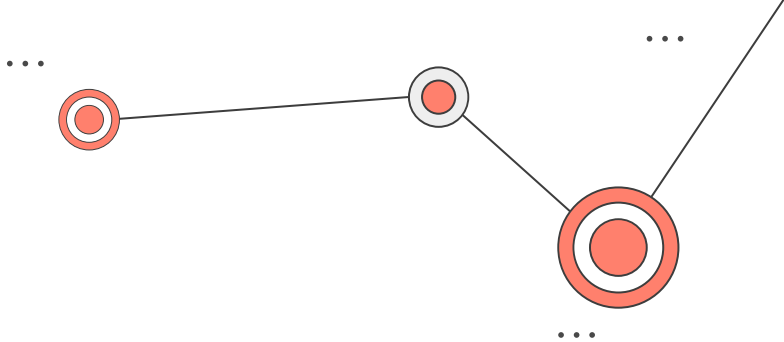

PROJECT ENABLER

Business Case

by Pablo Gómez

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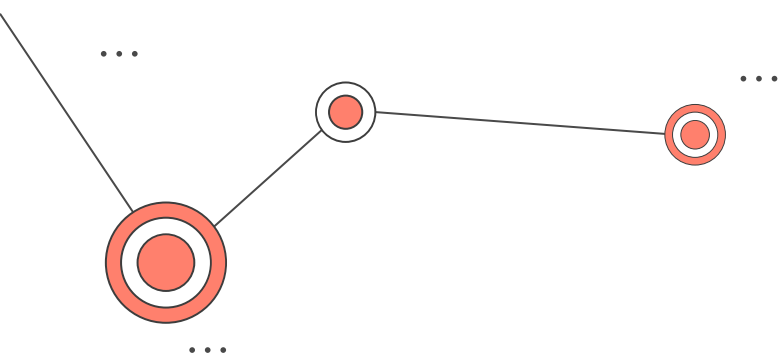
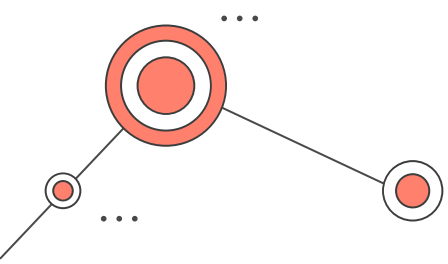


Context



Starting data

- Analyse of the provided info
- Description of the overall process

Context

MFC's SKU List

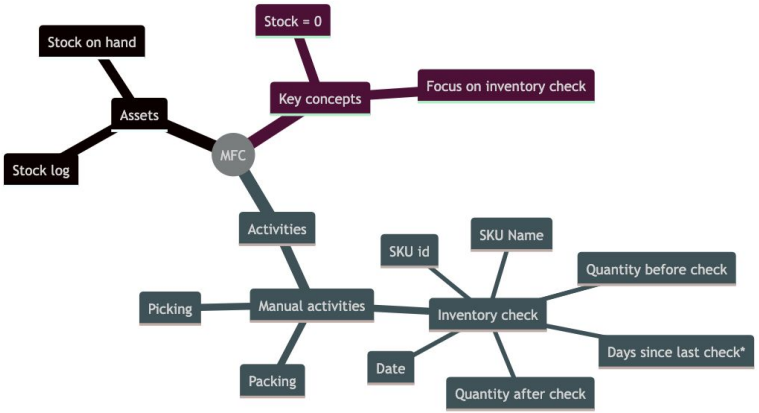
Current Stock
Movement stock ← *¡Inventory check updates it!*

Activities

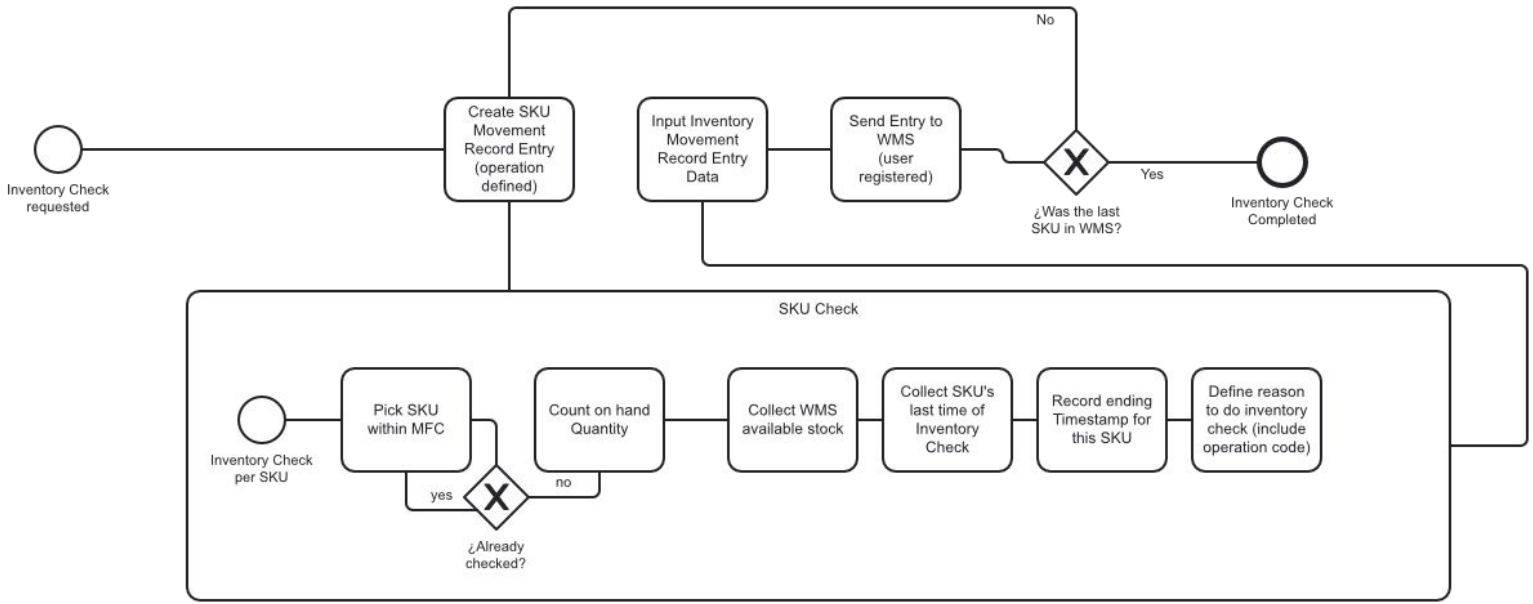
Picking & Packing
Inventory check ← *KPIs focus on this activity*

