

**ECONOMIC AND PRIVATE SECTOR**

**PROFESSIONAL EVIDENCE AND APPLIED KNOWLEDGE SERVICES**

HELPDESK REQUEST

# **Analytical Frameworks for Assessing ICT and Agribusiness Ecosystems**

For Application in Ghana and Kenya

Mike Denison and Robyn Klingler Vidra

LSE Enterprise

March 2013

EPS-PEAKS is a consortium of organisations that provides Economics and Private Sector Professional Evidence and Applied Knowledge Services to the DfID. The core services include:

- 1) Helpdesk
- 2) Document library
- 3) Information on training and e-learning opportunities
- 4) Topic guides
- 5) Structured professional development sessions
- 6) E-Bulletin

To find out more or access EPS-PEAKS services or feedback on this or other output, visit the EPS-PEAKS community on <http://partnerplatform.org/eps-peaks> or contact Yurendra Basnett, Knowledge Manager, EPS-PEAKS core services at [y.basnett@odi.org.uk](mailto:y.basnett@odi.org.uk).

**Disclaimer Statement:**

The views presented in this paper are those of the authors and do not necessarily represent the views of Consortium partner organisations, DFID or the UK Government. The authors take full responsibility for any errors or omissions contained in this report.

# Contents

<b>Abbreviations</b>	<b>iii</b>
<b>1 Introduction/Overview</b>	<b>1</b>
1.1 Context	1
1.2 Scope	1
1.3 Methodology	2
<b>2 Analytical Frameworks</b>	<b>3</b>
2.1 M4P	4
2.2 Triple Helix	8
2.3 Gender-based Approaches	11
2.4 Michael Porter’s Diamond Model	15
2.5 Business Community Methodologies	19
<b>3 Conclusion</b>	<b>24</b>
<b>References</b>	<b>25</b>
<b>Annex 1: Donor Initiatives</b>	<b>29</b>

## Abbreviations

GEM	Global Entrepreneurship Monitor
GOWE	Growth-Oriented Women Entrepreneurs
ICT	Information and Communications Technology
IO	International Organisation
KODI	Kenya Open Data Initiative
M4P	Making Markets Work for the Poor
NIE	New Institutional Economics
PSD	Private Sector Development
SLA	Sustainable Livelihoods Approach
SME	Small and Medium-Sized Enterprise
ToR	Terms of Reference
VC	Venture Capital
WEE	Women's Economic Empowerment

# 1 Introduction/Overview

## 1.1 Context

DFID is exploring the analytical frameworks used to assess the support market system for startup businesses in the ICT and agribusiness sectors. The review of analytical frameworks will help inform a Terms of Reference (ToR) for carrying out startup ecosystem assessments in Ghana and Kenya. This Helpdesk Request supports this effort by providing an overview of the analytical frameworks, not by outlining the forms of startup support available for these sectors.

The frameworks of interest include "M4P and other frameworks and methodologies that have been used to evaluate the 'ecosystem' for innovative, technology-oriented startup businesses in a particular country." The ToR will be for a project assessing the forms of "support available locally for entrepreneurs in both the ICT and agribusiness sectors including university-run programmes, business incubators/accelerators, training providers and financiers (angel investors and VCs)." The analytical frameworks would need to help evaluate existing institutions, gaps in the provision of support and ways in which the ecosystems may best be strengthened. To reiterate: the request is for a discussion of available frameworks, not for startup ecosystem assessments.

Given the specifications, the authors of this Helpdesk Request, Mike Denison and Robyn Klingler-Vidra, have conducted a literature review of the analytical frameworks employed in such analyses, particularly in Sub-Saharan Africa. This review includes discussions of how M4P frameworks, gender-based frameworks such as Women's Economic Empowerment (WEE), the innovation systems-based Triple Helix framework, Michael Porter's Diamond Model framework and business community methodologies assess startup ecosystems. The report identifies the conceptual foundations of each framework, describes how each framework is operationalised and provides examples of the frameworks' applications. Particular efforts are made to provide examples of how these frameworks have been applied in studies of developing country startup ecosystems in the information and communications technology (ICT) and agribusiness sectors. Finally, the Annex contains examples of other donor initiatives that analyse startup ecosystems.

## 1.2 Scope

The scope of frameworks and methodologies includes the M4P framework, gender-based frameworks (e.g. WEE), innovation system frameworks (Triple Helix), national and regional cluster advantage frameworks (Michael Porter's Diamond Model) and business community methodologies (Startup Genome, Josh Lerner, Brad Feld, Global Entrepreneurship Monitor and others). The frameworks covered within this report assess the institutional context and components of startup ecosystems and in some cases rank innovative, technology-based ecosystems. Frameworks designed and implemented in only developed country contexts have been dismissed, given the focus of the project on Ghana and Kenya. However, given this request's focus on ICT startup ecosystems and the relatively recent development of ICT ecosystems in Africa, some frameworks included in this report have not been specifically designed for developing country and pro-poor contexts. The business community methodologies in particular have been included due to their coverage of institutional characteristics of successful ICT-focused startup ecosystems. However, their analyses have not been done with an eye on development.

This report does not provide specific recommendations with regards to which framework or methodologies to use in the analysis of Kenya and Ghana's startup ecosystems. However, in the conclusion section we provide a table that highlights the particular areas of relevance, or strengths, of each framework.

## 1.3 Methodology

The methodology, given DFID's emphasis on a discussion of the available analytical frameworks, consists of a review of academic, development community, international organisation (IO) and business community analyses of startup ecosystems. The literature review is presented by way of introducing the conceptual foundation of each framework, how the framework is operationalised and how it has been applied. Where possible the key indicators employed in each framework are delineated. A full reference section and library of the vast majority of sources are available for further investigation.

## 2 Analytical Frameworks

The centrality of entrepreneurship to economic growth, poverty reduction and development continues to take hold across academic, IO and national policy circles. Shumpeter's creative destruction idea has permeated well beyond business literature, as development scholars such as Amartya Sen acknowledge, and even promote, the role of the entrepreneur. More than simply market activity, the focus on entrepreneurship has increasingly shifted to innovative startups and market systems. This has been evidenced by the work of IO partners, such as the World Bank's InfoDev in supporting ICT clusters and startup accelerators in Vietnam. The focus has been on innovative, technology-based startup ecosystems, with the American Silicon Valley serving as the inspirational model. The popularity of Silicon monikers has never been higher - various states and cities, including the 'Silicon Roundabout' in London, Taiwan's 'Silicon Island', Israel's 'Silicon Wadi' (Arabic for valley), Australia's 'Silicon Beach' and New York City's 'Silicon Alley' have all been coined.

The increased excitement for startup ecosystems and small and medium sized enterprise (SME) clusters<sup>1</sup> has been matched with numerous programmes and funding schemes. National governments have invested in programmes, such as Start-up Chile, to attract international talent to launch startups on their soil. Investment in startup communities has occurred across developed and developing countries. USD 3 billion in risk financing is invested in startups annually by Organisation for Economic Cooperation and Development (OECD) governments (OECD, 1997). Successful technology ecosystems have begun flourishing in developing countries as well. Bangalore and Sao Paulo have received attention, and accelerators and funding has recently been directed to Nairobi as the city has blossomed with mobile sector startups (The Economist, 2012). In addition, IOs and regional organizations have set up venture capital (VC) firms, have suggested best practices for innovation policy and have published research on how states can support the financing element of startup ecosystems.

Despite the exuberance for the role of innovative clusters, to date "there is not one internationally agreed indicator that captures ecosystems for young high-growth firms...both performance indicators as well as indicators expressing the strength of the ecosystem actors" (Napier and Hanson, 2011: 15). However, analysts have begun to develop frameworks and methodologies for assessing the form and quality of startup ecosystems' institutions. In 2012, Startup Genome, for example, produced a ranking of the top 20 startup ecosystems globally. The OECD and Global Entrepreneurship Monitor (GEM) have indicators they use to assess and compare national entrepreneurial activity. The Triple Helix approach investigates the contribution of academia, industry and government to entrepreneurial activity. Michael Porter developed a national or regional cluster's competitive advantage framework, leveraging his management "Five Forces" model. His cluster-focused framework is called the Diamond Model. Development frameworks, such as M4P, identify government, private sector and civil society components of market systems in terms of their impact on market outcomes and alleviating poverty. In a more "how to" vein, investors, entrepreneurs and industry consultants have analysed the key components to successful clusters.

Section 2 explores these various frameworks and methodologies for assessing startup ecosystems, ICT and agribusiness entrepreneurship, SME and high-growth firm clusters. An overview of each framework is given, and then its areas of focus and case studies follow. Judgement as to the desirability of one framework over another is not made in this helpdesk response, though the Conclusion (section 3) does highlight the frameworks' areas of particular relevance.

---

<sup>1</sup> SME cluster defined as "a sectoral and geographical concentration of enterprises which produce and sell a range of related and/or complementary products" (UNIDO, 2007).

## 2.1 M4P

### Conceptual Foundation

In the late 1990s the Making Markets Work for the Poor (M4P) framework was developed. M4P is a pro-poor development approach used by governments and agencies in private sector development (PSD). The M4P framework focuses on developing market *institutions* rather than the government acting to catalyze market activity and inadvertently crowding out the private sector, or the private sector achieving market outcomes that do not benefit the poor. The institutional layer, or the 'rules of the game' for the market, comes from the work of new institutional economics (NIE). Building on a NIE and Sustainable Livelihoods Approach (SLA)<sup>2</sup> foundation, M4P frameworks assess the role of governance, cultural context, policy environment, etc. on market development (see *Drivers of Change*, DFID, 2002). M4P is "based on recent thinking about how to use market systems to meet the needs of the poor and how to support the private sector through market mechanisms that bring about sustainable change" (DFID, 2005: 3). In other words, M4P is a framework focused on inclusive growth, or pro-poor growth. M4P initiatives have been implemented in Africa – South Africa, Namibia, etc – as well as Asia (Cambodia, Laos and Vietnam).

Joffe and Jones (2004) contributed to M4P's theoretical development through their focus on ways that more innovative public-private partnerships can help stimulate pro-poor agricultural growth. Rather than traditional interpretations of public-private partnerships the authors recommend the following avenues: (a) private enterprises taking over public functions; (b) building market linkages for smallholders; (c) building market institutions; and (d) private investors in supply chains (DFID, 2005).

