REGIONAL CLUSTER INITIATIVE IN THE PACIFIC

CLUSTER DEVELOPMENT & MANAGEMENT MANUAL

This Manual has been prepared for the cluster project in the South Pacific. A project implemented with the collaboration of the ACP Business Climate Facility (BizClim), a program of the ACP Secretariat funded by the EU.

The Manual has been written and prepared by Ifor Ffowcs-Williams with design & Layout by Chris Chisnall, Onecc Creative.

INTRODUCTION

This Cluster Development & Management Manual has been prepared for the EU/ BizClim funded cluster project in the South Pacific[1]. The project beneficiary was the Pacific Islands Private Sector Organisation (PIPSO), Fiji, who actively led the project with the close involvement of private sector organisations in the participating countries: Papua New Guinea, Samoa and Tonga. This short-term pilot initiative was undertaken in the first half of 2014.

Much has been written on the phenomenon of clusters, a natural occurrence. This manual covers the practicalities in moving from underperforming clusters, with isolated *clumps* of firms and a *clutter* of uncoordinated public agencies and donors, to more innovative and internationally competitive clusters that lift exports and create jobs.

The first part of the manual explores The What? and The Why? of cluster development. It opens with an outside look at clusters, using examples from around the world. It then takes an inside perspective on successful clusters, identifying common aspects.

The second part of the handbook identifies The How? of cluster development. The Twelve Step process provides guidelines rather than definite rules of engagement. The approach is one of removing isolation within a cluster and building a team. The framework centres on triple helix teamwork, with

1. Business firmly in the lead,
2. Public agencies and donors in support, and
3. Academic underpinning.

Examples and learning from the Pacific pilots are highlighted in green. A video on the Pacific clustering pilot is available (www.youtube.com/watch?v=fGxW20g9YvU).

Many thanks are due to Alisi Tuqa from PIPSO and the three Team Leaders for their extensive contributions throughout the pilot.

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November 2014

[1]The Manual draws extensively on my 'Cluster Development: The Go-To Handbook' (published in 2012 by Cluster Navigators Limited) and the experiences gained from the Pacific Island cluster pilots

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FOREWORD

The Pacific Islands Private Sector Organisation (PIPSO) has had an exciting year as we embarked on a journey on 'clustering.' I say exciting because this project has been the first of its kind for our region and a new undertaking for PIPSO.
The Regional Cluster Initiative in the Pacific project was supported by the European Union's ACP Business Climate Facility through the 10th European Development Fund.

Two key results from this initiative was the development of the pilot clusters – information & communication technology (ICT) in Papua New Guinea; coconut cluster in Samoa; and a Team Tonga branding for Tongan products – and the development of this manual. Both outputs and the detailed approaches taken are practical aspects to share.

It gives me great pleasure to be able to contribute to this Cluster Development and Management Manual (CDMM) that Ifor, I know, has tirelessly worked on the past few months.

Clustering, as can be seen from the lessons learnt and sharings in this Manual, demonstrates the importance of better information sharing and networking; improving business capacities and providing a platform for increased productivity and efficiencies an increase in businesses growth potential.

As Ifor promptly reminds us throughout, for clustering to have its most positive impact and success, it needs to be 'business led' with government and educational institutions providing support and environments conducive for businesses in the cluster to thrive. It is on this premise that PIPSO wholeheartedly encourages and promotes clustering and to partner with the national private sector organisations to facilitate cluster development at the national level, especially at its infancy.

The pilot clustering work have been exciting feats, not without its challenges. It is these developments and the challenges that the Cluster Development & Management Manual draws on. This Manual is a practical guide and toolkit for any country, or national private sector organisation, to use as a reference source when considering cluster development.

I encourage the wider PIPSO membership, governments, academia and private sector stakeholders who are looking to developing clusters, to use this very detailed reference. It is one based on Ifor's extensive cluster development experiences from around the world, but ultimately cites the pilot experiences in the Pacific as the examples and approaches for consideration, taking into account Pacific and regional context.

PIPSO

Mereia Volavola
Chief Executive
Pacific Islands Private Sector Organisation (PIPSO)

PAPUA NEW GUINEA PREFACE

The PNG ICT Cluster Pilot initiative was implemented in collaboration with the Business Council of PNG and the PNG Chamber of Commerce and Industry. I acknowledge the outstanding support received from Douveri Henao, CEO of the PNG Business Council. Thanks are due to the PNG Chamber of Commerce and Industry who provided office space and bookkeeping support and to the Junior Expert, Peruka Tamarua, who well organized event logistics. Thanks are also due to Ifor Ffowcs-Williams who provided guidance for all events and whose knowledge, experience and case studies supported the pilot project.

The PNG ICT Cluster pilot project had a number of significant highlights. Events included three Consultation Workshops, a workshop on setting up a Start-Up Incubator and a high level Business Breakfast. All events received significant media coverage, including the daily National News TV as well as a dedicated TV Programme on the EMTV Channel: Business PNG. Other highlights included the participation of international speakers: an expert from New Zealand in Incubator Set-Up and two PNG ICT experts now living and working in Japan and Silicon Valley, California. The June Consultation Workshop was opened by the Minister for Information and Communication Technologies, Hon. Jimmy Miringtoro, who with the CEO of the National Information and Communication Technologies Authority (NICTA) endorsed the ICT Cluster initiative. The dynamism of young ICT entrepreneurs was instrumental in the project's success including the website: www.pngictcluster.org and the setting up of a Port Moresby Google Software Development Club. Also of note were 'quick win' projects including training in management for entrepreneurs and setting up a monthly '1st Tuesday' training, information sharing and networking event.

Going forward, the PNG ICT Cluster needs to build on the foundations laid during the project. The website provides a communication medium to support links between government, private sector and academia. Close links should be maintained with government, including NICTA, to further the enabling environment and to drive policy decisions that will help the cluster. Strong leadership is essential for the cluster's evolution. The creation of an ICT Start-up Incubator will be a driving factor in building up the network, trust, credibility and collaborative environment. Although a nucleus of volunteers has emerged, it is critical for the Cluster to secure funding for the management and administrative functions of the Cluster.

The potential for PNG ICT companies to develop local solutions for local problems is significant. Private sector and government should embrace this opportunity to promote local companies in supporting their ICT needs.

Paula Norris
Papua New Guinea Team Leader

SAMOAN PREFACE

The members of Samoa's cluster development team were Graham Smith (team leader), Shorley Mariner, (local consultant) and Hobart Va'ai (Samoa Chamber of Commerce and Industry). The team leader gratefully acknowledges the Chamber's substantial contribution, particularly the support from Ane Moananu, CEO and Hobart Va'ai. The Chamber organised the logistics for each workshop and set up the key meetings with government ministries, state organisations, coconut farmers and SMEs.

The project's first task was to identify the strongest contender for the cluster development pilot. As the beginnings of a cluster must already exist and the cluster must have the potential to significantly add-value and increase exports, the coconut-added-value cluster was selected.

During the missions in March, April, May and June the team visited a wide range of farmers, SMEs, state organisations, NGOs and banks to get detailed insight into the coconut added-value sector and this information was discussed at the various workshops of the programme.

The outcome of the project has been the identification of a number of projects. The short-term, easily implemented projects are:

- Establishment of a Virgin Coconut Oil (VCO) production plant, with organic certification.
- A mission by a group of organic VCO producers and downstream soap and body-care products to ECOFACH organic/natural product trade fairs in Japan and/or Germany.
- Introduction of coconut oil vehicle kits to the Samoan market.

The longer-term projects that were identified are feasibility studies leading to the establishment of:

- A commercial-scale bio-diesel plant, building on the success of the Scientific Research Organisation of Samoa pilot plant.
- A coconut cooking oil refining plant.

A very experienced CEO in the coconut oil processing industry has been invited to act as the Cluster Chair and he has willingly accepted this voluntary position to lead the Samoa Coconut Cluster Task Force, whose members have been identified to cover all of the various subsectors.

In summary, the Samoan Cluster project has achieved its initial objectives in identifying the approach to strengthen the coconut added-value cluster in Samoa and to bring awareness of the potential of this cluster to all of Samoa.

Graham Smith
Samoa Team Leader

TONGAN PREFACE

The Project's three key objectives were:

- Establishment of a Tonga Business Cluster initiative after investigation of the existing economy.
- An involvement with companies, stakeholders and the host Chamber (TCCI) to build up capacity to run and sustain the pilot cluster.
- To develop an Action Plan and a viable Funding Plan to sustain the Clustering initiative via sponsors, donors and further projects.

The Project achieved in the period from March to June 2014 some key results:

- A timely Team Approval to building the Pilot Cluster. Evidence: the dynamism of the Leaders Group and the 4 key Sub-Groups.
- A level of enthusiasm for the new Cluster. Evidence: the calibre of the key Leaders of the Cluster and the tremendous support given by the Executive Council of TCCI, especially its President.
- Funding for continuation of the Cluster. Evidence: the EU application created for mid-June 2014 and plans for a Members fee and a "Crowd-funding" appeal in late 2014.

Although the Project hinged upon three key Events held in early April, mid-May and late-June, the Tonga team dynamics that have been created are shown by a number of key facts:

- The 19 sub-group meetings held, attended by over 200 Cluster Members;
- 12 new products developed by the Product Development Sub-Group;
- The successful Trade Mission from Japan and its impact on further trade;
- The welding together of a Rugby fanatical Country with the Sports Events and Celebrations to "show case" a new wave of contemporary Tongan products;
- The Cluster intending to run 3 key Events in 2015: a shop at the Rugby World Cup; the Trade Pasifiki Fair in Tongatapu, and a range of products for the King of Tonga Coronation in July 2015.

Team Tonga is continuing its activities as this Manual is written. Market research is being undertaken on how to sell products at key Rugby Events. The Leaders Group, under the dynamic leadership of Minoru Nishi continues to meet, as do the key Working Groups.

John Murray
Tonga Team Leader

1. CLUSTERS FROM THE OUTSIDE

A range of clusters from around the world are introduced. All are natural occurrences. Clusters are defined and differences explored. The relevance of a cluster focus for economic development is highlighted.

Clusters, a natural occurrence: Two Californian clusters that have become household names are Hollywood and Silicon Valley. Both have naturally grown over decades from small beginnings. Clusters are also to be found in all corners of the world. In Europe some 10,000 clusters have been identified and in India 2,500[2] covering primary industries, secondary and tertiary.

Many clusters have established a global reach within their specialisation, for example:

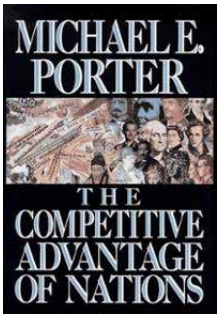
- Costa Brava, Spain: supplies 70% of the world's corks for sparkling wines;
- Linn County, Oregon, USA: grows 70% of grass seeds traded internationally;
- Nashville, Tennessee, USA: 'Music City', the world's country music capital;
- Wenzhou, China: manufactures 95% of the world's disposable cigarette lighters;
- Khorasan, Iran produces over 80% of the world's saffron.

World-class clusters can also be in small communities:

- Húsavík, Iceland (population 2,500) and Kaikoura, New Zealand (population 2,000) are two of the world's leading whale tourism clusters;
- Scone, NSW, Australia (population 5,000) is the world's #2 thoroughbred horse cluster, accounting for 80% of Australia's thoroughbred exports;
- The Caribbean island of Grenada, the Spice Island (population 110,000), has been the world's leading supplier of high quality nutmegs;
- Castel Goffredo, Italy (population 11,000) manufactures a third of Europe's socks;
- Hay-on-Wye, Wales (population 2,000) is the world's largest antique book centre.

Many other clusters service a more regional market.

A historic perspective: Clusters are not a new invention. The practice of businesses co-locating with related firms, even competitors, was observed in ancient Athens. Professor Michael Porter (Harvard University) in 1990 highlighted the relevance of clusters for economic development with his major contribution[3] that explored why some firms and some regions were particularly successful.



[2]http://www.dcmsme.gov.in/clusters/clus/ovrclus.htm
[3]Michael E Porter, The Competitive Advantage of Nations, Free Press, New York, 1990

The origins of clusters: Clusters start by chance. Very few successful clusters have been 'invented' by public agencies. The origins of clusters differ markedly:

- **Availability of a natural resource, a raw material:** Fishing: Lake Victoria, Uganda; Gem stone mining: Tanga, Tanzania; Medicinal plant processing: Macia, Mozambique; Virgin coconut oil production, Samoa.
- **Proximity to physical features:** Beach tourism: Gold Coast, Queensland
- **A specific local demand:** Dry land horticulture: Israel's irrigation cluster.
- **Cultural traditions:** Jazz, New Orleans; Reggae music, Jamaica; Bead makers, Krobo, eastern Ghana; Cultural tourism, Bagamoyo, Tanzania.
- **Emerging from an existing cluster:** The Majorca, Spain tourism ICT cluster has developed from the island's tourism cluster. The Burano, Venice lace knitting cluster evolved from the local fishing (and fishing net knitting) cluster.

INTERNATIONAL RESEARCH - THE EVIDENCE ON CLUSTERS IS CLEAR

FIRMS LOCATED IN CLUSTERS ARE MORE COMPETITIVE THAN SIMILAR FIRMS LOCATED OUTSIDE CLUSTERS

Why are clusters important? From a firm perspective, the international evidence is now clear: **firms that are based in clusters are more competitive** than similar firms located outside the cluster and scattered around a country. Secondly, from an economic development perspective, the evidence is clear that **with strong clusters comes growth in employment, especially high value jobs.** Research from OECD and others shows that economies with strong clusters have higher levels of innovation, higher productivity, more entrepreneurship, more new business start-ups, higher export and economic growth, higher wages and better productivity. Regions with strong clusters are particularly successful in attracting new investment.

Clusters and public support: Over 75 countries now having cluster development programmes in place[4]. Every European country has support at a national and/or regional level, often in partnership with the European Union. The EU view clusters as: *'A key source of competitive advantage in the global economy.'* This logic centres on:

- The positive links between clusters, productivity and competitiveness;
- The business efficiencies that come with co-location;
- Clear evidence that strong regional economies develop through their clusters;
- Clusters enable places, and small firms, to connect to the global economy;
- Clusters foster interaction and collaboration amongst firms;
- The opportunities for related (and sustainable) diversification, with new clusters emerging from existing ones.

[4]European Commission Staff Working Document SEC (2008) 2637

Defining 'Clusters': A cluster is more than just a group of firms operating in the same sector and in close geographical proximity. A cluster may also have support organisations such as trade associations, chambers of commerce, technical and training institutes, government agencies, donors, universities and schools. **Prof. Michael E. Porter** defines clusters as: *'Geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries and associated institutions … in particular fields that compete but also cooperate.'*

A cluster is neither **'a sector'** nor **'an industry'**. A fruit processing cluster includes machinery and packaging suppliers, transport operators, banks and possibly exporters along with the fruit growers and processors. The cluster may include support organisations such as a growers association, an NGO providing vocational training, the Agricultural Ministry and a local school teaching horticulture. A cluster is a broader concept than a sector.

'Value chains' may be a component within a cluster. Clusters are broader than a value chain and include all organisations that impact on the cluster. Value chain development is more transaction orientated. Value chains may span multiple regions; clusters are geographically centred. A value chain approach is typically linear; a cluster approach more systemic. Value chain analysis is a tool that can be used in understanding a cluster's competitiveness. Developing value chain(s) can be a key strategy in upgrading a cluster's competitiveness.

Supporting quotations

Professor Michael E. Porter, Harvard Business School: *'A cluster is an alternative way of organising the value chain. Compared with market transactions among dispersed and random buyers and sellers, the proximity of companies and institutions in one location and the repeated exchanges among them - fosters better coordination and trust. … A cluster of independent and informally linked companies and institutions represents a robust organisational form that offers advantages in efficiency, effectiveness and flexibility.'*

UNIDO: *'There is substantial evidence that clusters generate employment and incomes for the poor in the developing world'* **Industrial Clusters and Poverty Reduction**

Dr. Christian Ketels, Harvard Business School President, The Competitiveness Institute

'Over the last two decades, the experience with cluster-based economic policies and the launch and management of cluster initiatives has grown significantly. Many countries, especially in Europe but also in Latin America, North America and parts of Asia have designed policy programs based on the cluster idea. Hundreds of cluster initiatives have been launched, and many of them by now have years of experience. What has emerged is clear evidence that cluster-based policies are a powerful new tool for economic development. Companies, regional governments, and others have learnt to use cluster initiatives as useful platforms for joint action. **'Foreword, Cluster Development: The Go-To Handbook.**

2. CLUSTERS ON THE INSIDE

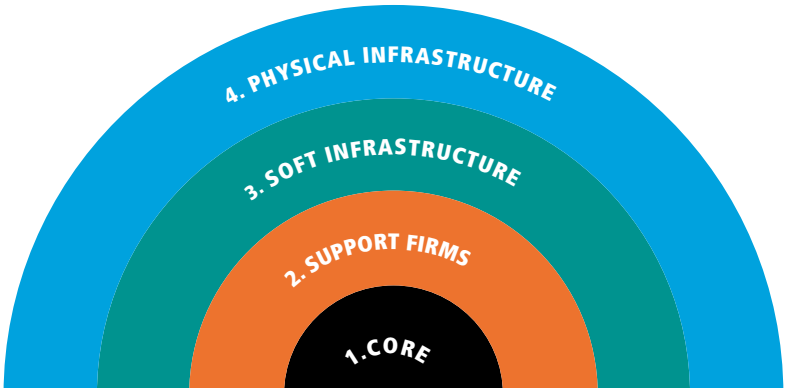
There is no single blueprint for successful clusters. Each cluster evolves in its own way. However, there are a number of common aspects within strong clusters.

