

# KAVO

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## Premium

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# Abstract

In my thesis I studied what creates premium quality in dental business. I did my thesis for KaVo Kerr Group Finland which is a dental device imaging manufacturer located in Tuusula Finland. My methods to define premium quality involved interviews that I had with employees of KaVo and publishes on quality. Based on interviews I benchmarked KaVo's closest competitors on the market. The area of my thesis is scoped to extraoral imaging devices in dental business.

First, I studied how quality and how it is applied generally in businesses. Because premium for me is simply defined better than average my goal was to define average quality in dental business to define premium.

Part of my thesis was to design a concept from KaVo's flagship imaging product OP 3D Pro. In design I use OP 3D Pro as an example and conceptualize how it would look if it would be designed today.

Many of the information (e.g. some statistics) that is involved in this thesis are confidential. Because of that some conclusions are based on subjective point of views.

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# Tiivistelmä

Opinnäytetyöni aihe on premium hammaslääketieteen tuotteissa. Tein työni toimeksiantona KaVo Kerr Group Finlandille, joka valmistaa pään alueen kuvantamislaitteita Suomessa. Työssäni tutkin laatu-ajattelua yleisellä tasolla ja miten se näkyy hammaslääketieteen tuotteissa ja palveluissa.

Koska premiumin yksi määrite mielestäni on sen olevan lyhyesti keskivertoa parempi, tuli minun määrittää keskiverto-laatu alalla kyetäkseeni määrittämään premium.

Osana opinnäytetyötäni suunnittelin konseptin KaVon lippulaivat tuotteesta OP 3D Pro:sta, joka on julkaistu vuonna 2009. Konspektissa tavoitteena oli konspetoida miltä premium-kuvantamislaitte näyttäisi mikäli se suunniteltaisiin nykypäivänä. Konsepti keskittyi laitteen muotoiluun eikä ottaisi kantaa teknologiaan saati ominaisuuksiin laitteessa.

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# Table of content

Abstract

Introduction

Background

KaVo Kerr

KaVo Kerr Group Finland

Scope

Dental Imaging

Extraoral Imaging

OP 3D Pro

Markets

Manufacturers

Dealers

Clients

Research

Interviews

Surveys

Blue Ocean Strategy

Value Pyramid

Benchmark

Services in dental

Business

Analyses

Interviews

Surveys

Benchmark

Quality

Value

Premium in  
dental

Phases

Concepts

Op 3D Pro

Premium

Target group

Environment

Design drivers

Moodboard

Sketches

Concept

Conclusion



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# Introduction

# Introduction

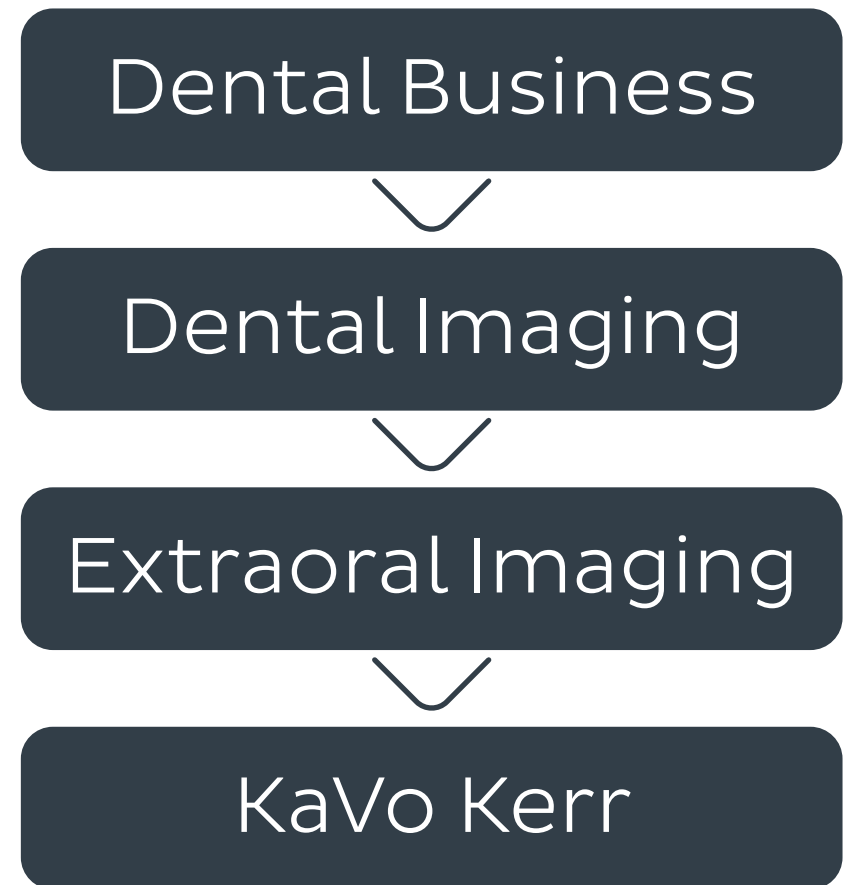
Main question of my thesis was what forms premium in dental business and where you can/could find it. The scope of my thesis will be on extraoral imaging devices that are manufactured in Finland. For my thesis I interviewed employees from KaVo Kerr Group Finland who obtain a long experience from the field. In these interviews the subjects included how the markets work and what type of clients there exists in dental business. The purpose of these subjects was for me to get an overall picture from the industry. After these subjects the interviews focused on what were interviewees opinions on quality and what are the characteristics of premium in dental business.

I also asked the interviewees to fill two forms which would help me to visualize the information gathered in these interviews. First was taken from Blue Ocean strategy which I applied in my thesis. The result of this showed how some of our competitors ranked on different factors. Second form was called value pyramid where my goal was to see what factors the interviewees saw most important for premium.

Another part of my research was benchmarking KaVo's closest competitors in extraoral imaging business. In benchmark I focused only on the design of their flagship models that competed with KaVo's OP 3D Pro.

The goal of all this was to define how premium quality was seen in KaVo Kerr Group Finland and how it could be brought to their services and products.

Last part of my work was to design a concept version of OP 3D Pro. The meaning of this concept was to visualize how it would if it would be designed today. In the concept I didn't touched to the technology and features and focused only to the design and visual appearance. This means for example that the dimensions and locations of different parts haven't changed.



# Background

## KaVo Kerr

KaVo Kerr is one of the largest dental companies in the world. It is a cohesive organization from which KaVo manufactures treatment units, imaging devices and other dental instruments and Kerr produces dental consumables. KaVo Kerr is part of Danaher Corporation which is focused around health and environment technology and innovations.

