END-USER INVOLVEMENT IN HOSPITAL BUILDING DESIGN

A case study on information management & design process:

ERASMUS MC ROTTERDAM
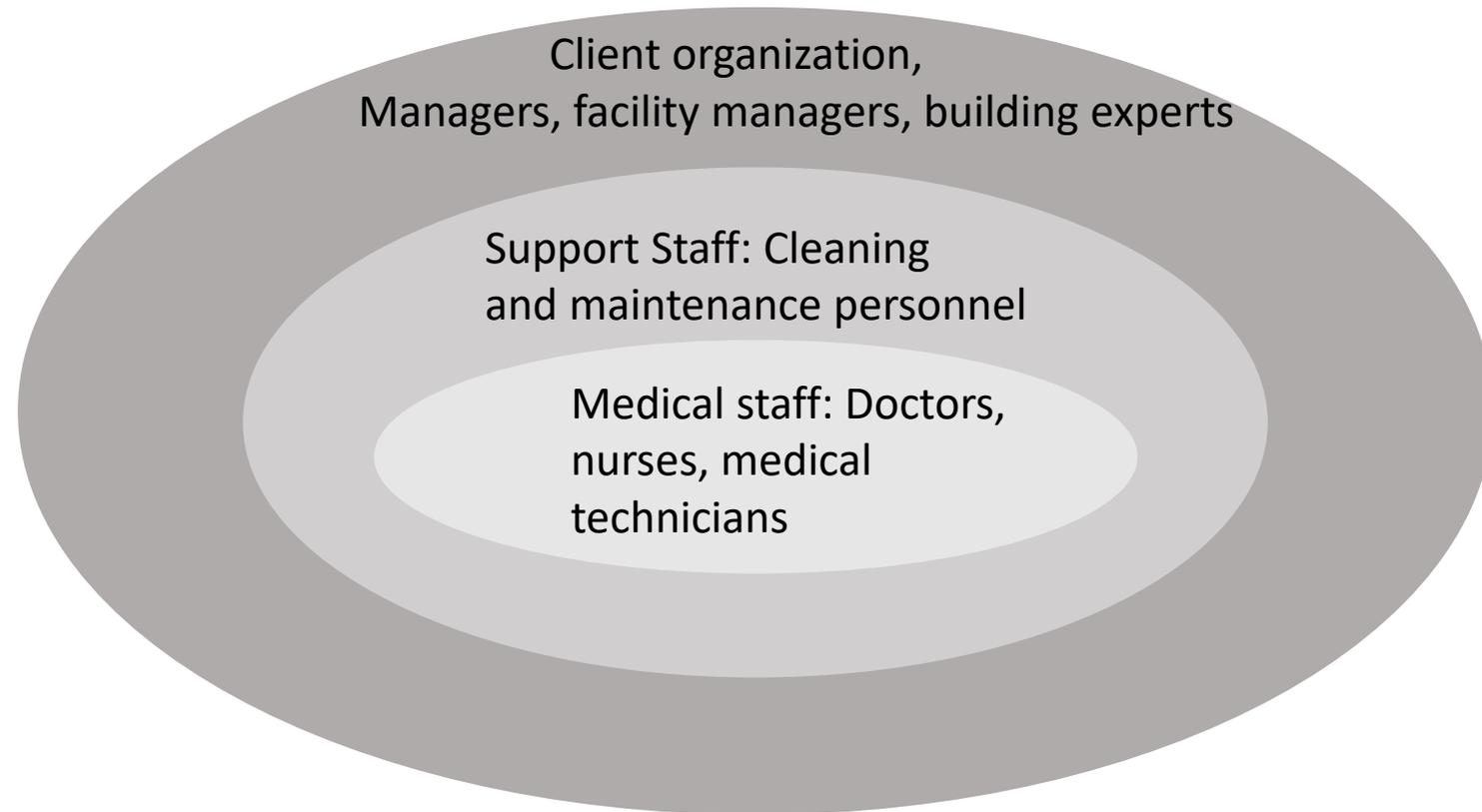

BURCAK YALNIZ   P5 PRESENTATION
5th of November 2020

The design process is different in healthcare buildings .

Emergency Department

Who are the end-users in hospital projects?

Client organization,
Managers, facility managers, building experts

Support Staff: Cleaning
and maintenance personnel

Medical staff: Doctors,
nurses, medical
technicians

Content

Introduction

Research

Findings

Conclusion

Recommendations

ERASMUS MC ROTTERDAM

History
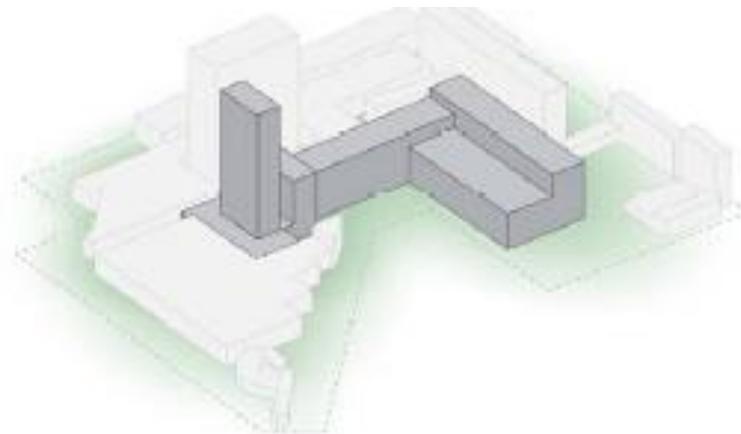

19 th century

the '60

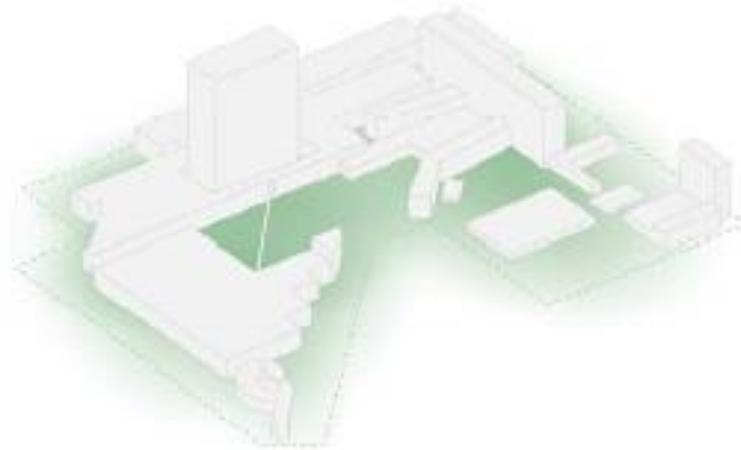**the '70**

2018

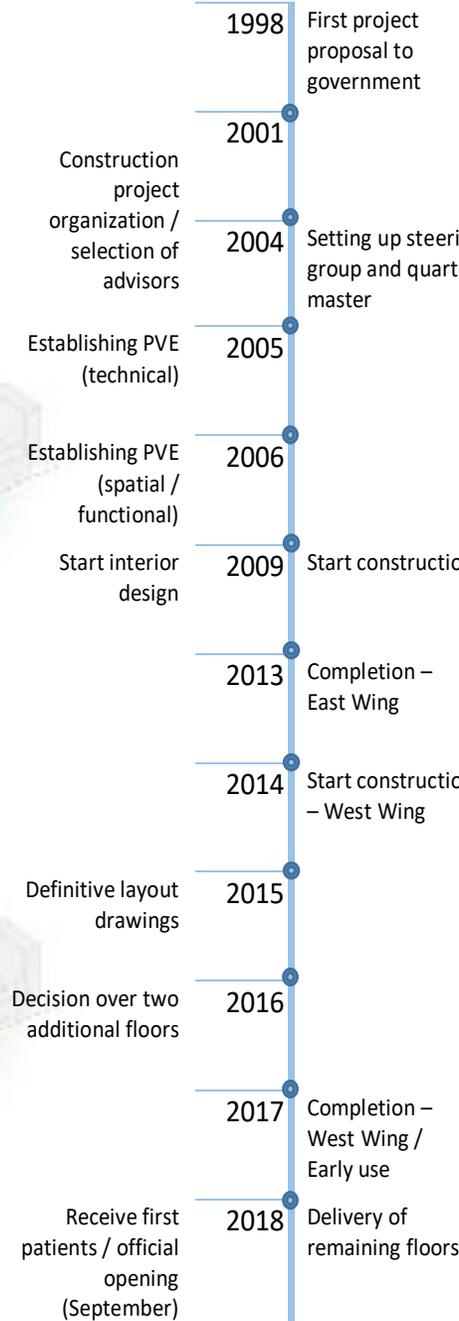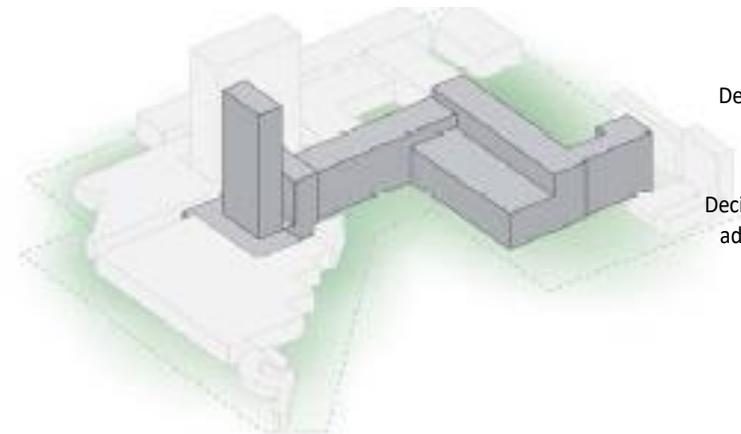# New hospital building Project

