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Showcase Presentation – August 2022

Agenda

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- 2 Industry
- 3 Problem
- 4 Methodology
- 5 Results

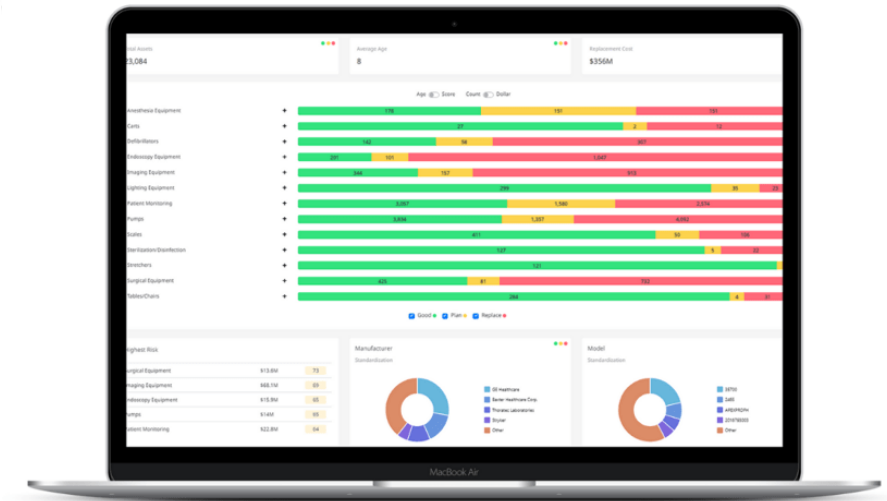
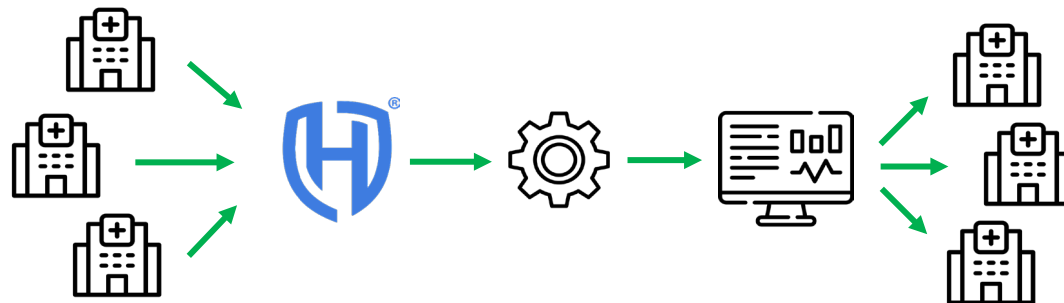


HANDLE Global

HANDLE is a **healthcare** supply chain analytics platform

Collects and processes data from clients, and provides **analysis tools** for hospitals to better manage their medical equipment

They created a **0-100 score** to quantify the health of assets



Industry

Hospitals spend **\$93B per year** on medical equipment in the US

Most of this spending is used to replace their current assets

However, they are neither able to **elaborate long-term budget** plans for the replacement of medical equipment nor they have an idea of **how their fleet will evolve** in the following years

They struggle both to extract value from their own data and to leverage information from other players in the industry



