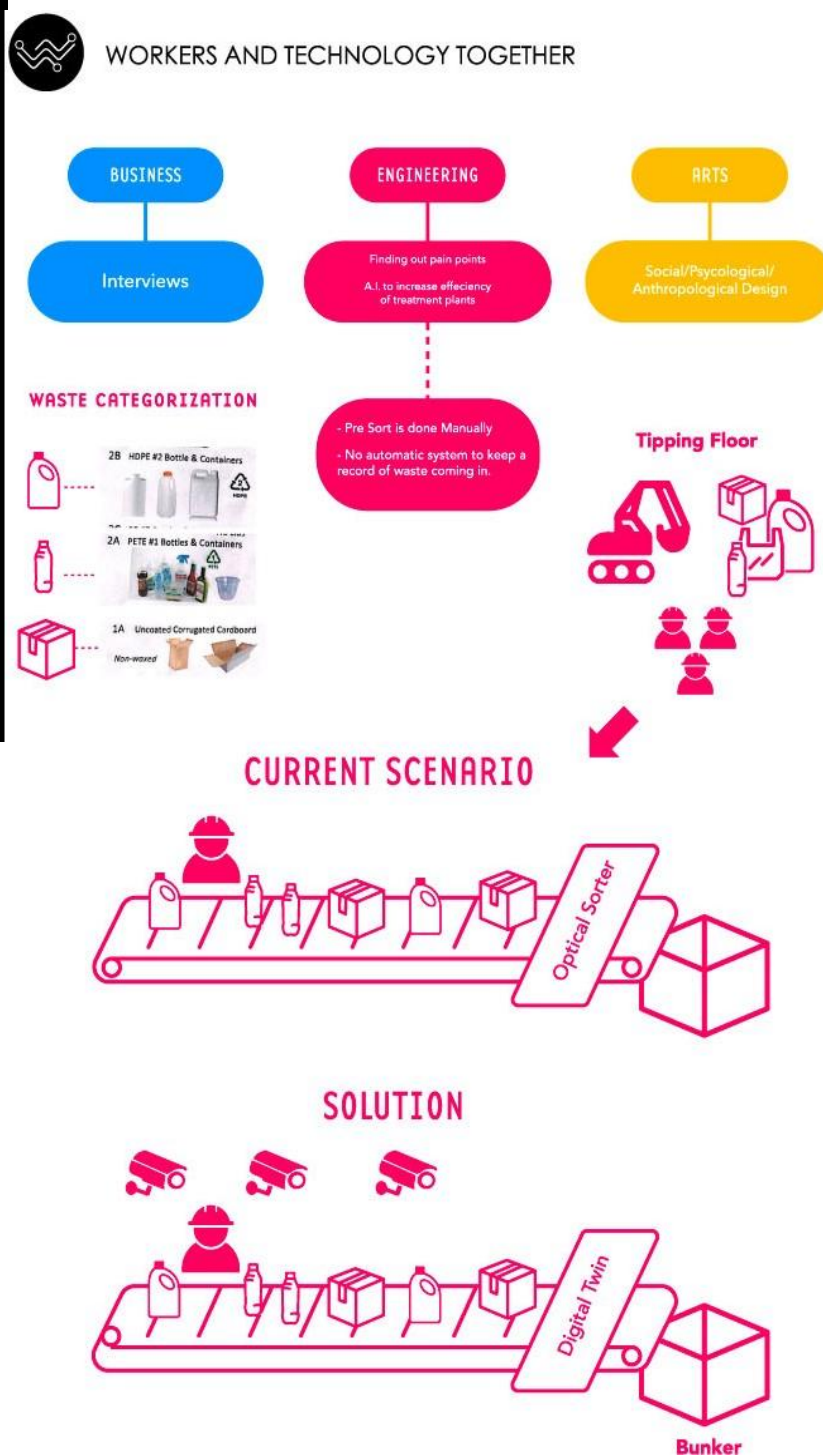# ARCS
AUTONOMY RESEARCH CENTER FOR STEAHM

Workers And Technology Together (WATT)

Research Team
➔ **Fellows:** Mitesh Sawant, David Bell, Jianhao Zhu, Nitya Kumari, Fahima Arif, Keiana Samoy
➔ **Lead Researchers:** Dr. Nhut Ho, Dr. Bingbing Li, Dr. Eugene Tseng, Dr. Farshad Ghodoosi, Professor Joe Bautista, Dr. Monica Sharif
➔ **Collaborators:** Los Angeles Local Enforcement Agency, Waste Management, Anaergia, Athens, National Science Foundation

Research Objective
WATT is creating an autonomous assistant to assist workers, owners, and operators in the organic waste processing industry. The objective is to implement automation technology and up/re-skill workers to work alongside the digital twin.

WORKERS AND TECHNOLOGY TOGETHER

BUSINESS — Interviews

ENGINEERING — Finding out pain points / A.I. to increase efficiency of treatment plants

ARTS — Social/Psycological/Anthropological Design

WASTE CATEGORIZATION
- 2B HDPE #2 Bottle & Containers
- 2A PETE #1 Bottles & Containers
- 1A Uncoated Corrugated Cardboard / Non-waxed

- Pre Sort is done Manually
- No automatic system to keep a record of waste coming in.

Tipping Floor

CURRENT SCENARIO

Optical Sorter

SOLUTION

Digital Twin

Bunker

Research Approach
➔ Create a digital twin and and train AI for object detection
➔ Develop a concept of operations based on IPT and IPD methodology
➔ Produce differentiation model based on local operational context, to determine worker responsibilities, automated tasks, etc.
➔ Plan a training program for on-the-ground workers to effectively leverage automation technology

CSUN

ARCS Autonomy Research Center for STEAHM