Completion :2018   240.000 sqm

Phasing & Timeline

Re-development project

Design: 2003-2015

Construction: 2009-2017

Year		
1998		First project proposal to government
2001		
2001	Construction project organization / selection of advisors	
2004		Setting up steeri group and quart master
2005	Establishing PVE (technical)	
2006	Establishing PVE (spatial / functional)	
2009	Start interior design	Start constructic
2013		Completion – East Wing
2014		Start constructic – West Wing
2015	Definitive layout drawings	
2016	Decision over two additional floors	
2017		Completion – West Wing / Early use
2018	Receive first patients / official opening (September)	Delivery of remaining floors

Existing Development

13,500 employees (23rd employer in The Netherlands)

Future Development

Design

Design

Design

Healing environment :
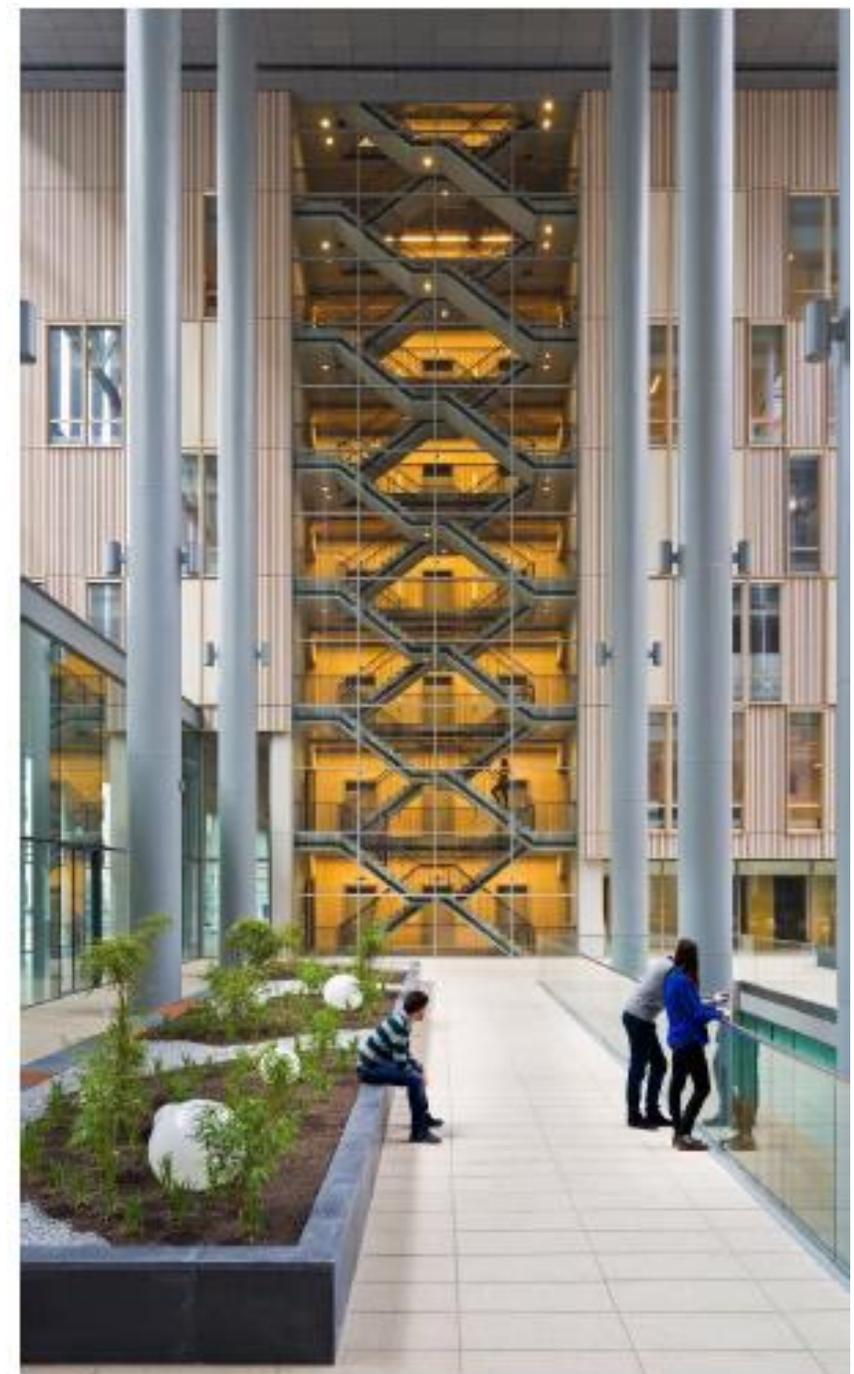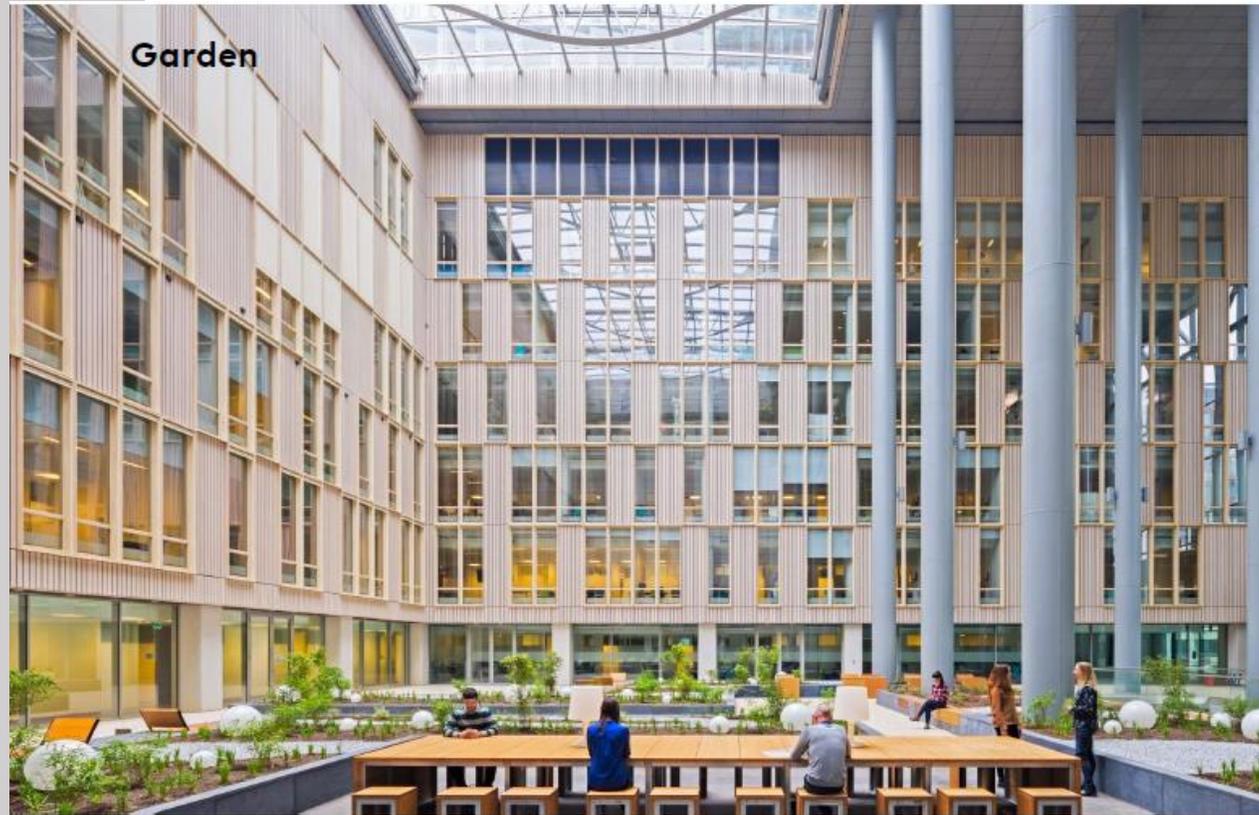**Roof gardens accessible for patients**

Design

Passage

Square

Design

Public areas in the ground floor:
Closed garden

RESEARCH

Problem Statement

design process in healthcare projects

high number of stakeholders,

involvement of end –users like medical staff.

