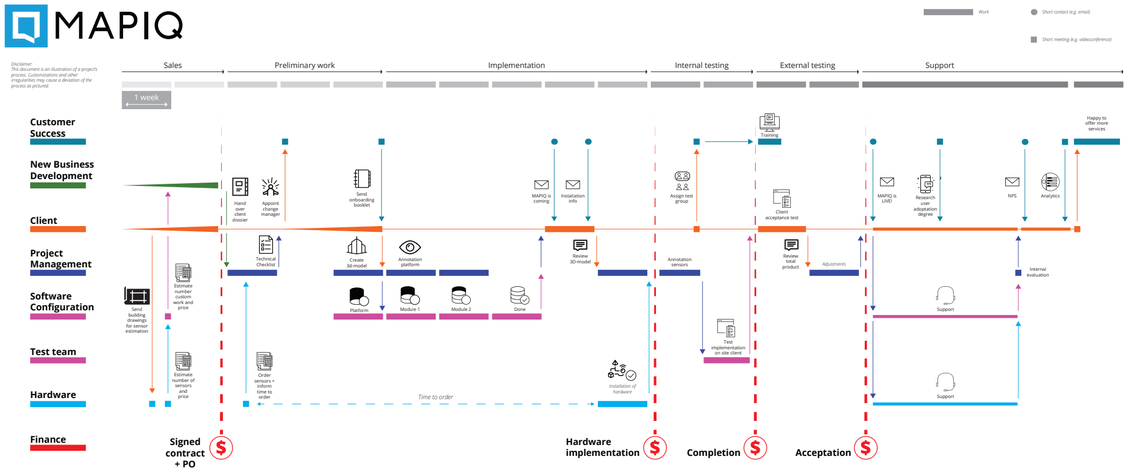
APPENDIX

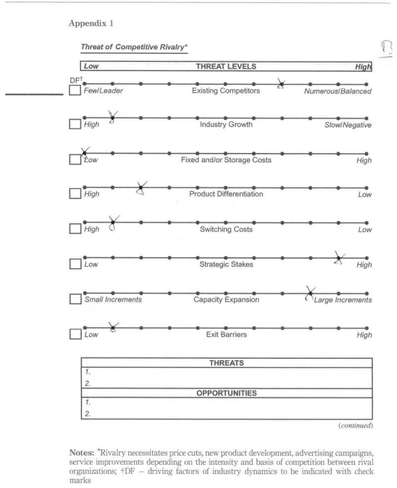
Appendix A

The implementation process of the platform.



Appendix B

The filled in industry analysis followed.



Appendix 1

Threat of Competitive Rivalry*

	Low	THREAT LEVELS	High
DF[1]			
☐	Few/Leader	Existing Competitors	Numerous/Balanced
☐	High	Industry Growth	Slow/Negative
☐	Low	Fixed and/or Storage Costs	High
☐	High	Product Differentiation	Low
☐	High	Switching Costs	Low
☐	Low	Strategic Stakes	High
☐	Small Increments	Capacity Expansion	Large Increments
☐	Low	Exit Barriers	High

THREATS
1.
2.
OPPORTUNITIES
1.
2.

(*continued*)

Notes: *Rivalry necessitates price cuts, new product development, advertising campaigns, service improvements depending on the intensity and basis of competition between rival organizations; [1]DF – driving factors of industry dynamics to be indicated with check marks

Threat of Buyers/Buying Groups* (_____)

	Low	THREAT LEVELS	High
DF‡			
☐	Single/Few	Buyer Orders	Large Volumes
☐	Low	Buyer Information	High
☐	Not Feasible	Buyer Backward Integration	Credible Threat
☐	Highly Differentiated	Industry Products	Standardized
☐	High	Buyer Switching Costs	Low
☐	Low %	Overall Buyer Costs	High %
☐	High Profits	Buyer Profitability	Operating Losses
☐	High Impact	Buyer Product/Service	Low Impact

THREATS
1.
2.
OPPORTUNITIES
1.
2.

(continued)

Notes: *Powerful buyers (the first five) and/or price sensitive buyers (the last three) force down prices, demand better quality/service, and play competitors off one another; ‡DF – driving factors of industry dynamics to be indicated with check marks

Threat of Suppliers/Supplier Groups* (_____)

	Low	THREAT LEVELS	High
DF‡			
☐	Many Organizations	Supplier Concentration	Few Organization
☐	High %	Supplier Volume/Profit	Low %
☐	Not Feasible	Supplier Forward Integration	Credible Threat
☐	Standardized	Supplier Products	Highly Differentiated
☐	Low	Industry Switching Costs	High
☐	Many Viable Options	Supplier Substitutes	No Viable Options

THREATS
1.
2.
OPPORTUNITIES
1.
2.

(continued)

Notes: *Powerful suppliers charge higher prices, limit product/service feathers/quality, and/or shift costs to other industry players; ‡DF – driving factors of industry dynamics to be indicated with check marks

Threat of New Entrants*

	Low	THREAT LEVELS	High
DF‡			
☒	High	Supply-Side Economies of Scale	Low
☐	High Network Effects	Demand-Side Benefits of Scale	Low Network Effects
☐	High	Switching Costs	Low
☐	High	Capital Requirements	Low
☒	First Mover Benefits	Incumbency	Late Mover Benefits
☐	Limited Access	Distribution Channels	Easy Access
☐	Regulations	Government Policy	Subsidies
☐	Retaliatory	Anticipated Incumbent Response	Welcoming

THREATS
1.
2.
OPPORTUNITIES
1.
2.

