Product Domain: Vision and Scope

- Takeoff helps Retailers* to fulfil e-commerce orders fast and efficient
- We provide automation for orders picking and dispatch processes
- Our solution enables to fulfil online order 10x times faster than manual in-store picking. Up to 1500 orders a day can be processed by one automated site

** Retailer names masked due to the copyright limitations*

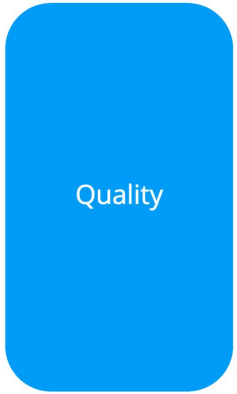
*** This deck was compiled after Andrii has left the company and is not the part of any working documentation, it is used solely for portfolio purposes*

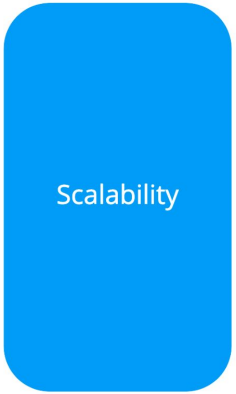
Product growth strategy

Core features raise productivity of the Retailer's warehouse and staff - more orders are processed with less resources

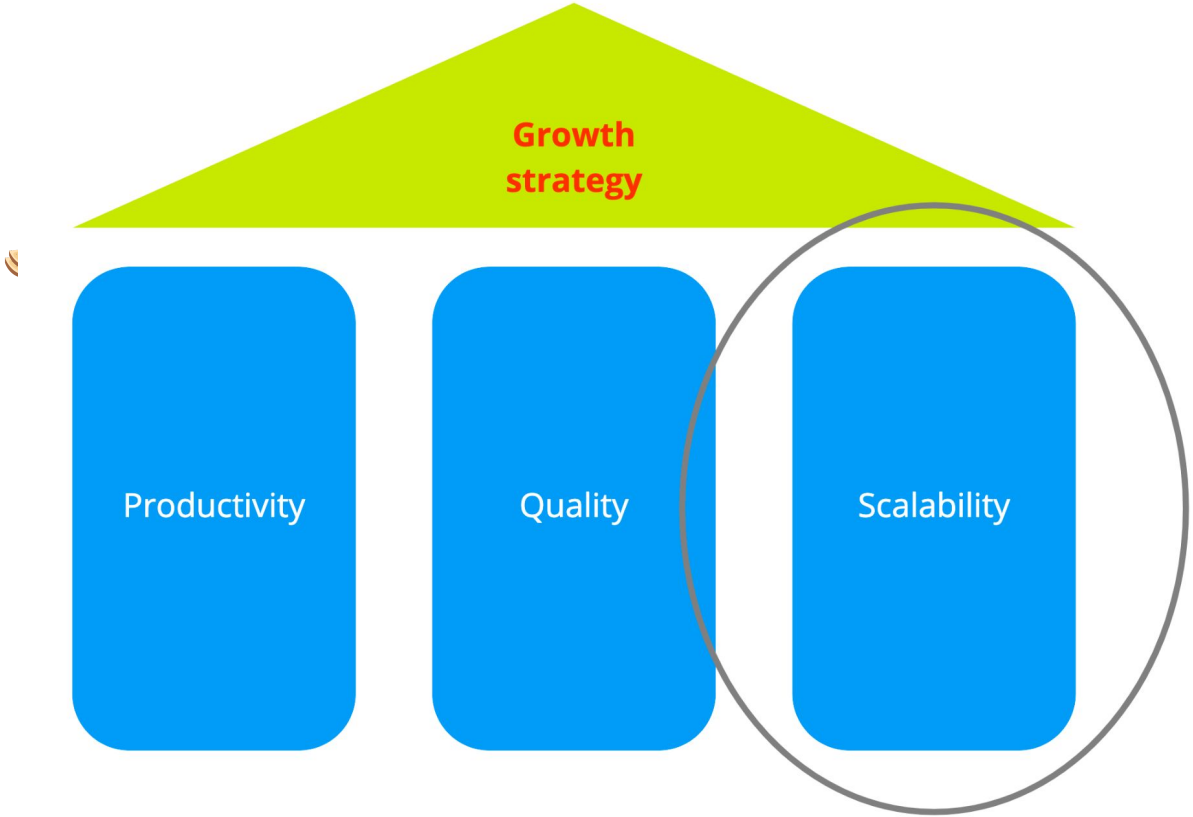
Retailers rely on us, so we must have exceptional service to facilitate them using our product at other sites

