Pay-Smart in a Smart City
Colleen Magee, Anne Dietrich, Mara Sheley, Lindsay Steinbauer, Amelia Garrison

Introduction
This capstone project centers on the Smart Columbus grant from the U.S. Department of Transportation which is designed to provide Columbus with enhanced transport communication, logistics, and safety. This vision is for Columbus to be a model “smart” city. Mission Statement: “We envision an application that will benefit people by providing various transportation services and the ability to plan and create trips all using a common payment system.” - Smart Columbus Project Team.

Abstract
This specific project aims to install a transportation common payment system for Columbus. Linden is an identified neighborhood for transportation improvement, and the system must succeed in Linden. While identifying the needs of Linden, case cities with common payment systems were identified and benchmarked to find the most effective payment system. Based on this research, it’s recommended Columbus adopts a combination of payment systems.

Methodology
Data Collection:
- Collect survey information from Columbus/Linden sources
- Evaluate needs for common payment system based off survey data
- Choose case study cities based off common payment programs in place
- Quantitative data collection: city profiling and transit ridership
- Qualitative data: interviews with case city representatives
- Compare and contrast cities
- Create recommendation

Linden Survey Results & Columbus Commuter Data

Survey results provided by Smart Columbus and Linden officials from February 10, 2017 focus group meeting and interpreted into the above graph by our research team.

Columbus Profile:
Columbus provides public busing and bike sharing, Car2Go, Uber, Lyft, and Taxis but no light rail system. Columbus’ city population exceeds 800,000 and the metropolitan area now exceeds two million with continued expected growth. Below is a graph of Columbus’ current commuter profile.

Columbus Commuter Distribution

Common Payment Option Assessment

<table>
<thead>
<tr>
<th>Common Payment Types</th>
<th>All Access</th>
<th>Flexibility</th>
<th>Profitable</th>
<th>Safety</th>
<th>Effective Stewardship</th>
<th>Sustainable</th>
</tr>
</thead>
<tbody>
<tr>
<td>App Only</td>
<td>x</td>
<td></td>
<td></td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>App &amp; Kiosk</td>
<td>x</td>
<td>x</td>
<td></td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>Kiosk &amp; Reusable Card</td>
<td>x</td>
<td>x</td>
<td></td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>App &amp; Reusable Card</td>
<td></td>
<td></td>
<td></td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
</tbody>
</table>

Common Payment Options:
- All 3

Case Cities:
- Cities were chosen based on current common payment methods in place.
  - Portland – App & Kiosk
  - Chicago – App & Reusable card
  - San Francisco – Reusable card & App
  - Seattle – Kiosk & Reusable card
- Midwestern cities were considered but only Chicago had a common payment system in place.
- Case cities were profiled based on:
  - Area demographics – population trends
  - Socioeconomic conditions
  - Current ridership and commuter trends
  - 3/5 case cities (Portland, Leipzig, and Chicago) were successfully interviewed

Case Cities: Population Growth vs. Ridership

Ridership Trends

Portland ‘13

Seattle ‘09

Chicago ‘13

Graphs indicate effectiveness of common payment system since implementation. Results may vary due to available transportation options, prices, gas prices, parking, etc.

Bibliography

Colleen Magee: Sustainable Business (419-953-9520)
Mara Sheley, Sustainable Business (614-558-1481)
Anne Dietrich: Sustainable Business (614-343-5891)
Lindsay Steinbauer: Sustainable Business (419-389-7110)
Amelia Garrison: Sustainable Business (440-213-9850)