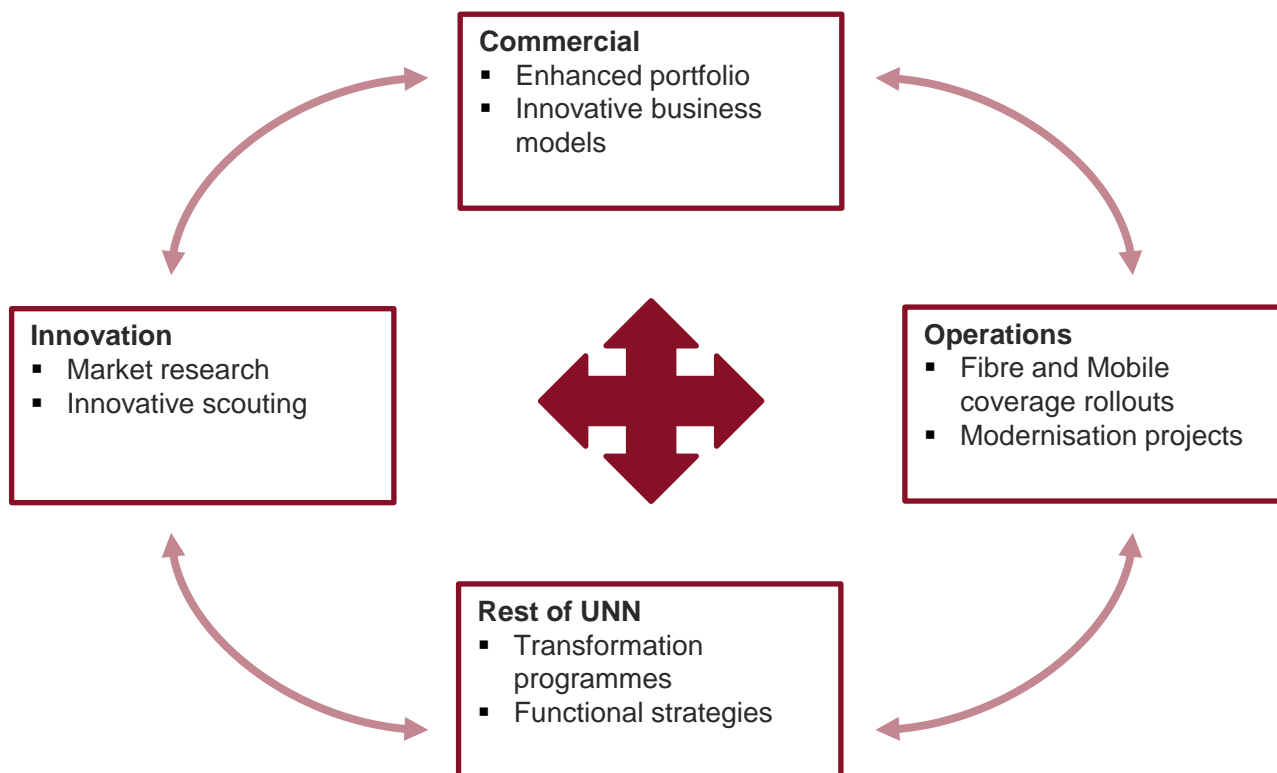


Figure 6: Internal stakeholder synergy

On the other spectrum, external stakeholders can be further sub-categorised as per below.



Government and Regulators

The main drivers on the national level to develop policies, regulations and strategies to drive the approach for national innovation.



Industry Players and Start-ups

The TelCo partners, industry players and SMEs work together to build the innovation networks to discover use cases and best practices to identify innovative solutions for the market.



Education and Research Agencies

The drivers to prepare the nation with digitally equipped people with innovative skillsets through internship programmes, partnerships and co-innovation.



Business Partners

The experts in different technology and models that can contribute as important resource and guidance based on their experience and learnings.



End-users

Innovative solutions identified for these customers to bring novelty and value to their lives and drive a digital society.

05

The UNN approach in a nutshell



Putting the pieces together.

The previous chapter has shared how UNN has taken a systematic approach in working towards innovation. As innovation is fairly new in the organization, we have taken a ground-up approach, working on the foundation, i.e., our people, by equipping them with skillsets and refreshing their cultural mindset when it comes to doing things differently.

This can then translate to the next layer of modernising the existing infrastructure, allowing us to introduce the next generation of new technology. These new technology will allow us to create a more diversified portfolio that we can then offer to our TelCos and end users. And once those are in place, we can work on adding greater

value on top of the existing services provided to further enrich the lives and experience of the nation.

It needs to be reiterated again that throughout this approach, stakeholder engagements are key to executing every activity, be it internal and/or external. While UNN is the main ICT infrastructure provider for the nation, we can only drive such initiatives through with the help of authorities, partners, industry players and educational institutions.

While our approach is read ground-up approach, organisations that have a better established base, they can read the pyramid as a top-down approach, where their initiatives can be value driven rather than technology driven.

