Pickdelso

Picking and delivery solutions

Takeout wall grocery

Implementation example

www.pickdelso.com

3.9.2018

What is it?

- Takeout wall grocery = a dark store + Takeout wall
- Dark store operates as a picking site of grocery products
  (A dark store is intended only for pickers who pick the products ordered)
- Grocery products are placed in carts inside Takeout wall
- Takeout wall locates besides the dark store, thus no (road) transportation is needed
- Takeout wall grocery saves customers' time and can serve customers 24 h
- Takeout wall grocery is usable as a click & collect service

Where to place it?

- When a district comprises a number of local groceries some of them can be replaced with Takeout wall grocery
  (Local grocery is modified to the dark store)
- Sites where a great number of people visit almost daily are appropriate locations for Takeout wall grocery
- Location examples: metro stations, bus stations, and other urban areas where customers visit by walking
- A customer can collect shopping from Takeout wall grocery when travelling from workplace to home

Implementation tips

- Large product range causes in the man-to-goods picking method that picking cycles are long and time-consuming
- Thus, the product range should be relative small (2000 – 3000 products) to keep picking cycles short enough
- A customer is expected to buy 1-2 bags of grocery products and carry the bags (to home)
- Takeout wall grocery can serve a greater number of customers when an average shopping includes 1-2 bags instead of, for example, 4-5 bags