A cluster as a dynamic system: I have worked with over 1,000 clusters globally in a diversity of countries and environments. Some are struggling; others are dynamic and profitably servicing distant customers. The generalisations that follow highlight that strong cluster are not an agglomeration of separate, isolated enterprises but dynamic systems with dense connections.

Clusters provide a positive environment for **new firms**, enabling access to customers, supply chains, to skilled labour and to information. **Large firms** benefit from specialist suppliers enabling them to focus on their core competencies, and benefit from **SMEs** that are experimenting at the cluster's periphery. Clusters enable SMEs to tackle issues that would be difficult to address in isolation. Large firms act as important partners and customers for SMEs. In strong clusters there is **well-coordinated support** from public organisations (and where relevant donors/NGOs) with alignment based on a common understanding of the development priorities, i.e. not a *clutter* of uncoordinated support agencies. Government policies and regulations are aligned with the cluster's needs. Finally, a strong cluster becomes **a magnet**, attracting customers, further investments and new talent.

The cluster's culture: Within a strong cluster there is rivalry and intense competition. This is central to fostering innovation. But the geographic and social proximity facilitates collaboration alongside competition … **a culture of co-opetition**. Strong clusters do not have *clumps* of isolated firms but networks of inter-linked firms with well-developed **communications**. Close interaction and exchanges amongst co-located firms underpins competition and also stimulates innovation. *'Knowledge crosses corridors and streets more easily than oceans and continents'.*[5] There is nothing static about a strong cluster.

Segmenting innovative clusters: Four broad categories of firms and institutions can be identified in many strong clusters:



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[5]M.P. Feldman, *The Geography of Innovation*, 1994, Kluwer Academic Press, Dordrecht

1. Core Firms: The firms at the core of an innovative cluster have the competitiveness to service customers located beyond the cluster's functional region. These firms attract wealth into their home community. Common aspects:

- ✓ Firms well connected within the cluster and to external markets, often to global value chains. Strong backwards and forwards links, formal and informal.
- ✓ Strong rivalry between firms centred on distinctive strategies and differentiation but also inter-firm collaboration, a culture of co-opetition.
- ✓ Firms collaborating to reduce input costs and to add value, with the intensity of collaboration increasing with trust. Similar norms, attitudes, a common 'language'.
- ✓ Continual spawning of new firms, often exploring new markets, new processes, new technologies.

2. Support Firms: Around the core firms can be a range of suppliers: raw materials, machinery, components and packaging. Also service suppliers: banks; accountants; transport, logistic and storage services; air services; legal firms; marketing specialists ... over time the support firms may develop the capabilities to profitably service distant customers and become the nucleus of an emerging cluster.

3. Soft, Social Infrastructure: Successful clusters have a broad range of actors within the soft (social) infrastructure. These may include government departments with responsibilities for: Economic development; Treasury/Finance; Industry; Education; Trade; Foreign Affairs; Investment Attraction; Science & Technology; Women's Affairs; Regional/Rural Development; Transport… Also universities, other tertiary institutions, technical training & vocational, schools; trade unions; chambers of commerce, business & industry associations[6]; trade & professional associations; mayors; donors & NGOs.

4. Hard, Physical Infrastructure: Transport links… roads, ports, airports; communication links, bandwidth; fresh water, waste treatment, waste management services; industry parks and incubators, industrial land for development.

Within a strong cluster, these four elements are closely inter-linked and inter-woven into a local system where system gaps are identified and bridged.

Supporting Quotations

Professor Michael E. Porter, Harvard: *'Geographic, cultural and institutional proximity provides companies with special access, closer relationships, better information, powerful incentives and other advantages that are difficult to tap from a distance. The more complex, knowledge-based and dynamic the world economy becomes, the more this is true. Competitive advantage lies increasingly in local things--knowledge, relationships and motivation that distant rivals cannot replicate.'* **Clusters and the New Economics of Competition**

Thor Sigfusson, Iceland Ocean Cluster: *'Icelanders tend to feel as if they know everybody else on the small island and even though they don't know them, they can still give them a call. The problem with this attitude is that people are not making the call and if they don't, new ideas are not exchanged. We arranged a meeting with over 20 CEO's of the high tech marine firms. The first thing we noted is that they began to introduce themselves to each other. Many had never met'*. **Ocean Smart Workshop, Iceland, 2011**

Samoan Team Leader: *"Local SMEs in Samoa are generally reluctant to work together and much prefer to work in isolation and do not like to share information. This is in direct opposition to successful cluster formation and only time will solve this problem as trust between the members of the coconut cluster progressively improves with the implementation of viable projects, which assist all of the coconut cluster.*

However during the workshops some of the SMEs did change their opinion due to the presentations made and realised that by working together the entire coconut cluster could benefit."

[6]An industry assocation may represent a number of firms within a cluster but not necessarily all the core & support firms and the soft infrastructure organisations. Many industry associations focus on lobbying, networking and providing basic services, rather than positioning themselves as a coordinating, self-help organisation.

3. BUSINESS IN THE LEAD

There are many advantages for a firm in being located within a cluster. The lead role of the private sector in driving clustering initiatives is highlighted.

Strong clusters, strong businesses: The evidence is clear: businesses situated in clusters are more profitable and grow faster than similar businesses scattered around a country. Proximity offers advantages that are unavailable to distant businesses. The stronger the cluster is, the more substantial the positive impact. Businesses within a cluster face many common problems and opportunities that cannot be addressed individually. Through a clustering initiative these can be collaboratively addressed without displacing competition between businesses. All businesses benefit through lower transaction costs, quicker negotiations, fewer delays, improved tacit information flows, the development of the cluster's brand and the ability to influence supporting services. Further, the initiative increases chance meetings, enabling firms to explore more specific collaborative opportunities.

Business engagement with clustering: Businesses during the early stages of a clustering initiative can be sceptical and unsure as to what *'a clustering initiative'* implies, especially as regards the exchange of information. It can take time before the pay-offs from a clustering initiative are apparent. The Twelve Step process in this manual is designed with these obstacles in mind. The focus is on early engagement in non-threatening areas and the generation of early benefits to firms.

Businesses need to work through what they don't want to share, and what they might share for mutual advantage.

Business in the lead: Whilst a cluster is a natural occurrence, a clustering initiative is a grassroots, bottom-up approach to lift a cluster's competitiveness. The initiative needs to be business-driven. The private sector has many roles:

- The cluster's Board needs to be led by senior private sector representatives, with the Chairperson and the majority of members being from business. Unless business leaders come through to take the lead, the likelihood of sustainable change is low.
- The culture of the Board and the clustering initiative has to be action orientated: learning-by-doing, rather than paralysis-by-analysis.
- Businesses actively engaging as part of the project teams to drive the cluster's strategy. These teams need to be led by business people who have a passion for the issue.

Supporting Quotation

USAID: *'Successful cluster-based initiatives are private sector driven – with links to the public sector. They are not public sector driven – with links to the private sector.'* **Promoting Competitiveness in Practice, An Assessment of Cluster-Based Approaches, The Mitchell Group Inc.**

4. PUBLIC AGENCIES & DONORS IN SUPPORT

Public agencies and donors are interacting with clusters even in the absence of a cluster approach. A clustering initiative facilitates more closely aligned and targeted investments that are demand driven. Further, agencies and donors have a core role in the active process of cluster development: providing legitimacy and financially supporting a cluster organisation.

Building strong clusters, strong economies: Cluster strength is one of the important determinants of economic prosperity. The foundations of an economy are its clusters… not a collection of unrelated firms. A clustering initiative enables more targeted public and donor interventions, based on clear communications from business. The end result of cluster development is productivity improvements that feed through to the region's key economic indicators. The initiative facilitates a shift from supporting individual firms to working with multiple firms and support institutions.

A clustering approach helps in addressing weaknesses in a struggling region, such as unemployment in traditional industries, a failure to retain high quality labour and an annual exit of school leavers.

Addressing coordination failures: It is likely that public agencies and donors are already supporting the cluster without a clear cluster approach.This may be through the provision of training courses, support for investment attraction, trade missions and export development, or nurturing start-up/informal firms. Such support is typically delivered through a range of agencies and departments and rarely are the support programmes effectively coordinated around the holistic needs of the cluster. There is too often a *clutter* of support, with little coordination. In isolation, firms have limited ability to build the whole-of-government alignment that is necessary to meet their specific needs, yet a more complete approach is required to optimise public investments.

Cluster development provides a framework for organising the implementation of public policies and public investments. The framework assists in aligning public support, in avoiding duplication of support and in identifying gaps in that support. Establishing public sector/donor support for a cluster and removing *clutter* is not a simple task. Alignment needs to reach across siloed and at times overlapping functions that could include in the South Pacific: entrepreneurship/SME policy, trade policy, sector/industry policy, investment

attraction, education and training, science and technology infrastructure, export development, transport infrastructure and possibly competition policy. Alignment across different agencies may need to include micro-credit availability, health and safety issues, labour and ethical standards, product standards and environmental stewardship. This *clutter* of support organisations stretches to multilateral agencies, donors and NGOs, each with their own agenda.

Identifying a cluster's competitive strengths and needs requires an on-going dialogue with the firms and the other economic actors in the cluster. This is particularly important for the more export orientated and international clusters in order to ensure that public investments are responsive to changing conditions and are most appropriately placed. A clustering intervention assists in addressing coordination failure as it:

- ✓ Strengthens relationships amongst public agencies, donors, business and academia, opening the dialogue.
- ✓ Improves alignment of investments, centred on the needs of businesses.
- ✓ Enables more targeted investments to address the cluster's growth bottlenecks. In totality there may not be a need to increase public/donor investment in the cluster.
- ✓ Identifies regulatory burdens that prevent firms from functioning efficiently. Facilitates the reforms of policies, laws and regulations as the priorities are clearly identified through the cluster development process.
- ✓ Develops an enabling mechanism that establishes whole-of-government support to a cluster, removing the all too common *clutter* of agency support.

Engaging as a partner: Funding agencies and donors should participate as partners, along with the other cluster stakeholders, in setting the strategic direction. While an agency may be the primary funder of a clustering initiative, this does not give it the right to be the dominant player in setting the cluster's agenda. A sustainable strategy needs to be owned by the cluster as a whole, not imposed.

Resourcing cluster development: Many cluster programmes offer five to ten years of public support, reflecting that changing behaviour patterns within a cluster does not come quickly. Some sponsors unrealistically expect an initiative to be financially self-standing within 2-3 years.

Supporting Quotations

President Obama: *'This cluster concept is so important. We're all familiar with clusters like Silicon Valley. When you get a group of people together and industries together and institutions like universities together around particular industries, then the synergies that develop from all those different facets coming together can make the whole greater than the sum of its parts.'* **Winning the Future Forum on Small Business, Cleveland State University, Ohio, 2011**

World Bank: *'When designed carefully and implemented efficiently, cluster initiatives may well be one of the most effective tools in a broader context of policy reform and other private sector development initiatives.*

Industrial clusters can increase productivity and operational efficiency through linkages, spill overs and synergies across firms and associated institutions and through efficient access to public goods, better coordination and the diffusion of best practices.'

'Central level coordinating strategies include inter-ministerial or inter-agency committees that conceptualize, design and respond jointly to cluster-based policy recommendations.

These are necessary for public-private dialogues to be meaningful.' **Clusters for Competitiveness, A Practical Guide & Policy Implications for Developing Cluster Initiatives**

5. ACADEMIC UNDERPINNING

A competitive cluster is knowledge intensive. Academia has a central role in co-developing and upgrading a cluster's knowledge base.

'Academic' refers to much more than universities… also included are high schools, technical training, vocational training and, where available, public research institutions.

Strong clusters, strong knowledge centres: Every strong and internationally competitive cluster has knowledge foundations. Academic institutions underpin strong clusters and have a key role in the on going extension of the cluster's knowledge base. A clustering initiative facilitates a shift from institutional-driven to needs-driven support.

Porous boundaries: A common success factor is open boundaries between academia and business enabling the clear signalling of training and research needs. The development of an open culture with porous boundaries is assisted by co-location and shared physical infrastructure, such as a business incubator, specialised training and testing facilities.

High schools: High schools can have an important role to play in building a region's competitiveness. Many schools offer training that relates to the local clusters as this is where the most promising job prospects for their school leavers will be, with the more skilled and higher paying jobs.

Technical and vocational colleges: These colleges often have the flexibility to offer long and short-term courses developed in partnership with the cluster's firms. Many also make available laboratories, workshops and testing facilities for local firms.

Public research institutions: 'Academia' includes government funded research institutions. In many countries such institutions are remote from businesses, at times generating technology solutions that are not absorbable by local firms.

A university's central role: A university can be a provider of human capital, a generator of new firms, a supplier of technological and managerial expertise and a coordination mechanism for the cluster as a whole.

Active engagement: Academia is not a junior partner in cluster development. Active participation is a win-win. Academics should engage with the cluster's task forces and development projects. Academic leaders may be based at post-secondary institutions, high schools or testing facilities. Academia also has an important role in linking the cluster into other knowledge centres around the world, drawing in knowledge that is relevant to the cluster's firms.

PNG's University of Technology, Lae, is playing a central and proactive role in the development of the PNG ICT Cluster.

6. SUCCESSFUL CLUSTERING INITIATIVES

While clusters start naturally, the development of clusters does not need to be left to chance. This chapter identifies common aspects of successful cluster development initiatives.

Pre-existing foundations: Firstly, all successful clustering initiatives have solid foundations; the initiative is not seeking to start a cluster from a zero base. There are clearly identifiable seeds to which 'clustering fertiliser' can be applied. The cluster should already have the competitiveness to attract customers from beyond the region. **These pre-existing cluster foundations are evident with the three pilots: coconut oil in Samoa, Team Tonga and ICT in PNG.**

Long term resourcing: As cluster development is not a quick-fix initiative, the time frame for financial support needs to be adequate. Some initiatives have funding in place for only 24 - 36 months, with the funder having the unrealistic expectation that the clustering initiative can then be 'sustainable'.

Emphasis on business results: The initiative is engaging on activities that have noticeable impact on the cluster's firms. The culture of the clustering initiative is learning-by-doing, rather than paralysis-by-analysis. The output is much more than writing yet another report.

Active public partnerships: An on-going partnership is in place between the clustering initiative and public agencies and other funders such as donors. While public agencies contribute along with all stakeholders to the open dialogue from which the strategy emerges, these agencies are not controlling the cluster's agenda. Funding is not tied to pre-determined strategies. Public agencies are not separately second-guessing the cluster's needs. There is not a *clutter* of support agencies, each offering their own development agenda for the cluster, but consistent and aligned support from a range of agencies. Clusters are able to debate their priorities for support and then articulate their needs, with public agencies and donors able to respond.

High profile board: The initial Board for a clustering initiative is usually selected with considerable care, not elected. Board members are CEOs and equivalent drawn from the three elements of the triple helix. The chair is a well-respected business CEO. Public agency and industry association officials do not dominate the Board. The culture and the Board's way of working are in keeping with that of the private sector.

Changing behaviours: Behaviour patterns evolve as a successful clustering initiative develops. As isolated solo players become more integrated into a system, a co-opetition culture is developed with firms better understanding where collaboration can be a win-win. Support organisations (including public agencies, training institutions and donors) are no longer second-guessing the needs of the cluster's firms.

Cluster Development as an organic process: Learning-by-doing implies flexibility by sponsors, not pre-determined agendas. The breadth of the clustering initiative may narrow, as the cluster's specialisation is more comprehensively understood.

Alignment around the development route: The most common reason for the failure of clustering initiatives is an inability of stakeholders to agree on where the initiative is heading. Clusters provide a framework for targeted **investment attraction**, filling capability gaps. **Internationalisation**, in particular in small countries, is at the centre of the cluster development approach. Developing the **cluster's brand** can be an element of export development.

Clusters as a platform for cross-sectoral cooperation: Clusters provide an important bottom-up input to the establishment of a region's economic strategy. The strategy is then grounded in the needs of the exporters.

Political engagement: Political support for a successful clustering initiative extends to more than budgetary support. Politicians are part of the cluster team.

The Seven Innovation Gaps: The following 'gaps' provide a checklist on the activities of successful clustering initiatives[7]:

1. **The education gap:** The availability of skilled staff is often the #1 inhibitor to firm growth. Responses to the need for trained staff can include changing curriculums, establishing new training institutes and the co-location of a technical training facility with a business incubator and a prototype test facility.
2. **The government/donor gap:** Improving links between support organisations and business, moving from a *clutter* of agency support to alignment around the needs of the cluster's firms.
3. **The company-to-company gap:** Helping firms interact, moving from a *clump* of firms to a dense network with trust and co-specialisation through e.g. regular '1st Tuesday' meetings and the co-location of firms in an incubator.
4. **The global market gap:** Developing the pipelines e.g. through participation in trade fairs and developing a cluster brand.
5. **The capital gap:** Improved information flows between banks and local firms.
6. **The research gap:** There is a multiplicity of two-way interactions between academia and business, leading in particular to needs driven research.
7. **The cluster-to-cluster gap:** Linking clusters within the region and further afield.

