CIHAN UNIVERSITY/SULIMANIA,
ARCHITECTURAL ENGINEERING DEPT.
FIFTH YEAR 2025-2026
FIRST SEMESTER THESIS

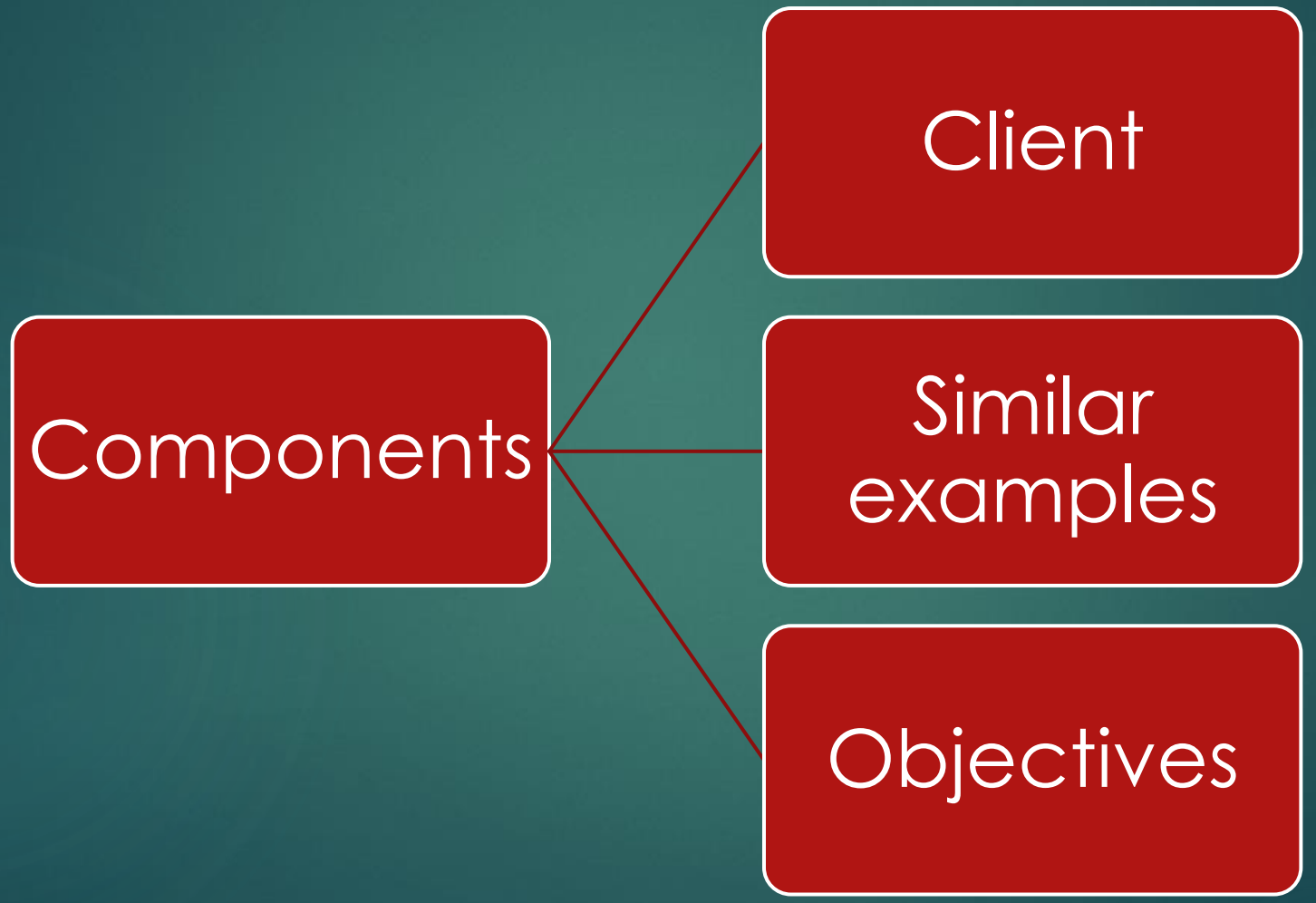
CIHAN UNIVERSITY
SULAIMANI

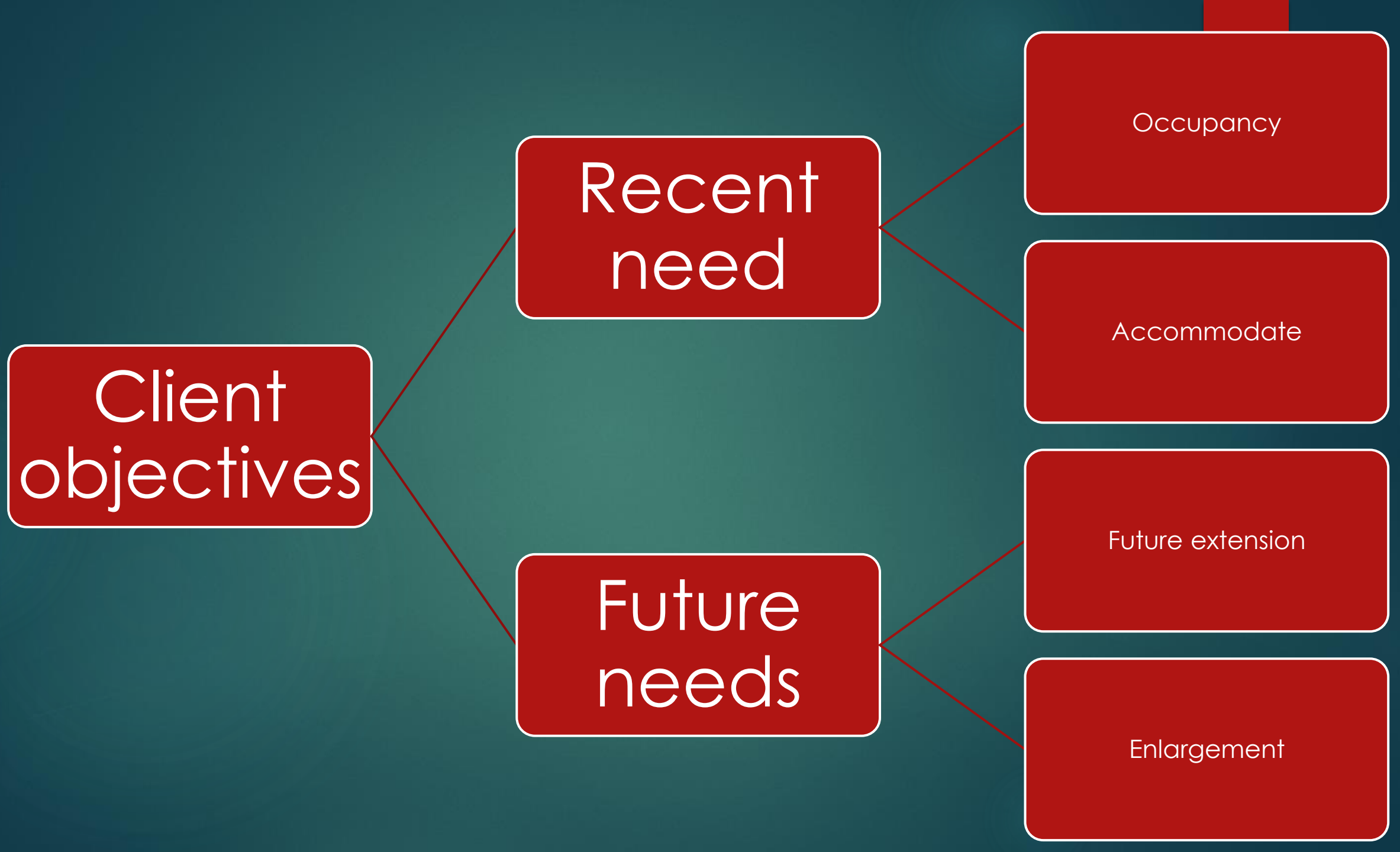
Functional Study

