Measuring the Impact of e-Services on Socioeconomic Development

An ESCWA study covering the Arab Region

Rami Zaatar
ICT Division - ESCWA
zaatari@un.org

Tunis, Tunisia

Outline

• Measuring the Information Society and its socioeconomic outcomes
• Selected e-services in the ESCWA region:
  • e-government
  • e-commerce and use of ICT in the business sector
  • Mobile apps
• Policy initiatives aimed at improving impact
• Recommendations
• Conclusion
Assessing the Impact is complex

- Measuring impact in any field is difficult;
- Added difficulty for ICTs: multi-faceted landscape of ICT, rapidly changing nature;
- Diverse nature of impact: macro, micro, direct, indirect, short-term, long term, qualitative, quantitative, social, economic, environmental,…
- Impact is not always positive, could be negative;
- Various frameworks and models;
- Lack of data and data collection;
- No internationally comparable indicators yet;

ICT impact models

- The S-curve model was the most adopted for ICT impact measurement;
- Misunderstanding that impact analysis is sequential; i.e. readiness must be achieved, then intensity and only then can ICT have an impact;
- Impact analysis can be performed at various stages of maturity and in various ways.
### Methodologies of impact assessment

<table>
<thead>
<tr>
<th>Methodologies</th>
<th>Strengths (+)</th>
<th>Weaknesses (-)</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analytical techniques</td>
<td>• Objectivity&lt;br&gt;• Use of existing data</td>
<td>• Model assumptions&lt;br&gt;• Reliability and availability of input data</td>
<td>Can be performed at the macro, sectoral, and micro-economic levels</td>
</tr>
<tr>
<td>Statistical Surveys</td>
<td>• Reliability of output&lt;br&gt;• Perception questions provide data on causal links</td>
<td>• Expensive, require time&lt;br&gt;• Perception questions lack objectivity</td>
<td>Can be a direct source of data on ICT impacts</td>
</tr>
<tr>
<td>Case Studies</td>
<td>Offers a wide range of approaches and data sources</td>
<td>Flexibility of scope but findings not generalisable.</td>
<td>Source of much of the data on ICT impacts</td>
</tr>
<tr>
<td>Panel Studies</td>
<td>Can provide good baseline data and account for time lags</td>
<td>Expensive and may suffer from unit attrition over time.</td>
<td>Longitudinal data, may be survey-based</td>
</tr>
</tbody>
</table>


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### Using available statistical indicators

- Core ICT Indicators (Partnership)
- WSIS targets indicators (Partnership)

Measuring the impact is still in its early stages; and suffers from a lack of data

- Networked Readiness Index (WEF)
  - Impact sub-index “to reflect the growing economic and social impact of ICT”;
  - 50% of its indicators are subjective indicators based on business community “opinion survey”.

Relying only on statistics without the use of subjective indicators (surveys), renders impact measurement inadequate.
### Availability of Core ICT Indicators

<table>
<thead>
<tr>
<th>Country/Core ICT Indicator groups</th>
<th>A</th>
<th>HH</th>
<th>B</th>
<th>ICT</th>
<th>ED</th>
<th>Total</th>
<th>%</th>
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</thead>
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<td>12</td>
<td>3</td>
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<td>0</td>
<td>2</td>
<td>0</td>
<td>5</td>
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<td>4.1</td>
<td>4.1</td>
<td>1.9</td>
<td>2.6</td>
<td>20.0</td>
<td>41.7</td>
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</table>

Source: (Partnership, 2012), (WBG and ITU, 2012) for ICT3 and ICT4 indicators, and (OECD, 2011) for HHR1 indicator.

### NRI – provides an impact sub-index

- Impact indicators are mainly assessed through business community “opinion survey”.

<table>
<thead>
<tr>
<th>Country</th>
<th>NRI Value</th>
<th>Impact sub-index Value</th>
<th>Economic Impacts Value</th>
<th>Social Impacts Value</th>
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<tbody>
<tr>
<td>Bahrain</td>
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<td>4.44</td>
<td>3.44</td>
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<td>Qatar</td>
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<td>UAE</td>
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<td>4.62</td>
<td>4.01</td>
<td>3.64</td>
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<td>Oman</td>
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<td>3.44</td>
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<td>Jordan</td>
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<td>3.66</td>
<td>3.23</td>
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<td>Tunisia</td>
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<td>Kuwait</td>
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<td>Egypt</td>
<td>3.77</td>
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<td>3.33</td>
<td>3.52</td>
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<td>2.97</td>
<td>3.00</td>
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<td>2.85</td>
<td>2.43</td>
<td>2.26</td>
<td>2.61</td>
</tr>
<tr>
<td>Yemen</td>
<td>2.41</td>
<td>1.93</td>
<td>2.08</td>
<td>1.77</td>
</tr>
<tr>
<td><strong>Average</strong></td>
<td>3.98</td>
<td>3.51</td>
<td>3.15</td>
<td>3.87</td>
</tr>
</tbody>
</table>

Source: WEF, 2012
Great strides in service offering in particular in GCC countries;
Achieved high level of global rankings as measured by international indices;
- UN-DESA biannual e-government survey
- WEF’s NRI Indicators related to e-government
E-services provided by Posts are a good conduit for useful public e-services;
But have the high values achieved on the e-Participation Index in 2012 lead to effective use by citizens?!… Participation ≠ Use

Usage vs. Availability: Low ratios
- Link between awareness of services and their usage;
- Lack of use of services were due to security concerns.

