

Profitability analysis

For Takeout wall grocery

www.pickdelso.com

3.9.2018

Introduction

- Profitability analysis is based on a capacity calculation for Takeout wall grocery
- The following two assumptions in the capacity calculation concern all implementations
- **Assumption 1:** picking of grocery products is performed in the dark store included in Takeout wall grocery
- **Assumption 2:** Takeout wall is located besides the dark store
- Assumptions 3 – 8 specify one possible implementation for Takeout wall grocery and the capacity can be affected by changing assumptions 3 – 8

Cart capacity

- Maximum capacity of a cart is, for example, 500 litres
- The cart capacity is 22 bags such that each bag includes at most 22 litres on products (22×22 litres= 284 litres)
- **Assumption 3:** frozen food can be stored in Takeout wall
- Frozen food of each customer is placed with a gel ice pack into a cool bag (The cool bag fits into a repository of Takeout wall.)
- Cart contains unused space, if a repository includes only one small-sized food product
- **Assumption 4:** the cart capacity is on average 20 bags

Number of bags in day

- **Assumption 5:** the dark store corresponds to a conventional grocery whose net sales is 2.5 million €
(A conventional grocery is such where customers pick their shopping)
- **Assumption 6:** one bag includes at most 22 litres of shoppings and costs on average 22€
- 2.5 million € net sales means that 113636 bags of grocery products are sold per year $(2500000\text{€}/22\text{€} = 113636)$
- **Assumption 7:** Takeout wall is usable 24 hours in every day
- On average 311 bags of grocery products are delivered by Takeout wall in every day $(113636/365 = 311)$

Collect periods

- The last assumption for the capacity calculation concerns the number of collect periods per day
- **Assumption 8:** day (24 hours) is divided into eight collect periods in the following manner:

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	

Day capacity of Takeout wall

- Net sales per day is on average 311 bags of products, as formerly calculated
- Cart capacity is 20 bags, thus the amount of 16 carts of products is sold per day ($311/20 \approx 16$)
- Delivery of 311 bags requires that 16 carts are placed in Takeout wall per day
- There are *eight* time windows per day, thus it's enough that simultaneously *two* carts are placed in Takeout wall ($8 \times 2 = 16$)
- The day capacity of Takeout wall is $8 \times 2 \times 20 = \underline{320}$ bags

Number of pickers

- The next step is to calculate how many pickers are needed to pick 320 bags of products per day
- **Assumption 9:** one picker can pick one bag of grocery products on average in six minutes (which means 10 bags in hour)
- Picker must occasionally rest, thus the picker probably picks 8–9 bags per hour
- **Assumption 10:** the picking capacity of one picker is about 60 bags within a seven-hours workday
- 5.5 pickers can pick 320 bags of products per day (5.5 × 60 = 330)

Comparison

- A conventional grocery has fulltime workers and part-timers
- **Assumption 11:** the conventional grocery needs 6.5 workers
(when the number of workers is estimated as fulltime workers)
- **Assumption 12:** one of said 6.5 workers is a manager, one works in the storage, two are replenishment workers, and 2.5 are cashiers (Replenishment workers place products in shelves.)
- **Assumption 13:** in Takeout wall grocery one worker is a manager, one works in the storage, and 5.5 workers are pickers (In Takeout wall grocery the storage and the dark store are basically the same space.)
- Takeout wall grocery needs 7.5 workers

Service fee

- Because Takeout wall grocery needs one worker more than the conventional grocery, a service fee should compensate the salary cost difference
- **Assumption 14:** a customer buys from Takeout wall grocery on average 1.5 bags of products.
- If the service fee is 1€ per order, the 311 bags of products per day means 207 € income (311 / 1.5 = 207)
- **Assumption 15:** the picker cost is 3000€ per month and 143€ per day (The picker cost includes a salary, employer payments etc.)
- 1€ service fee compensates the salary cost difference (between the conventional grocery and Takout wall grocery)

Conclusion

- When comparing Takeout wall grocery to the conventional grocery, and the both having 2.5 million € net sales, Takeout wall grocery needs one employee more
- Thus, a service fee is needed to make Takeout wall grocery at least as profitable as the conventional grocery
- Investment costs include at least the price of Takeout wall
- If the service fee is 2–3 € per order, it means 151000 – 227000 € income per year (365 day/year × 207 order/day × 2€/order ≈ 151000€/year)
- 2–3 € service fee probably covers the investment costs and it's not too high for most customers