Transforming Cities in China: The Interplay of Business Architecture, Service Design and Smart Technologies

Guang-Jie Ren, PhD
IBM Almaden Service Research
gren@us.ibm.com
IBM SMARTER CITIES AND
ACTIONABLE BUSINESS ARCHITECTURE
The trend of urbanization at a global scale

In 2007, for the first time in history, the majority of the world’s population—3.3 billion people—lived in cities. By 2050, city dwellers are expected to make up 70% of the total population or 6.4 billion people.
IBM Smarter Cities Program is designed to help cities address top challenges
Cities are complex ecosystems; they rely on multiple stakeholders and core systems to meet the needs of citizens and local businesses

Observations

- Local government does not necessarily own all the resources; it has a need to collaborate with other stakeholders
- Citizens often hold the local government accountable for the various services they receive, regardless of providers
- Public policies tend to be made in isolation; opportunities to address cross-system challenges are often overlooked

How can we represent the city ecosystem in ways that encourage collaboration and help resolve challenges?
IBM Component Business Modeling (CBM) offers a common framework for various stakeholders to make informed decisions from the same facts.

IBM Actionable Business Architecture (ABA) integrates strategy, operations and technologies through industry-leading methods, models and tools.
IBM Actionable Business Architecture is leveraged to address the question
The central piece is the **City Ecosystem Model**, providing a shared view of the city on which various stakeholders can make informed decisions from the same facts.

**Business Component** is a part of an organization that has the potential to operate autonomously.

**Business Competency** defines a broad business area with characteristic skills and capabilities, for example, public safety, transportation, urban planning, etc.

**Accountability Level** characterizes the scope of decision making. The three levels used in CBM are Direct, Control and Execute.
- Direct is about strategy, overall direction and policy.
- Control is about monitoring, managing exceptions and tactical decision making.
- Execute is about doing the work.

City Ecosystem Model: Base Version
Through the Business Architecture, IBM is helping cities to address a wide range of strategic, operational and IT challenges

- **Strategy**
  - Understand City Ecosystem
  - Make City Smarter
  - Improve Quality of Living
  - Facilitating Cost-Take-Out
  - Promote Economic Development

- **Emerging Practices**
  - Determine Sourcing Model
  - Adopt Cloud Computing
  - Leverage City-Wide Shared Services
  - Leverage Regional Shared Services

- **Performance**
  - Measure City Performance
  - Benchmark City Performance
  - Improve City Performance
  - Improve City Capabilities

- **Alignment**
  - Rationalize Initiative Portfolio
  - Restructure Application Portfolio
  - Cope with Change
  - Establish Regional Ecosystem Framework
TRANSFORMING CITIES IN CHINA:
THE CITY OF SHI JIA ZHUANG
China is urbanizing, with rapid growth in the number of cities, urban population, urban disposable income, housing, transportation, and so on.

<table>
<thead>
<tr>
<th>Key Indicators</th>
<th>1990</th>
<th>2000</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Urban Citizen Disposable Income (RMB)</td>
<td>1510</td>
<td>6280</td>
<td>11759</td>
<td>13786</td>
</tr>
<tr>
<td>• Residential Housing (Square Meter)</td>
<td>13.7</td>
<td>20.3</td>
<td>27.1</td>
<td>28</td>
</tr>
<tr>
<td>• Public Transit Vehicles per 10,000 Population</td>
<td>2.2</td>
<td>5.3</td>
<td>9.1</td>
<td>10.2</td>
</tr>
<tr>
<td>• Private Vehicles per 10,000 Population</td>
<td>n/a</td>
<td>0.50</td>
<td>4.32</td>
<td>6.06</td>
</tr>
<tr>
<td>• Telephone/Mobile Phone Coverage (%)</td>
<td>1.11</td>
<td>20.10</td>
<td>63.39</td>
<td>69.45</td>
</tr>
<tr>
<td>• Green Area per Capita (Square Meter)</td>
<td>1.8</td>
<td>3.7</td>
<td>8.3</td>
<td>9.0</td>
</tr>
<tr>
<td>• Household Spending on Education (%)</td>
<td>11.1</td>
<td>13.4</td>
<td>13.8</td>
<td>13.3</td>
</tr>
<tr>
<td>• Household Spending on Health Care (%)</td>
<td>2.0</td>
<td>6.4</td>
<td>7.1</td>
<td>7.0</td>
</tr>
</tbody>
</table>

Unprecedented challenges facing Chinese cities as their growth accelerates
The City of Shi Jia Zhuang, China:
Creating a new district as the model for the Township of the Future
The project successfully addressed the following needs of the city leadership

<table>
<thead>
<tr>
<th>Vision</th>
<th>Set a development vision for Smarter District, based on leading domestic and international experience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Framework</td>
<td>Built a complete framework for Smarter District, including 66 capability components across 5 domains and 3 levels, with over 100 smarter ideas</td>
</tr>
<tr>
<td>Capabilities &amp; KPIs</td>
<td>Put forward more than 80 capability requirements on Smarter District, from which 29 most representative KPIs were derived</td>
</tr>
<tr>
<td>Construction Projects</td>
<td>Formulated the plan of 35 projects for Smarter Zhengding, each with the analysis of technical solutions, investment modes and projected ROI</td>
</tr>
<tr>
<td>Supporting Mechanisms</td>
<td>Provided information support for all of the 24 KPIs that are under the eco-city and low-carbon objectives as specified in the district’s master plan</td>
</tr>
<tr>
<td></td>
<td>Made 14 recommendations on the integration of Smarter District with the eco-city and low-carbon objectives</td>
</tr>
</tbody>
</table>
More information can be found in the Marketing Brochure

Marketing Brochure:
Actionable Business Architecture for Smarter Cities


© 2011 IBM Corporation