



TANSIQ-AR

Foundations for National Transformation & Modernisation

Secure & Resilient National Infrastructure

Tansiq-AR Limited
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Background & Introduction

A number of Middle Eastern Nations have set out their Vision for their futures. Key drivers for this are the recognition for economic diversification away from Oil & Gas and meaningful investment in realistic plans across a number of industries and sectors which over time will reduce the existing reliance on revenues relating to fossil fuel extraction, production and trade. To bring into reality National Vision and the diversification across sectors and the modernisation of Citizen Services requires the foundation of a reliable National super secure and future-proofed technical Infrastructure upon which Government and new and emerging sectors can rely upon and grow. This requires vision and strategic planning.

Across the last 50 years or so, the Middle Eastern Nations have instigated and implemented physical infrastructure plans. These focused very much on unifying the whole of their Nations through extending and improving the physical infrastructure of roads and communications and the provision of education and healthcare across Nations reaching even the remotest parts of them. This was highly successful and catalysed the expansion and access to the natural resources and wealth of the Nations as well as binding their people together under pragmatic Rulers and Governments. The investment in deepening the foundational road and services infrastructure across these Nations continues today.

Now is the time to plan another infrastructural paradigm shift to propel Nations towards a sustainable growth based economic future.

Just as the roads and public services infrastructure became a powerful catalyst for growth across the last 5 decades, the creation of a unified future-proofed resilient and secure technical Infrastructure & Networks represents the next critical foundational cornerstone upon which each Nation can and will diversify its economy. This will also facilitate the modernisation and joining up of Government and personalisation of Citizen services as well as strengthening Middle Eastern Nation's defence against international cyber-attacks from active Threat Actors. Safeguarding the Nation's security and providing the foundations required for investment in diversification to future industries and sectors.

National Vision – Cross Section of Priorities

Examples of National Priorities for the future are:

- Education, Learning, Research & National Capabilities
- Healthcare & Social Care
- Wellbeing & Social Protection
- Citizenship, Identity and National Heritage & Culture
- Economic Diversification & Fiscal Sustainability
- Economic Leadership & Management
- Labour Market & Employment
- Private Sector Investment & International Cooperation
- Development of Governorates & Sustainable Smart Cities
- Environment & Natural Resources

- Legislative Judicial & Oversight System
- Governance of State's Administrative Bodies, Resources & Projects

A unified National technical Infrastructure & Networks in each Nation will be required in order to improve all of these areas in line with each Nation's improvement metrics and indices.

Building Foundations & Modernising Services

A building without properly designed secure and stable foundations will collapse.

The Secure and Resilient Infrastructure & Networks will be the foundational backbone of a Nation's security, Government & Citizen Services and a catalyst for diversification and future economic growth. It is also the solid foundation for building a diverse Digital Economy. As such it requires to be super secure and highly resilient in all aspects to ensure continuity of access and services. The creation of a Sovereign Cloud capability across 3 super secure Data Centres (preferably underground) at different locations within each Nation will provide a future-proofed triple layer of resiliency for the country.

Zero Trust resilient Networks will join up the three Data Centre locations in a "Triple Layer Super spine" that will feed out on secondary fibre networks to required Business and Citizen locations. This will enable Smart City Developments and act as secure Business foundations for the attraction of international investment in diversified industries and sectors. The unified Networks will also provide the foundation upon which all Government and Citizen Services can be joined up and provided.

