

Implementing VR platform as
an evaluation tool for
the effective hospital design

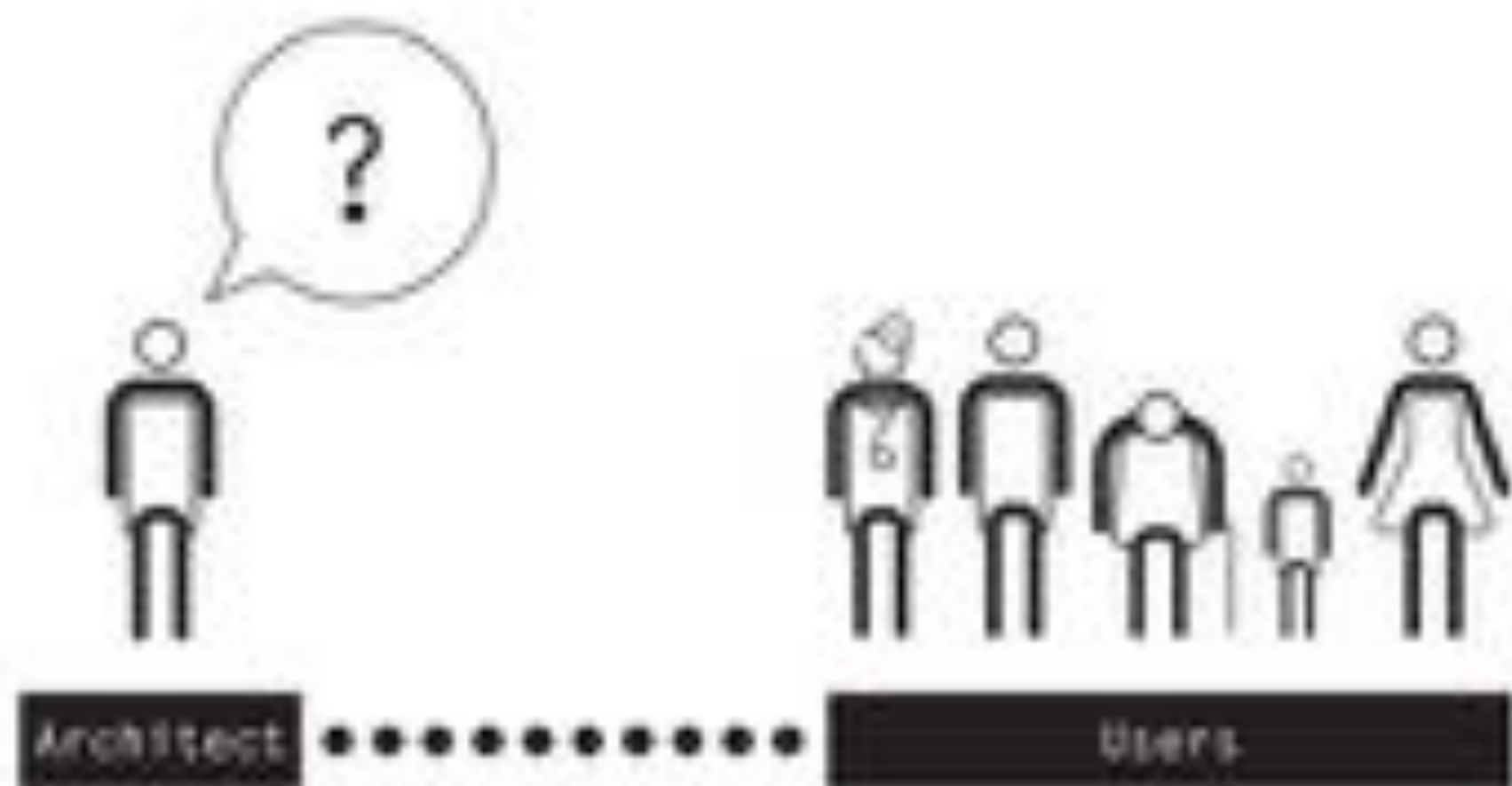
Heinle, Wischer und Partner
Freie Architekten

