A New Paradigm to help accelerate the Transformation of Resource Rich Nations into Sustainable Knowledge Economies

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Introduction

• We discuss the Knowledge Economy and Innovation in the 21st Century

• Natural Resource Rich Economies, their current status and challenges

• Companion Direct Investment as an alternative paradigm

• Conclusions
The Knowledge Economy and Innovation in the 21st Century
# Knowledge Based Economy (KBE)

<table>
<thead>
<tr>
<th>Organization</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Union (EU)</td>
<td>The term &quot;knowledge economy&quot; is commonly used to describe economic activity that relies not on &quot;natural&quot; resources (like land or minerals) but on intellectual resources such as know-how and expertise</td>
</tr>
<tr>
<td>OECD &amp; Welsh Government</td>
<td>Economy which is characterised by the recognition of knowledge as a driver of productivity and economic growth, leading to a new focus on the role of information, technology and learning in economic performance</td>
</tr>
<tr>
<td>World Bank</td>
<td>A knowledge economy is one where organizations and people acquire, create, disseminate, and use knowledge more effectively for greater economic and social development</td>
</tr>
</tbody>
</table>
Knowledge Economy: A Global Context

“…economies which are directly based on the production, distribution and use of knowledge and information”

(OECD 1996)

Key Supports

• Economic and Institutional Regime: Facilitating innovation
• Human Capital: Educated and skilled workers
• Innovation: An effective innovation system
• Infrastructure: Modern and adequate information infrastructure

(World Bank 1998)
Knowledge Economy Index (KEI): The World Bank’s Four Pillars

- **Economic and Institutional Regime**
  - Tariff & Nontariff Barriers
  - Regulatory Quality
  - Rule of Law

- **Education Index**
  - Average years of schooling
  - Secondary Enrollment
  - Tertiary Enrollment

- **Innovation Index**
  - Royalty Payments & Receipts
  - Patent Count
  - Journal Articles

- **ICT Index**
  - Telephones
  - Computers
  - Internet Users
KBE Benefits: GDP / KEI

(Data from World Bank 2012)
## KBE Pillars

<table>
<thead>
<tr>
<th>Country</th>
<th>2012 Rank</th>
<th>KEI</th>
<th>EIR</th>
<th>Innovation</th>
<th>Education &amp; HR</th>
<th>ICT</th>
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<tbody>
<tr>
<td>Sweden</td>
<td>1</td>
<td>9.43</td>
<td>9.58</td>
<td>9.74</td>
<td>8.92</td>
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<td>Finland</td>
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<td>9.65</td>
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<td>Netherlands</td>
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<td>8.79</td>
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<tr>
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<td>5.80</td>
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<td>Saudi Arabia</td>
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<td>Qatar</td>
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<td>6.87</td>
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<td>3.41</td>
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<tr>
<td>Kuwait</td>
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<td>5.86</td>
<td>5.22</td>
<td>3.70</td>
<td>6.33</td>
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<tr>
<td>Russian Federation</td>
<td>55</td>
<td>5.78</td>
<td>2.23</td>
<td>6.93</td>
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<tr>
<td>Brazil</td>
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<td>5.58</td>
<td>4.17</td>
<td>6.31</td>
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<tr>
<td>China</td>
<td>84</td>
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<td>3.79</td>
<td>5.99</td>
<td>3.93</td>
<td>3.79</td>
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<td>2.26</td>
<td>1.90</td>
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</tbody>
</table>

SOURCE: (World Bank, 2012)
World Bank: KAM Scorecard

Data from World Bank 2012
Innovation and GDP per capita: GII 2012

Source: INSEAD Global Innovation Index 2012
Natural Resource Rich Economies (NRREs): current status and challenges
Natural Resource Rich Economies: SWOT

**STRENGTHS**
- Wealth
- Strategic Vision
- Choice

**WEAKNESSES**
- Low K economy
- Comfortable
- Complacent

**THREATS**
- Time
- Competition
- Exhaustion

**OPPORTUNITIES**
- Regional Lead
- Sustainable
- K - transformed

A natural resource-rich economy with a strategic vision to create a k-intensive diversified economy.
NRREs Current Status

Qatar Science & Technology Park

King Abdullah University of Science and Technology

New York University Abu Dhabi

Université Paris Sorbonne Abu Dhabi

Swansea University

www.swansea.ac.uk
NRREs Current Challenges


(The Economic Vision 2030 Abu Dhabi)
NRREs Current Challenges
NRREs Current Challenges