Constraints

Stock = 0 means not offered.
Focus on **inventory check**



Context – Inventory Check basic Process Model



Assumptions

- Data available
- Out of scope but relevant data.

No stock control

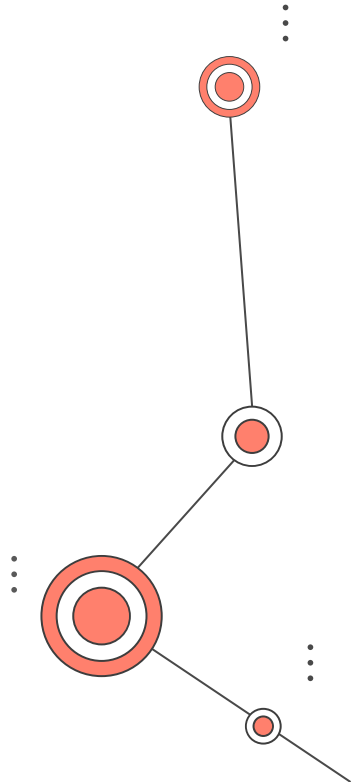
We focus only on “inventory check” activity

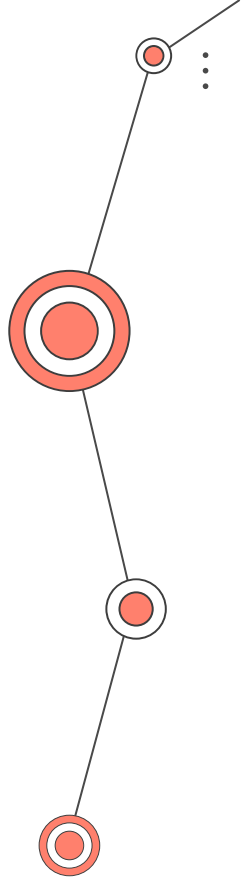
No access to complaints

We assume customers always complain and expect to receive their items (better late than never).

30 minutes

to check the first item.





FTE cost = €10/hr.

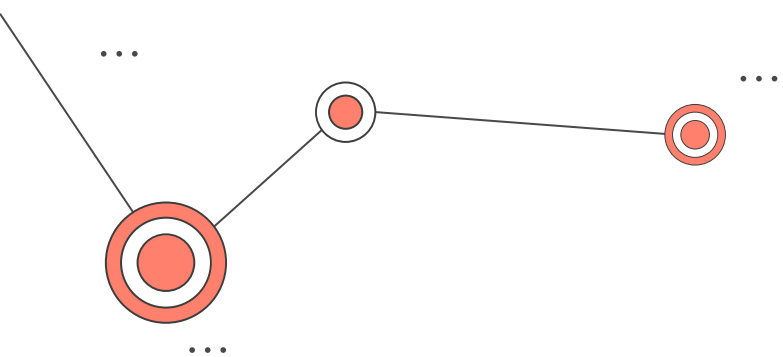
Everyone at our MFC's has the same wage.

~~Maverick check~~

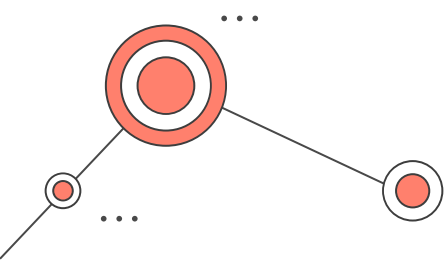
We assume employees do not do "surprise" checks.

€10 SKU worth

To make it easier to "catch value", all SKUs are worth €10.