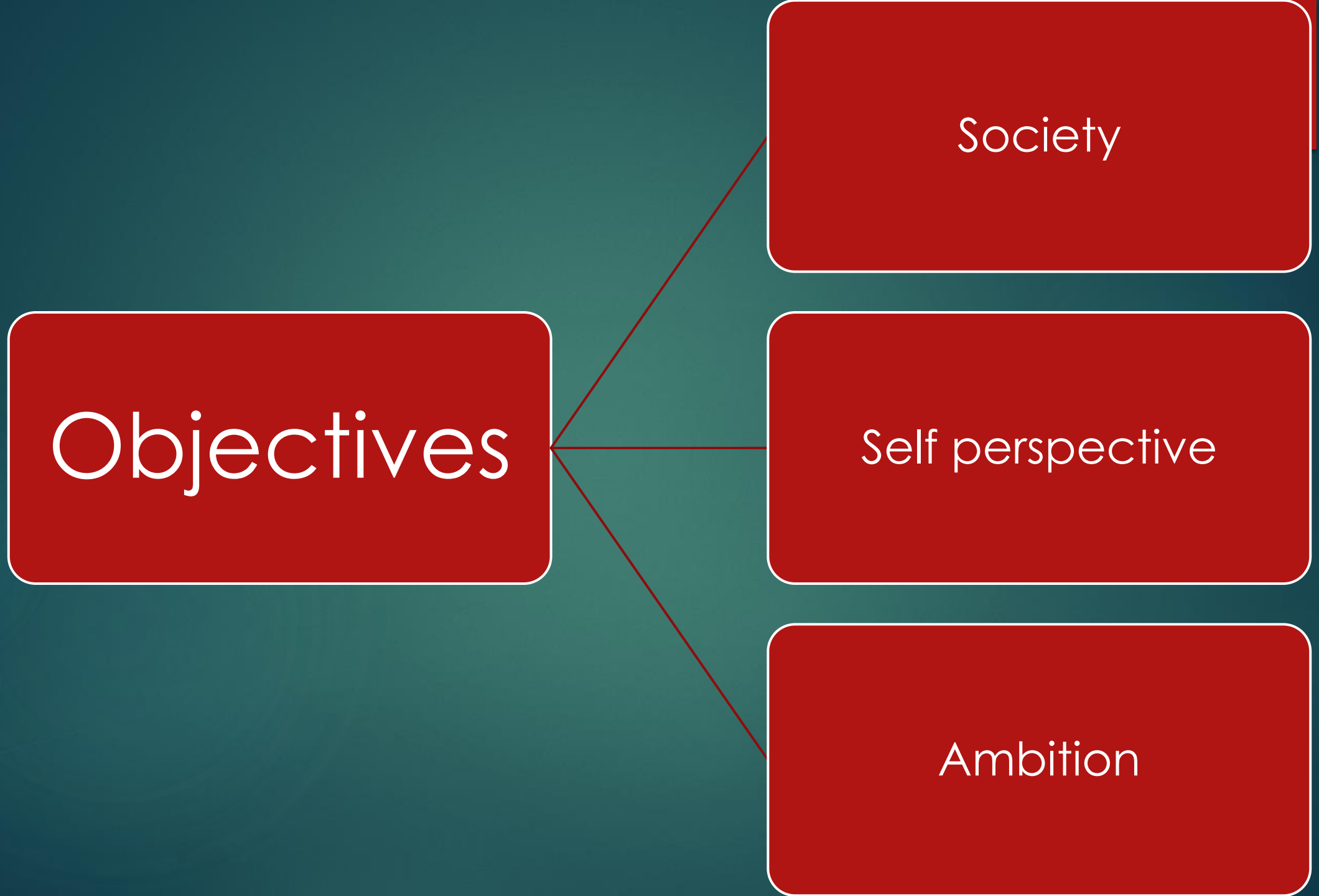
CHAPTER 3
LECTURE 4

DR. NAHEDH T. AL-QEMAQCHI

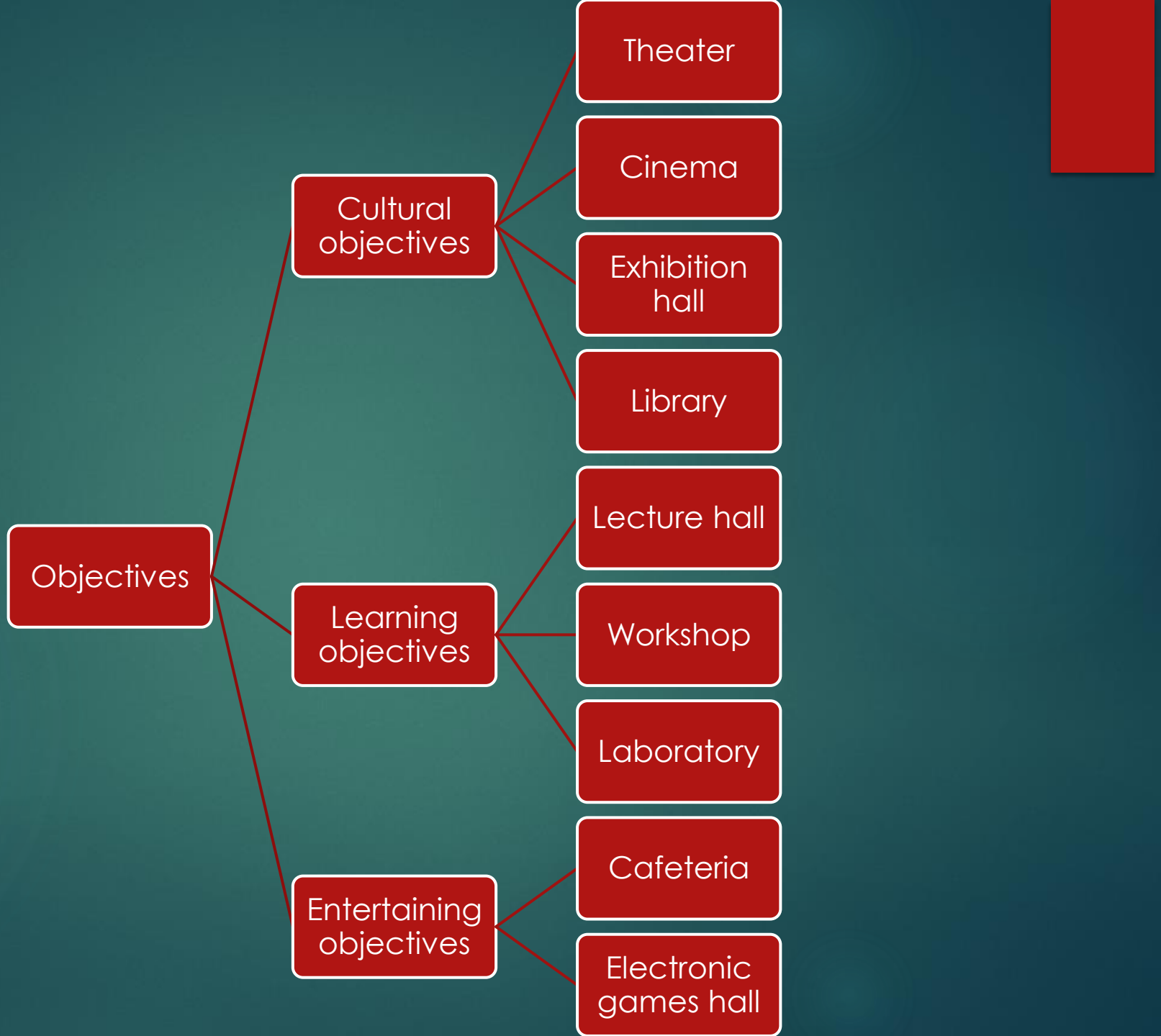
Functional study




Client objectives
Recent need
Future needs
Occupancy
Accommodate
Future extension
Enlargement