(continued)

Notes: *The threat of new entry puts downward pressure on prices, and upward pressure on costs/rate of investment necessary to keep new entrants out of the industry; ‡DF – driving factors of industry dynamics to be indicated with check marks

Porter's f
for
framew

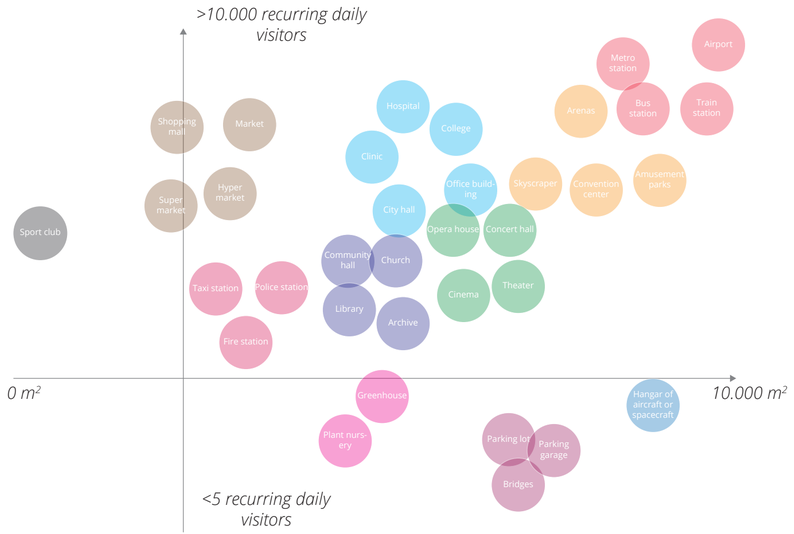
Threat of Substitutes*(_____)

	Low	THREAT LEVELS	High
DF‡			
☐	More Expensive	Price/Indirect Costs	Less Expensive
☐	Low	Buyer Price Sensitivity	High
☐	Lower	Performance	Higher
☐	High	Buyer Switching Costs	Low
☐	Risk Avoidance	Buyer Profile	Risk Seeking
☐	↓ Cost, ↑Performance	Substitute Industry Price/Performance Trends	↓ Cost,↑Performance

THREATS
1.
2.
OPPORTUNITIES
1.
2.

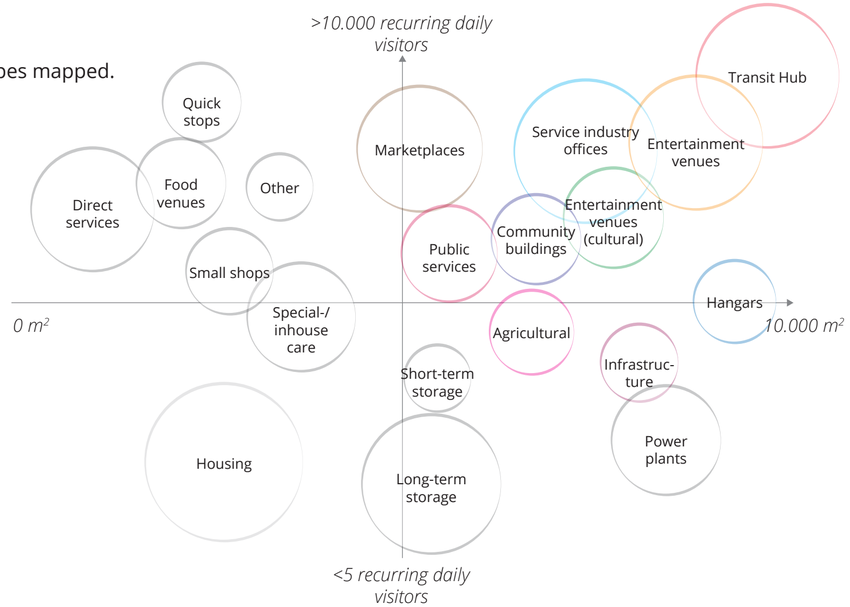
(continued)

Notes: *Substitutes perform the same/similar function as products of the industry but by different means. Viable substitutes place a ceiling on prices and drive up costs related to product performance, marketing, service, and R&D; ‡DF – driving factors of industry dynamics to be indicated with check marks



Appendix C

The building types mapped.



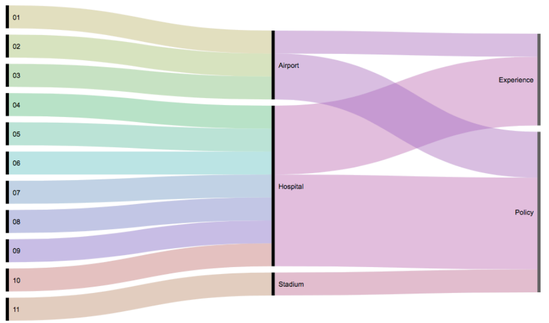


Figure 1: The interviewees, sorted by market, and type of expertise

Figure 2: The other sources for the market research

Appendix D

The following pages set out the information found in the market research. To link the information back to the interviewee, the coding as picture below was used. Interviewees were anonymized.

6 This text refers to interviewee 6

8 This text refers to interviewee 8 & 6

Airport

The airport industry is one of scale and mass. Seen as a driver for economic growth, airports are often (partly) owned by governments and subject to their regulations. For instance, interviewee #1 called Schiphol a ‘burning platform’ for it’s predicted growth of 63- to
1 70 million passengers per year in the coming two years without any chance to expand. Another interviewee substantiated this by adding that the prognoses of crowds are practically always off from
3 reality (although it was benchmarked with a minimum or maximum deviation of one percent):

“De prognose komt nooit overeen met de werkelijkheid” - Interviewee 3

Two interviewees express the need for applications integration
2 and data compatibility as they see value in linking it all to look
1 for patterns in the data. An example is given to a future that uses digital twins, the virtual representation of an asset that is used for modelling with real data.