Development



Main KPIs

- **# Inventory checks**
- **Time since inventory check**
- **Time to fulfil inventory check**
- **Stock deviation**
- **Rework**

¿How many times we have done inventory check?

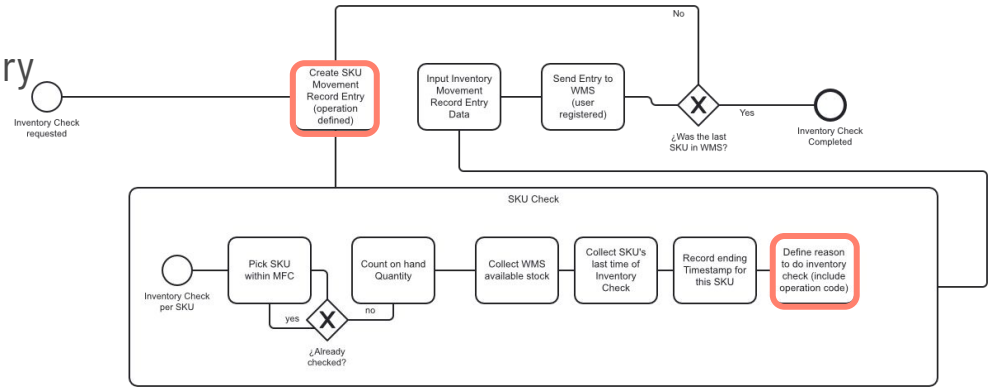
¡Not enough!

Inventory Checks

Knowing the number of inventory checks an MFC has done is crucial for accurate inventory tracking, correcting manual error, and regulatory compliance.

Understanding why we fulfil a check is also helpful to understand what we are doing:

- Complaints ⟶ Refund due to SKU not available.
- Business Rule / Compliance ⟶ Practice to control stock.
- ~~Maverick Checking~~



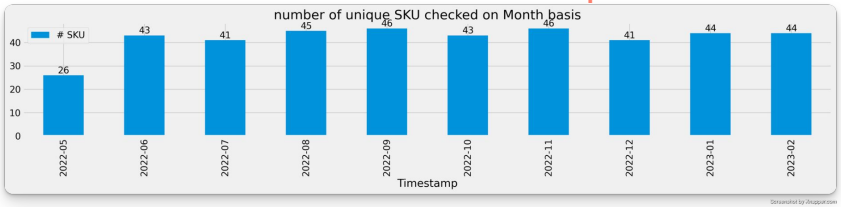
Frequency of inventory check

Overall checks

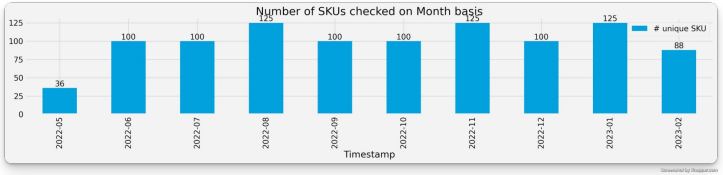
```
------------------------------------------------------------
We have done 45 check(s) overall
------------------------------------------------------------
```


Reasons to do inventory check

Unique SKU checked



Items check across unit



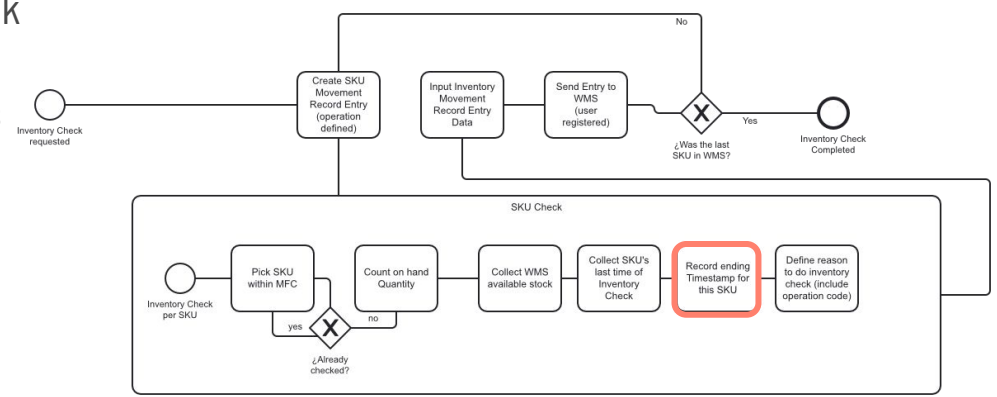
¿When did we last check our stock?

We haven't in a long time...

Days since last Inventory Check

Knowing the time since the last inventory check helps ensure accurate inventory levels and avoids stock outs or overstocking. It also helps identify potential issues in the inventory management process and supports efficient operations.