We must be ready to sell more sites





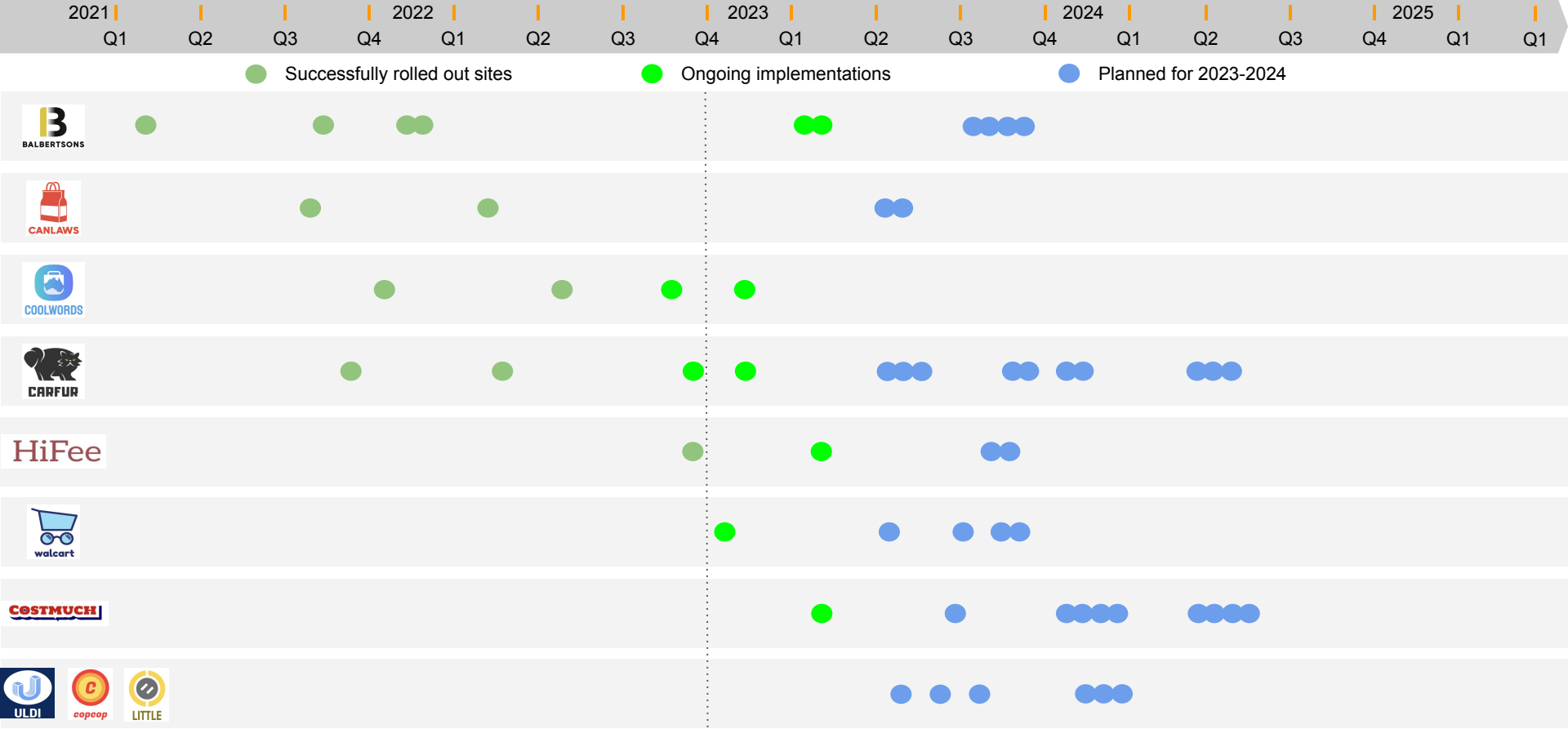
Domain Product Vision



- Orders per day
- UPH
- UPLH
- Stock turnover rate

- # incidents
- Site availability %
- Engineers LH (support)
- Escaped bugs

- Time to setup new Retailer
- Time to setup new Site for Retailer
- Engineers LH (new sites)
- Non-engineers LH (new sites)