The roles played by market system actors – that are identified in M4P analyses – are as follows:

Player	Core Market or Coordination Function	Provision of Infrastructure and Services	Institutions and Rules
<b>The State</b>	<ul style="list-style-type: none"> <li>Public action to reduce transaction risks and stimulate markets</li> <li>Direct intervention will sometimes be needed to (temporarily) address severe market failures.</li> </ul>	<ul style="list-style-type: none"> <li>Regulator</li> <li>Service provider but limited by Govt budget and donor resources.</li> </ul>	<ul style="list-style-type: none"> <li>Legislation</li> <li>Enforcement through the legal system</li> <li>Information provision: standards, public health, etc.</li> </ul>
<b>Private Sector</b>	<ul style="list-style-type: none"> <li>Buying and selling</li> <li>Hierarchies and embedded markets</li> </ul>	<ul style="list-style-type: none"> <li>Service provider, market-driven, fee-based or embedded service</li> </ul>	<ul style="list-style-type: none"> <li>Advocacy through Business Associations</li> <li>Self-enforcement e.g. through codes of conduct</li> </ul>
<b>Civil Society</b>	<ul style="list-style-type: none"> <li>Collective action to reduce transaction risks</li> </ul>	<ul style="list-style-type: none"> <li>Advocacy</li> <li>NGO service provider limited by NGO resources</li> <li>Service provider based on fees, e.g. producer associations</li> </ul>	<ul style="list-style-type: none"> <li>Advocacy through Consumer and Producer Associations</li> <li>Information provision via the media</li> <li>Enforcement through social capital</li> </ul>

Source: DFID, 2005: 19

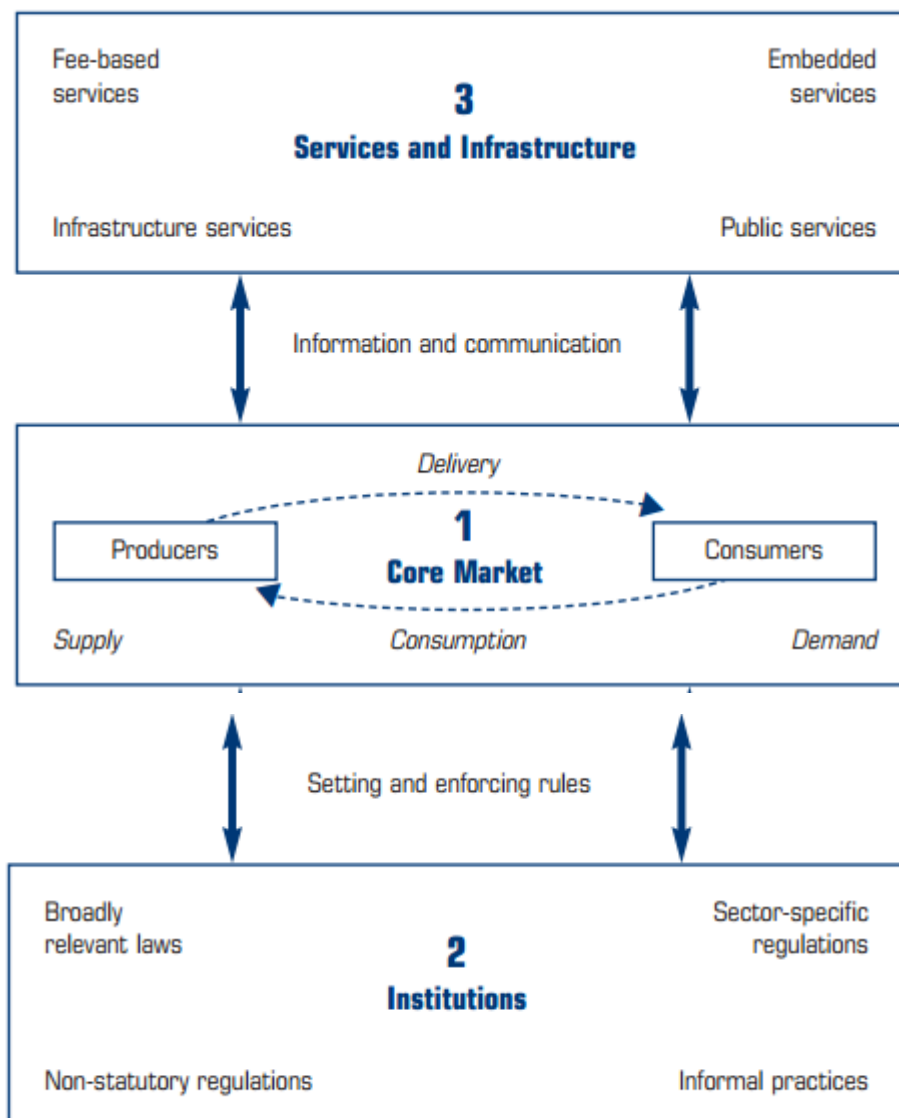
<sup>2</sup> The SLA is a way to improve understanding of the livelihoods of poor people. It draws on the main factors that affect poor people's livelihoods and the typical relationships between these factors. It can be used in planning new development activities and in assessing the contribution that existing activities have made to sustaining livelihoods. The M4P framework combines an analysis of poverty based on the SLA and new institutional economics. The SL model highlights the importance of poor people's access to physical, natural, human, social and financial assets, and the returns they get from those assets.



## How the Framework is Operationalised

The M4P framework seeks to “understand the current situation of, and the causes of underdevelopment in, a market, in terms of its key dimensions: the Core Market – the central supply-demand set of transactions; Institutions – the rules of the game; Services and Infrastructure” (Gibson *et al*, 2004: 11). The key market dimensions are conceptualized as follows:

**Figure 1: Key Market Dimensions**



Source: Gibson *et al*, 2004: 12

The following questions are asked when M4P is employed as a market system analysis tool:

- ❖ How are markets changing and how are they likely to change as a result of wider, external processes of change? What opportunities are there for support to wider processes of growth?
- ❖ How well do these markets currently serve the poor, in terms of ease of access, security of access and conditions of access?
- ❖ How do these markets fit into supply and value chains? How do these chains operate: where are the constraints, where are the high returns being made?

- ❖ What stakeholders are involved in these markets and what are their roles, their interests, and their strengths weaknesses, opportunities and threats?
- ❖ What are the barriers to entry and the transaction costs and risks for different stakeholders? (*Source: DFID, 2005: 18-19*)

*Drivers of Change* focuses on the connection between the political economy, poverty reduction and growth. To do so it focuses on the following areas: formal and informal institutional change; policy change; developing markets, market linkages and market infrastructure; addressing 'pressure points' or functions in the value chains; and supporting market activity (DFID, 2005: 16).

### Applications of the Framework

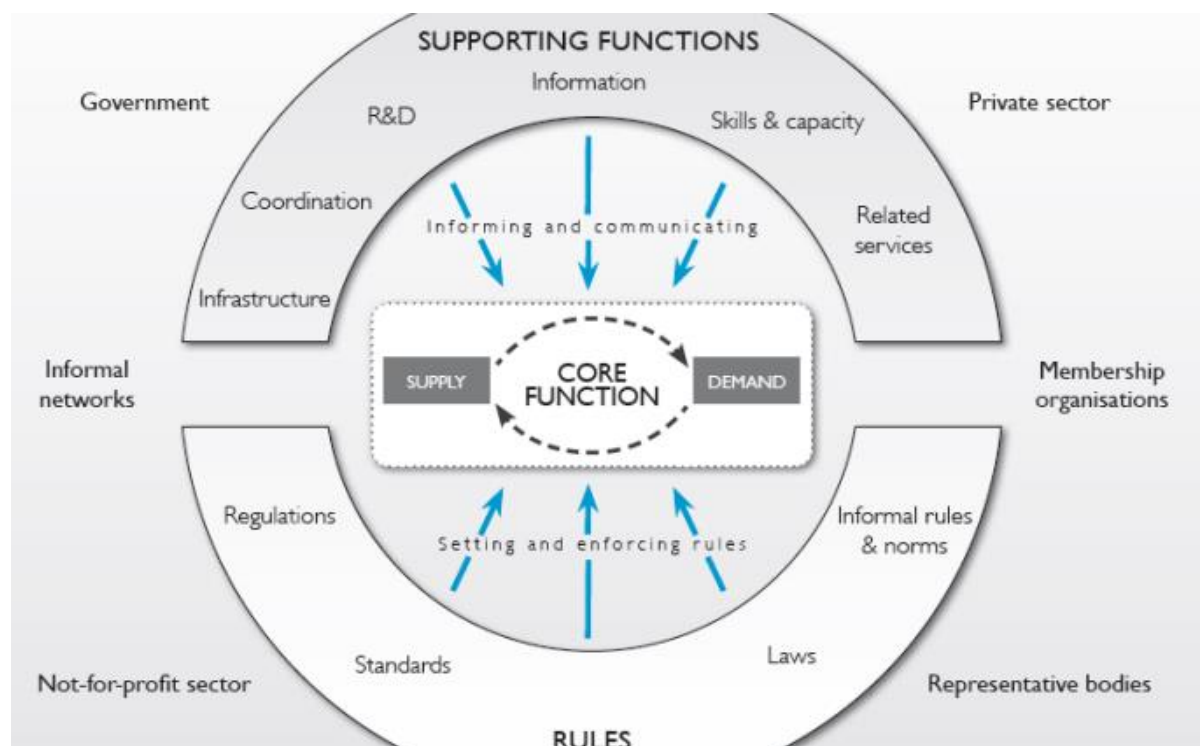
The M4P framework has been employed in the cases of FinMark and ComMark<sup>3</sup> in Southern Africa and PrOpCom in Nigeria, support for collective action by clusters of SMEs in Jamaica, and business service development with KATALYST in Bangladesh. Gibson *et al* (2004) and Joffe and Jones (2004) have helped with conceptual development and application of the M4P framework to case studies.

Bangladesh (KATALYST programme):

The "Making ICT work for Bangladesh's Farmers" case study report details the Katalyst programme in Bangladesh. The context and market system change are both covered:

[http://www.katalyst.com.bd/docs/case\\_studies/Case%20Study%20Number%206\\_3rd%20version-%20-3-12-2012.pdf](http://www.katalyst.com.bd/docs/case_studies/Case%20Study%20Number%206_3rd%20version-%20-3-12-2012.pdf)

M4P-motivated, stylised view of the market system for assessment of the KATALYST initiative in Bangladesh:



*Source: (Rana, 2011)*

<sup>3</sup> ComMark stands for Making Commodity and Service Markets Work for the Poor in Southern Africa.

Gibson *et al* (2005) performed a case study analysis of a M4P project: the Bangladeshi KATALYST initiative.<sup>4</sup> Gibson *et al*'s analysis documented how the overall problem for the vegetable product market – low productivity due to poor technical knowledge of farmers – was identified and then how solutions were implemented for improving productivity. The methodology employed to help formulate the KATALYST strategy includes:

tools like sub-sector analysis, cluster analysis, UAI surveys and enabling environment studies. In this process it identifies the key constraints and opportunities, market players, the direction the sector/market is moving in, a vision of the future and what would be the key areas for project intervention such as farm or firm productivity, input related issues or output related issues (Gibson *et al*, 2005: 21).