KaVo Kerr



Ormco™



Danaher's dental brand family

(Picture from KaVo Kerr Group Finland)



Danaher brand family

(Picture from KaVo Kerr Group Finland)

- What is Premium in dental-

# History of KaVo Kerr Group Finland

- 1946 1st paper on panoramic X-rays by Dr. Paatero
- 1961 1st dental panoramic X-ray unit is developed
- 1964 1st unit is manufactured by Palomex Oy
- 1977 Instrumentarium Corporation acquires Palomex Oy
- 1977 SOREDEX is founded
- 1982 SOREDEX is acquired by Orion Corporation
- 1988 Palomex changes name to Instrumentarium Imaging
- 2001 Instrumentarium acquires SOREDEX
- 2003 General Electric acquires Instrumentarium
- 2005 Altor acquires dental business from GE
- 2005 Palodex Group Oy is founded
- 2009 Danaher acquires Palodex Group Oy
- 2014 Palodex Group celebrates 50 years' anniversary
- 2016 KaVo Kerr name is taken in use, the company becomes a COE for dentomaxillofacial imaging R&D and manufacturing
- 2017 new KaVo imaging portfolio is launched



## Now

Today KaVo Kerr Group Finland is manufacturing imaging devices under KaVo brand.

The portfolio consists of 6 different imaging devices from which I'll be focusing to Op 3D Pro (second from right).

KaVo Kerr Group Finland's old brands were seen as higher quality brands. Now when manufacturing the same devices under KaVo brand, it is interesting to see how it has affected their image in terms of quality.

Old imaging brands



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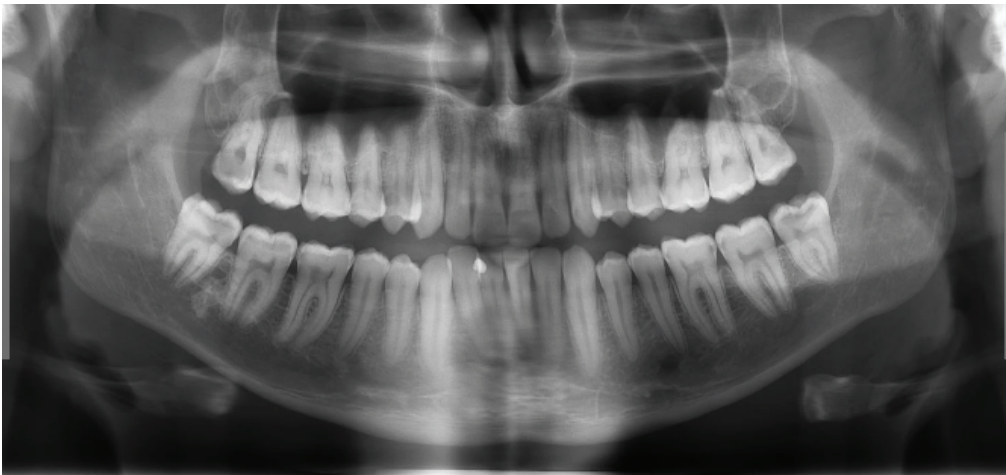
# Scope

## Dental Imaging

Dental cone beam computed tomography (CT) is a special type of x-ray technology used in situations where regular dental or facial x-rays are not sufficient<sup>1</sup>. Intraoral devices are the most common ones that are usually used when taking pictures of single tooth. Extraoral scanners are used infrequently because of the radiation they create. Extraoral scanner is capable to take panoramic shots and three-dimensional shots.



X-ray image taken with a intraoral scanner



Panoramic image taken with CBCT scanner



3D image taken with a CBCT scanner



# Extraoral imaging

Dental imaging can be divided into two different fields, intra- and extraoral imaging. Intraoral imaging is used when a small area is scanned. In KaVo's product portfolio FOCUS and NOMAD are intraoral devices. Scope of my thesis will be in extraoral imaging where larger areas are scanned.



KaVo's Intraoral scanner Focus

6



KaVo's latest extraoral scanner OP 3D

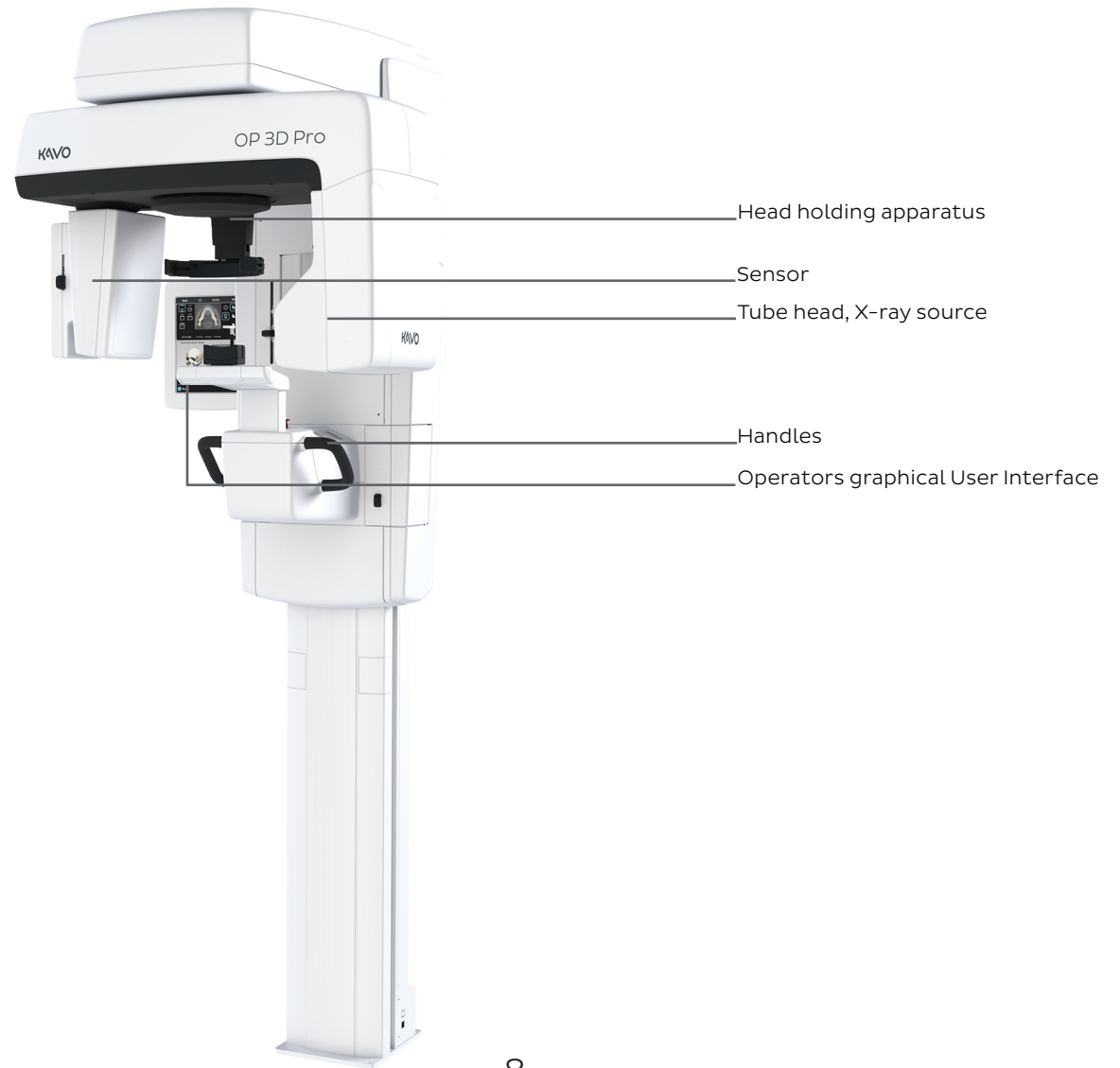
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# OP 3D Pro