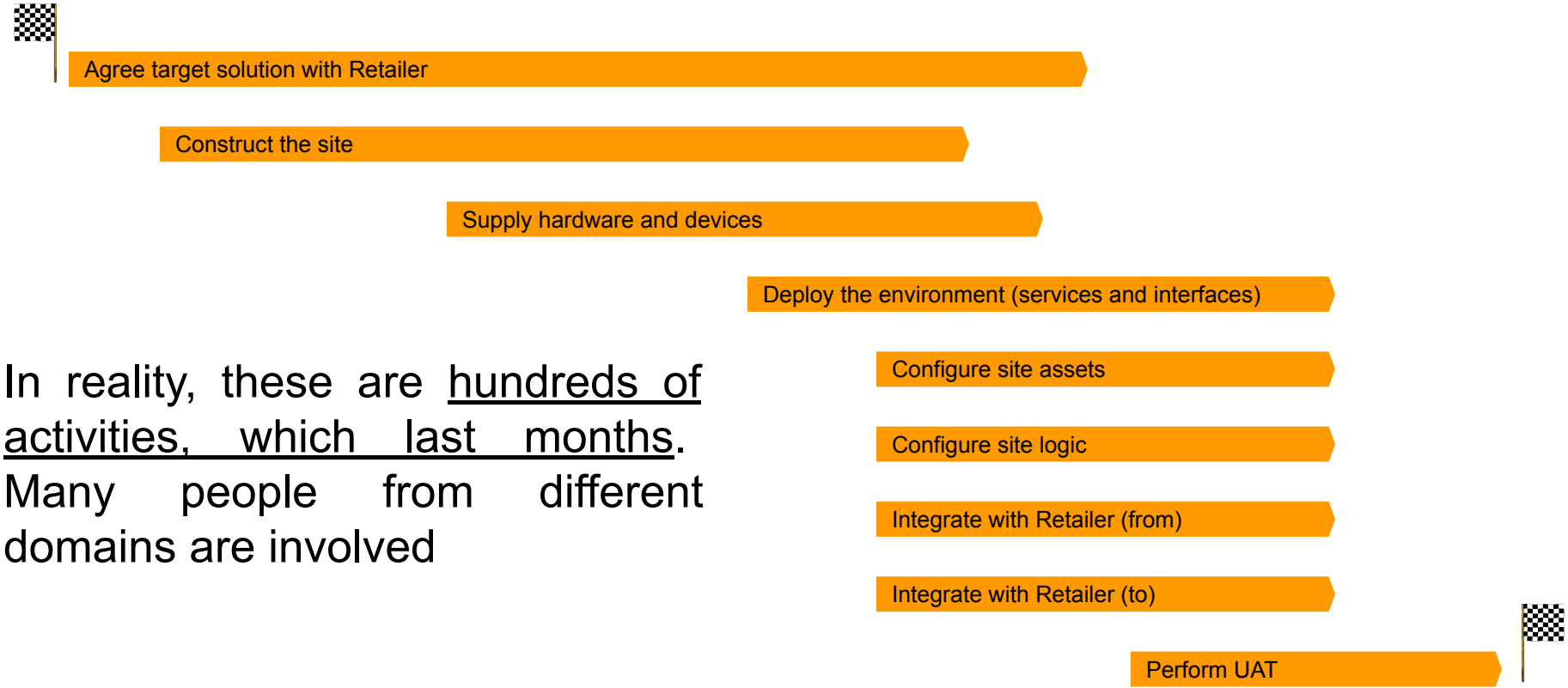


We opened <u>11 sites for 5 retailers</u> in two years,
9 sites are now in-progress

We plan <u>35 new sites and minimum 5 more retailers</u>
within the next two years