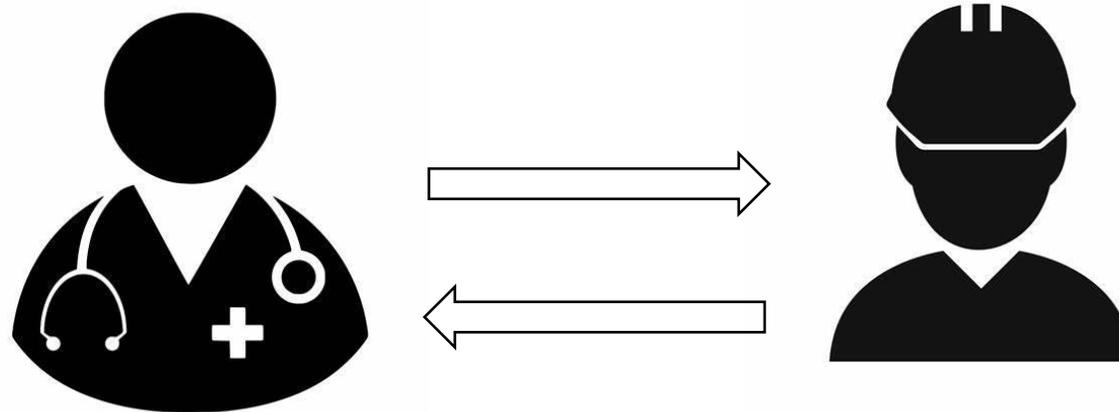**collaboration issues information asymmetry**
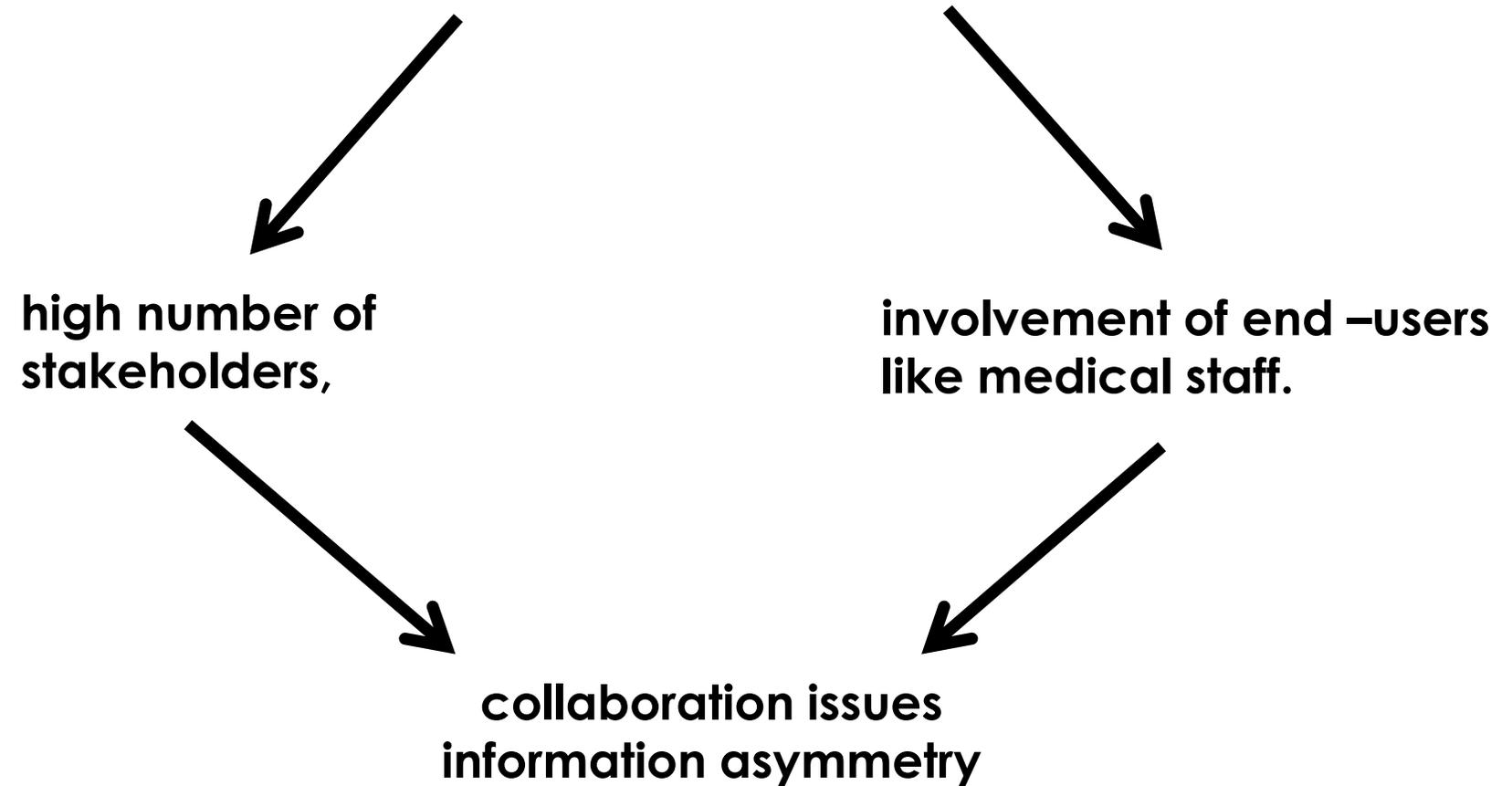
Barriers in communication and information exchange (Pemsel, 2010)

Research Aim

To gain insight into the **design process in healthcare** building projects:

Particularly **how the end-user groups** like the medical caregivers and the design team **exchanged information** and **participate on design** development.

Main Research Question

In hospital building projects, how does **the project organization** translate the **end-user information** into **design** ?

