PARAMETERS INVOLVED IN MEDICATION DISPENSING AUTOMATION SECURITY AND PERFORMANCE
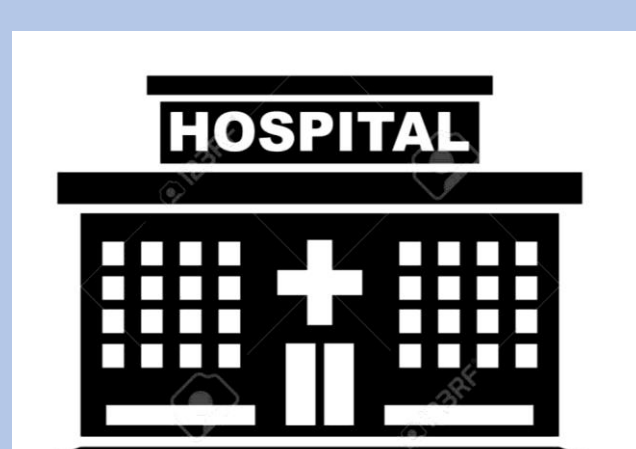
PSQ11415

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(3) Pharmacist at Macon hospital center (email: docastillo@ch-macon.fr):

What was done?

2015:
Implementation of Sinteco nominative drug dispensing system in Macon hospital center

1022 beds

First stage (2015 – 2018): Automation of 400 beds

Second stage (to plan): Automation of 450 beds

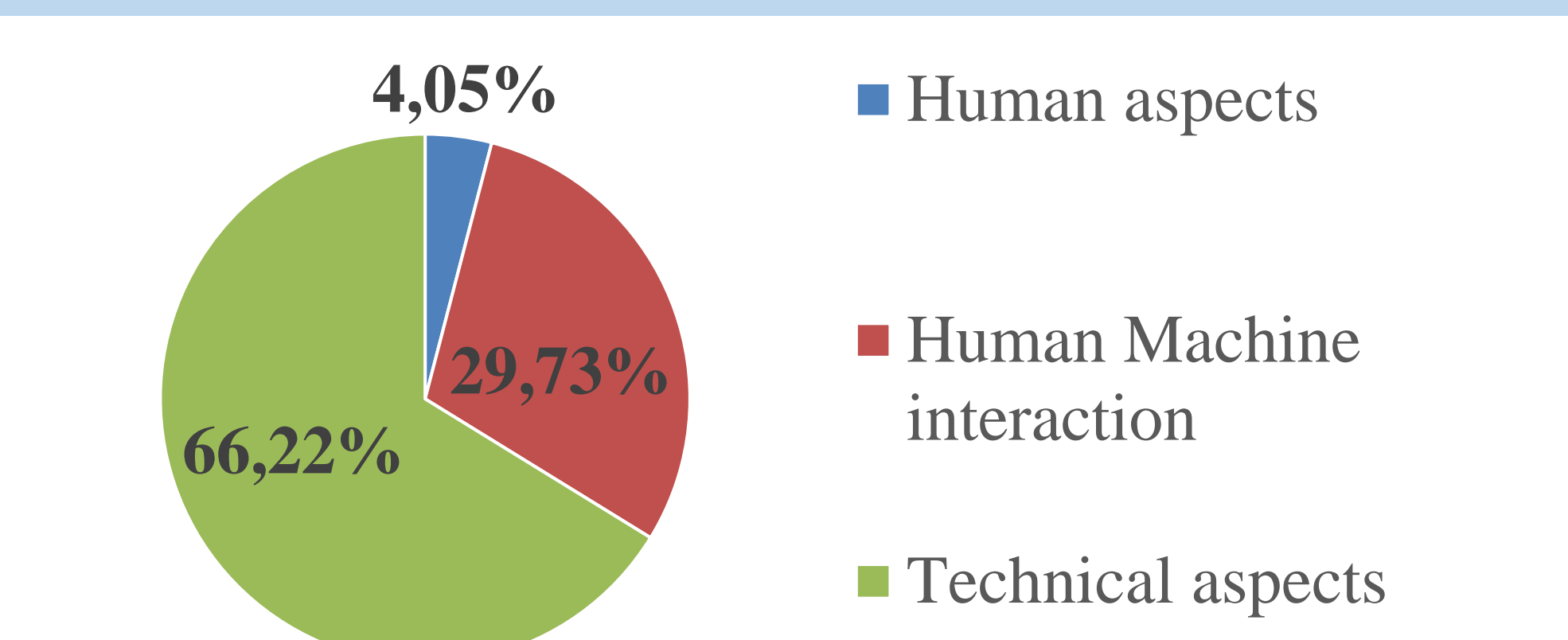Sinteco automated nominative drug dispensing system

2021:
Valuation of Macon hospital center's feedback on nominative drug dispensing automation results