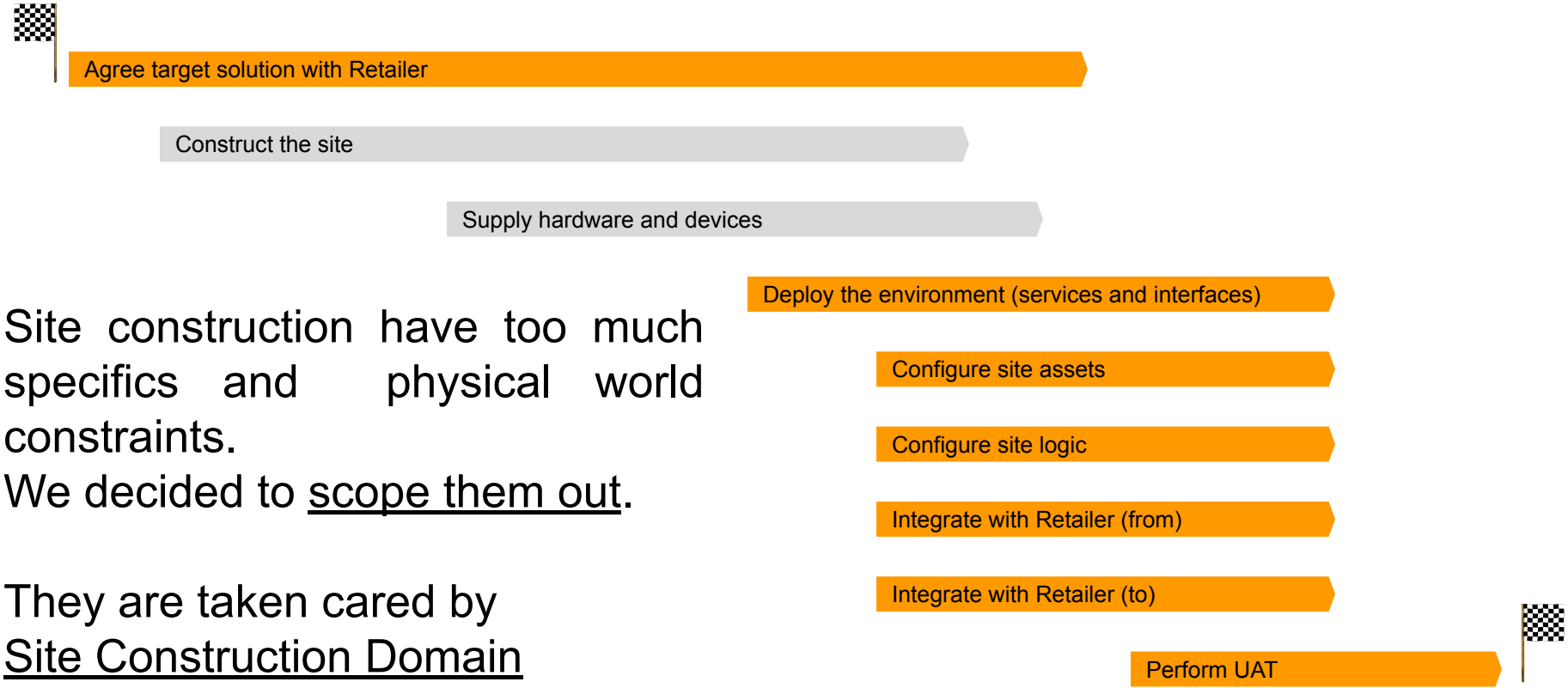
We scale fast!  **<u>Can we afford it?</u>**

What it takes to rollout first Site for a new Retailer? High-level plan



In reality, these are hundreds of activities, which last months. Many people from different domains are involved

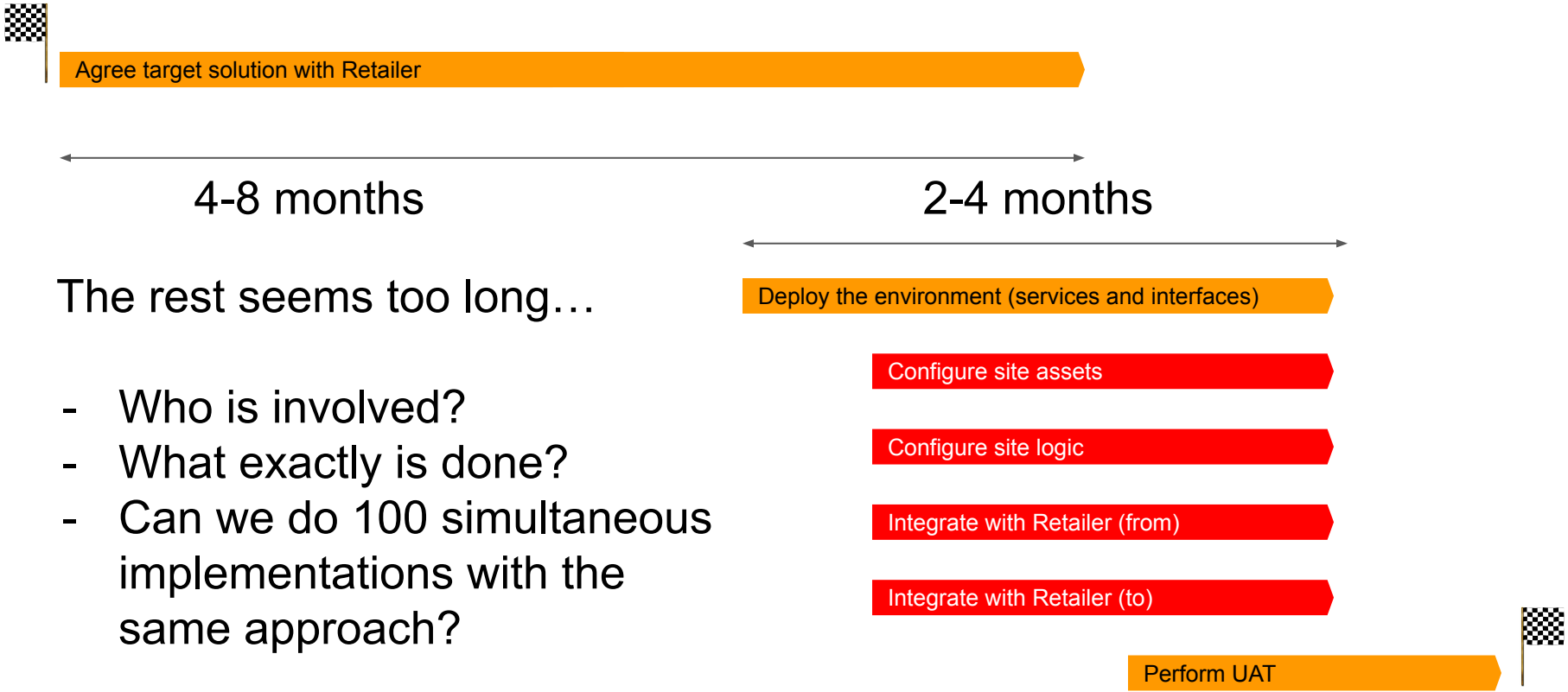
What it takes to rollout first Site for a new Retailer? High-level plan



