The Adoption of Appropriate Technology in Service Delivery in South Africa

Dated: 4 July, 2016

Azra Rajab
Council for Scientific and Industrial Research (CSIR)
Arajab@csir.co.za | (012) 841 2640
Background / Introduction

- In response to wide-scale poverty, poor living conditions and lack of access to basic services:
• HOWEVER: It continues - unequal and inadequate access to basic services, infrastructure and resources
Background / Introduction

• **RESPONSE:** Alternative / innovative / appropriate technologies developed by private / NGO / research organisations / universities / international donors / development institutions

• **RESULTS:** Affordability | Access | Socio-economic benefits | Environmentally conscious

Planning Africa Conference 2016
3-6 July, 2016 | Sandton Convention Centre (SCC) | Johannesburg | Gauteng | South Africa
Problem Statement

• Current state service delivery
  • Not adequately responding to the need – if you google the search phrase “service delivery south africa” images and articles on protests appear.
  • Inefficiencies in government delivery processes
    • Unauthorised expenditure
    • Unsustainable and outdated technologies delivered
    • E.g. 32% of all electricity delivered by City Power Johannesburg lost to theft and non-payment

• No evident link between the provision of basic services (energy, water, sanitation and housing) by the state and the appropriate use of innovative technologies
Research Aims & Objectives

• RESEARCH AIM: The aim of the paper is to investigate the adoption of appropriate and innovative technologies into service delivery processes for poverty-stricken South African human settlements.

• RESEARCH OBJECTIVES:
  • Current status of technology adoption in state service delivery programmes in response to South African informal settlements
  • The potential of technology adoption in the delivery of housing and informal settlement upgrades in the context of South Africa
  • The potential benefits of delivering solar powered, home-lighting units in informal settlements
  • What the adoption of appropriate technology in state service delivery programmes means for government institutions and future planning
Literature Review – Key Findings

### CURRENT SERVICE DELIVERY in IS

**Technology**
- E-government
- M-health
- Solar powered geysers (RDP)
- Communities of practice (online knowledge platforms)
- Green Fund
- Technology for Sustainable Livelihoods (DST)

**Appropriate**
- Outdated / inappropriate technologies used in settlements
- SIMPLE E.g. communal stand pipe – used 50 times a day, yet inappropriate tap used to withstand usage
- Lack of innovative + long term thinking
- Back to Basics programme should not discount technology

**Adoption**
- Time: 9 year wait for upgrade in sub-standard living conditions
- Cultural barriers affect adoption (for instance waterless toilets) **Insufficient link between the provision of basic services and technology (Policy, planning and implementation)**

### POTENTIAL FOR SERVICE DELIVERY in IS

**Technology**
- Potential for collaboration

**Appropriate**
- Responds to issue of affordability by low income households
- Responds to off grid access
- Responds to demands for energy
- Flexible payment for poor households
- Responds to climate change – clean energy
- Tested in one South African community

**Adoption**
- Move away from emphasis on welfare to entrepreneurship
- Provides an option for the provision of energy in IS that is affordable for both supplier and user
- iShack developed a sustainable social enterprise model to deliver affordable, incremental services to residents of IS

**Existing technologies – provision of basic services in IS**
- Solar-powered home lighting units with an associated pre-paid system
- M-KOPA and iShack Project
## Approach & Methodology

<table>
<thead>
<tr>
<th>Research Method</th>
<th>Content Explored</th>
</tr>
</thead>
<tbody>
<tr>
<td>Literature / policy / programme review</td>
<td>• <strong>Status of technology adoption</strong> in the provision of housing and IS upgrading in SA</td>
</tr>
<tr>
<td></td>
<td>• <strong>Potential of technology adoption</strong> in the delivery of housing and informal settlement upgrades in South Africa</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Case Study 1: M-Kopa Solar</th>
<th>Case Study 2: The iShack Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discourse review/literature review</td>
<td>• Description</td>
</tr>
<tr>
<td></td>
<td>• Origin, functionality, customer payment model and impact</td>
</tr>
<tr>
<td>Qualitative interviews</td>
<td>• Lessons learnt</td>
</tr>
<tr>
<td></td>
<td>• Potential to collaborate with state</td>
</tr>
<tr>
<td></td>
<td>• Experiential business considerations (tools of the trade)</td>
</tr>
<tr>
<td></td>
<td>• Description</td>
</tr>
<tr>
<td></td>
<td>• Origin, functionality, customer payment model and impact</td>
</tr>
<tr>
<td></td>
<td>• Lessons learnt</td>
</tr>
<tr>
<td></td>
<td>• Potential to collaborate with state</td>
</tr>
<tr>
<td></td>
<td>• Personal / academic experiences</td>
</tr>
<tr>
<td></td>
<td>• Community participation</td>
</tr>
</tbody>
</table>

---

*Planning Africa Conference 2016*

3-6 July, 2016 | Sandton Convention Centre (SCC) | Johannesburg | Gauteng | South Africa
CASE STUDY

Pay-as-you-go Solar Powered Home Lighting Systems

that allow effective and affordable access to clean energy

Credit: Sustainability Institute

Credit: M-KOPA

Planning Africa Conference 2016
3-6 July, 2016 | Sandton Convention Centre (SCC) | Johannesburg | Gauteng | South Africa
“Imagine for a moment, that our economy would prosper by creating environmentally friendly products that assist poor communities to sustain themselves...”
Research Analysis & Findings

- **Current:** Inadequate link between appropriate technologies and the provision of basic services – in terms of policy and budget allocations

- **Potential:**
  - Technology impact:
    - Range of benefits from solar powered units (increased exam pass rates, increase in income, feeling of safety, job creation, thermal comfort, social mobilisation for services)
    - Increased economic activities like knowledge exchange and monetary transactions had positive spin offs for existing businesses and creates economic opportunities
  - Opportunity for in-situ and incremental IS upgrading
  - The importance of an effective network of well-intentioned contributors in the delivery of basic services
  - The importance of core business concerns such as intelligent marketing, distribution, and branding when adopting new technologies.
Discussion & Concluding Remarks

• Not a solution. But offer an effective service delivery mechanism alongside other mechanisms in the collective response to achieve sustainable human settlements.

• Innovative technologies as a driver of change within state processes.

• Structure and practice of planning in South African informal settlements does not lie solely in the hands of the state - most effective through the co-generation of knowledge and capabilities.

• Alternative approach to service delivery that is affordable and financially sustainable for both supplier and user.

• **Green fund used by the iShack Project** - a fundamental break from the traditional state welfare approach or the traditional donor-funded approach towards the co-provision of services.
Research Contributions

• PAYG solar power in poor communities can contribute to such government objectives as:
  • Localisation of energy production
  • The equitable distribution of resources
  • Increased opportunities for the poor and inclusive economic growth
  • Environmental conservation
  • Community empowerment

• Redefining previous conceptions of planning and who is responsible for initiating change

• Introduces a move away from disconnected welfare systems towards a comprehensive engagement of government with market-related opportunities for social justice and equitable growth

• Introduction of innovation into the way respond to service delivery
“The future is already here...it’s just not evenly distributed”
William Gibson

THANK YOU

Azra Rajab

email: ARajab@csir.co.za

Tel: (012) 841 2640

Planning Africa Conference 2016
3-6 July, 2016 | Sandton Convention Centre (SCC) | Johannesburg | Gauteng | South Africa