

Recommendations for Digital Strategy II

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1 Introduction

Network Strategies Limited was commissioned by the Pacific Island Forum Secretariat (PIFS) to review the Pacific Regional Digital Strategy and assist in the development of a revised Digital Strategy (DSII) that addresses any identified gaps and emerging needs. This document presents recommendations for DSII to be used as a basis for discussion by national and regional stakeholders.

Following the current Introduction, in Section 2 we outline the transformational potential of Information and Communications Technologies (ICTs), in Section 3 we review the objectives and outcomes of the Digital Strategy, in Section 4 we present key recommendations for DSII, and, finally, in Section 5 we consider possible constituents of a DSII Contract.

Although this report has been commissioned by PIFS, the views expressed here are entirely those of Network Strategies.

2 ICTs: the potential to transform

Effective ICTs can transform the way we live, work, interact and learn. ICTs are a particularly powerful tool in economically disadvantaged regions, such as the Pacific, where social and business interaction is limited by distance and cost. For Pacific island inhabitants ICTs offer a cost-effective means to communicate with family, friends, other citizens, businesses, organisations and Government. Furthermore, ICTs expand horizons through opening new and immediate gateways for information gathering and exchange, thereby supporting the development of information or knowledge societies.

ICTs are characterised by enabling and facilitating features which create opportunities for pervasive use across many sectors. In particular ICTs facilitate changed business practices and processes, together with new services and applications that create economic and social value. In this sense ICTs serve a general purpose, and as such, offer transformational benefits to societies and economies. As ICTs spread and are applied in many downstream sectors general economic development and productivity gains will follow. Maximum

benefits from ICTs may be obtained once appropriate facilitating structures are in place to support the development and spread of applications.

The pre-condition for widespread social and economic enrichment through ICTs is a high level of ICT participation. Until recently the level of ICT participation in Pacific Island Countries (PICs) has been extremely limited. However in the last five years some ICT sectors in the Pacific have experienced significant improvement as a result of appropriate facilitating structures, particularly competitive reforms and market entry which have led to improved service availability, reach and pricing. In particular we have seen rapid expansion in mobile telephony penetration in countries that have opened telecoms markets to allow entry of a second mobile operator. Nevertheless telecoms penetration and availability in many of the PICs are generally low when compared to developed countries, for basic voice as well as more advanced services such as Internet access, broadband and mobiles. As yet even basic Internet access is still a challenge in many PICs, and the availability of broadband is extremely limited. Consequently, engagement in downstream ICT applications and converged services is still not common in the Pacific.

3 Gaps and emerging needs

3.1 Overview

In the four years since the Digital Strategy was published considerable progress towards its objectives is evident. However had all the objectives of the Digital Strategy been achieved by 2010 then we would expect countries to be in a position to utilise many different ICT applications and converged services. This is not the case, and the challenge remains to achieve full ICT participation in PICs by improving accessibility and affordability. Thus all of the Digital Strategy's priorities remain important today and, in addition, a number of gaps have become obvious.

3.2 Gaps in outcomes from the Digital Strategy

Our Part A research indicated that there were a number of objectives embodied in the original Digital Strategy that have either not been achieved or remain as gaps. These are listed below:

- development of measures/statistics
- particular emphasis on government delivery of health and education services
- re-examination of the state of broadcasting in the region
- ICT coordination
- representation of unique Pacific issues, needs, attributes to Pacific and global fora
- monitoring, analysing and assessing global ICT trends.

3.3 Emerging needs

Our research and consultation also identified a number of emerging needs that should be addressed in DS2.

Sectoral organisation

- In some of the smaller Pacific countries telecoms market structures and services have changed little and it appears that it is a difficult process for these governments to develop updated ICT policies and legislation, mainly due to capacity and resource constraints:
 - competition may be feasible in some of the PICs with population sizes of around 100 000 (as demonstrated by the success evident in Tonga)
 - a competitive solution may not be an option for some of the very small PICs, and consideration should be given in these cases to special sub-regional solutions.
- In many PICs there has been slow progress with policies and implementation of universal access schemes, largely due to a lack of technical expertise and resources.