Site construction have too much specifics and physical world constraints.
We decided to scope them out.

They are taken cared by
Site Construction Domain
(PM: James Connor)

What it takes to rollout first Site for a new Retailer? High-level plan



The rest seems too long…

- Who is involved?
- What exactly is done?
- Can we do 100 simultaneous implementations with the same approach?

Our stakeholders are those, who involved in implementation of new retailers and sites

Takeoff employees	Core teams engineers	Requirements discussion / customer calls Manual code customization Redeployment of services Manual end-to-end testing Manual files validation Configuration of access funnels with clients
	Core teams product people	Detailed product presentation Requirements gathering and adaptation
	Operations teams	Project management Client team support UAT testing
	Site engineers	Devices configuration and testing Purchase and supply
	L3 support	Issues resolution Click-ops (manual configuration)
Retailer employees	Site managers	Provisioning of detailed data and instructions on how the site operates Product testing and acceptance
	IT and operations	Integration of internal systems to Takeoff

Domain Scope includes processes Takeoff does to setup and configure new sites

Configure site assets

Assets are devices, tools and business entities.
Product requires initialization of such things, so that they can be used by its logic.

Example:
- Zebra picking device
- Storage shelf
- User record…

Configure site logic

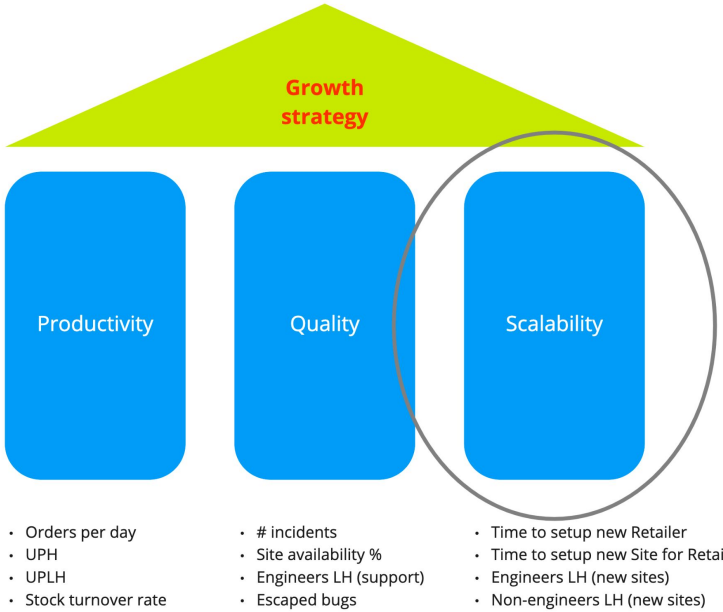
Business configurations, rules, constraints, everything we set in the product, which influences system logic

Example:
- Product barcode format, so that during the scanning, reader-device can understand it actually scans a product and not a shelf label

Integrate with Retailer's systems

How our product communicates with Retailer's systems:
- Input data flows
- Output data flows

Example:
- How do we obtain list of products from Retailer? (interface, data format, processing logic, validation rules, etc)



Our Domain's Vision

Make the product scalable, so that

Takeoff can onboard 10s of new Retailers and 100s of new sites annually

How do we define the problem and scope?