Market needs

Figure 3: The new terminal of Schiphol

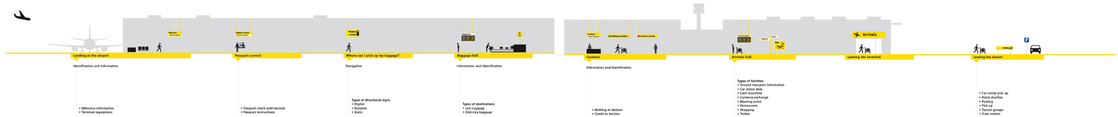


Figure 4: A customer journey of Schiphol made by Mijksenaar (SOURCE)

1 Meaning that growth is sought in optimization of the space available and managing the masses of people. In addition, they analyze the current situations through customer journeys and focus on
2 the aspects that need it the most. This is validated by another interviewee and adds that it should represent the most value possible.

The value that this brings should be regarded in aspect to the stakeholders of the primary process; the airlines and the passengers. The airlines have a customer relation with Schiphol,
1 but are competitors amongst their own group in which there is a lot of difference in positioning. To justify their higher price point, the premium airlines offer more to their passengers than others and are constantly looking to gain an edge in their service. A seamless journey is where added value is sought but in the end turn around
3 time is the most important KPi for these stakeholders (KPi’s in relation to sections can be found in Figure 60 on page 14).

If we look at the problems encountered by Axxicom, that caters to passenger reduced mobility or PRM, we see that problems

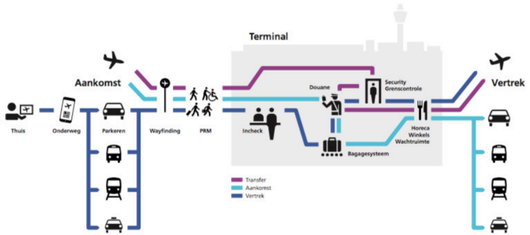


Figure 5: The "passagiersketen" or passenger chain of Schiphol adapted from the yearly report 2017. (SOURCE)

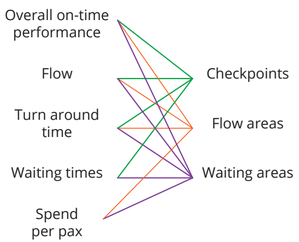


Figure 6: Key performance indicators linked to relevant sections

3 encountered by passengers are felt harder by PRM's as they are intensified by their handicaps. Thus we extrapolate the common issues from this interview to probable passenger issues. These problems are often in communicating information about various things such as flight delays, walking distances, crowdedness and directions.

There are three areas that the industry differentiates between. These are, from high to low importance; checkpoints (e.g. security),

2 flow areas (e.g. shopping areas) and waiting areas. Another differentiation is made by being land- or airside, where the skyside is not open to public when not travelling. These sections can be

3 recognized in customer journeys of Mijksenaar (Figure 58 on page 13) and Schiphol (Figure 59).

An issue that the Axxicom experiences so frequently that a track and trace solution is actively sought after for equipment (consisting of 400 wheelchairs and 80 caddies) and employees (300 people at

3 peakseasons). The current system used, 'Inform', is used to plan the operations based on employees available and tasks. The system has a relation to the building through an API of Schiphol that indicates walking distance and time. The overview of where personnel or equipment is at a certain time is communicated over phone.

2 What is missing is the overview of crowdedness as these often influence the time in which a distance is travelled. This has to do with the size of a caddy or wheelchair that makes them hard to

3 maneauvour through crowds. By having an overview, employees can better estimate their task's time or can KPi's not fulfilled be explained.

Market entry

A major development from the past couple years, is the installation of Bluetooth & WiFi sniffers within airports. These 'listening' devices

2 make the airport capable of estimating crowd sizes, flows and predicting waiting times. In addition to the previously mentioned

2 sniffers, beacons are also widely available for devices to position themselves.

Although this data is not directly accessible, the airport has setup

2 a developers portal that gives access to this information through a number of API's. The expectation is that other airports will follow

2 suit by installing the infrastructure as a commodity and letting companies compete on what services they can think of with the data provided. Another interviewee described this platform as a badly

1 communicated and is not sure about what is, and is not, possible for them as a company at Schiphol.

3 Schiphol is using a tech stack (meaning multiple dedicated solutions that work together) for its app. Schiphol is approaching this as a mix and match solution, as there is no one-size fits all solution that fills in their needs. This is said to be standard for bigger airports, but

2 it might be interesting for smaller airports. Even then, the market is full of a wide variety of apps focusing on airports that utilize the airports API's.

Schiphol works cross departmental in value streams (i.e. portfolio teams consisting of different stakeholders) and herein, the stakeholders are increasingly being motivated to work together. This means that a lot effort is put into trying out new things. With this approach Schiphol is ranking at the top of digital airports with a few other that are also doing it well; according to the interviewee these are Gatwick airport and Changi airport. Though different in size, the operation of Gatwick is admirable and the Changi airport is a constant innovator.

Originating from those value streams, pilots are often used as a way to prove value in this industry, it is the best way to make a business case if you earn two euro's for every euro you invest. This is done in sprints where the availability and accessibility of data are key point in the search of a partner. Naturally, at a certain price point this has to be tendered.

Such initiatives are started Schiphol wide with a multitude of stakeholders named in the interview. And their relation to one another is an interesting aspect. They share common goals (e.g. getting a passenger from A to B), but mostly adhere to their seperately owned set of tasks. For instance, an airline employee is more likely to walk past an unused wheelchair than they are to put it in the right place. It is seen as complicated to get stakeholders on the same page for various issues that get bogged down by bureaucracy.