Raising the cluster's profile: Cluster development is in part about lifting a cluster's profile. Proactive PR is therefore an essential ingredient.

In Samoa: *"A radio and media campaign was running throughout the period of the workshops. It proved to be so successful that the Chamber was receiving many calls daily for more information on the cluster initiative with many farmers and potential virgin coconut oil producers wanting to join in the activities of the cluster to benefit from the cluster initiative. The growth in the awareness of the cluster media campaign within Samoa exceeded all expectations of the team."*

In PNG: *"All workshops and other events were preceded by Press Releases and consequently, received significant media coverage, including coverage on daily National News TV Broadcasts, as well as a dedicated TV Programme on the EMTV Channel as part of the regular Tuesday feature: Business PNG."*

Identity Creation, 'Cluster Clout': *"In PNG, one of the significant achievements of the Cluster initiative is that it has given voice and identity to the stakeholders as a platform through which to present themselves. Individual, or even groups of entrepreneurs who could have never previously promoted themselves as viable competitors or service providers to 'imported' solutions providers, now have a credibility and identity – that of the Cluster - that 'opens doors' for them. Cluster members now feel that collectively they are better positioned to collaborate in order to compete.*

The relationship built with the Minister for ICT and with the CEO of NICTA has opened channels with the public sector and the regulatory authorities that are committed to enhancing the enabling environment for the Cluster to advance. In addition, given that the driving force behind the SMEs, the ICT entrepreneurs and the Cluster vision is two young female entrepreneurs, the initiative has encouraged a more open gender acceptance of ambitious and highly competent females in what is predominantly a male dominated world. "

In Tonga: "The Cluster should be seen as an "entrepreneurial" project – to increase self-employment, SME-led growth and retention of skills on the Islands of Tonga."

[7]Based on Goran Lindqvist and Örjan Sölvell, '*Organising Clusters for Innovation: Lessons from City Regions in Europe*', CLUSNET Final report

Supporting quotations

Gerardo Patocconi, Chief, Cluster and Business Linkages Unit, UNIDO, Vienna: *'Cluster development policies aim at stimulating/ boosting networking & cooperative efforts among different actors (firms, research centres, universities, public bodies and intermediate institutions) within a defined economic and geographical space to enhance competitiveness.'*

Mats Williams, Paper Province, Sweden: *'Find the **BIG QUESTIONS** that are common.'*

Lars Albaek, Bornholm Green Island, Denmark: *'It is easier to cooperate in smaller groups of firms.'*

Clustering Initiatives at Risk: A cluster development initiative has to traverse a multiplicity of mine fields during its journey. The following quotes come from clusters I have worked with around the world and illustrate ways in which a clustering initiative can go substantially off course:

- "We need to understand everything about our cluster before we can engage."
- "We have no hard numbers on our cluster's performance."
- "We are doing stuff we were told to do by our funder."
- "It (the clustering initiative) has became a fluffy talk shop."
- "Clustering is looking at generic problems."
- "Our cluster's strategic plan was set three years ago."
- "Just a very few are engaged with our cluster's projects."
- "The cluster manager has no time to visit us."
- "We have succeeded! Our firms no longer compete with each other."
- "Our cluster's Board has not changed for many years."
- "Value chains? No way … WE JUST DO CLUSTERS."

7. THE CLUSTER ORGANISATION

A proactive clustering initiative is driven by a purpose-designed organisation. This chapter explores the activities and structure of such an organisation.

A cluster organisation's role: A clustering intervention is introduced to change behaviour patterns. Public/donor funds are not being invested to maintain the status quo. The role of a cluster organisation is:

✓ To upgrade the competitiveness of the cluster's firms and significantly improving export earnings;

✓ To support individual businesses and other stakeholders within the cluster, particularly through forming links;

✓ Removing the *clumps*, addressing the isolation of the cluster's firms and removing the *clutter*, building alignment amongst publically funded agencies and donors;

✓ To facilitate voluntary collective action.

Cluster organisation's tasks: The tasks of cluster organisations vary significantly between countries and clusters. Tasks can include:

- Identifying the key businesses and soft infrastructure support organisations within the cluster. Gaining a close understanding of those participants: their activities, strategic direction and impediments to growth. Developing a comprehensive database of contacts within the cluster.
- Developing relationships with service providers, including donors, to obtain support and buy-in for projects.
- Building a Board for the clustering initiative and task forces (Cluster Action Teams) to address priority projects.
- Facilitating the cluster's development strategy.
- Researching, developing and delivering implementation plans for new projects.

Cluster organisation's activities: What does a clustering organisation actually do?[8]

The main tasks cover five areas:

1. **Information and communication**

- Making available a database on the cluster stakeholders
- Frequent visits to companies and other cluster stakeholders
- Web site with search facilities
- Brochures and marketing materials
- Providing a media contact point
- Regular newsletters
- Hosting regular meetings, events, company tours, study trips

[8]Drawing on *'Management of clustering initiatives, five areas of activities'* prepared by CLOE - Clusters Linked over Europe, an alliance of clusters led by Karlsruhe (Germany) with Linz (Austria), Lyon (France), Tartu (Estonia), Värmland (Sweden), Timisoara (Romania), Kaliningrad (Russia) and Nottingham (UK) www.clusterforum.org/en/about_cloe.html

2. Training

- Analysis of training needs
- Ensuring the provision of vocational and management training
- Regular special events; Workshops and seminars: Study trips
- Inter-company learning platforms; learning circles
- Co-operation with R&D and educational bodies;
- Developing business - university links and business - school links

3. Co-operation

- Facilitating links, acting as a bridge builder, enriching interaction.
- Initiating co-operation projects e.g. pre-competitive R&D, co-production; co-marketing; co-purchasing; logistics; skills attraction; internationalisation; IT.
- Connecting small groups of firms seeking to engage in confidential collaborations, such as export consortia and joint ventures.
- Co-operation between firms & R&D, educational institutions, knowledge centres and special service providers & donors
- Support to the development and follow-up of R&D collaborative projects

4. Marketing and PR

- Marketing and PR to (1) strengthen the involvement of the existing cluster stakeholders, (2) attract new companies and organisations to the initiative and (3) attract new customers, new investments, and additional donors.
- Generation, management and strengthening of the cluster's brand
- National/international PR & advertising activities; trade journal advertising
- Trade fairs, company visits, presentations to major international customers
- Liaison with public agencies, academic institutions & donors.

5. Internationalisation

- Access to international events, conferences, topics, customers and trends
- Support of companies during internationalisation
- Activities with comparable/complementary international clusters
- Attract international visitors to the cluster: business, academics and public agencies, journalists.

Success indicators: Common aspects of successful cluster organisations include:

✓ The organisation's management team is able through performance to earn the confidence of the cluster's stakeholders. The team creates a sense of belonging and common identity for the cluster's stakeholders.

✓ The cluster organisation has personal connections with and strong knowledge of the key firms and support organisations.

✓ The cluster's development priorities have been transparently identified through open dialogue across the cluster; it is not set a few.

✓ There is urgency. Activities that are too marginal to capture long-term interest are avoided. Meetings with limited benefits are avoided.

✓ Substantive needs-driven projects are underway that draw together the cluster's stakeholders and provide value to them. The cluster organisation finds the space to add-value and to engage. It is not competing with industry associations or replacing commercial services.

✓ The cluster organisation is not the 'Project Manager' for everything. There is clarity over which services should be provided for free and which should carry a charge.

✓ Neutrality is maintained, the cluster organisation is not favouring just a few. There is not an over reliance on a few key firms or key people.

✓ There is acceptance that financing of the clustering initiative will change over time, with public/donor seed

money playing a lead role in the first phase. In later stages industry contributions to cluster projects and membership fees will become increasingly important.

✓ There is a continuous evaluation of the clustering initiative: stakeholder satisfaction reviews, joint peer assessment and benchmarking with other cluster managers.

Successful initiatives: common characteristics

- Fighting the fear of change; Fighting inertia
- Exploring, opening new pathways
- Scanning wide, experimenting
- Establishing an open, participative process
- Establishing small, flexible, responsive components
- Technical support team established
- Acting as a venture capitalist
- Seeking and empowering the talent with passion
- Addressing systemic issues
- Moving into the white spaces between clusters

Cluster organisation checklist

✓ Business driven, with a business culture and business timeframe.
✓ Able to earn the respect of the cluster's stakeholders.
✓ Able to capture and then hold through performance the attention of the Board members.
✓ Able to identify and empower the cluster's talent.
✓ A diversity of funding sources, not beholden to any one funder.
✓ Impartial.
✓ Able to move public agencies and donors from supply driven to demand driven.
✓ Able to clearly signal emerging needs.
✓ Able to accelerate the speed of tacit knowledge circulation.
✓ Able to identify new opportunities for collaboration, some cluster-wide, others more confidential.
✓ A strong focus on internationalisation.
✓ Not satisfied with the status quo, alert to new members, new markets, emerging technologies.
✓ Able to appreciate that the end point is not a successful cluster organisation, but successful firms.

Caution: A clustering initiative's development programme is too often driven by the prime funding agency's requirements, rather than the specific needs of the cluster.

8. THE CLUSTER MANAGER

This chapter highlights the role and profile of the cluster manager. This person is primarily a catalyst and connector. Advice is offered to cluster managers.

The term 'Cluster Manager' refers to the head of the cluster organisation and to the organisation's senior staff.[9] In many parts of the world, the Cluster Manager is based at the local Chamber of Commerce.

Different titles, same role: The cluster manager (or as UNIDO describe this person, the 'Cluster Development Agent'; in Sweden 'Process Leader'; other countries refer to the 'Cluster Facilitator') is the neutral person who has responsibility for instigating a cluster development process and ensuring, over the long term, that the initiative continues to be upgraded. This person needs to earn a position as a peer to the cluster's senior stakeholders. Cluster development can be 'sparked' by a cluster manager, providing their integrity, honesty and trust-worthiness are evident. It will take time before the spark turns into a self-sustainable process of cluster development, especially in clusters that are traditional and conservative in character, and where competition amongst firms is centred on price, hence the need for long-term cluster support.

The Cluster Manager in a nutshell: The following facets of cluster management were identified in East Africa and are equally applicable to the Pacific Islands:

- A natural networker, a broker, a bridge builder across the cluster;
- Well connected within their cluster (though not necessarily from Day One) and within the country…able to draw in resources, knowledge, connections to support the cluster.
- Comfortable in leading from behind, able to empower others, not seeking glory;
- Transparent in terms of strategy, yet able to hold confidences;
- Has no vested interest in the cluster;
- Based in the cluster's functional area.

Advice to Cluster Managers[10]

- Listen! Build relationships; Make connections
- Have Passion; Start with what requires low trust
- Energise others; Find the cluster champions that others follow
- Analyse and initiate; Identify goals
- Create benefits & buy-in; Get things done; Share the workload
- Be patient; Be transparent; Stay smiling
- Find the cluster's hot spots

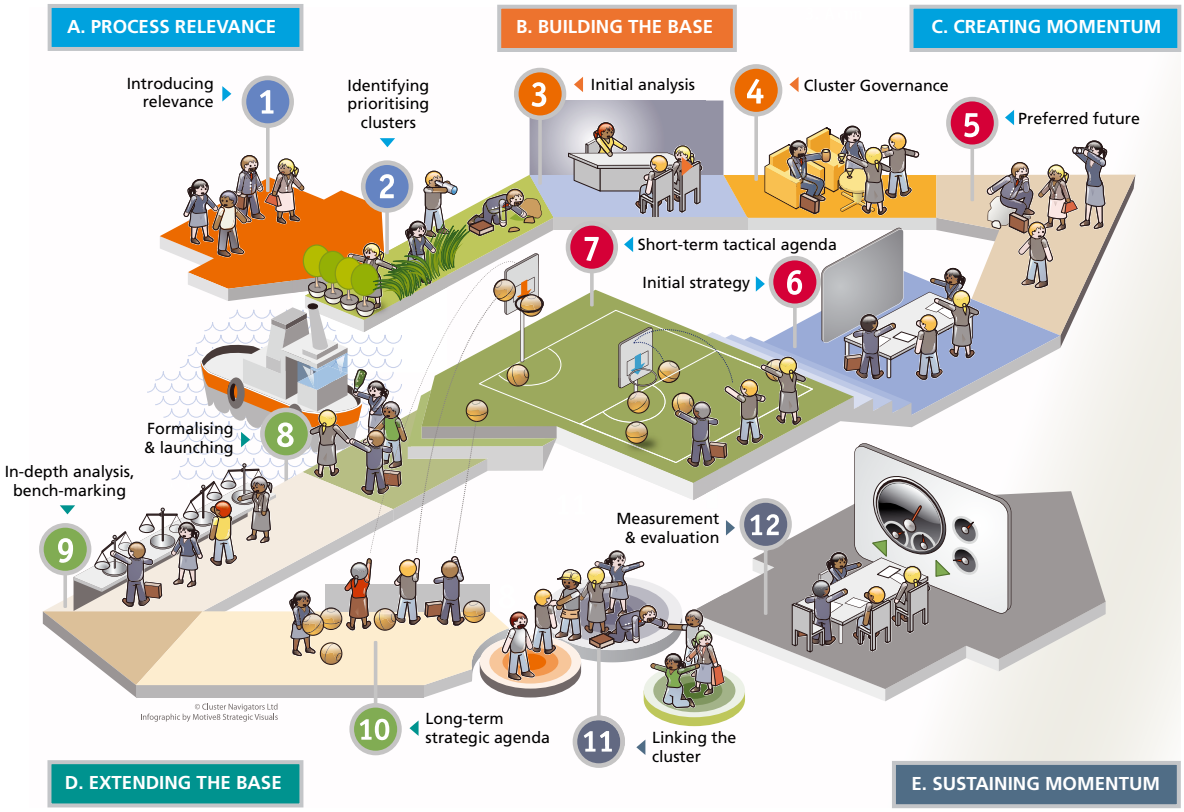
[9]In practice the three Team Leaders were acting as the Cluster Managers for the pilots in the Pacific.

[10]This draws on a workshop I held during the 2010 TCI Global Conference in Delhi with cluster managers from around the world who identified their essential advice to a new cluster manager.

- Ensure a spread of income sources
- Don't compete with firms, industry associations or chambers of commerce
- Long-term orientation to goals & strategies
- Cluster development is just one approach in upgrading competitiveness
- Use your neutral corner to remove gridlock, to accelerate information flows
- Act as a venture capitalist; build a portfolio of projects
- Ride with the highs; be prepared for the lows
- Anticipate, Plan to adapt; the direction is unlikely to be straight ahead.

9. CLUSTER DEVELOPMENT: THE HOW

The cluster development process is broken down into five broad phases, containing Twelve Steps.



The Twelve Steps are summarised in this manual. Checklists are provided that can be used by a clustering initiative and sponsors to review progress and identify aspects that require attention. **Danger Signs are provided for each Step.**

Each of the pilot clusters reached Step 7, with engagement on short term, immediate projects. The pilots were resourced with a Team Leader, funded through the EU's BizClim programme, for a 45 day level-of-effort. In contrast, many of Europe's clustering initiatives have public funding in place for 5, 10 even 15 years. This level of resourcing enables clustering initiatives to have full time 'Cluster Managers' in place under long-term contracts and able to work through the full Twelve Steps.

While the cluster pilots in PNG, Samoa and Tonga, had to fast track through the Twelve Step process to the very early identification of collaborative projects, some important learning and examples have come through from the pilots, which are **highlighted in green** in the following text.

An indicative timeline for a clustering initiative follows. This assumes that there is a dedicated Cluster Manager in place, i.e. considerably more resourcing than was possible with the Pacific pilots. A cornerstone element in this process is the holding of cluster-wide workshops.

CLUSTER DEVELOPMENT

Indicative timeline

Month 1: Informal meetings with senior stakeholders, by end month a kick-off 'Cluster Muster'

Month 2: Individual meetings, covering Triple Helix. By end month, first workshop covering **Step 3, Analysis** and **Step 4, Governance Group** formation underway

Month 3: Second workshop covering both **Steps 5 & 6, Preferred Future & Stepping Stones**

Month 4: Third workshop on Step 7, Short term tactical agenda. Establish initial CATs (Cluster Action Team) task forces, moving on 'low hanging' projects

Month 9?: Cluster launch: **Step 8.** And **Step 9, In-depth analysis**... benchmarking... underway

By month 18: **Step 10** underway, long term strategic agenda.

STEP 1:

INTRODUCING RELEVANCE

While clusters arise through natural market forces, clustering is a deliberate process to accelerate development. As such it requires sponsorship. This first step introduces cluster development to potential sponsors as a centre stage strategy for economic development.