Objectives
Society
Self perspective
Ambition

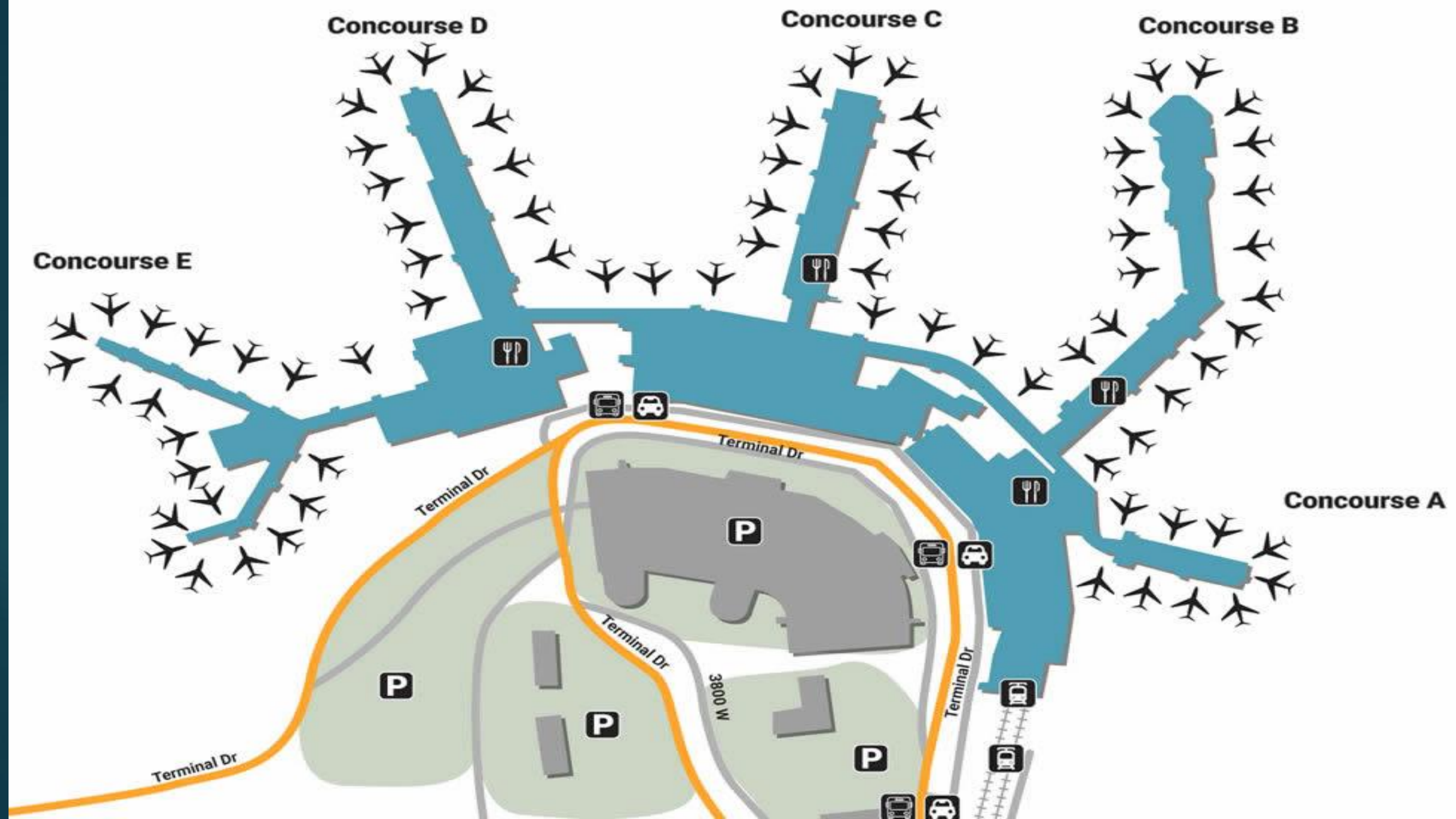
Example


Objectives
Cultural objectives
Theater
Cinema
Exhibition hall
Library
Learning objectives
Lecture hall
Workshop
Laboratory
Entertaining objectives
Cafeteria
Electronic games hall

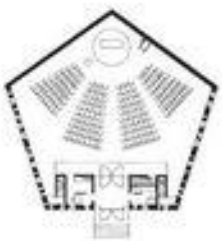
Similar examples

- Facilities layout
- Supporting facilities
- Services

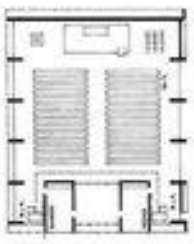
Component	Similar Example 1 (Dogus Technology Research Center)	Similar Example 2 (St. Pölten Research Center)	Similar Example 3 (Watt Family Innovation Center)	Interview with Researcher (Dr.Azhi Azad Abwbakr)
Entrance Hall	✓	✓	✓	✓
Administration	✓	✓	✓	✓
Research Area	✓	✓	✓	✓
Learning Zone	-	✓	✓	✓
Offices	✓	✓	✓	✓
Cafe	✓	✓	✓	✓
Data Center	✓	✓	-	-
Services	✓	✓	✓	✓
Mechanical & Electrical	✓	✓	✓	✓
Gallery	-	-	✓	✓


Concourse D
Concourse C
Concourse B
Concourse E
Concourse A
Terminal Dr
Terminal Dr
Terminal Dr
Terminal Dr
Terminal Dr
Terminal Dr
3800 W
P
P
P
P

