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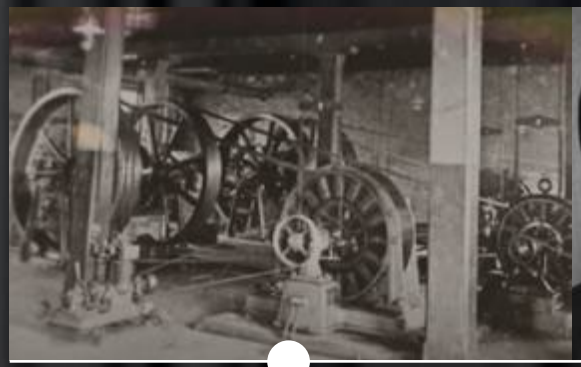
AFRY in brief

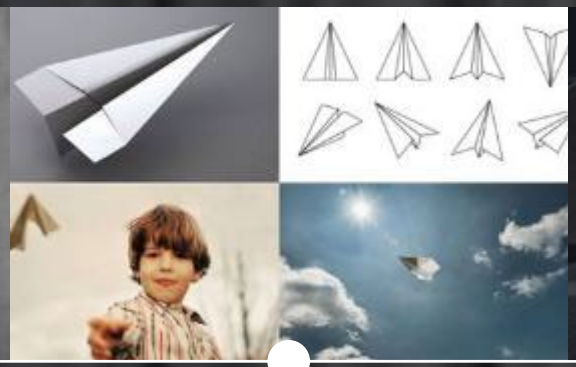
AFRY'S JOURNEY

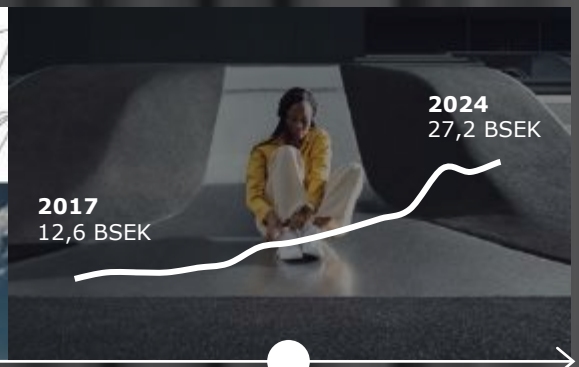
130 years to be proud of



"Being close to clients, employing talented people and executing projects perfectly has been our formula for success."

Dr. Jaakko Pöyry, Founder
1924–2006





1895

The steam boiler association is founded by owners of steam boilers and pressure vessels to prevent accidents

1958

Jaakko Pöyry starts his business with the roots in Finnish forest industries

2019

ÅF and Pöyry join forces, creating a leading company within engineering, design and advisory services

Today

Pioneers of technology and leading partner in the sustainability transition

AFRY IN BRIEF

AFRY today

Net sales

27,2 BSEK

EBITA margin

7.8%

Number of employees

19,000

Countries with projects

100

Autonomous Internal Transport

Facts

— New hospital in Norway

— 125 000 sq.m

— 11,2 billion NOK

— 640 beds

AI Generated picture

Mission

— A hospital in European top class

— Patient-centered care

— Focus on modernization and efficiency

- Single bed rooms with ocean view
- Advanced technology for fast test results in the laboratories
- Fast-track transfer routes between departments, such as from maternity to surgery
- Automated bed washing.
  Bed storage in vertical storages throughout the floors

- **Automated packing solution for ingoing material**
- **Autonomous vehicles for logistic transports**