Problem

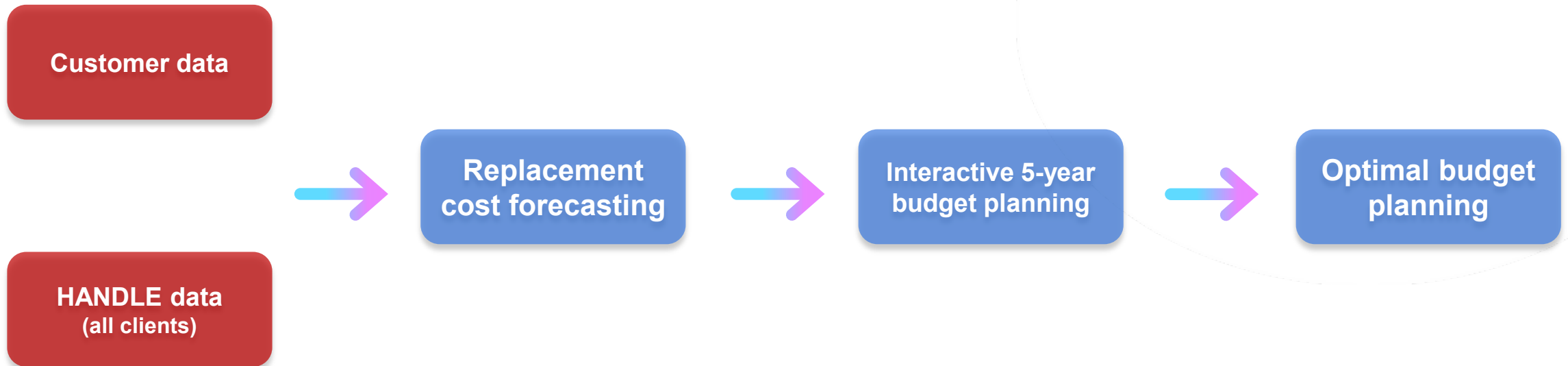
How can we help hospitals develop an efficient replacement plan for their medical equipment?

To solve this problem, we need to tackle the following questions

1. How can we estimate the **cost of replacing** an asset?
2. Which is the best **replacement strategy** for every client?
3. How can we optimally suggest which specific assets **should be replaced**?



Methodology



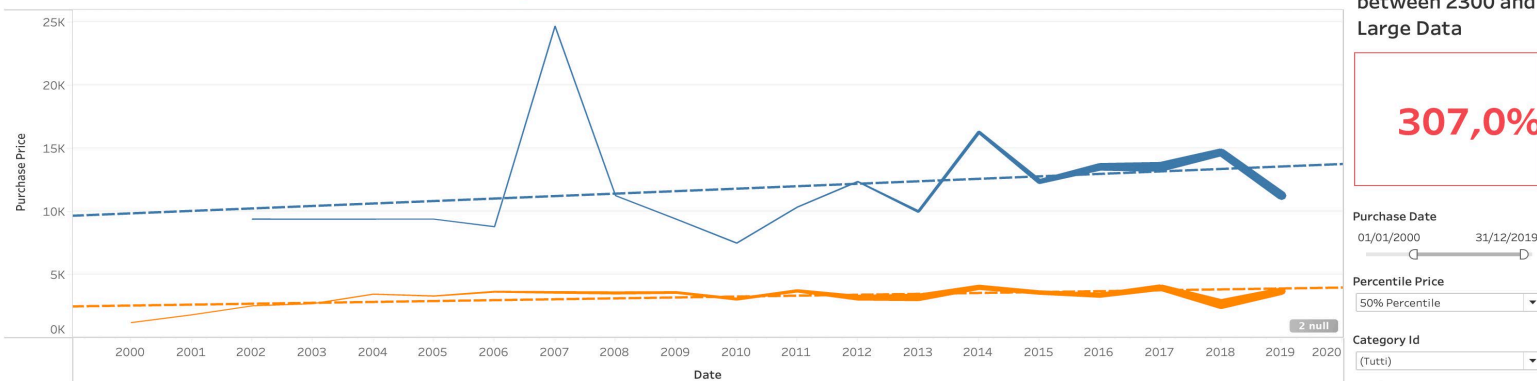
Which specific assets should be replaced?

Replacement cost forecasting

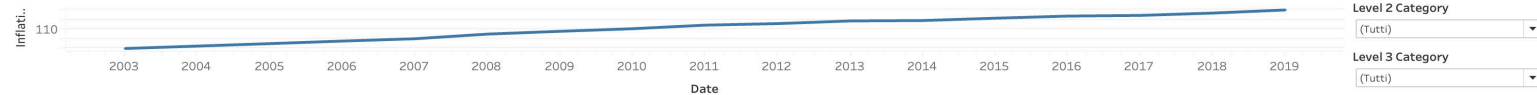
How much will it cost to replace an asset in the future?