Understanding

Valuation — Design

Anthropocentric Human-Machine analysis approach

The analysis of Macon hospital center automation specifications

- 4,05% ■ Human aspects
- 29,73% ■ Human Machine interaction
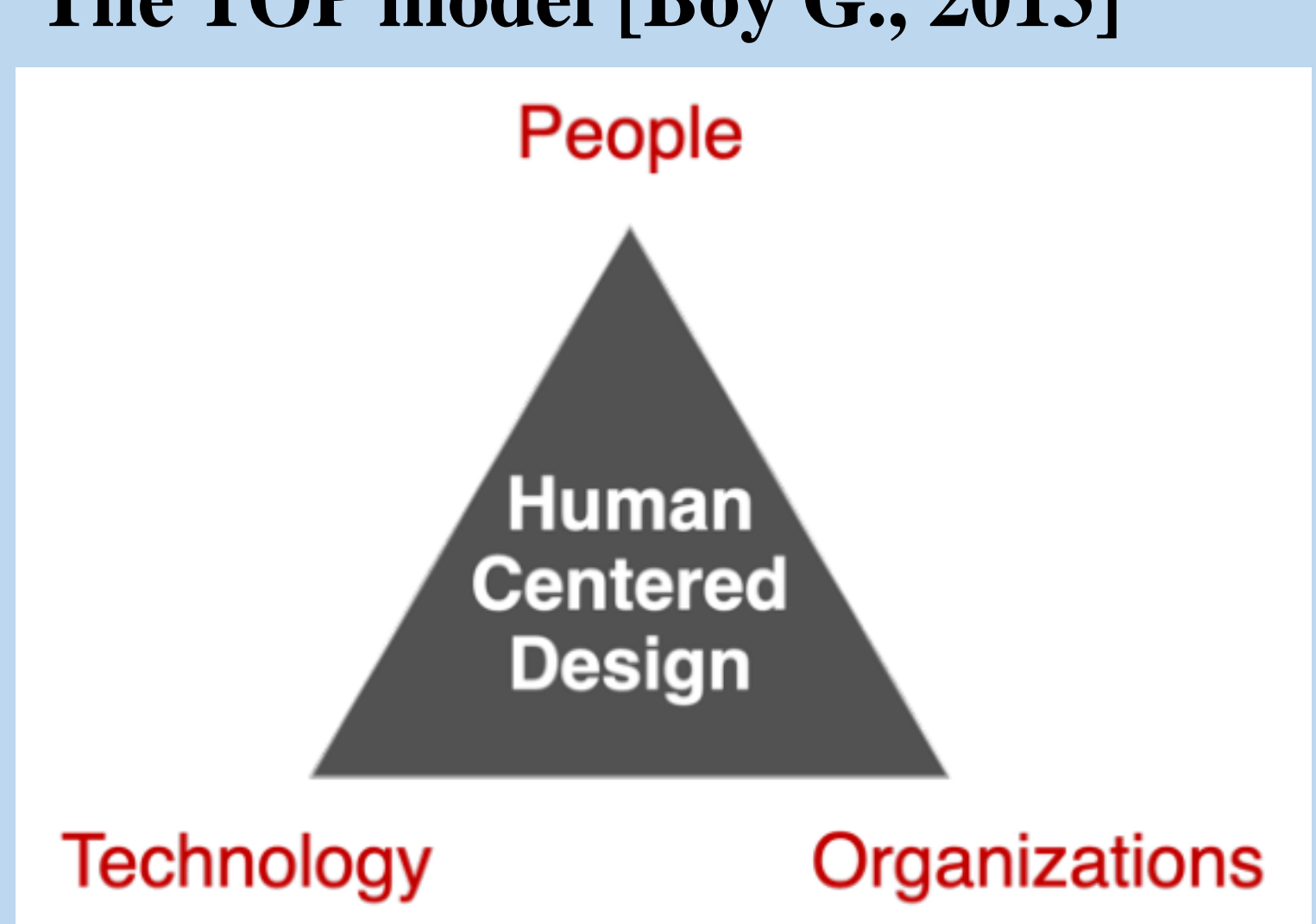- 66,22% ■ Technical aspects

Why was it done?

Automation performance depends on : **technology, people and organization**

We deployed our anthropocentric Human-Machine analysis approach to identify **critical human-machine parameters to control in order to secure automated activity**.

The TOP model [Boy G., 2013]

People

Human Centered Design

Technology   Organizations

How was it done?

- The analysis of automation needs, operational environment, and existing equipments
- The analysis of automated equipment functional specifications formalized by the pharmacy
- The evaluation of automation deployment results and related gains
- The evaluation of specific actions implemented by the pharmacy during automation process
- The analysis of the parameters to control for automated equipment integration security and performance
- The analysis of factors influencing Human Machine interaction

Our approach integrates six steps that are run in automated hospital pharmacies to analyze their feedback

What was achieved?