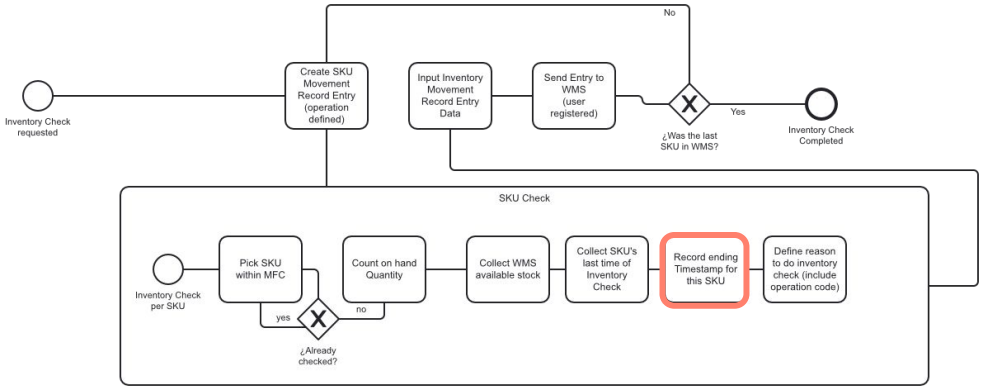
If the time between executions is smaller than our current time, it means: **iit is time to do a check!**



Time spent checking inventory

Knowing the time spent on inventory checks helps with resource planning, process optimization, and identifying opportunities for efficiency gains. It also helps in measuring and improving overall operational performance.

Assumption: The first registry takes 30 minutes approximately



Keeping the velocity on check

Time since last inventory check

```
------------------------------------------------------------
It has been 18 day(s) since last inventory check
------------------------------------------------------------
```

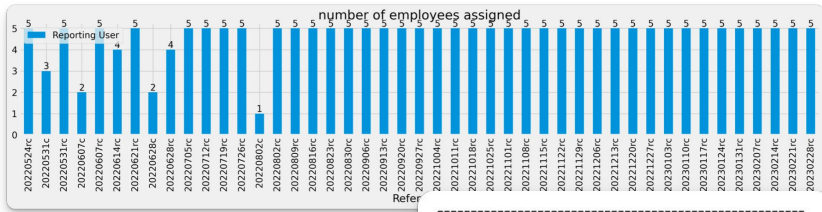
Screenshot by Xnapper.com

Days since last check (per SKU)

Time to fulfil inventory check


```
------------------------------------------------------------
We could take 292 minutes to complete an inventory check
------------------------------------------------------------
```

Number of employees per inventory check




```
------------------------------------------------------------
In average, 5 people contributed to each inventory check
------------------------------------------------------------
```

Screenshot by Xnapper.com

Assume FTE cost:

292 minutes * 5 people * €10/hr * 1 hr/60 min ≈ €243

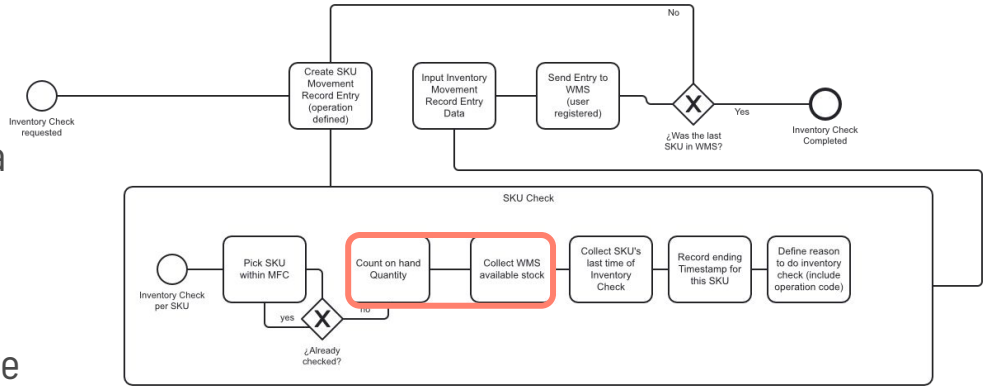
We should have that item... ¿Right?

The WMS states we should have this item... ¿Shouldn't we?