Calw 1965

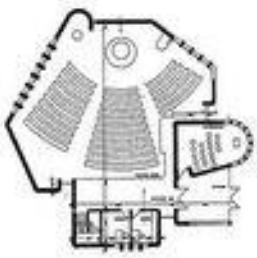


S-Sommerrain 1966



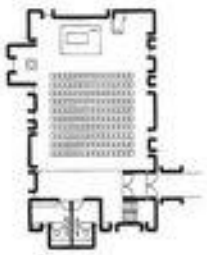
S-Hohenheim 1967

Schwäbisch Gmünd 1969

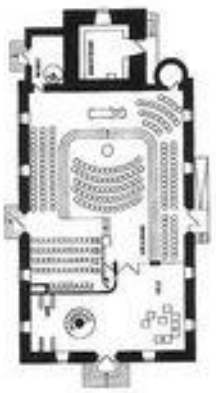


Kassel 1970

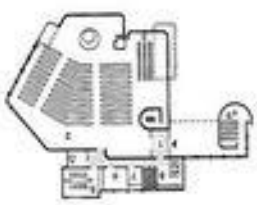
Esslingen 1963



Plochingen 1966

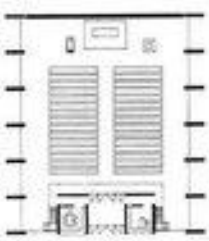


Güglingen 1977



S-Luginsland 1969

Tuttlingen 1966

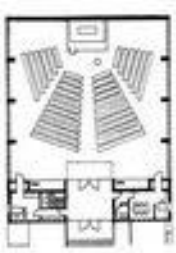


Sindelfingen-2 1963

Leutkirch 1973

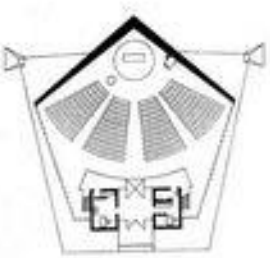
Leonberg 1965

Ludwigsburg 1964



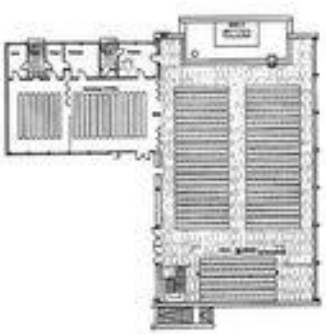
Böblingen 1961

Jebenhausen 1965

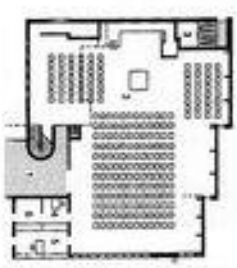


Ulm 1966