Tatiana Epimakhova

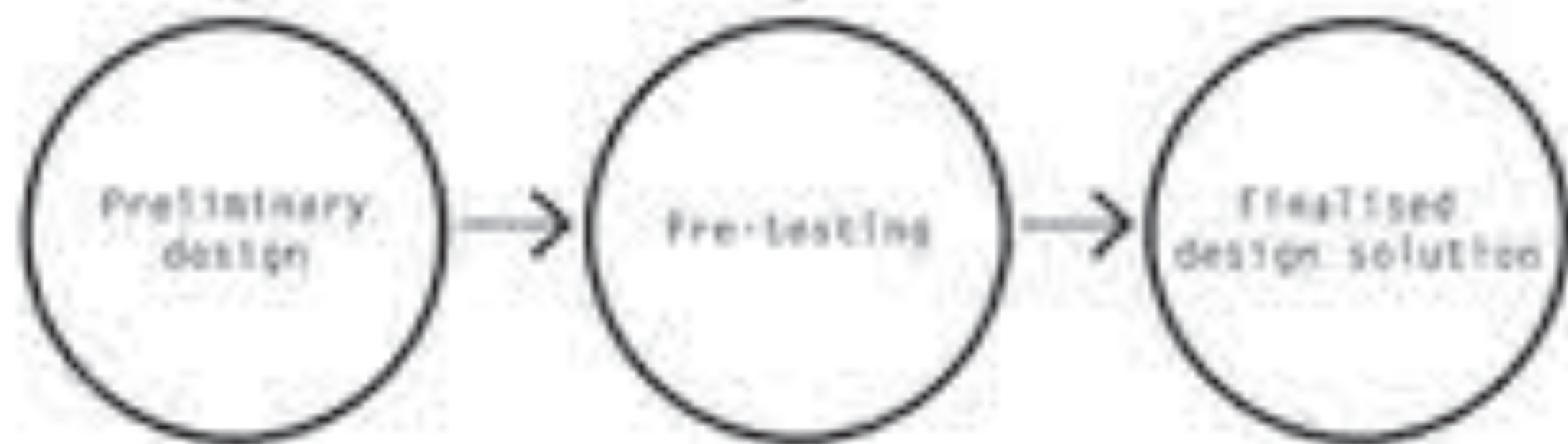
European Healthcare Design 2019, London



Heinle, Wischer und Partner Meeting



Ideal design process





Patient Centered Design (PCD) Innovation Summit 2016, Charleston, U.S.A



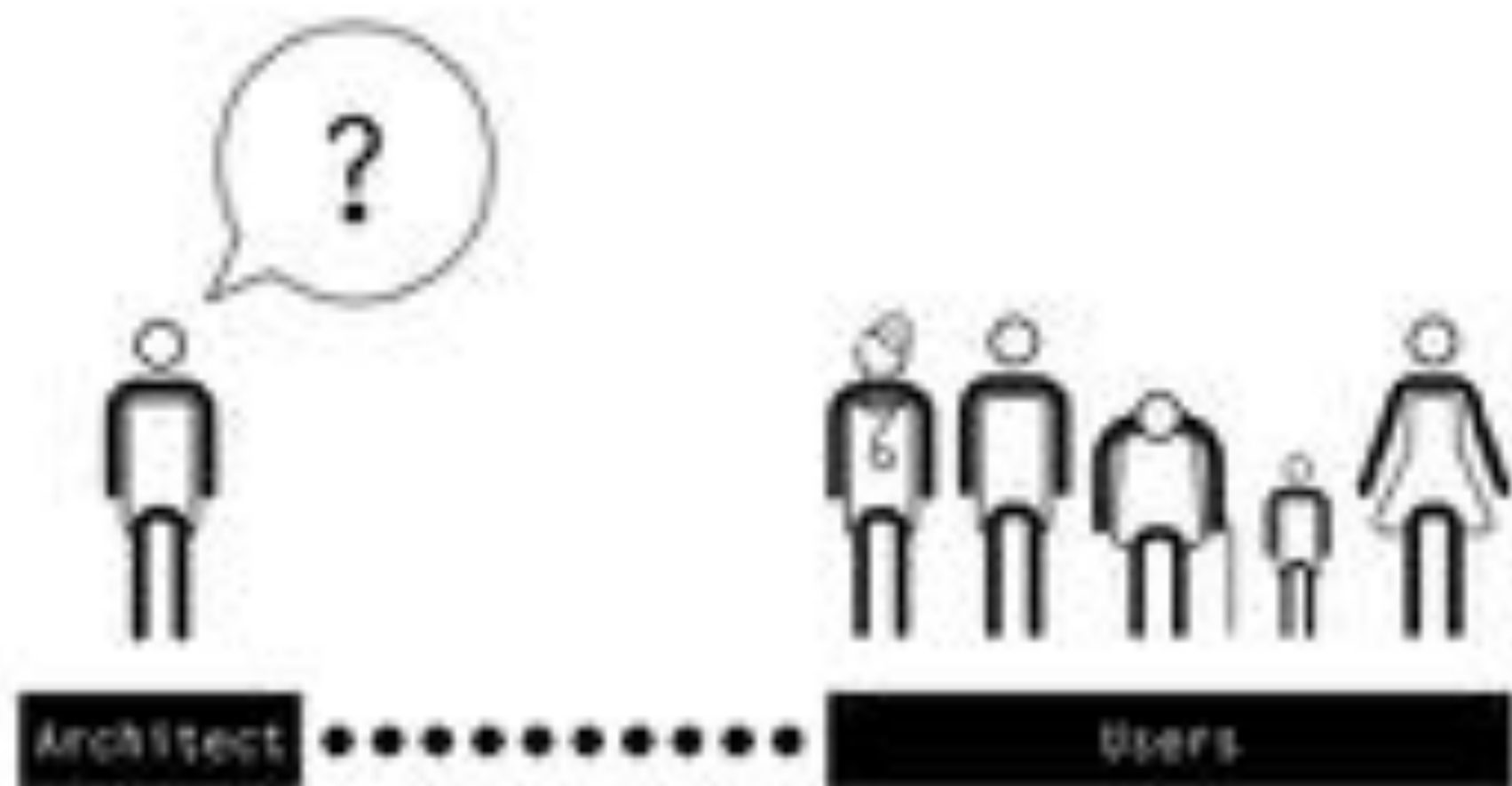


Heinle, Wischer und Partner
Meeting involving VR Mock-up

Next step!

Goal

to demonstrate the potential of
VR scenario-based evaluations as a tool
for design decision-making processes