At Schiphol, the real specialist data analysis is done by the company Blip Systems, the market leader in both hardware and software. Blip Systems was recently acquired by Gentrack Group and is now branded Veovo “Veovo combines solutions for guest predictability, outstanding operations, and revenue maximization to transform airport ecosystems” (SOURCE). This company has a leadership position in the market by being used by 110 airports at the most important sections of the building mentioned earlier. The underlying capabilities for solutions to communicate amongst one another are expressed as very important.

Conclusion

Schiphol is experiencing tremendous growth and is like other searching for ways to optimize its operation focusing on communicating information and track &tracing for airlines, passengers and support departments.

Although the technical infrastructures is good, it is dragged down by bureaucracy. Schiphol is not likely to purchase a total solution, but is building its own app through mixing and matching. Smaller airports might not be able to do this and are more likely to require a total solution, but the value here is unclear.

The presence of a strong specialistic industry leader combined with that only some modules match the needs in the market, make it to be unlikely for Mapiq to be successfull within the market.

Hospital

A hospital has a primary process that is essential in a community; providing healthcare to people from all layers of society. The interviews indicated differing types of hospitals; academic and general hospitals. The academic hospitals are often larger and have a wider reach in functions, as they not only provide healthcare but also offer room for research and educational purposes. This affects the number of differences between the occupants of the buildings but this also affects the size of the hospital's budgets, which a substantially larger than those of general hospitals. For instance, the UMCG has a yearly revenue of 1.2 billion euros of which two-thirds is dedicated to employee costs. In comparison, the general hospital of one interviewee has a budget of 0.2 billion euros.

Figure 7: The to-be-built S-building of Radboud UMC

Hospital:

An institution providing medical and surgical treatment and nursing care for sick or injured people.

Trends

The hospital is a place where many people come together. In line with current urbanization developments there are two of things that impact hospitals now or in the near future. Hospitals are aiming to focus on more dedicated/high-end care through individual chambers, meaning the larger rooms for multiple people will disappear. This also means that per patient, more surface area is used signifying the need for optimization of space. At the same time, the care is becoming decentralized in which patients are longer at home, where they can receive better care in a trusted environment. The common thought is that this speeds up the healing process, while still being able to monitor patients through devices. At the moment, the Radboud UMC is the only hospital that is building smaller with one person rooms. For many others, the main focus is on the present instead of the future.

There are multiple ways for the hospitals to section up departments, the hotfloor is one of the described sections, next to the outpatient clinics, production and the hotel building. Also, some hospitals work with thematized sections where similar healthcare professions are grouped together in a section of the building. This difference in approach to sections could possibly be due to the different background of the interviewees. Mapiq is relevant in the outpatient clinic and the hotel.

Market needs

Now, a hospital is hectic both for the employees, the many stakeholders in a hospital that have a hard time working together is a cause of some inefficiencies in an hospital. Additionally the building is a factor, its size and age are relevant to the sort of problems experienced of confusing layouts.

An interviewee underlined the crucial need for equipment it to always work in communication, especially in the primary process formed by cycles. Multiple interviewees indicated the importance of the daily meetings where teams of doctors review the previous shift and hand over responsibilities for the day. Take for instance the MDO-room (multidisciplinair overleg), where AVEX had installed

equipment that made it possible for the hospital to meet with multiple locations. This had value as the time for travel saved is substantial and the product enables them to communicate clearly. In the Radboud UMC they have made 'hubs' for people to meet face to face, as it is something that is often better for communication

10

Still, employees are constantly losing track of people in the hospitals. Patients are assigned to a room, but can be lost in track when they walk around. So nurses want them to stay in bed, but this conflicts with the physiotherapists stimulating them to walk for recovery. Then there are the doctors that walk around, people often lose track of them when they have to pick something up, take a break or have shift changes. Although they are always available through their phones, the oversight is gone. Fluctuating occupancy at peak hours only increase the severity of this problem as doctors do not have always have assigned workplaces. Nurses are often assigned to a number of rooms, by which they cannot be lost. Knowing whether a patient is in bed is valuable during day time as medicated patients might walk around confused and disappear during in the crowd.

10

9

The biggest problem most of the interviewees expressed is the loss of material, or the lack of overview in it. You could divide the materials in two things; the equipment and the stock. Equipment (machines) need upgrades, calibrations, fulfill to regulations and/ or hygiene and are often sought to perform such actions. But the stock is a bigger issue, as the hospitals do know what there should be, they often do not know where it is due to nurses squirreling it away. They do this as they think they might need it later and want to be sure to have it. Putting it back is not always done, causing the stock to go missing. This is an issue as stocks are often with a due date and have a certain turnaround time for ordering and need to be sterile and hygienic, if it is not it is destroyed (a costly affair). A solution needs to be trusted and work so good that it truly can be trusted.

8

10

"Dat zou zo'n rust creeren." - Interviewee 10

Even through rooms such as medicine cabinets are locked with an electronic lock, there is no current knowledge of entries being logged.

8

For patients the hospital is a hectic place as well, the cycles in which a lot of employees work are not as apparent to the patients that should be able to get some rest. At academic hospitals doctors do their rounds with trainees in tow, people come to check equipment, the dietitian brings food, cleaning cleans out trashcans, the physiotherapist comes around to stimulate them into moving; all things that keep the patient from their rest. Research is done into bettering this by use of sound and light, but it is not the only focus. For instance, the treatment can be communicated more clearly by letting a patient know when the doctor will come, instead of just letting it all happen.

8

10

The one person rooms help in this aspect (next to hygiene and the possibility of rooming in), but create a lack of overview and longer walking distances. They also want to empower the patient by giving them control over curtains, light and color as they believe control over surroundings lowers stress and lowers work pressure on nurses. It could be measured by more movement patient/ better sleep/ day/night rhythm/ stress.