Focus
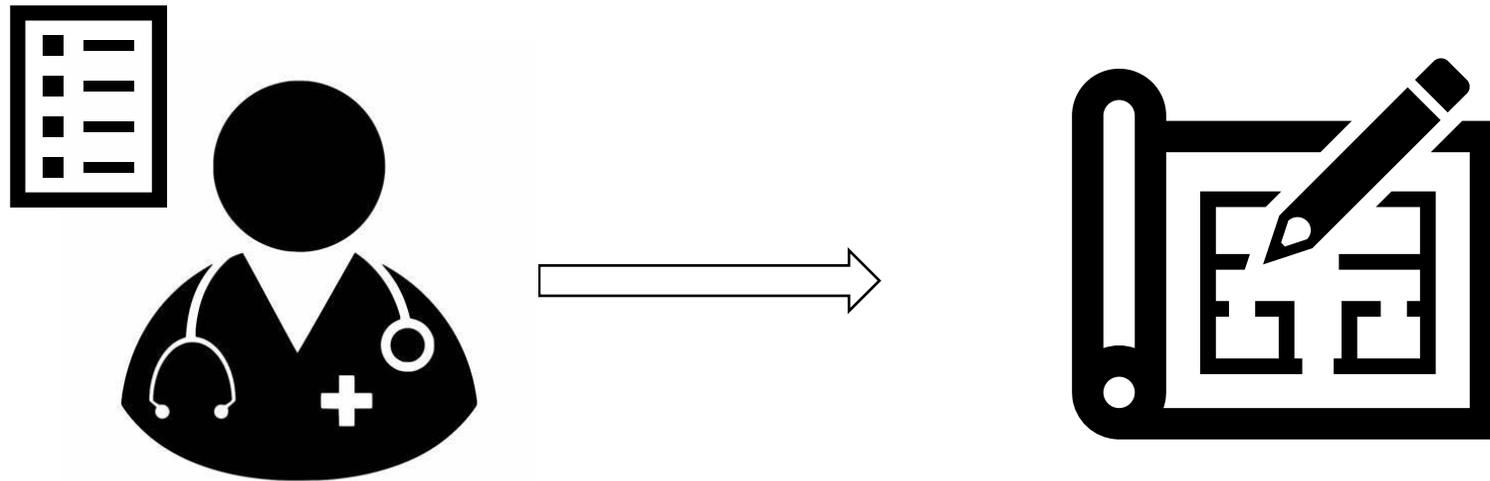
end-user - design team

interactions
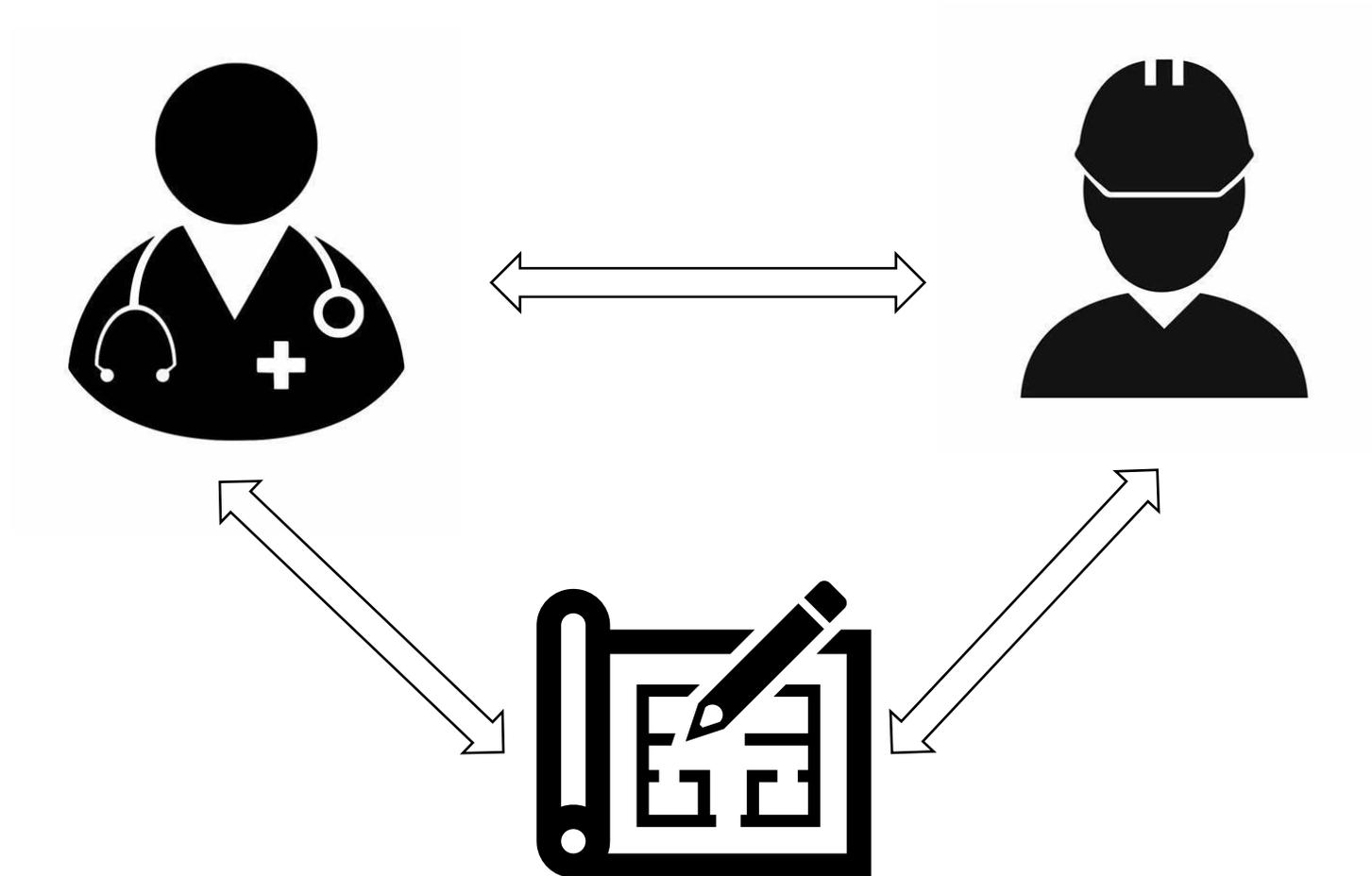
Methods

Single case study on Erasmus MC Rotterdam

Research methods : Qualitative analysis based on

1. <u>Ten in-depth interviews </u>with project organization members (internal/external)

2. <u>Document analysis in </u>more than 100 pages :

    project information documents
    process description documents
    phase documents
    memos
    evaluation documents
    presentations

FINDINGS

Design concept &principles

Flexibility
Themed approach
/Standardized layouts
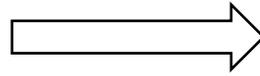
→ Involvement of
more end-users & more
evaluation

Design Principles
1.Safety first
2.Healing is leading
3.Sustainability is cheaper
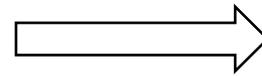
→ Prioritized design decisions

Project Organization Governance

Decision making bodies:
Steering comittee/Executive board:

Board of Directors

Finance & Control

OR,CRAZ, Staff Conv.

Steering committee new building

Sounding board

Quartermasters

Integrated building program director

Digitalization Project

New ways of working

Working Groups

User-coordinators

New building project secretary

Fit out

Realisation

Inventory & relocation

Expertise group

Project/ Program

Project Organization
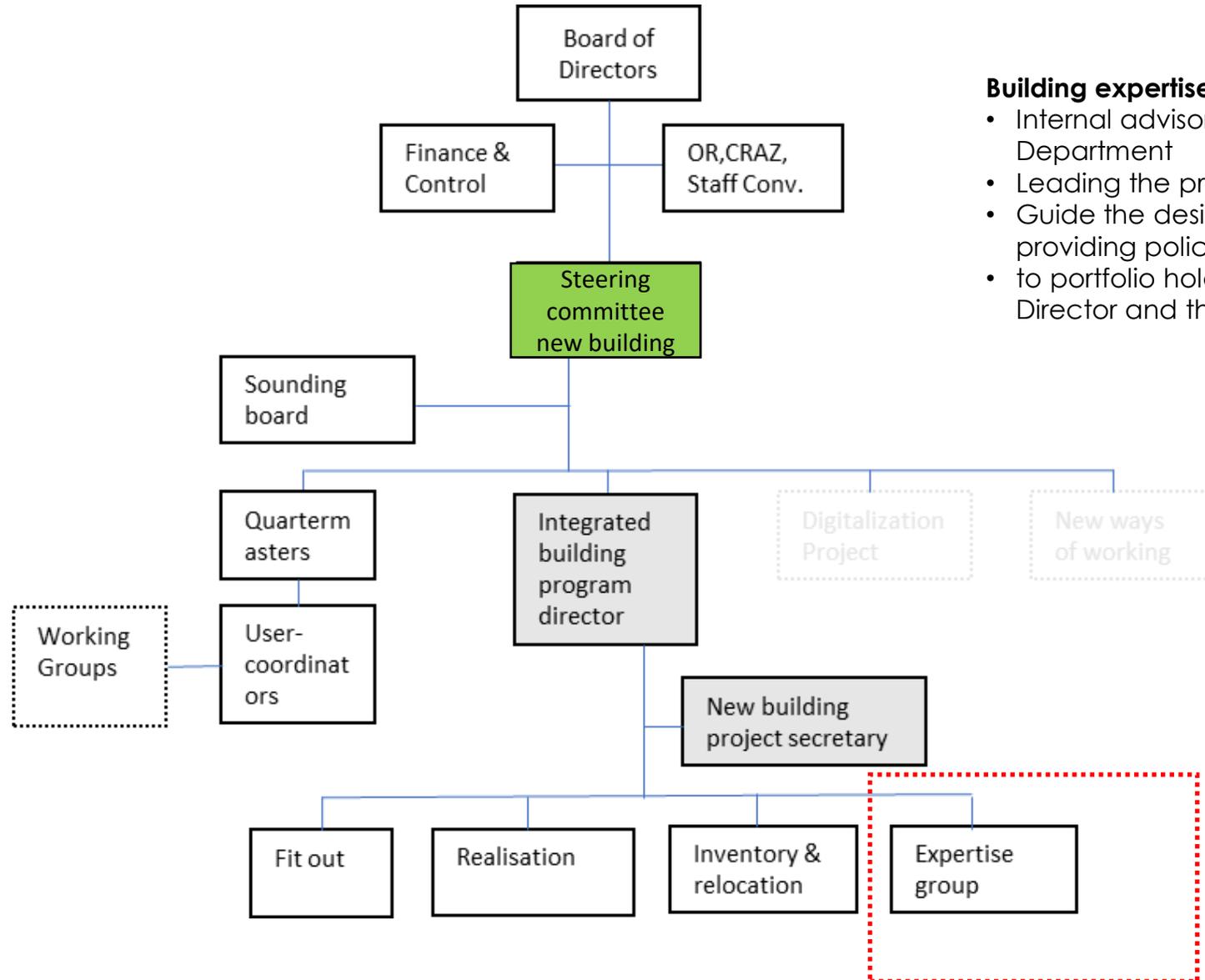
Building expertise group:
- Internal advisory group within the Housing Department
- Leading the project and program.
- Guide the design and decision making by providing policy and giving advice
- to portfolio holder, board of directors, Housing Director and the management