Architect



Users

Pilot Study





Focus

Wayfinding, orientation





10-♂ 7-♀

18 - 55+Y.O

17 PARTICIPANTS
NON-DESIGNERS



AUTODESK REVIT®
OCULUS RIFT™, ENSCAPE

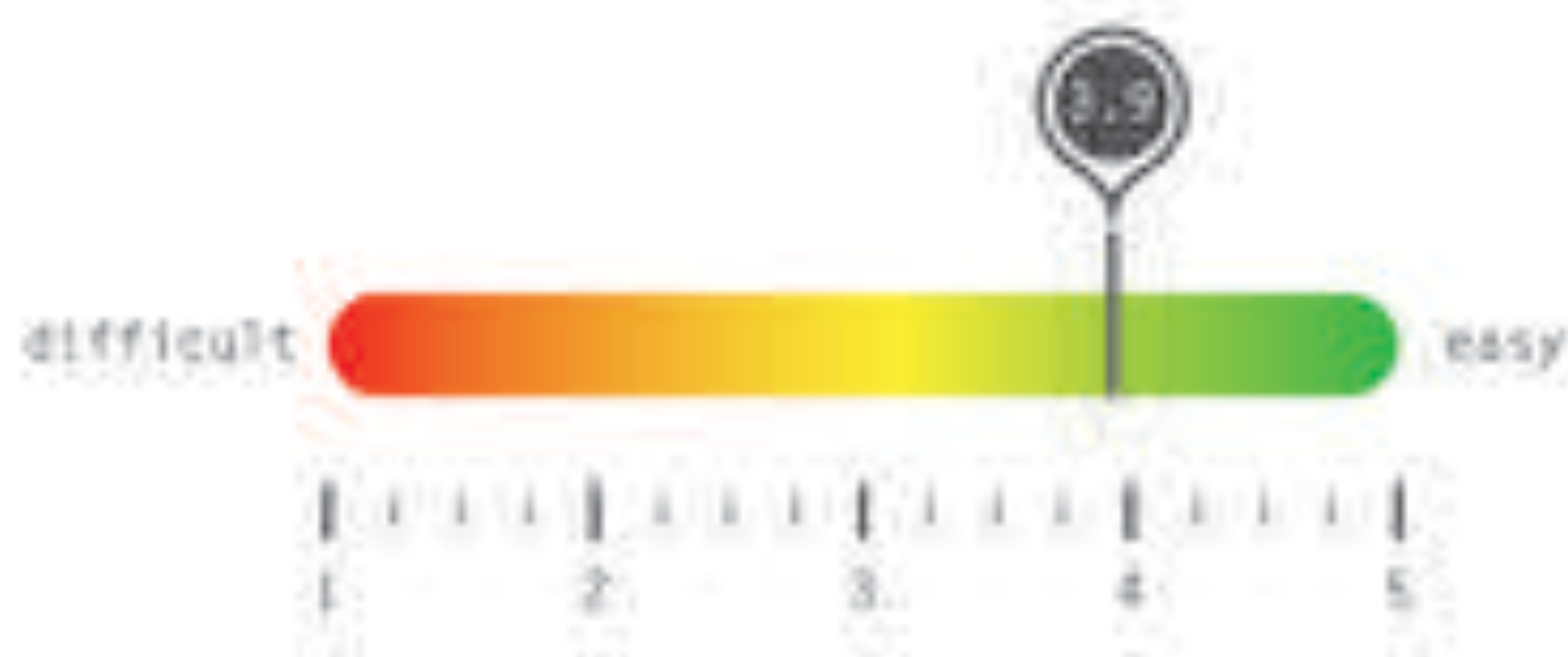




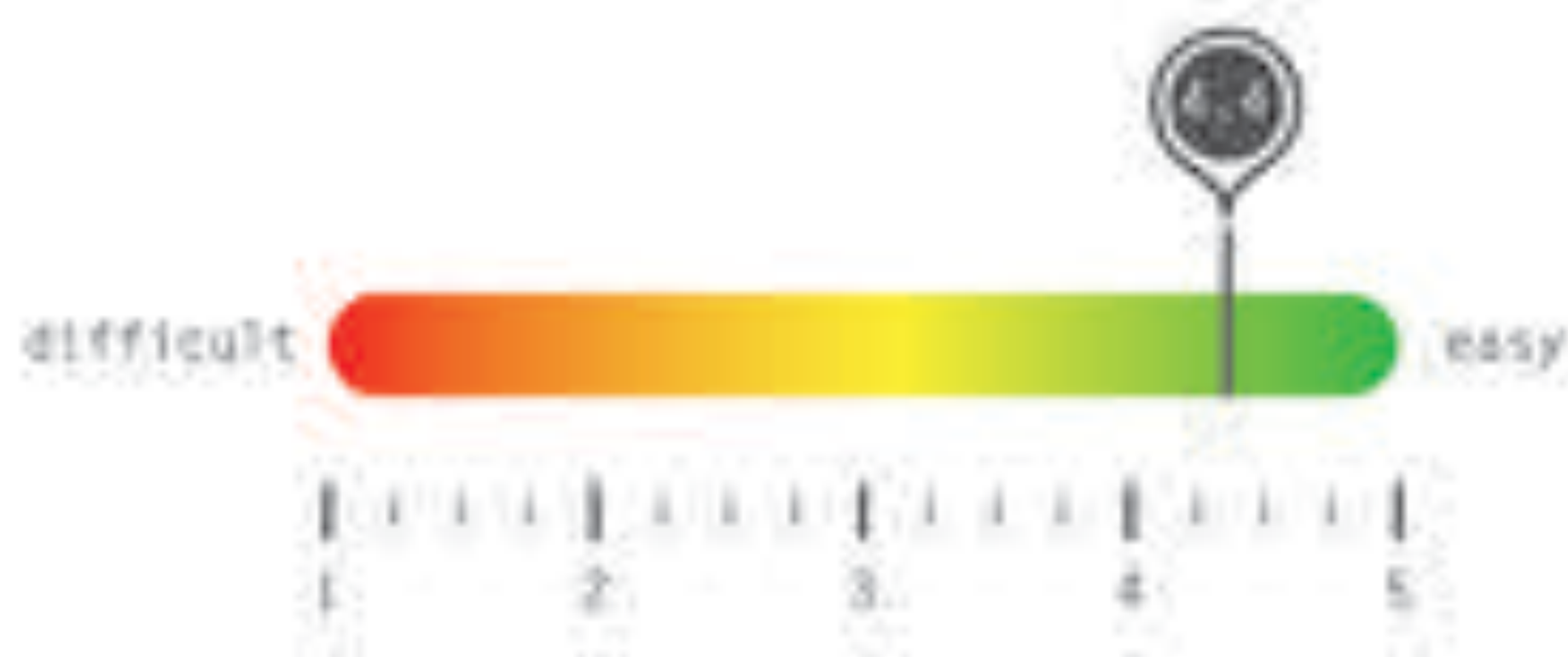
Results



How easy was it to find your way around
this environment in Scenario 1 (average score)?



How easy was it to find your way around
this environment in Scenario 2 (average score)?