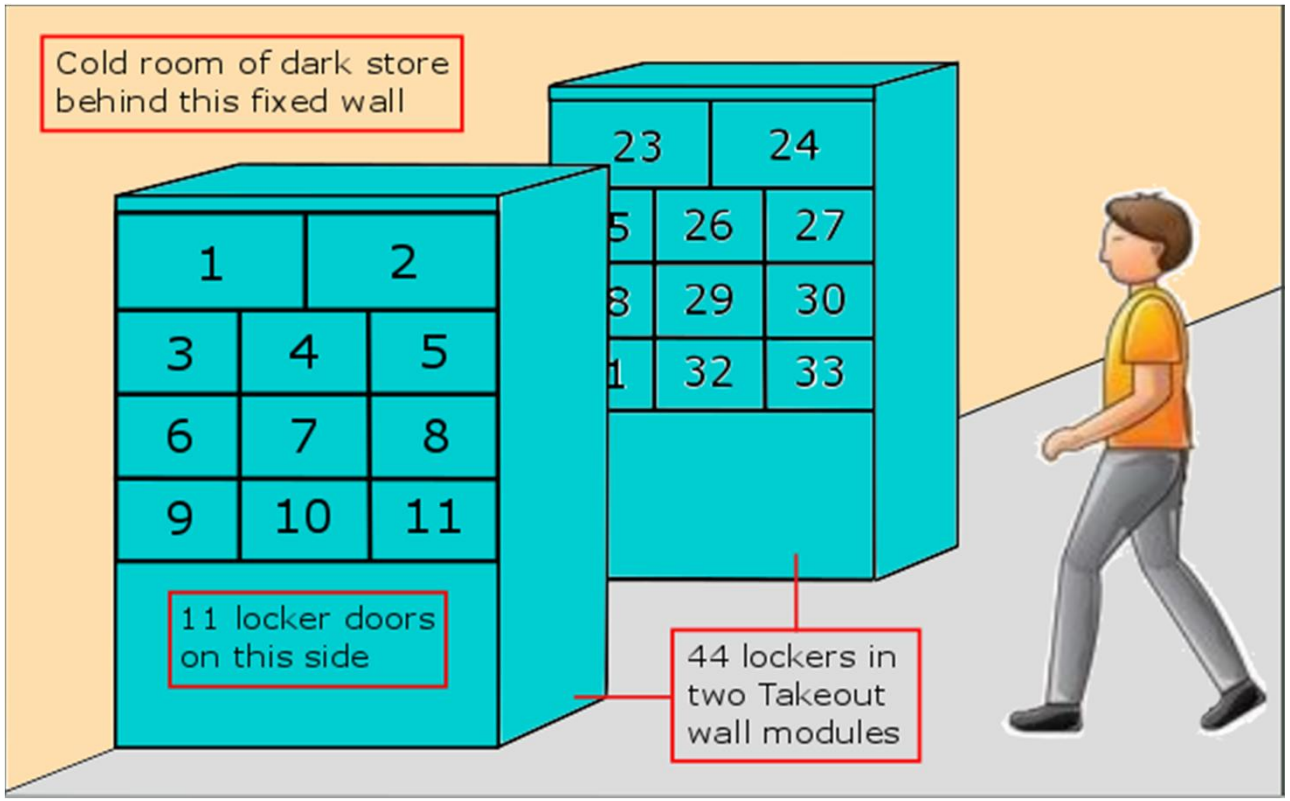
Click phase

- Customer uses a click & collect service
- Customer sees in the service a table in which available collect periods are marked with green color
- Those collect periods, which are passed or fully booked, are marked with pink color:
- After selecting an approriate collect period the customer select products

From morning to afternoon	Rush hours	From evening to morning
07 – 11	15 – 16	19 – 23
11 – 15	16 – 17	23 – 07
	17 – 18	
	18 – 19	

Collect phase

- Customer see, for example, two Takeout wall modules when coming to collect the products



Collect periods

- Day (24 h) is divided into altogether eight collect periods from which a customer can select
- Usually, the customer must make an order few hours before the customer's collect period starts
- Picking cycles are organized according to the collect periods:

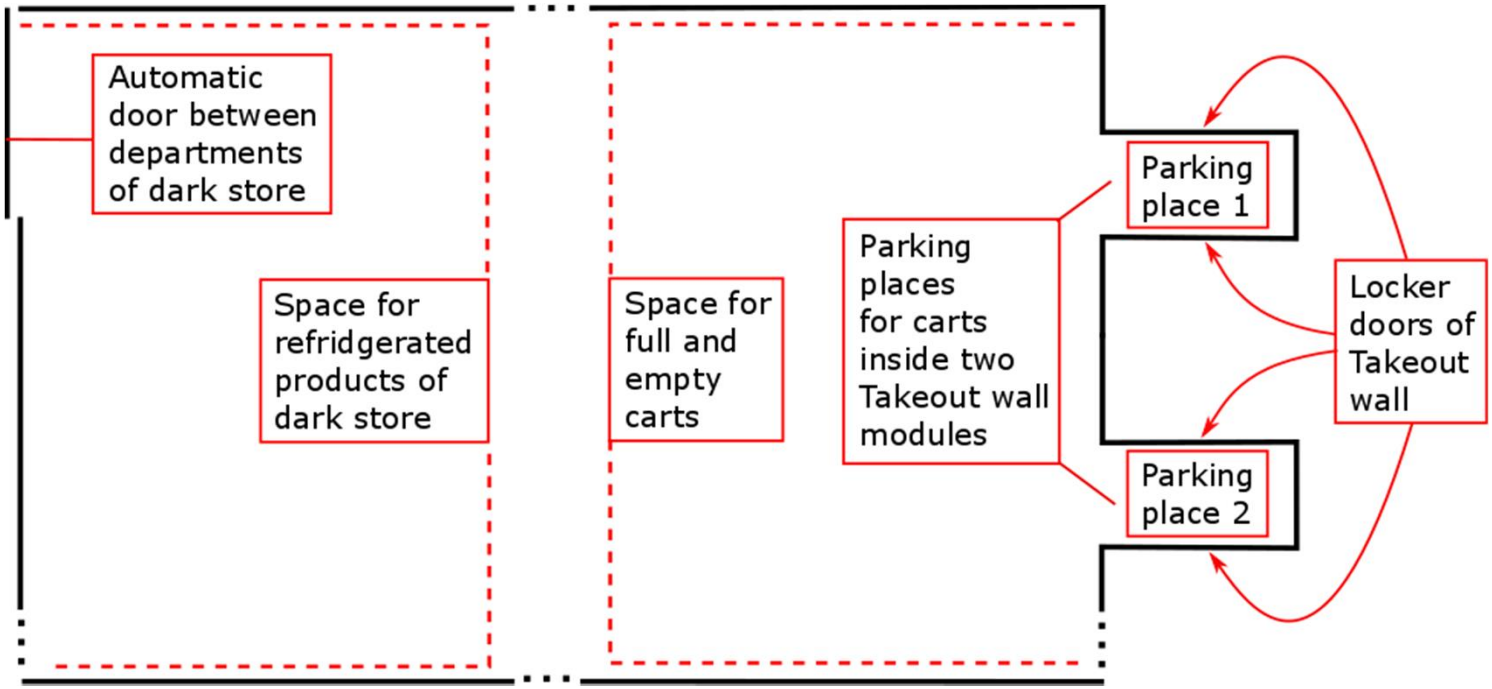
From morning to afternoon	Rush hours	From evening to morning
07 – 11	15 – 16	19 – 23
11 – 15	16 – 17	23 – 07
	17 – 18	
	18 – 19	