The KATALYST analysis differentiated between “immediate causes” (weak knowledge and information) and “the underlying system causes” (weak private sector capacity) (Gibson *et al*, 2005). To determine the causes, analysts conducted interviews with various participants in the agricultural market system. The perspectives garnered from interviewees (farmers, retailers, input supply companies, government extension officers, NGOs, and media) helped determine the issues throughout the market system. In addition to the role of the interviews in the analysis, the methodology also included a competitiveness analysis and sub-sector studies to ascertain the institutional weaknesses of the vegetable sector market system.

The gap in the institutional context was identified as the lack of technical knowledge of farmers. As a remedy, input suppliers were employed to train input retailers to strengthen the technical knowledge of farmers. This action had a positive impact on yields in Bangladesh.

### South Africa

The South Africa financial services market was examined in Gibson *et al*'s (2004) M4P conceptual paper. The case study identifies the drivers of market (under)performance, how the poor participate and the regulatory framework. After mapping the current market system, the analysis provides a vision for the future. Low outreach was identified as the major problem, so the vision for the future focuses on increasing outreach. To increase outreach the analysts recommended that the local banking industry adopt an “account for life” standard, the state improve the regulatory environment and the state would also support the demand-side through a large scale public education effort. Development agencies are expected to contribute through technical assistance and “pump priming” to help catalyse local efforts (Gibson *et al*, 2004: 22-23).

In the FinMark case, the M4P analysis identified the lack of provision of information about the financial needs of the unbanked majority. In addition to addressing the outreach gap, there have been recommendations to design financial products which would meet the needs of the previously disadvantaged (e.g. the account for life). These efforts have been made to improve access to financial services in South Africa.

### Sierra Leone

Finally, Chikezie's analysis of entrepreneurship, growth and policy in Sierra Leone examines current Government of Sierra Leone private sector development efforts. The author compares the GoSL initiatives to what M4P efforts would consist of. The author identifies the alternative M4P tools for the ecosystem as: loan guarantee scheme,

---

<sup>4</sup> The KATALYST initiative identified key constraints to Bangladeshi SMEs' competitiveness in a number of sectors and then took a systemic approach to promoting private sector solutions to the constraints. In this way, KATALYST did not direct resources directly to SMEs and instead focused on training agricultural input retailers and helping to develop 'embedded services' in the supply chain (Gibson *et al*, 2005: 1).

incentives and efforts to increase production of rice and palm oil, and a more calibrated effort for improving access to financial services in rural areas (p. 14).  
<http://www.theigc.org/sites/default/files/Chapter%209.pdf>

#### Other

Agro-Food Value Chain Interventions in Asia: A review and analysis of case studies. December 2010.

[http://www.dcism.dk/graphics/Subweb/GEARED/Working%20Paper%20VC%20Asia\\_fina\\_low\\_res.pdf](http://www.dcism.dk/graphics/Subweb/GEARED/Working%20Paper%20VC%20Asia_fina_low_res.pdf)

Government of Kenya and Danish Ministry of Foreign Affairs. 2010. Competitiveness of Micro, Small and Medium Sized Enterprises: Business Sector Programme Support, Phase II. Kenya. J. nr. Ref. No. 104.Kenya.809.20.NBO.

<http://kenya.um.dk/en/~media/Kenya/Documents/BSPS%20II%20Kenya%20Component%202.ashx>

## 2.2 Triple Helix

### **Conceptual Foundation**

The Triple Helix framework examines the intersection of three environments: markets, organizations, and technological opportunities. The main actors involved in this intersection are industry, government, and academia. Implicit in the framework's conceptualisation is the idea that a balanced ecosystem involves a balanced tripartite relationship between these three actors.

The Framework systematizes interaction in university-industry-government collaborations in terms of their structure and process. According to Ranga and Etzkowitz (2012), Triple Helix systems can be defined in terms of:

- (i) Components: the institutional spheres of University, Industry and Government, each encompassing a wide range of actors
- (ii) Relationships between components: collaboration and conflict moderation, collaborative leadership, substitution and networking
- (iii) Functions: described as a set of activities specific to the "Triple Helix Spaces": The Knowledge, Innovation and Consensus Spaces (Ranga and Etzkowitz, 2011: 8)

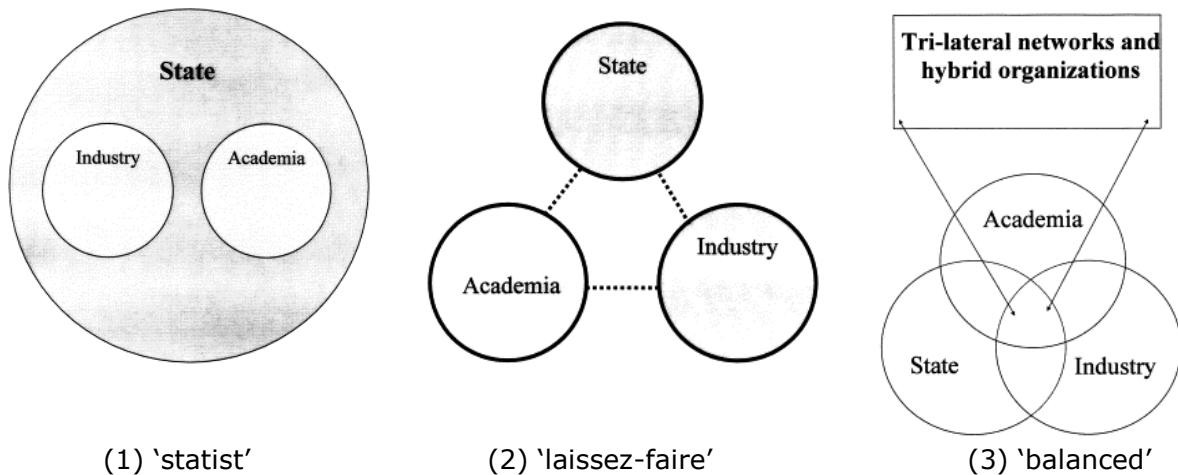
### **How the Framework is Operationalised**

Triple Helix formulations find three (main) forms:

'Statist': The state plays the strongest role, directing both industry and universities to collaborate. Co-operation between universities and industry (including state-owned) in China is one example.

'Laissez-faire': industry leads this formulation with the state providing some funding but acting primarily as a regulator.

'balanced': Higher education institutions hold significant roles, with the capacity to take the lead in some initiatives as well as contribute substantially to others.



Source: Etzkowitz and Leydesdorff (2000)

### Innovators

In the most recent iterations of the Triple Helix model distinctions are made between R&D innovators and non-R&D innovators, recognising that innovation is not confined only to actors involved directly in R&D, and that each of the institutional spheres (university government industry) contains both types of innovator:

R&D innovators: academic research units in universities; company R&D divisions in the business sector; public research organisations in the government sector.

Non-R&D innovators: most often associated with the industry sphere: design, production, marketing, sales departments. This category also includes financing, negotiation, business incubation, technology transfer and the creation and change of organisations (Ranga and Etzkowitz, 2011: 10).

### Institution vs. individual

While simple versions (and applications) of the Triple Helix model do not go beyond the 'institution' in its analysis, more recent and more complex versions distinguish types of individuals within institutions, namely:

The 'innovation organiser': an individual with sufficient political and social capital to bring together leaders from within the institutional spheres.

The 'entrepreneurial scientist': an individual who simultaneously advances research and works to leverage it for financial and commercial gain. These individuals are most commonly found in the field of ICT/high-tech innovation.

### Relationships between Components:

The Triple Helix framework is designed to capture both structure and process: it is in the interaction of the three spheres that innovation ecosystems are developed. According to the model outlined here, four categories of relationship are particularly important for analysis:

- 1) Collaboration and conflict mediation: The triadic dynamic of Triple Helix interaction works to alleviate oppositional obstacles often found in dyadic relationships.
- 2) Collaborative leadership: The development of shared outcomes, often driven by 'innovation organisers' (above).
- 3) Substitution: This is particularly important in developing contexts: Substitution occurs when one actor in a particular sphere is unable to perform their traditional

role, and that role is undertaken by an actor from another sphere. Where governments are weak, for example, universities can play a leading role in promoting innovation – a role typically under the purview of the government.

- 4) Networking: taking formal and informal forms, at national, regional and international levels.

'Spaces' – aspects of Triple Helix configurations:

Defined in terms of knowledge, innovation and consensus:

Knowledge: the aggregation of knowledge resources in a region, country across borders.

Innovation: The ultimate purpose of creating and developing intellectual and entrepreneurial potential, through mechanisms such as business incubators, science parks, even new universities.

Consensus: 'The set of activities that bring together the Triple helix system components to brainstorm, discuss and evaluation proposals for advancement toward a knowledge-based regime'.

According to this framework the formation of the above 'spaces' starts with interaction between the university, industry and government spheres. The dynamic of this interaction indicates what type of formation is present/developing: statist, laissez-faire or 'balanced' (as above).

Consensus is seen as the key to a nascent triple helix-type interaction, without which knowledge resources – even if present – will not be transferred across networks to fuel innovation.

Indicators:

The methodological complication of this framework is that it demands observation of interaction between three often distinct spheres. In developed countries this is obviated to an extent by records of patents produced through collaborative partnerships.

Indicators also vary with the particular aspect of the Triple Helix under examination: consensus and innovation are, for example, likely to be best measured according to separate indicators: in this case collaborative projects and the number of spin-offs from incubators respectively.

## **Application of the Framework**

Typically associated with innovation systems in developed countries, the Triple Helix framework has recently been applied to developing country contexts.

### Ghana

James Dzisah has applied the Triple Helix model to Ghana's innovation system (Dzisah, 2011). Dzisah explores the policy background and recent history of universities in Ghana, its science and technology system and development planning, with an overview of R&D institutions in Ghana, their training and retention of research and teaching staff. This study is qualitative, and based on past research and interviews.

Reference: James Dzisah. 2011. "Mobilizing for Development: Putting the Triple Helix into Action in Ghana" pp.146-160. In Mohammed Saad and Girma Zawdie (eds.) Theory

and Practice of Triple Helix Model in Developing Countries: Issues and Challenges. London: Routledge.

### Thailand

Chaisalee, Jongkaewwattana, Tanticharoen and Bhumiratana have applied the Triple Helix model to the innovation ecosystem in a rural community in Thailand. Researchers gathered baseline data on crops, natural resources and farming activities. They then conducted one-on-one interviews and focus groups. This process was repeated annually.

