

# Pengembangan Konseptual Desain Smart Waste Management System di Ibukota Nusantara (IKN) untuk Mendukung Kinerja Kota Pintar dan Berkelanjutan = Conceptual Design Development of Smart Waste Management System in Ibukota Nusantara (IKN) for Smart and Sustainable City

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## Abstrak

Sampah merupakan masalah umum yang dihadapi di perkotaan. Tren urbanisasi menyebabkan semakin pesatnya timbulan sampah di perkotaan sehingga diperlukan adanya solusi yang terintegrasi. Metode pengumpulan dan pengangkutan sampah di Indonesia saat ini masih dilakukan secara manual dan belum teintegrasi. Implementasi smart waste management system dengan meninjau pengelolaan sampah mulai dari pengumpulan dengan smart garbage bin, pengangkutan dengan truk yang terhubung IoT dan ICT ke fasilitas pengolahan sampah yang dapat dipantau dalam satu command center diharapkan dapat menjadi solusi untuk mencapai target KPI di IKN, yakni 60% daur ulang sampah di tahun 2045. Sampah yang sudah dipilah sejak awal kemudian akan dikelola dengan fasilitas recycle dan pengomposan di area TPST. Perhitungan biaya siklus hidup kemudian dilakukan untuk menilai kelayakan ekonomi penerapan smart waste management system di IKN.

.....Waste is a common problem faced in urban areas. The trend of urbanization has led to the rapid waste generation in cities, so an integrated solution is needed. Currently, the method of collecting and transporting waste in Indonesia is still done manually and not integrated. Implementation of a smart waste management system by reviewing the waste management procedure starting from collecting phase with smart garbage bins, transporting using vehicle truck connected with IoT and ICT to waste processing facilities that can be monitored in one command center is expected to be a solution to achieve the KPI target at IKN, that is 60% waste recycled in 2045. Waste that has been sorted from the start will be processed with recycling and composting facilities at the temporary waste collection area. Calculation of life cycle costs is then carried out to assess the economic feasibility of implementing a smart waste management system in IKN.