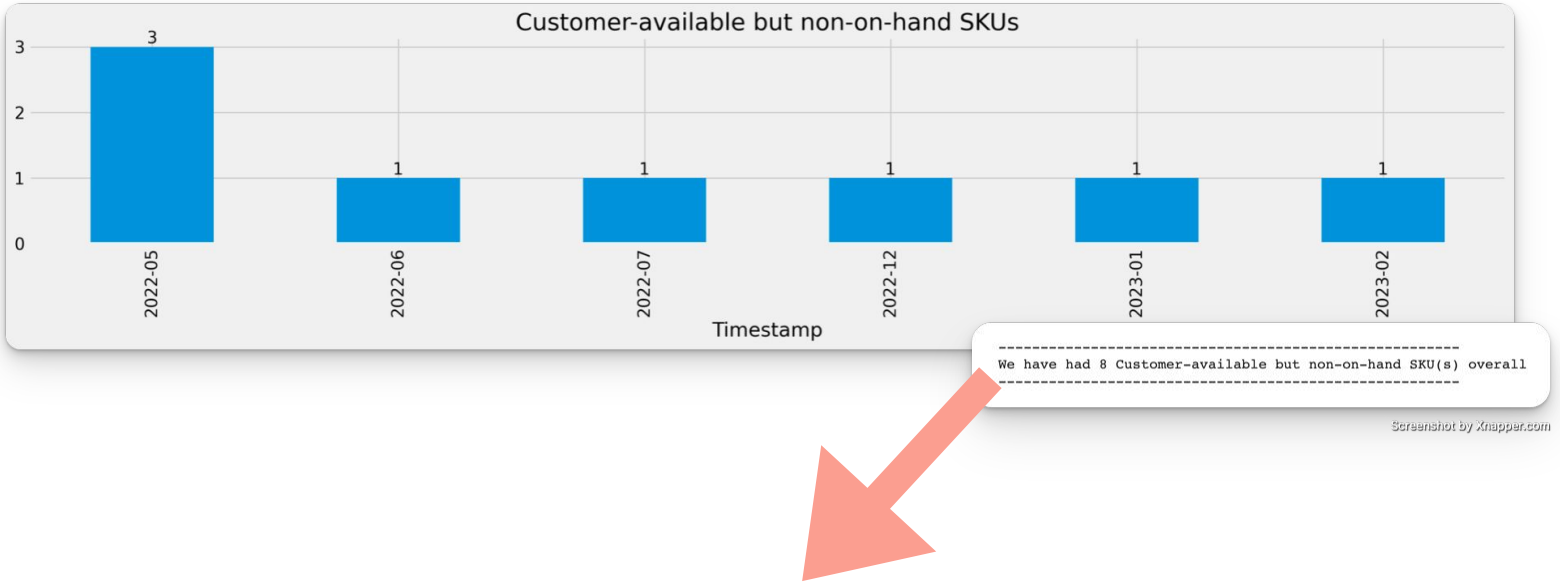
Cases without stock in-hand

Customers will complain if they buy something not available, and we need to refund them because that item is not available. This is also a direct non-desired activity as it causes 2 invoices.

For that, we can do an average of # cases where WMS stock ≠ 0 but inventory states = 0.



Cases without stock in-hand



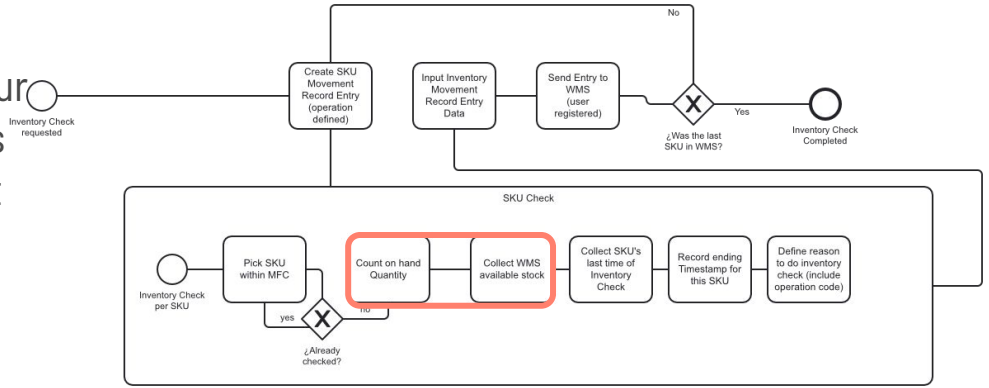
Assume FTE cost and 1 hour to cover 2 invoices (sell and refund):

8 cases * €10/hr * 1hr/case ≈ €80

Customer-disabled but available SKUs

We may have had an error whilst packing and our customers could not have claimed it. This leads to have items we can't sell as they report as not available. Once the inventory is done, it is feasible to sell it - as we report stock available.

Assumption: Customers did not complain about missing stock.



Customer-disabled but available SKUs

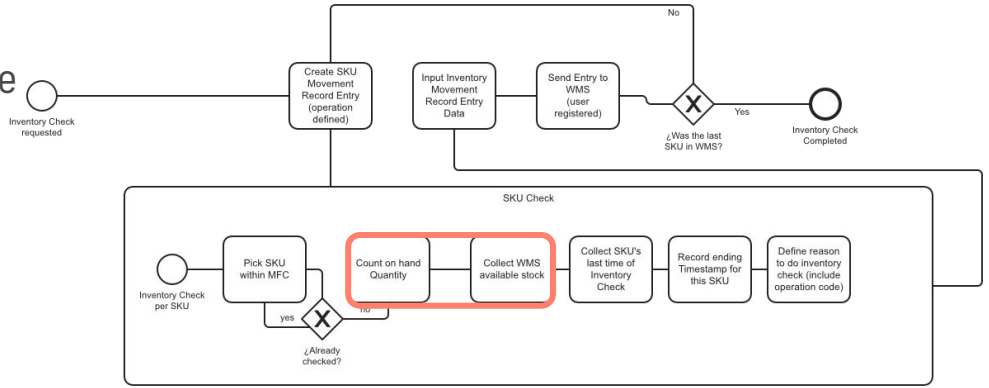
Assume FTE cost and 1 hour to cover not sent items after all and 2 employees (MFC pack responsible and carrier):