For results and methodology, see:

[http://www.leydesdorff.net/th8/TRIPLE%20HELIX%20-%20VIII%20CONFERENCE/PROCEEDINGS/0021\\_Chaisalee\\_Wissara\\_O-113/The%20heart%20of%20Innovation%20and%20development%20for%20rural%20community%20in%20Thailand.pdf](http://www.leydesdorff.net/th8/TRIPLE%20HELIX%20-%20VIII%20CONFERENCE/PROCEEDINGS/0021_Chaisalee_Wissara_O-113/The%20heart%20of%20Innovation%20and%20development%20for%20rural%20community%20in%20Thailand.pdf)

### Malaysia

Azley Abd Razak and Mohammed Saad have applied the Triple Helix model to innovation systems in Malaysia. For a full discussion of their results, see Azley Abd Razak and Mohammed Saad, 'The Challenges Arising in the Evolution of the Triple Helix Institutional System: The Case of Malaysia' in Saad and Zawdie eds, "Theory and Practice of the Triple Helix System in Developing Countries", Routledge, New York, 2011 p.190.

Razak and Saad used the following methodology to gather their data (p.198):

A qualitative case study approach, comprising semi-structured interviews with managers. Samples of interviews were taken from each of the three spheres:

- 1) Government ministries and agencies: seven respondents from, five from different government agencies and two from the Ministry of Science, Technology and Innovation.
- 2) Universities: researchers, deputy vice-chancellors and staff from research management centres: Respondents from seven universities of which four are considered research universities.
- 3) Industries: management and executives - two from multinational corporations and two from local companies.

Data was transcribed, and analysed to identify patterns. The authors of this study employed this approach because of the need to understand relationships between actors and institutions in the Triple Helix model. Sub-themes were catalogued in a thematic index according to Ritchie and Lewis (2003)<sup>5</sup>.

## 2.3 Gender-based Approaches

Here we discuss a range of related frameworks, all designed to assess innovation ecosystems in relation to women's empowerment and economic advancement: Women's Economic Empowerment (WEE) Framework<sup>6</sup>, the AfDB/ILO Integrated Framework and the World Bank's guidance on Gender Dimensions of Investment Climate Reform.

---

<sup>5</sup> <http://mthoyibi.files.wordpress.com/2011/10/qualitative-research-practice-a-guide-for-social-science-students-and-researchers-jane-ritchie-and-jane-lewis-eds-20031.pdf>

<sup>6</sup> [http://www.unece.org/fileadmin/DAM/publications/gender/PromotingGenderEqualityBrochure\\_EN\\_web.pdf](http://www.unece.org/fileadmin/DAM/publications/gender/PromotingGenderEqualityBrochure_EN_web.pdf)



## **Gender-Based Framework I: Women's Economic Empowerment (WEE)**

### **Conceptual Foundation**

The WEE framework provides a focused assessment of the role of women and is closely related to – some even say a component of – the M4P approach. The four main elements of WEE proposed in the paper given by Dr. Linda Jones on behalf of the M4P Hub are (<http://www.m4phub.org/news/Womens-Economic-Empowerment-in-M4P-Synthesis-of-the-e-discussion-with-SDCs-e-i-network.aspx>):

- ❖ Economic advancement - Increasing income and return on labour
- ❖ Access to opportunities and life chances such as skills development or job openings
- ❖ Access to assets, services and needed supports to advance economically
- ❖ Decision-making authority in different spheres including household finance

### **How the Framework is Operationalised**

Assessing market systems:

- ❖ The importance of examining the situation of women in all elements of a market system. This includes the informal economy, unpaid care work, and rules and regulations.
- ❖ Disaggregating data by sex to identify gender-specific constraints in the market system, and anticipating potential impacts on women during and after project implementation.
- ❖ Having a dedicated gender adviser can have mixed results: in some cases all gender-related tasks can be passed to this person. In others, gender advisers have trained project staff and developed guidelines for whole teams, adding to – rather than detracting from – the gender mainstreaming process<sup>7</sup>.

Consultants from Coffey International Development have suggested that rather than viewing WEE as a separate framework from M4P, WEE should be integrated into M4P. For a full discussion of the frameworks' compatibility and how integration is to be achieved, see:

<http://www.m4phub.org/userfiles/file/12007XR%20Final%20Report.pdf>

(in particular, Part B)

This document includes a comprehensive list of key questions that should, according to this framework, be asked in order to assess a market in relation to the empowerment of women<sup>8</sup>.

## **Gender-Based Framework II: The AfDB/ILO Integrated Framework**

### **Conceptual Foundation**

This framework is based on the Integrated Framework for Growth-Oriented Women Entrepreneurs (GOWE), a model developed in Canada by Stevenson and St-Onge and adapted to developing contexts. The framework is designed to identify the 'actions that need to be taken to create a more equitable enabling environment for the development and growth of women's enterprises, including enterprises owned by women with

---

<sup>7</sup> For a full discussion of good practice in this report see:

<http://www.m4phub.org/userfiles/file/Synthesis%20Paper%20-%20ediscussion%20on%20WEE.pdf>

<sup>8</sup> For an overview of more general Gender Analysis Frameworks, see this overview, accessible at: [http://www.devtechsys.com/gender\\_integration\\_workshop/resources/review\\_of\\_gender\\_analysis\\_frameworks.pdf](http://www.devtechsys.com/gender_integration_workshop/resources/review_of_gender_analysis_frameworks.pdf)



disabilities'. These actions include the minimisation/removal of barriers to growth of women's enterprises as well as enhancing access to resources and opportunities for growth (AfDB/ILO, 2007: xi).

According to this framework, specific policies towards women should include:

- i) Policies to remove barriers to the startup, formalisation and growth of women's enterprises
- ii) Policies to improve women's access to markets
- iii) Policies to improve women's access to and control over economic and financial resources
- iv) Policies to strengthen social protection and social inclusion, and to reduce the risks and vulnerabilities facing women entrepreneurs and their women workers, including women entrepreneurs with disabilities; and
- v) Policies to create a more supportive enterprise culture and context, and more favourable business environment for women entrepreneurs

### **How the Framework is Operationalised**

In order for these policies to be effective, the framework recommends the assessment of ten areas:

- 1) Policy leadership and coordination for women's entrepreneurship;
- 2) Regulatory and legal instruments and issues affecting women's enterprises, and including women's domestic situations, and support services to enable them to meet family responsibilities;
- 3) The promotion of women as entrepreneurs, including vulnerable and disadvantaged women, such as women with disabilities;
- 4) Access to enterprise education, and to skills and management training;
- 5) Access to credit and financial resources;
- 6) Access to business development services (BDS) and information;
- 7) Access to women entrepreneurs' associations, business networks and employers' organisations;
- 8) Access to business premises;
- 9) Access to markets; and
- 10) Research on women entrepreneurs and women-owned MSMEs.

These should be regarded as inter-connected components (AfDB/ILO, 2007: 5).

The AfDB/ILO Integrated Framework Assessment Guide provides detailed instructions of how these areas can be assessed in terms of existing initiatives and good practices as well as gaps.

Templates and matrices used in this framework, including recommended questions and indicators can be found here (AfDB/ILO Integrated Framework Assessment Guide pp.47-89).

A sample specification for a consulting assignment to produce an assessment using this framework can be found here (AfDB/ILO Integrated Framework Assessment Guide Annex 7).

This guide was further adapted in 2008<sup>9</sup>, to include a more thorough assessment of the national business environment: national policies, laws, regulations, administrative arrangements and their impact on women (Assessment of the environment for the

---

<sup>9</sup> Revised framework developed in the following publication: White, S. 2008. 'Assessing the Business Environment for Women's Entrepreneurship Development: Consultant's Guide' prepared for the Women's Entrepreneurship Development and Gender Equality (WEDGE) Programme, International Labour Office and United Nations Economic Commission for Europe.

development of women's entrepreneurship in Cameroon, Mali, Nigeria, Rwanda and Senegal (Lois Stevenson, Annette St-Onge 2011).

### **Application of the Framework**

The application and development of this framework are inextricable in that this framework is the product of the adaptation of the GOWE framework. It was adapted from Canada and tested in Ethiopia, Kenya and Tanzania, and refined for use in Uganda and implemented again in Cameroon in 2006.

Noting that the Kenya assessment was implemented using a still-developing framework, the methodology employed is discussed in (Support for Growth-oriented Women Entrepreneurs in Kenya, Lois Stevenson and Annette St-Onge, 2005). The assessment comprised research of documentation, meetings with 55 key informants, with additional reports, studies and information gathered during field visits. For full details of documents, contact details and a list of interview questions see (Support for Growth-oriented Women Entrepreneurs in Kenya, Lois Stevenson and Annette St-Onge, 2005p.55 and p.57).

Stevenson and St-Onge have recently employed this framework in Cameroon, Mali, Nigeria, Rwanda and Senegal, (Stevenson and St-Onge, 2011).

### **Gender-Based Framework III: Gender Dimensions of Investment Climate Reform – World Bank**

#### **Conceptual Foundation**

The World Bank's Gender Dimensions of Investment Climate Reform: A Guide for Policy Makers and Practitioners sets out the following framework for establishing a gender-informed baseline for diagnostics, solution design, implementation, monitoring and evaluation.

- i. Understand the Roles of Men and Women in the Economy
- ii. Analyze the Business Sector through a Gender Lens
- iii. Take Account of Nonmarket Work and Time Use
- iv. Identify Key Differences in Access to, and Control of, Economic Assets and Resources
- v. View Investment Climate Reform within the Broader Social and Cultural Context
- vi. Analyze the Legal Status of Men and Women
- vii. Identify Laws, Regulations, Procedures, and Business Obstacles That Are Perceived Differently by Men and Women
- viii. Ensure Women's Voices Are Heard and Issues Facing Women in Business Are Raised

#### **How the Framework is Operationalised**

A full list of questions to be asked and key sources of information for each of these steps can be found on pp.15-32 of the Guide.

Link:

<https://www.wbginvestmentclimate.org/uploads/Gender%20Dimensions%20of%20Investment%20Climate%20Reform.pdf>

## Application of the Framework

AusAID in collaboration with the International Finance Corporation conducted assessments for Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga and Vanuatu between 2008 and 2009.

Four investment climate topics were considered:

- 1) Public-private dialogue
- 2) Starting and licensing a business
- 3) Access to justice and alternative dispute resolution, and
- 4) Access to and enforcement of rights over registered land.

These reports asked whether women face different or additional investment climate constraints. Only constraints relating to reforms that the IFC were undertaking were considered; this was not an all-encompassing view of the subject. Researchers used a literature review followed by interviews based on semi-structured questionnaires, with a variety of stakeholders.