We start with the most recent purchase price, and we update it using the price trends

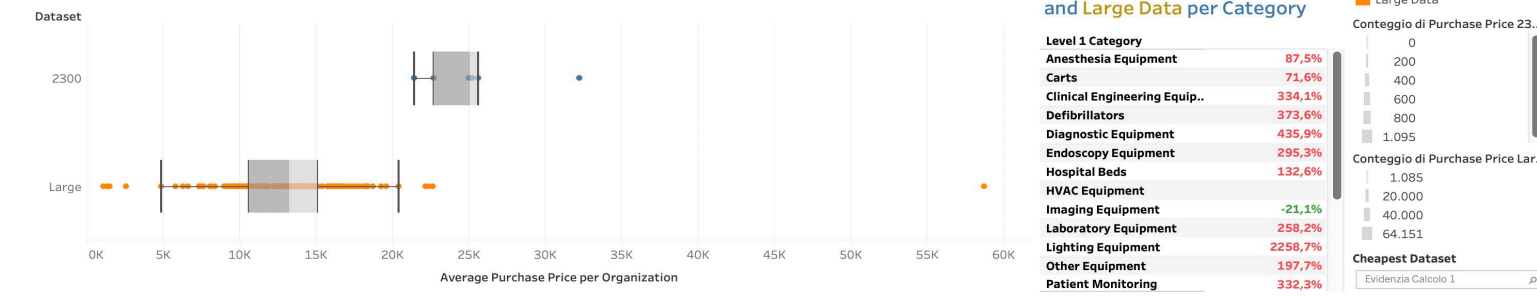
Purchase Price for Customer and Large Dataset over time



Inflation Medical equipment



Boxplot average price per organization by dataset



Interactive 5-year budget planning

Interactive dashboard for clients to define a **replacement strategy** (how to prioritize the replacement of assets)

- How will the client's **fleet** look over the following 5 years?
- In what kind of **products** will the budget be spent?
- On which **manufacturers** will the client spend the most money?
- Which **hospitals** should receive more funding?

Sequential approximation of the prescriptive model to **improve the customer's experience**

The strategy will be used to compute the final prescriptions (*optimal budget planning*) using a **binary optimization model**

