The impact of product failure on innovation diffusion: The example of the cargo bike as alternative vehicle for urban transport

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**THEORY**

This study explores the technological perspective of product adoption by enhancing the process of innovation diffusion picking up the case of product failure of electronic cargo bicycles.

**Empirical case examination**

- Business owners testing electric cargo bike prototypes for commercial urban transport
- Technical deficit detection
- Crucial impacts on vehicle usability
- Benefits ascribed to vehicle not viable

**Key Objectives**

- Identifying the importance of innovation performance
- Influences of technical deficit reports on the adoption decision and industry performance
- Importance of early adopters as gatekeepers and diffusion leverage potentials
- Adoption and rejection factor impacts

**EVALUATION SCHEME**

<table>
<thead>
<tr>
<th>User information</th>
<th>Adoption potential</th>
<th>Usage intensity</th>
<th>Claim intensity</th>
<th>Adoption decision</th>
<th>Major impact factors</th>
<th>Résumé</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>Profession</td>
<td>Usage intention</td>
<td>Potential estimation</td>
<td>Resistance likelihood</td>
<td>km/km total</td>
<td>Claim/claim total</td>
</tr>
<tr>
<td>Grocery</td>
<td>customer rental and delivery service</td>
<td>73%</td>
<td>38%</td>
<td>62%</td>
<td>1%</td>
<td>2%</td>
</tr>
<tr>
<td>Carpenter</td>
<td>construction site visits, repair service</td>
<td>86%</td>
<td>74%</td>
<td>15%</td>
<td>17%</td>
<td>28%</td>
</tr>
<tr>
<td>Pharmacy</td>
<td>delivery service</td>
<td>86%</td>
<td>37%</td>
<td>23%</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Shopping mall</td>
<td>sharing system</td>
<td>77%</td>
<td>53%</td>
<td>54%</td>
<td>1%</td>
<td>11%</td>
</tr>
<tr>
<td>Electrician</td>
<td>construction site visits, repair service</td>
<td>82%</td>
<td>44%</td>
<td>69%</td>
<td>10%</td>
<td>14%</td>
</tr>
<tr>
<td>Electronic devices retail</td>
<td>customer service</td>
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<td>83%</td>
<td>38%</td>
<td>49%</td>
<td>26%</td>
</tr>
<tr>
<td>Florist</td>
<td>delivery service / gardening service</td>
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<td>58%</td>
<td>69%</td>
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<td>12%</td>
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<tr>
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<td>delivery service</td>
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<td>61%</td>
<td>62%</td>
<td>3%</td>
<td>6%</td>
</tr>
</tbody>
</table>

**MAJOR FINDINGS**

- Identification of the decisive impact factors and the proven acceptance once the barriers were overcome
- Poor product quality and technical deficits related to purchase price and future investments lead to total rejection of the specific cargo bike model
- Adopters are critical users that are ambitious to support product refinement: high prototype potential, low adoption resistance likelihood, high claim intensity, high usage intensity
- Rejecters are likely to be indifferent: low prototype potential, high/medium resistance likelihood, low claim intensity, low usage intensity
- Prototype adoption decision mainly based on low purchase price (90% discount on list price)
- “Heavy User” adopters want to act as role models that share their experience
- All users stated that the impacts of technical deficits should be considered by the industry, network enforcement would be highly appreciated

**REFERENCES**