1. Work with stakeholders

Shadowing	Domain engineers were actively involved in new sites implementation, so that they can “feel the pain”
Questionnaires	What are the process steps? How long does it take? What tools do you use? Send us the template. What’s the input-output? What’s the variability from site to site? Can anybody else except you do this activity?...
Tickets	“No ticket - no work”. We facilitated all domains to use special labeling in tickets, so we can track assignees / their efforts / ticket lead time / etc

2. Define detailed processes

Configure site assets	Configure site logic	Integrate with Retailer
Wifi and network	Orders fulfilment rules	Products (get)
Users and permissions	Picking sequence rules	Order statuses (send)
Manual shelves area	Products storage rules	Orders (get)
Totes	Max weight rules	Sales (get)
Picking devices	Barcode scanning rules	Purchase orders (get)
Picking stations	...	Purchase orders (send)
Decanting stations		Inventory movements (send)
Open shuttles (AMR)		Delivery routes (get)
Dispatch lanes		Stock balance (send)
Printers		…
Staging locations		
...		

example

3. Get details about every activity

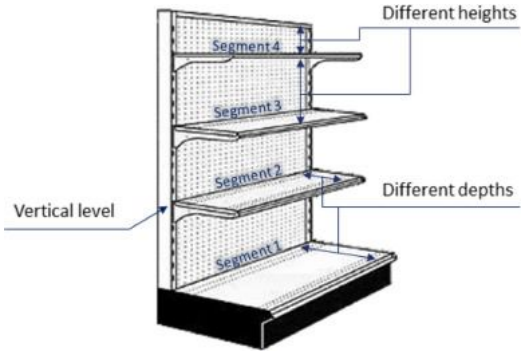
Configure site assets

example

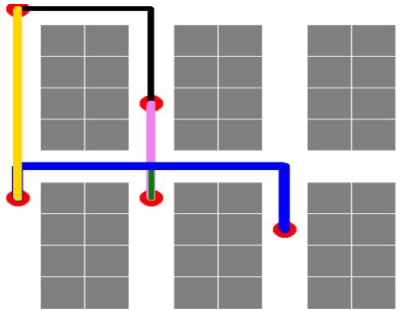
Manual shelves area

- Who is responsible?
- Where the requirements are captured?
- How frequently it is done? Do we update configuration after the site go-live?
- How data is captured by the system?
- Do we have an interface for that or it requires code change?
- Who has access? Can it be done by non-engineers? By Retailer's staff?
- Do we have audit track?
- …
- How stakeholders would like to do this activity?