97%
of the optimal
objective function

25k
times faster

Interactive 5-year budget planning

Fleet health overview

Budget planning

Annual budget 20,0 \$M

Replacement criteria

Replacement cutoff score 80

Urgency cutoff score 80

Urgency factor 1,25

Score contributions

Age weight 100 %

Relative age weight 100 %

End-of-support weight 100 %

Physical risk weight 100 %

Cybersecurity risk weight 100 %

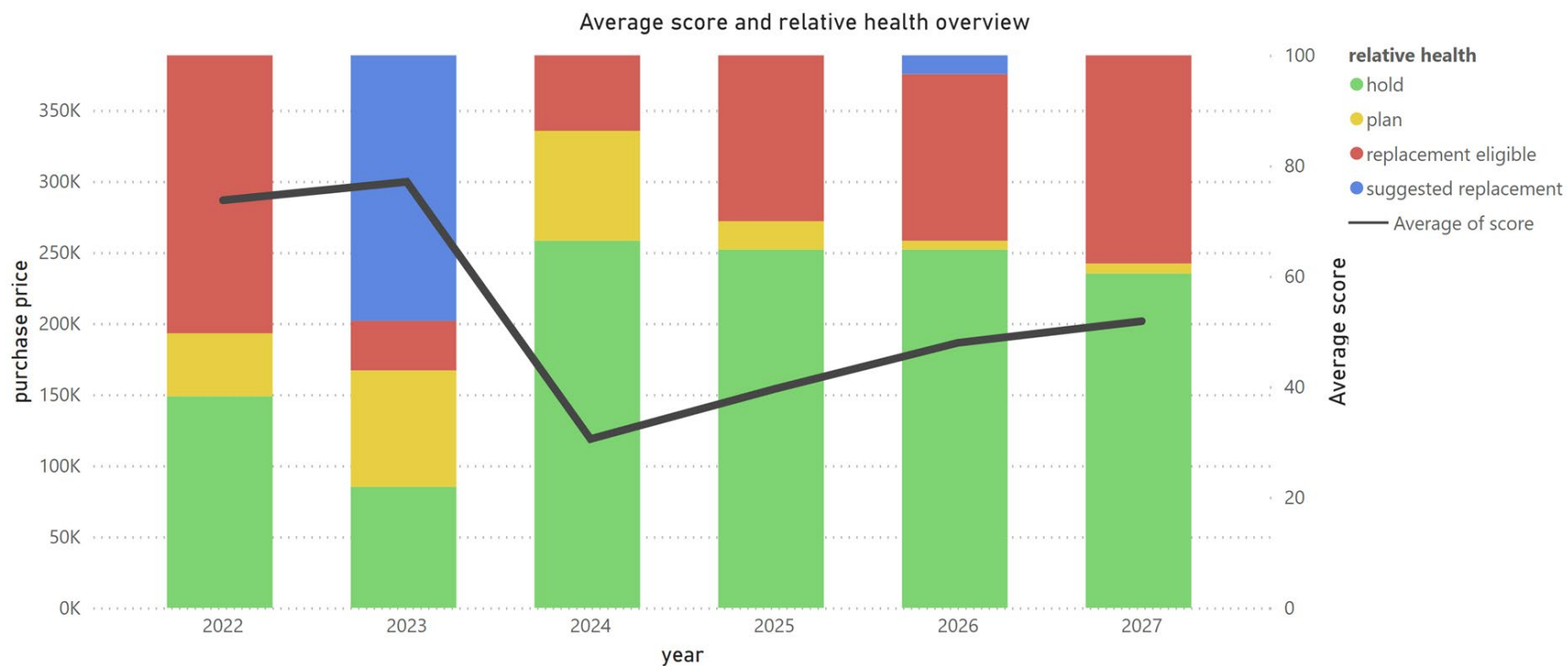


Interactive 5-year budget planning

Category health overview

organization id: All
level 1 category: Laboratory Equipment
level 2 category: Microscopes
level 3 category: All

aggregate by
 count
 purchase price



Interactive 5-year budget planning

Spending segmentation

Select aggregation levels ▼

- organization id
- level 1 category
- level 2 category
- level 3 category
- manufacturer