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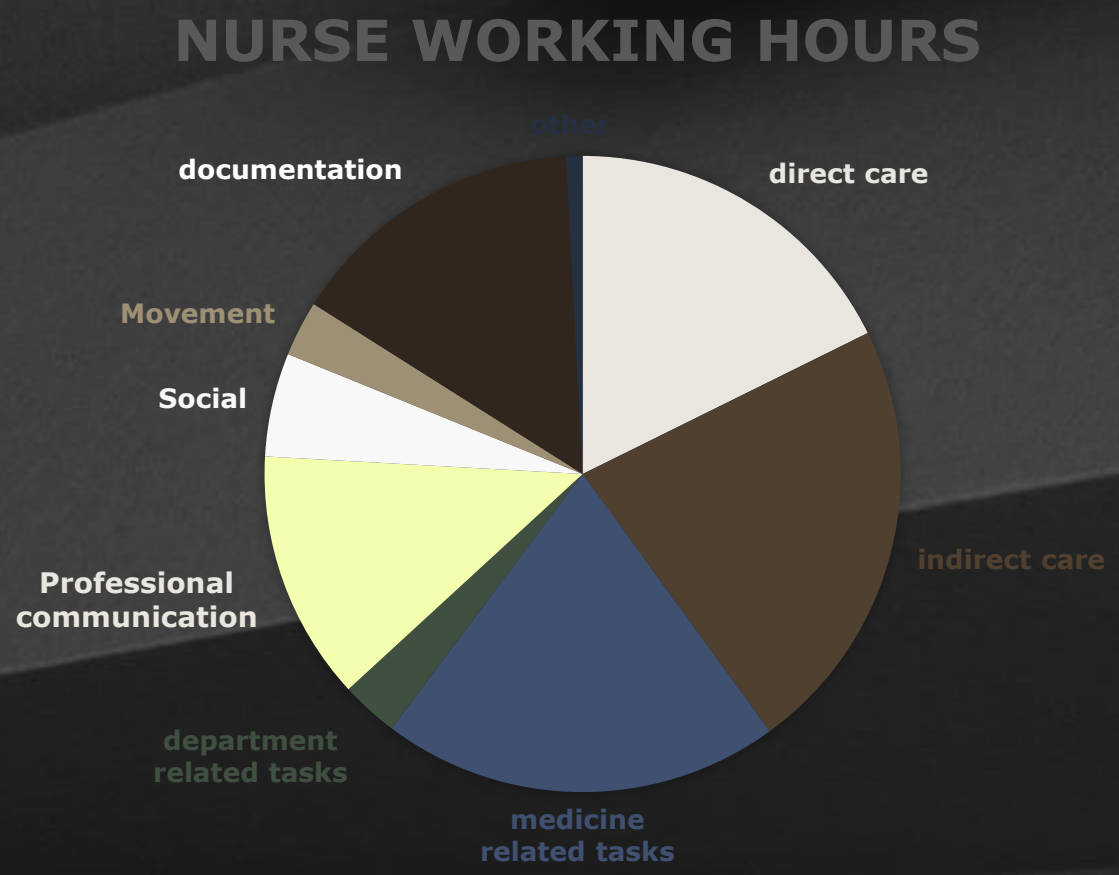
2 Studies of the nurses working hours