Source: EU 27 usage of e-government services from a benchmark of 20 identified basic services
### E-participation and use in the region

- E-Participation index scores highlights potential of use and not necessarily actual usage;
- Lack of comprehensive data to assess the usage of e-services by citizens;
- Security concerns and lack of confidence in sharing private information are major impediments;
- Anecdotal evidence points to the fact that most citizens essentially use government portals for information purposes.

### E-Commerce: Quantitative aspects

- Data is mainly available from private sources with unclear methodologies and sometimes major discrepancies between different sources;
- Data availability is limited to GCC and some Levant countries;
- Despite rapid growth expectations, E-commerce is still limited even in GCC:
  - In GCC countries: B2C retail estimated at $3.3 billion in 2010 and forecasted to reach $15 billion in 2015
  - B2C retail still significantly low as a percentage of global retail sales: Qatar 3.75%, Bahrain 3.74%, UAE 1.63%, Saudi Arabia 0.68%, Kuwait 0.6% and Oman 0.39%.
E-Commerce: Qualitative aspects

- **Main motivation:** cheaper prices and good bargains;
- **Purchased items:** Apps, technology products, airlines and hotel bookings, books, clothing and entertainment; shopping using mobile phones is on the rise.
- **Shoppers:** upper-middle class users even in lower-income non-GCC countries;
- **Very small e-commerce presence for SMEs of the region;**
- **Absence of online safety and trust are main impediments:**
  - Importance of governments online payment platforms;
  - Need to enact and adopt comprehensive cyber-laws

E-Commerce measurement

- **Private data sources for e-commerce focus on retail B2C, which represents only a small fraction of e-commerce;**
- **Lack of official data on e-commerce in the region; governments efforts are limited to core indicators on use of ICT by businesses;**
- **Data on B indicators do not capture e-commerce transactions values for B2C, B2B, G2C, G2B, …**
- **The absence of official statistics based on business surveys hinders policymaking efforts aimed at improving ICT impact on the economy.**
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ICT in the Economy and Trade

- Nearly no data for ICT1 and ICT2 indicators related to:
  - Proportion of business workforce related to ICT sector, and
  - Proportion of ICT sector in gross value added
- Available data relates to ICT Imports (ICT3) and Exports (ICT4) (administrative and customs sources)
- Region is a net importer of ICT goods and services ($27 billion) vs. only $7 US$ billion of exports
- UAE is a regional ICT distribution hub weighs alone 60% ($4 billion) of the region’s ICT exports
- Percentage of exports may give unclear impression for GCC countries due to high value of oil and gas exports.

<table>
<thead>
<tr>
<th>Country</th>
<th>ICT1</th>
<th>ICT2</th>
<th>ICT3</th>
<th>ICT4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahrain</td>
<td>NA</td>
<td>NA</td>
<td>4.44%</td>
<td>0.9%</td>
</tr>
<tr>
<td>Egypt</td>
<td>7.6%</td>
<td>NA</td>
<td>3.75%</td>
<td>0.14%</td>
</tr>
<tr>
<td>Jordan</td>
<td>3.6%</td>
<td>NA</td>
<td>4.26%</td>
<td>1.29%</td>
</tr>
<tr>
<td>Kuwait</td>
<td>NA</td>
<td>NA</td>
<td>6.42%</td>
<td>0.29%</td>
</tr>
<tr>
<td>Lebanon</td>
<td>NA</td>
<td>NA</td>
<td>2.79%</td>
<td>7.11%</td>
</tr>
<tr>
<td>Morocco</td>
<td>NA</td>
<td>NA</td>
<td>5.87%</td>
<td>3.77%</td>
</tr>
<tr>
<td>Oman</td>
<td>NA</td>
<td>NA</td>
<td>3.05%</td>
<td>0.14%</td>
</tr>
<tr>
<td>Palestine</td>
<td>NA</td>
<td>NA</td>
<td>3.21%</td>
<td>0.88%</td>
</tr>
<tr>
<td>Qatar</td>
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<td>NA</td>
<td>4.28%</td>
<td>0.03%</td>
</tr>
<tr>
<td>Saudi Arabia</td>
<td>NA</td>
<td>NA</td>
<td>7.17%</td>
<td>0.11%</td>
</tr>
<tr>
<td>Sudan</td>
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<td>3.33%</td>
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<td>Syria</td>
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<td>1.06%</td>
<td>0.01%</td>
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<tr>
<td>Tunisia</td>
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<td>1.95%</td>
</tr>
<tr>
<td>Yemen</td>
<td>NA</td>
<td>NA</td>
<td>1.98%</td>
<td>0.05%</td>
</tr>
</tbody>
</table>