74 cases * €10/case * 2 employees ≈ €1480

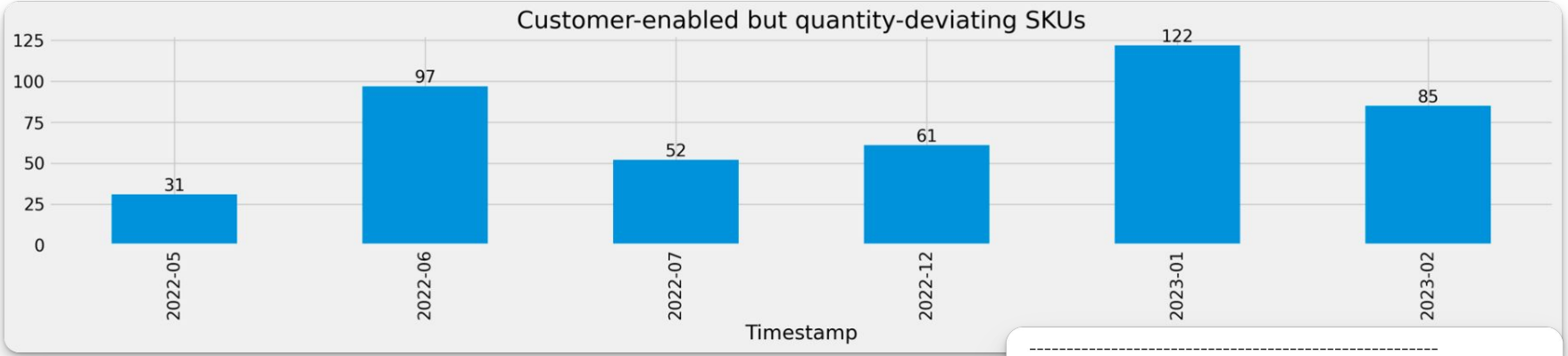
Customer-enabled but quantity-deviating SKUs

It is important to know how many cases we have been able to “prevent” from not selling or even worse: having to refund their worth.

Thanks to this value, we can catch those mistakes early and recognize this task worth to the team.



Customer-enabled but quantity-deviating SKUs



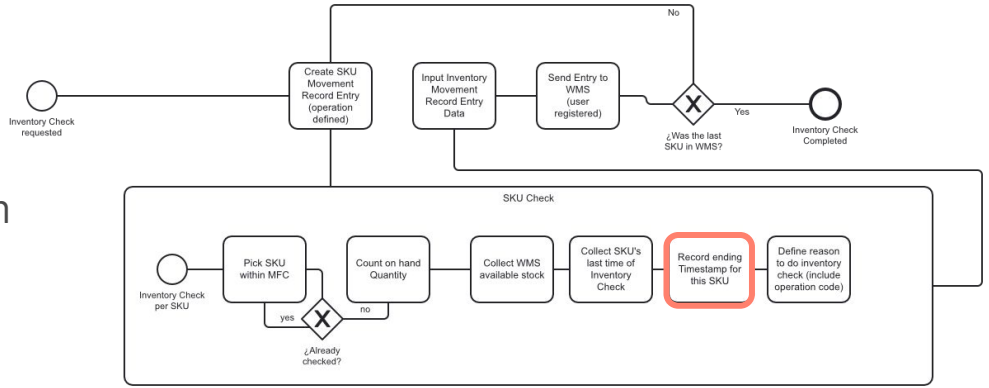

```
------------------------------------------------------
We have had 75 customer-enabled but quantity-deviating SKU(s) overall
------------------------------------------------------
```

