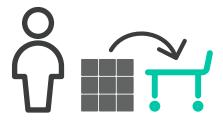
## Lineside Delivery

Modern assembly lines will often receive kit-based, larger components delivered to the line as required. The goal of lineside delivery is improving efficiency and productivity by delivering the right parts to the right place at the right time.

Traditionally, kits are delivered by human labor (pushing carts, driving tuggers, etc.) or by Automatic Guided Vehicles (AGVs). These systems require large infrastructure investments and human resources to operate. OTTO Autonomous Mobile Robots (AMRs) enable the reallocation of Full Time Employees (FTEs) and lower upfront costs to implement.

### Workflow

- Dock or picking operators manually load totes onto a staging cart for OTTO to be picked up.
- Fleet Manager sends job to the OTTO and the robot navigates to designated lineside drop-
- OTTO remains with lineside operator as items are removed from staging cart.
- After parts have been removed OTTO, which is now empty, is released from the job.
- OTTO returns empty staging cart or picks up another cart to be replenished and deliver items to another location.



Operator manually loads staging cart for OTTO to pick up.



OTTO delivers payload to designated line side drop off location.

### What's Involved

- Lineside Operator (tending machines or a station)
- Robot operator/supervisor
- OTTO AMR with attachments
- Process Engineer



OTTO picks up another cart to be replenished and proceeds to the next job.



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# Lineside Delivery

### Pitfalls to traditional process

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Highly manual process can result in stress injuries from repeated movements.

Reliance on human drivers can result in accidents leading to injuries or damaged product.

Large up-front infrastructure investment in AGVs, tuggers, trains etc. with fixed routes do not allow for flexibility.

AMR implementation in manufacturing is generally driven by the need for cost savings, and the ROI is usually calculated through the reallocation of Full Time Equivalents (FTEs).

This chart highlights the other opportunities for costs savings and additional value that can be gained when AMRs are deployed.

### Value gained with OTTO



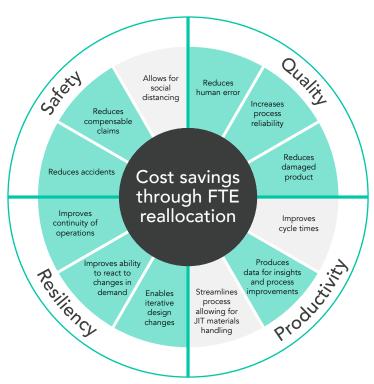
OTTO can help reduce repeated stress injuries by eliminating the need for humans to transport materials.



OTTO can help reduce accidents due to strict safety standards and by reducing the need for human drivers.



OTTO Fleet Manager allows for flexibility in workflow due to easy adjustments in routes, and metric tracking that helps ensure more predictable outputs.



## How do I know if this workflow is right for me?

- Using tuggers or AGVs to deliver kitted materials to workers lineside.
- Stable, well balanced payloads up to 1500kgs (3307lbs) on each pallet or in bins or totes.
- Single floor operation with distinguishing features for localization.
- Seeking flexibility to reconfigure lines or routes.



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