KaVo OP 3D Pro is company's premium product in extraoral imaging. One reason for this is device's large selection of features. The device was published in 2009 and presented premium quality back then.






Part of my thesis is to design a concept version of OP 3D Pro. Target in this concept is to visualize how it would look like if it would have been designed today. My focus would be strictly in the design itself and not in bringing any new technology or features into the concept. This means e.g. that the dimensions of the device will remain the same in my concept.



# Markets

## Manufacturers

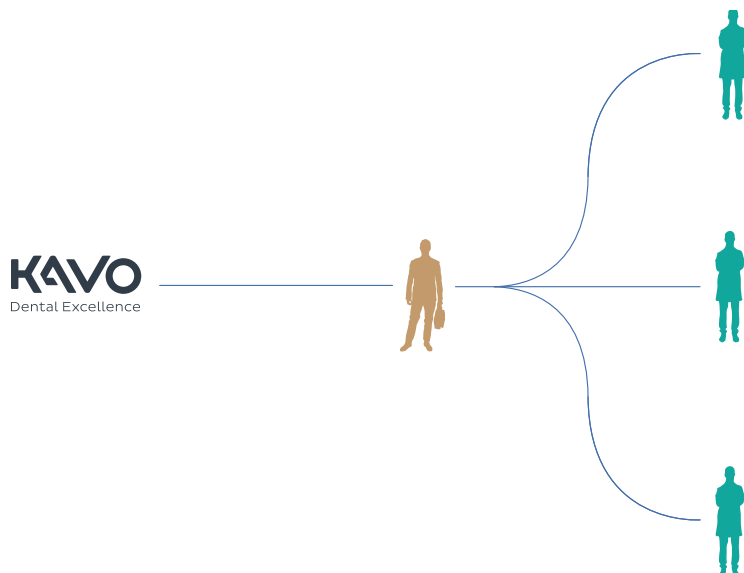
Dental imaging has few larger manufacturers and a hundred smaller. In addition to KaVo, the largest manufacturers are Planmeca, Dentsply Sirona, Carestream and Vatech Global<sup>5</sup>. Competitors listed below are usually the ones against who KaVo is competing in the markets.

				
Founded: 1971 Headquarter: Helsinki Nro of employees: 2 700 (2014) Revenue: 850 m. USD (2015) <sup>2</sup>	Founded: 1899 Headquarter: York, USA Nro of employees: 15 700 (2016) Revenue: 3,7 b. (2016) <sup>3</sup>	Founded: 2007 Headquarter: Rochester, USA Nro of employees: 6 000+ (2018) Revenue: 2,4 b. (2014) <sup>4</sup>	Founded: 1992 Headquarter: S.Korea Nro of employees: - Revenue: -	Founded: 1897 Headquarter: Orange, USA Nro of employees: - Revenue: -

## Dealers

Dental field has always been a bit different compared to other medical fields. Dental clinics have always been very small. Because of this big manufacturers of consumables and/or technology have never been too keen to invest in marketing for these clinics. This has created the dealers in between these two. Dealers have a big role on the market as they are straightly in contact with the clients. Clinics are usually using one dealer to cover their needs in consumables and devices.

There are many dealers in the world, but biggest players that came up in the interviews were Henry Schein and Patterson dental<sup>6</sup>.



 **HENRY SCHEIN<sup>®</sup>**  
DENTAL

**Dental  
Directory**

***BencoDental<sup>™</sup>***

  
**PATTERSON**  
DENTAL

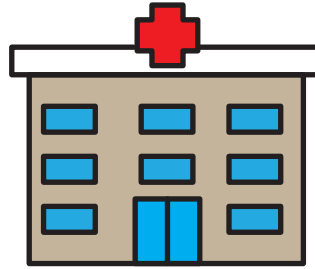
- What is Premium in dental-

# Clients

Most of the world's dentists are working in small practices in the private sector. These practices are divided in subsegments depending what type of services they are offering. These segments are full-service clinics, basic "drill and fill" dentists who does simple operations and the specialist that includes endodontics, implantologists, etc...

Even though small sized clinics are still very common, their amount is predicted to reduce in the future and dental chain clinics to take much bigger role.

Public hospitals



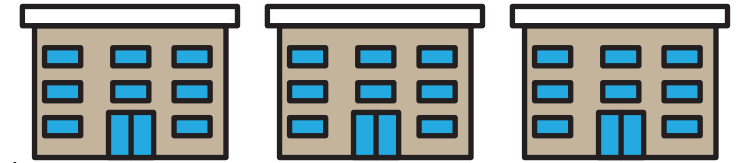
Is there any need for premium product in public sector which is very value driven.

Private Clinics



What type of services private clinic could see as premium.

Chain clinics



What value premium would add for a dental chain clinic



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Research

# Interviews

Part of my research were the interviews that I conducted for associates in KaVo Kerr Group Finland.