For the executive summary of these reports, see:

[http://www1.ifc.org/wps/wcm/connect/923e628048855bf48a94da6a6515bb18/IFC\\_GenderICReformAssessments-ExecSummary.pdf?MOD=AJPERES](http://www1.ifc.org/wps/wcm/connect/923e628048855bf48a94da6a6515bb18/IFC_GenderICReformAssessments-ExecSummary.pdf?MOD=AJPERES)

## 2.4 Michael Porter's Diamond Model

### Conceptual Foundation

Michael Porter is a Harvard Business School professor highly published in the areas of corporate strategy and regional and national competitiveness.<sup>10</sup> Porter is credited with popularising the "clusters", which are groups of interconnected firms, suppliers, related industries, and institutions, that arise in certain locations.

He developed the "Diamond Model" in his book *The Competitive Advantage of Nations* in 1990. The Diamond Model examines why some nations are more competitive than others, specifically why some countries have competitive advantages when competing in the global market in certain industries. His framework for assessing the competitive advantage of nations takes a departure from traditional economic means for assessing regional or national competitive advantages. Traditional economics-based methods attribute advantages to relatively fixed endowments (land, labour, capital). These more traditional examinations give little agency to the state and to private sector actors. One of the weaknesses of such accounts is their inability to explain why some nations prosper with the discovery of natural resources (Norway), while others seem "cursed" by their resources.

According to Porter, competitive advantage is the result of interlinked, advanced factors and activities in clusters (he illustrates this interaction as a diamond, per the diagram below). Rather than fixed factor endowments, Porter identifies the role that human capital (e.g. highly skilled labour force), technological prowess, and culture can play. He also posits that a "home base advantage" in certain industries can be influenced by positive government involvement. Building on ideas of agglomeration economics, Porter assesses the more "active" attributes of geographies (whether clusters, regions or nations) when ascertaining their competitiveness. In addition to analysing the individual

<sup>10</sup> For more on Porter's frameworks and ideas please see Robert Huggins and Hiro Izushi (2011) "Competition, competitive advantage, and clusters: the ideas of Michael Porter" <http://www.oxfordscholarship.com/view/10.1093/acprof:oso/9780199578030.001.0001/acprof-9780199578030-chapter-1>.

components (detailed below), Porter contends that the diamond is a system in which the four pieces (plus government and chance events) affect each other. The diamond system affects the following, which in turn determine the cluster's competitiveness:

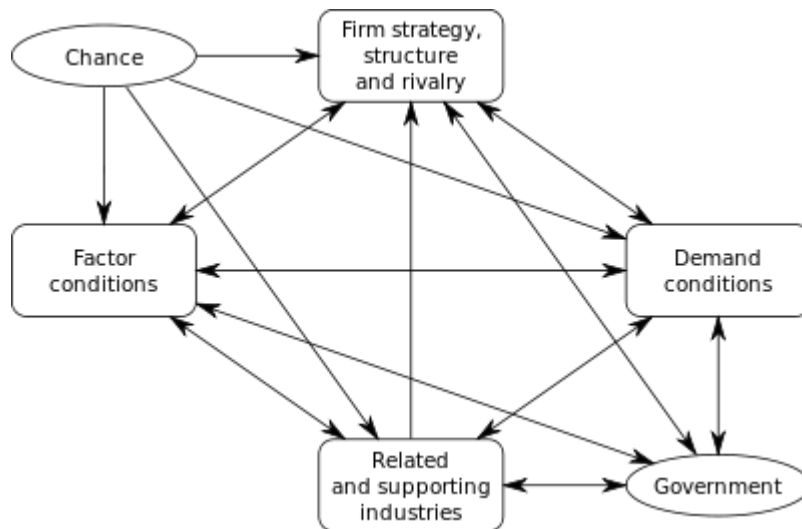
- 1) The availability of resources and skills
- 2) Information available to firms
- 3) The goals of individuals in companies
- 4) Pressure for companies to innovate and invest

The same logic and assessment follows when the framework is applied to localised clusters, or startup ecosystems, and not at the national level. To be sure, by operating in a competitive local environment firms are motivated to increase productivity, encourage entrepreneurial activity and drive the direction and speed of innovation.

### **How the Framework is Operationalised**

Porter's model examines six interconnected areas of clusters:

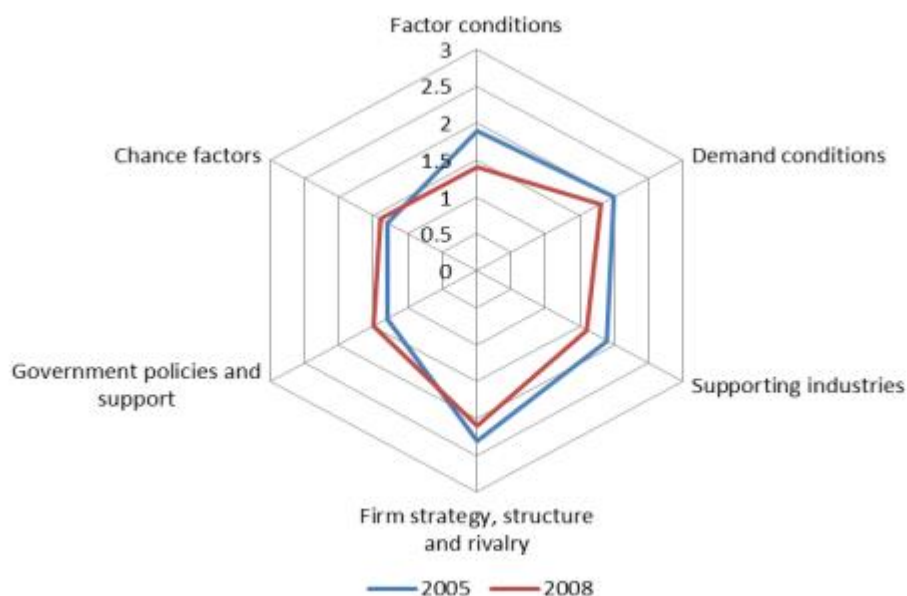
- 1) Factor conditions - a country creates its own important factors such as skilled resources and technological base. These factors are upgraded / deployed over time to meet demand. Local disadvantages force innovations and new methods and hence comparative advantage. Some examples of factor conditions include a highly skilled workforce, the linguistic abilities of the workforce, the amount of raw materials and a workforce shortage.
- 2) Demand conditions - strong local demand for a product pushes local firms to develop high quality products. Through this local push for certain products, local (or national, depending upon the size) clusters are forced to produce more innovative products. Moreover, if the local consumer market is strong, then they help the firms anticipate global trends in the space. The advanced, high-quality products of firms operating in such an arena are expected to do well in the global market which helps contribute to the cluster's growth.
- 3) Related and supported industries - the industries around the cluster speak to the supply chain available to companies. The more developed the support industries, the better inputs, in terms of quality and cost. Even better if the providers of inputs are global competitors, in their respective sector, as well.
- 4) Firm strategy, structure and rivalry - the structure and goals of local companies, as well as the rivalry between firms, also contribute to competitiveness. More local rivalry means less real global rivalry in the Diamond Model.
- 5) Government - policies can help foster growth industries, drive consumption and effect the level of competition between firms. In other words, the government can help to act as a catalyst. This can be done by enforcing product standards and anti-trust laws and helping to stimulate demand.
- 6) Chance events - this category helps capture events or issues that occur outside of firms' control. Such issues enable opportunities or undermine performance, depending on their form.

The Diamond Model's six arenas:**Applications of the Framework**South Africa

Rooyen, Esterhuizen and Stroebel (2011) employed the Porter Diamond model to assess the competitiveness of the South African wine industry. Their study followed a four step assessment that utilised the Relative Trade Advantage methodology (which uses export and import trade data) and qualitative interview data (from the Wine Executive Survey). Following those first two steps, the Diamond Model was deployed.

To do so, the authors examined the enabling and constraining components of the six areas in the Model. For example, in the Production Factors category, they found that in 2005 and 2008 it was the "availability/cost of low-level skilled labor, the quality and availability of technology in South Africa, water availability and the general efficiency of infrastructure" that most positively impacted competitiveness (p. 193). The factors that acted as constraints on competitiveness in 2005 were the high cost of financing and labour administration cost. In addition to these factors, in 2008 the quality of low-skilled labour, cost of transport, infrastructure and technology, availability of skilled labor and the overall cost of doing business also undermined competitiveness (p. 193).

As a result of identifying the constraining and enabling scores for each attribute, the following figure summarised the Porter Diamond Model's determinants of competitiveness for the South African wine industry:



Finally, their study closed with the fourth stage, in which change was traced between 2005 and 2008 and suggestions were made for improving the environment going forward. The "gap" of suboptimal dialogue between industry and the government was identified as an area to improve upon. To do so, the study suggests "lobby discussions" between government and industry to help build trust across a number of issue areas (p. 196).

Study: Johan Van Rooyen, Dirk Esterhuizen and Lindie Stroebel (2011) Analyzing the Competitive Performance of the South African Wine Industry. *International Food and Agribusiness Management Review* Volume 14, Issue 4. [http://ageconsearch.umn.edu/bitstream/117597/2/20100029\\_Formatted.pdf](http://ageconsearch.umn.edu/bitstream/117597/2/20100029_Formatted.pdf)

### Brazilian and Floridian Citrus Industries

The study uses Porter's Diamond framework to assess the strengths and weaknesses of the processed citrus industry in Sao Paulo, Brazil and Florida, USA. The goal of the research is to determine how the context of each cluster will impact its ability to maintain its competitive position in the global market in light of the outbreaks of diseases. The study systematically examines the Factor Conditions, Demand Conditions, Related and Supporting Industries, Firm Structures and Strategies and Government for both clusters. Their analysis found that "the major dichotomies between the citrus industries of Florida and Sao Paulo can be categorized in four major areas: (1) government involvement, (2) ownership structure, (3) markets served (export versus domestic), and (4) urban sprawl" (p. 171). They find that the context in which the industry operates in Florida provides a likely advantage when responding to disease outbreaks, but such an advantage can be fleeting.

Study: James A. Sterns and Thomas H. Spreen (2010) Evaluating Sustainable Competitive Advantages in Brazilian and U.S. Processed Citrus Supply Chains: An Application of Porter's Diamond Framework. *Int.J. Food System Dynamics* (2):167-175. [http://ageconsearch.umn.edu/bitstream/97233/2/P8b\\_Sterns\\_Spreen\\_Issue2\\_rev.pdf](http://ageconsearch.umn.edu/bitstream/97233/2/P8b_Sterns_Spreen_Issue2_rev.pdf)

Porter has conducted studies on Canada and New Zealand (see citations for individual papers below), and in his 1990 book he included case studies of eight countries (including Korea and Singapore).