10

10 The KPI's used are widely differing, since these indicate different things and are used by different departments. The common denominator for work pressure and registration is time. And although multiple hospitals are working towards the patient experience, the justification of investments is required by all parties.

8 Market entry

9 The hospital market is sluggish towards the use of new technological developments. Interviewee #5 even described it as anarchy, where departments had full authority over their own section of the building accounted to them. Resulting in many differences between department in equipment and budget spending. It is also difficult to determine which need fulfillment is valued the highest by the hospitals as some are outsourcing activities like cleaning, negating the savings impact.

5 Privacy is an issue for the tracking of people, as there are so many different people residing in the hospital you also have to deal with numerous interests. Patients may not want to be tracked, even considering the value it would hold for the nurses or doctors. Doctors in academic hospitals might have to follow the hospitals organization and be tracked, but doctors that reside in general hospitals and are self-employed might abject strongly to such a proposition. Or when handling patient data, the system has to be made secure (e.g. a secured mailing system was used at one location).

10 Then there is the question of infrastructure, where there are big differences between hospitals. In one hospital, the internal phones were quite dumb and solely used to communicate with. In another hospital, these phones registered a doctors arrival at the hospital when it is taken out of its charger, it was able to hook up to alarm systems of equipment and it was seen as the device that could possibly track doctors. Additionally, there was a difference between philosophies between the designs of a new building. The interviewee remained in overall possibility to expand in floor space, while the other interviewee went as far to use projections, codes and digital wallpaper to be able to quickly change layouts and information displayed.

7 One of the interviewees told about how innovation projects are often linked to new building plans, as budgets for innovations are often tight. But such bigger projects are often able to take with a couple of innovation, with the benefit of reducing the need to update the building at a later time that might clutter the hospital. Here, the need to prove value was also substantiated and they are currently planning to compare the old and new buildings at the Radboud UMC to prove their assumptions. As the market is semi-public, tenders are necessary for such projects. Best value procurement is often used at the UMCG where budgets can also be shared.

7 Of all these factors, it is likely to be different in the global market with very country dependent regulations.

10 Conclusion

5 The hospital market has potential for Mapiq, the trends of hospitals going towards individual rooms and downsizing are creating a need for optimization. Mapiq's product is currently mostly applicable to the outpatient clinic and the hotelbuilding.

5 A lot of processes within the hospital are based on communication, but a lot of efficiency would be gained if locations of persons or materials were available. As the hospital is a hectic place, the patient would benefit from more control over their surroundings and being less dependent on the staff. Also insights into how the day is planned would lower stress.

The technological infrastructure is still behind the office market, however there is a good chance when focusing on new construction. The need for privacy is even more apparent in this market as the many users can all differ in expected privacy. Dealing with patient data is extremely sensitive and usage needs to be justified, as does the investment.

Albeit slow, the market is growing. If Mapiq would gain experience within this market now, this will likely translate to a competitive advantage.

Stadium

The place of stadiums, and that of their football club, in a community cannot be underestimated. The development in the stadium market point to a future where it is used as a multipurpose venue, hosting not only football matches but concerts and other events alike. The Arena in Amsterdam is investing in becoming the best innovating stadium there is, while the renowned Rotterdam-born architect Rem Koolhaas has proposed to design the new Feyenoord city area.

Additionally, yearly reports of various football clubs point to a future where they grow tremendously and take a more central role in a cities' tourist experience (SOURCE). For instance, the 'Feyenoord City' master plan by OMA touches upon a whole area development next to the stadium. It paints the stadium as not only a football centered area, but other sport and activities as well. It is to host events like the mentioned concerts and extends this to festivals. SOURCE

This chapter handles the interviewee referencing like the others, but as only one source was acquired the additional visitor opinions are added as A and B.

Market needs

Figure 8: http://oma.eu/projects/feyenoord-city

11 These difference in events come with differences in visitors. These differences are mainly created by the familiarity a visitor has with the building. A football spectator that has a subscription is at the stadium almost every week, has an assigned seat and has its habits in relation to things such as purchasing things at the same food stand every time. This visitor does not have issues with finding things or does he need any assistance. An organizational challenge with this user is the struggle of changing a visitors unwanted behavior.

It is however different for the spectator supporting the visiting team, for them it is often a relative unfamiliar environment. But, a hypothesized problem, losing your friends in the crowd, has not A been validated by either visitor. The organization carefully plans beforehand what sections are allocated to whom and through which B gates they fill these sections as to control crowds and not have the issue of people losing their route. What was unclear to one visitor, 11 is the ticket purchasing website; linked to a difficult to understand map.

11 The amount of planning and thought that go into an event at the Arena is typical for the market. As so much is planned beforehand, the organization has a tight grip on the operation with supporting people at predetermined sections. Invalidating the need for tracking employees. They currently monitor flows in real time with turnstile gates and the respective tickets per gate. Their experience with the building makes them able to make informed decisions solely based on those factors.

The amount of monitoring inside the building is however limited to the number of transactions at a certain time. Here, the focus is on 11 the queues for the catering stands. Further occupancy monitoring had little purpose as there was little space to work differently with. Even then, the need is questionable as the interviewee said that from a theoretical perspective a section could never be more crowded than the safety limit. It could only happen when equipment fails, errors are made or they introduce lockers. Of these factors, the last one is the only Mapiq could potentially influence.

Crowdsoft wins first deal in UK

Press Release · Jan 23, 2018 16:26 GMT

The Ashton Gate Arena has 26 500 seats and is the largest conference and events centre in the southwest of England.