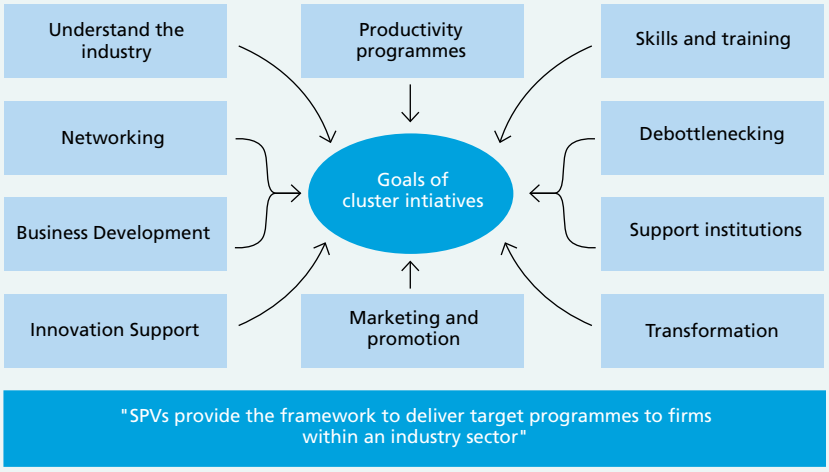
Samoan Team Leader: *"The start situation met by the Samoa team was that initially there appeared to be no apparent cluster which was recognised as such by anyone in Samoa. In addition the entire concept of clusters within the country was not yet appreciated by any private company or state organisation.*

There was a complete lack of knowledge about how strong and active clusters led by the private sector in a spirit of mutual co-operation can assist in developing all of the SMEs and organisations within the cluster to the benefit of all.

The general and accepted practice of SMEs in Samoa has always been to work in private and in complete isolation from competitors and from government institutions. The reluctance to share any business information with rivals, whether technical, financial or market related was very quickly noted by the team in their initial assessment of the situation facing cluster development in Samoa.

Clearly one of the major priority tasks of the cluster team was to first impart knowledge about the benefit of clusters to all SMEs and both agro-industry and general industry, while at the same time identifying the strongest potential cluster for initial development."

10 functions of Clusters



Source: Western Cape Government, South Africa

What does a clustering initiative do? A clustering initiative is about upgrading competitiveness to increase business growth and employment. It supports groups of companies as they move into new areas: entering new markets, developing new products and processes and engaging with new technologies. A clustering initiative acts as a catalyst, a connector and a convener across the cluster's diverse stakeholders, establishing collaborative projects.

What does a clustering initiative not do? It does not write reports for others to action. It does not duplicate or replace what others are already doing. It does not compete with the private sector.

A clear nucleus for cluster growth is needed: It is not possible to create a cluster from a zero base. Naturally occurring 'seeds' are needed to which 'clustering fertiliser' can be applied.

Cluster development centre stage: Cluster development is ideally introduced as an over arching framework that integrates a range of economic development agendas and the cluster's support organisations, including donors and public agencies. The development agendas for a Pacific Island cluster may include:

- Export development;
- Investment attraction;
- Upgrading technical and management skills; workforce development;
- Developing supply / value chains;
- Embedding lead companies; business retention, economic gardening;
- Facilitating informal and SME development; enabling new business start-ups and spin-offs; business mentors support; an angel support network;
- Addressing gender equity;
- Stimulating innovation; productivity improvement;
- School – business collaboration;
- Improving access to capital, financial advice for SMEs;
- Rural development; Community development;
- Addressing regulatory and compliance issues;
- Land use;
- Developing a regional identity, a brand;
- Upgrading the physical infrastructure: bandwidth, transport and logistics, water, energy supply and reliability, waste disposal.

With this wider approach, cluster development is positioned as a high profile centre stage strategy for economic development, rather than just 'another project'.

Who sponsors and delivers a clustering initiative? Sponsors are usually donors and/or public agencies. Delivery is typically through a private sector organisation that is able to move at the speed of business.

What initial resources, funds are needed? The primary resourcing need is for a cluster manager and for small-scale projects. The manager's role is long-term but could be part-time. An underfunded or short-term clustering initiative may wither before it makes an impact. Resurrection can then be difficult as the private sector will be suspicious. A clustering initiative that is fully dependent on volunteers is in danger of burn out.

The Cluster Manager's role: *'One of the most significant impacts in cluster development is active cluster management providing tailor-made services to their cluster.'*[11] A cluster manager is the catalyst driving the clustering initiative. This person is a neutral broker who listens carefully, responds and earns a position as a peer to the cluster's leaders.

Lever through partnerships: A clustering initiative is strengthened through close partnerships between business, government and academia. Partnerships extend to donors and NGOs. While these organisations may have short-term funding horizons with exit points, their early financial support and endorsement can provide a major impetus. Over dependency on one funding source has built-in vulnerability.

Cluster development pay-offs: The results should lead to:

- ✓ Increased firm competitiveness;
- ✓ Expansion in the range of products and services being offered, leading to diversification;
- ✓ More targeted public and donor support for the cluster with priorities being driven by the needs of the private sector, such as tighter alignment between business needs and training providers;
- ✓ Increased trust and engagement amongst firms; more business networking.

High-level briefings on cluster development: With the Pacific cluster pilots, high-level briefings were held in Samoa and PNG to introduce to a senior audience the merits of cluster development and to garner their endorsement. By way of an example, the invitation list for **Samoa's high-level briefing** was:

1. Hon. Le Mamea Ropati Mualia, Minister of Agriculture & Fisheries
2. Mrs Ane Moananu, Chief Executive Officer, Samoa Chamber
3. Gavin L. Wall, FAO – Sub-regional Coordinator for the Pacific
4. John Stanley, Head EU Technical Office, Samoa
5. Tilafono David Hunter CEO, Scientific Research Organisation of Samoa
6. Patea Setefano, CEO, Samoa Trust Estates Corporation
7. Samau Etuale Sefo, Managing Director PPS & Pacific Oil
8. Adimaimalaga Tafunai, Executive Director, Women in Business Development
9. Justina Sau, CEO, Unit Trust of Samoa
10. Susana Laulu, CEO, Development Bank of Samoa
11. Matataulitia Afa Lesa, Managing Director, Paradise Coconut Products Ltd.
12. Peseta Margaret Malua, CEO, Small Business Enterprise Centre
13. Klaus Stunzner, Chairman, Pacific Island Private Sector Organisation
14. Fonoiava Sealiitu Sesega, CEO, Ministry of Agriculture & Fisheries
15. Noumea Simi, ACEO – Aid Coordination, Ministry of Finance.

    Plus

    Ifor Ffowcs-Williams – International Consultant

    Graham Smith – Principal Consultant

    Hobart Va'ai – Samoa Chamber

    Shorley Mariner – Local Consultant

    Alisi Tuqa – Programme Director, PIPSO, Suva

PNG's High Level briefing: A similar audience was gathered in Port Moresby for a briefing on clusters in general and the ICT pilot.

[11] A conclusion from the NGP Cluster Excellence conference, Copenhagen, May 2011

Step 1 Check List: Introducing Relevance

- Is cluster development being introduced as a centre stage strategy for economic development, coordinating a range of agendas including SME development, training needs, investment attraction, export development?
- Are clusters being viewed as the building blocks of a modern economy?
- Has a sponsor, or better still sponsors, been identified who are able to offer support for a minimum of 2-3 years?
- Is the cluster manager viewed as a change catalyst and connector?

Danger signs

- Senior business leaders show little interest.
- The resources being made available to support a clustering initiative are measured in days, not years; the resources are insufficient to support even a part time Cluster Manger.
- The selected Cluster Manager is a more a backroom analyst than a business developer.
- Cluster development is introduced as:
  - A framework to kick start a totally new economic activity; to develop a 'wishful thinking' cluster;
  - Just another economic development project, an add-on activity;
  - A quick way of generating new jobs;
  - External consultants writing reports for others to action.

STEP 2:

IDENTIFYING, PRIORITISING CLUSTERS

Clusters are a natural occurrence. Most localities will already have a number of clusters that are drawing in wealth from beyond their region.

As these clusters are unlikely to merit equal support, they need to be prioritised.

Do we have a cluster? A local specialisation is not necessary recognised or described as a 'cluster'. The ingredients for a cluster will be in place if these questions can be answered positively[12]:

- Does the cluster sell its products / services to other regions?
- Are the cluster's firms geographically concentrated?
- Is the concentration of firms in this area higher than in neighbouring areas?
- Is there a clearly definable core activity in the cluster?
- Does the cluster have local suppliers of specialised inputs, machinery or services?
- Are there local supporting institutions (such as government agencies, vocational training centres, industry associations) catering specifically to the cluster?
- Would outsiders say that the region is known for this activity?

Don't even try to create a cluster: There is danger in focussing on 'wishful thinking' and 'wanabee clusters'. First comes the discovery by businesses of new opportunities, and then comes cluster development as reinforcement. *'Successful development strategies are usually those that extend, refine, or recombine a region's existing strengths, not those that indiscriminately chase companies or industries. It is difficult for public policy to create new clusters deliberately.'*[13]

[12]This draws on the Cluster Competitiveness Report www.clustercompetitiveness.org

[13]Cortright, J., 'Making Sense of Clusters: Regional Competitivness and Economic Development', Brookings Institution, Washington DC, 2006

[14]Thanks to Dr. Yasin Ziraba, Executive Board Chair, Pan African Competitiveness Forum, Kampala

Clustering examples from Uganda: This wide range of examples demonstrates the economic activities that can benefit from a clustering approach. The following 45 clusters are all naturally occurring specialisations, some based on a local raw material, others based on a local demand. The capital city, Kampala, (population 1.2 million) has 13 clustering initiatives underway. There are two clustering initiatives in Jinja, with a population of 100,000; both are adding value to a local agricultural resource[14].

- Kampala: Cultural Tourism; Education; Furniture; Garment & Textiles; Health; ICT Software; Katwe Metal Fabrication; Management Consultancy; Mushroom Cluster Urban Kampala; Performing Artists; Poultry; Print & Packaging; Vegetable seeds
- Jinja: Leather Processing; Maize Millers
- Northern Uganda: Chilli cluster
- South Western Uganda: Dairy; Katwe Salt processing
- Kayunga: Pineapple processing
- Luwero: Basketry; Beans Cluster; Fruit & Vegetable Processing
- Kakira: Bio Fuel-Ethanol Cluster
- Kaliro: Building and Construction; Fish Farming Cluster
- Kapchorwa: Coffee Cluster
- Masaka: Pineapple Cluster; Tree Planting Cluster; Fish Farming.
- Teso: Citrus; Groundnuts
- Mukono: Building Materials
- Wakiso: Super goat Cluster
- Karamoja: Gemstone Mining
- Mpigi: Coffee Cluster
- Soroti: Millet Cluster,
- Kamwenge: Fish Cluster
- Gulu: Organic Cotton Cluster,
- Pallisa: Fish Cluster; Cotton Cluster
- Butaleja: Cotton Cluster; Rice Cluster
- Nakaseke: Cassava Cluster
- Nsambya: Furniture Cluster

Segmenting the economy: In any Pacific community, most jobs are servicing the local economy: in retail, in restaurants, school teachers, health care, police, vehicle repair, house builders, etc. In a developed economy these **'domestic'** activities may account for around two-thirds of local jobs, in a less developed country possibly 90% of jobs, including the informal economy. The balance of jobs is in activities that are attracting wealth to the region through the export of goods and services, the **'traded'** activities. It is the traded activities that drive wealth creation and it is here that economic development activities should focus. I have yet to visit any corner of the world that does not have at least one local capability that is attracting wealth to its region. This capability may be in an 'un-sexy' area, but in terms of underpinning the economy it can be central. As the traded side of an economy grows through servicing external customers, more demand will automatically be placed on the domestic side.

Short-listing clusters for development: The clusters selected for support will draw on the region's strengths and already be a major contributor to the economy, or have the clear opportunity to make an impact. There may be specific growing conditions; a specialised competency amongst firms; a market niche; an ethnic or cultural strength such as music, textile weaving or handicrafts. A large branch plant or a mine does not constitute a cluster.

If this is a first clustering initiative, it may be preferable to focus on a relatively new activity rather than a well established traditional one, and to focus on a sector where competition amongst firms is not primarily driven by price.

Focus on the dynamic & strong clusters: The European Cluster Policy Group highlights: *'Cluster programmes will have the highest rate of return if they are targeted at clusters that have the strongest ability and willingness to renew and upgrade. Ability is reflected by the success that clusters have already achieved in their line of activities, or by capabilities to move into a new field. Willingness is shown by the ability to organise collaboration within the cluster and by a strategy that clearly outlines activities to upgrade competitiveness and leverage government engagement. The most efficient use of taxpayers' money is not achieved by focussing on either the strong or the weak, but by focussing on the dynamic'*. Economic growth will be achieved more by accelerating the already well-developed clusters than through supporting the struggling clusters. Dying clusters can be skilled at securing political support to postpone what may be inevitable.

Establishing a cluster's boundaries: Each cluster has a unique geography, its own 'catchment area'. This has little to do with administrative borders, rather it relates to the natural interconnections of firms and support organisations. The cluster's functional region may be part of an island or a number of islands. Not all of a cluster's components are necessarily within this region.

The business scope of the cluster also needs to be clarified. Public funders of clustering initiatives prefer broad definitions, so that a larger number of firms are included. However, firms are interested in working with similar firms facing similar problems and addressing similar opportunities. Part of the journey of cluster development is comprehensively understanding within a broad cluster (such as 'Horticulture' or 'Tourism') the niches, or hot spots, where the firms are particularly competitive. This can take time to clarify.

Top-down cluster identification… quantitative: A first approach to identifying clusters is analysis of secondary (published) data to highlight concentrations of economic activity, the traded clusters. **Location quotients** identify economic activities that are over represented in a region relative to the country as a whole. Another route is to identify the sectors that offer **higher pay**. Alternatively, **rank the local firms by size** (by number of employees, or revenues, or exports) and then identify common aspects. Information sources for cluster identification include published reports and academic studies, possibly prepared from a training or workforce development perspective, an export development view or a regional investment attraction prospectus.

Bottom-up identification… qualitative: The second and more valuable route to identifying clusters is through primary data gathering, through interviewing. The starting point is individual discussions with 'wise people' who know the local economy well, e.g.

- Economic & trade development agency professionals; SME support agencies; employment & training agencies; NGOs; donors;
- Chambers of Commerce; business associations;
- Consultants and academics who have reviewed the economy;
- Training providers that are focussing on specific aspects of the economy;
- Political leaders; union leaders;
- Bankers, financial institutions, freight forwarders/logistics providers, lawyers, recruitment agencies, printers and others in contact with many firms;
- Journalists with an overview of the economy.

The clusters that emerge from this identification process are unlikely to be equal in importance. Individual meetings are usually followed by a workshop so a shortlist is jointly developed, not imposed, grounding the workshop with the available 'hard data'. Workshop participants will bring their biases and favourites forward; these need to be openly tested against other views. Tensions are inherent in this discovery and prioritisation process and that is healthy.

The following table is an example of what might develop from a ranking process. Firstly the criteria are decided on and then weights (maximum points) are attached to the criteria. This weight then becomes the maximum number of points allocated to the shortlisted cluster that is the strongest for that criteria, with the other clusters judgementally receiving a proportion of the maximum weighting.

Prioritising clusters for engagement: An example

Criteria	Weights Max Points	Cluster A	Cluster B	Cluster C	Cluster D
Current importance to the economy	20	5	20	10	15
Assessment of growth potential	25	15	25	10	5
Number of SMEs	20	15	10	20	5
Donor interest	20	10	20	5	10
Interest of business champions	15	10	10	15	5
Total points	100	55	85	60	40
Final rankings		**#3**	**#1**	**#2**	**#4**

The results should be publically available.

Pacific Island examples:

Samoa: *"For a successful cluster programme, it is absolutely necessary to build on an existing grouping of private enterprises, farms, research institutions and government departments, which are involved in the sector of the cluster. In other words the cluster cannot be started from nothing at all; the beginnings of a cluster must already exist, although it may not be apparent, even to those within the cluster itself. Secondly, the cluster must have the potential to significantly add-value to downstream products within Samoa itself and to increase the value of exports."*[15]

SAMOA: 10 Potential clusters considered

- Coconut added-value products
- Cocoa added-value products
- Coffee
- Breadfruit
- Nonu fruit & Juice
- Vegetables
- Fish
- Handicrafts & artistic products
- Eco-tourism
- Concrete products & aggregates

SAMOA: 10 Criteria for Selection

- Majour Contributor to the Economy
- Added-Value Products
- Exports – direct & via tourists
- Import Substitution
- Linkages between Stakeholders
- Donor & NGO interest
- Involvement of Industry Associations
- Research Institutions & Standards
- Commitment for Co-operation
- Dynamic Growth Market

PNG Cluster Identification

Five clusters were initially explored for PNG's pilot:

- ICT,
- Coastal fisheries,
- Music,
- Biotech and
- Agro-food.

