BPR CASES

Business Process Reengineering

by
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BPR IN THE PUBLIC SECTOR: THE CASE OF THE HOUSING DEVELOPMENT BOARD IN SINGAPORE

House Development Board Profile

- The House Development Board was established in 1960 as the public housing authority of Singapore under the charge of the Ministry of National Development.
- Its mission is to provide affordable housing of a high quality and to help build communities. It now focuses on improving the quality of public housing through better planning and design, efficient estate management, and the upgrading of older HDB estates.
- In 1960, only 9 percent of Singapore’s population lived in public housing, and many people lived in overcrowded and unsanitary conditions. By 1998, 86 percent of Singapore’s three million people lived in HDB flats.
- The HDB builds 30,000 flats a year and manages more than 730,000 units of residential properties, about 50,000 commercial and industrial properties, and over 500,000 parking lots.
- Services provided to the residents of HDB flats include: (1) financial services, such as administration of mortgage loans and collection of rent, monthly parking charges, and conservancy charges; (2) lease and tenancy services, such as transfer of ownership, surrender of flats, and renewal of tenancy; and (3) maintenance services, such as rectification of defects and approval of renovation works.
- Service points in the form of 21 branch offices are strategically located around the island-nation for convenient delivery of these services.
BPR Project Outline

• The Management Services (MS) team was based at the Model Branch Office for a one-year intensive hands-on study.
• Every step and procedure in the existing processes was scrutinized. Redundant steps and procedures were removed, and others were collapsed or streamlined from the customer’s perspective.
• The MS team met with staff from the Model Branch Office, relevant headquarters departments, and Information Services Department regularly to examine the proposed new business processes and identify new information systems requirements.
• A new organizational structure was also proposed to support the new job responsibilities and facilitate the new workflow.
• The Model Branch Office concept was successfully piloted before an 18-month rollout plan was drawn up to implement the new systems and procedures throughout the remaining 20 branch offices.
• 1 year later, the revamp of all branch office operations was successfully completed, six months ahead of schedule.
## BPR Results

### Financial Services

<table>
<thead>
<tr>
<th>Activities</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average processing time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loan redemption</td>
<td>4.2 months</td>
<td>0.8 months</td>
</tr>
<tr>
<td>Loan extension</td>
<td>14 days</td>
<td>5 days</td>
</tr>
<tr>
<td>Lump sum payment</td>
<td>2.4 months</td>
<td>1.4 months</td>
</tr>
<tr>
<td>Accounts requiring manual adjustments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GIRO accounts</td>
<td>518/month</td>
<td>105/month</td>
</tr>
<tr>
<td>Sales accounts</td>
<td>787/month</td>
<td>66/month</td>
</tr>
<tr>
<td>Rental accounts</td>
<td>51/month</td>
<td>30/month</td>
</tr>
<tr>
<td>Vouchers prepared</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Journal vouchers</td>
<td>85/month</td>
<td>13/month</td>
</tr>
<tr>
<td>Payment vouchers</td>
<td>39/month</td>
<td>22/month</td>
</tr>
</tbody>
</table>

### Lease & Tenancy Services

<table>
<thead>
<tr>
<th>Activities</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average processing time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surrender of flats</td>
<td>8.4 months</td>
<td>3.7 months</td>
</tr>
<tr>
<td>Transfer of ownership</td>
<td>8.8 months</td>
<td>3.9 months</td>
</tr>
<tr>
<td>Sale of recess area</td>
<td>3.4 months</td>
<td>1.9 months</td>
</tr>
<tr>
<td>Shops submissions</td>
<td>6.3 months</td>
<td>2.9 months</td>
</tr>
<tr>
<td>Renewal of fixed-term tenancy</td>
<td>3.7 months</td>
<td>1.1 months</td>
</tr>
<tr>
<td>Termination of tenancy</td>
<td>2.5 months</td>
<td>1.4 months</td>
</tr>
<tr>
<td>Number of cases awaiting attention</td>
<td>4665</td>
<td>693</td>
</tr>
</tbody>
</table>