Canada - Porter, M.E., & the Monitor Company, Canada at the crossroads: The reality of a new competitive environment, Business Council on National Issues and Minister of Supply and Services of the Government of Canada, Ottawa. (1991)

New Zealand - Crocombe, F.T., Enright, M.J., & Porter, M.E., Upgrading New Zealand's competitive advantage. Auckland: Oxford University Press. (1991)

Many other authors have applied the Porter Diamond Model to cluster competitiveness, including:

Cartwright, W. R. (1993). Multiple Linked 'Diamonds' and the International Competitiveness of export dependent Industries: The New Zealand Experience." *Management International Review* 33 (2): 55.

Neven, D., Droge, C. (2001). A Diamond for the Poor? Assessing Porter's Diamond Model for the Analysis of Agro-food Clusters in the Developing Countries.

<http://www.agrifood.info/AgriFood/members/Congress/Congress2001Papers/Symposium/Neven.pdf>

Serra, V., Woodford, K., Martin, S. (2005). Sources of Competitive Advantage in the Uruguayan and New Zealand Beef Industries. Published in the Proceedings of the Fifteenth International Farm Management Association Congress, Campinas, Brazil, August 2005, Vol 2, pp.136-144.

[http://www.lincoln.ac.nz/Documents/2226\\_Keith\\_Sourcesof\\_s6147.pdf](http://www.lincoln.ac.nz/Documents/2226_Keith_Sourcesof_s6147.pdf)

## 2.5 Business Community Methodologies

### Conceptual Foundation

The business community's (ICT) startup ecosystem assessments identify how startup ecosystems become successful. This section outlines frameworks and methodologies developed in publications by Startup Genome, Global Entrepreneurship Monitor, the Kauffman Foundation, Brad Feld, Saul Singer, Dan Senor and Josh Lerner. To date these works have had a developed world bias, though they have also examined startup ecosystems in Bangalore and Sao Paulo, amongst others.

Business schools have offered institutional explanations for why some startup ecosystems are vibrant while others are not. One such explanation is that of the economies of scale, or agglomeration economics, which posits that startup communities benefit from the infrastructure in the area. The "infrastructure" includes legal and accounting services, a relevant talent pool, and suppliers (Feld, 2012: 22). For analysts advancing the agglomeration explanation, the geographic density of institutions to support an ecosystem helps to explain the system's performance. High functioning ecosystems, such as that of the ICT-focused "Silicon Valley" in northern California have robust infrastructure systems that offer 'network effects' to its participants.

Two other approaches for analysing why startup ecosystems succeed point to the role of informal institutions, particularly culture. The horizontal networks explanation, posited by AnnaLee Saxenian, is that the community's degree of openness and information sharing helps contribute to its success. The argument is that the more open, the more successful. Saxenian's research found that Silicon Valley outpaced Boston's Route 128 precisely due to its culture of information sharing. The 'creative class' explanation by

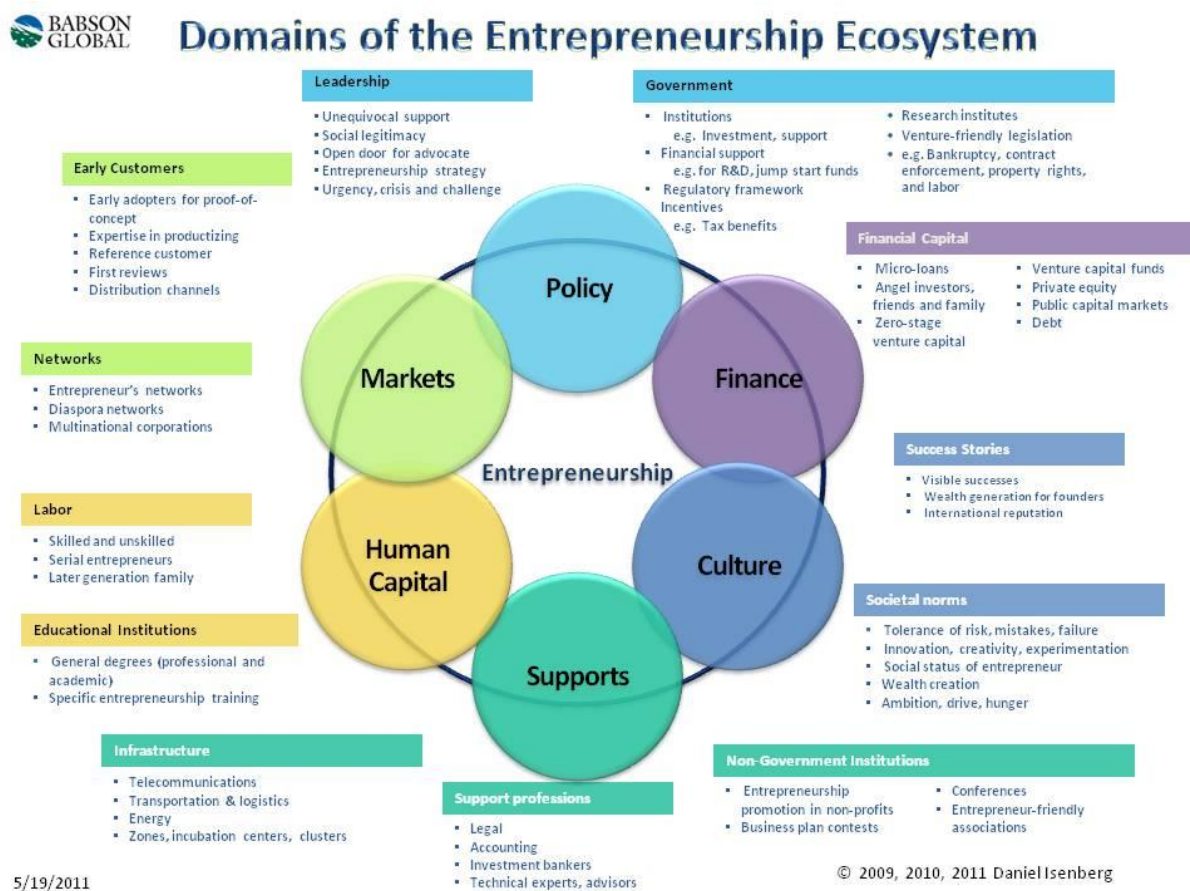


Richard Florida points to the tolerance that startup community members have for new ideas and to their desire to be around other creative types (Feld, 2012: 24). There is a magnetic pull for more creative class individuals to join the ecosystem, reinforcing the open and creative culture. This very creativity is said to help facilitate technology-based innovation.

## How the Framework is Operationalised

These frameworks focus on identifying the institutional contexts, the participants and the roles of participants and the attributes of (successful) startup ecosystems.

The participants have been said to include: entrepreneurs, government, universities, investors, mentors, service providers<sup>11</sup>, large companies<sup>12</sup> and "cheerleaders" (Feld, 2012: 33-46). The cheerleaders for the community come in the form of bloggers and other media types that create positive buzz for the startup ecosystem.



5/19/2011

Source: Daniel Isenberg, <http://www.forbes.com/sites/danisenberg/2011/05/25/introducing-the-entrepreneurship-ecosystem-four-defining-characteristics/>

Beyond mapping the participants in an ICT-focused startup ecosystem, Brad Feld's (2012) *Startup Communities: Building an Entrepreneurial Ecosystem in your City* identifies the four characteristics of a successful (ICT-focused) startup ecosystem. These components constitute his "Boulder Thesis":

<sup>11</sup> Service providers include lawyers, accountants, recruiters, marketing consultants, and contract CFOs (Feld, 2012: 43).

<sup>12</sup> Large companies contribute to the startup ecosystem through their provision of meeting space and programmes that encourage startup activity.



1. Entrepreneurs must lead the startup community.
2. The leaders must be committed long term.
3. The startup community must be inclusive of anyone who wants to participate.
4. The startup community must have continual activities that engage the entire entrepreneurial stack (Feld, 2012: 25-29).

A University of Hong Kong professor (Michael J. Enright), with the Competitiveness Institute, outline the institutions that lead to successful innovation ecosystems. Their 2004 presentation also identifies cluster typologies and issues that can lead to the ecosystem's failure.

[http://www.tci-etwork.org/media/asset\\_publics/resources/000/000/486/original/Enright-TCI-Presentation-2004.pdf](http://www.tci-etwork.org/media/asset_publics/resources/000/000/486/original/Enright-TCI-Presentation-2004.pdf)

Napier and Hansen (2011) offer a methodology for defining and comparing high-growth ecosystems. In doing so it identifies the following as the institutional context of well-functioning ecosystems:

*a critical mass of dedicated investors, established businesses, knowledge institution<sup>13</sup> and service providers all specialized and geared towards working with young high-growth firms. The presence of these actors is crucial, yet not sufficient. Strong ecosystems are characterized by a dense network and collaboration between the key actors* (Napier and Hansen, 2011: 3) (italics added for emphasis).

In addition, successful entrepreneurs staying active and reinvesting in the ecosystem is also identified as a building block for a high performing ecosystem. Finally, dealmakers, experienced entrepreneurs and accelerator programmes are identified as necessary "glue" for successful ecosystems (Napier and Hansen, 2011: 22).

### **Application of the Framework**

Global Entrepreneurship Monitor (GEM) produces annual global reports on entrepreneurial activity as well as periodic nation-specific reports. There have not been any national reports conducted on Kenya or Ghana specifically, but reports on Sub-Saharan Africa countries such as Uganda (see 2010 Uganda report) highlight the institutions considered most central to entrepreneurial activity. The following categories are examined in the Uganda report:

- 1) Institutions: public trust of politicians; irregular payments & bribes; wastefulness of government spending; burden of government regulations
- 2) Infrastructure: quality of overall infrastructure, quality of electricity supply
- 3) Health and education: business impact of HIV/AIDS; quality of primary education; quality of higher education; quality of maths and science education; internet access in schools
- 4) Market and labour efficiency: number of procedure to start a business; time required to start a business; hiring & firing procedure; female participation in labour force
- 5) Financial: availability of financial services; ease of access to loans
- 6) Innovation: internet users, quality of scientific research institutions; availability of scientists and engineers

---

<sup>13</sup> Knowledge institution refers to both research and academic institutions (Napier and Hanson, 2011: 11).

Though the GEM national, and international, report methodologies are not examining the startup ecosystems per se, their assessment of the “environment for entrepreneurial activity” is closely related. Startups are effectively the company form of entrepreneurship, so the methods by which GEM analyzes the entrepreneurial environment get at many of the indicators that one would use when assessing the ecosystem as a whole. Perhaps missing factors would be indicators of the ecosystems’ “glue” or networking nature.