Picking cycle

- Within each picking cycle a picker moves a cart on aisles of the dark store and picks products into the cart
- Batch picking makes the picking of products efficient (Batch picking also known as multi-order picking.)
- Dry goods and frozen food locate at a room-temperature department of the dark store
- Frozen food is picked from freezers
- A cold room is intended for refridgerated products
- It functions as one department of the dark store
- Each picking cycle starts from the cold room and ends into the cold room

Cold room

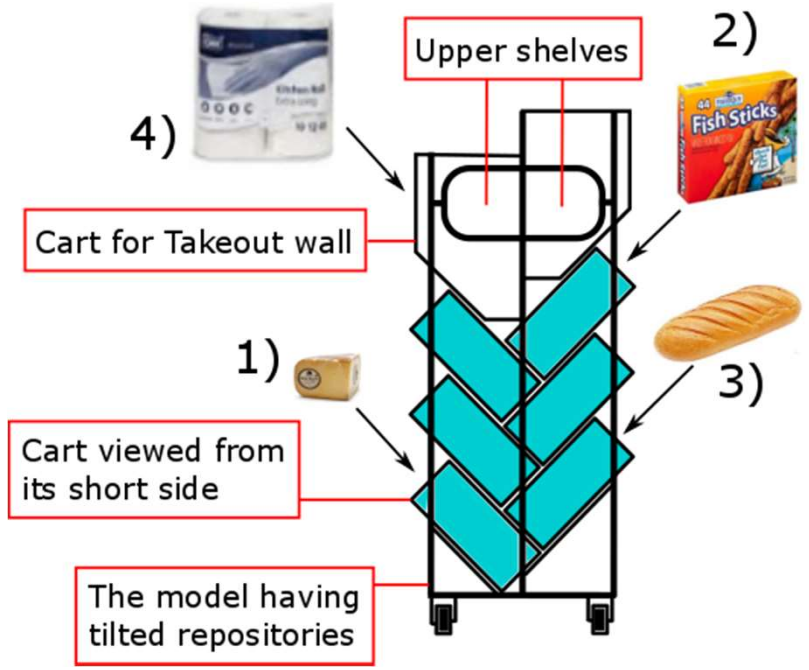
- Cold room and Takeout wall from a bird's perspective:



Use of cart

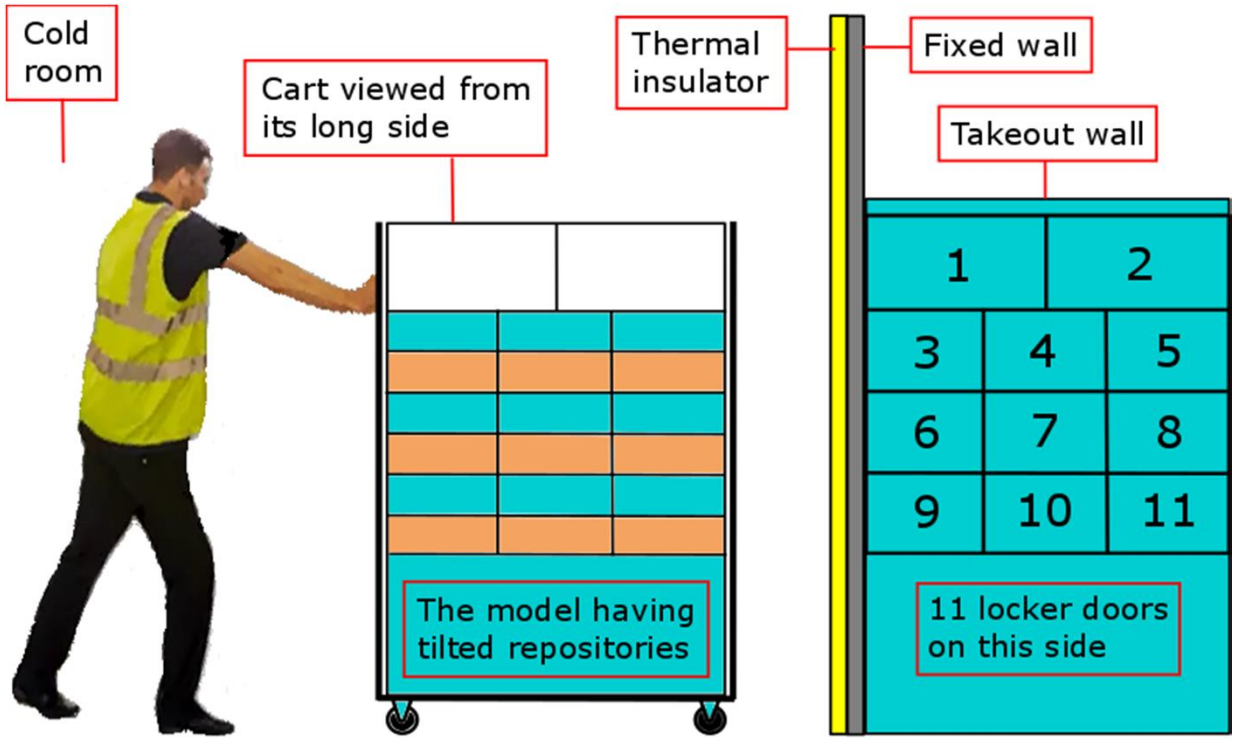
- Figure shows the cart from its short side
- First, 1) refridgerated products are picked into repositories
- Next: 2) frozen food and
  3) other small-sized goods
  are picked
- Finally, 4) large-sized dry goods are picked onto upper shelves of the cart

(The large-sized dry goods may block the picker's field of view, thus they are picked last.)



Picking cycle ends

- Picker pushes a cart towards a parking place that locates inside Takeout wall module:



Additional carts

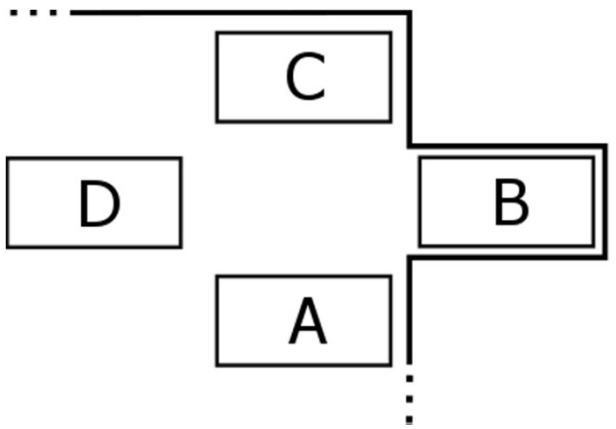
- It is reasonable to have more than two carts per module
- Additional carts are useful, for example, in buffering, which means that products are picked a good time (a number of hours) before the delivery (Buffering increases possibilities to time-schedule picking work.)
- Overflow means lack of capasity in Takeout wall
- Instead of Takeout wall, carts can be parked in the cold room, thus the additional carts are useful in case of overflow
- The third use case for the additional carts concerns a delay of customer
- The use cases are described in detail in the following