Lessons learned

SCENARIO 1
OUTPATIENT VISIT



SCENARIO 1
OUTPATIENT VISIT

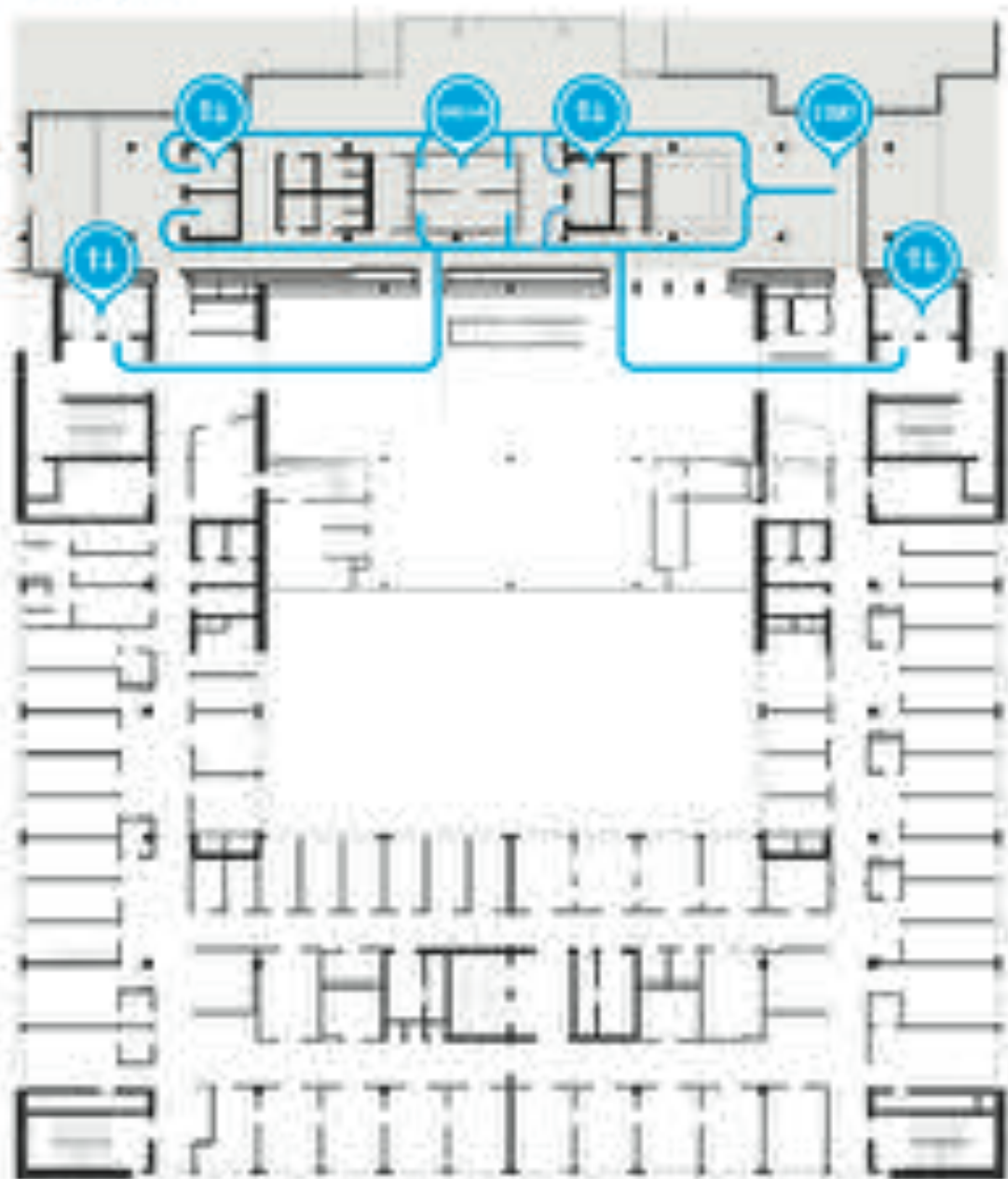




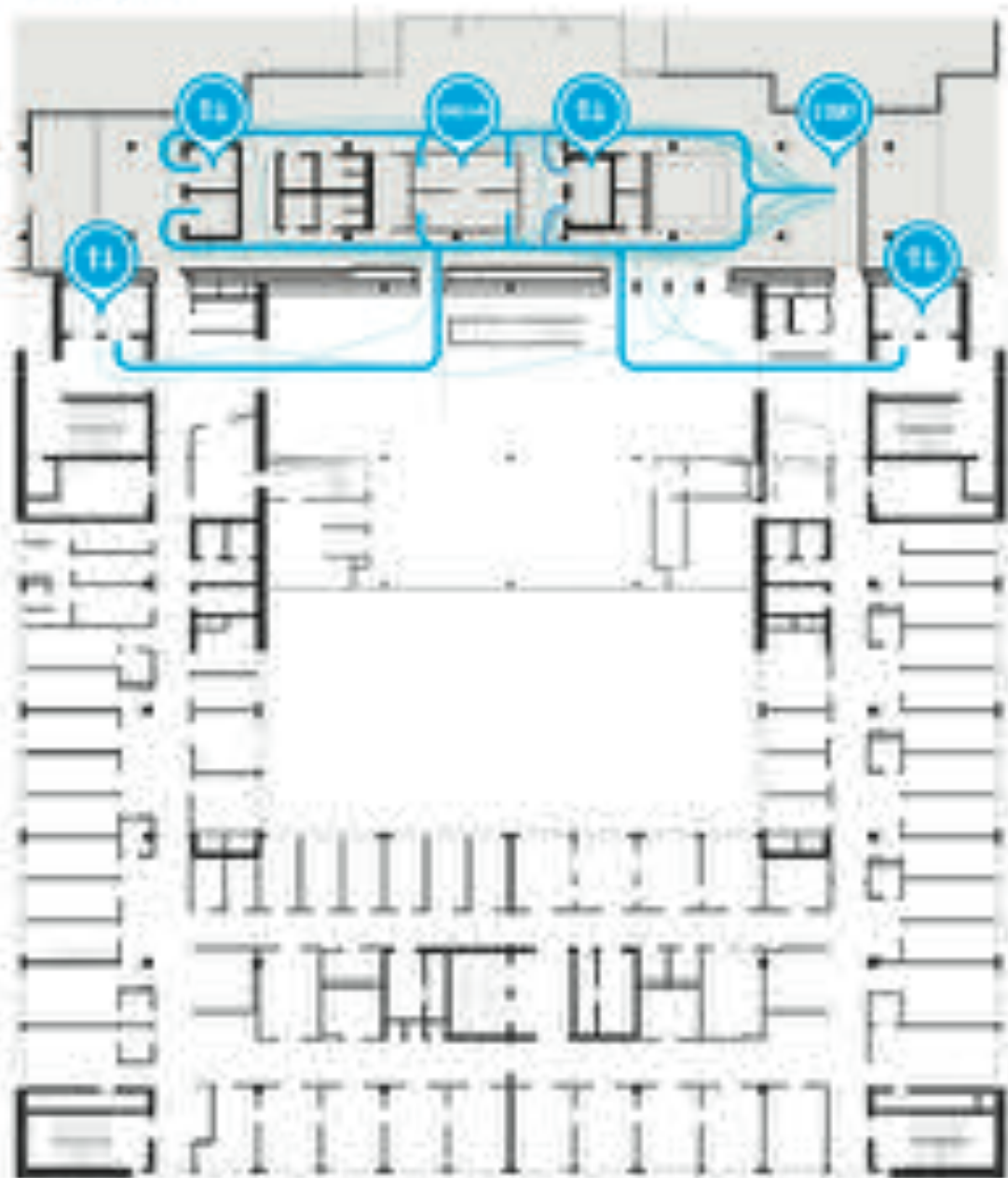


Zentrum für
Kinder- und
Jugendmedizin

SCENARIO 2
IMPUDENT VISIT



SCENARIO 2
INPATIENT VISIT



Literature Review



[Plan configuration]

© 2012, 2013, 2014, 2015, 2016, 2017
© 2018, 2019, 2020, 2021, 2022, 2023, 2024
© 2025, 2026, 2027, 2028, 2029, 2030

Literature Review



[Plan Configuration]

1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025



[Visual Access]

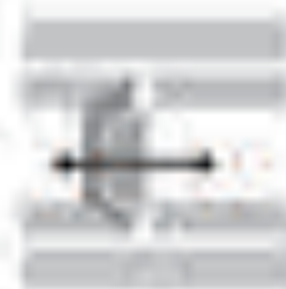
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Literature Review



[Plan configuration]

Wang, 2001; He & Zhou, 2002;
Chen, 2004; Wang, 2004, 2005



[Visual Access]

Wang, 2001; He & Zhou, 2002;
Chen, 2004; Wang, 2004



[Identity]

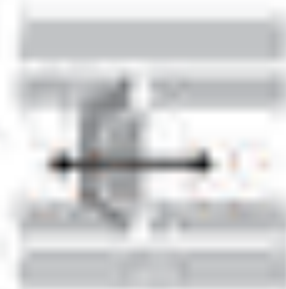
Wang, 2001

Literature Review



[Plan configuration]

Wang, 2001; Xu & Zhou, 2001
Wang, 2001; Wang, 2001; Wang, 2001



[Visual Access]

Wang, 2001; Wang, 2001; Wang, 2001



[Identity]

Wang, 2001; Wang, 2001



[Landmarks]

Wang, 2001; Wang, 2001

H&P Architects



1. Plan and construction of a new building in the city of New York.



2. Plan and construction of a new building in the city of New York.



3. Plan and construction of a new building in the city of New York.



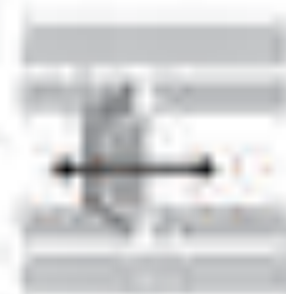
4. Plan and construction of a new building in the city of New York.

HW+P Architects



[Plan configuration]