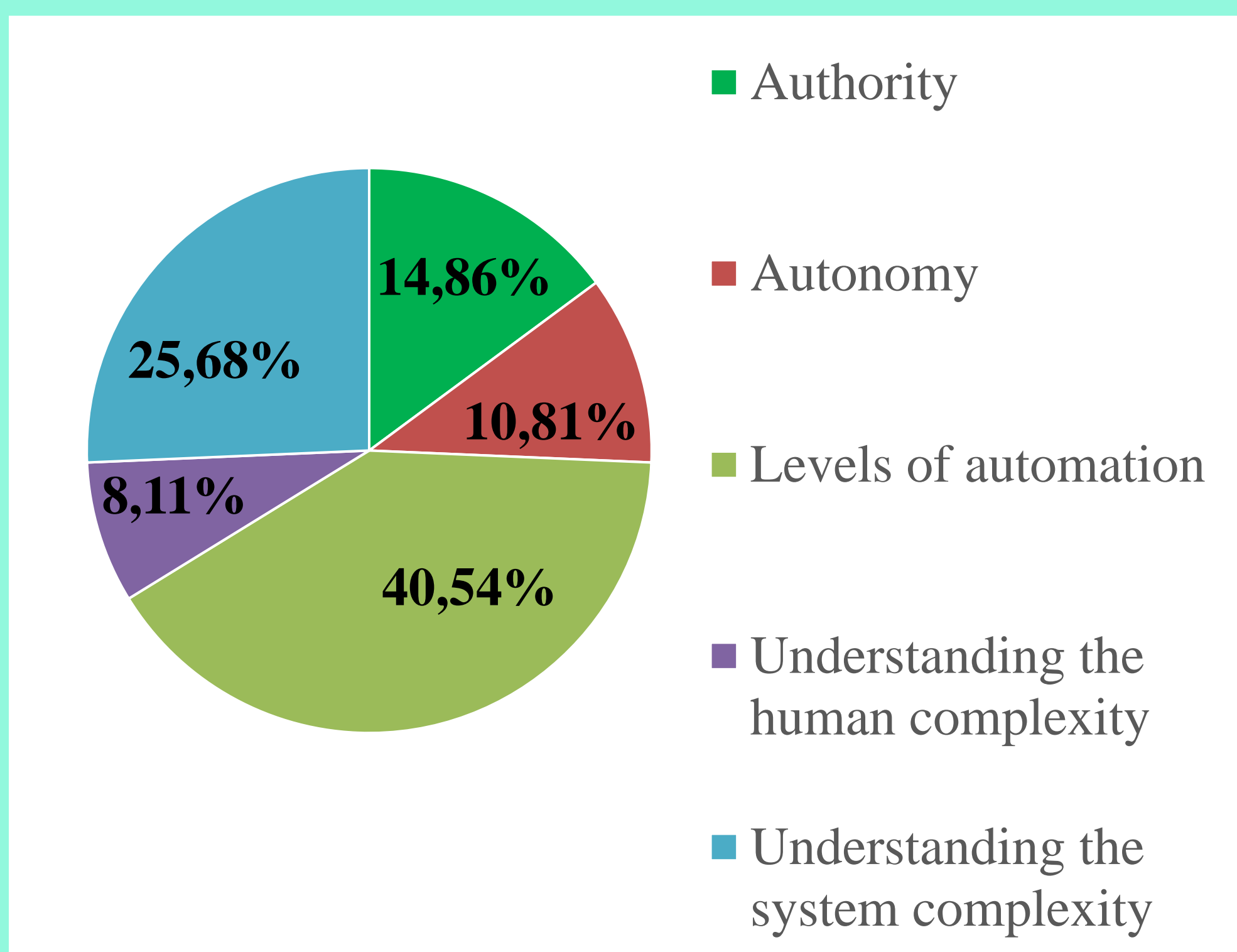### Evolution of the error rate detected in the pill boxes in Macon hospital center after automation

86,50% The automation led to a significant reduction of 86,50% errors rate in pill boxes: errors rate went from 9,33% in 2015 to 1.26% in 2018

80,95% 80,95% of Sinteco automated equipment have been evaluated performant by Macon hospital center

1,9M€ More than 1.9 million euros of gains generated in 5 years of automation

84% 84% of return-on-investment in 5 years of automation

The performance of the chosen automated solution is involved in 28,38% of automation specifications performance in Macon hospital center.

The remaining systemic parameters involved in automation specifications performance need to be controlled.

Parameters influencing Human Machine interaction and performance in Macon hospital center automated activity

- 14,86% ■ Authority
- 10,81% ■ Autonomy
- 40,54% ■ Levels of automation
- 8,11% ■ Understanding the human complexity
- 25,68% ■ Understanding the system complexity

What is next ?

1st step
ACTION PLAN
Identification and implementation of specific actions to control critical Human-Machine parameters

2nd step
FEEDBACK
Development of hospitals situation awareness about automation critical factors by sharing Macon hospital center feedback