Project Organization

End-user /Representative Groups
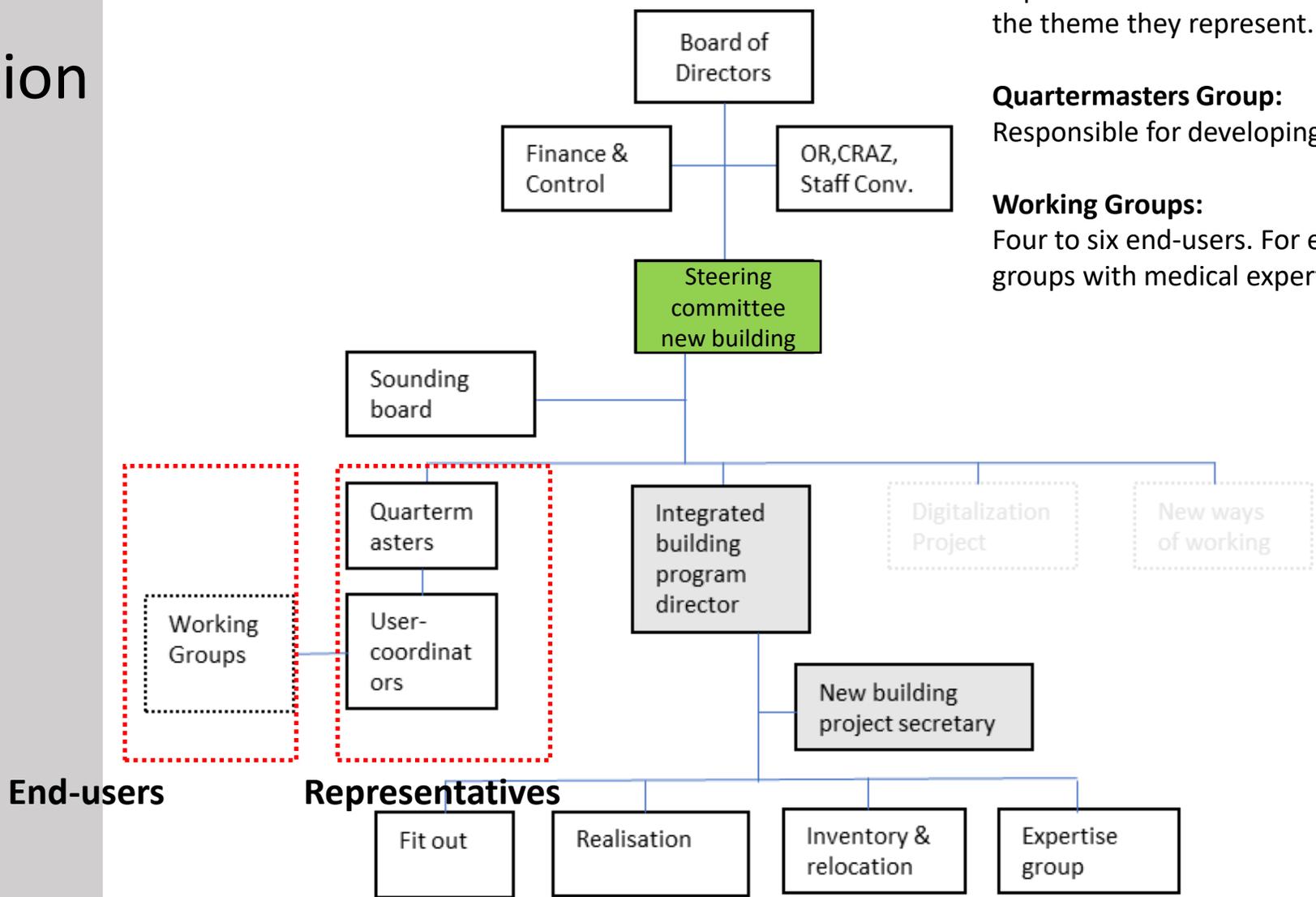
User Coordinator Group:
Representatives of End-users, they give decision on behalf of the theme they represent.

Quartermasters Group:
Responsible for developing and approval of PVE &drawings.

Working Groups:
Four to six end-users. For every theme there are working groups with medical experts.

Project Organization
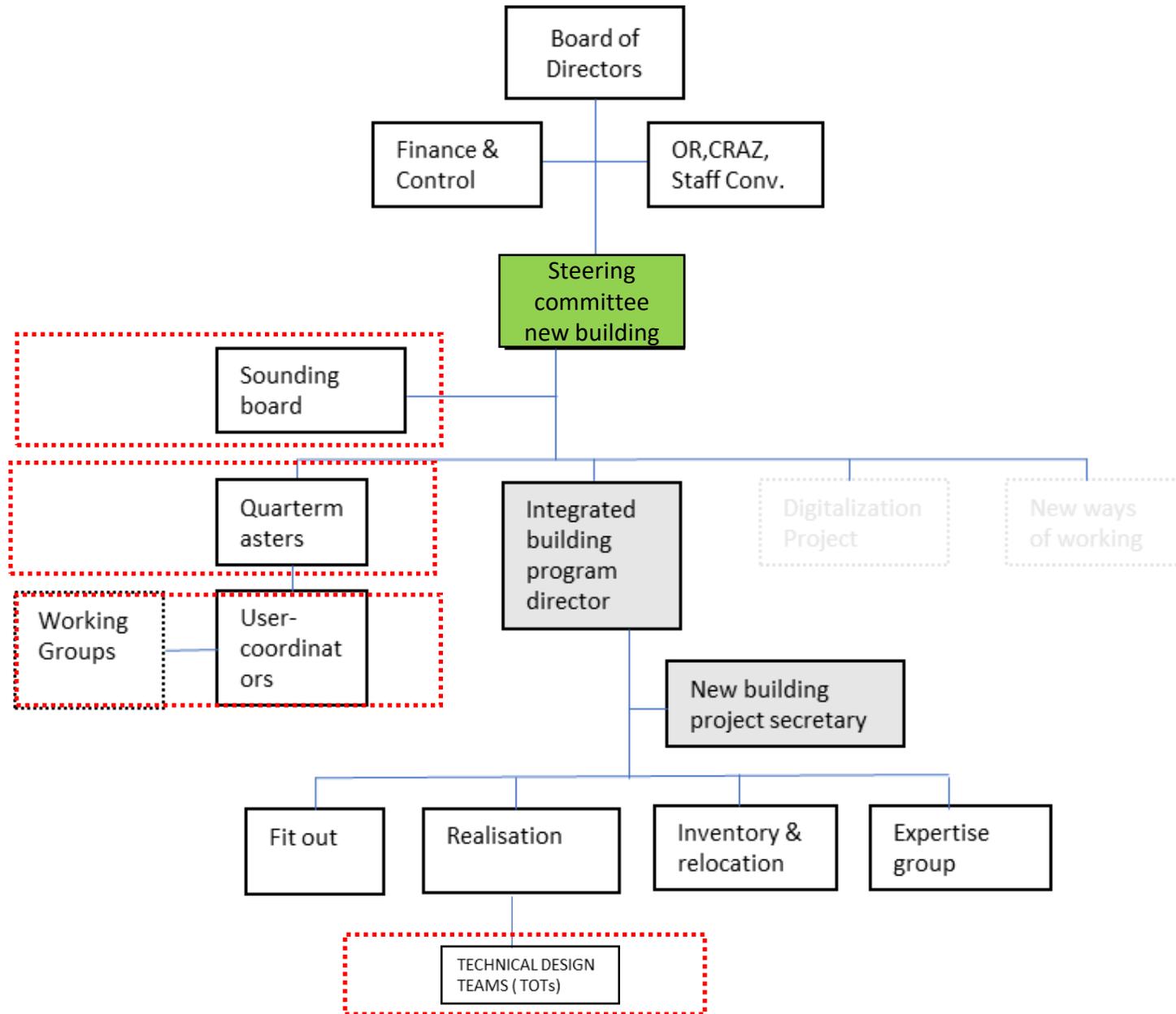
3 KEY GROUPS IN BRIEFING & DESIGN