S-Bad Cannstatt 1960

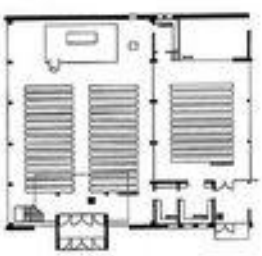


Stuttgart-West 1961

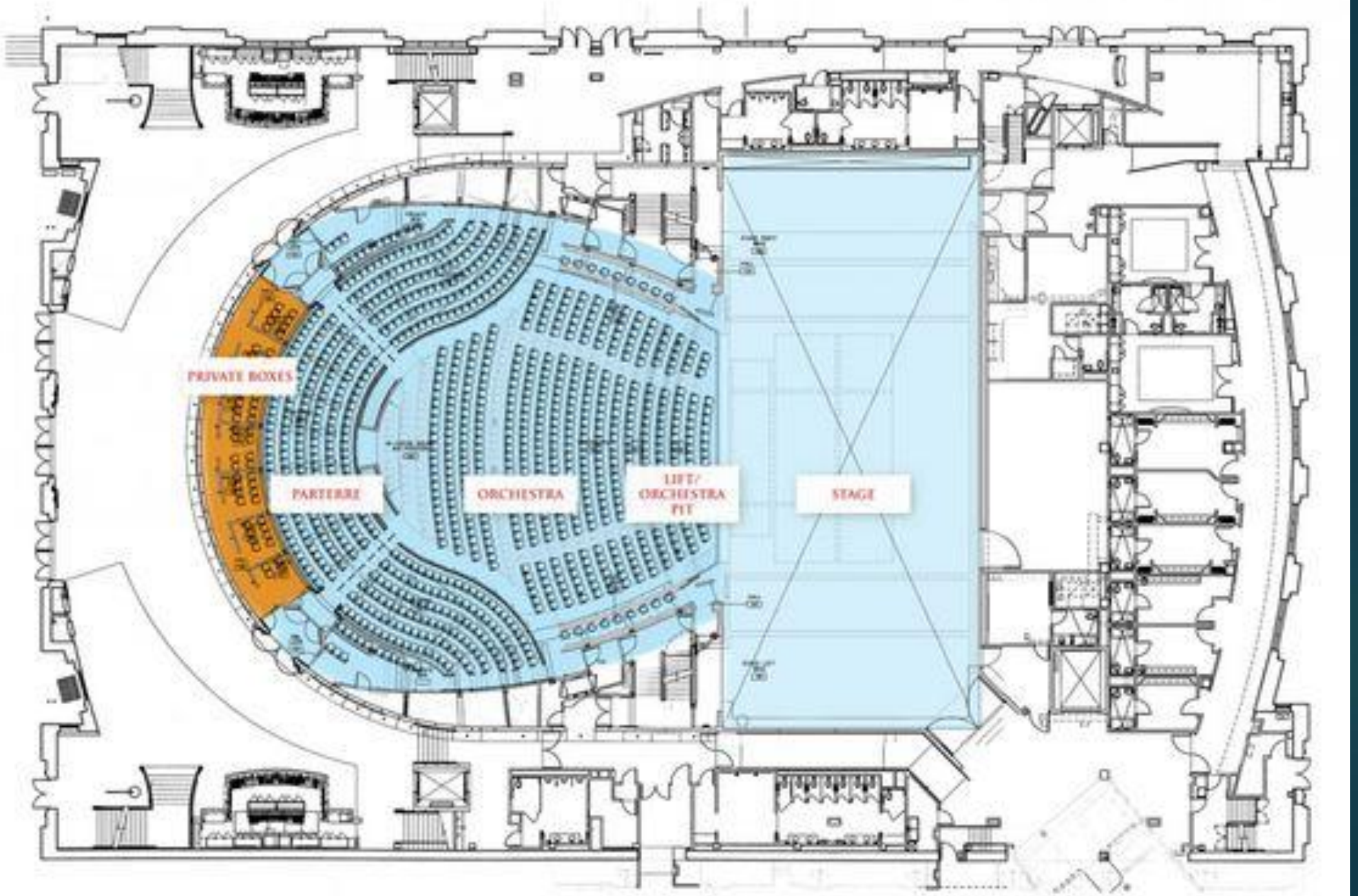


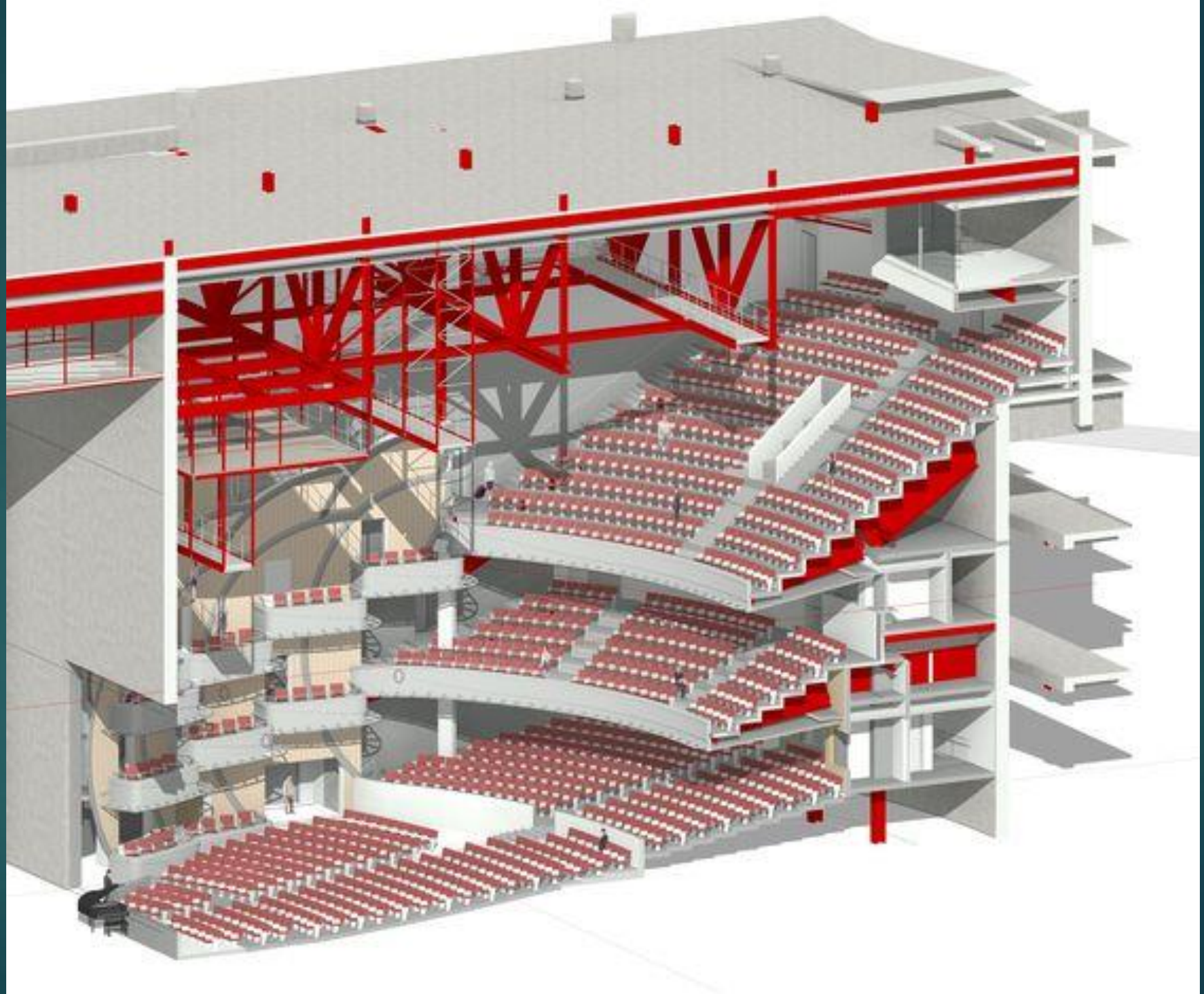
Sindelfingen-3 1967

Sindelfingen-1 1959



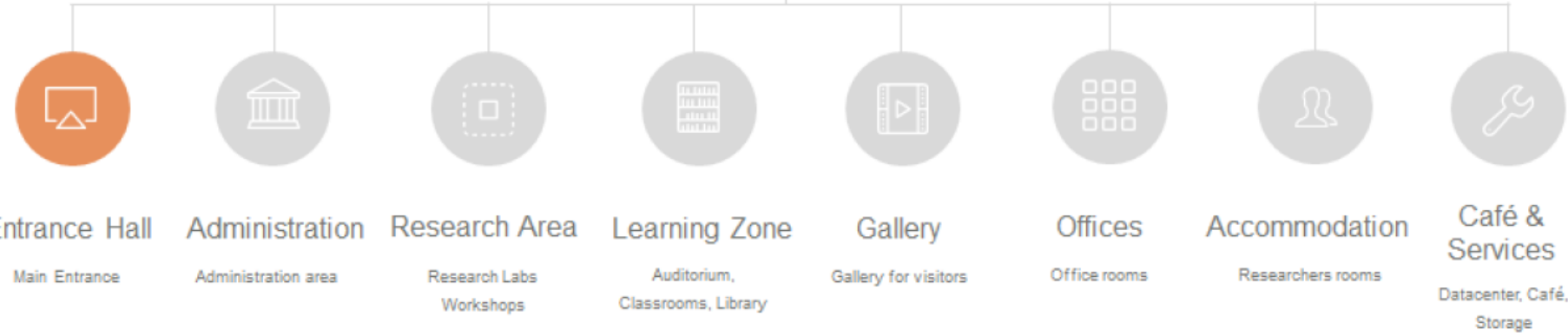
Backnang 1962


PRIVATE BOXES
PARTERRE
ORCHESTRA
LIFT/
ORCHESTRA
PIT
STAGE



Spaces requirements sheet

Spaces requirements sheet



1. Entrance Hall	No.	Occupation	Reference	area / person	Reference	Total Area
1. Entrance	1	25	(1)	$1m^2$	(1)	$25m^2$
2. Information	1	2	(1)	$15m^2$	(1)	$30m^2$
3. Waiting Area	1	7	(2)	$8m^2$	(2)	$56m^2$
4. Store	1	-	-	-	(2)	$25m^2$
5. W.C	2	4	(3)	$1.67m^2$	(6)	$15m^2$
						Total = $151m^2$