I just checked that SKU

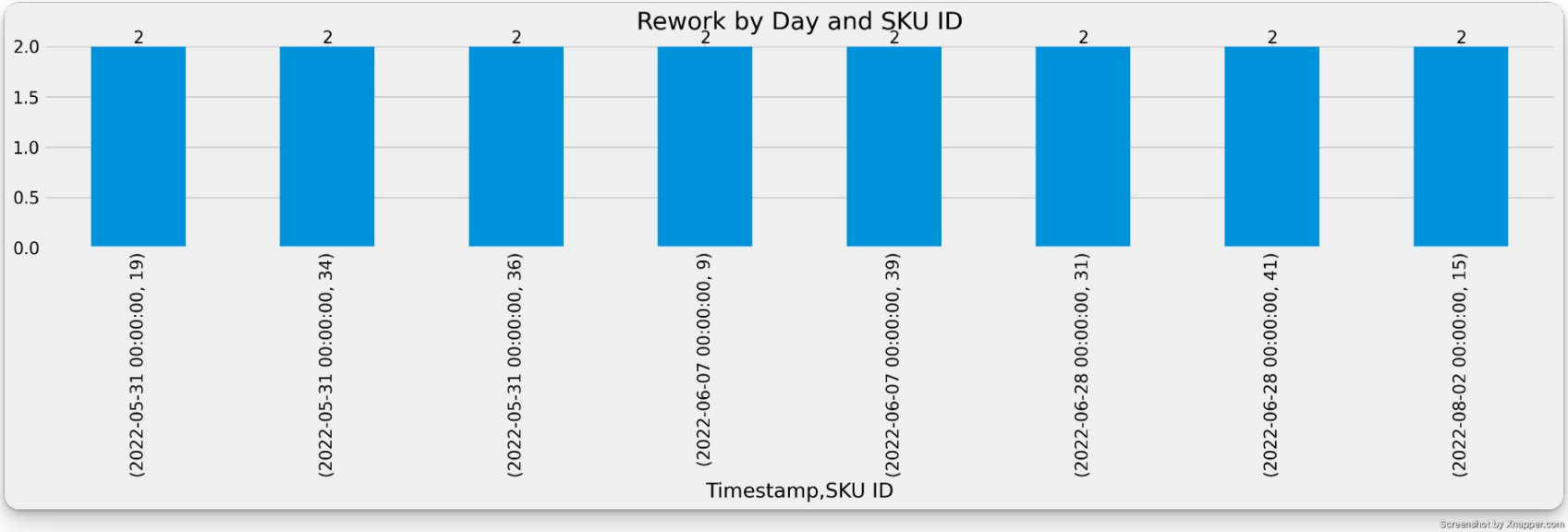
And other ways to explain rework

Rework

We should avoid checking twice the same day the same SKUs, as it leads to trust issues within our employees and, hopefully, validate the data we already checked



Rework



Assume FTE cost and X as the time needed to check a single SKU:

8 cases * €10/hr * 1 employee/case * X hr ≈ €80X

Python behind the scenes

Part B

- **Access to code**
- **Analyse of each metric given (Optional)**

Jump into Python Script (link to Google Colab)

Project Enabler - Use Case Python Development.ipynb

File Edit View Insert Runtime Tools Help All changes saved

Share

RAM Disk

+ Code + Text

First steps

Please, drag and drop to Google Colaboratory the CSV provided over Part C within the assets provided.

Load dataset

[143] Show code

¿Want to check by month?

[108] format: Month

ctions

he dataset is loaded? Run this cell

J Name	From_Qty	To_Qty	Timestamp	Days since last check	Cause	Reference	Reporting User
37	92	3	2023-02-28 12:57:00	280	Business Rule	20230228rc	USER_5
50	76	26	2023-02-28 12:50:00	280	Business Rule	20230228rc	USER_5
39	29	83	2023-02-28 12:47:00	266	Business Rule	20230228rc	USER_4
34	85	33	2023-02-28 12:28:00	273	Business Rule	20230228rc	USER_4
39	95	69	2023-02-28 12:13:00	266	Business Rule	20230228rc	USER_3
42	10	34	2023-02-28 12:11:00	259	Business Rule	20230228rc	USER_1
9	91	9	2023-02-28 11:55:00	266	Business Rule	20230228rc	USER_4
28	27	19	2023-02-28 11:50:00	266	Business Rule	20230228rc	USER_3

Sample data

- **Access to Spreadsheet**
- **(Optional) Additional columns requested**

Spreadsheet (link to spreadsheet)

Making it easier to parse...

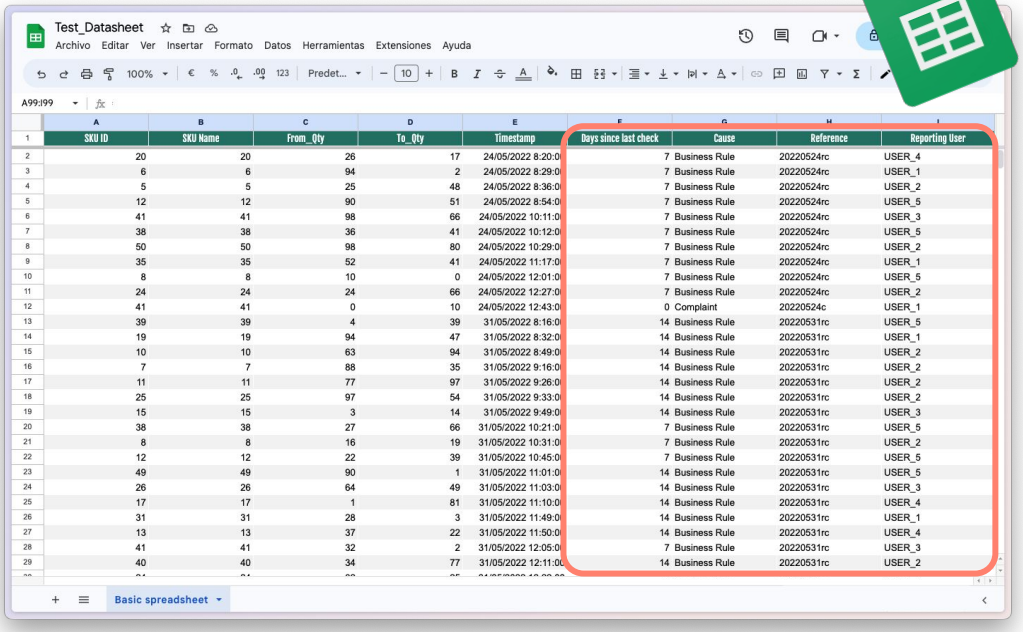
Days since last check is based on the dataset to make easy-to-read python code.