PNG's Selection Criteria

- Importance to the local economy

[15]Graham Smith, Samoan Team Leader, Final report, 2014

- Current exports and growth potential
- Current and potential employment growth and quality of jobs
- Number of firms and existence of 'business champions'
- % Contribution to national activity: employment, exports, turnover etc.
- Quality of soft infrastructure in place, including publicly funded such as education, training, R&D support, specialised physical infrastructure
- Present culture of the cluster and the degree of networking/interaction between firms and other institutions
- Commitment, urgency and motivation of senior cluster stakeholders to advance with the cluster
- Donor/NGO interest in supporting the cluster
- The landscape of existing organisations or institutions in the sector and the potential complementarity of their efforts

PNG: *"The selection of ICT for the pilot cluster was based not only on the primarily economic criteria, but also on the demonstration within the sector of an extremely high level of dynamism, motivation and commitment amongst the sector representatives and ICT entrepreneurs interviewed during the consultations. The entrepreneurs within the sector are drawn primarily from the younger generation of PNG citizens, whose motivations reside more in generating a new 'era' for PNG, based on collaboration and cooperation for the good of society. This is founded on the application of their discipline, their expertise and innovation in their sector, to benefitting PNG society as a whole.*

As such, the tribal, provincial and cultural barriers to collaboration, evident in other sectors, were less prevalent in the ICT sector. This collaborative approach was complemented by an overwhelming sense of unanticipated volunteerism, by those both directly and indirectly involved in the ICT environment in PNG, which, moving forward, should serve the Cluster well."[16]

Step 2 Check List: Cluster Identification

- Do the identified cluster(s) build on the region's existing assets and strengths? Are there clear 'seeds' for the cluster to which 'clustering fertiliser' can be applied?
- Have the more embryonic, the emerging clusters, also been considered?
- In identifying the clusters, has the analysis gone beyond published statistics by systematically gathering 'wise persons' insights?
- Have the shortlisted clusters been prioritised for engagement? Has this information been made available publically?

Danger Signs

- Trying to create a cluster from scratch; a focus on wishful thinking and 'wanabee' clusters.
- The selected clusters lack critical mass and are too minor to have any overall impact.
- Agricultural clusters are ignored as they are viewed as 'old economy'.
- The only clusters meriting attention are 'high tech' ones.
- An over dependency on published statistics to identify clusters, especially in the Pacific Islands. Data analysis will not surface clusters such as eco tourism and organic produce. Cluster activity may not be fully captured due to the informal economy.
- The key determinants in selecting clusters are:
  - The favourites of a few within the region, especially those with a strong political voice;
  - The favourites of distant funders;
  - Protecting the dying clusters, the ambulance cases;
  - The 'available' high-growth export markets, rather than the more fundamental strengths and capabilities within the region.

[16] *'Regional Cluster Initiative in the Pacific – Setting Up Clusters in PNG'*, Final Report, Paula Norris, July 2014

STEP 3:

INITIAL ANALYSIS

With the priority clusters now identified, a short and sharp analysis of the cluster's competitive position is undertaken. This inward looking activity is preparing a platform for action. It is not a major piece of analysis. Sufficient data is needed to gain agreement on the current situation.

This Step also starts the cluster mobilisation process. The cluster manager is personally introducing the clustering process to the cluster's key stakeholders, securing their involvement and starting to identify the cluster's leaders.

An overt agenda: The *'open agenda'* for this initial diagnosis is systematically gathering the facts on the cluster's situation, not relying on uninformed opinions or groupthink. Different stakeholders may have differing perspectives on the current situation, the 'NOW'.

And a covert agenda: The *'under the table'* agenda is to start mobilising the cluster's stakeholders towards collaborative projects. Cluster development implies much more than analysis. A component of this mobilisation is identifying the cluster's *shakers and movers*, the leaders who are able to influence others.

A Cluster Muster: An early element in the clustering process is often a Cluster Muster, a public kick-off meeting that announces the initiative, the reasons for engagement with the cluster and introduces the cluster manager. This awareness-raising meeting is open to all with an interest in the cluster. It signifies a point of no return in the clustering process; expectations for action will follow.

Each of the Pacific cluster pilots was kick-started started with public Cluster Musters, some attracting over 100 participants from across the cluster. Each workshop included discussion on obstacles to business growth to quickly identify early collaborative projects.

Samoa's Coconut Cluster Muster Workshop: *"This initial workshop was arranged to introduce the concept of a cluster to the participants and to show how the cluster system of organisations working together for mutual benefit can lead to enhanced earnings for all of the cluster members, even though they may remain competitors within the cluster. 35 participants attended the first workshop, all of which were decision-makers. The workshop was held at the Tanoa Hotel, Apia."*

Workshop Programme

1:00 pm Opening by Ane Moananu, CEO Samoan Chamber of Commerce and Industry

1:10 pm Alisi Tuqa – PIPSO, Fiji, remarks on the Pacific cluster programme

1:20 pm Graham Smith – Team Leader – "Why chose the coconut added-value products cluster for Samoa? Why is this important for your business?

1:30pm Presentation on Cluster Development, an International Perspective by Ifor Ffowcs-Williams, Central PIPSO cluster team, Fiji

2:00pm Questions from participants

2:15 pm Coffee break

2:45 pm Graham Smith – Observations to date by a neutral observer.

2:55pm Ifor Ffowcs-Williams – Small group discussion on the coconut cluster

3:30 pm Feedback from the floor – open discussion

4:30 pm Close and refreshments

PNG's ICT Cluster Muster Workshop

"The objective of the PNG ICT Cluster Muster was to gather together as wide an audience as possible from private sector, public sector, academia, the donor community and civil society, to raise awareness of the Cluster and to stimulate creative thinking amongst participants as to how the formation of an ICT Cluster could assist in stimulating partnerships between ICT experts and subject experts, to identify any 'low hanging fruit' projects that might be developed, and to generate discussion on the way forward for the ICT Cluster. 69 participants attended the event. A pre-event Press Release was issued. The first part of the workshop consisted of contributions from several key speakers. Government support and participation was secured from the CEO of the National Information and Communications Technology Authority, PNG's converged Licensing and Regulatory Authority for ICT Services. There were also contributions from the EU Delegation, Port Moresby, Business Council PNG, PIPSO, the Project Team Leader and Ifor Ffowcs-Williams.

The second part of the workshop consisted of a session for break-out groups around the tables to consider project ideas that could facilitate the early advancement of the Cluster, and potentially bring together ICT experts and subject matter experts to develop specific ICT-based project ideas."[17]

Cluster Manager leading the analysis: With both overt and covert agendas, it is important that the cluster manager undertakes the analysis rather than out sourcing, providing an early opportunity to establish rapport with the cluster's stakeholders.

Gathering published data, statistics: Following the 'Cluster Muster', relevant published and online information is reviewed. Data on market trends and opportunities is particularly valuable.

History matters: It is necessary to understand the development of the cluster:

- How did the cluster initially emerge? Out of an existing cluster? Or a chance event? Were the initial firms attracted by public subsidies?
- How has it grown over time? What have been the cluster's turning points?
- How embedded are the lead firms and the cluster itself in the region?
- To what extent has public or other support already been made available? For training? Investment attraction?

[17] 'Regional Cluster Initiative in the Pacific – Setting Up Clusters in PNG', Final Report, Paula Norris, July 2012

Mapping the cluster: In addition to gathering hard data, interviewing key stakeholders across the cluster enables the cluster manager to:

- Understand the cluster's opportunities and constraints; the extent to which the value chain is covered by the region's firms.
- Understand the existing dynamics, relationships, teamwork. Assess the quality of linkages amongst firms and between the private and public sectors.
- Identify the cluster's 'hot spots', the faster growing product and market niches.
- Promote awareness of the clustering initiative and personally introducing the concept to sceptics … there may be a number!
- Start identifying the cluster's talent and making an assessment of possible leaders.

This diagnostic process is just that: describing the 'NOW', the current situation. The purpose is not to make recommendations or to propose or impose in any way the cluster's forward strategy.

Engage the media: Cluster development is not a **'TOP SECRET'** activity. It requires broad, open engagement across a community. Not everyone will be able to participate in cluster workshops. The local media were extensively engaged during the Pacific pilots, through the local press, TV and radio.

Interviewing across the cluster: Interviewing extends right across the cluster. Specialist suppliers to the core firms can be useful information sources. New participants may provide valuable insights. Academics, journalists, government and association officials and politicians could have useful overviews. Recently retired executives can be open and frank in their comments.

Identifying Samoa's Coconut Cluster's Stakeholders

- *Coconut farmers in Upolu and Savai'i*
- *Savai'i Coconut Farmers Association – Fair Trade certified coconut farms*
- *Samoa Farmers Association*
- *Nu'u Crop Station*
- *Olomanu Seed Gardens*
- *Women in Business Development Inc. – VCO production*
- *Scientific Research Organisation of Samoa SROS (Scientific Research Organisation of Samoa) – bio-diesel pilot plant*
- *SMEs producing coconut oil based soap, body care products, coconut cream, organic virgin coconut cooking oil and refined coconut cooking oil (from crude coconut oil), plus SMEs exporting crude coconut oil*
- *Samoa Trust Estate Corporation bio-fuel plant and coconut plantations*
- *Organic certification companies from Australia and NZ operating in Samoa*
- *Suppliers of Virgin coconut oil presses and dryers from NZ/Australia to Samoan & regional VCO producers*
- *Eco-tourism on organic farms in Upolu and on the small Samoan islands conserving the "Samoan Tall" variety of coconut tree.*
- *Producer of coconut cream liqueur (Stevenson).*

"All important stakeholders within the coconut cluster were interviewed by the Samoa team, including coconut farmers, STEC (state coconut plantations) and SMEs producing added-value products such as organic virgin coconut oil, coconut oil based soaps and body care products, coconut cream and coconut cooking oil. The team also met with organisations involved in the production of crude (copra) coconut oil and bio-diesel to discuss the possible expansion of the use of coconut oil for both diesel vehicles and for electricity generation."

Emphasis on individual discussions: Face-to-face interviewing will probably account for 80% of the analytic effort… meetings with the cluster's stakeholders at their place of work. The interview is not questionnaire filling, rather a semi-structured discussion led by the cluster manager, identifying problems and opportunities. These will not always surface in a workshop setting, particularly if there is limited trust amongst the cluster's stakeholders. Topics will vary from business to public agency to academia.

Example: PNG's ICT cluster analysis

Points for discussion with individual businesses and ICT support organisations:

1. What are some challenges your company or organisation faces in the next 3-5 years?
2. What are the main factors holding back your company/organisation from doubling its activity?
3. Who are your main customers?
4. Why is your business based here?
5. Are there any Government regulations that (negatively) affect your Business?
6. Is competition intense or mild?
7. Do you have joint projects underway with other ICT businesses?
8. Do you have close relationship with your customers?
9. Who are your competitors and what is your firm's competitive advantage?
10. Do educational institutions supply sufficient numbers of staff? With the appropriate skills?
11. Are there impediments in the bandwidth? Availability? Cost?
12. Who would you turn to for urgent technical advice?
13. If you were to invite a few of the clusters leaders … the shakers and movers … to your home tonight, whom would you invite?

SWOT analysis: A framework to summarise the information from the desk research and interviews is a SWOT analysis covering the cluster's Strengths, Weaknesses, Opportunities and Threats:

- **Internal factors:**
  - **Strengths:** The cluster's characteristics that give it an advantage over other clusters. Skills? Raw materials? Reputation? Location? Support institutions? Collaborative culture? Tacit information flows?
  - **Weaknesses:** The cluster's characteristics that place it at a disadvantage relative to others. *Clumps* of firms? A *clutter* of support organisations? Production processes? Bank finance? Infrastructure bottlenecks? Freight logistics? Regulations? …
- **External factors:**
  - **Opportunities to increase business:** Available market niches? Adding value? New technologies/ processes? Cluster brand? Linking with other clusters? …
  - **Threats:** Buyer perceptions? Substitutes? Impact of changing distribution channels? Market and/or Technology changes? …

Ensure external input: There are merits in bringing in specialised technical or market expertise, or undertaking a study tour to an international trade show, a convention or a trade conference.

- **For Samoa's coconut cluster**, visiting workshop speakers included producers of virgin coconut oil from Fiji and Tonga and a supplier of coconut pressing machinery from New Zealand.
- , speakers participating at a cluster workshop included Papua New Guineans based in Silicon Valley (California) and from Osaka University (Japan) and a business incubator specialist from New Zealand.

Gathering Baseline Data: Hard data needs to be gathered at the start of a clustering initiative so that change over time can be documented. In most Pacific Island countries published statistics are not available with the specificity required. Emphasis should therefore be placed on gathering baseline data through surveys. This data

will later be used to measure progress. The Baseline Data could include:

- Number of firms; number of start-ups; number of firms attracted to the cluster;
- Total revenues; export proportion; average growth rate; capacity utilisation;
- Number of jobs, new trainees;
- Revenues/employee;
- Number of export markets served;
- Amount of new investment within the cluster.

Think through carefully what is appropriate … what gets measured gets done. Gathering the data should not be too complex or onerous. Aim for 5-6 measurements that encompass different aspects. In some clusters a local accountancy firm annually gathers the data (and provides this service at no charge).

Establishing the cluster's relational database: Relationships are at the core of every clustering initiative. During the analysis phase, start systematically recording data on the cluster's organisations and people … all the people who have been interviewed, those who come to cluster events and to workshops and all who participate in the task forces that will be formed.

Preparation of a discussion paper, presentation: Based on the research and interviews, a short sharp discussion paper is prepared that provides sufficient data to gain agreement on the current situation, the 'NOW' and to remove misconceptions. The analysis should be presented in an executive summary style report, no more than 10 pages. The report is a public document and should cover the following:

1. Introduction: Purpose of report; research scope; emphasising this is an initial analysis.

2. Executive summary: One page maximum.

3. Cluster's products and services: The breadth of activities covered by the cluster; indications of the clusters size e.g. employment, exports, number of firms; and the cluster's local and national importance; the cluster's boundaries.

4. SWOT review: Identifying the key Strengths, Weaknesses, Opportunities and Threats facing the cluster. Identify common roadblocks and opportunities. What are the key drivers that contribute to the firm successes? What inputs are available locally, such as natural resources and specialised soft infrastructure? Is there specialised demand locally? Who are the competitors? How embedded is the cluster in the region? Does the cluster have synergies with other clusters in the region?

5. The market: What is the market served by the cluster? What types of businesses are the key customers? Where are the growth niches? Major trends?

6. The cluster's culture: Inter-firm competition and co-operation. Do firms within the cluster effectively work together? Or are they isolated, currently a *clump*? Are key support organisations, such as universities and government agencies closely aligned to the firms at the cluster's core and the support firm's core, or a *clutter* of agencies?

7. Existing associations, institutions: Identify associations that actively support members of the cluster and their role. Do key government institutions provide sources of competitive advantage? Are there specialised training institutions?

8. Cluster map: A cluster map allows cluster participants to see the networks and relationships in the cluster. It can also be helpful in identifying where emphasis needs to be placed in moving the cluster forward.

9. Investment opportunities: Identifying gaps in the cluster system (e.g. specialised packaging capability) that could be bridged by further private or public investment.

10. Identifying the Baseline Data: The hard data that will be used to measure progress over time.

11. Appendices: Statistics, reference sources, interviewee lists etc.

The objective of this initial analysis is not to present all the data gathered during the analysis process, nor to demonstrate the knowledge that the cluster manager has accumulated on the cluster. A key is synthesis, with the objective of providing an agreed foundation for early action.

Cluster analysis workshop: In addition to the brief report, a PowerPoint presentation (15-20 minutes)

summarising the report should be prepared for use at this workshop. The workshop provides an opportunity for the cluster manager to:

- Provide feedback to all who have been interviewed as part of the analysis process;
- Draw in other cluster stakeholders;
- Lead a discussion on the current situation;
- Establish a common understanding across the cluster on the current situation; and
- Set the stage for the development of the cluster's strategic agenda.

Step 3 Check List: Cluster Analysis

- Has a public cluster muster been held to announce the initiative and to kick-start the initiative? Did invitations cover the triple helix: Business, Government/Donors and Academia?
- At the cluster muster, were some initial priorities for the cluster's development identified?
- Face-to-face interviewing is essential for gathering information on the cluster's current situation, the impediments and the opportunities. Has the base for the analysis been extensive interviewing across the cluster by the cluster manager, not an outsider?
- Have published statistics and reports been extensively reviewed?
- Has the cluster's history and its culture been comprehensively understood?
- Do stakeholders coming from different parts of the cluster now have a shared understanding of the cluster's current situation?
- Is a positive environment being established for the cluster's mobilisation?
- Are the cluster's leaders becoming apparent?
- If relevant, has specialised technical expertise been brought in? Has an early study tour been arranged to a target market, a trade fair, or a related cluster?
- To measure progress, has the cluster's Baseline Data been identified and gathered? Has a start been made to building the Cluster Relational Database?
- Has a concise report been prepared outlining the cluster's current situation, and a PowerPoint presentation to be used at the first cluster workshop?

Danger Signs

- Insufficient time for an extensive range of one-on-one interviews with the cluster's stakeholders.
- Prior to engagement on major projects, there is not clarity across the cluster on the obstacles and opportunities.
- An outsider undertakes the analysis, providing recommendations.
- The cluster manager is in place after the analysis has been undertaken.
- The cluster manager fails to build active working relationships with other support organisations.
- No opportunity is provided to discuss the analysis in a workshop setting.
- Paralysis-by-analysis … preliminary research is over-extended with time consuming, detailed reports being prepared rather than a short, sharp analysis to provide the base for early action.
- Analysis is viewed as a one-off activity rather than on going as opportunities and needs evolve.