### Maintenance/Renovation Services

<table>
<thead>
<tr>
<th>Activities</th>
<th>Average processing time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renovation permit</td>
<td>1.4 months</td>
</tr>
<tr>
<td>Electrical upgrading (mains)</td>
<td>8.0 months</td>
</tr>
</tbody>
</table>

### General Administration

<table>
<thead>
<tr>
<th>Activities</th>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>File retrieval time</td>
<td>10 minutes</td>
<td>5.4 minutes</td>
</tr>
<tr>
<td>Daily volume of file movement</td>
<td>923 files</td>
<td>803 files</td>
</tr>
<tr>
<td>Number of forms/standard letters</td>
<td>369</td>
<td>291</td>
</tr>
</tbody>
</table>
Lessons learnt - I

• L1: Public organizations are highly resistant to change. Social and political changes are the main pressures on them to reengineer their processes.

• L2: Publicity in the press is a powerful way for public organizations to draw the full attention of staff to the BPR effort and to convince them of its importance.

• L3: Public organizations locating the reengineering team at the pilot site for the duration of the project can develop close working relationships to overcome user resistance to change.

• L4: Public organizations should bear in mind that staff who are familiar with the functions of various departments and are trained in management science and operations research are very useful resources for BPR.

• L5: The use of a group of neutral staff officers to form the core reengineering team that draws on the expertise of other departments is an attractive arrangement for structuring a reengineering team in public organizations.

• L6: Public organizations should note that it is critical to validate the documented work process with operational staff to ensure its accuracy.

• L7: Public organizations that adopt a one-site pilot study method must exercise sufficient care in site selection to ensure that the site is representative of other sites.
Lessons learnt - II

- **L8**: In the absence of traditional market indicators, public organizations need to adapt performance indicators from the private sector to set benchmarks for improving the current processes.
- **L9**: The steering committee is an essential mechanism in gaining approval of redesigned procedures in public organizations.
- **L10**: The primary criterion in selecting a new IT architecture in public organizations is the ability to support the redesigned processes without undue risks.
- **L11**: Public organizations that apply the casework concept should review staff training needs for the reengineered jobs.
- **L12**: Performance measures in public organizations should be simple and highly focused on the end result.
- **L13**: A revised incentive structure to support the redesigned processes is critical to the public organization’s success in reengineering.
- **L14**: A pilot implementation will help to refine the redesigned processes.
- **L15**: Results from a successful pilot implementation will help to obtain approval for the main funding.
Lessons learnt - II

• L16: Public organizations undertaking BPR should commit sufficient time and resources to retraining of staff.
• L17: Public organizations need to plan the rollout of redesigned processes throughout the organization carefully.
• L18: Public organizations undertaking BPR need to educate and prepare all staff for the forthcoming changes through an intensive communication program, possibly including news articles and site visits.
• L19: Public organizations should view reengineering and IT as an integrated strategy.
COCKPIT (ICT 2009 FP7-248222)

Source: http://www.cockpit-project.eu/
At a glance

- **COCKPIT** – Citizens Collaboration and Co-Creation in Public Service Delivery
- **STREP project** co-funded by the European Union FP7 ICT for governance and Policy Modelling
- **Project start**: January 2010 for 36 months
- **Overall budget**: ~ 4M €
- **Project Coordinator**: INTRASOFT International S.A.
- **Technical Coordinator**: IBM Research India
- **12 different organisations** from 8 countries form the COCKPIT consortium
Vision

To conceive, design and implement public services that:

• Respond to citizens’ needs and wishes, as increasingly expressed in Web 2.0 social media.

• Introduce achievements in the services industry to the public sector, as offered by the Service Science, Management and Engineering academic and research discipline.