In the interviews my topics were how the markets worked and how the interviewees saw quality factors in services and devices. The questions about quality were discussed on a general level. The goal in questions about clients were what the clients saw as an important factor in high quality services and devices. In the interviews I asked employees opinions about our closest competitors to see if some things could be taken from them.

The interviewees answered based on their knowledge and experience and their answers presented their personal views.

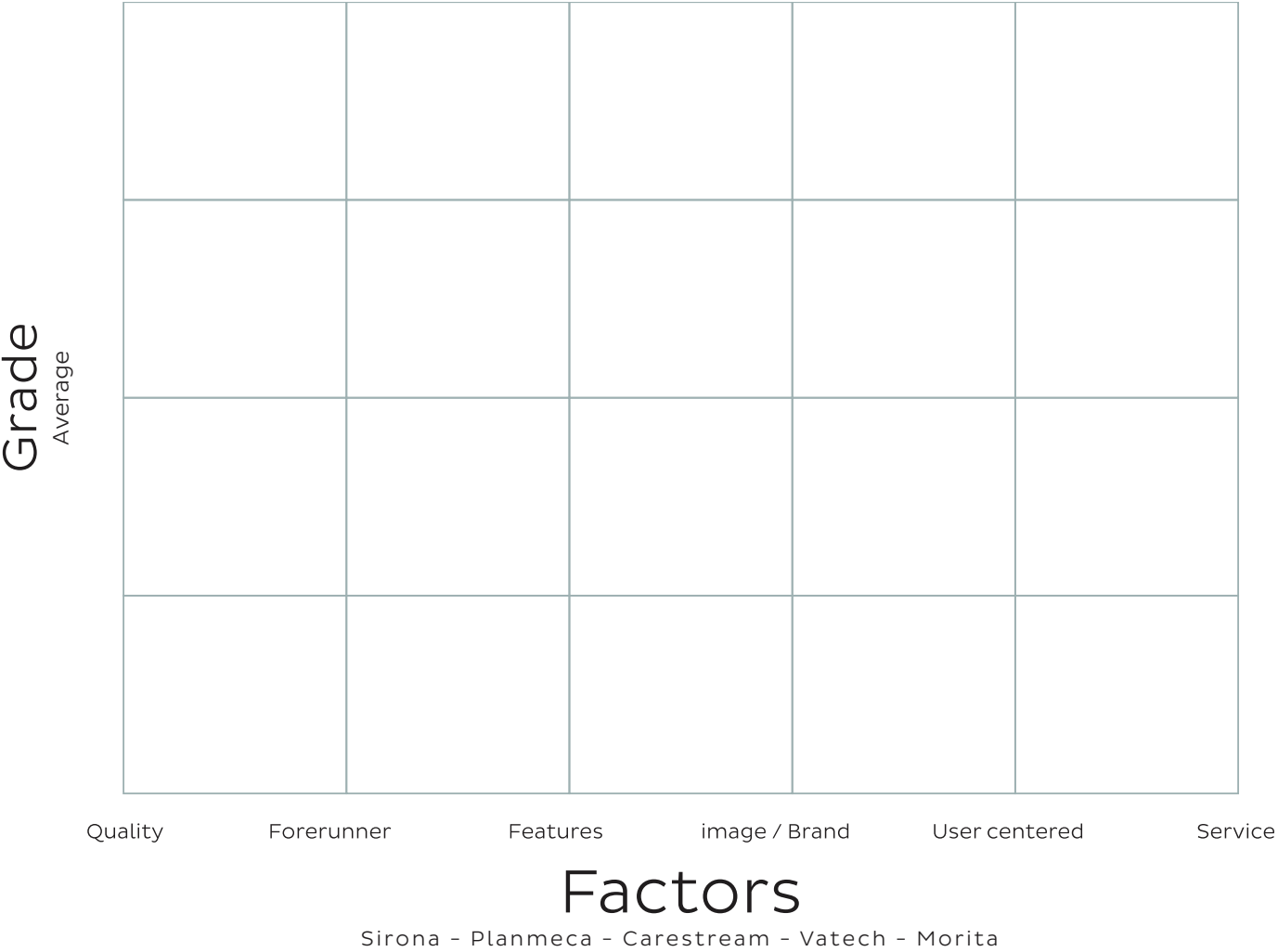
# Surveys

## Blue Ocean Strategy

To visualize my interviews i tried also to gather quantitive data from my inter-  
viewees. Challenge in this was the small  
group of participants who answered.  
Risk in these was that if they disagreed  
at large, it would be very challenging to  
draw any conclusions from it.

I chose Blue Ocean strategy's tool<sup>7</sup> as  
it matched best to my needs. Goal in  
Blue Ocean-survey was to see how our  
closest competitors scored on different  
factors that I thought would be essential  
for premium.

Idea was to help my benchmark process  
that followed these interviews.



Survey form given to interviewees

- What is Premium in dental-

# Value Pyramid

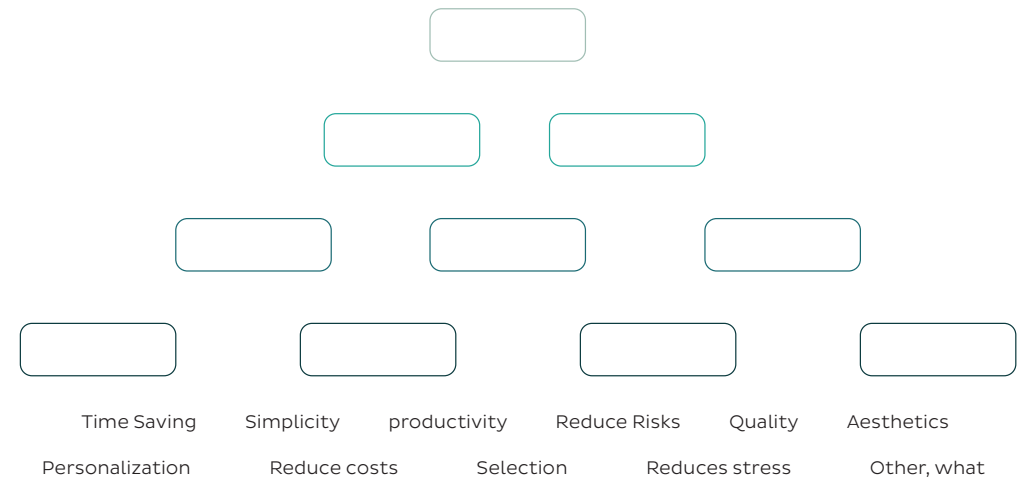
Second survey that I gave to interviewees was Value Pyramid. The survey was created a few years ago by team which I took part.