Key groups

Building expertise group	User Coordinators	Programmers
• Manage the design and the process. • Guide the design process & prepare policy & doc. • Evaluate the PVE and design products on different aspects. • Facilitate information exchange	• Represent and engage end-users , take decisions • Explain and communicate the design progress and the decisions with end-users. • Receive feedback from the group after each design phase (design cafes)	• Prepare the PvE • Communicate requirements with the designers and the end-users in the working groups • Integrate the user requirements into the design.

Layout and PvE development & evaluation
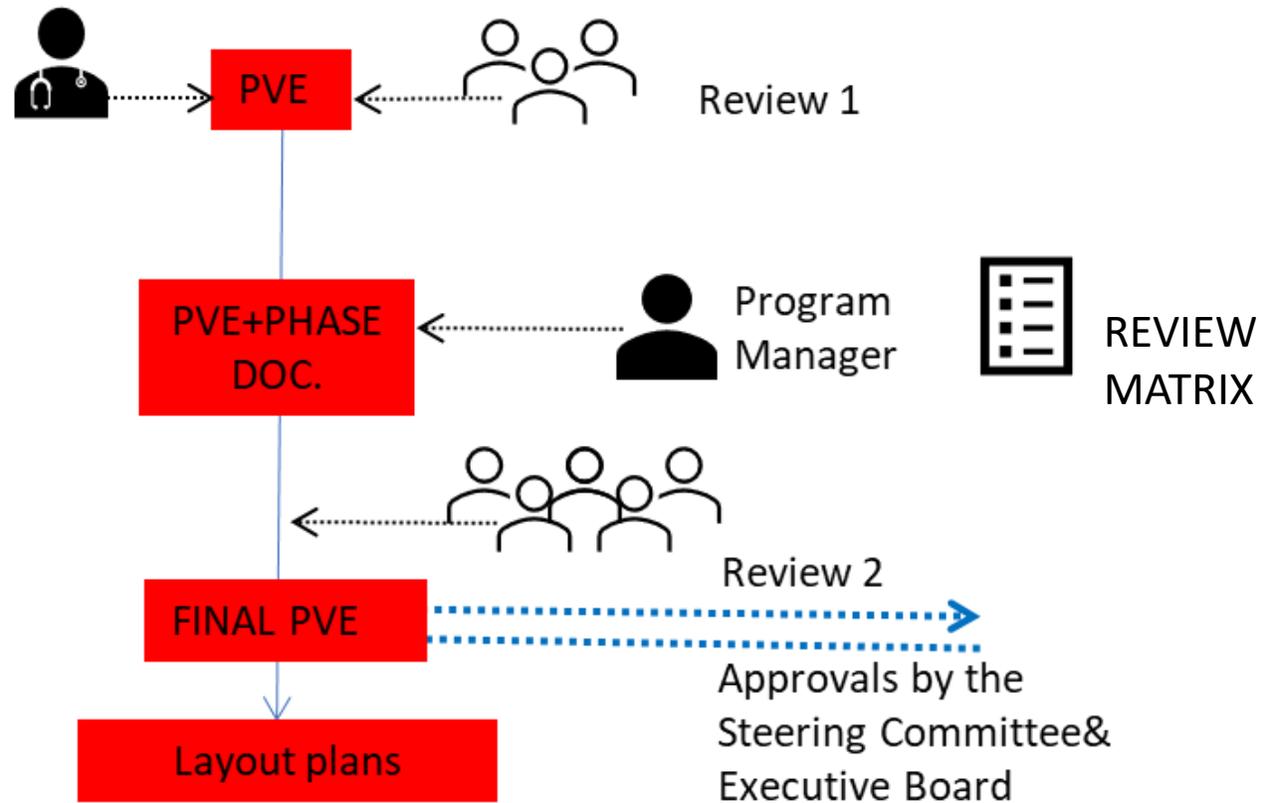
Layout evaluation & Coordination drawing development

