Challenge Theme	Zero Waste Industries
Statement Number	04
Launch Date	9 January 2026

<table>
<tr><td>Title</td><td>Enhancing waste segregation to bolster recycling efficiency</td></tr>
<tr><td>Background</td><td>Despite deploying recycling bins throughout JTC estates and buildings, JTC continues to face a persistent challenge where users frequently dispose non-recyclable waste into the designated recycling bins, leading to contamination of recyclables. Waste segregation at source is important to bolster recycling efforts.</td></tr>
<tr><td>Challenge</td><td>1. Users appear to be either unaware of recycling guidelines or disregard them, leading to contamination of recyclable materials with general waste.
2. The presence of recycling bins alone does not guarantee correct usage, and users may not understand the environmental and operational consequences of misusing recycling facilities.
3. Contaminated recycling streams increase the complexity and cost of sorting, sometimes resulting in recyclable materials being discarded as general waste. This diminishes the benefits and effectiveness of JTC’s re recycling and waste segregation initiatives.</td></tr>
<tr><td>Desired Outcomes</td><td>The envisioned solution shall:
• Provide pre-emptive ways to correct behaviour where necessary e.g. alerts before waste is incorrectly disposed of
• Be a ‘plug-and-play’ solution that is easy to deploy and allow for baseline waste profiling
• Ensure 50% improvement of waste segregation at source, with recycled materials correctly disposed of in designated recycling bins and general waste deposited in the appropriate general waste bins.</td></tr>
<tr><td>Requirements</td><td>• Technologies and/or solutions must be innovative and have not been deployed in large scale projects.
• Technology readiness level of >=7
• Be scalable and cost effective
• Ensure ease of use and continuity of operations
• The solution should help to improve user behaviour rather than be dependent on user behaviour for success.</td></tr>
<tr><td>Possible Solutions</td><td>Potential approaches could combine smart bin technology, real-time monitoring, and user engagement strategies to prevent contamination, promote proper disposal habits.</td></tr>
<tr><td>Development Timeframe</td><td>
<table>
<tr><th>Step</th><th>Task</th><th>Start</th><th>End</th></tr>
<tr><td>1</td><td>Proof of Concept and baseline waste profiling</td><td>T_o</td><td>T_o + 3 months</td></tr>
<tr><td>2</td><td>Performance verification</td><td>T_o + 3 months</td><td>T_o + 12 months</td></tr>
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<tr><td>Testbed/ Trial site (envisioned deployment site)</td><td>The solution will be tested at Biopolis.</td></tr>
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Additional Info	 Typical Recycle Bins deployed at JTC buildings / estates