STEP 4:

CLUSTER GOVERNANCE

The governance of a clustering initiative comes through an independent organisation led by business. The Board is often initially selected, a group of senior people who lend their names to the initiative. Ideally membership of the Board should cover the triple helix. The cluster manager has a central role in inviting the initial Board members to step forward.

This is one of the most critical aspects of cluster development and should not be hurried; it may take six months or more to move from a small informal task force to having the full Board in place. Mistakes are hard to rectify.

Board & Chair role: The Board is the cluster's leadership group, its Board of Directors. It is an autonomous high-level mobilisation/decision making entity, a group senior volunteers who choose to have a high degree of involvement in the initiative. The Board is a self-help team; it is not an advisory group. Whilst the Board of a commercial organisation allocates scarce resources, the Board of a clustering initiative more closely follow the energy of cluster members and supports their activities in moving the cluster forwards. New activities at the periphery … new products, new markets, and new technologies … should be encouraged. A culture of learning-by-doing is needed, not paralysis-by-analysis.

A cluster's Chair, the well-respected leader of a clustering initiative, usually comes from the private sector and publically represents the cluster to Ministers, donors and the media.

Board membership: The Board is a coalition of some 8-9 preferred leaders who understand and care about the big picture. While Board members are the decision makers within their organisation, the perspectives they bring to the Board are wider than that of their organisation. They are not on the Board to directly represent their company, their association or a special interest group.

Board members need to be comfortable in working as a team, accepting that tensions and debates are healthy. This is not an honorary role for retirees or for passive by-standers. For the members of the Board, failure of the clustering initiative is not an option … they are lending their names to a success and their enthusiasm should infect others.

It can take time to identify who the preferred leaders for a cluster are. The 'anointment' of leaders should not be rushed. A prior testing in leading task forces/ Cluster Action Teams can sort out who really are the cluster's dedicated movers & shakers.

Two types of senior leaders can help in moving a cluster forwards:

1. Those who bring positive influence to the Board table, the leaders who are well connected within and beyond the cluster and have the ability to attract other key people to support the clustering initiative and to attract additional resources. They will have a reputation within the community for getting things done. They may be task force/sub-group leaders.
2. Those with in-depth technical and market knowledge.

Many cluster Boards benefit through having participation that extends beyond business people. 'Triple Helix' is a term often used, referring to Business (core firms and supporting firms such as packaging or machinery suppliers, accountants, lawyers, freight forwarders) and Public Agencies/Donors (could be a specialist from a Ministry and/or from an NGO or business support organisation that is active with the cluster) and from Academia (e.g. from a training institute or a local school).

The majority of Board members, and the Chair, should come from the private sector. Fundamentally, cluster development is about business development and a clustering initiative needs to move at the speed of business. Membership in the early stages of a clustering initiative is usually by invitation, not by election. Elections come later when people know each other.

Organisational structure: The Board of a clustering initiative often starts as an informal task force or steering group, evolving over time into a more formal structure. On initiation, it is helpful if the cluster organisation is housed under the umbrella of a Business Council/Chamber. Until such time as the organisation is legally formalised and can then open its own bank account (and this should not be rushed), the Council/Chamber may be able to manage any financial aspects for the clustering initiative. Elsewhere in the world large clusters often have full time Cluster Managers in place. In the absence of resources for such a person, it is important that the workload is shared to avoid the risk of volunteer burn out.

Supporting the Board can be a number of working groups/Cluster Action Groups with specific responsibilities, as the example from PNG below demonstrates.

Supporting quotation

Cluster governance: the UNIDO approach: *"Governance can be understood as the capacity of the cluster to start and sustain joint actions in a systematic and strategic fashion. A sound governance system allows the cluster actors to identify shared objectives, agree on a common strategy for their achievement, articulate collective actions and solve related problems, monitor outcomes and ensure their sustainability over time."*

Examples: Inaugural Pacific Island Cluster Chairs

Samoa: The Chair of the Coconut Cluster Task Force, Metataulitia Afa Lesa, has a strong private sector background. He is the CEO/owner of a company producing coconut oil for electricity generation and oil based soap products. Afa had been interviewed by many aid agencies over the years, openly sharing his knowledge and insights, but to no avail. Just another report was written. He is well regarded by the Chamber and the coconut farmers and is politically respected. As an investor in the coconut industry he is looking for a way forwards that is led by the private sector.

Tonga: Team Tonga Task Force's leader, Minoru Nishi, is a grower and exporter with the first HACCP specified factory on Tonga. He is an active participant in a range of committees and sub-groups, is a well-respected and enthusiastic team player and stepped forward as a leader early in the cluster process.

Papua New Guinea: The Chair of PNG's ICT Cluster Task Force, Peter Loko, has a long-standing experience in the ICT sector. He is the former CEO of the state-owned PNG Telikom and a former Board Director of PNG's Kalang Radio. He is currently Chairman of Software Factory Australasia, providing software solutions relevant to the Pacific with products and services in use in 10 countries. Peter has held senior positions on a number of Boards in property, insurance, infrastructure development, museums and art galleries and is very highly respected in the PNG business community. He has recently been appointed as Country Leader for General Electric.

Cluster teamwork in action: PNG

The future of the ICT Cluster, at least in the short-term, is based entirely on the volunteerism of those mobilised during the project interventions. The volunteers committed to driving the cluster forward are in three groups:

#1: The Objective of the Cluster Task Force is *"Overseeing the Cluster activities and creating a vision and high-level strategic connections for effective outcomes."* Initial members are:

- Peter Loko (former CEO PNG Telikom, Country Manager General Electric)
- Douveri Henao (PNG Business Council)
- Priscilla Kevin (ICT Entrepreneur)
- Winifred Amini (ICT Entrepreneur)
- James Gore (Private Accountant and Business Advisor)

#2: The objective of the Cluster Start-up Incubator Working Group is to *"Advance the work started at the Incubator Workshop to develop an appropriate Incubator Framework, elaborate options, draw up a Business Plan, liaise with potential sponsors and funders to seek support, and pursue successful outcome for Incubator set up."* The volunteer members of the working group are:

- Gary Cobain (Digicel)
- James Gore (Private Accountant and Business Advisor)
- Priscilla Kevin (ICT Entrepreneur)
- Winifred Amini (ICT Entrepreneur)

#3: In addition, the PNG ICT Cluster Secretariat has been established with the objective to: *"Provide secretariat services to both the Task Force and the Incubator Working Group; manage and coordinate activities of the Cluster including current quick-win projects, initiatives and schedules/calendar events; sourcing, collating and updating website content, monitoring website activity, developing website as a marketing tool; developing and implementing other communications and marketing tools (e.g., social media, electronic newsletter to mailing list); scheduling speakers and disseminating information/sending invitations for First Tuesday Training events; developing a PNG ICT Cluster Calendar of Events; develop a provisional operational budget; managing delivery of outcomes, liaison with the Leader of the Incubator Working Group etc. etc."* The voluntary secretariat members are:

- Vagiole Ila'ava, POM IT Team Lead (Oil Search Limited)
- Avis Vila (Data Centre Operations IT, Bank of South Pacific Limited)
- Geno Ila'ava (Service Planning & Design, IT, Bank of South Pacific Limited)[18]

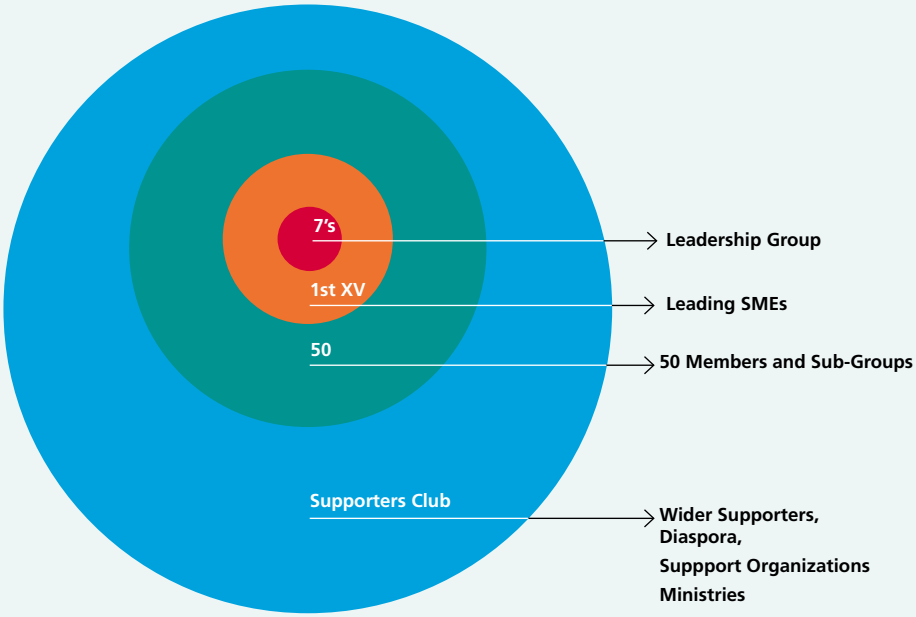
The development of the PNG Cluster Team over time: *"At the commencement of the project, a small number of dedicated and committed volunteers came through. This included Mr Douveri Henao of the Business Council PNG, Ms Priscilla Kevin and Ms Winifred Amini, two young, female ICT entrepreneurs. These volunteers were the driving force for the majority of decisions in the early stages of the project. As the project progressed, further volunteers emerged who made specific contributions, e.g. ICT entrepreneur developed the cluster website.*

After the Cluster Muster Workshop, Mr Peter Loko emerged as a potential volunteer to be the Chair of the Cluster Task Force. After the Strategy Workshop on May 1st, two volunteers emerged, Mr Gary Cobain of Digicel and Mr James Gore, a private accountant, with specific interest and focus on furthering the initiative of setting up an ICT Start-up Incubator.

After the « PNG ICT Cluster Ignites » workshop, three volunteer ladies stepped forward to assume a Secretariat role. Further details of the groups of volunteers are given below, and time will be the indicator of whether the present nucleus of volunteers is sufficient to sustain the Cluster initiative until funding or financial sustainability can be achieved."

[18] *'Regional Cluster Initiative in the Pacific – Setting Up Clusters in PNG'*, Final Report, Paula Norris, 2014

Team Tonga's structure: A small core Leadership Group, then the 1st XV (in keeping with a rugby team), finally a group of 50 members and then the wider supporters within and beyond Tonga.



Step 4 Check List: Cluster Governance

- Has the cluster manager checked out credentials, reputations and the potential group's dynamics before inviting preferred leaders to step forward?
- Did the cluster manager start with an informal group of possible leaders, an initial steering group/task force?
- While the majority of Board members and the Chairperson should be from the private sector, does participation also include well-respected members from the public sector/donors and academia?
- Is the cluster manager thinking ahead about succession?

Danger Signs

- The Board has been formalised with haste.
- Board members look after their own interests, not the broader agenda of the cluster; Board members lack an understanding of the cluster's development issues, and/or lack a passion to engage; their time for engagement with the cluster is limited to Board meetings.
- The initiative moves at the speed of a bureaucracy with paralysis-by-analysis, rather than a (more chaotic) approach of learning-by-doing.
- Substitutes/alternatives are permitted at Board meetings.
- The Board is dominated by:
  - The cluster's largest organisations, the loudest, or representatives from a (conservative?) 'Old Boy's Club';
  - Second level managers, not CEOs/Heads of Departments;
  - Public agency representatives and industry association officials;
  - Those seeking public funding to maintain the status quo;
  - One gender.

STEP 5:

PREFERRED FUTURE

With the initial analysis completed and the cluster's Board under establishment, broad agreement is now needed on the cluster's direction, the preferred future.

Where are we heading? The Cluster Initiative Greenbook[19] identifies that the most common reason for the failure of clustering initiatives is a lack of consensus on direction. A shared sense of purpose is needed, leading to a shared strategy.

The preferred future needs to be grounded in the reality of today's situation, as identified through the analysis undertaken in Step 3, the 'NOW'. However, it is not creating a future in an image of the past, it is envisioning a desirable future. It articulates a s-t-r-e-t-c-h ambition, setting a challenge. It clarifies the broad direction for the cluster and may refer to the markets the cluster serves, its products and services. The preferred future needs to capture both hearts and minds. It needs to be action orientated and to resonate across the cluster.

The key question to be addressed is **'What does success look like?'** Related questions are: What do we offer? What do we stand for? How do others see us? How are we different from our competitors? What are we doing that others cannot easily replicate? As a 'preferred future' it is assuming that all goes well for the cluster.

Consensus building workshop: Following a common understanding on the cluster's 'NOW', a view of how the cluster might be in the future is collaboratively developed. The preferred future needs to be jointly shaped so that the cluster's stakeholders own it, it is not imposed. It is created with the cluster's stakeholders, not for them.

It can be developed from scratch in a workshop setting. Alternatively, the cluster manager drafts a suggestion to propose at a cluster workshop and then invites comments. A starting point in developing a Preferred Future is to imagine a doubling and to open this for discussion at a workshop. Such futures can be refined later. Broad, high-level agreement is being sought, not a detailed picture of the future.

The workshop discussion on the Preferred Future can provide the opener to a cluster-wide workshop that then continues with the development of the Initial Strategy (Step 6) and concludes with presentations/discussions on the Short Term, Tactical Agenda (Step 7).

[19]The Cluster Initiative Greenbook (Sölvell et al, 2003)

Preferred Future examples

Samoa Coconut Cluster

Preferred Future

In 3-4 years time we will have doubled...

- doubled the coconut harvest
- doubled the number of value adding firms
- double our exports
- doubled our international recognition as a premium supplier of high value products

---

PNG ICT Cluster

Preferred Future

In 3-4 years time we will have doubled...

- doubled our turnover,
- doubled the number of start-ups
- doubled the number of ICT students,
- doubled our recognition as an ICT regional hub

Step 5 Check List: Preferred Future

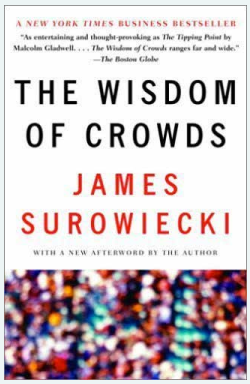
- Has the preferred future been discussed and shaped in a workshop?
- Is it describing a future that captures wide attention?
- Is it intended to further s-t-r-e-t-c-h the preferred future over time?

Danger Signs

- The Preferred Future is owned by only a select few within the cluster.
- The preferred future is unrealistically ambitious and fails to attract attention, especially from business.
- Or it is too cautious, and fails to inspire.

STEP 6:
INITIAL STRATEGY

The forward direction is established through an open workshop process. The identified stepping-stones then form the initial strategy for the cluster's development.



The approach: Insights for the initial strategic plan come in part through an open dialogue in a workshop setting, drawing on the *'wisdom of the crowd'*. The workshop is focussing on the preferred future, on how the cluster moves forwards. The plan that flows from this approach will have flexibility, accepting that the external and the internal environments facing the cluster are continually shifting. It will adapt further through learn-by-doing. Execution of the plan will be dependant on volunteers who need to be part of the strategy setting.

A workshop process: With the Preferred Future established, the cluster's stakeholders identify what broad steps are necessary to deliver on the vision. Identifying these issues through a bottom-up workshop process is more powerful than having a top-down 'independent review' with the strategy being presented by an outsider. Involving the cluster's insiders through a workshop process, rather than delivering to them an outsider's report, invites their active engagement. The strategy is not being imposed.

The process centres on **back casting** from the Preferred Future, (Step 5), not forecasting from the present situation. The cluster stakeholders, in a live workshop setting, are invited to imagine that the preferred future has been achieved and then to back cast to identify the main steps that were taken. Typically five to ten key steps will emerge as the clear priorities for immediate attention. The activities will vary from cluster to cluster and could be as broad as:

- Market development, market research;
- Training, skills development;
- R&D/technology transfer;
- New product development;
- Culture change, more networking, tighter links;
- Small business finance.

The workshop participants then prioritise these broad activities through voting. All are equal for this voting.

Following the workshop: The workshop's conclusions should be made public, reflecting transparency in the cluster process. A summary of the emerging strategy should quickly go to each of the workshop's participants, along with all who where invited. A press release should also be prepared for wider circulation.

The outcomes of this key workshop are in effect the cluster's first Strategic Plan.

Example: PNG's ICT Cluster

PNG's ICT Cluster Development Priorities	
Key Steps	**Number of Votes**
Skills upgrading/Training availability	58
Developing the cluster's culture, teamwork	48
Establishing a clear structure & strong cluster leadership	41
Improving Government Policy	41
Establishing a strong brand and identity for ICT in PNG	33
Improving access to finance	32
Improving export marketing opportunities	16

Step 6 Check List: Initial Strategy

- Are those who will be implementing the strategy fully involved in developing it?
- Have five, possibly ten, key activities emerged through a transparent process? Have these activities been prioritised by all who will be engaged?
- Have these activities become the headings for the cluster's initial Strategic Plan?