Design
Development

PVE

REVIEW
MATRIX

Layout plans

Coordination drawings

Expert groups + end user groups

Design Process

Requirements

Review 1

Review 2

Concept Design

Developed Design

Technical Design

UC

TOT UC
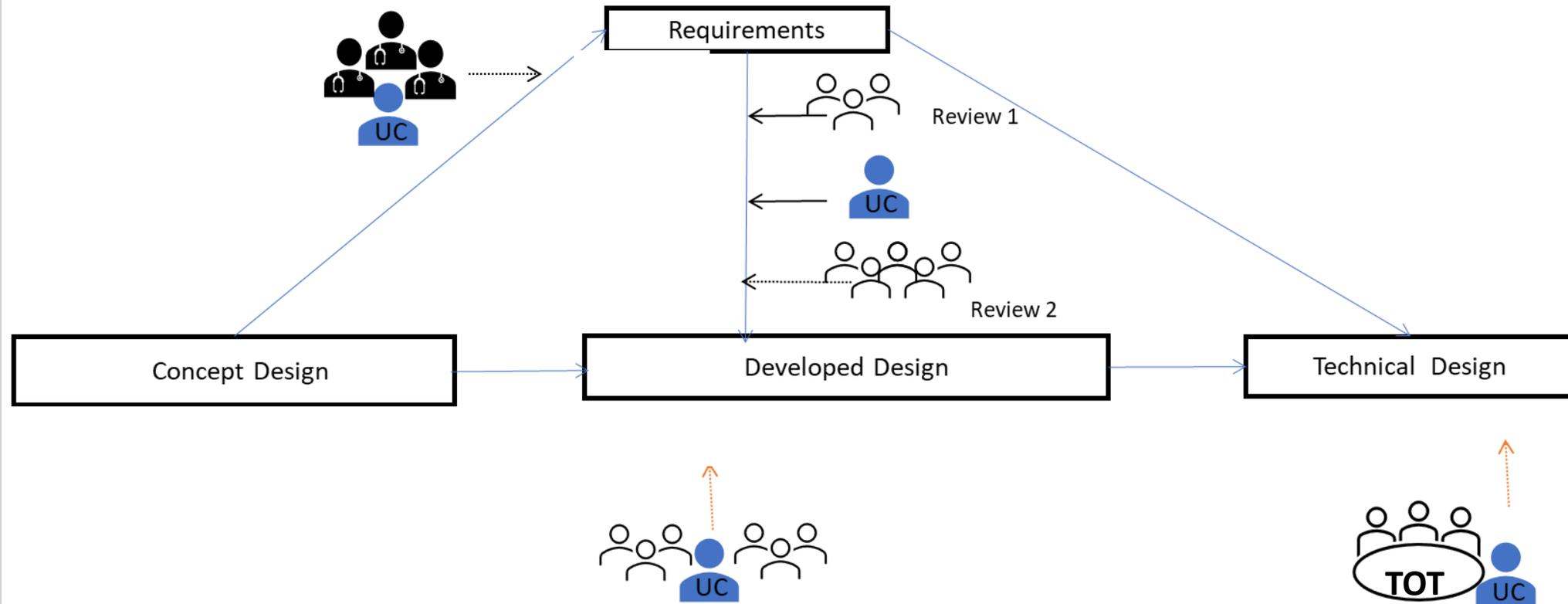
Findings-1

User Involvement

- Form of involvement is evolved during the design process

Findings-2

Two groups with key roles on information management

- <u>User Coordinators</u>

- <u>Building Expertise Group</u>

Findings-2
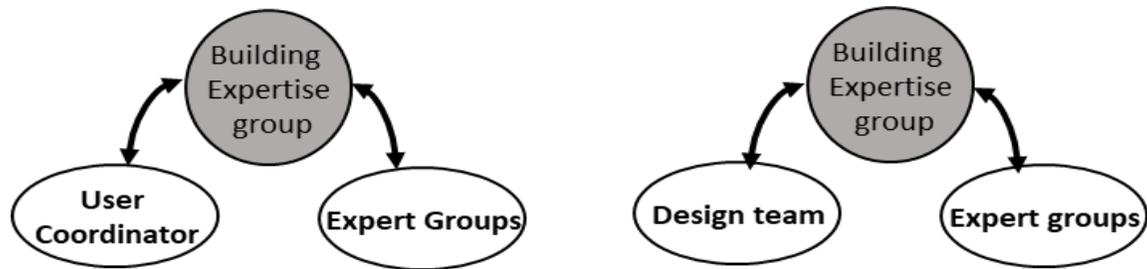
Roles on information management

- <u>User Coordinators</u>

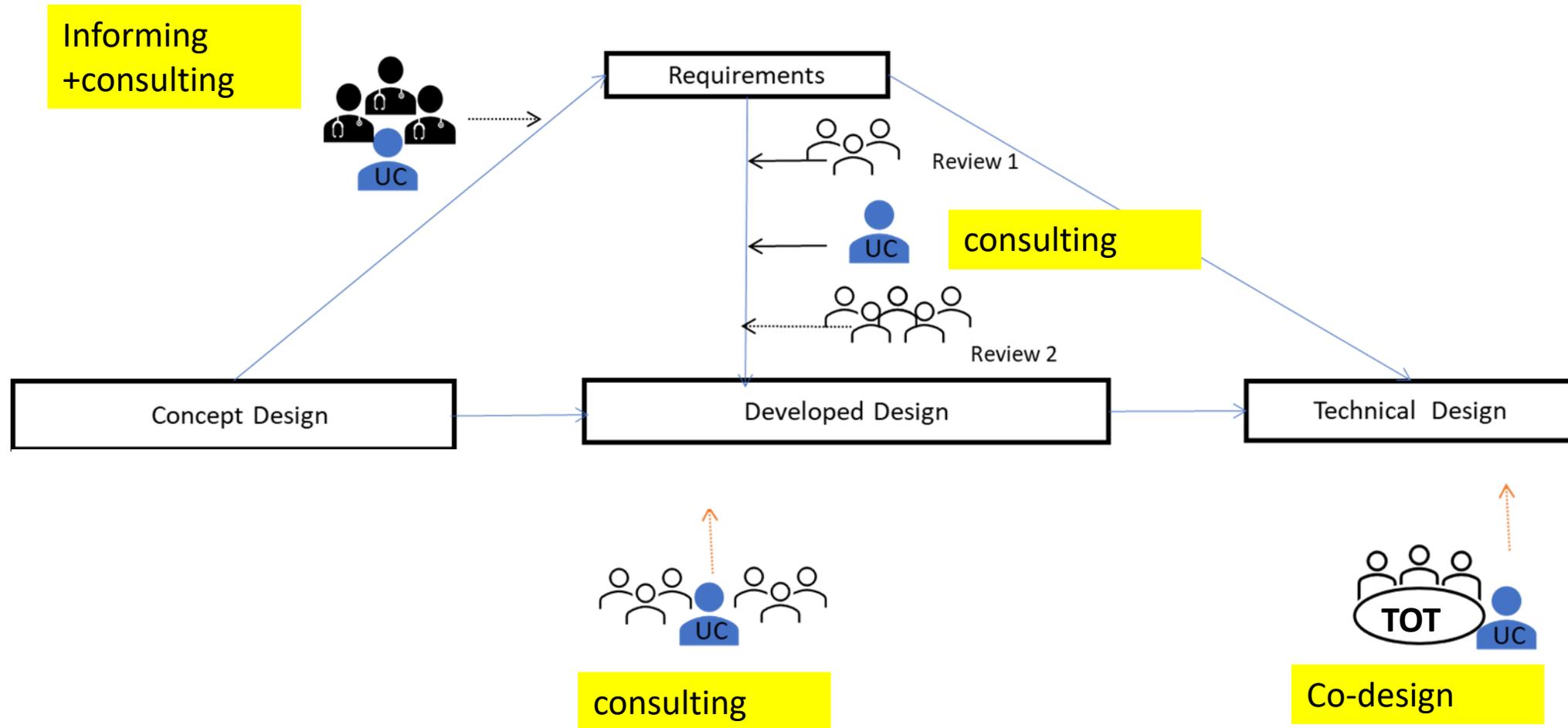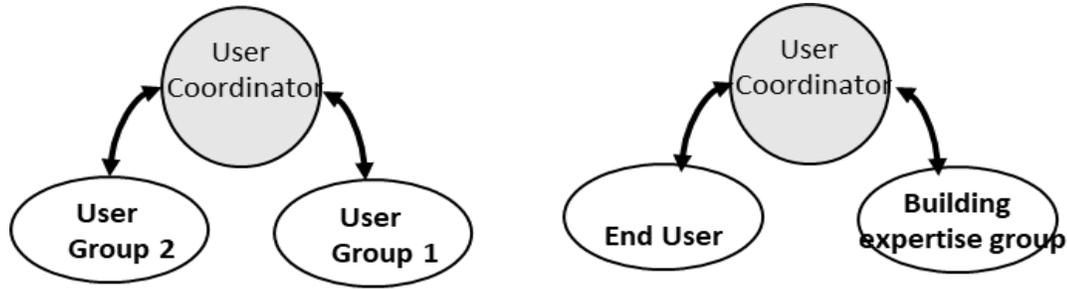| PRE-DESIGN	DESIGN	
Programming	Concept + developed design	Technical Design
- Obtain information from end-users - Help Programmers & expertise group to collect information - Exchange information with other user coordinators - Inform Quartermaster - İnform End-users	- Exchange information with user coordinators - Exchange information with program managers& designers - Inform Quartermaster - İnform End-users - Exchange information in Decision matrix	- Exchange information with user coordinators] - Inform Quartermaster - İnform End-users - Exchange information i Technical design team (TOTS)

- <u>Building Expertise Group</u>

SUPPLY	DEMAND
- Obtain information from UC - Inform-Management/Board - Evaluate information - Facilitate the information Exchange (decision matrix) - Guide/Ensure information flow.	- Deliver information to the Design team - Deliver feedback from the design team to the management if necessary.

REVIEW MATRIX :Tool for information exchange trail – communication decision making

Toetsing coördinatietekening specials verpleegafdelingen Rg en Bd West tgv inpassing Thorax