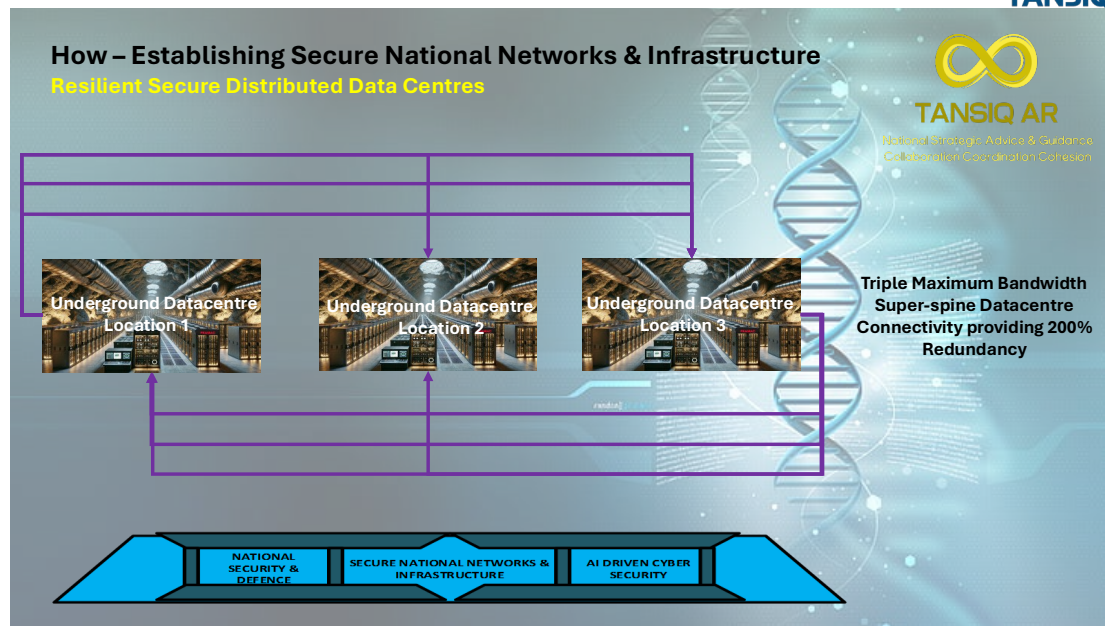
The Data Centres and the data and services stored and hosted within them will be additionally protected from Cyber-attacks by AI driven Cyber Defences. This provides for real time cyber defence from a continually learning and updated cyber defence capability across Energy & Utilities / Communications / Civil Defence & Emergency Services / Transportation / Healthcare / Finance / Education and so on.

Data storage would utilise cutting edge DNA storage capabilities which will greatly reduce the physical machine capacity required; significantly reduce the power requirements and environmental footprint whilst infinitely increasing data lifespan and storage capacity.

Each Data Centre could operate independently in any situation where either 1 or 2 of the 3 were rendered inoperable. This provides for a triple layer of Business resiliency and continual Business Continuity.



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Bridging the Digital Divide

In the UK, high speed modern infrastructure is still being implemented although the majority of populated and Business areas now have access to this. Middle Eastern Nations have the advantage in that their infrastructure – roads, power, water etc... are still being either improved or pushed out to the remoter areas of their countries. Nations also have major initiatives planned as part of their future Visions that will require modern, secure and resilient technical infrastructure to bring into reality. This means that the secure modernised technology networks and infrastructure that the Digital Economy will rely on can more easily be planned, coordinated and implemented alongside already existing initiatives thus saving \$ billions in investment. The implementation of the modernised technical networks and infrastructure will also enable the joining up of and access to Health and Education and all other Government and Public services for Citizens through high-speed fibre-based broadband.

Think of secure modernised technology networks and infrastructure as the life blood of a Digital Economy; a joined up fully functioning Government and a way of lifting the Social inclusion of a country's entire population. Then join up major initiatives and implement plans incrementally across a decade in the most cost-effective manner to the benefit of Nations as a whole.

Alternate & Distributed Power Sources

Many of the Middle Eastern countries have already embarked on a path of National investment in the implementation of alternative sources of power generation at scale. This represents an important and critical diversification strategy away from Oil and Gas. The Data Centres will require power sources that are resilient and set up in such a way as to maintain optimal power supplies at all times. It is proposed that there should be 3 power generation installations with each being capable of providing 150% of each Data Centre's requirement. The installations would be a combination of both Wind and Solar generation and linked by a resilient two-way secure ring main with provisions for power distribution levelling and modulation. Each power