Entrance Hall
Main Entrance

Administration
Administration area

Research Area
Research Labs
Workshops

Learning Zone
Auditorium,
Classrooms, Library

Gallery
Gallery for visitors

Offices
Office rooms

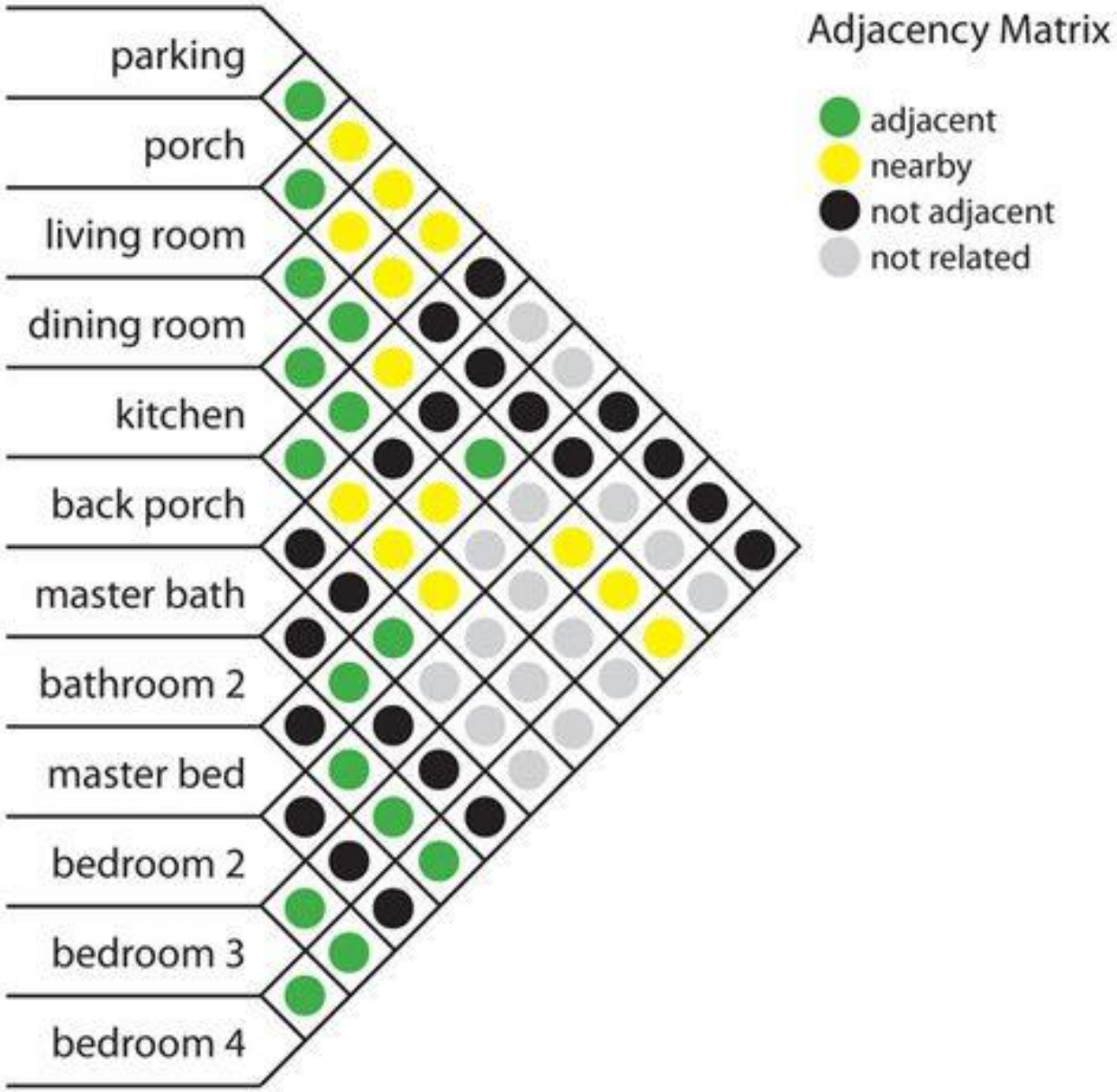
Accommodation
Researchers rooms

Café & Services
Datacenter, Café, Storage

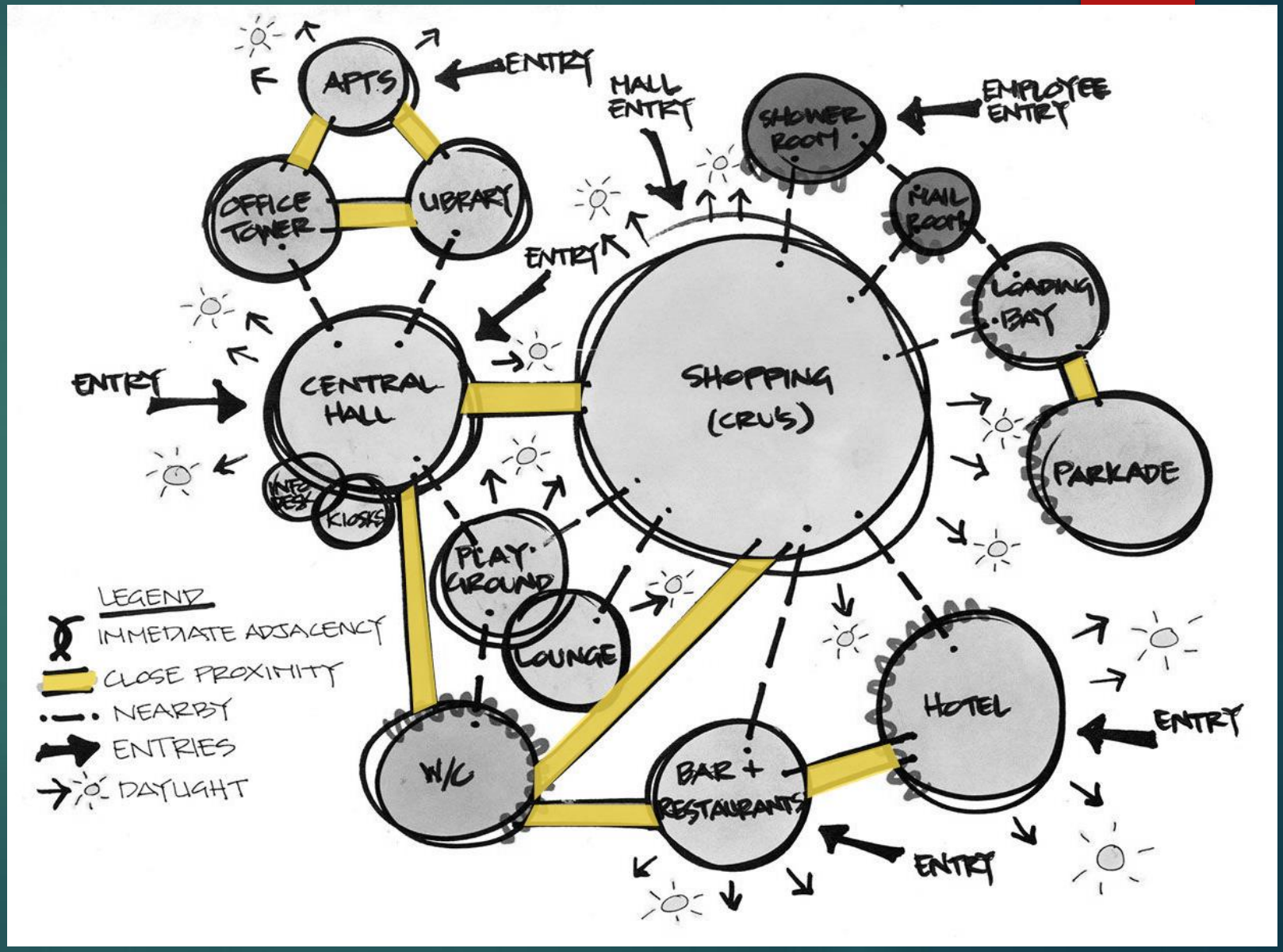
2. Administration	No.	Occupation	Reference	area / person	Reference	Total Area
1. Manager Office	1	1	(2)	$35m^2$	(2)	$35m^2$
2. Secretary	1	1	(1)	$15m^2$	(1)	$15m^2$
3. Waiting Area	1	5	(2)	$8m^2$	(2)	$40m^2$
4. Meeting Room	2	14	(3)	$2.5m^2$	(6)	$70m^2$
5. Office	5	1	(3)	$12m^2$	(2)	$60m^2$
6. Break Room	1	6	(3)	$5m^2$	(6)	$30m^2$
7. Archive	1	-	(3)	$15m^2$	(6)	$15m^2$
8. Monitoring	1	3	(2)	$15m^2$	(6)	$45m^2$
9. Store	2	-	-	-	(3)	$30m^2$
10. W.C	2	4	(3)	$1.67m^2$	(6)	$15m^2$
						Total = $355m^2$

Functional relationship

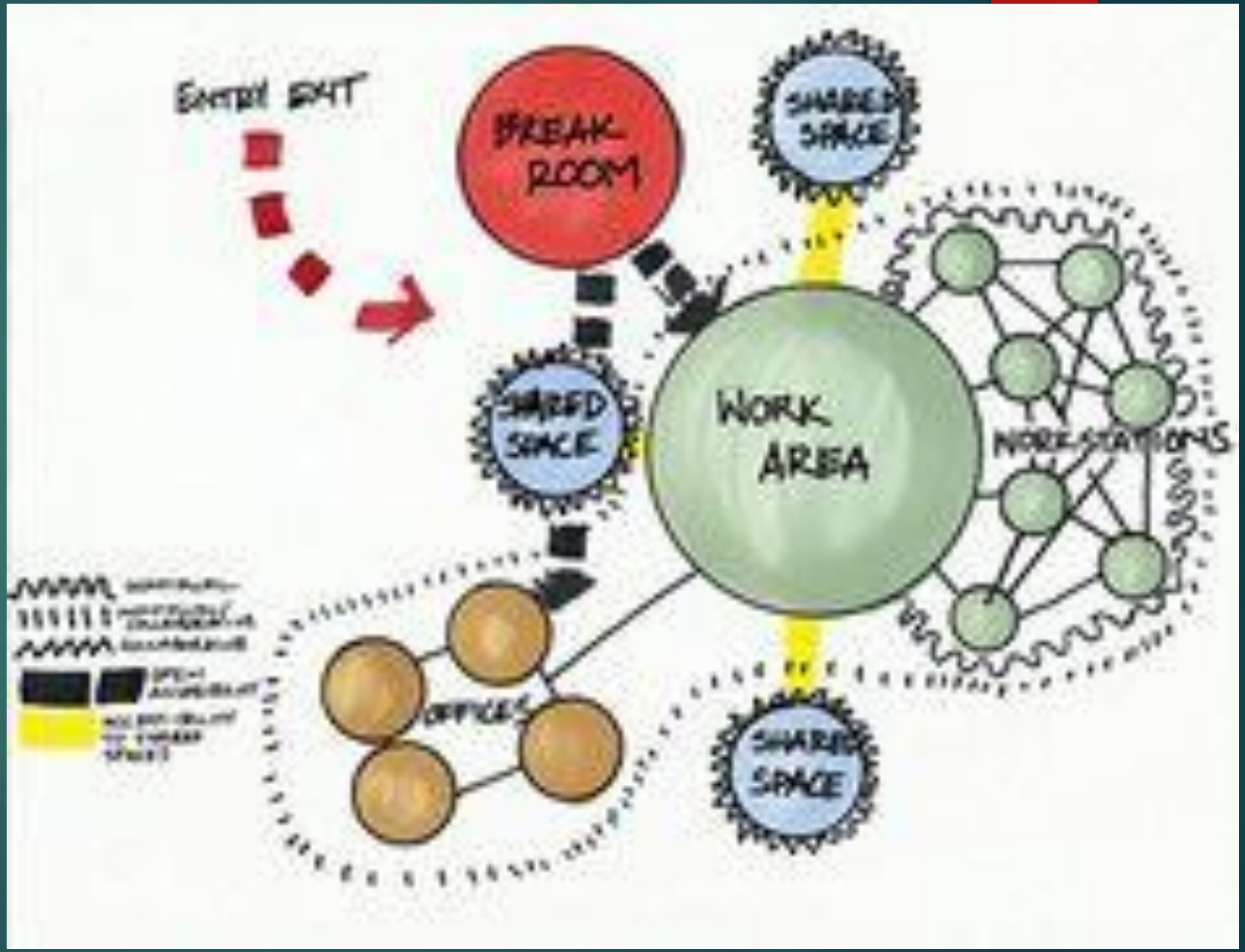
Matrix


parking
porch
living room
dining room
kitchen
back porch
master bath
bathroom 2
master bed
bedroom 2
bedroom 3
bedroom 4
Adjacency Matrix
adjacent
nearby
not adjacent
not related