HV.93264

Datum: 3 maart 2014

| Coördinatie-tekening	Categorie / onderwerp / pg	Reactie van toetser	EN	SO	DP A&M	UNIP	VG	SOK	DI	Gebruiker	Opmerkingen
											EN: Expertisegroep Nieuwbouw: LH: Liesbeth van Heel, I2: Jacco Immerzeel en RG:Rien Goedhart; **SO: Facilitair Bedrijf:** RK; Rianne de Kock **DP, A&M: Directie Personeel sector Arbo & Milieu:** JD: Jos van Diessen; AV: Annemarie Vonk; ZK: Zita Kolder **UNIP: Unit Infectiepreventie:** GV: Greet Vos , RG: Ron de Groot; **VG: Vastgoedbeheer:** JA: John Amptmeijer, FG: Frans Garnier, SV:Sjef vermeeren; JS: John Samshuijzen **SOK: SO Kennis:**MP: Marianne Pelk; JB: Jolanda Buijs **DI: Directie Informatie:** JS: John Scheepers, RB: Rik Binkhorst, SV: Siska Verlaan **Gebruiker:** MvO: Miranda van Oosten; KY: Klaas Ijntema; RR: Rahesk Ramdhan; BB: Bert Bannink; JH: Joke van der Heijden; JB: Joke Beukers; BB: Bart Bosch; CV: Conny Vos; EB: Eric Benda
Algemeen	**Algemeen**										
	Later aanleveren	Ivm vakantieweek niet tijdig reactie kunnen aanleveren, deze volgt nog!				AV					
	Eerder besproken	Rien/Dieudonnée hebben de tekeningen op een eerder moment doorgenomen. Donderdag 27/2 wordt de lijst doorgenomen op wel/niet verwerkt	RG								
Algemeen	geen	Geen opmerkingen		JB							
renvooi	patientendetectie door Erasmus	In het renvooi staat Patientendetectie door Erasmus. Zijn er wel voorzieningen opgenomen, om dit mogelijk te maken?	I2								nee; indien noodzakelijk zullen er in de toekomst op de gewenste plaatsen extra datavoorzieningen opgenomen worden worden
verpleegpost	intercom	Per verpleegpost opgeven met welke intercoms verbonden zijn aan het tafelmodel bij de verpleegpost inclusief camera's.	I2								dit gebeurt in het bestek
zonwering	Zonwering bediening	Bediening zonwering ontbreekt in diverse ruimten.	I2								staat niet op de inrichtingstekening; is uiteraard wel opgenomen. Op de patiëntenkamer is uitgegaan van besturing via ta blet
eisen	gestelde eisen patientenkamers	Gestelde eisen aan de patiëntenkamers ontbreken op de afsprakentekeningen, graag toevoegen zodat achteraf getoetst kan worden waar aan voldaan moest worden voor de gebruiker.	I2								Deze opmerking kan niet geplaatst worden. Daar waar afwijkingen zijn tov voorgaande fasen, bijvoorbeeld ten aanzien van aansluitingen, is dit op de tekening aangeven. Voor het overige gelden de randvoorwaarden conform reeds voorgaande en goedgekeurde fasen

REVIEW MATRIX TEMPLATE

Date:

Drawing No:	category subject / projectteam	Remark by the reviewer	Remark made by:										Feedback programmer / project manager (will the remark lead to a change in the reviewed document? Will a comment be passen on to the design team to address in a next phase? Is a remark not taken into consideration due to prior decision making or accepted standards? etcetera)
			RE HB&A	RE VGB	SB Facilities	SB Arbo	UNIP	SB Quality	SB I&T	User Coord.			
													RE HB&V: functional advisor, technical advisor, workplace expert, (internal) hospital planner from corporate real estate department **RE VGB**: teamleader / MT-members of the maintenance organization **SB Facilities:** user coordinator collecting input from the logistics department, cleaning, hospitality, mobility & security **SB Arbo:** Ergonomics & Environmental (*) **UNIP**: Unit Infection Prevention (*) **SB Quality**: user coordinator providing input from quality advisors in the themes on policy, patient care and the quality information system **SB I&T:** Information & (Medical) Technology **User Coord.:** peers in the same role from other themes and functions **(*)these units are the Safety Experts and they can have a formal responsibility for quality assuring in some organisations**
	Sanitary	Sufficient space must be available in front areas near washbasins for hanging a towel dispenser and waste bin		XX									this is the standard configuration; in areas where there is insufficient space next to the washbasin, there is always room on the side wall for hanging
	Guardpost	Desk is place not facing the door. Doesn't work well (you want to be able to see who is entering space).					XX						This comment is submitted to the architect. Incidentally, it should be noted that in principle this is not a area where staff will sit for a long time as they move in space.

TUDelft -Yalniz P5 Presentation

Findings-3

Decision Making Process

- **Informed& transparent decision**- making process.
- **End-user groups are not participating formally in decision making procedures.**
- **They participate in different rounds of reviewing activities.**
- **Review matrices are used as decision making support tools.**
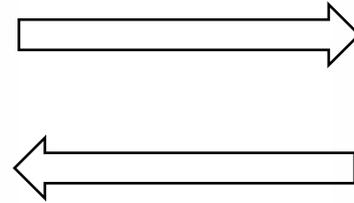
CONCLUSION

Boundaries
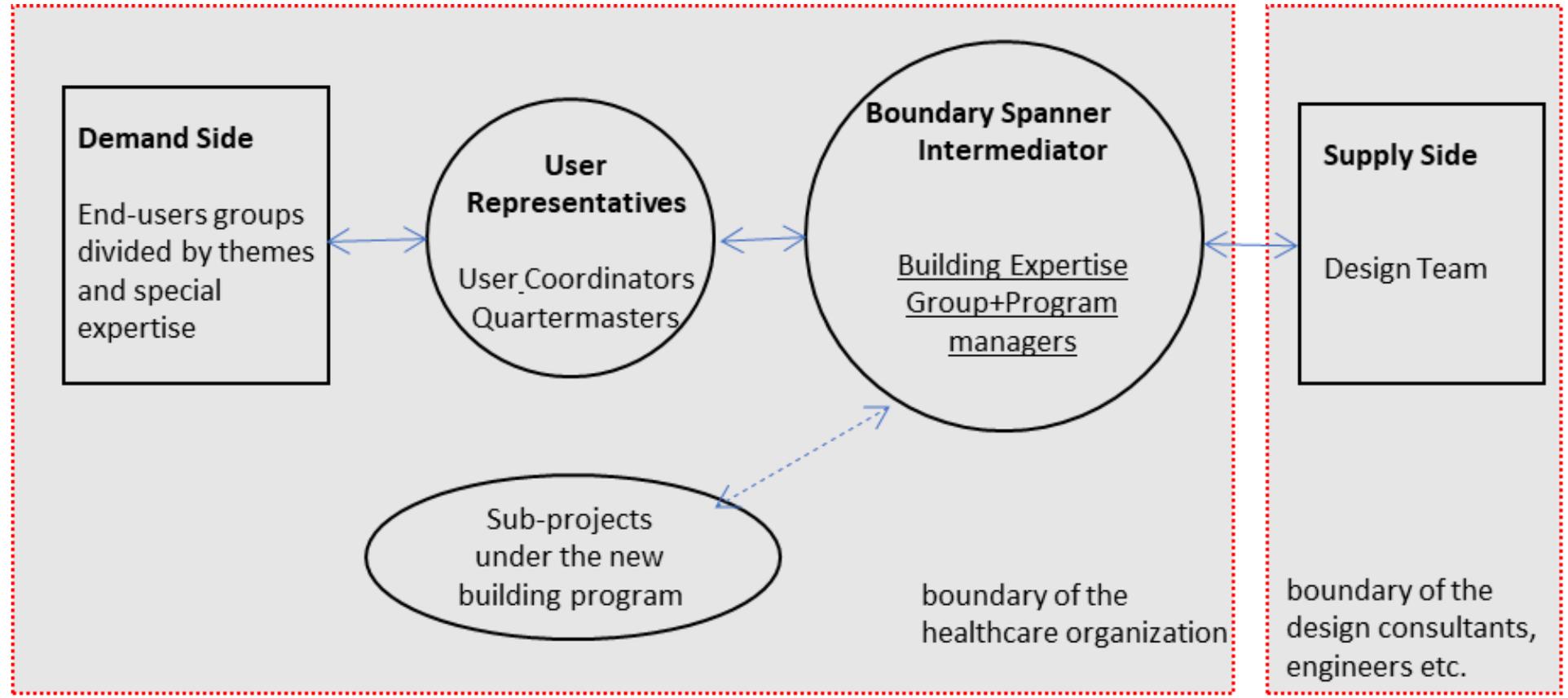
Findings on roles of the building expertise group and boundaries in Erasmus MC (own ill. Based on Jensen, 2011)

Conclusion

coordinator role of the user representatives intermediator role of the building expertise group + acting between different boundaries are the key

RECOMMENDATIONS

Practice

- **Identifying <u>roles and responsibilities</u>**

- **<u>Transparent</u> decision-making process:**

- **Use of <u>boundary objects</u> and methods:**

- **<u>Systematic</u> end-user involvement and representation**

- **Higher level of user involvement <u>in technical design phase</u>**

Research

- **<u>User involvement</u> in other healthcare design projects and large-scale building projects**

- **End-user and <u>user satisfaction on their involvement in</u> Erasmus MC**

- **In depth analysis of <u>review matrices</u>**

Impact of COVID-19

Reflection&
Additional
Recommen
dation

THANK YOU FOR YOUR PARTICIPATION !

- All photos are retrieved from EGM architects 2020