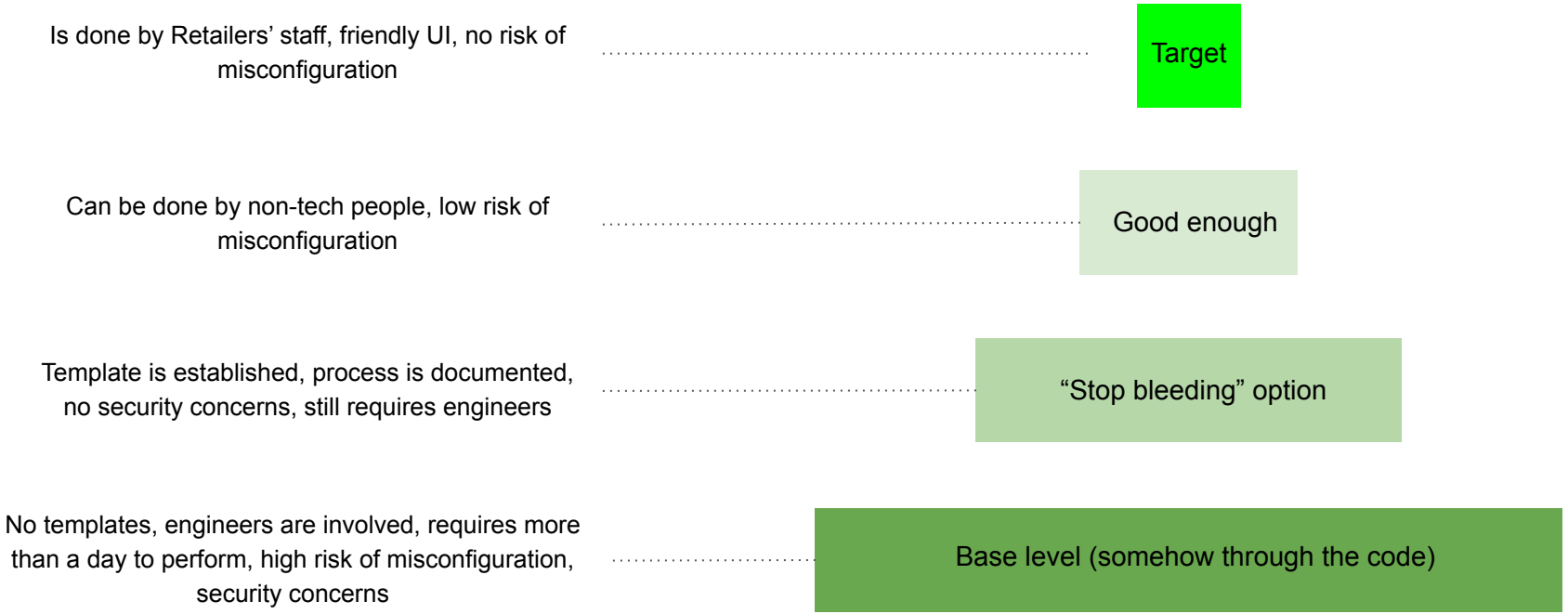
Shelf dimensions



Picking path



4. Choose next maturity model - quick fix or substantial UI feature



5. Estimate the cost with engineers

Some questions to discuss…

- Requires code refactoring? (change of the logic for core services, data model redesign)
- Requires new service or technology? (so we must go through PoC cycle first)
- Can we afford scrappy solution first to test the idea?
- Do we have security concerns?
- Do we have expertise? Who's better to implement the change (our domain or the "core service owners")
- Release requirements - can we simply go with the feature or we should do the full PoC lifecycle?

And the outcome is…

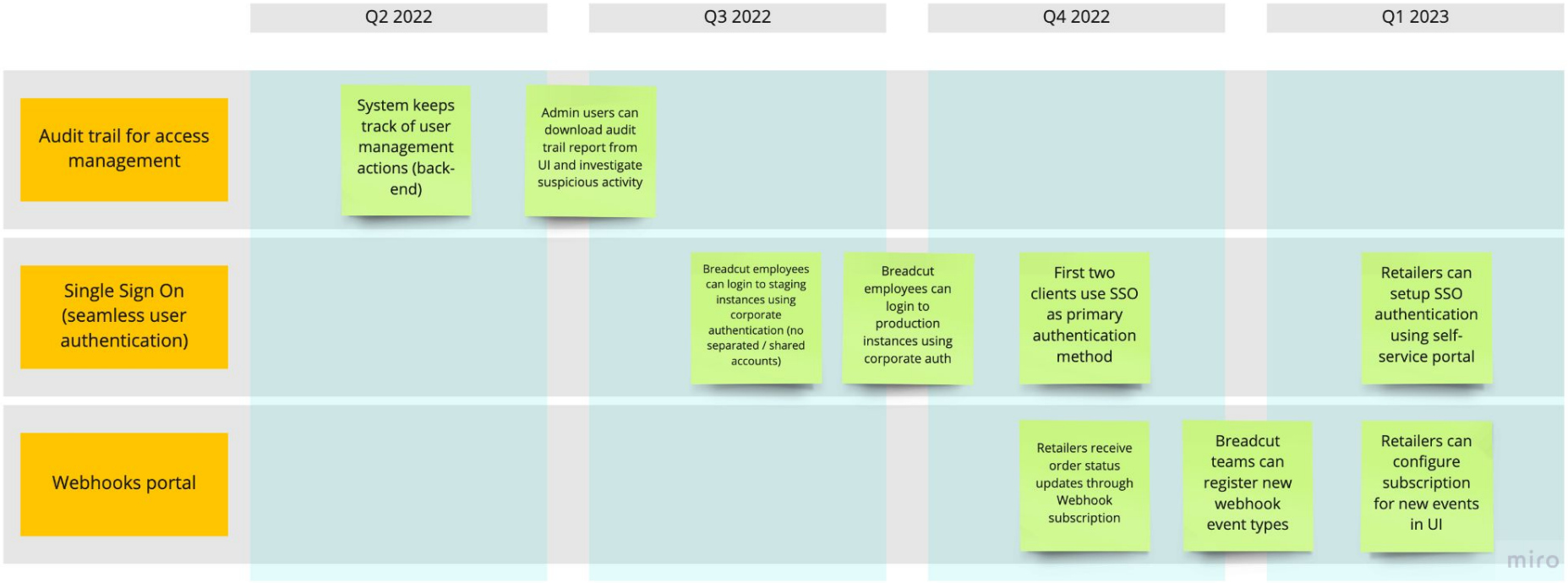
- How the process should look like in the next iteration
- T-shirt size of the solution