2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100



[Visual Access]

2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100



[Identity]

2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100



[Landmarks]

2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100

Participants:



1. Participant 1
2. Participant 2
3. Participant 3
4. Participant 4
5. Participant 5



1. Participant 1
2. Participant 2
3. Participant 3
4. Participant 4
5. Participant 5



1. Participant 1
2. Participant 2
3. Participant 3
4. Participant 4
5. Participant 5



1. Participant 1
2. Participant 2
3. Participant 3
4. Participant 4
5. Participant 5

Participants:



[Plan and structure] |
[Data and structure] |
[Data and structure] |



[Data and structure] |
[Data and structure] |
[Data and structure] |



[Identity] |
[Identity] |
[Identity] |



[Identity] |
[Identity] |
[Identity] |



Participants:



[Plan configuration]

10/10/2023, 10:10:10 AM



[Diagram]

10/10/2023, 10:10:10 AM



[Diagram]

10/10/2023, 10:10:10 AM



[Diagram]

10/10/2023, 10:10:10 AM



...für
...und
...

Participants:



[1] Plan and coordinate the
work of the organization
and its members.



[2] Develop people
and their potential
to contribute to
the organization's
success.



[3] Monitor
and evaluate
the organization's
performance.



[4] Establish
and maintain
the organization's
culture.



Participants:



[Participants]

[Participants]



[Access]

[Access]



[Access]

[Access]