Buffering

- Figure shows four carts A – D from a bird's perspective
- There are two additional carts (A and C) per a parking place
- Carts have been used in the following order: A, B, C, and D
- Cart D is arriving from a picking cycle
- Cart A is empty and cart B is empty, if the all customers have collected their shopping
- Cart C operates as a buffer,

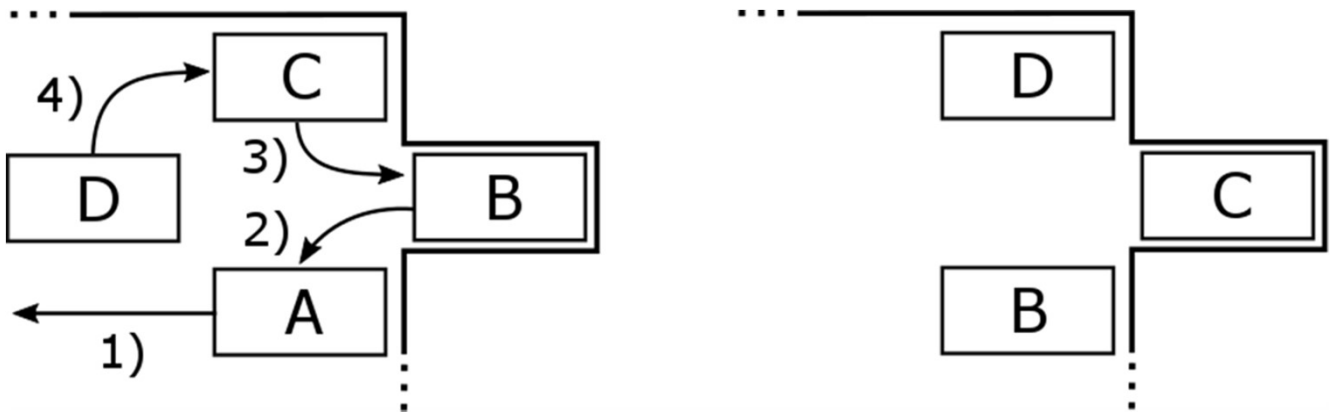
  i.e. it replaces cart B in

  Takeout wall before cart D



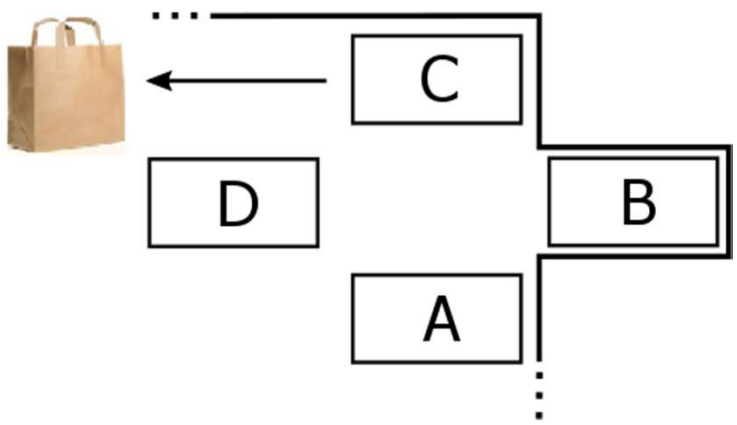
Changing of carts

- Changing of carts is performed because of the buffering
- Figure on the left shows places of carts A – D and place changes 1) – 4) when a collect period is ended
- Figure on the right shows new places of carts B – D after the place changes (Cart A is use in a picking cycle.)



Overflow

- Assuming that Takeout wall has a lack of capacity within some collect period, there is an overflow and cart C is an additional cart that is reserved for said collect period
- A customer is informed about the overflow in a click & collect service (thus the customer knows that Takeout wall is not available this time)
- When the customer arrives to Takeout wall grocery he pushes a call buttom to call a picker
- The picker fetches the customer's shopping from cart C and gives it to the customer



Delay of customer

- In this use case a customer hasn't collected his shopping within the collect period just ended
- If the customer arrives to Takeout wall grocery within the next collect period, the customer will obtain the shopping by using the call buttom
- Shopping are kept in cart A until the next collect period ends
- After that the shopping are returned to the dark store