The goal of this is to place different factors on the pyramid due to their priority. Each level is numbered from 4-1. The answers are summed together after the interviews on a pile graph which hopefully gives a picture on what are the most important factors in premium.

The options were taken from Harvard Business Review's article the elements of value<sup>8</sup>.

Challenge in this survey are the same as in in the previous Blue Ocean-survey. The result would be much clearer with larger number of participants.

## Value Pyramid from premium aspect



Survey form given to interviewees



# Benchmarking

As part of my research I will benchmark and analyze the flagship models of the closest competitors on the market. These are Planmeca Viso, Morita Veraview X800, Carestream CS 9600, Sirona Galileos Comfort Plus and Vatech Pax-Duo3d.

The benchmark will include my subjective opinion on factors that came up in the interviews and how interviewees analyzed competitors' devices.



9



10



11



12



13

## Services in dental business

Services offered for the clients are installation, training, support and repair. My mission was to research the quality of these services and define the premium quality in them. It depended on country and contracts if these services were offered by KaVo or by dealer.

Installation service is always provided by the dealer. Installation of OP 3D Pro is a time-consuming process. In interviews the employees raised the habitus and behavior of installers as one quality factor.

Training is given for the client after installation and was told to last around 2 hours. Before it was included into the scanners price and lasted longer. Reason for the short training comes from the client as it takes time away from patient treatment. The benefits of longer training should be marketed better for the users because it reduces problems in image quality.

In client service the interviewees focused on how clients and their issues are taken noticed. Client service is one of the few interaction points with the customer. The interviewees told that only way how they receive feedback from our end-users are through complaints that our client service receives.

The employees told that the most common subject in complaints was poor image quality. These were usually because an uncalibrated device or bad patient positioning. Quality in client service can be measured by how long does it take to solve an issue. Second point is how client felt he/she was treated during this period. One point that came up on users experience with client service was the accessibility and easiness to find help. "A business that offers limited customer service hours or only offers one method of communication, such as an email address, and that does not have a sufficient number of customer service representatives, is likely

to develop a bad reputation that will eventually harm the company's sales"<sup>9</sup>. In best case scenario the client would have one single employee to whom they are in contact on any device related issue. It wasn't clear for me to whom the client is usually in contact in case of a problem. To dealer or to manufacturer.



Analyses

# Interviews

## On KaVo

Things that came up when the interviewees were asked their opinions on KaVo was that its reputation is linked strongly to its old brands such as Instrumentarium and Soredex. Everyone saw KaVo as a high-quality manufacturer. Points where to improve according to employees were marketing and being the first manufacturer to bring new features to the market.

## On Competitors

One of my questions was what would they take from competitor are what is that you are jealous to them.

Everyone that I interviewed had an opinion on Planmeca due to close location. Planmeca differs from other manufacturers that they have their own selling organization and don't really use dealers. This allows them to have control the quality and appearance. The downside of this is they have to build

their own customer relationships which is very time and resource consuming. If something had to be raised above others, Planmeca scored high in marketing.

Sirona was seen more as a steady premium quality manufacturer.

Morita was seen the best in image quality but very local in terms how technically good their imaging devices were.

Carestream was seen alongside with Vatech as a lower quality value provider that was trying get to the higher class with their newest model CS 9600.

Vatech was seen as the lowest from the closest competitors. Reason for this were in performance, design and image of the brand. Vatech differs from the others that they have the largest scanner portfolio on the market. When other manufacturers such as Kavo are pushing new models to the market every 5-10 years.

Vatech does the same every 6 months. Also the design and color decisions in Vatechs' product didn't received flattering comments from the interviewees as the scanners weren't as professionals but too playful. Reason to this can be in cultures.

## On Dealers

Dealers are the wall between manufacturers and end-users. Formerly the dealers were seen as immediate clients and the clinics as secondary clients.

In future the role of dealers was predicted to shrink according to interviews. This is a result of two factors. First the dental chain clinics are becoming more common. These chain clinics have their own purchase organization and can skip the dealers. Secondly the internet of things is making its coming to dental industry that gives the manufacturer straight contact to their devices and also to the clinic.

## On Markets

There are no official numbers on the size of dental tech market and companies don't share them to outside.

Picture that I got from the interviews was that most potential clients for premium located in USA and China. These areas were highlighted because of the number of patients who are ready to pay extra for premium dental care.

From client segments the potential group was seen in all-inclusive dental care providers and chain clinics who are providing premium services to their clientele.

## On Clients (Clinics)

Clients were segmented by their specialization and size of their clinics. When asked how the purchase decision were made the answers were surprising. My assumption was that the clients didn't care on visual appearance and are only comparing the performance between devices. In the

interviews I was told that the dentists are not professionals in imaging and don't know much about the devices when going to the dealer. Biggest concerns on the device are its reliability, durability and does it work with clinic's existing IT softwares. Some have made some pre-decisions based on colleague's opinions.

## On Quality

Quality was seen as a promise. If the performance or other factor of the product didn't meet the clients' expectations the product was low quality. This was a important point because dental suppliers did all the selling towards to end-users and KaVo can't control the promises that dealer's salespersons are telling to the client.

High quality was seen as concentration to the details and that it's comprehensive.

In Scanners quality was seen especially in the materials and how it felt to use the

device.

## On Premium

The views on what premium should be were different from each other. Most interviewed saw that it needed to be something concrete as it otherwise would look as a cheap marketing stunt.

Premium wasn't seen as a price matter because high price doesn't mean a product would be premium quality.

Premium was seen to communicate on emotional level with the client.