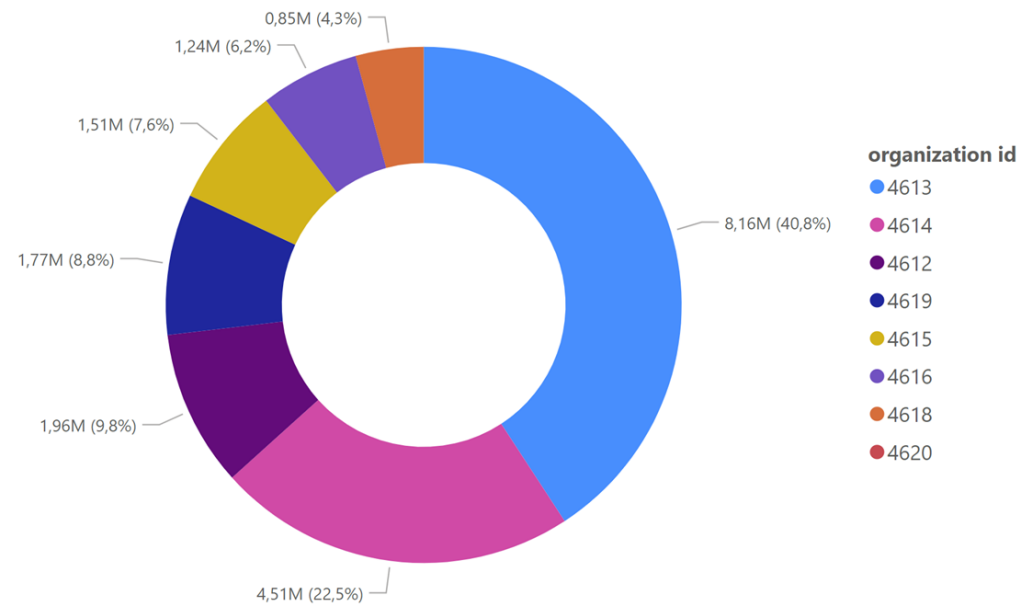
Year

2022 2022

Chart type

- Sector chart
- Bar plot

organization id	count	spending
4613	48	8.159.457,09
4614	17	4.506.867,87
4612	28	1.960.848,07
4619	10	1.765.969,79
4615	7	1.514.394,75
4616	11	1.241.133,82
4618	11	851.326,61
4620	2	2,00
Total	134	20.000.000,00



Interactive 5-year budget planning

Spending segmentation

Select aggregation levels

- organization id
- level 1 category
- level 2 category
- level 3 category
- manufacturer

Year

2022 2027

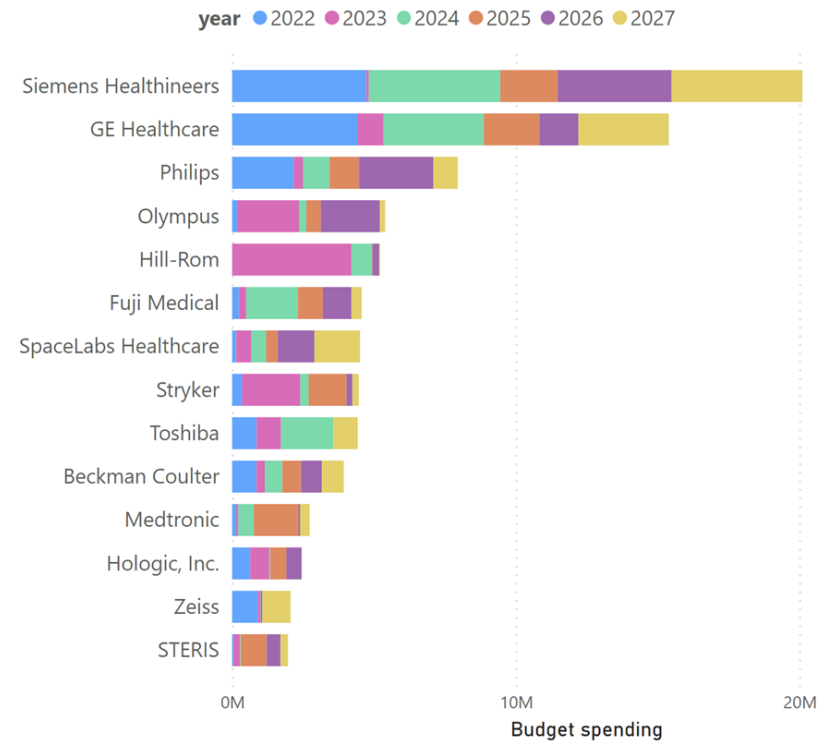


Chart type

- Sector chart
- Bar plot

manufacturer	count	spending
Siemens Healthineers	101	20.103.611,48
GE Healthcare	473	15.391.116,93
Philips	383	7.956.170,95
Olympus	330	5.392.603,53
Hill-Rom	379	5.213.430,00
Fuji Medical	87	4.566.745,12
SpaceLabs Healthcare	793	4.507.827,65
Stryker	580	4.463.158,51
Toshiba	5	4.428.100,40
Beckman Coulter	42	3.934.611,63
Medtronic	176	2.731.806,61
Hologic, Inc.	31	2.450.847,80
Zeiss	32	2.060.372,90
STERIS	50	1.968.658,06
Lorad Medical Systems Inc.	7	1.590.002,00
ADAC Laboratories	4	1.364.063,96
Karl Storz	126	1.210.948,62
Canon	2	1.170.000,00
Alcon Laboratories, Inc.	18	1.052.146,50
Intuitive Surgical	2	1.011.717,00
Verathon Inc.	106	1.010.810,52
Drager	123	1.000.718,47
Skytron	43	914.769,86
Total	7.415	119.999.958,88

manufacturer



Results

New opportunities for HANDLE's clients

They will be able to:

- have a good **overview** of how the fleet will evolve over the next years
- **understand** which hospitals and asset categories are under- or overfunded
- develop a **strategy** to drastically improve the health of their fleet
- **negotiate** better deals with their medical equipment suppliers

Delivering real value

The *Replacement cost forecasting & Interactive 5-year budget planning* tools are currently being implemented in HANDLE's platform

This project is not just a proof of concept, it is on its way to become a **real-world application**



Results



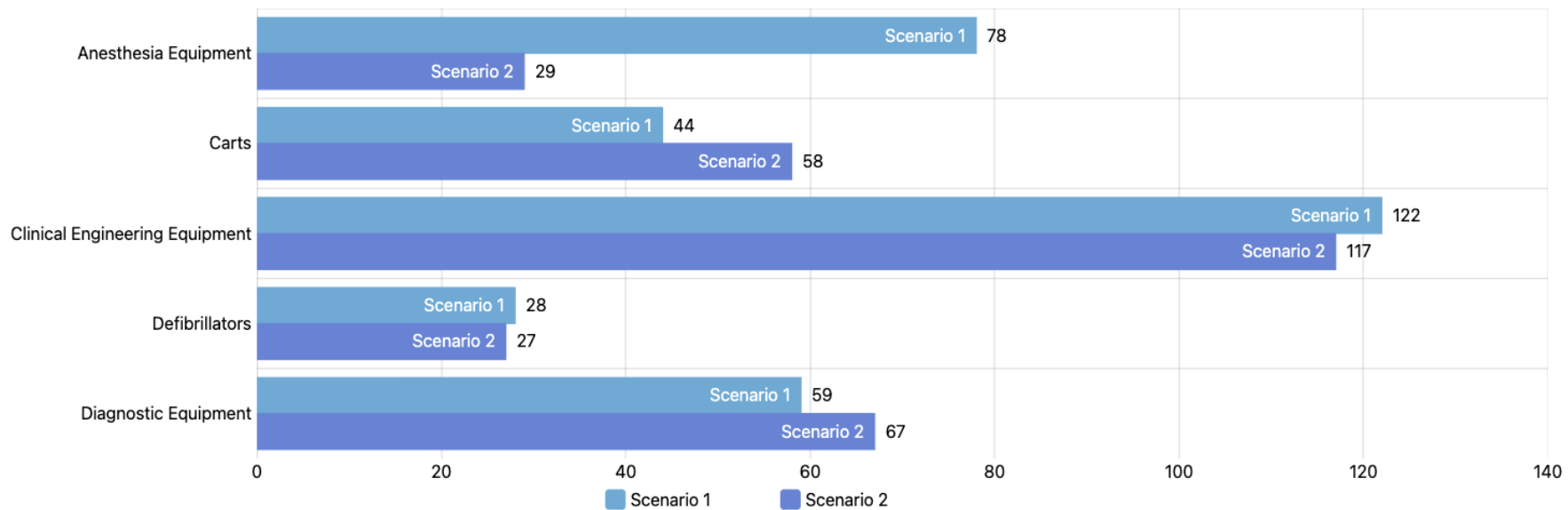
CCM®
Forecasting



2023 2024 2025 2026 2027 Overall Summary

of Assets Selected By Category

2023 Budget Amount: \$100 M



Total Assets Selected

Scenario 1

11,205

Scenario 2

10,542

Thank you!



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