40 %
on administration

29 %
Indirect patient work

18 %
direct patient care

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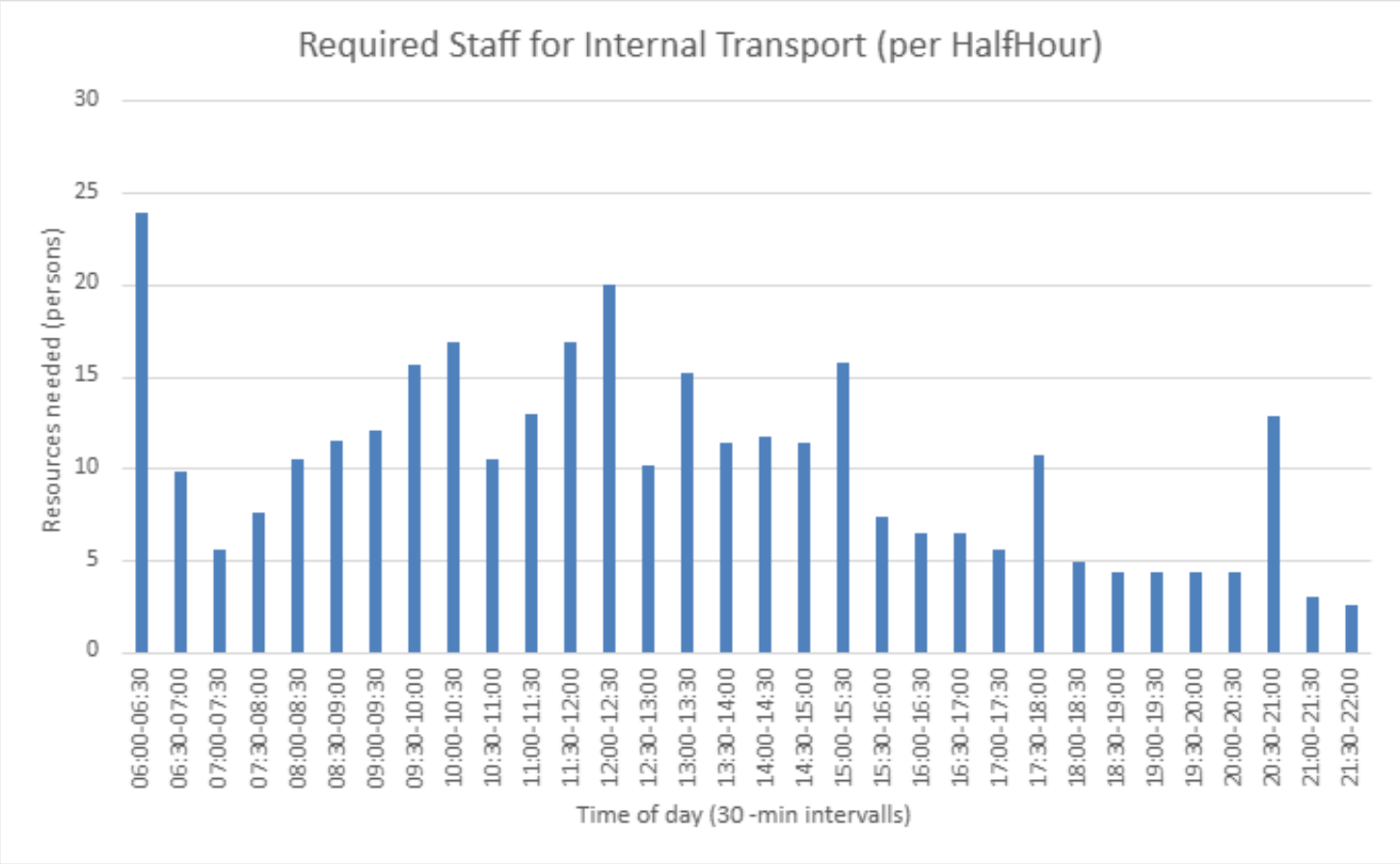
Time study at the hospital - manual