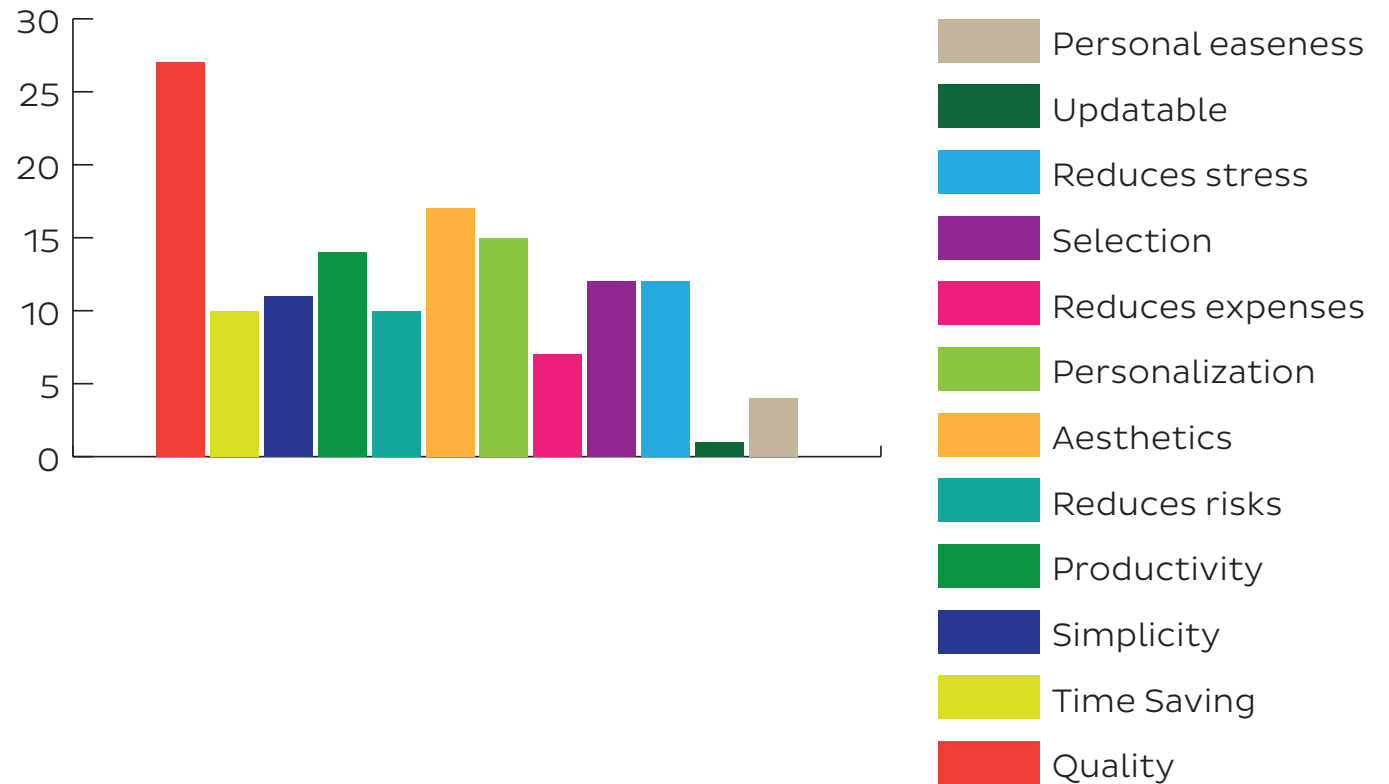
One of the concerns raised in the interviews was what benefit the end-user would see in a premium imaging device. Premium was also easiness which could be for example that the repair or service should be already paid in the purchase of device and not paying separately from the services needed.

# Surveys

## Value Pyramid

Conclusion of this result was that quality was the greatest factor in premium. Aesthetics was ranked surprisingly the second highest meaning that besides working perfectly the device needs to look pleasant. Personalization came third. This came up also in the interviews where employees told that some of the clients wants the devices color to fit their clinic's image. Productivity was fourth highest which indicated to me that the performance of the device needs to be better than an average scanner's. Questions what this result raised was how the interviewees saw the quality.