Startup Genome’s 2012 Startup Ecosystem Report employs a methodology to quantify key indicators of the top 20 regional ecosystems. The key indicators include measures of startup output, funding, performance, talent, support, mindset, trendsetter character, and the ecosystem’s differentiation from Silicon Valley. Though most of the top ranking ecosystems are in developed countries, the startup ecosystems in Sao Paulo and Bangalore made the list (#13 and #19 respectively). The Startup Genome index is based upon data from 50,000 startups worldwide. The dataset covers the following aspects of startups’ operations: finances, team, product, sales, marketing, business model, market and demographic & psychographic information about the founders (Startup Genome, 2012: 2). The Startup Genome framework assesses cultural characteristics of entrepreneurs in the ecosystem, such as their likelihood of being serial entrepreneurs and the likelihood that startups use mentors. The framework also gathers information on the rate and type of technology adoption by startups, the age of entrepreneurs and the business models<sup>14</sup> of startups.

Ecosystem	Ranking	Startup Output Index	Funding Index	Performance Index	Talent Index	Support Index	Mindset Index	Trendsetter Index	Differentiation from SV Index
Silicon Valley	1	1	1	1	1	1	1	1	1
Tel Aviv	2	2	1	12	5	5	9	17	18
Los Angeles	3	4	6	2	3	13	11	4	11
Seattle	4	19	7	6	2	4	6	11	14
New York City	5	3	4	8	12	9	8	7	8
Boston	6	10	1	7	7	8	7	5	20
London	7	7	5	10	9	2	3	14	17
Toronto	8	6	9	3	10	3	15	12	5
Vancouver	9	13	12	9	4	14	2	9	19
Chicago	10	8	15	5	14	7	13	18	9
Paris	11	14	13	4	17	6	12	15	6
Sydney	12	5	14	16	6	12	16	1	3
Sao Paulo	13	9	10	15	19	11	5	16	4
Moscow	14	16	19	18	11	10	14	8	2
Berlin	15	15	11	13	13	20	18	5	16
Waterloo	16	11	16	14	16	17	17	10	13
Singapore	17	18	8	19	8	16	20	19	12
Melbourne	18	12	17	20	15	18	19	3	15
Bangalore	19	17	18	17	18	15	10	20	10
Santiago	20	20	20	11	20	19	4	13	7

Source: Startup Genome (2012)

Startup Nation systematically identified the characteristics of the Israeli ICT startup ecosystem that drove its remarkable success. This was done by investigating the role of specific government policies, such as the *Yozma Fund* that helped propel Israel’s ICT-sector miracle. The authors identify the confluence of the following components as the driver of the miracle: cultural characteristics (“chutzpah”, the (high) risk tolerance of immigrants, living under security threats and a focus on learning), demographic trends, an enabling industrial policy and regulatory environment, connections with the Diaspora (especially American investors and corporations), and military investment. <http://www.amazon.com/Start-up-Nation-Israels-Economic-Miracle/dp/0446541478>

Harvard Business School’s Josh Lerner’s *Boulevard of Broken Dreams* (2009) conceptualises the ways in which governments contribute and detract from entrepreneurial ecosystems. His approach aims to educate potential policymakers on how to support startup and VC ecosystems. To this end, he offers guidance on how the state should approach their support of ecosystems:

<sup>14</sup> Business model types identified as: subscription-based, advertising-based, transactions fees and licensing fees.

Remember that entrepreneurial activity does not exist in a vacuum; leverage the local academic, scientific, and research base effectively; respect the need for conformity to global standards; let the market provide direction; resist the temptation to over-engineer public initiatives; recognise long lead times of initiatives; avoid programmes too small to make a difference or too big for the market; encourage interconnections with entrepreneurs and investors overseas; institutionalize evaluations of initiatives; realize that programmes need creativity and flexibility; recognise the potential for "agency problems"; make education part of the initiative (Lerner, 2009: 16-17).

Professor Lerner identifies problems associated with the state over-engineering the ecosystem. Over-engineered efforts are problematic because they can micromanage entrepreneurs, crowd out private sector investment, and lack flexibility. He also outlines the three dimensions of education that should be part of VC and entrepreneurial ecosystems: (1) sharing information with outsiders about the market's potential, (2) educating entrepreneurs about the fundraising process and (3) developing the public sector's understanding of the challenges of entrepreneurial and VC activity (Lerner, 2009: 187-188).

Finally, Lerner demonstrates the impact of the institutional framework on entrepreneurial activity by contrasting the experiences of Singapore and Jamaica. He contrasts Jamaica's high rates of entrepreneurial activity with its poor development outcome. Jamaica ranked amongst the highest nations in terms of its rate of subsistence entrepreneurship in the 2006 Global Entrepreneurship Monitor survey. In contrast, the World Bank's 2008 Doing Business analysis ranked Jamaica 170<sup>th</sup> out of 178 for the burden of complying with tax regulations and 108<sup>th</sup> out of 178 for the cost of registering property. He points to the poor institutional environment as the driver of Jamaica's underperformance; tax policy, bureaucracy and the legal context act as barriers to entry for starting a business (Lerner, 2009: 19-20).

### 3 Conclusion

This report has canvassed five analytical approaches to assessing startup ecosystems. As seen in the report, the conceptual foundations and means of operationalising the frameworks vary significantly across the frameworks. The intended audience, implementation and focus of the frameworks of course lend one or another to be more informative in a particular situation.

Rather than weighing the frameworks against one or another for ICT and agribusiness startup ecosystems in Ghana and Kenya, we close with a summary table of the frameworks' areas of particular relevance.

Framework	Particular relevance to:
<b>M4P</b>	Developing countries, the role of the poor, agricultural ecosystems and initiatives, mapping the role of civil society
<b>Triple Helix</b>	University-led innovation, business incubators, collaborative R&D, commercialisation of academic knowledge, higher education training institutions, knowledge services
<b>Gender-based approaches</b>	Gender equality, social inclusion, women's access to markets, women's enterprises
<b>Michael Porter's Diamond Model</b>	Clusters, innovation, competitiveness, sector-specific capabilities, firm-centric, government as catalyst, agribusiness clusters, comparative analyses
<b>Business Community Methodologies</b>	Innovation, ICT ecosystems, measuring ecosystem performance, venture capital and angel investment, the roles of entrepreneurs

## References

AfDB/ILO (2007) Assessing the Enabling Environment for Women in Growth Enterprises: An AfDB/ILO Integrated Framework Assessment Guide, accessible at: [http://www.ilo.org/wcmsp5/groups/public/@ed\\_emp/@emp\\_ent/documents/publication/wcms\\_116163.pdf](http://www.ilo.org/wcmsp5/groups/public/@ed_emp/@emp_ent/documents/publication/wcms_116163.pdf)

Ahmad, N. and A. Hoffman (2008), "A Framework for Addressing and Measuring Entrepreneurship", OECD Statistics Working Papers, 2008/2, OECD Publishing. doi: 10.1787/243160627270.

Albu, M (2007). Comparing M4P and SLA frameworks: complementarities, divergences and synergies. Discussion Paper for SDC, Bern, Switzerland.

Anderson, G & Hitchens, R (2007). Expanding the poor's access to business information and voice through FM radio in Uganda, Making markets work for the poor case studies series, Employment and Income Division, SDC, Bern, Switzerland.

Azley Abd Razak and Mohammed Saad, 'The Challenges Arising in the Evolution of the Triple Helix Institutional System: The Case of Malaysia' in Saad and Zawdie eds, "Theory and Practice of the Triple Helix System in Developing Countries", Routledge, New York, 2011

Chaisalee, Jongkaewwattana, Tanticharoen and Bhumiratana, 'The Heart of Innovation and Development for Rural Community in Thailand'. Accessed at [http://www.leydesdorff.net/th8/TRIPLE%20HELIX%20-%20VIII%20CONFERENCE/PROCEEDINGS/0021\\_Chaisalee\\_Wissara\\_O-113/The%20heart%20of%20Innovation%20and%20development%20for%20rural%20community%20in%20Thailand.pdf](http://www.leydesdorff.net/th8/TRIPLE%20HELIX%20-%20VIII%20CONFERENCE/PROCEEDINGS/0021_Chaisalee_Wissara_O-113/The%20heart%20of%20Innovation%20and%20development%20for%20rural%20community%20in%20Thailand.pdf) on 26 February 2013.

Chikezie, Chukwu-Emeka. "Will the Lion Ever Roar? Bridging the Gap between Policy Reforms, Political Practice, and Entrepreneur-Led Growth in Sierra Leone." *Economic Challenges and Policy Issues in Early 21st Century Sierra Leone*: 369. Accessed at [http://www.theigc.org/sites/default/files/chpt9\\_will\\_the\\_lion\\_ever\\_roar.pdf](http://www.theigc.org/sites/default/files/chpt9_will_the_lion_ever_roar.pdf) on 23 February 2013.

DFID/OPM. 2000. Making Markets Work Better for the Poor. *A Framework Paper*.

DFID. 2004. *Making Agricultural Markets Work for the Poor*. Renewable Natural Resources and Agriculture Team, DFID Working Paper.

DFID (2005) Making Market Systems Work Better for the Poor (M4P): An introduction to the concept. Discussion paper prepared for the ADB-DFID 'learning event'. ADB Headquarters, Manila. February. Accessed at [http://b4md.com.au/Files/dfid\\_adb\\_paper1.pdf](http://b4md.com.au/Files/dfid_adb_paper1.pdf) on 23 February 2013.

Dorward, Andrew and Kydd, J., Morrison, J. and Urey I. 2004. 'A Policy Agenda for Pro-Poor Agricultural Growth'. *World Development* 32, (1) 73-89.

Dzisah, James, 2011 'Mobilizing for Development: Putting the Triple Helix into Action in Ghana' in Saad and Zawdie eds, "Theory and Practice of the Triple Helix System in Developing Countries", Routledge, New York.

Feld, Brad (2012) *Startup Communities: Building an Entrepreneurial Ecosystem in your City*. John Wiley & Sons: Hoboken, New Jersey.

Gibson, Alan and Hugh Scott, David Ferrand. 2004. *Making Markets Work for the Poor – An Objective and an Approach for Governments and Development Agencies*. Woodmead: ComMark Trust.

Gibson, A (2005). Bringing knowledge to vegetable farmers. Improving embedded information in the distribution system; Katalyst case study No. 1, Dhaka, Bangladesh. Accessed at <http://www.bdsknowledge.org/dyn/bds/docs/538/KATALYST%20Veg%20Case%20Study%2005.pdf> on 25 February 2013.

