



MARKAS challenge

Consumables optimization

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Consumables are costs directly linked to the individual order.

To optimize them there are two main strategies:

- reduce waste, optimize the use and duration of consumables for each order
- implement economies of scale related to purchasing

In both cases the goal is to achieve a **predictable usage of consumable material.**

Borrowing ideas

Is there any another industry that has solved the **consumables optimization** challenge?

Can we learn from others and adapt their solutions to our own needs?

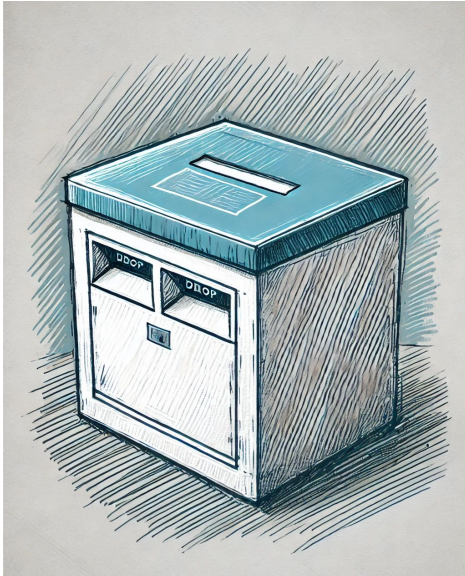
Our proposal relies on two pillars

1. Vending machines - for items pick up



- Link between operator and consumable (via badge + passive RFID)
- Creation of a box / package of a mix of consumable, e.g. mops, gloves and detergent in specified quantity, which leads to **constrained and predictable usage**
- **Predictable refill strategy**: you know when you are running low in consumables
- **Increased safety**, since consumables (flammable or others) are physically separated from each other and are fully used (no half used bottles of flammable left open or whatsoever)
- Business Intelligence for **performance improvement** (e.g. consumable usage *for square meter in a specific time*)

2. RFID reading boxes - for items drop



- Link between operator and consumable (via badge + passive RFID)
- Increased safety and recycling: consumables of different types can be physically separated. 🌱
- Accountability: data can be analyzed to identify stolen or lost items.

The process for accountability

1

The vending machine is filled with consumables, either stand alone or in packages suited for a specific task.

2

The operator collects consumable(s) from the vending machine using its badge. From this moment, the consumable(s) are tied to the operator until they are returned.

3

The operator returns the consumable(s) in the drop box. From that moment those are unlinked from him.

Solution benefits

- **Accountability:** increased responsibility and attention of the operator in relation to loss or stolen items
- **Safety:** inflammable or other way dangerous object can be stored physically separated
- **Cost saving and optimization:** reduced waste, optimized usage and duration of consumables. Informed decisions on resource allocation
- **Performance analysis:** through business intelligence data, it is possible to spot inefficiencies or optimization paths, comparing different scenarios.
- **Portability:** if a contract ceases or is not renewed, vending machines and drop boxes can be moved to the next customer
- **Scalability:** having different vending machines and drop box sizes can fit different customer dimensions and requirements
- **Seamless experience:** this process can be used for big customers but also for services that start from HQ: vending machines and drop boxes can be installed also there or in branch offices

Per unit costs

Vending machine price	~ 8.000,00 EUR	CAPEX
RFID drop box price	~ 1.500,00 EUR	CAPEX
Industry 4.0 / 5.0	40% tax credit	
SUBTOTAL	~ 5.700,00 EUR	7 years amortization
Total recurring costs for 7 years (energy, repair, ..)	~ 5.600,00 EUR	OPEX
TCO 7 years	~ 11.300,00 EUR	balanced mix

At the current rate of ~3k of losses due to stolen or lost consumables, if successful the investment pays itself in ~3 years
This break even calculation does not take into account benefits related to cost saving, optimization and overall service improvement.

Thank you

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