Danger Signs

- Failure to get the right people into the strategy workshop.
- The cluster's forward strategy is determined without a workshop process, such as:
  - A few senior people decide for the many;
  - An outside consultant presents recommendations, and then disappears;
  - A funder predetermines the strategy as a condition for the cluster receiving support; or
  - The strategy workshop is held prior to the initial analysis, based on individual interviews, being undertaken and discussed.

STEP 7:

SHORT TERM, TACTICAL AGENDA

The emphasis is on a series of quick wins through short term, tactical 'low hanging fruit' initiatives. These initiatives don't require substantial resources and start mobilising the cluster towards the preferred future. Task forces are established for priority projects.

Identifying the low hanging fruit: These are the relatively easy initiatives. Small firms in particular will walk away if there are not early benefits; they are not interested in a talkfest. Early initiatives may alleviate immediate pressure points. They are the tactical first generation initiatives, rather than the long-term major impact initiatives and could include:

- Cost reduction, such as joint purchasing, negotiating joint transport;
- Developing new business opportunities, e.g. through an export trade mission;
- Addressing immediate training needs;
- Facilitating collaboration between firms, sub-contracting, out sourcing;
- Removing the isolation of the cluster's stakeholders: arranging regular meetings; developing a 'Who's Who' for the cluster (a database of cluster stakeholders); establishing a newsletter, a cluster website.

The early priorities need to offer tangible benefits to the participating firms, accepting that not every project will benefit every firm. If there is no passion and energy from business to participate in implementation, the issue should be put to one side. The initiatives should tightly focus on what can be achieved within the energy and resourcing that is at hand and not be distracted by broader agendas. A cluster that drifts into addressing generic issues (such developing a regional brand or upgrading airport facilities) can be heading for difficulty.

Project outline: The scoping of a project for a short listed initiative should include:

- An outline of the activity;
- Defining the expected results;
- Identifying the resources that are needed; the timeline and key milestones; and
- Identifying whom from within the cluster has the necessary skills, contacts, knowledge and passion to participate in driving the particular project. Who might lead a small team to drive the project?

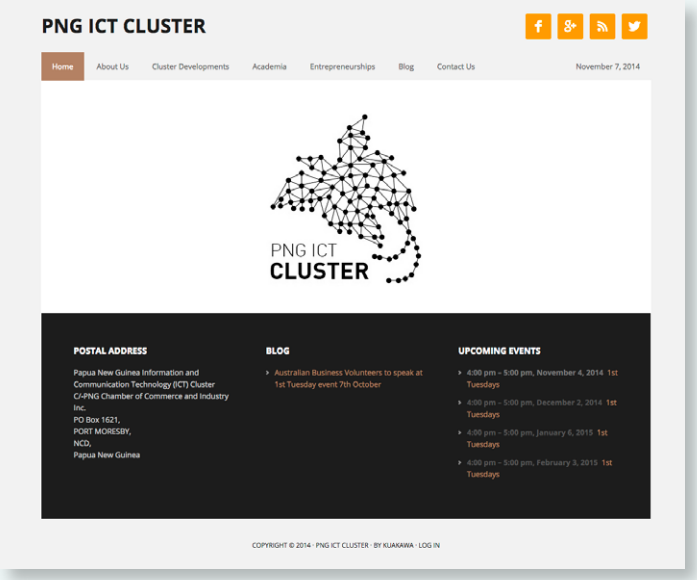
The initiatives should demonstrate the value of early collaborative action, showing that together there is forward movement that would not be possible with the cluster's stakeholders working independently.

Establishing CATs, the Cluster Action Teams: The action agenda is not producing 'wish lists' in the hope that others move on the prioritised activities. Responsibility for action needs to be shared with the cluster stakeholders working collaboratively through short-term temporary task forces... CATs… the Cluster Action Teams. The cluster manager encourages those with passion for an issue to step forward and participate in relevant CATs, often people who bring different perspectives from different corners of the cluster. A task force working on a training initiative should, for example, include both private sector participants and education providers. CATs provide an opportunity for the cluster's participants, even competitors, to learn to work together on common projects and for the cluster manager to identify emerging leaders, tomorrow's leaders. They spread the workload, minimising the danger of volunteer burnout.

These task forces have specific objectives to achieve and then **self-destruct** on completion. They are not committees in perpetuity. It is not unusual to have 10-20 small projects emerging from the cluster workshop with the CATs becoming the cluster's main engine for development. The cluster manager has an important role in working with these task forces, supporting them but preferably not acting by default as the 'project manager' for everything. With small clusters and clusters comprised mainly of small/informal businesses, the cluster manager may need to act as the project manager with the implication that there will be engagement on fewer fronts.

Key principles for success: Complex, long haul projects should be introduced once momentum is in place, or broken down into manageable chunks. The focus is activities that are given a priority by the cluster's stakeholders, the insiders, not outsiders such as a consultant. Establishing a spread of projects broadens the pay-offs and minimises dependency on any one. Analysis and report writing are not, as seen by some public agencies and donors, an end in itself. Emerging initiative can be speeded into action by the cluster having the resources to engage on the priorities that emerge through this process.

A small number of 'flagship projects' should be identified, projects that are high profile attention grabbers … inspirational initiatives that attract wide interest and media coverage. In PNG, one such initiative was the early establishment of a cluster website. Such projects can be particularly valuable in mobilizing the stakeholders and extending the cluster's reach to a wider community, including government, local banks, schools and private sector partners.



Regular cluster forums: Clustering initiatives should include regular meetings as an outreach strategy and to provide the all-important opportunities for people from across the cluster to meet face-to-face. Innovative clusters are an inter-connected system with many networks. Yet all too often businesses and support organisations are remote from each other, with little active engagement, the *clumps* and *clutter* syndrome. These regular forums could include:

- Monthly breakfast/evening meetings, such as regular monthly meetings with a guest speaker as a draw card;
- Speed meeting/dating sessions as a means of increasing who-knows-who;
- Awareness briefings at the premises of cluster members;
- Celebration activities centred on individual firms and organisations, such as acknowledging an award, the launch of a new product range or training course, a first major export contract.

PNG's ICT cluster quickly initiated regular '1st Tuesday' meetings, monthly events with a speaker, from 4-5pm, followed by networking.

Cluster hot spots/sub-groups: As well as moving on the more generic issues, the cluster manager with knowledge of the cluster's stakeholders is likely to see scope to engage in a more targeted way within the cluster. Hot spots are the high growth areas within the cluster where a more focussed development approach offers benefits. This could be around a specific technical competence, a market niche or an emerging opportunity. A large cluster could offer 10-15 hot spots/sub-groups with firms participating in more than one.

Engagement within these sub-groups can be open to all within the cluster that have an interest, such as with all core firms or all transport operators. Or the engagement can be a more confidential and private collaboration between a small group of the cluster's actors who have developed the trust to work together on a specific project, such as a new product or a service that draws on a range of their capabilities. These more confidential collaborations may start with informal cooperation, such as in joint purchasing. Over time, as trust develops between the participating companies, the sharing of production capabilities, or joint marketing in a new market may be possibilities. Later a joint venture company might be established for co-investment in a major new plant or to set up a common international office/warehouse.

These partnership arrangements are important in enabling firms to co-specialise, a key to lifting firm productivity. Firm strategies naturally evolve through an effective clustering process. The cluster's regular meetings provide the opportunities for firms and support organisations to explore collaborative opportunities in an informal setting. The cluster's manager has on-going role as a broker in bringing potential parties together.

Clusters are just one form of collaborative engagement. **Value/supply chain development** integrates activities that bring a product or service from conception through the different phases of production and trade (including design, logistics, purchasing, production, marketing, distribution and export) until the final consumer. A cluster may have more than one value chain project, and these maybe competing with each other.

Step 7 Check List: Immediate Development Agenda

- Is there quick mobilisation into action? Is the cluster's modus operandi one of learning-by-doing?
- Is there a portfolio of at least five short-term projects underway? Early projects should offer cost savings or address the immediate problems and should not touch what firms view as their core activity.
- Are the projects being energised with task forces, CATs …. Cluster Action Teams? These CATs are the cluster's operational engines. Do volunteers drive each CAT with a passion for the issue? Do they self-destruct on task completion?
- Are the projects providing further insights into the cluster's situation … learning-by-doing?
- Are hot spots and sub-groups within the cluster being identified that merit more specific attention?
- Is collaboration amongst the cluster's firms taking different forms? Open collaboration amongst all firms? And more private arrangements between firms engaging in informal collaboration (soft networks) alongside more formal alliances, joint ventures (hard networks)?
- Are regular mix-and-mingle meetings being arranged?

Danger Signs

- A very narrow development agenda, just 2-3 projects.
- Many cluster stakeholders are not benefiting from the cluster's projects.
- The initiative is bogged down with yet more research and paralysis-by-analysis, rather than learning-by-doing.
- Report writing is viewed as an action.
- The participants at mix-and-mingle cluster meetings are reducing to public sector representatives and the cluster's support firms, with core firms not turning up or sending junior substitutes.
- The cluster's development programme does not move beyond regular meetings, failing to add substantive value to the agendas of individual firms.
- The Cluster Manager is leading every Cluster Action Team, is overworked, is not empowering others, with little time to explore new initiatives.

STEP 8:

FORMALISING, LAUNCHING

Clustering initiatives are usually incubated by a public agency, a private sector organisation or a donor but over time need to establish their own home. Often a new organisation is formed to house the initiative.

The cluster's formal launch should take place when initial successes have been achieved.

Don't rush the formalising: Clustering initiatives have stuttered and failed with early emphasis on establishing the legal framework. The details can usually wait. SMEs will be seeking pay-offs from the clustering initiative, not lengthy discussion on legal options. While having a legal structure in place can be necessary for attracting funds from public sector organisations and donors (and for handling asset ownership and entering into service contracts), wherever possible take time in formalising the initiative. It is not unusual to take 12-24 months in moving from an informal task force to a purpose-built legal structure.

A practical difficulty with early formalisation is that the Directors (the Board) may need to be finalised prior to fully understanding the nuances of the cluster and its personalities. The boundaries of the cluster (in terms of products/markets served and the geographic scope of the cluster) may have evolved as the cluster moves through the earlier steps with implications that extend to the membership of the Board. What could have started as a broad 'tourism cluster' might have narrowed over time to an 'eco-tourism cluster'. Ideally the Board should reflect the narrower definition but such nuances can take time to surface.

Structural & legal options: Elements to consider include the resources available, both cash and kind (the donation of office space, the secondment of key people etc.) and the opportunity to co-locate with similar or related organisations. The organisational structure that evolves will often be a meso one, between the private and public sectors. Options include:

1. Establishing a not-for-profit, non-governmental, cluster apex organisation … the most common structure around the world. This could be an incorporated society, a partnership, a trust, an industrial society… according to the laws and practices in the country. Back-office activities could be shared with other clusters.
2. Piggy backing onto an existing industry association or a chamber of commerce, offering office space and/or seconding staff.
3. Continuing to house the clustering activities within an existing organisation, often the initial sponsor of the clustering initiative.
4. Continue but in an informal manner, without e.g. a cluster manager.

The cluster entity should not engage in trading or in any way compete with the services provided by the private sector or an industry association. A clustering organisation is in place to fill gaps, not to duplicate existing structures, entities and services. Cluster management should be the sole activity of the organisation.

The cluster organisation's culture: A private, not public sector, culture needs to be in place for the clustering initiative…moving at the speed of business. If the cluster's decision-making processes are slow and bureaucratic, businesses will loose interest.

Broadening the financing base: At this stage of the cluster's development, having a broad base of financial partners is a marked strength. It is preferable that no one financial contributor is able to unduly influence the cluster's activities. Clustering initiatives need to be owned and driven by the cluster's stakeholders, not Ministries or distant donors. By the second or third year of a clustering initiative some form of membership fee should be introduced. When projects are benefiting a firm, that firm should be contributing to the costs.

A public launch… celebration time! The launch is a celebration of successes (accomplished projects); a public announcement on where the cluster is heading (the preferred future); and the action agenda that has been developed to move the cluster towards that goal. The launch should be a Town Hall type event open to all with an interest, including banks, tertiary institutions, schools, potential investors, political and community leaders, government agencies and donors/NGOs. Inclusivity, not exclusivity, continues to be the approach. The Board should now be on the front line and presenting, not the cluster manager.

Step 8 Check List: Formalising & Launching

- Maintain organisational flexibility during the early stages of a clustering initiative … strategy before structure.
- Ensure that the organisation is business driven, with a business culture and business timeframe.
- Does the clustering initiative view itself as a self-help group?
- Has the cluster loudly blown its own trumpet?
- Are there regular events to celebrate cluster successes?
- Able to earn the respect of the cluster's stakeholders? And able to capture and then hold through performance the attention of the Board members?
- Able to identify and empower the cluster's talent?
- Is it neutral, impartial?
- Is it able to move public agencies from supply driven to demand driven? Able to clearly signal emerging needs?
- Able to accelerate the circulation of tacit knowledge within the cluster?
- Is it able to identify new opportunities for collaboration, both cluster-wide and others more confidential?
- Does the clustering initiative have a strong focus on internationalisation? Both export development and investment attraction?
- Is the organisation a change agency, not satisfied with the status quo and alert to new members, new markets, and emerging technologies?
- Is it able to appreciate that the end point is not a successful cluster organisation, but successful firms?

Danger Signs

- The initiative is inward, not outward, looking.
- Senior stakeholders are reducing their involvement in the initiative.
- The legal structure is finalised too early in the process, limiting options.
- The cluster organisation:
  - Is competing with the services provided by others;
  - Views itself as an advisory group, not a self-help team;
  - Is beholden to, or over dependant on, one funder.

STEP 9:

IN-DEPTH ANALYSIS

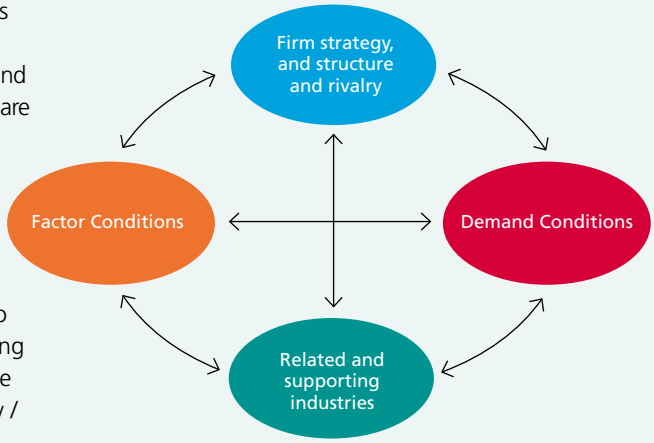
A rigorous and externally oriented appraisal of the cluster's competitive position is now undertaken, drawing on information from beyond the cluster's stakeholders. Benchmarking against relevant clusters provides an opportunity for systematic comparisons that minimise the danger of myopia and can provide data shocks to galvanise action.

Establishing a solid analytic framework: The focus at Step 3 for the initial appraisal was inward looking. Now a detailed external perspective is prepared, a more rigorous fact-based appraisal of the cluster's competitive position that in draws on information from beyond the cluster and the cluster's participants. At times there can be a collective myopia within a cluster with the participants having a limited, or even incorrect, view on their competitive situation, on emerging technologies and on evolving markets so evidence from beyond the cluster may be needed to break a lock-in effect.

This appraisal also draws on the learning accumulated through the projects undertaken to date… projects for example relating to export development or training needs will have given insights on longer-term agendas. As trust has developed with more teamwork and open dialogue, the real issues facing the cluster should be surfacing.

Porter's analysis frameworks: Prof. Michael Porter[20] provides three valuable frameworks that support the cluster analysis process:

1. **The Diamond:** Porter identified four broad factors that are key aspects in understanding a cluster's competitive situation: the context for firm strategy and rivalry; the demand conditions; the availability of related and supporting industries; and factor (input) conditions. Two other aspects are the role of government and chance.
2. **The Five Forces:** identifying the threat of new market entrants; the bargaining power of buyers; the power of suppliers; the threat of substitute products/services including technology changes; and the nature of rivalry amongst existing competitors.
3. **The Value Chain:** the activities linked in a value chain are likely to include inbound logistics, production, outbound logistics, marketing and sales and services. Support activities can include administrative systems, management, human resource management, technology / R&D and purchasing.



[20]For Prof. Porter's comprehensive writings at the Institute for Strategy and Competitiveness, Harvard, see http://www.isc.hbs.edu/

Cluster benchmarking, opening eyes: Benchmarking a cluster against higher performing clusters is a key approach in improving the understanding of the cluster's competitive position. Benchmarking also provides a means of galvanising activity towards a higher-level agenda when it provides data shocks to the cluster's stakeholders. A group visit to another cluster offers a learning opportunity and helps build the home team. If possible, a series of visits are undertaken as benchmarking is an on-going learning process, comparing activities and performance. The initial analysis and the subsequent cluster workshops and the CAT/task force engagements are likely to have pinpointed aspects of the cluster's activity that merit closer inspection.