- The PICs may be considered to be particularly vulnerable to cyber threats for a number of reasons, but at present there is no consistent approach to dealing with this issue. For example in different PICs the issue is dealt with variously in ICT, Spam, Computer Crimes, Electronic transactions/business and Telecoms Acts, and a Crimes Decree.

ICT infrastructure

- Telecoms penetration and availability in many of the PICs are generally low when compared to developed countries, for basic voice as well as more advanced services such as Internet access, broadband and mobiles. While in some PICs the increase in availability and accessibility of mobile services is certainly providing new social and economic opportunities, developmental potential offered by the Internet is still unattainable for most.
- While telecentres demonstrate considerable benefits, it is not clear in all cases that it is possible for such ventures to be self-sustaining beyond the short-term.
- The availability and affordability of broadband data speeds are basic issues in the development of effective ICT, and are imperative if the anticipated economic and social benefits are to be achieved. As yet even basic Internet access is still a challenge in many PICs, and the availability of broadband is extremely limited.
- There is a lack of complementary infrastructure, including electricity, roads and shipping.

International connectivity

- The expense of international capacity continues to be a major issue for the development of telecoms/ICT in and among Pacific Islands, with international bandwidth requirements set to increase substantially in the next five years due primarily to projected growth in Internet traffic.

- Due to the high cost associated with its deployment, international connectivity via submarine cable is relatively scarce among PICs.

Capacity building

- The benefits of training and capacity building efforts must be spread over a wider segment of the population and communities.
- It appears very difficult to retain skilled IT professionals in PICs.
- ICT training will be necessary to encourage business uptake of ICT amongst SMEs.

Converged applications

- Many sectors do not include ICT as part of their current regional policies.
- Progress towards e-government is very slow in the Pacific with few countries possessing all of the capabilities required to offer a comprehensive suite of e-government services.
- In the absence of appropriate infrastructure, tools and skills very few PICs are in a position to implement comprehensive ICT in education policies.
- Most PICs are struggling to meet basic needs in healthcare, with the result that ICT in health is not a high priority.
- ICT is not commonplace in business due to lack of both accessibility and affordability of infrastructure.
- A complete assessment of progress in many areas is difficult due to the many gaps in data and information, for example:
 - little documentation is available regarding progress towards ICT in education
 - little recent data is available on ICT use by businesses

- there is little research on the socio-economic impact of ICT at the regional level.

Regional coordination

- There is a lack of effective regional coordination, which potentially causes inefficient outcomes.
- Gaps are evident in information and knowledge about current and planned activities amongst partners.
- Opportunities for stakeholder consultation and engagement appear to be very ad hoc, leading to considerable potential for overlap.
- There is a paucity of information and statistics available on ICT progress at the national level and a lack of published information on objectives, developments and outcomes of regional initiatives.

Monitoring and evaluation

- It is currently very difficult to obtain information on the nature and outcomes of many initiatives.
- Quantitative analysis of progress in ICT access and usage is hampered by the difficulty of obtaining reliable information, and often there is conflicting data from different sources.
- Collection of ICT access and usage statistics for households and business is not currently occurring in most PICs.

4 Key recommendations for DSII

4.1 DSII framework

A conceptual framework for DSII is presented in Exhibit 1 below.