High tech exports as a share of GDP

Source: Estimates based on World Bank (2009), and Department of Planning and Economy
NRREs Current interventions

- Foreign Direct Investment
- Education and Knowledge Policies
- Business attraction policy
- SWF and Investments

“A diversified and flexible Knowledge based economy will be powered by skilled emirates and strengthened by world class talent to ensure long term prosperity” – UAE VISION 2021
NRREs: Current Status

• IKED Compiled report in 2010 – identified strengths and weakness

• Challenges:
  – Economic diversification
  – Skilled workforce retention
  – Effective knowledge networks
  – Low R&D activity
  – Sustainability
  – Bureaucracy and governance

• Reports are Government initiated and sponsored
Open Innovation

- Open
- Collaborative
- Multidisciplinary
- Global
Annealing the triple helix model within the KEI “temple furnace”

Greek temple picture adapted from “Career & Work Life Matters”, Vol. 2, no. 20 (ISSN 2150-6299)
Companion Direct Investment (CDI): an alternative paradigm
Companion Direct Investment : CDI
Companion Direct Investment: CDI

Knowledge Flows Between Companies
Companion Direct Investment: CDI

Definition:

An Innovation engine exhibiting reciprocal, multi way and multi directional monetary and knowledge transactions. CDI possesses the following properties:

1. A financial transaction is made from the Host Country (Financier) and channelled as an equity investment into both an established Knowledge intensive micro company – located in a Knowledge Intensive region and prospective start up enterprise located in Host Country

2. Initial Knowledge Transfer and potentially IP transactions are made by knowledge intensive micro company on to the new start up company in host region to initialise its enterprise innovation engine
CDI Benefit and Policy Implications

- Integration of CDI is linked to long term Strategic vision
- Knowledge transfers and ‘strengthening collaboration’: vision objectives
- Local and skilled employment
- Trigger Entrepreneurial mind-set amongst Local Population
- Emiratisation and Nationalisation of workforce
- Regional development and innovation hub. cross fertilization
- Wider sectorial Benefits for example health tourism
Case Study: Emirate of Abu Dhabi
Case study: Abu Dhabi

• Based Upon Small Micro Company based In Wales

• Evaluated the options to internationalise via traditional FDI method OR New CDI concept

• Figures obtained from company

• Business start up operations discussed with colleagues in Middle East therefore realistic targets were contemplated
STRENGTHS
• K - Rich
• Death Valley safe
• K - Ecosystem

WEAKNESSES
• Underfunded
• Limited Market
• Survival

THREATS
• Time
• Competition
• Exhaustion

OPPORTUNITIES
• Global Market
• IP Platform
• Open Innovation
- Knowledge Based Medical Device Company
- Early Stage Past Infancy Stage
- Has Global Needs and IP position
- Global Aspirations
- Resource Constrained

FDI
- Scarce Resources
- Defines Target Region
- Regional Office
- Has Sales/Distribution/Support

CDI
- Co-Partners with the region
- Receives Investment, region becomes a minority shareholder
- A Regional New Company Established with Major Equity for region
- New Company Has Rights to the region

Regional Office in Host Country
- Clinical
- Technical
- Admin
- Sales

New Company
- R&D Clinical
- Technical
- Admin
- Sales & Marketing
- Assembly Manufacturing

Wider Region Offices
- Country A
- Country B
- Country C
- Country D
ABU DHABI

**Micro-company in a k-intensive region, past its infancy stage, with a product near to market, but with limited resources**

**Strengths**
- k-rich
- Death-valley safe
- k-Ecosystem

**Weaknesses**
- underfunded
- Limited market
- Survival

**Threats**
- Time
- Competition
- Exhaustion

**Opportunities**
- Global market
- IP platform
- open

**A natural resource-rich economy with a strategic vision to create a k-intensive diversified economy**

**Strengths**
- Wealth
- Strategic vision
- choice

**Weaknesses**
- Low k-ecosystem
- Comfortable
- complacent

**Threats**
- Time
- Competition
- Exhaustion

**Opportunities**
- Regional lead
- Sustainable
- K-transformed
Conclusion and further work

• Novel open innovation investment model has been introduced: CDI

• Case study identified CDI’s financial economic and knowledge creation benefit

• CDI sits harmoniously within wider strategic vision for regions

• Further work – greater understanding of the cultural levers of influence and acceptance on the creation of Knowledge economy is needed for actual implementation of CDI to work.

• A real case study to confirm the theoretical model
Achieving Sustainable growth within a global interconnected world

Global Networks

Innovation

Sustainable Knowledge Based Society
Thank You