A benchmarking checklist: Most of these topics are qualitative:

- Workforce training in place; secondary school involvement.
- Export performance, internationalisation, investment and migrant attraction.
- Entrepreneurship, spin-offs, SME development, incubators, mentors, business finance.
- The cluster's culture: the balance between business rivalry and collaboration, 'co-opetition'; the approach to improving connections within the cluster; the development of business networks, firm-to-firm links, export consortia.
- Collaborative market research, market development; development of the cluster's identity, brand.
- Benchmarking the hard statistics identifying past and current performance: number of firms, their concentration, ownership, employees, wages, exports, R&D, value added per employee … changes over time.
- Transport, logistics infrastructure.
- Tax and regulatory environment.
- Responsiveness and support from public agencies/donors for the cluster's infrastructure and projects.
- The organisational and governance structure for the cluster; clustering process activity; sources of finance for the clustering initiative; attendance at meetings over time; number of collaborative projects. How did the cluster succeed in developing collaborative projects? And what are they doing together?
- Links with related clusters in other countries; the development and value of sister city type relationships as a framework to support cluster-to-cluster links.
- Quality of life: region's ability to attract and retain professional talent.
- What is smart about the cluster, and the clustering initiative?

Step 9 Check List: In-Depth Analysis

- Is the cluster's competence clear, relative to competitors? Is there evidence that the cluster, over time, has become more specialised? Evidence that the cluster's firms are profitably serving even more distant customers?
- Has the cluster undertaken benchmarking/bench learning against related clusters? Have *data shocks* help galvanise the home team into action?
- Have the results from the detailed analysis been used in a workshop setting to finalise the cluster's Strategic Plan and the action priorities?

Danger signs

- Just a few are involved in the analysis and resulting strategy setting.
- Consultants or academics take the lead with the analysis, not the cluster manager.
- Myopia … a group view persists that is remote from reality.
- Export development and capacity development have not been highlighted as priorities.

STEP 10:

LONGER TERM, STRATEGIC AGENDA

Success with early, short-term initiatives creates the momentum for the more complex and substantive issues to be addressed in lifting the cluster's competitiveness. While there is no single silver bullet in developing any cluster, high amongst the portfolio of initiatives should be export development.

Successful cluster initiative agendas: Within 18-24 months of the start of a clustering initiative, activity on a broad range of fronts should be underway that address the more substantive competitiveness issues facing the cluster. The examples that follow are drawn from many different clusters.

Building trust and connections: A key to cluster development is building the social capital, the trust. It takes time to increase interactions and to develop formal as well as the (even more important) informal conversations. Some practical ways to open up communications and to build the personal connections and relationships within the cluster are:

- Regular meeting events, e.g. '1st Tuesdays'
- Regular newsletter, communications
- Online cluster database
- Engagement with sub groups/ hot spots
- Joint learning activities, joint projects, the Cluster Action Teams (CATs)
- One-on-one contact building by the Cluster Manager
- Business – university & training institute networking

[21] http://www.eca-tactics.eu/page/tactics-final-reports

Internationalisation: In clusters with capacity excess, export market development strategies are a strong priority. But 'Internationalisation' implies a wide range of activities, including inward investment attraction, migrant attraction, and technology import and outward investment. Europe's TACTICS Taskforce[21] has developed a 10-step framework for cluster internationalisation, supporting clusters in their journey from being *'inward looking and local'* to being *'outward facing and global'* clusters. SMEs operating independently can have difficulty in meeting the up-front costs in reaching international markets. Collaborative engagement can address some of these deficits and can include:

- Export market development
- Integrated market development strategies for the priority target markets
- Improving access to markets
- Foreign investment attraction
- International talent attraction
- Cluster-to-Cluster cooperation:
- Hosting conferences and technical symposiums
- Establishing academic links
- Diaspora links, e.g. for the Pacific with Australia, New Zealand and the USA.

Training, skills development: As skills shortage can be a major growth impediment, many clusters have a range of activities underway with high schools, technical training institutes, higher education establishments and R&D institutes. Cluster organisations act as intermediaries linking the cluster's needs with specific providers. They should not be competing with education providers. Some examples of activities:

- Working with local schools
- Broadening the recruitment base
- Skills Audits
- Creating opportunities to learn together
- Short training courses
- Linking training providers and students
- Building entrepreneurship
- Talent attraction to a region; attracting international students.

Technology access: Technology in the broadest sense is a key driver, providing the base for changes in products and processes. Any innovative cluster with a global reach will be 'high tech' relative to its competitors in its field. A cluster's technology needs are likely to require inputs from a number of providers. Activities to address technology include:

- An international search and acquire focus
- A transfer focus
- A SME technology focus
- Development of needs driven signals from business to technology providers.

SME growth: New firm formation is a vital sign of a healthy cluster. A vibrant cluster provides a strong enabling environment for new business start-ups. In environments such as Silicon Valley, large companies thrive alongside the start-ups, with many SME's indirectly accessing international markets through the larger firms. Many clusters are proactive in supporting their micro, small and medium sized enterprises and in removing their isolation. Activities can include:

- Building an entrepreneurial culture
- Lowering business costs
- Encouraging the development of specialised services
- Improving access to bank finance
- Incubator support
- Removing the isolation of SMEs through the development of hard and soft business networks.

Developing the cluster's brand: A strong brand supports a location as the 'place-to-be' and the 'place-to-go' for a particular activity. Silicon Valley and Hollywood are globally recognised place names and brands. Strong regional identities support whiskey distilleries in Scotland and Tennessee and champagne producers in France. As with consumer brands, often only one or two premium locations fully capture mind share. Branding is positioning the cluster in a specialised, unique and differentiated way; it is much more than quickly designing a logo. Brand development for a cluster has two dimensions:

1. **Internal:** Enhancing the cluster's image through a strong brand attracts local actors to the initiative, broadening community interest from school leavers to political leaders and local bankers. The brand provides the social glue that rallies firms and support organisations around the cluster's activities and strategy.
2. **External:** Equally important, positioning the cluster as the go-to place for its particular activity, attracting customers, investors, talent, students and interest from other knowledge centres and from national agencies.

Cost reduction: An early focus for many initiatives is cost reduction, e.g.:

- Joint purchasing of raw materials, packaging, equipment, services, insurance, utilities, transport logistics, storage facilities;
- Firms reducing inventory by drawing on each other's stocks;
- Firms drawing on each other's staff;
- Facilitating co-specialisation within the cluster: facilitating out sourcing and sub contracting within the cluster, enabling firms to focus on their core competencies.
- Establishing standardised contracts to reduce negotiation costs.

Access to business finance: The availability/cost of debt and equity finance is a common issue. Initiatives include:

- Developing financial engineering skills;
- Improving cash flow;
- Reducing cost of finance;
- Better informing finance providers on the cluster's development issues.

Policy influence, institutional reforms: A key element is moving from a *clutter* of support organisations to alignment centred on the cluster's development priorities. Institutional reforms may be necessary, with the cluster influencing public policy and government regulations…tax and regulatory reform; financial market reform; competition policy; legal infrastructure, intellectual property laws; negotiating access to export markets; land use planning.

Step 10 Check List: Longer Term, Strategic Agenda

- Has success with early initiatives created the momentum that enables the more substantive issues to be tackled?
- Does a portfolio of CATs, the Cluster Action Teams, continues to provide the operational engine for the initiative?
- Is the internationalisation agenda broad? Does it include, along with exporting, investment attraction, the development of cluster-to-cluster links and links with international knowledge centres?
- Do many of the substantive projects require collaboration with and implementation through others, including public agencies and academia? Is this happening?
- Does the initiative require re-energising, possibly re-designing, with a tighter focus on delivering substantive benefits to the cluster's firms through addressing the more central issues?

Danger Signs

- The cluster is engaged on a limited number of fronts with just one or two major initiatives.
- The benefits from the clustering initiative are limited to a small number of the cluster's stakeholders.
- The initiative is not succeeding in influencing/levering the agendas and resources of others, including public agencies, high schools, donors and NGOs.
- No activities are in place to remove the isolation of the cluster's stakeholders, to build the very necessary social glue.

STEP 11:

LINKING THE CLUSTER

No cluster is a self-contained system.

Clustering initiatives gain leverage through selectively linking with other clusters.

Clusters are not closed systems: The knowledge and contacts a cluster's firms need for growth will not be exclusively found within the cluster, especially as clusters specialise further. Other clusters may appear to be competitors but closer inspection often reveals complementary competencies, opening the door to cluster-to-cluster (C2C) collaboration. The range of connections within a C2C framework can extend well beyond B2B to include: two-way investments, academic and knowledge centre links (A2A), student and teacher exchanges, migrant and diaspora links, sister city and political links.

1st Linking within the locality: A first priority is usually linking within the region, providing the opportunity to identify from the bottom-up the systemic issues being faced within the community. These may include business and school connections; the need for a more entrepreneurial culture; transport and communication constraints and developing a regional brand. Linking with other clusters in the region can provide the critical mass to engage on these issues. Further, fertile ground for innovation and new business development is at the intersection of two or more clusters within the region; novel solutions come from multi-disciplinary collaborations. Examples: linking tourism and food products in the development of the local cuisine; linking health care and IT in the development of e-health systems.

2nd Linking local clusters nationally: In the larger and more geographically dispersed Pacific Islands, cluster development can be undertaken at different geographic levels. Some issues (such as schools links, incubators, freight logistics) are more local. Other issues (such as tariffs, product and training standards) can be more effectively handled at the national level. Some issues (possibly export development, investment attraction) require addressing at both a local and a national level. A key is having effective linkages between these levels, with issues being handled at the lower level wherever possible.

3rd Linking pan-regionally: Establishing links pan-regionally, with similar clusters in other countries. South Pacific examples: cruise tourism, and value added virgin coconut products.

4th Linking globally: The European Commission and others are now placing an emphasis on linking clusters globally and creating through cluster-to-cluster links an environment for B2B links and A2A links (Academia-to-Academia). UNIDO's cluster development programme in Vietnam has the support of the Italian government and includes twinning related clusters between Vietnam and Italy, *'joining strengths and cooperating for mutual advantage'*.

Step 11 Check List: Linking the Cluster

- As a cluster is not a self-contained system, are links being actively established with other relevant clusters? These links may be needed to enhance the cluster's knowledge base, to build critical mass and/or to open commercial doors.
- Linking provides opportunities for B2B connections, for accessing additional knowledge, for fostering specialisation amongst related clusters, for connecting knowledge centres and for diaspora connections.
- Linking also provide opportunities for benchmarking clustering initiatives.
- Is the cluster linking within its region to develop the region's innovation system; to addressing systemic issues restricting competitiveness; to explore the fertile ground for business growth and new cluster development where local clusters connect?
- Is the cluster linking across the South Pacific, engaging with similar clusters on business development and possibly common training events or branding?
- Is the cluster linking globally, using the establishment of cluster-to-cluster links to facilitate SME internationalisation, to facilitate links to global value chains and also connections to global knowledge centres?

DANGER SIGNS

- The cluster has not fully understood its own strengths and its development priorities prior to linking.
- The cluster is reactive in responding to other clusters reaching out, rather than predetermining which clusters support it's growth agenda.
- Linking with other clusters is limited to developing B2B links.

STEP 12:

MEASUREMENT & EVALUATION

This final step reviews progress in upgrading the cluster's competitiveness, evaluates the impact of the clustering intervention and identifies what is now needed to take the cluster to the next level.

M&E for a cluster initiative is no easy task. The complexities include new development agendas, new borders, fluctuating external influences and non-linear results.

Why measure cluster performance? Prior to engaging, the rationale for the review needs to be determined. This can include: the effectiveness of the intervention; accountability; securing resources and commitment; learning & development; forward planning; inspiring and promotion of the clustering intervention.

Measurement & evaluation difficulties: A clustering initiative is about driving structural changes to raise competitiveness … changing behaviours, removing the isolation of firms and support organisations, addressing the *clumps* and *clutter.* Measuring such changes is never easy and becomes more complicated when the cluster's functional region and the products/technologies/served markets have evolved over time. With new issues and new agendas emerging, evaluating the impact of a small investment in a changing environment on the incremental growth of a cluster is fraught with difficulties.

Cluster evaluation also needs to accommodate different and at time conflicting objectives. The focus of the public sector and donors may be employment creation, investment attraction, poverty alleviation and/or gender equity. For the private sector the focus is much more specific: profitable growth. A successful initiative will inevitably have a range of impacts and there are difficulties in attributing impacts to just the clustering intervention. There will also be unintended consequences. Results need to be separated from external influences such as currency fluctuations and other public policies. And the results will not come evenly over time.

Evaluations rarely deliver answers at the level of detail expected by the sponsors of a clustering initiative. Success cannot be measured through blunt instruments such as employment growth. As the economic effects are indirect, the measurement of results is qualitative rather than quantitative. What should emerge from an evaluation process are clear indications as to whether the clustering initiative is moving in a positive direction. What has changed from the perspectives of the different cluster stakeholders? What should now change to further lift performance?

Cluster performance framework: The underlying health of the cluster needs to be separated from the impact of the clustering initiative. Too often cluster reviews just focus on the effectiveness of the intervention.

A general framework for cluster performance measurement[22]

Processes	Activities	Meetings, workshops, website, trade fairs …
Outputs	Operational objectives	Number of new products; number of trained specialists; website contacts; improved communications with cluster stakeholders; media coverage …
Results	Specific objectives	Recognised globally as a 'Centre-of-Excellence'; attractive environment for new business start-ups …
Impacts	Strategic objectives	Higher productivity; Increased competitiveness; Business growth; Employment growth …

Performance measurement needs to be tailored to the interests of different stakeholder groups within the cluster, the specifics of each cluster and the cluster's life cycle stage. For **an emerging cluster**, aspects include the quality of internal linkages especially with knowledge centres; success in attracting public sector and donor support and in attracting private investment and talent. For **a growing cluster** aspects can include international awareness; the breadth of the cluster's strategic agenda; filling of competency gaps; development of sub-contracting, co-specialisation within the cluster; and private sector commitment to the cluster's projects.

Cluster development and review timeframes: Clusters take time to develop, hence many European countries have 10+ years of public funding in place to support priority clusters. The review process needs to reflect this long-term horizon along with the differences between clusters: an ICT cluster, for example, will evolve much more rapidly than an agricultural cluster. Some cluster projects such as trade missions and trade fair participation should show results within a relatively short time frame. An education/training initiative imparting new knowledge may have a two-year time frame. Establishing a business incubator will require a time frame of 5+ years to deliver substantive results. Developing new crop varieties may require a ten-year or longer time horizon.

An indicative Measurement & Evaluation timetable

End Year 1	Comparison with baseline data, e.g. total sales & % export; # employment; # firms; # firms with cooperation with local institutions. Review projects against milestones. Satisfaction by the cluster's stakeholders with the cluster organisation's services.
End Year 2	Again baseline data comparison, project reviews and cluster stakeholder's satisfaction. Evidence of (i) Change in behaviour amongst the cluster's firms, more open collaboration and trust, (ii) More targeted support by public agencies and academia, (iii) Increased cluster awareness within the region (including politicians, school leavers and bankers) and internationally (attracting customers, new investment and talent).
End Year 3	Again baseline data comparison, project reviews and cluster stakeholder's satisfaction A 360° review through an external panel, exploring firm level change; soft infrastructure alignment; public funder/donor benefits & additionality; effectiveness of cluster governance and management. This review could include benchmarking v. similar initiatives.

[22]Drawing on the experience of PwC, The Hague

Step 12 Check List: Measurement & Evaluation

- Is there evidence that the cluster's core firms are able to profitably service more distant customers? Is the cluster's competitiveness being upgraded?
- Has evidence been sought that the initiative is making a real difference to the profitability and activities of the cluster's firms? Is the clustering initiative adding value to the cluster? Does the review extend to identifying what is working, and what is not?
- Is the review process being used to revisit the cluster's strategy, the governance structure and the management team?
- Have different interests been integrated? Has trust been built? Is their evidence of a more collaborative culture?
- Have we moved from *clumps* of isolated firms to co-opetition amongst networked firms?
- Have we moved from public agency and donor *clutter* to achieving alignment driven by the needs of business?
- Have we moved from paralysis-by-analysis › learning-by-doing?
- And from public agency supply-push › demand-driven, needs driven support?

DANGER SIGNS

- The review is only concerned with 'hard data', such as the number of new jobs created.
- The review process fails to appreciate that cluster development is long term.
- The review process is being used just to satisfy donors and other cluster funders, not to more fundamentally review the cluster's strategy and organisation structure.
- The level-of-effort being applied for the review is out of proportion to the resources applied to the cluster's development.

A concluding summary comment from PNG's Team Leader, Paula Norris, sharing her reflections during the final pilot workshop in Port Moresby:

"I presented a short summary of personal reflections from the experience of developing the ICT Cluster Pilot initiative in PNG, pointing to the need for the early identification of champions, and above all, passionate volunteers, and a Leader, to support and take forward such short-term interventions with limited duration funding.

I also referred to the need to engage quickly, and to rapidly move forward with ideas and secure commitment, so as not to get bogged down in 'paralysis-by-analysis', but to learn by doing. I quoted examples of the concrete initiatives that had already got off the ground, such as the leading Task Force, the Incubator working group, the Google Software Development Club, the '1st Tuesday' training events and the PNG ICT Cluster Website.

I highlighted the need to get a broad range of actors on board from the outset, incorporating government, private sector, academia and civil society in order that all parties understand the shared objectives of the Cluster development."

Go well with your cluster development initiative. I look forward to hearing of your progress.

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