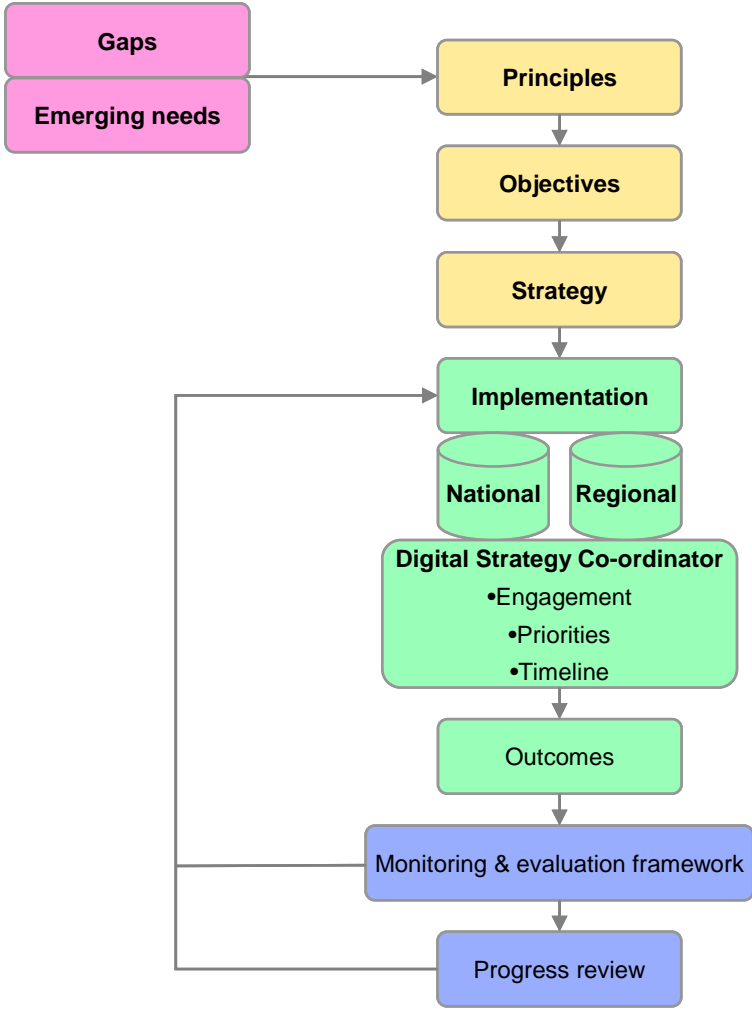


Exhibit 1: Proposed DSII framework [Source: Network Strategies]

Overarching principles and objectives provide the foundation for the framework. To increase the chances of success of the Strategy, it is essential that SMART (Specific, Measurable, Assignable, Realistic and Time-bound) objectives and goals are set. Use of the

SMART criteria will ensure that goals are well defined with clear lines of responsibility and measures of success. In addition use of these criteria should result in goals that are achievable and not overly ambitious.

The gaps and emerging needs identified from Part A of our study provide the basis of the overarching principles and objectives of DSII. The proposed strategies and modalities for implementation are based on research and stakeholder consultation and feedback. Implementation should occur at both national and regional levels, as was recommended in the original Digital Strategy with Pillars 1 (country engagement) and 2 (regional engagement). Note however that we have not included an equivalent of Pillar 3 – global level strategies and implementation – on the basis that global organisations are already present in the region and the region’s resources should currently be devoted to achieving regional goals.

We also recommend that to support DSII a regional co-ordinator or co-ordination mechanism should be introduced to provide assistance with the engagement of stakeholders, priorities and timelines.

Finally, we recommend that a monitoring and evaluation (M&E) framework be instituted to facilitate regular documentation of outcomes and assessment in relation to objectives. The M&E framework would enable regular progress reviews, and modalities of implementation may be adjusted on the basis of findings from these reviews.

4.2 Objectives

DSII, building on the progress and knowledge that has been gained since the launch of the first Digital Strategy, aims to address the fundamental challenge of increasing ICT participation in the Pacific. To this end its overarching objectives are:

- the provision of adequate, accessible and affordable infrastructure for all PICs
- promoting and increasing usage of such infrastructure.