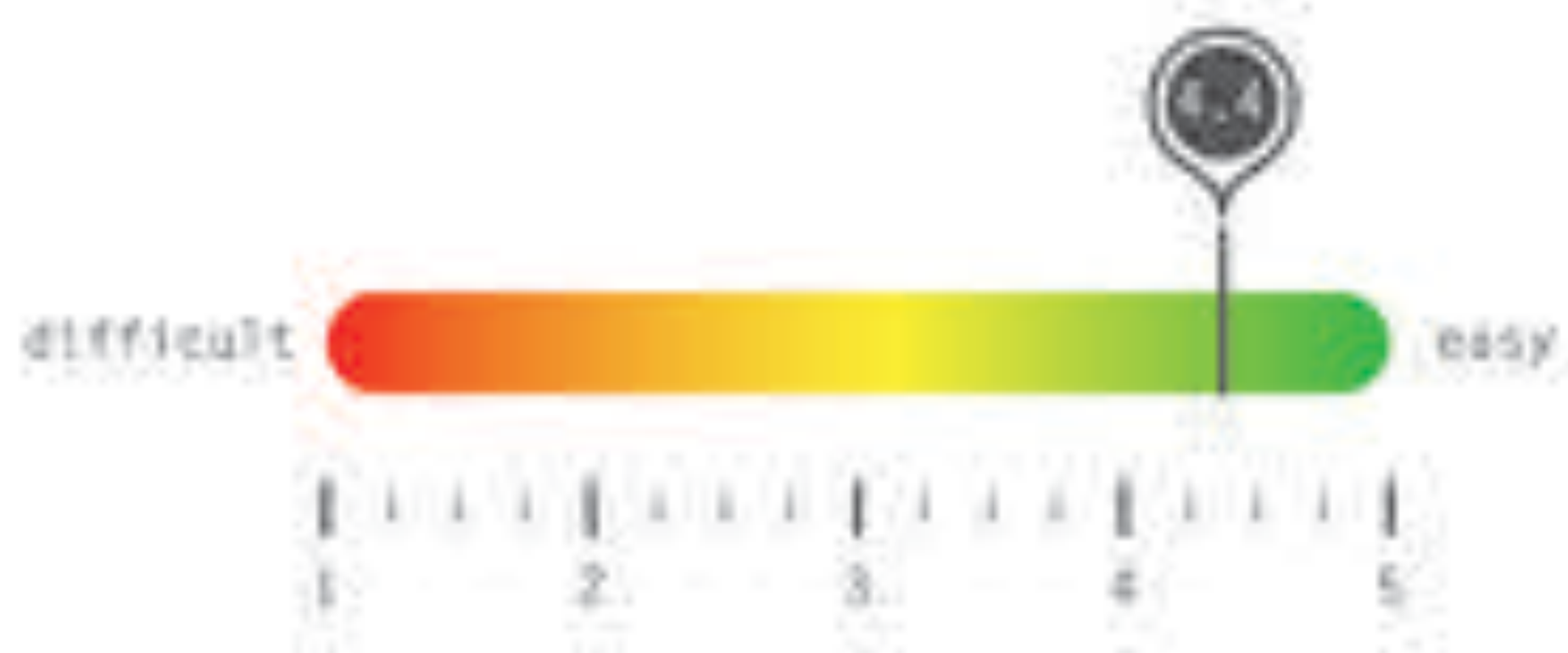


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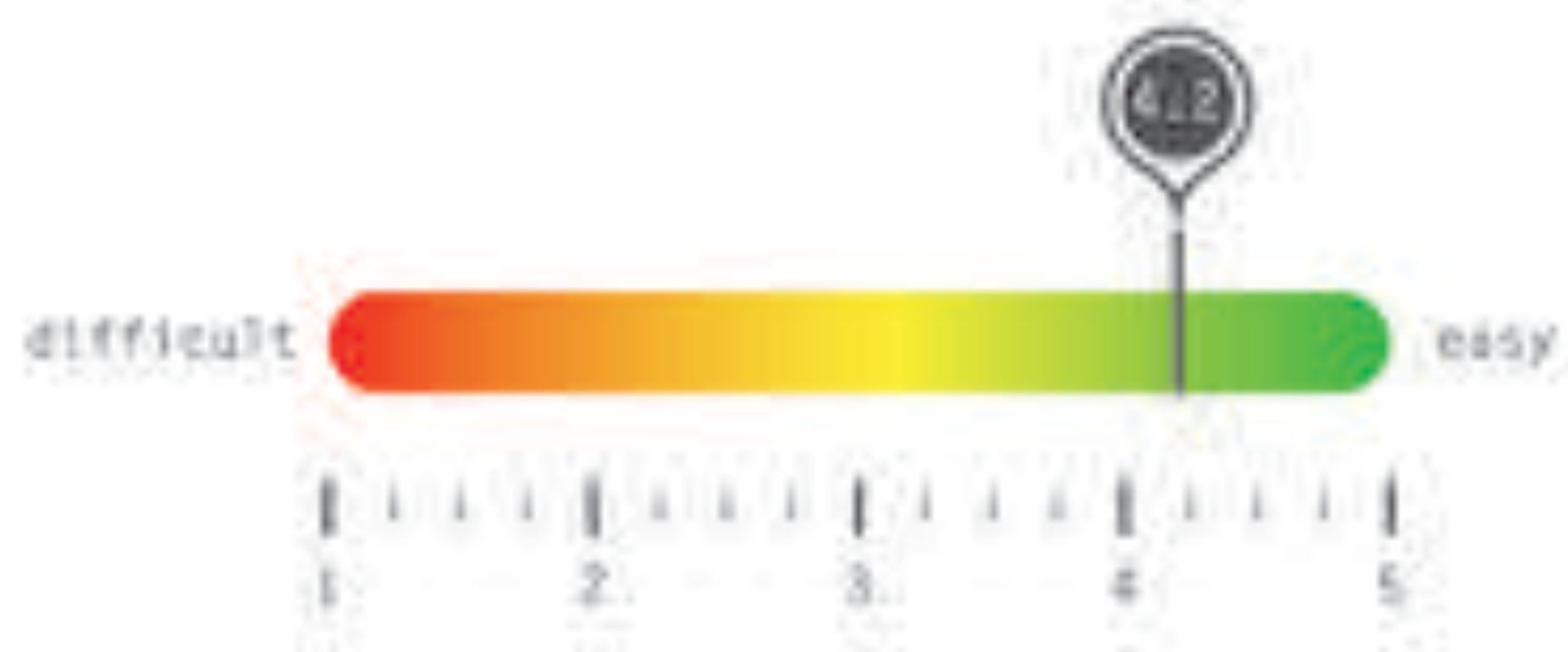
[Access]



How difficult was it to imagine the environment using the VR platform (average score)?



How difficult was it to navigate through the Virtual reality mock-up (average score)?