Crowdsoft, who soon merges with Flowscape, just signed their first client in UK. It´s a pilot project at the Ashton Gate Arena which has 26,500 seats. The aim is to create the industry's first "smart stadium"-solution.

Figure 9: http://www.mynewsdesk.com/uk/flowscape/pressreleases/crowdsoft-wins-first-deal-in-uk-2388869

11 The interviewee expressed the need of monitoring queues outside of the stadium and is currently in talks with partners to fulfill this need. Also, there is little oversight on the spread of visitors during an event. Such information is seen as valuable to make better informed decisions during an event and to even act proactive instead of reactive.

Market entry

11 The interviewee was also a member of the Amsterdam Innovation Arena, a “living lab” for innovation and open to companies willing to try out new technologies. It is however without monetary return, thus it could only be potentially interesting for Mapiq if it meant something in another way, for instance the brand recognition but this is still a very uncertain in return on investment.

One of Mapiq’s key competitors, Flowscape, has taken steps into the market (Figure 63). Together with a company they have recently merged with (Crowdsoft) that specializes in communication, they focus on the crowd management. It is still a trail, but a head-start in market knowledge and applicability of their product.In a global marketplace, there are a lot of other stadiums which all use apps that link to their stadium. These apps are often focusing on advertising new events, buying tickets and other functions that are not in Mapiq currents product.

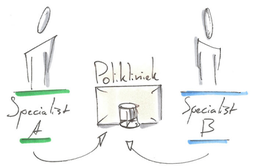
Conclusion

The expectated fit within this market has not been validated, so there is little reason to believe that a market entry with adjustments to the

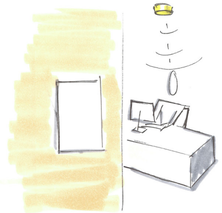
Appendix E

The scenarios created as ideation and used in validation.

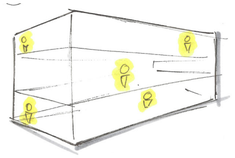
5.2.1 Scenario specialist



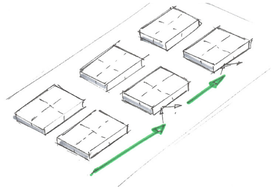
A1: Julius is specialist in het UMC en heeft een ochtend ingepland voor het zien van patienten in de polikliniek. Om patienten beter te dienst te zijn is er besloten om verschillende specialismen binnen dezelfde polikliniek aan te bieden. Zo hoeven patienten niet voor elke afspraak door het ziekenhuis heen en weer lopen.



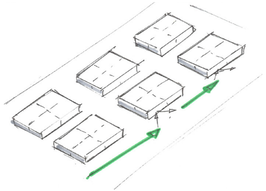
A2: Mapiq biedt hierbij hulp door spreekkamers te monitoren op gebruik en te zorgen dat niet gebruikte spreekkamers zo snel mogelijk vrij komen. Ook worden als spreekkamers in gebruik zijn, de naam van de dokter aangegeven op het kamer bord. Ook wordt aangegeven of de dokter momenteel patienten ontvangt of niet.



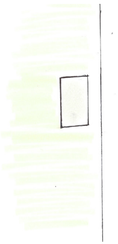
A3: Na de ochtend op de polikliniek gaat Julius snel lunchen. Hij is een druk bezette dokter maar door efficient gebruik van zijn tijd kan hij zo veel mogelijk mensen helpen. Wat in de middag lastig is voor Julius is dat zijn patienten verspreid door het ziekenhuis liggen.



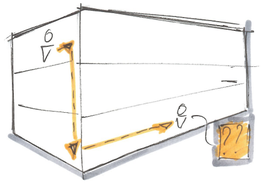
A4: Gelukkig kan Mapiq Julius hierin helpen, het systeem heeft een koppeling met het EPD en kan dus aangeven waar de patienten liggen. Daarbij geeft het Julius de snelste route om langs alle patienten te gaan in een handige 3D-kaart waarin Julius goed kan zien waar hij moet zijn.



A5: Nadat Julius zijn eerste patient heeft bezocht, wil hij doorgaan naar de volgende. Om te kijken waar deze ligt pakt hij zijn app erbij. Daarin ziet hij dat de volgende patient van zijn kamer is gegaan en in de huiskamer zit. Hij kiest ervoor om deze patient later te zien en de eerstvolgende nu te bezoeken.

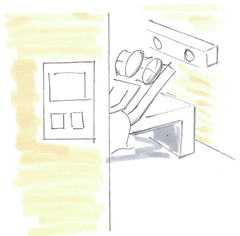


A6: Deze patient ligt op zijn kamer en is snel gevonden. Op de kamer wil Julius de patient verder onderzoeken, hierbij kan hij aangeven dat hij niet gestoord wil worden. Hiervoor geeft het kamerpaneel (room panel) aan dat de patient wordt bezocht door de dokter en dat deze niet gestoord willen worden.

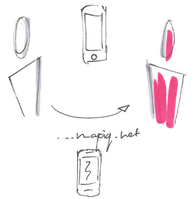


A7: Na het onderzoek krijgt Julius een verzoek om hulp op de polikliniek van een coassistent. Om te weten waar hij precies moet zijn kijkt hij in de app waar de coassistent zit en krijgt hij een snelle route aangeraden.

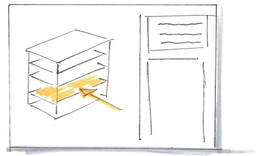
5.2.2 Scenario visitor



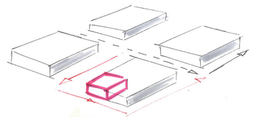
B1: Vincent's vader ligt in het ziekenhuis na een zware operatie. Het is dag twee van het herstel en vader is van de intensive car verplaatst naar de verpleegafdeling. Daar heeft hij een eigen kamer. Vincent woont ver van zijn vader en is nog niet op bezoek geweest sinds zijn vader is geopereerd.