4.3 Key principles

The gaps and emerging needs that have been identified may be addressed as follows:

<i>Ensure ICT sector organisation promotes sectoral development</i>	Experience from around the world indicates that appropriate policies are key to the expansion of ICT sectors. It is therefore essential that national ICT sectors develop policies and structures to encourage and facilitate development of the sector to its full potential. In particular, policies should promote competitive environments with independent regulation and encourage private sector participation.
<i>Promote development of ICT infrastructure and improve access</i>	In the absence of adequate infrastructure none of the transformational benefits of ICTs will be possible. The ideal scenario is the commercial development of ICT infrastructure supported by suitable ICT sector policies and structures. However some key infrastructure development may not be achievable through commercial enterprise alone and appropriate intervention will be required.
<i>Encourage ICT utilisation</i>	Once access is enabled, full ICT participation cannot occur in the absence of sufficient skills and capacity. A lack of knowledge and experience in this respect restricts understanding of the full potential of ICT applications and inhibits innovation.
<i>Broker cost-effective solutions for international connectivity and bandwidth</i>	As the demand for international bandwidth continues to increase, the expense of international capacity remains a major issue. Submarine connectivity is a high priority for many PICs but, given the vast distances of the Pacific, cost is a major challenge for new cable initiatives. For countries where satellite connectivity is the only option for many or all islands, affordable and sustainable supply arrangements must be negotiated.

*Achieve ICT
efficiency*

In many cases Pacific Governments are struggling with extremely scarce resources to meet very basic needs of their citizens. In these circumstances it is imperative that all ICT efforts and initiatives are conducted as efficiently as possible, in order to secure the greatest possible return from limited resources.

The key principles and activities that capture the above recommendations are detailed in Exhibit 2.

<i>Principle 1</i>	<i>Principle 2</i>	<i>Principle 3</i>	<i>Principle 4</i>	<i>Principle 5</i>
Sector governance	Infrastructure & access	ICT utilisation	International connectivity	ICT efficiency
<i>Objectives:</i>				
Development of national policies reflecting good governance and best practice Facilitate competitive environments with independent regulation and private sector participation	Encourage commercial development of ICT infrastructure Facilitate appropriate intervention where commercial infrastructure is not feasible	Encourage ICT capacity building that will ensure full utilisation of ICT infrastructure and encourage innovation	Facilitate cost effective strategies for provision of international connectivity	Encourage efficient and effective mechanisms to optimise the use of limited resources
<i>Activities:</i>				
Ensure that national ICT policies reflect current priorities Develop Universal Access (UA) policies in every PIC Support corporatisation and/or privatisation, where appropriate Research effective broadcasting models	Improve accessibility of ICTs (in particular, the Internet) to communities and educational institutions Promote access and reach of ICTs to SMEs Address infrastructure gaps in CNVs Protection of critical infrastructure	ICT skill needs assessment Lead by example, with ICT components in all regional policies Educate SMEs on value of ICTs and build capacity Ensure education system supports ICT skill development Develop ICT educational programmes to target disadvantaged groups	Economise on international bandwidth Foster cooperation on international submarine cable connectivity initiatives Demand aggregation for satellite capacity	Improve regional coordination mechanisms Collect ICT statistics Improve reporting on objectives and outcomes of ICT initiatives Harmonisation of laws and ensure protection of privacy, data security and IP rights

Exhibit 2: *Key principles and objectives [Source: Network Strategies]*

<i>Principle 1</i>	<i>Principle 2</i>	<i>Principle 3</i>	<i>Principle 4</i>	<i>Principle 5</i>
Sector governance	Infrastructure & access	ICT utilisation	International connectivity	ICT efficiency
<i>Activities (continued):</i>				
Consider a sub-regional approach for the smaller PICs		Process for capacity building to be passed onto the wider community Develop training programmes that provide long-term capacity		

Exhibit 2 (cont.): *Key principles and objectives [Source: Network Strategies]*

4.4 Modalities for implementation

In this section we consider modalities for implementation at both the country (Exhibit 3) and regional (Exhibit 4) levels. These illustrate potential actions that could be undertaken to address the identified gaps and emerging needs. Clearly the information presented here for the country level would need to be adapted to the particular circumstances of individual countries. In this sense the country level modalities represent examples of types of actions that would facilitate the desired outcomes.