Understanding why

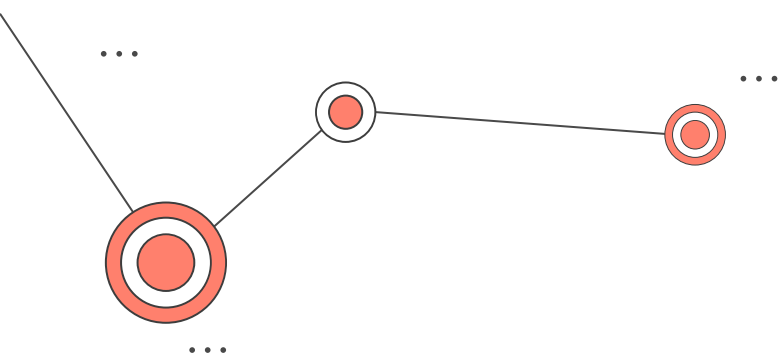
"Cause" and "Reference" provide data to identify when did we do something and who sponsors it.

Reporting user

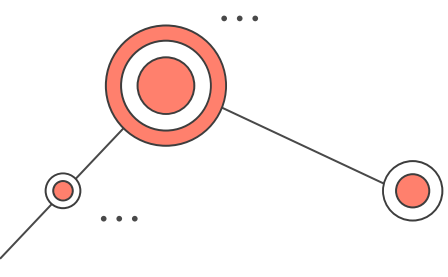
Though it is a bad idea to report names, we should know how many FTE contributed or if it was automatic



	A	B	C	D	E	F	G	H	I
1	SKU ID	SKU Name	From_Qty	To_Qty	Timestamp	Days since last check	Cause	Reference	Reporting User
2	20	20	26	17	24/05/2022 8:20:0	7	Business Rule	20220524rc	USER_4
3	6	6	94	2	24/05/2022 8:29:0	7	Business Rule	20220524rc	USER_1
4	5	5	25	48	24/05/2022 8:36:0	7	Business Rule	20220524rc	USER_2
5	12	12	90	51	24/05/2022 8:54:0	7	Business Rule	20220524rc	USER_5
6	41	41	98	66	24/05/2022 10:11:0	7	Business Rule	20220524rc	USER_3
7	38	38	36	41	24/05/2022 10:12:0	7	Business Rule	20220524rc	USER_5
8	50	50	98	80	24/05/2022 10:29:0	7	Business Rule	20220524rc	USER_2
9	35	35	52	41	24/05/2022 11:17:0	7	Business Rule	20220524rc	USER_1
10	8	8	10	0	24/05/2022 12:01:0	7	Business Rule	20220524rc	USER_5
11	24	24	24	66	24/05/2022 12:27:0	7	Business Rule	20220524rc	USER_2
12	41	41	0	10	24/05/2022 12:43:0	0	Complaint	20220524c	USER_1
13	39	39	4	39	31/05/2022 8:16:0	14	Business Rule	20220531rc	USER_5
14	19	19	94	47	31/05/2022 8:32:0	14	Business Rule	20220531rc	USER_1
15	10	10	63	94	31/05/2022 8:49:0	14	Business Rule	20220531rc	USER_2
16	7	7	88	35	31/05/2022 9:16:0	14	Business Rule	20220531rc	USER_2
17	11	11	77	97	31/05/2022 9:26:0	14	Business Rule	20220531rc	USER_2
18	25	25	97	54	31/05/2022 9:33:0	14	Business Rule	20220531rc	USER_2
19	15	15	3	14	31/05/2022 9:49:0	14	Business Rule	20220531rc	USER_3
20	38	38	27	66	31/05/2022 10:21:0	7	Business Rule	20220531rc	USER_5
21	8	8	16	19	31/05/2022 10:31:0	7	Business Rule	20220531rc	USER_2
22	12	12	22	39	31/05/2022 10:45:0	7	Business Rule	20220531rc	USER_5
23	49	49	90	1	31/05/2022 11:01:0	14	Business Rule	20220531rc	USER_5
24	26	26	64	49	31/05/2022 11:03:0	14	Business Rule	20220531rc	USER_3
25	17	17	1	81	31/05/2022 11:10:0	14	Business Rule	20220531rc	USER_4
26	31	31	28	3	31/05/2022 11:49:0	14	Business Rule	20220531rc	USER_1
27	13	13	37	22	31/05/2022 11:50:0	14	Business Rule	20220531rc	USER_4
28	41	41	32	2	31/05/2022 12:05:0	7	Business Rule	20220531rc	USER_3
29	40	40	34	77	31/05/2022 12:11:0	14	Business Rule	20220531rc	USER_2



Discussion



Potential next steps

- **Improvement Plan**
- **Potential data points to keep improving**

Improvement plan

€1993 captured

Average cost of activity
+
Non-conformant cases

Set goal %

Suggested 20%
(≈€400)

Elaborate plans

Check potential actions

Potential next data points

Item control

Add logs for sales and returns. *Provides scope of time for lost items and can check what happened.*

Claims

We should know if we can sell 2 times the same article due to an error.

Product details

To capture value, we should know how much an item is worth.

¡Thanks!

Do you have any questions?

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linkedin.com/in/pablogomezponce

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