• Enable citizens informed judgment before actual public service delivery.
Public Service Engineering

• Provide communication channels to engage stakeholders in public service creation:
  • Citizens, businesses, community
  • Public Administrations
  • Delivery Organisations

• Integrate multi-disciplinary models and simulation methods into a rigorous service engineering process.
  • Consider policy and legislative constraints
  • Consider budgetary constraints
Gathering Requirements

- Citizens’ Requirements - opinions and needs will be increasingly expressed in Web 2.0 social media.

  - Opinion mining can be employed to gather citizens’ requirements:
    - *Content Collection* from publicly available data sources (blogs, fora, newsgroups, msn, excluding sites requiring membership)
    - *Content Analysis* on policy and public service of interest

- Public Administrations/Delivery Organisations Requirements
  - Use of MISs to gather statistical data on volume, frequency, processing time, delivery time, accumulated cost, etc
  - Evaluate and transform into constraints in the service engineering process
Public Service Modelling

- Combine social and technical dimensions in an engineering approach by means of *Public Service Blueprints*

- Public Service Blueprints integrate:
  - *Service models*, defining interfaces and service collaborations
  - *Process maps*, defining abstract models of standard public service processes,
  - *Performance models*, defining process-, service- and resource performance indicators (KPIs, QoS),
  - *Value models*, defining costs and benefits associated to public services, and
  - *Lifecycle models*, defining deployment descriptions and monitoring reqs
Public Service Simulation

- Simulation models provide an ideal way for all stakeholders to obtain an appreciation of the proposed public service.

- Minimum set of input:
  - List of all service request together with the distribution function of their arrival time.
  - A set of service processes/task for handling each service request
  - A set of capabilities required to perform each task
  - A function for estimating the task time, cost of execution, etc
  - A time dependent resource availability function
  - A dispatcher algorithm to handle requests and allocate resources.
Envisioned approach

- **Citizens’ Opinion Mining Tool**
  Extracting citizens’ needs on public services delivery from Web 2.0 applications

- **Public Service Engineering Tool**
  Service modeling methodology for the public sector

- **Policy and Law Retrieval Tool**
  Support by standing legal framework

- **Public Service Simulation & Visualisation tool**
  Adjustments/Fine tuning

- **Deliberate Citizens’ Engagement Platform**
  Web based dialogue between decision makers and citizens
COCKPIT Methodology

Start Transformation

Define Service Concept

Invoke Opinion Mining

Decide the Stakeholders

Gather Stakeholders' Requirements

Policy and Law Retrieval

Generate Simulation Model

Cost & Value Estimation

Define & Design Alternatives

Service Modeling

Model ready to implement

Simulation Visualization

Citizen's Deliberation

Citizen Happy?

Co-Valuation
Basic Features of COCKPIT Integrated Toolkit - I

- The prototype toolkit derives its functionality and features from seven individual components, namely:

  - **Service Engineering Tool (SE)**
    - Define basic public service metadata (basic details).
    - Define extended information of a public service.
    - Provide public service design elements.
    - Export public service documents-artifacts.

  - **Opinion Mining (OM)**
    - Crawl publicly available opinions.
    - Polarize opinions based on sentimental analysis.

  - **Service Simulation & Visualization Tool (SV)**
    - Create visual simulations of public services.
    - Interact with visual simulation on the Deliberation Platform.
Basic Features of COCKPIT Integrated Toolkit - II

- **Service Policy and Law Retrieval Tool (PL)**
  - Search and retrieve policy and law documents from related domains.
  - Attach documents to the public service design process.

- **Citizens’ Deliberative Engagement Platform (DP)**
  - Browse basic public service design metadata and generated simulations related to these services.
  - Allow end-users to provide comments and participate in forums.
  - Participate in related polls of a public service generated during the design process.