Gibson, A (2006). Developing financial services markets for the poor: FinMark in South Africa; Making markets work for the poor case studies series, Employment and Income Division, SDC, Bern.

Global Entrepreneurship Monitor (2012) Global Report. Accessed at <http://www.gemconsortium.org/docs/download/2645> on 27 February 2013.

Global Entrepreneurship Monitor (2010) GEM Uganda 2010 Executive Report. Accessed at <http://www.gemconsortium.org/docs/download/644> on 27 February 2013.

Hausmann, Ricardo, Rodrik, Dani (2002). Economic Development as Self-Discovery. NBER Working Paper No. 8952 (May). Cambridge, MA: National Bureau of Economic Research.

infoDev Program of the World Bank (2003). The Wireless Internet Opportunity for Developing Countries. Accessed at: [www.infodev.org/en/Document.24.PDF](http://www.infodev.org/en/Document.24.PDF) on 26 February 2013.

Joffe, Steen and Stephen Jones. 2004. *Stimulating Private Investment and Market Development for Agriculture: New Approaches and Experience*. Oxford Policy Management.

KATALYST website - <http://www.katalyst.com.bd/>

Lerner, Josh, (2009) *Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed--and What to Do About It*. Princeton: Princeton University Press.

Leydesdorff, Loet and Etzkowitz, Henry, The dynamics of innovation: from National Systems and "Mode 2" to a Triple Helix of university–industry–government relations Research Policy 29 (2000) 109–123  
[http://www.chss.ugam.ca/Portals/0/docs/sts8020/\(20\)Etzk-Leides.Triple.Helix.pdf](http://www.chss.ugam.ca/Portals/0/docs/sts8020/(20)Etzk-Leides.Triple.Helix.pdf)

M4P Hub [www.m4phub.org](http://www.m4phub.org)

Mindmeister Startup Ecosystem Map – <http://www.mindmeister.com/136732137/startup-ecosystem-map>.

Napier, Glenda and Camila Hansen (2011) Ecosystems for Young Scalable Firms. FORA: February. Accessed at: [http://www.kauffman.org/uploadedfiles/irpr\\_2012\\_napier.pdf](http://www.kauffman.org/uploadedfiles/irpr_2012_napier.pdf) on 27 February 2013.

North, Douglass C (1990) *Institutions, Institutional Change and Economic Performance*. Cambridge: Cambridge University Press.

North, Douglass C. (1992), *The New Institutional Economics and Development* Washington University.

OECD (1997) Government Venture Capital for Technology-based Firms. Paris: *OECD OCDE/GD(97)201*.

OECD (2003) Venture Capital: Trends and Policy Recommendations. Paris: *OECD Secretariat Science Technology Industry*.

Porteous, David. 2004. *Making Financial Markets Work for the Poor*, The FinMark Trust.

Porter, M.E. (1990, 1998) "The Competitive Advantage of Nations", *Free Press*, New York, 1990.

Rana, Prashant (2011) Making Markets Work for the Poor (M4P): Experience, Results and Lessons from Katalyst. 24 March. Accessed at: <http://www.bdsknowledge.org/dyn/bds/docs/807/PrashantRanaKatalystPresentationMarch2011.pdf> on 23 February 2013.

Ranga, Marina and Henry Etzkowitz: "Triple Helix Systems: An Analytical Framework for Innovation Policy and Practice in the Knowledge Society" Research Policy Under Review: [http://triplehelix.stanford.edu/images/Triple\\_Helix\\_Systems.pdf](http://triplehelix.stanford.edu/images/Triple_Helix_Systems.pdf)

Rodrik, D. (Ed.). 2003. *In Search of Prosperity: Analytic Narratives on Economic Growth*. Princeton: Princeton University Press.

Schumpeter, Joseph A (1975) [Original publication 1942] *Capitalism, Socialism and Democracy*. New York: Harper.

Sen, Amartya. 1999. *Development as Freedom*. New York: Random House, Inc.

Senor, Dan and Saul Singer (2009), *Startup Nation: The Story of Israel's Economic Miracle*. New York: Hachette Group.

Springfield website for case studies of implementation, research papers and advisory works: <http://www.springfieldcentre.com/>. Mostly relevant to M4P.

Startup Genome and Telefonica Digital. *The 2012 Startup Ecosystem Report*.

Stevenson, Lois and St-Onge, Annette (2011) Assessment of the environment for the development of women's entrepreneurship in Cameroon, Mali, Nigeria, Rwanda and Senegal, AfDB/ILO paper, accessible at [http://www.ilo.org/wcmsp5/groups/public/---ed\\_emp/---emp\\_ent/---ifp\\_seed/documents/publication/wcms\\_170545.pdf](http://www.ilo.org/wcmsp5/groups/public/---ed_emp/---emp_ent/---ifp_seed/documents/publication/wcms_170545.pdf)

Stevenson, Lois and St-Onge, Annette (2005) Support for Growth-oriented Women Entrepreneurs in Ethiopia, AfDB/ILO paper, accessible at <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/GOWE%20Ethiopia.pdf>

Stevenson, Lois and St-Onge, Annette (2005) Support for Growth-oriented Women Entrepreneurs in Kenya, AfDB/ILO paper, accessible at <http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/GOWE%20Kenya.pdf>

Stevenson, Lois and St-Onge, Annette (2005) Support for Growth-oriented Women Entrepreneurs in Tanzania, AfDB/ILO paper, accessible at



<http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/GOWE%20Tanzania.pdf>

Stevenson, Lois and St-Onge, Annette (2005) Support for Growth-oriented Women Entrepreneurs in Uganda, AfDB/ILO paper, accessible at [http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/GOWE\\_Uganda.pdf](http://www.afdb.org/fileadmin/uploads/afdb/Documents/Policy-Documents/GOWE_Uganda.pdf)

Swiss Agency for Development and Cooperation (SDC) and Department for International Development (DFID), (2008). A Synthesis of the Making Markets Work for the Poor (M4P) Approach, SDC.

Swiss Agency for Development and Cooperation (SDC) and Department for International Development (DFID), (2008). The Operational Guide for the Making Markets Work for the Poor (M4P) Approach, DFID and SDC.

Swiss Agency for Development and Cooperation (SDC) and Department for International Development (DFID), (2008). Perspectives on the Making Markets Work for the Poor (M4P) Approach, SDC.

The Economist (2012) Upwardly Mobile: Kenya's Technology Start-up Scene is About to Take Off. August 25. Accessed at: <http://www.economist.com/node/21560912> on 27 February 2013.

UNIDO (1995) "Principles for Promoting clusters and networks of SMEs" Accessed at: [http://www.unido.org/fileadmin/media/documents/pdf/SME\\_Cluster/Humphrey.pdf](http://www.unido.org/fileadmin/media/documents/pdf/SME_Cluster/Humphrey.pdf) on 27 February 2013.

UNIDO (1995) "Industrial Clusters and Networks: Case Studies of SME Growth and Innovation" Accessed at: <http://www.unido.org/resources/publications/imported-publications/industrial-clusters-and-networks-case-studies-of-sme-growth-and-innovation.html> on 27 February 2013.

White, Simon. 2004. *Donor approaches to improving the business environment for small enterprises*. Washington: Working Group on Enabling Environment Committee of Donor Agencies for Small Enterprise Development.

World Bank. 2011. Overview of forthcoming e-Sourcebook Information and Communication Technologies for Agriculture Connecting Smallholders to Knowledge, Networks, and Institutions. May. Accessed at: <http://www.infodev.org/en/Publication.1093.html> on 27 February 2013.



## Annex 1: Donor Initiatives

This Annex presents initiatives deployed by various donors (e.g. UN, World Bank's InfoDev, DANIDA) when assessing startup ecosystems, ICT ecosystems, ICT in agriculture. These frameworks are separate from the M4P and gender-based approaches. The methodologies include analytical tools for mapping, quantifying and comparing startup ecosystems as well as bridging ICT and agricultural opportunities and challenges in developing countries.

The donor methodologies for analysing startup ecosystems tend to assess issues related to infrastructure (including wireless technology, physical infrastructure) for ICT ecosystems (and SME clusters), regulatory environment, etc. in an effort to recommend donor programmes and state policies for better supporting entrepreneurial activities.

Donor assessments of ecosystems – apart from those employing M4P, Triple Helix, WEE and other frameworks already covered in this report – contextualise the environment for startup ecosystems in developing countries.

The **UN ICT Task Force, InfoDev, and the Wireless Internet Institute's** (2003) report identifies the key issues in developing countries optimising opportunities presented by wireless broadband communications advances. The issues include limited infrastructure (no alternative wired technologies), connection equipment and services are expensive, power supply problematic in rural areas, lack of buy-in in some communities, and incumbent telecoms providers are defensive. Report available at: [www.infodev.org/en/Document.24.PDF](http://www.infodev.org/en/Document.24.PDF).

The **International Labour Organisation (ILO)** commissioned the "SME clusters in Indonesia: An analysis of growth dynamics and employment conditions" 2002. The report analyses how Indonesian SME clusters evolve, and is particularly focused on the impact of ICT upgrading and new market development on employment conditions.

[http://www.oit.org/wcmstp5/groups/public/---asia/---ro-bangkok/---ilo-jakarta/documents/publication/wcms\\_123971.pdf](http://www.oit.org/wcmstp5/groups/public/---asia/---ro-bangkok/---ilo-jakarta/documents/publication/wcms_123971.pdf)

The **World Bank's (2011) Information and Communication Technologies for Agriculture**: Connecting Smallholders to Knowledge, Networks, and Institutions e-Sourcebook consists of modules that explore the practical challenges and key enablers associated with using ICT in agriculture interventions. Four key enablers found across all modules include:

- 1) demand-driven design and local participation;
- 2) using the most appropriate technology in terms of infrastructure, human capital, and location;
- 3) the promotion of inclusiveness with a focus on tapping the economic potential of women and youth; and
- 4) employing good business models for financially sustainable interventions.

To access the case studies: <http://www.infodev.org/en/Publication.1093.html>.

See also InfoDev's "Innovation and ICT Agriculture: Creating Sustainable Businesses in the Knowledge Economy" at: <http://www.infodev.org/en/Project.119.html>.

**DANIDA's** (2012) study of the ICT entrepreneurial ecosystem in Kenya examined the impact that the growth of its ICT sector will have on governance and social empowerment. The study did not investigate the institutional environment for the burgeoning ICT startup ecosystem in Nairobi. Instead, it assessed how the entrepreneurial ICT sector development can be harnessed to contribute positively to governance and the empowerment of marginalized populations. The report did also discuss the

development of the Kenya Open Data Initiative (KODI), which was the result of a successful collaboration between the state, the private sector and the donor community.