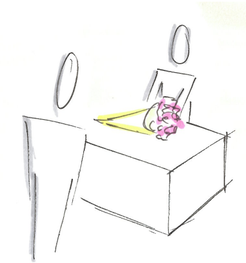
B2: Zijn vader ziet hem graag en stuurt hem een uitnodiging om langs te komen. (Vincent moet namelijk zelf bekend maken waar hij ligt. De nieuwe privacywetgeving zorgt er namelijk voor dat de receptie van het ziekenhuis niet meer mag vertellen waar patienten liggen)



B3: In de uitnodiging staat een link, via deze link ziet Vincent dat zijn vader in beddenhuis C ligt op de derde verdieping. Ook worden de bezoekerstijden aangegeven. Vincent kan aangeven hoe laat hij wil langskomen zodat zijn vader weet wanneer hij hem kan verwachten.

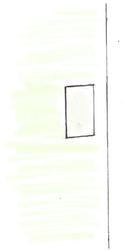


B4: In het ziekenhuis kan Vincent direct de route volgen naar zijn vader. Maar aangezien het het eerste bezoek is, wil Vincent hem ook graag een cadeautje geven. Daarom gaat hij eerst langs de bloemenwinkel op de begane grond, zijn route wordt automatisch aangepast.



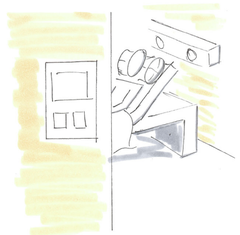
B5: Terwijl hij de bloemen haalt krijgt zijn vader bezoek van de dokter. De dokter wenst hierbij niet gestoord te worden en het systeem vraagt Vincent om te wachten in de dichtbijzijnde huiskamer.

B6: Zodra de dokter weg is krijgt Vincent een bericht waarin staat dat hij welkom is. Vincent geeft zijn vader de bloemen, die niet verrast is door zijn komst maar wel door de bloemen.

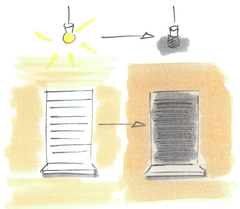


B7: Het kamerpaneel van de kamer geeft aan dat vader bezoek heeft en de ondersteunende groepen zoals de schoonmaak kunnen hiermee rekening houden in hun planning.

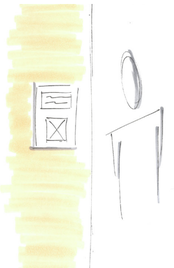
5.2.3 Scenario patient



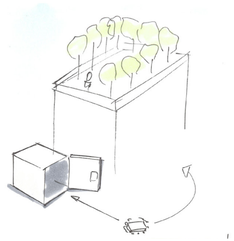
C1: Diederik ligt in het ziekenhuis na een zware operatie. Hoewel hij van de IC af is, moet hij nog een week blijven om aan te sterken voordat hij naar huis gaat. Gelukkig heeft hij een eigen kamer gekregen waar hij in rust kan aansterken.



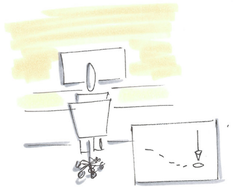
C2: Toch wordt Diederik soms moe van de mensen die continu langskomen, hij heeft die nacht slecht geslapen en wil nu graag ook nog even proberen te slapen. Hij doet met de app op zijn telefoon de lichten uit en de gordijnen dicht door op de slaapstand te klikken.



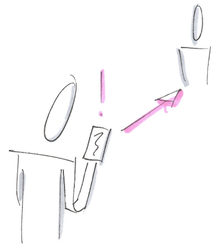
C3: Dit geeft ook aan het systeem aan dat hij niet gestoord wil worden en het kamer bord geeft dit aan aan de personen die langskomen. Alleen voor urgente zaken mag de patient gestoord worden, de rest kan wachten tot later.



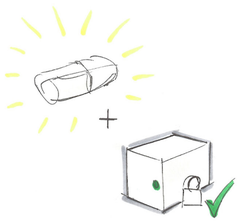
C4: Na zijn dutje ziet Diederik dat de zon is gaan schijnen! Hij besluit om naar het dakterras te gaan zoals aangeraden door zijn fysiotherapeut. Eerst legt hij nog snel wat spullen in zijn kluisje (te openen met de app of door de verpleging).



C5: De verpleging ziet hem vertrekken en hoeft niet te vragen waar hij heen gaat, zij kan Diederik's locatie volgen. Als hij hulp nodig heeft kan hij altijd op de assistentieknop drukken, hierbij wordt dichtbijzijnd personeel op de hoogte gesteld net als de verantwoordelijke medische staf.

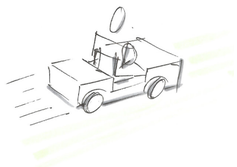


C6: Gelukkig gaat het goed, de fysiotherapeut die bezig was met een andere patient ziet dat Diederik in de buurt is en geeft hem een aanmoedigend advies om dit te blijven doen. De fysiotherapeut loopt samen met Diederik terug naar zijn kamer, makkelijk te vinden met de app en kamerbord voor beiden.

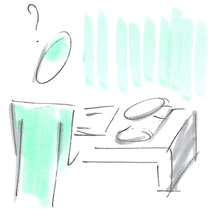


C7: Op zijn kamer ziet Diederik het extra kussen dat hij eerder had aangevraagd en ook liggen zijn spullen nog veilig in zijn kluisje.