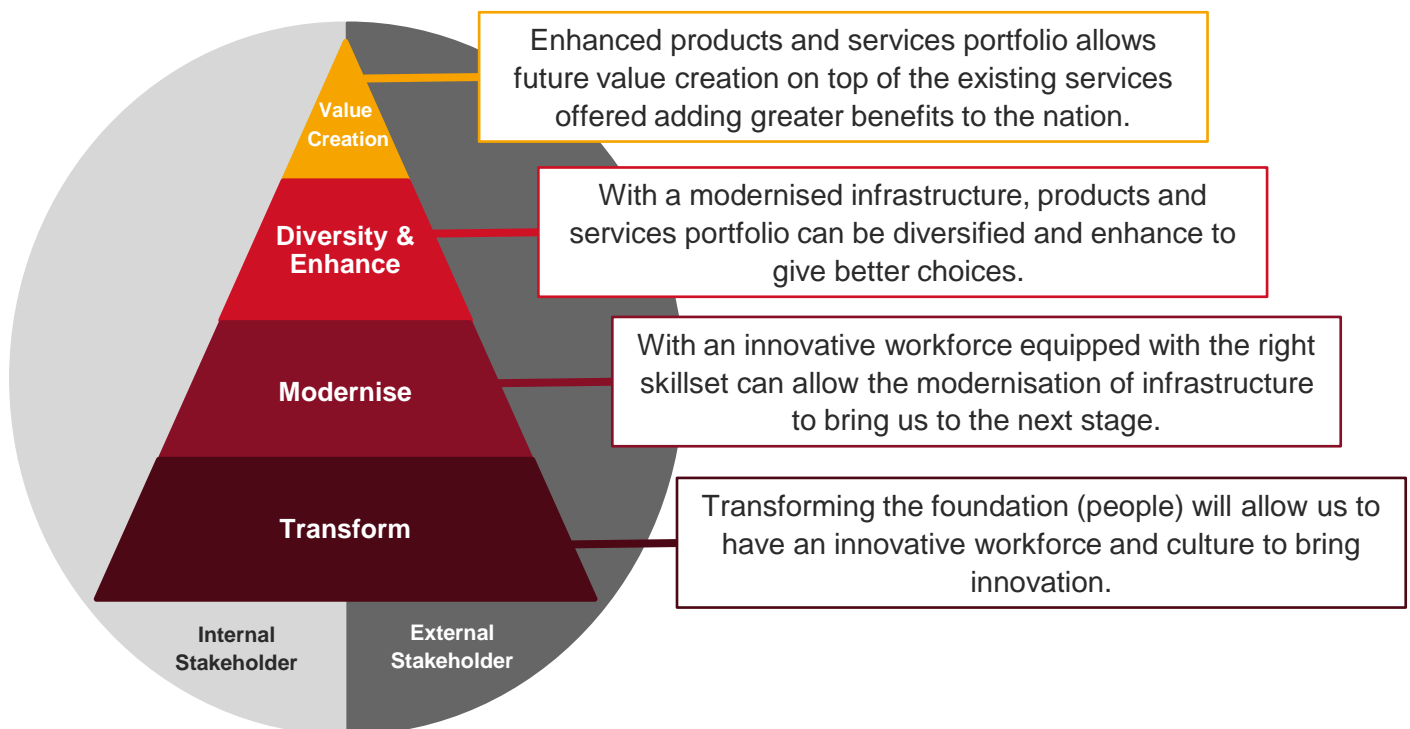


Figure 7: The UNN Approach

06

**Are you ready for an
innovation exchange?**



Embarking on an innovative journey.

This paper has explored the innovation landscape in Brunei and has discussed at length how UNN will approach innovation through the different layers of the pyramid. While unique to us, we have taken the opportunity to identify how it can be applied to the innovation gaps. These are merely our hypothesis and we recognise that there is no one right approach but we would like to get the innovation momentum rolling.

A few final takeaway hypothesis we have generated from working this paper are:



Innovation requires strong input and steering from the government, supported by the private sectors.

Are the government doing enough or are the private sectors unaware of the digital call-to-action?



The current connectivity infrastructure is sufficient to drive innovation.

Has the connectivity infrastructure enabled you to explore innovation or are there still limitations?



A clear metric for each digital effort is important to ensure the future of Brunei's digital goals.

Are the current measurables aligned to achieve our digital agenda or are the metrics measuring in silo?

We believe this paper alone cannot bring changes to the innovation ecosystem but is a start to shedding some light to the current landscape. To further build from this paper, we are looking to host innovation exchanges and bring relevant stakeholders together to discuss the hypothesis in this paper and how we can drive the innovations in the ICT industry.



CONTACT US

Do you have any thoughts you would like to share with us?

Keen to join the Innovation Exchange?

If you are, please feel free to reach out to us and we shall keep you posted on the latest updates for this exchange.



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