24 people
Between 06:00 – 06:30

163 hours
Total transport time

10 people / shift
Optimal spreading of transports

20 employees
Full time to cover 2 shifts

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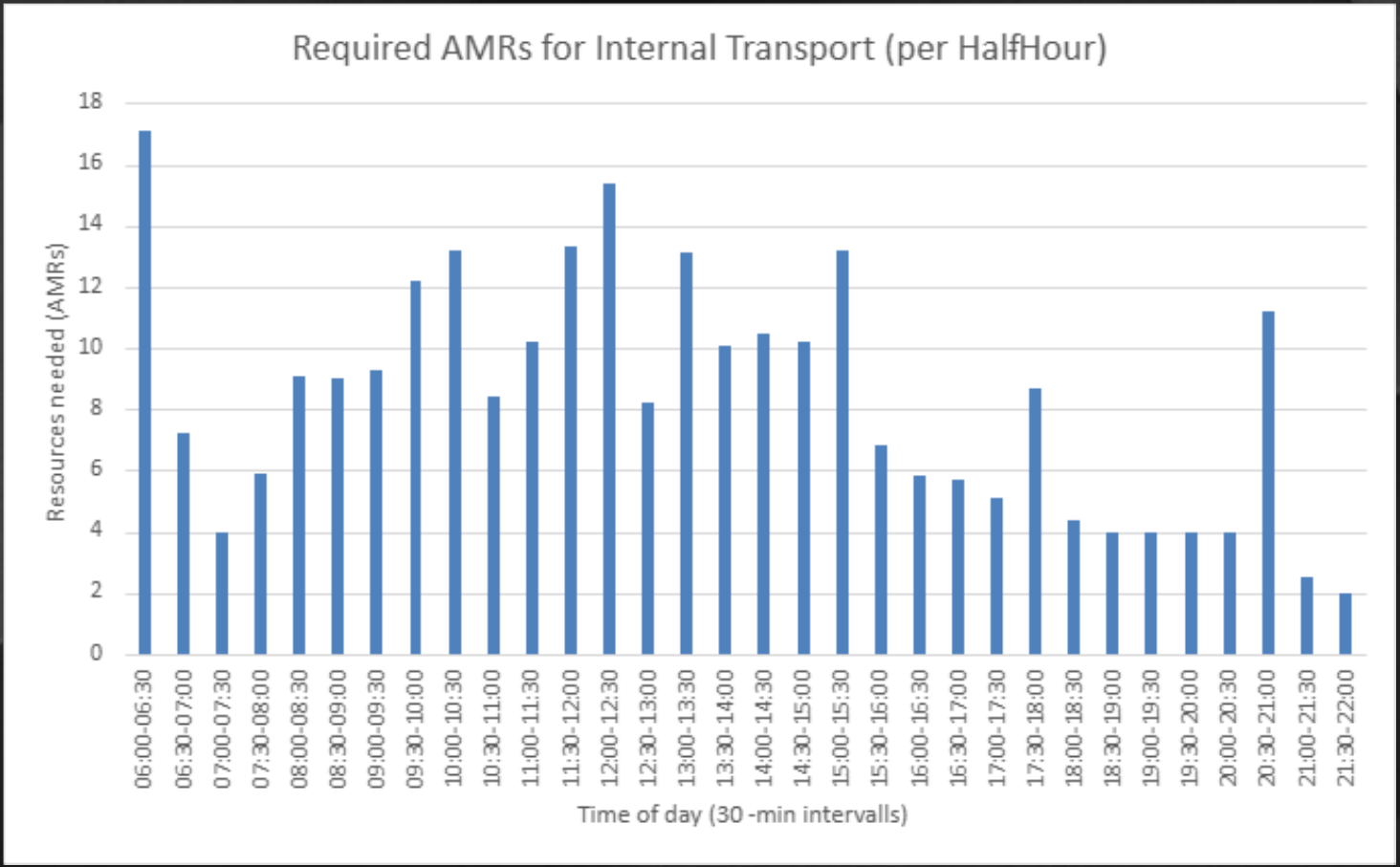
Time study at the hospital - automatic



17 AMR's

Between 06:00 – 06:30

13 AMR's

2 biggest peaks spreaded

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ROI

£51.000 per year

Care assistant salary in Norway

£1.020.000 per year

20 full time employees

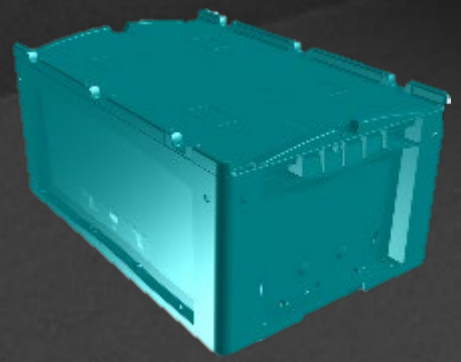
1.5 years

Return Of Investment

40.000 hours

Released hours for patient care

Solution



— Move full boxes with consumables to vending machines

— Move empty boxes back to goods reception.

— Move empty boxes to washing room

— Move different type of wagons from goods reception out to the wards
  — Food
  — Medicine
  — Clean textile

— Move wagons from the wards back to goods reception
  — Dirty bed linen
  — Trash