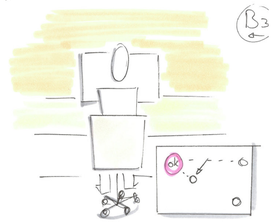
5.2.4 Scenario runner



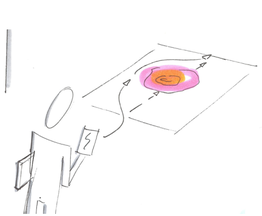
D1: Karel is een van de spoedbodes binnen het UMC. Zijn functie houdt in dat hij kritieke processen ondersteund door het snelle transport van goederen binnen het ziekenhuis. Dit doet hij met een wagentje. Op het moment heeft Karel net een pauze gehad en is hij weer beschikbaar voor opdrachten.



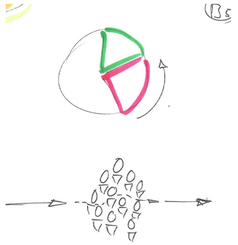
D2: Bij een operatie in de OK vindt de chirurg een stuk weefsel waarvan hij niet zeker is of het kwaadaardig is. Als het zo is zou hij het moeten weghalen, maar anders is het beter voor de patient om dit te laten zitten. Een stukje wordt afgesneden om door het laboratorium te laten testen. Maar het moet er eerst komen.



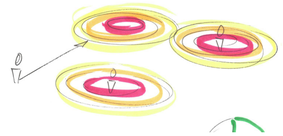
D3: De centrale van de spoedbodes ziet dat van Karel van de spoedbodes het dichtst bij de OK is en geeft hem de opdracht om het pakket op te halen. Karel krijgt het bericht en ziet direct waar hij moet zijn en hoe hij er moet komen. Hij snelt naar de OK. Bij de OK ziet men dat Karel in aantocht is.



D4: Het pakket is snel overhandigd aan Karel. Karel kijkt snel naar de route die hij moet nemen. Doordat het systeem ziet dat het ongebruikelijk druk is in de hal geeft deze in de route het aanraden om om te rijden.

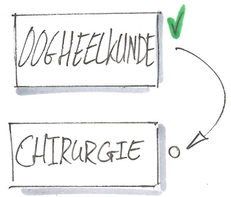


D5: Een langere afstand, maar een snellere tijd. Karel voorkomt dat hij door een mensenmassa moet rijden en geeft zo snel mogelijk het pakket af bij het lab. De resultaten worden inzichtelijk voor de OK in het EPD.

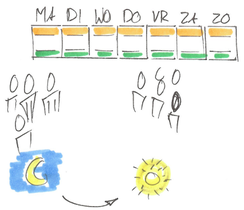


D6: Karel kan weer door en krijgt de opdracht te wachten op een specifieke plek binnen het ziekenhuis, waar op basis van eerdere opdrachten de kans groot is dat er nieuwe opdrachten komen.

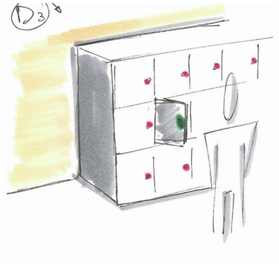
5.2.5 Scenario student



E1: Alexander studeert geneeskunde en loopt co-schappen bij het UMC. Na een week met de afdeling oogheelkunde meegelopen te hebben begint hij deze week op de afdeling chirurgie.

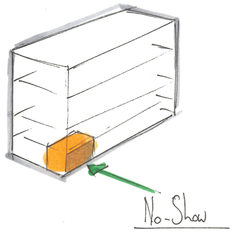


E2: Van hem wordt vereist dat hij dagelijks bij de overdracht is. Hectisch als het ziekenhuis is, is Alexander blij dat hij ook zijn rooster kan vinden in Mapiq en daarbij ook direct weet waar hij moet zijn voor de overdracht.

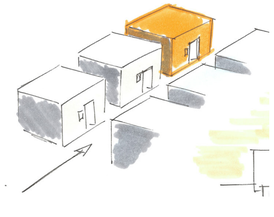


E3: In de namiddag loopt de dienst af en wil Alexander nog snel wat lezen. De chirurg had nog een boek voor hem waarin hij dit kan lezen. Door slim gebruik te maken van het lockersysteem heeft de chirurg het boek veilig neergelegd. Als Alexander aangeeft dat hij voor de locker staat opent de chirurg de locker van een afstand.

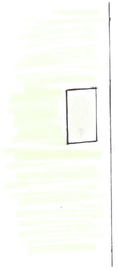
E4: Omdat hij in een voor hem onbekend deel van het ziekenhuis is opent hij de Mapiq app en ziet hij direct de werkplekken in de buurt, helaas zijn er geen vrij met computer.



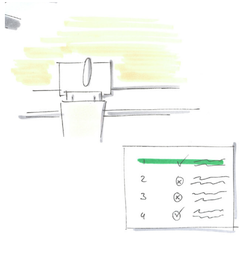
E5: Wel ziet hij dat een verdieping lager een ruimte vrij is in de polikliniek, hier staat ook een computer die hij kan gebruiken. Deze ruimte is normaal gesproken geboekt, maar aangezien er sinds de lunch al niemand in zit is deze vrij gekomen.



E6: Alex weet wel waar de polikliniek is, maar het nummer van de ruimte zegt hem weinig. De route in de 3D-kaart laat hem zien dat hij achter in de polikliniek moet zijn.



E7: Daar checkt hij voor de zekerheid nog het kamerbord om te kijken of de ruimte echt vrij is. Dat is deze en Alexander geeft op het bord aan dat hij hem voor twee uur wil gebruiken.



E8: Doordat het systeem ziet dat een student in de ruimte zit, kan deze indien nodig als eerste vrij worden gegeven voor een arts.