- **Cost & Valuation Tool (CV)**
  - Define cost variability aspects of the public service model.
  - Create and publish polls for assessing alternative variability modeling aspects.
  - Evaluate polls’ outcome for optimizing/adjusting the designed models.
COCKPIT Methodology: Define Service Concept

Screenshots - I

- Government-to-Citizens
- Government-to-Businesses
- Government-to-Institutions (Organizations)
- Government-to-Government

- license
- certificate
- registration
- request
- objection
- payment
- return
- other (please specify)

Authorization and charging for the occupation of public spaces

- General Info
- Service Context
- Policy & Reuse
- Delivery Characteristics
- Attachments

- Identifier: IT02
- Date Modified: 02/05/2010

- Title: Authorization and charging for the occupation of public spaces

- Category: Government-to-Citizens

- Service Nature: other (please specify) → licence/payment

- Importance: Low, Medium, High

- Source of Info: http://www.egov.comune.venezia.it/cosap/index.jsp

Save...  Delete...  Reload from database...
COCKPIT Methodology: Define Service Concept

Screenshots - II

**Authorization and charging for the occupation of public spaces**

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Date</th>
<th>Metric</th>
<th>Current</th>
<th>Desired</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce time to obtain a response</td>
<td>31/12/2012</td>
<td>Number of on-line payment transaction</td>
<td>2-3 per year</td>
<td>100% per ...</td>
</tr>
<tr>
<td>Increase use of on-line services</td>
<td>31/12/2012</td>
<td>Time from request submission to respo...</td>
<td>60 days</td>
<td>30 days</td>
</tr>
</tbody>
</table>
COCKPIT Methodology: Invoking Opinion Mining Tool - Screenshots
COCKPIT Methodology: Gather Stakeholder’s Requirements - Screenshots
COCKPIT Methodology: Policy and Law Retrieval - Screenshots

1. C2005/093/03
   Official Journal C 093, 16/04/2005 P. 0002 - 0002
   Court of Justice of the European Communities

   Judgment of the Court (Third Chamber) of 17 February 2005 in Case C-134/03:
   (reference for a preliminary ruling from the Giudice di pace di Genova-Voltri) Viacom
   Outdoor Srl v Giotto Immobilier SARL (Freedom to provide services — Competition —
   Bill-posting services — Domestic legislation imposing a municipal tax on advertising —
   Supply by municipalities of a public bill-posting service — Power of the municipalities to
   regulate the supply of bill-posting services — Internal taxation not discriminatory)

2. 62003J0134
   European Court reports 2005 Page I-01167
   Court of Justice of the European Communities

   Judgment of the Court (Third Chamber) of 17 February 2005.
   Viacom Outdoor Srl v Giotto Immobilier SARL.
   Reference for a preliminary ruling: Giudice di pace di Genova-Voltri - Italy.
   Freedom to provide services - Competition - Bill-posting services - Domestic legislation
   imposing a municipal tax on advertising - Supply by municipalities of a public bill-posting
   service - Power of the municipalities to regulate the supply of bill-posting services -
   Internal taxation not discriminatory. Case C-134/03.
COCKPIT Methodology: Service Modelling - Screenshots
COCKPIT Methodology: Citizens’ Deliberation - Screenshots
Piloting in Public Organizations

- Greek Ministry of Interior (YPES) – GR
  - Social Insurance Record Access
  - Citizen’s Card -> Deliberation-based
  - Payment of Municipal Parking Ticket

- City of Tilburg - NL

- City of Venice - IT
Expected Impact

- **Web 2.0 as the emerging collaboration platform** for Co-Creation in Public Service Delivery
- **Improving empowerment and engagement** of citizens for Public Service Co-Creation
- **Efficient collection of feedback** to continuously improve governance of Public Service Co-Creation
- **Increasing Trust of Citizens** through transparency and feedback of their contributions
- **Improving impact prediction** of policy measures
- **Strengthening competitive position** of European Industry and EU added value
- **Improved Public Service design & delivery**

*Cockpit as a possible solution in a Public Administration...*

- **would enable me to accomplish tasks more quickly**
- **would give me more control over the activities**
- **would make the things I want to accomplish easier to get done**
- **would enhance my effectiveness**
- **would improve my performance**
- **would improve increase my productivity**
QUESTIONS?

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