Source: UNCTADStats database

Mobile apps as an e-service

- Qualify as an emerging e-service with potential to improve impact of other e-services;
- Enhanced service delivery providing instant and ubiquitous access to services;
- e-Government services are being developed and disseminated as mobile apps;
- Apps top B2C e-commerce;
- Apps developed in local languages contribute to digital content (DAC);
- App economy: driving job creation and income generation.
1.4 billion smartphones in use worldwide (20%);
Active mobile subscriptions 7 billion in 2013;
Smarphones sales will outship featurephones in 2013.

### Smartphone penetration in the region

- Penetration: 40 - 60% in GCC and Levant;
- Higher penetration with higher GNIs; forecasted to reach around 80% by 2016;
- Success of smartphones has been associated with an ecosystem of apps development.
**App ecosystem – Driving employment**

- App stores has created an entirely new industry
- Apple’s app store has added 291,250 iOS jobs to the US economy (since 2007);
- Apple has paid out 13 billions back to developers worldwide (since 2007);
- 1M apps, 60 billion apps downloaded on the App store (October 2013).

**Apps downloaded in the Arab region**

- Social networking apps top the list, followed by games, entertainment, and productivity;
- Few Arabic or local services apps within the top 10 lists of Arab countries;
- Top 20 or 50 lists show more local apps and categories such as books, education, and news - a higher potential for local services.
Apps landscape in the region

• The smartphone uptake in the region is at its beginning; early adopters dominated by the well-off and young generation groups;

• A lack of useful apps for public services and, lack of public awareness about them;

• Usage patterns will likely shift to useful public services and economic activities when the smartphone becomes within the reach of most population groups (vulnerable and low income)

Enhancing impact of e-Services

Act on Supply and Demand
E-services Eco-system
Supply (penetration)
Pushes supply
Pulls demand
Demand (adoption)
Absorptive Capacity (productive use)
Socio-Economic Impact

Source: Adopted from WBG, 2012a.
1. Induce an open and accountable development using ICTs;
2. Improve public services delivery through an ICT-driven transformation;
3. Promote Innovation in ICT;

• These priorities lead to concrete Policy Initiatives aimed at improving the Impact of ICT.

Policy Initiatives (I)

• Setting up of an open data portal with a significant amount of accessible and recent public data;
• Providing citizens with capability to enrich and contribute to government data;
• Reengineering processes whereby citizens (and private sector) could become co-creators of public services based on open public data;
• Ensuring that legal and regulatory frameworks are put in place through proper directives for open government, and data protection acts;
• Setting up a national ICT-driven transformation e-strategy with timely objectives and implementation plan;
Policy Initiatives (II)

- Leveraging PPP for effective service delivery and concretely applying this concept in a significant number of public services.
- Clustering IT-based businesses (for content and applications) to link SMEs and local research institutions to economic activities.
- Creating capacity-building intermediaries to help entrepreneurs turn business ideas into reality and to modernize and improve companies’ competitiveness through ICT.
- Creating open innovation forums or “Living Labs” to engage start-ups and small firms to evaluate concepts and develop prototypes in real-life settings with real users.
- Providing access to finance through social networks established by entrepreneurs or global systems for pooled citizen (micro) financing.

From Policy Initiatives to Metrics

- The above policy initiatives beyond their inherent usefulness to improve impact lend themselves to metrics;
- Those metrics do not measure impact per se but are aimed at improving it;
- Metrics are the first step towards the elaboration of impact indicators;
- In the absence of impact metrics even in developed countries it is an approach worth taking.
### Recommendations (I)

- Improve data collection in particular for core ICT indicators based on statistical surveys;
- Enlarge data collection efforts beyond the core indicators and use, among others, new proposed Indicators as defined for the WSIS targets;
- Build capacity for ICT survey based statistics and improve regional cooperation among countries with sharing of best practices and experience;
- Raise awareness of e-government services and participation level through citizen-driven bottom-up initiatives especially at the local and regional level;

### Recommendations (II)

- Collect e-commerce data periodically through business surveys, and take concrete initiatives to assist SMEs in embracing e-commerce;
- Improve e-commerce adoption by introducing secure e-payment methods, improving efficiency of Postal services through an ICT-driven transformation, and adopting and enforcing proper cyber legislations;
- Encourage the emergence of an app industry, in coordination with DAC development, to produce apps for government and other public e-services;
- Countries may consider the suggested policy initiatives and start their implementation after taking into consideration their local context and priorities.
Thank you

escwa-ictd@un.org

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