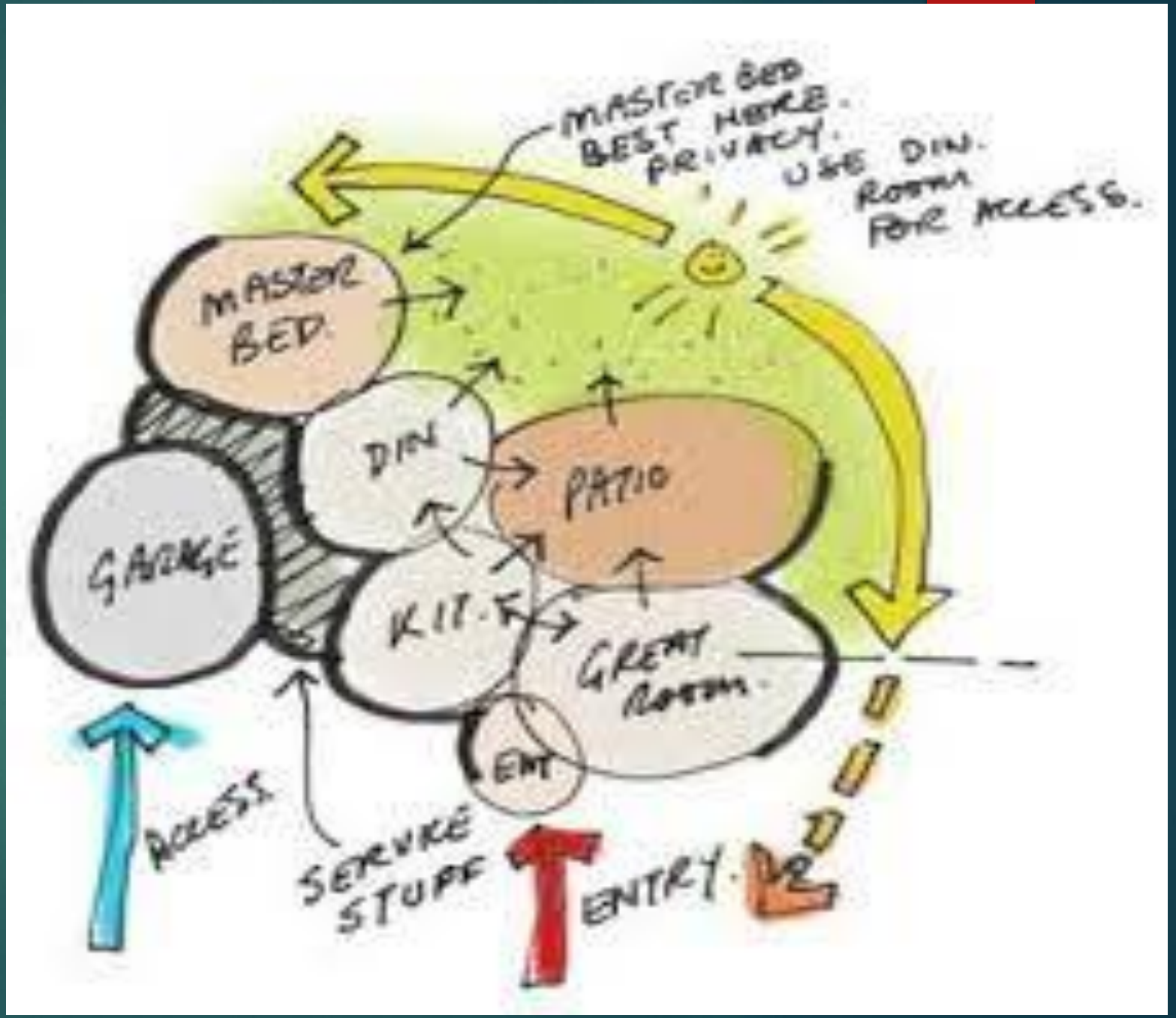
Adjacency

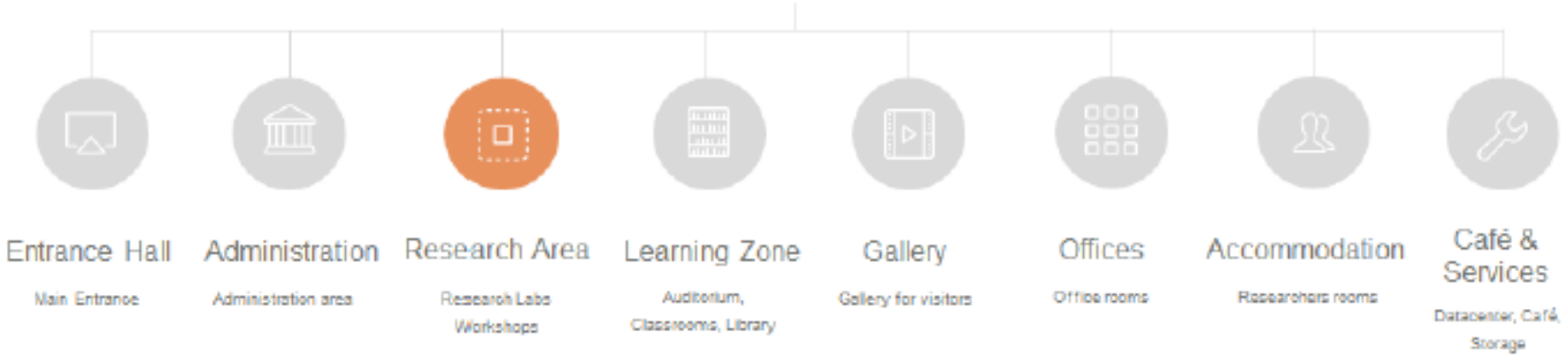

APTS
ENTRY
HALL ENTRY
SHOWER ROOM
EMPLOYEE ENTRY
OFFICE TOWER
LIBRARY
MAIL ROOM
ENTRY
LOADING BAY
ENTRY
CENTRAL HALL
SHOPPING (CRUS)
PARKADE
KIOSKS
PLAY GROUND
LOUNGE
HOTEL
W/C
BAR + RESTAURANTS
ENTRY
ENTRY
LEGEND
IMMEDIATE ADJACENCY
CLOSE PROXIMITY
NEARBY
ENTRIES
DAYLIGHT