6. Assess the value based on the chosen solution variant

Value indicators examples

- Time to setup new Retailer
- Time to setup new Site for Retailer
- Engineers efforts for new sites configuration (labor-hours)
- Engineers efforts for new sites configuration (labor-hours)
- Number of support tickets
- Number of issues reported by Retailers caused by site misconfiguration
- Number of issues reported by Retailers caused by integration failures or logical corner cases
- Hard requirements stated by new clients (like, security concern - risk of losing the contract)

Product roadmap


Q2 2022
Q3 2022
Q4 2022
Q1 2023
Audit trail for access management
System keeps track of user management actions (back-end)
Admin users can download audit trail report from UI and investigate suspicious activity
Single Sign On (seamless user authentication)
Breadcut employees can login to staging instances using corporate authentication (no separated / shared accounts)
Breadcut employees can login to production instances using corporate auth
First two clients use SSO as primary authentication method
Retailers can setup SSO authentication using self-service portal
Webhooks portal
Retailers receive order status updates through Webhook subscription
Breadcut teams can register new webhook event types
Retailers can configure subscription for new events in UI
miro

Past quarter results

Configure site assets	Configure site logic	Integrate with Retailer
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Dispatch lanes		Stock balance (send)
Printers		...
Staging locations		
...		

Past quarter <u>we focused on security issues and user management processes</u>

- We've got ISO Cert. This standard requires SaaS providers to have proper access management policies and controls, which we lacked
- Tier1 client claimed audit trail as a hard requirement for future implementations
- Our support spends too much time managing users on behalf of the clients, we have seen cases, where client's staff couldn't get access to our system on the first day of their work
- We want to achieve the following:
  - Visibility of access management updates (security requirement)
  - Number of "please, create user" tickets (reduce from 30 per site/month to 0)
  - Speed of new user provisioning (from up to 2 days to 30 seconds to onboard new user)
  - Number of shared accounts (security requirement) -> 0
-

We want to **enable users "login with …" button, so they don't use separate passwords. It will require sufficient tech redesign of several services and new UI login page**

User management improvement initiative (last 2 quarters)

Metrics	Before	After
Visibility of access management updates (security requirement)	No track	Report about “who give access to whom” is available in UI
Number of “please, create user” tickets	±30 per month per site	±10 per month (we released SSO feature to 30% of sites so far, to be reduced in the next quarter)
Speed of new user provisioning	Up to 2 days (create ticket + create user + pass credentials to the user + user login)	Instantly (30 seconds new user is authenticated in Retailer’s Active Directory)
Number of “shared accounts (security requirement)	±50 shared accounts used by Takeoff employees ±10 shared accounts per site used by Retailer’s employees	No Takeoff’s shared accounts ±3 Retailer’s shared accounts (to be reduced further)

Next quarter focus

Configure site assets	Configure site logic	Integrate with Retailer
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Next quarter <u>we focus on processes which cover Takeoff -> Retailer integration</u>

- 2 out of 5 new retailers in the pipeline claimed Webhooks service as a hard requirement. They have internal systems, which are actively developing, so they need to be flexible and experiment with the flow of order status updates. With current architecture we can configure new push-messages in several days, it requires extra loops of collaboration and engineering involvement
- We plan to switch the rest of the clients to this progressive approach by the end of 2023
    - Saves us about 160 engineering LH a year per client for support
    - Reduces the risk of data loss (last year we had 4 cases of operations freeze due to Retailers lost Order Status Update messages and couldn't quickly re-try sending them)

We want to **create the self-service portal, where they can subscribe to any outgoing data and use it for their internal systems**, so this process will be fully outsourced on their side ("target option" according to maturity model)

How do we validate results with stakeholders?

Main progress driver looks looks like this:
We reduced time and efforts to setup new site, but still it requires sufficient resources

First site implementations for 3 different clients over the time

	BALBERTSONS	CARFUR	HiFee
Total time of implementation project	5 months	3.5 months	2 months
Engineers LH	1260	832 (**-34%**)	643 (**-49%**)
Engineers LH	2070	1139 (**-45%**)	766 (**-63%**)

Where do we get insights for validation?

Direct feetback:

- Demo + direct communications with stakeholders
- We produce “feature teasers”, one pager docs, and send them to our clients to see if they are interested. Before any implementation

Some useful tools:

- JIRA to track tickets reflecting the work done for sites implementation
- Heap a tool for UI user experience analysis, tracks user interaction
- Kibana + GCP logs to track system operations, API calls sequences, response time, errors, etc