— Move wagons between wards
  — Lab samples
  — equipment

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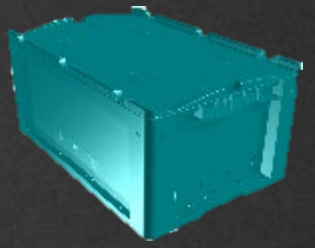
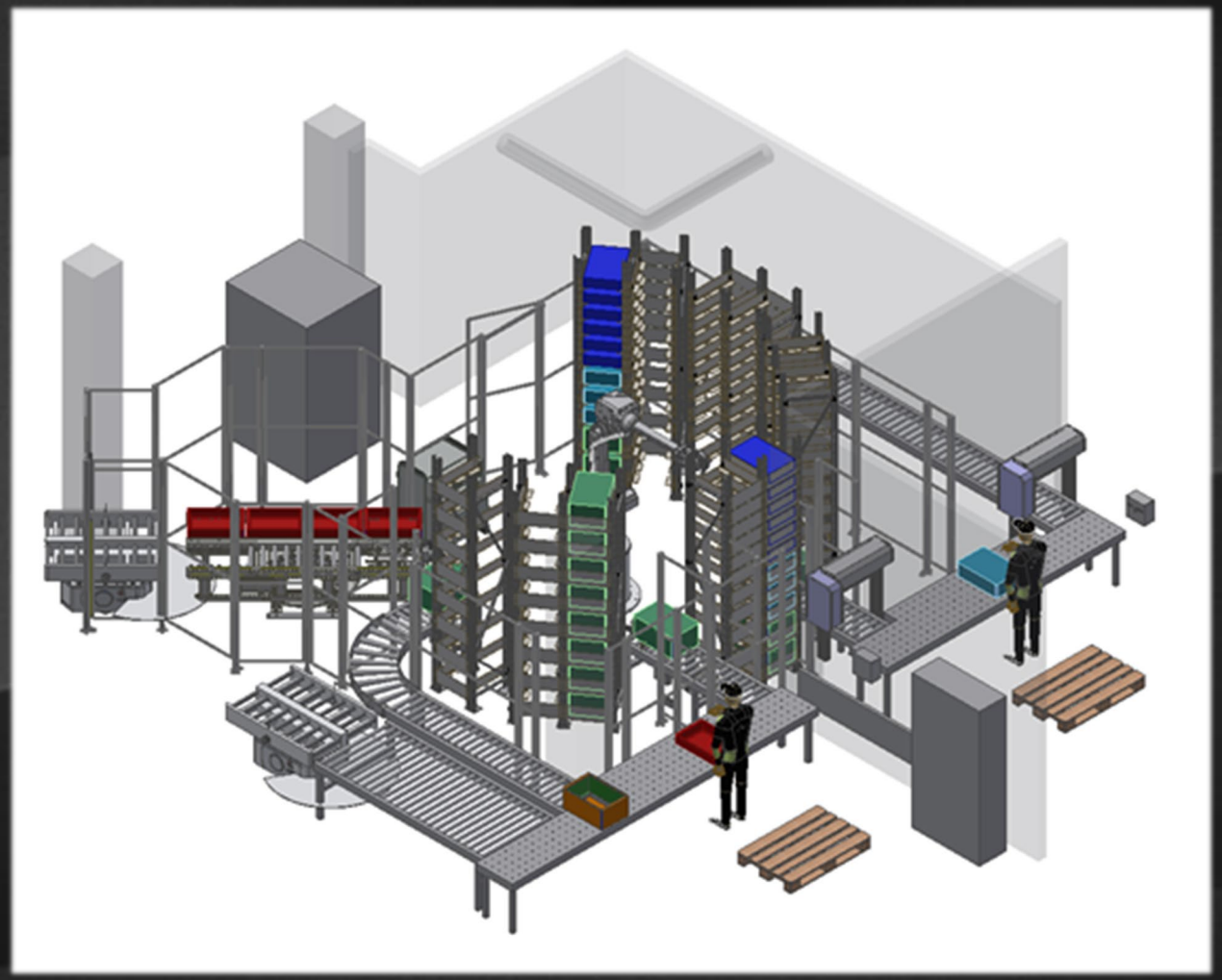
Solution - Boxes





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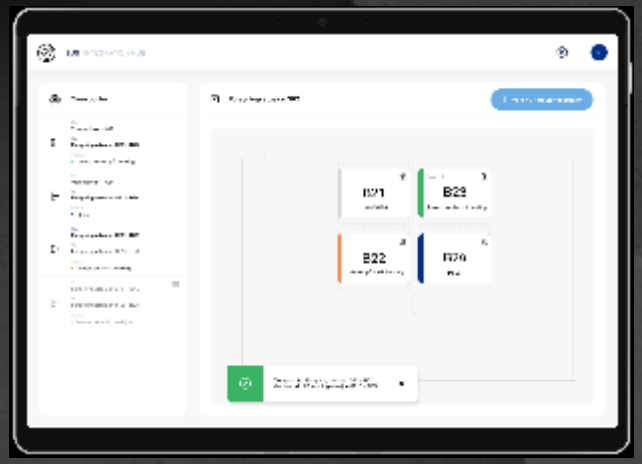
Solution - Wagons