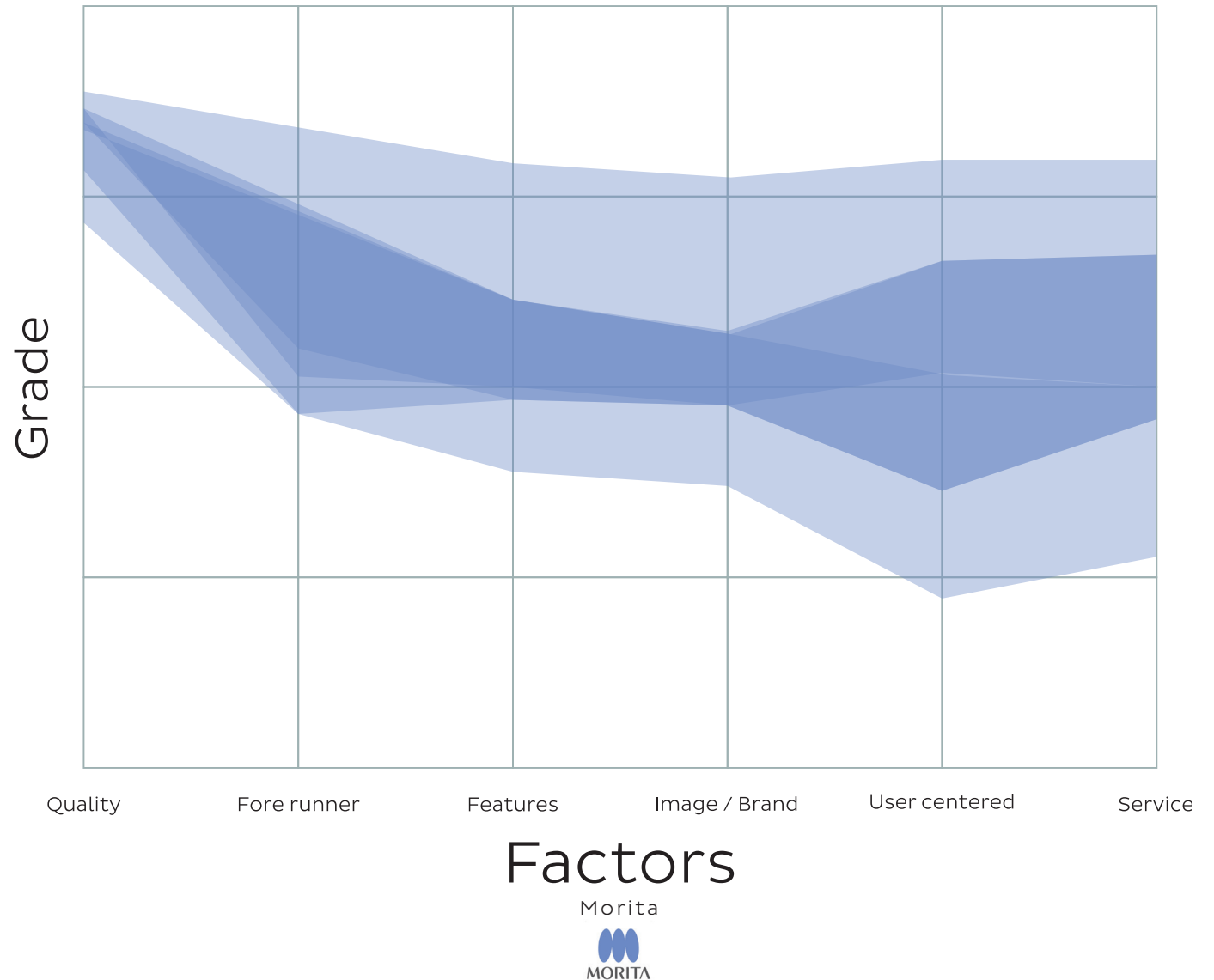
Value pyramid results



# Blue Ocean

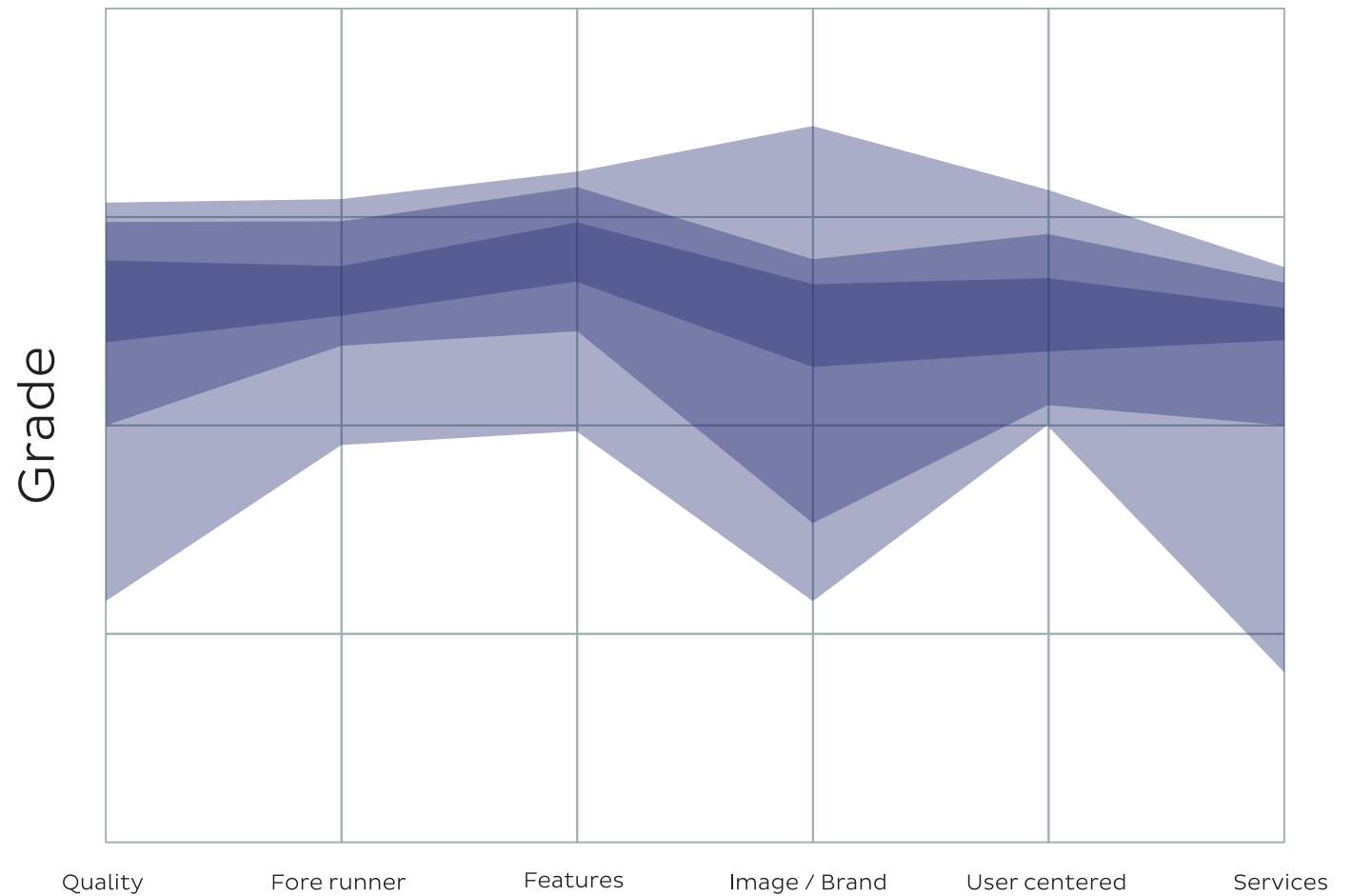
## Morita

Morita is a Japanese manufacturer which dominates in Japan and has a strong market over there. Interviewees agreed mutually that it is high in quality but not much of a fore-runner. Generally, Morita was seen better than average type of manufacturer.