A core requirement for all modalities is the monitoring and assessment of effectiveness / progress. This will require:

- development of appropriate indicators or measures that ideally are quantifiable, and straightforward to determine
- setting of implementation milestones and associated timeline, from current status through to the completion of the implementation and (where appropriate) ongoing post-implementation effectiveness / progress milestones
- creation of a implementation review process, to incorporate periodic progress reviews during implementation followed by a final post-implementation review – timing of the review process should harmonise with the implementation milestone timeline, and allow for timely remedial actions to be undertaken if required
- collection and collation of data to be used to derive the above indicators
- assessment of actual performance against milestones.

It is essential that the measurement process, as outlined above, is practical and feasible given the limited resources available in some PICs.

<i>Principle 1</i>	<i>Principle 2</i>	<i>Principle 3</i>	<i>Principle 4</i>	<i>Principle 5</i>
Sector governance	Infrastructure & access	ICT utilisation	International connectivity	ICT efficiency
<i>Modalities for implementation – country level</i>				
Review existing ICT policies and update/amend to provide further impetus for sector development.	Introduce initiatives that will increase public ownership of ICT equipment. Support telecentre initiatives, particularly the funding of ongoing costs.	Governments to develop and implement comprehensive e-Government plans.	Support initiatives to develop local content.	Participate actively in regional meetings, fora and consultation, and ensure representation at regional level.
Define UA targets; identify gaps in ICT service provision; review options and introduce/update policies.	As above, but for the SME sector, eg initiatives to increase ownership of ICT equipment and use of applications. Develop e-government applications that will encourage take-up of ICT.	Develop business ICT awareness programmes. Promote local content to support local services, products, and enterprises.	Develop forecasts for future bandwidth requirements; actively participate in regional coordination activities.	Assign responsibility for regular collection of ICT statistics to regulatory body, national statistics office or other designated body; facilitate data gathering through official mechanisms.
Feasibility studies by ICT and Finance Ministries.	Implement UA policies. Introduce initiatives to encourage infrastructure deployment. Consider such approaches as Output-Based Aid, and Public Private Partnerships (PPPs) etc.	Provide ICT training to teachers. Develop school curriculum to include computer literacy and ICT training. Develop teaching of ICT at all levels of the education system, including formal and informal education.	PICs review and aggregate their demand in order to lease the appropriate amount of transponder capacity as a single entity.	Reporting and feedback mechanisms to be introduced for ICT programmes and initiatives, including capacity building and training assistance.

Exhibit 3: *Modalities for implementation: country level [Source: Network Strategies]*

<i>Principle 1</i>	<i>Principle 2</i>	<i>Principle 3</i>	<i>Principle 4</i>	<i>Principle 5</i>
Sector governance	Infrastructure & access	ICT utilisation	International connectivity	ICT efficiency
<i>Modalities for implementation – country level (continued)</i>				
Review existing broadcasting policy and develop plans.		Identify key disadvantaged groups and investigate appropriate approaches for education. Ensure no gender discrimination in ICT training.		Support appropriate training for local lawyers.
Conduct an ICT needs assessment.		Promote development of skills of a sufficient number of appropriately qualified ICT professionals to provide advice and training to Government and communities.		
		Support mechanisms for identifying appropriate individuals for advanced ICT training and ensure that this becomes an ongoing process.		