Guidelines

Guidelines for setting VR scenario-based simulations

01 →

Testlog:objekt



- Identifizierung des Problems
- Identifizierung der Ursache
- Identifizierung der Lösung
- Identifizierung der Wirkung

Guidelines for setting VR scenario-based simulations

01 →

Test target check



- 対象者の属性
- 対象者の年齢
- 対象者の性別
- 対象者の職業

02 →

Focus



- 対象者の属性
- 対象者の年齢
- 対象者の性別
- 対象者の職業

Guidelines for setting VR scenario-based simulations

01 →

Test target check



- Identify the target
- Identify the user
- Identify the user
- Identify the user

02 →

Focus



- Identify the target
- Identify the user
- Identify the user

03 →

People



Guidelines for setting VR scenario-based simulations

04

→ →
Instruments for
data collection



Guidelines for setting VR scenario-based simulations

04 →

04
- Instruments for
data collection



05 →

05
- Collecting
data process



Guidelines for setting VR scenario-based simulations

04 →



05 →



06



Guidelines for setting VR scenario-based simulations

04 →



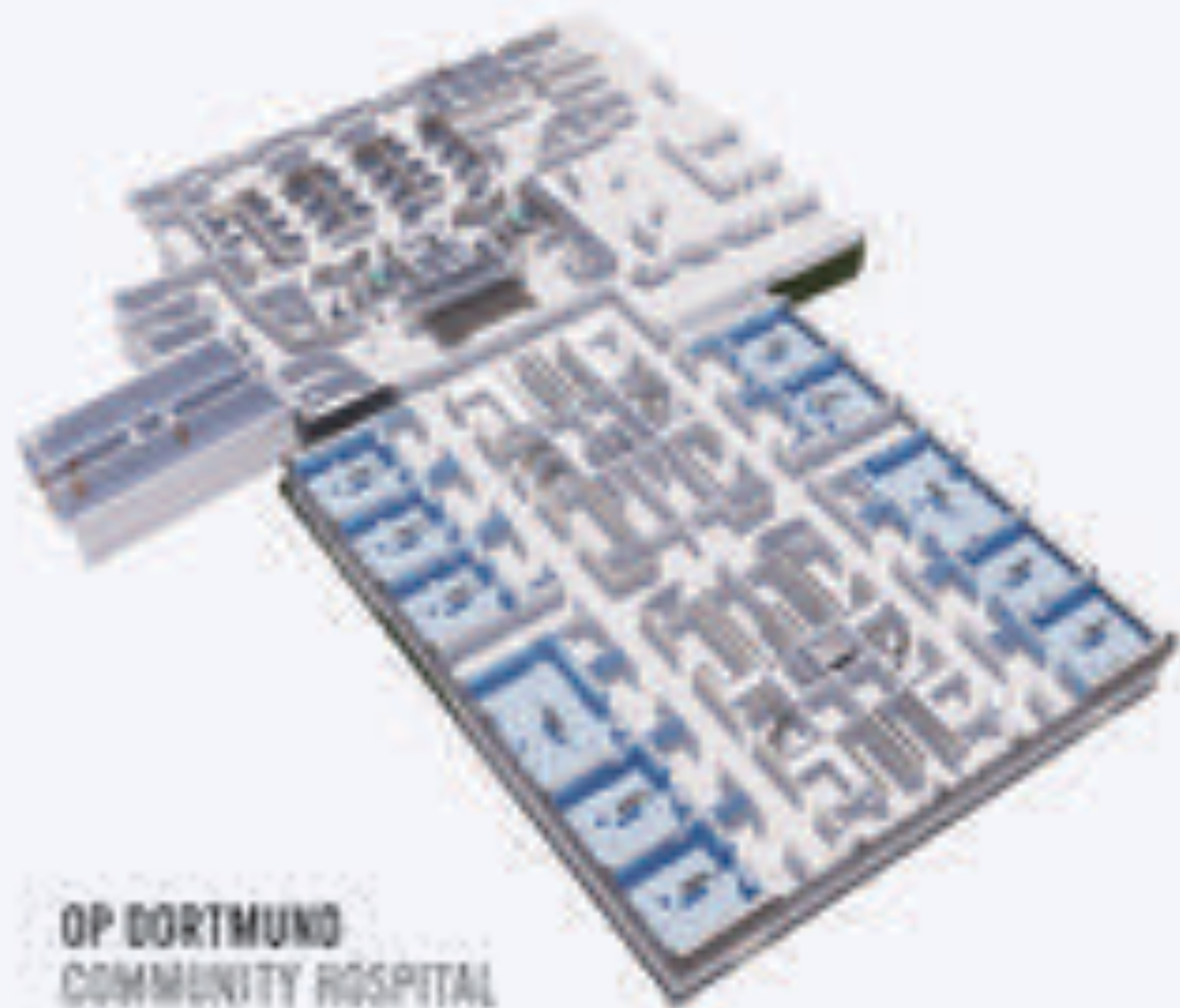
05 →



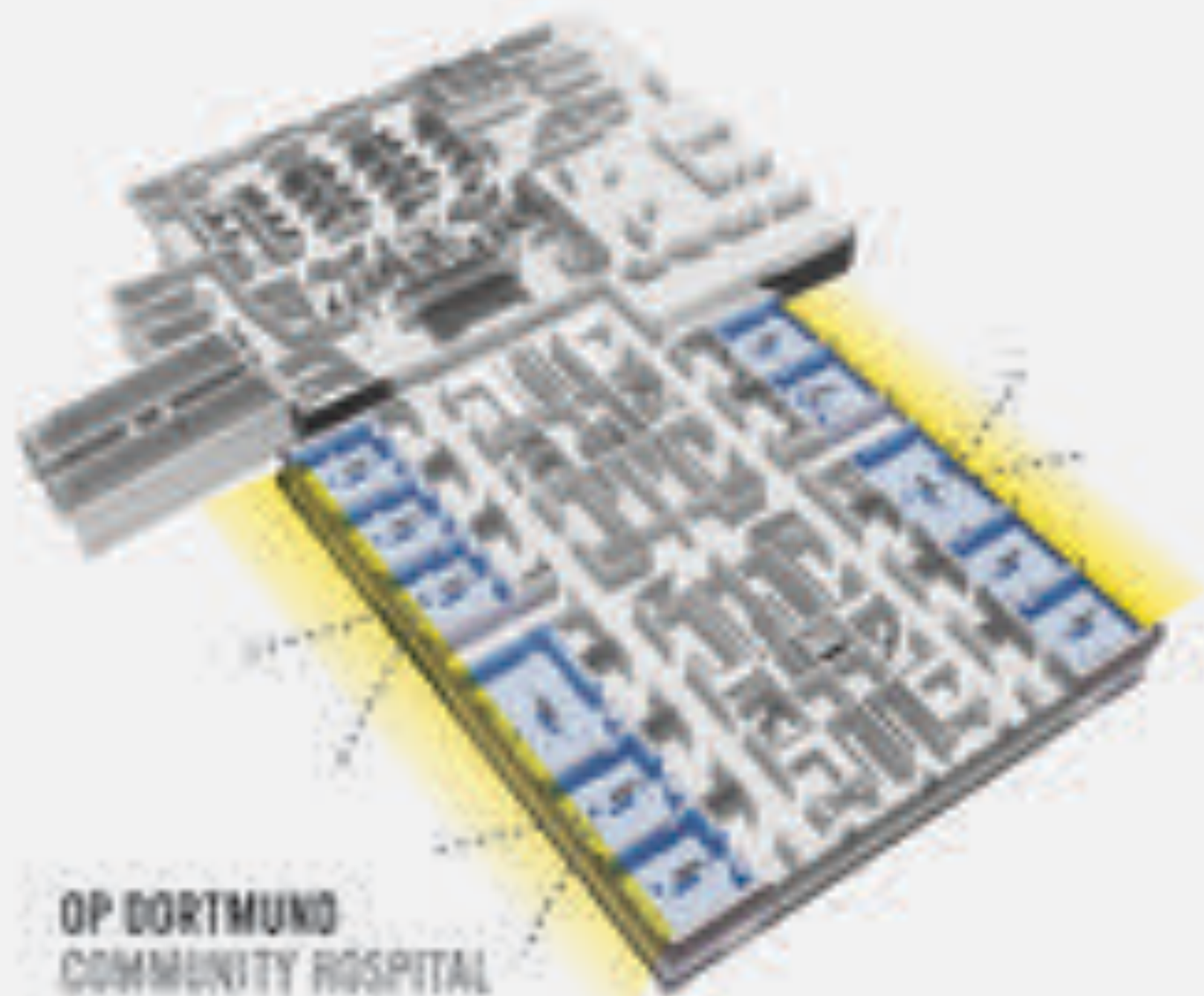
06



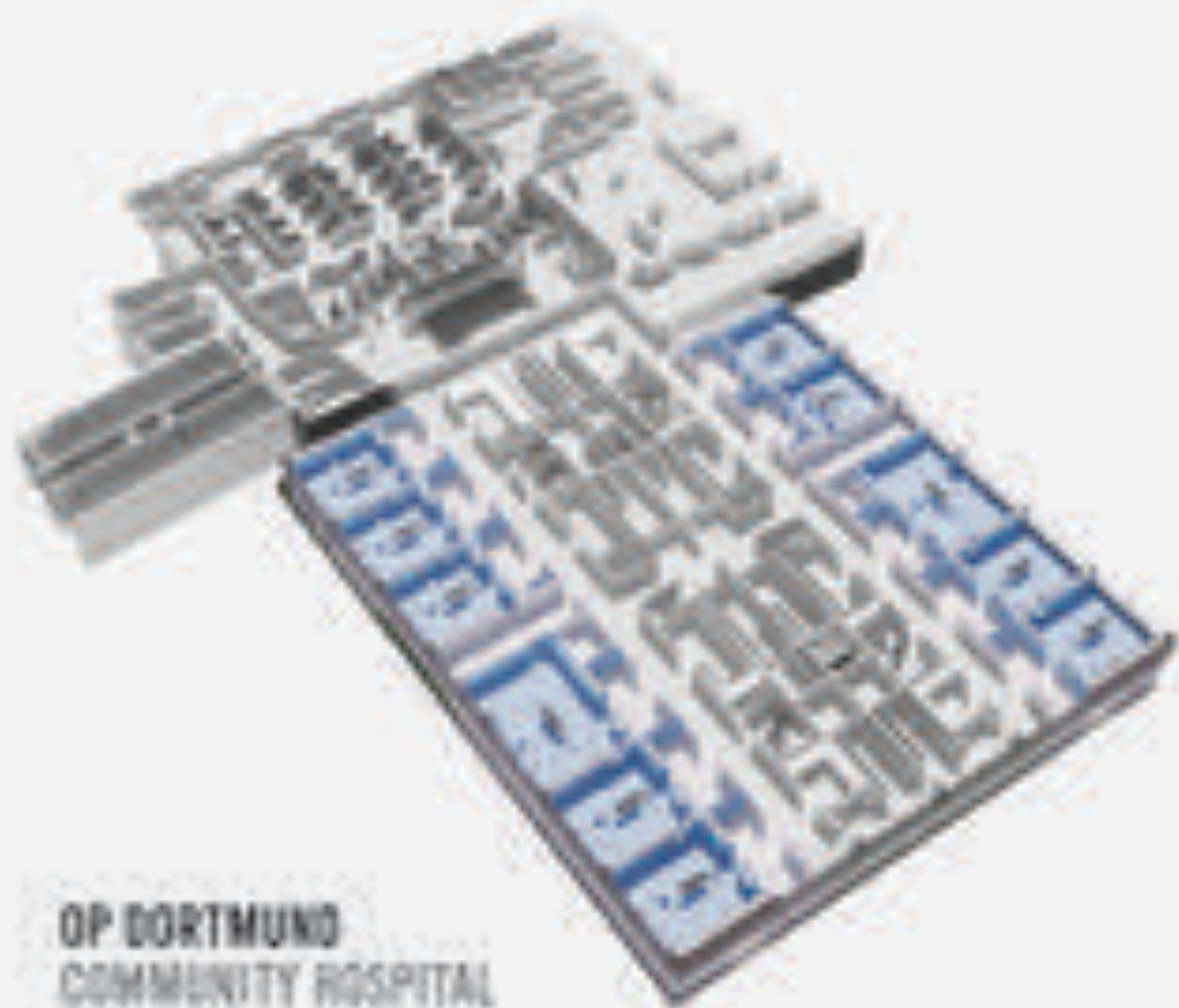
Next steps



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