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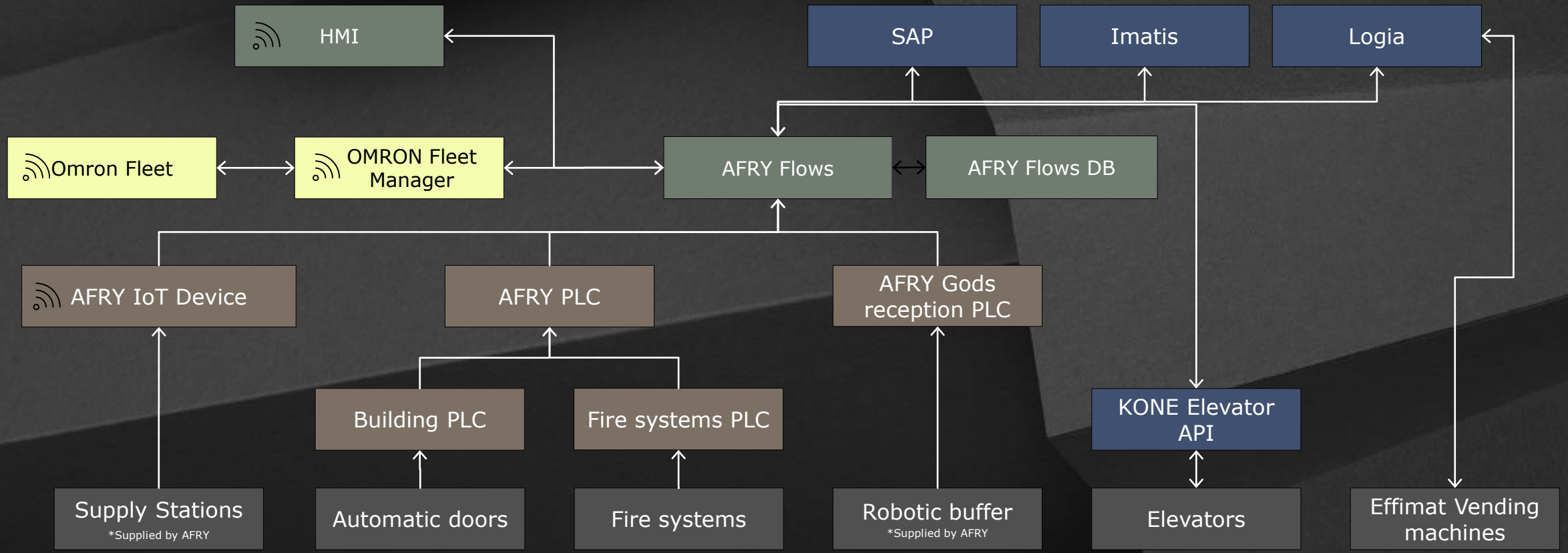
Integrations



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Gains

— Bigger and heavier wagons can be used, less transports

— Better control over deliveries. More just-in-time instead of when-I-have-time

— Connecting the goods reception with the wards

— 40.000 hours a year released for patient-centered care

Lessons learned

- Size of wagon and AMR must be designed based on possible movements in driving routes
- One purchase for both AMR’s and wagons to put interface responsible on docking on one supplier.
- WIFI coverage over the whole hospital, including elevators.
- Include end users early in the test phase.
- 6 months trial period where the end users run the solution and supplier supports is a winning concept.
- Write contracts with suppliers so they need to be present when end-to-end testing are performed.

Lessons learned

- The key of success is:
  - to use a mature autonomous mobile robot (not an AGV) such as OMRON as in this project.. Need of free navigation.
  - Connect all systems into an ecosystem and enhance them by adding capabilities for a more autonomous process. Done by using AFRY Flows in this project

Making Future