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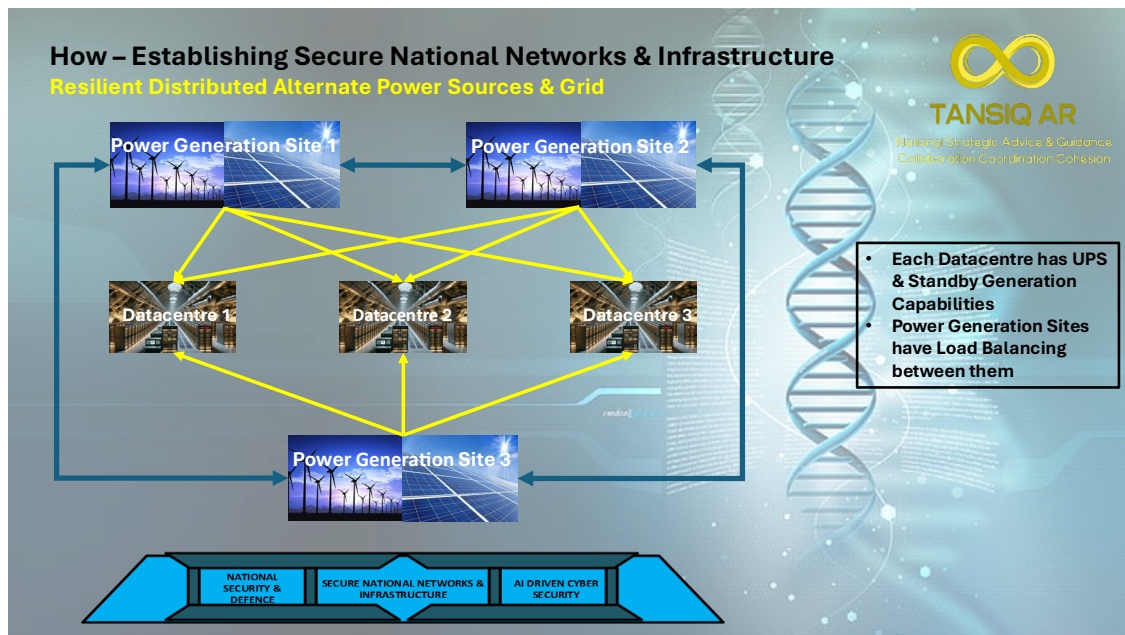
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generation location will be connected to all three Data Centres providing for the most robust power continuity in the event of 1 or even 2 sites failing.



Joining Up Government Services

Integration Layer

Hosted on the secure Networks in the Sovereign Cloud across the Data Centres will be the Government Integration capability. This will be a modern Application Programming Interface (API) based Datamesh architecture that provides for a Government wide Data Governance strategy which will safeguard and protect Government, Defence and Citizen data. The Integration layer will also break down data silos and join up data, services and processes across all Government Ministries where appropriate. The use of modular, reusable APIs will both enhance flexibility and scalability of the integration layer as well as keeping pace with changing Government policies, protocols and operational changes and transformations. Automation of data flows, operational workflows and data back-up will lower operational costs and ensure data is never lost.

Digital Enabling Platforms

The Government Applications across all Ministries that manage and deliver services may require rationalisation which may also involve migrating services and data to new, modern Digital Platforms. The applications / Digital Platforms will be connected by the Government Integration layer as needed to join up services and data as explained above. When procuring modern Digital Platforms, any bespoke or customisation MUST be avoided. Bespoke and / or customised platforms will cost substantially more to maintain; accrue expensive technical debt and result in wholly inefficient Government and Ministry operations. They may also pose a National data security threat. Workflows within and between Digital Platforms can be automated utilising a combination of

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Artificial Intelligence (AI) linked to Robotic Process Automation (RPA) tools. This will result in significant operational efficiencies and consistency of both Government and Citizen services. If not already in place there is a need for a cross-Government Digital Customer Relationship Management (CRM) Platform. This is required to join up Citizen data and provide a “Single View of the Citizen”. By doing so Citizen services across all Ministries can be focused and personalised resulting in significant and measurable Citizen Service improvements.

The Web Services Access Layer

The Web Services Access Layer provides the At the highest level, this Access Layer provides access to two groups of End Users:

- Citizens
- Government Ministers and Ministerial Civil Servants

It will be available anytime, anywhere and on any device of the End User’s choice. Access will be by a highly secure single sign on multi-factor authentication function for Citizens and Government Staff. This means that individual Citizens will only ever be able to access their services and data and Government Staff only able to access the data and workflows required for their Role or job function. Because of the integration and consolidation of Digital Platforms underpinning the services, there will be no duplication of data and data will always be accurate and up to date.

Because Staff will be able to access their work anytime on any device, they may adopt a Hybrid way of working which requires them to be in Ministry buildings only part of the working week. This has the added advantage of being able to reduce Government Estates and benefit overall from the corresponding reduction in energy requirements so contributing to environmental targets.

The Web Access Layer will also be a powerful medium for the provision of Citizen and Government Staff Communications where important communications can be delivered in real-time. Where changes are required to Services, these can be implemented as part of Business As Usual as opposed to change projects and initiatives which will significantly reduce the cost of service provision and provide overall continuity of services. Changes can be communicated via the Web Access Layer to Citizens and Government Staff end users.