Exhibit 3 (cont.): *Modalities for implementation: country level [Source: Network Strategies]*

<i>Principle 1</i>	<i>Principle 2</i>	<i>Principle 3</i>	<i>Principle 4</i>	<i>Principle 5</i>
Sector governance	Infrastructure & access	ICT utilisation	International connectivity	ICT efficiency
<i>Modalities for implementation – regional level</i>				
Provide resources to assist in national ICT policy development.	Focus on the means to provide more affordable ICT hardware and software for community access. Contribute to capital costs and/or provide seed funding for telecentre initiatives.	ICT skill needs assessment to be undertaken, to determine key competencies to be developed, particularly for smaller PICs. Develop ICT components for all regional policy (e.g. energy, education, health, the environment etc) CROP ICT working group to build on existing work of CROP agencies in providing regional ICT leadership.	Provide information and guidance on the variety of technology strategies and business models, already in use in developed markets, that are being used to reduce the amount of bandwidth required to provide commercial content services.	Introduce an effective ICT coordination mechanism. This role could be assumed by PIFS if more resources than the current allocation could be devoted to ICT within the Secretariat. Alternatively an ICT Coordination Taskforce could be instituted with wider stakeholder participation with reporting responsibilities to ICT Ministers. Led by SPC, restore the CROP ICT Working Group to improve coordination in the CROP agencies leadership role.
Facilitate information sharing amongst PICs concerning UA progress / measures / outcomes; assist in defining appropriate funding models.	Provide models for initiatives targeting SME sector. Provide models for, and encourage development of, e-government applications.	Practical advice and assistance from CROP agencies. Regional workshops.	Continued engagement in regional connectivity initiatives. Utilise existing information on regional initiatives to explore further possibilities for extension of submarine cable.	Regional Resource Centre to collate industry data; annual statistical analysis with regional results for ICT access and usage to be made available to PICs.

Exhibit 4: *Modalities for implementation: regional level [Source: Network Strategies]*

<i>Principle 1</i>	<i>Principle 2</i>	<i>Principle 3</i>	<i>Principle 4</i>	<i>Principle 5</i>
Sector governance	Infrastructure & access	ICT utilisation	International connectivity	ICT efficiency
<i>Modalities for implementation – regional level (continued)</i>				
Provide advice and examples or successful models from overseas experience	Provide a framework for assessing gaps or identifying commercially non viable (CNV) areas. Collaborate on proposed institutional or funding arrangements.	Assistance in ensuring that appropriate ICT training is provided, including the provision of related resources and training material.	Organise a regional agreement to manage the amount of capacity that each country accesses and the price that each pays. Resources must be provided for a management system.	Regional Resource Centre to become a central repository of information on past, current and planned ICT initiatives. This information is to be made available to stakeholders.
Provide advice and examples or successful models from overseas experience.		Provide information on successful overseas initiatives; assist with developing educational resources and materials.		Regional leadership role. Monitoring international trends to support a safe and protected information society.
Provide resources to assist in needs assessment and follow-on actions.		Ensure accessibility of professional ICT training .		Continued support of PacCERT and its objectives.
		Support country processes by ensuring sustainability of mechanisms put in place.		

Exhibit 4 (cont.): Modalities for implementation: regional level [Source: Network Strategies]

5 The DSII Agreement: a commitment for action

The original Digital Strategy proposed the introduction of a contract to reflect the importance of a collective effort amongst countries, agencies, donors and stakeholders and to assist with successful implementation of the Strategy. However, a number of the contract provisions proved difficult to implement, such as the establishment of a Pacific Islands ICT Council to drive ICT development and coordination. In hindsight it appears that more resources may have been required to implement the proposed contract.

Nevertheless the same collective dynamic endeavour as that foreseen in the Digital Strategy contract will be important for implementing DSII. Thus we propose that for DSII an agreement be made by Pacific national leaders and stakeholders. To implement DSII national leaders should consider making ICT a priority in their national development agendas and policies. If ICT is a priority then more resources would be allocated to the sector. This may lead to difficult choices for some PICs, attempting to make the most profitable use of scarce or competing resources. Nevertheless the full commitment of national Governments to ICT as a priority for development would provide an endorsement of the collective regional action proposed in DSII, in addition to the impetus required to translate the strategy into an achievable action plan.