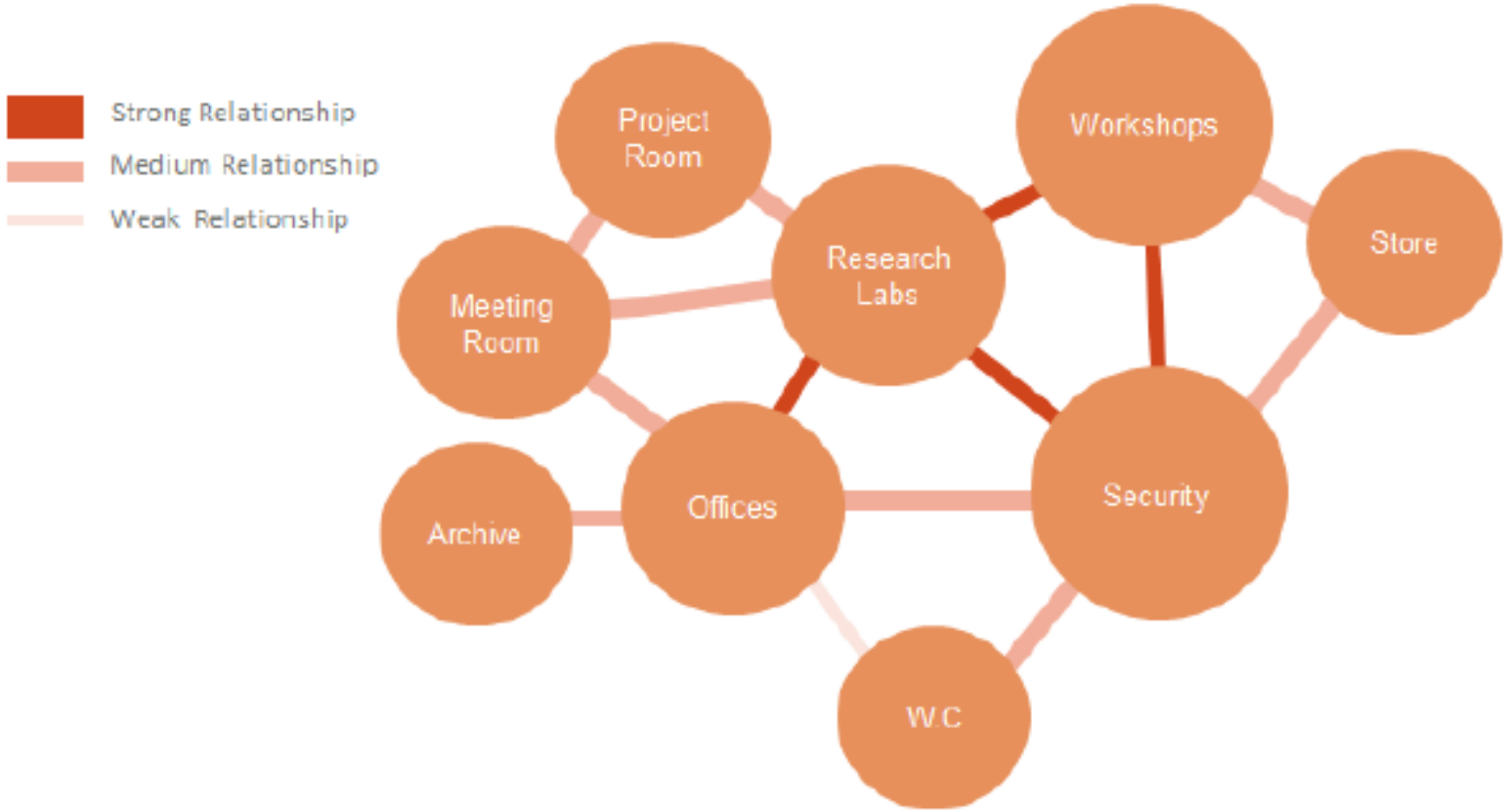
Zoning


ENTRY EXIT
BREAK ROOM
SHARED SPACE
SHARED SPACE
WORK AREA
WORKSTATIONS
OFFICES
SHARED SPACE

Requirements



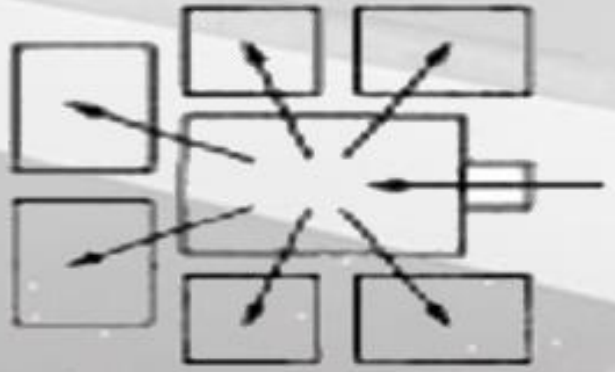

Entrance Hall
Main Entrance
Administration
Administration area
Research Area
Research Labs
Workshops
Learning Zone
Auditorium,
Classrooms, Library
Gallery
Gallery for visitors
Offices
Office rooms
Accommodation
Researchers rooms
Café &
Services
Datacenter, Café,
Storage


Strong Relationship
Medium Relationship
Weak Relationship
Project Room
Workshops
Store
Research Labs
Meeting Room
Archive
Offices
Security
WC

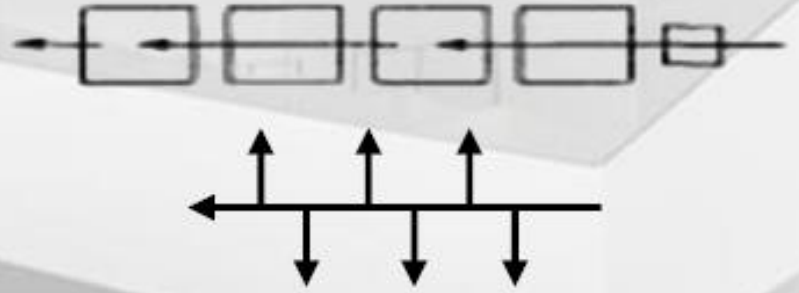
Space Typology

A. Open plan

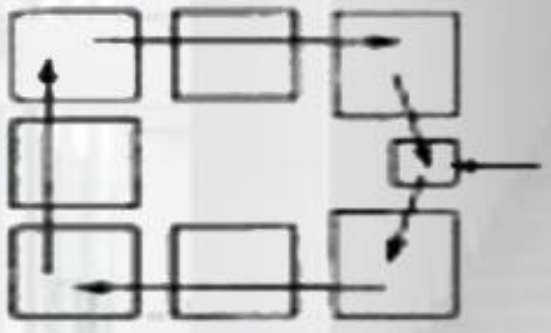
B. Core + satellites



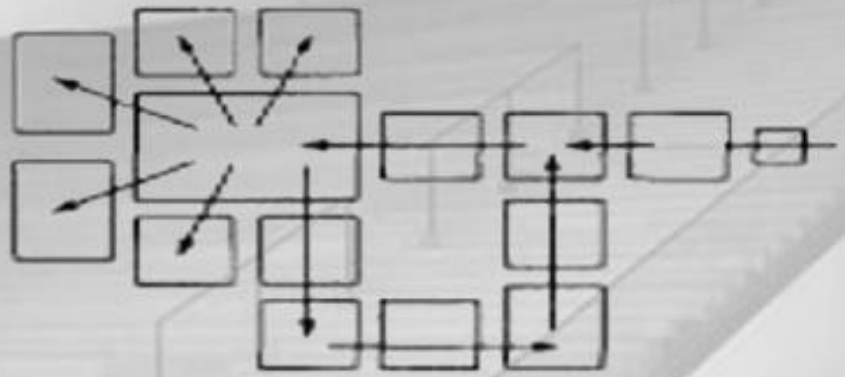
C. Linear procession



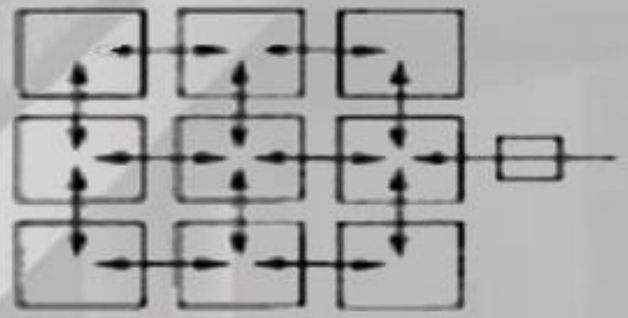
D. Loop

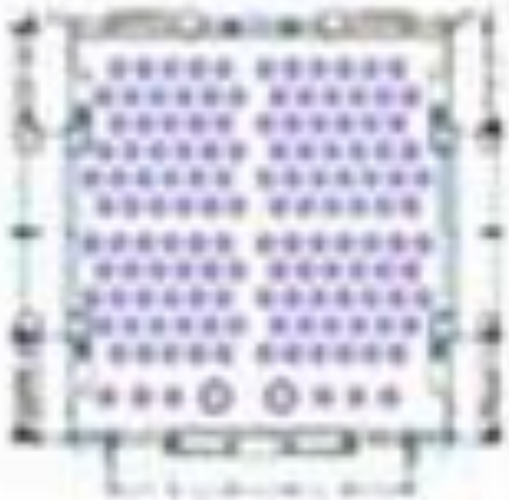


E. Complex



F. Labyrinth



			
Theatre type	Classroom type	Conference type	Banquet type