Data Layer & Data Insights

In the proposed set up, data is shared and not duplicated across Government Ministries and subject to rigorous Data Governance controls. Hosted within the foundational Data Centres is the Sovereign Cloud capability where the data resides. Data is the source of valuable information and insights and when data sources are combined with skill it will lead to powerful and predictive reporting. Adoption of the right tools will yield real time



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trend and extrapolation analysis which in turn can inform pre-emptive Policy and legislative decisions.

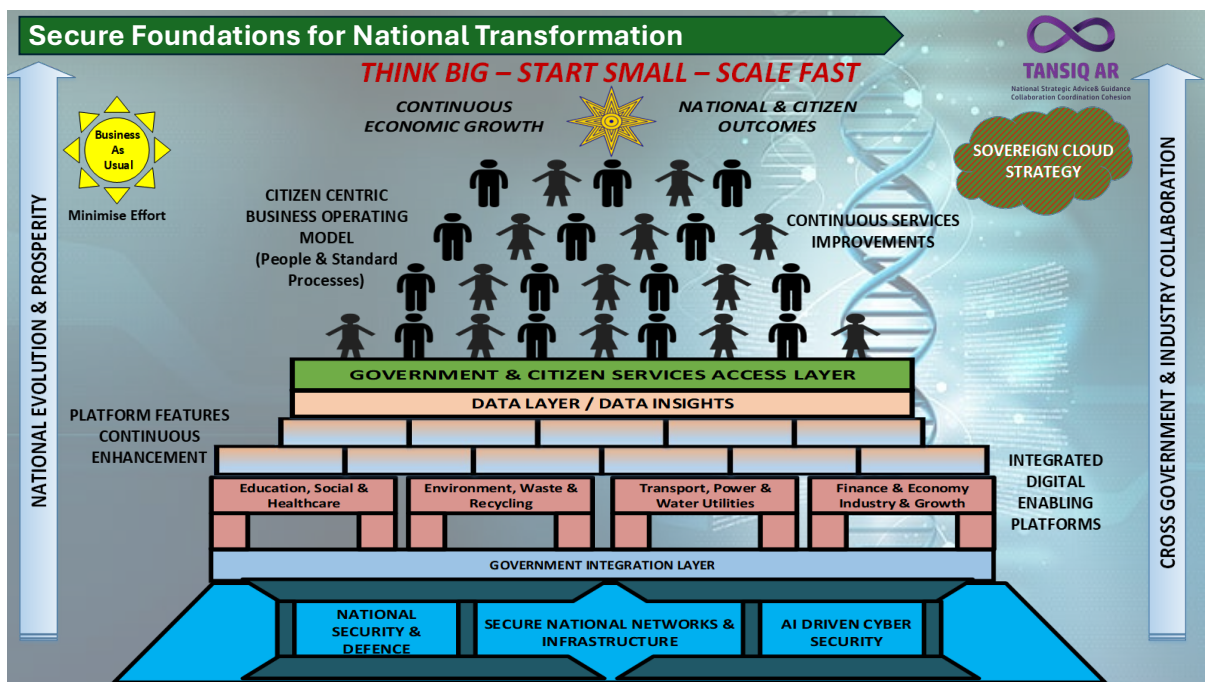
An example of this from the UK is where Data Analytics & Insights within the National Health Service is driving preventative health interventions for the population which in turn is significantly lowering the number of people needing to attend hospital. The data is used at a community level triggering early health interventions by local General Practitioners (GP Doctors) so managing conditions before they become critical requiring hospital attention.

Joined up data can also provide insights and interventions into fraud and provide early insights and warnings of localised community tensions which can be defused well before there is a risk of National unrest.

Citizen Centric Operating Model

The rationalisation and joining up of Government services and data as set out above will result in a leaner Government Services Operating Model supported by simplified, standardised and where relevant automated joined up business processes. The application of Artificial Intelligence (AI) to both processes and reporting will ensure continual improvements to both process workflows and overall services.

In summary, the overall effect is a continual enhancement and improvement of Citizen and Government Services at significantly lower cost or Government overhead. Service cost reductions can be in the region of 40%. This means tangible benefits realisation; greater Citizen satisfaction levels with services and continual National evolution and prosperity.



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