# Planmeca

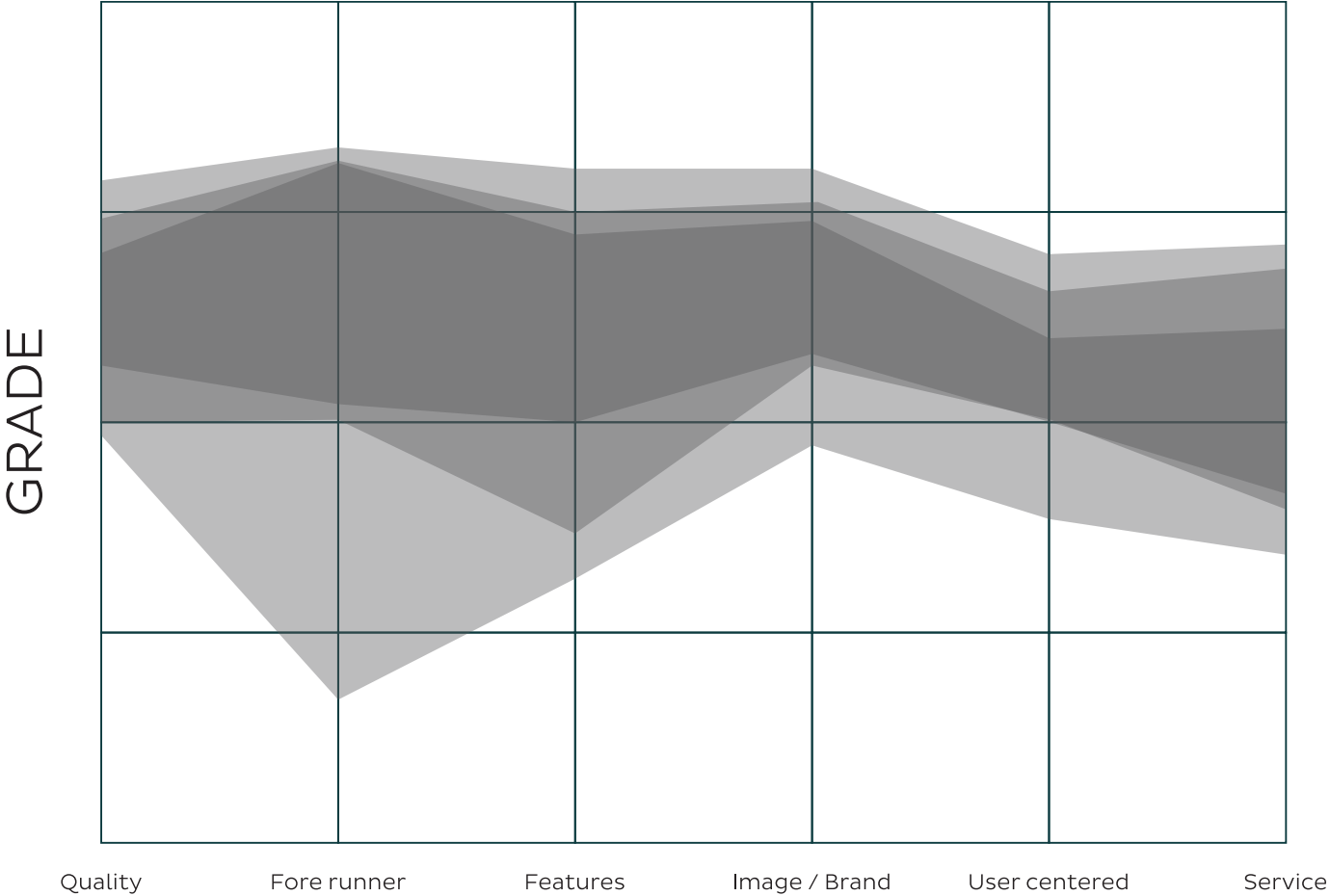
Planmeca has been operating in imaging device business since the 1980's and are closely benchmarked due to close location. Based on the interviews Planmeca is strong in marketing. In quality Planmeca was seen higher than average. Also in the rest of factors Planmeca played quite strongly even though the answers spread a little bit.





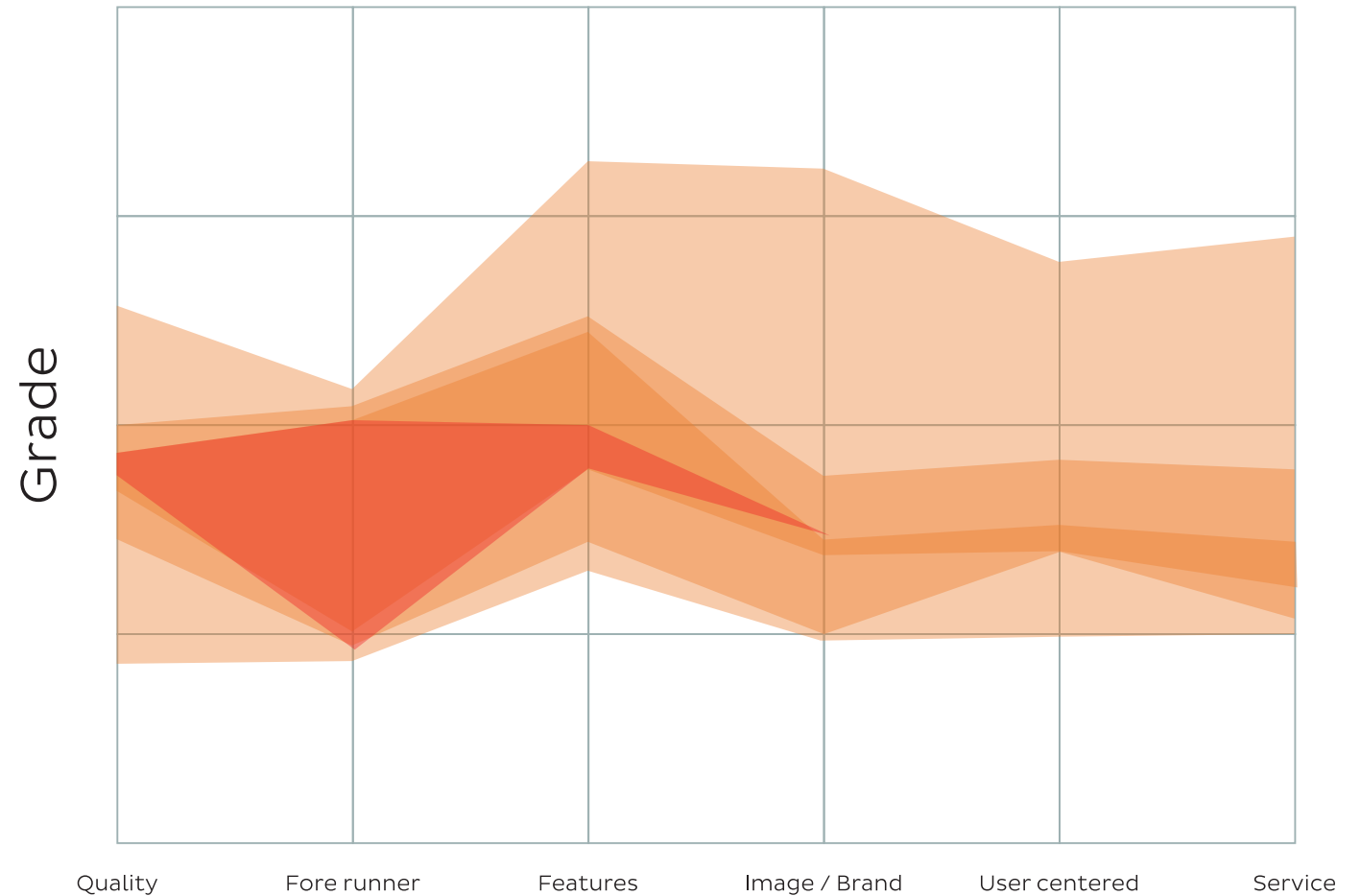
# Dentsply Sirona

Dentsply Sirona is much like KaVo Kerr as it is a cohesive company formed from Dentsply and Sirona. Looking the graph, the opinions were not so mutual than on other competitors. Still they can be seen better than average.



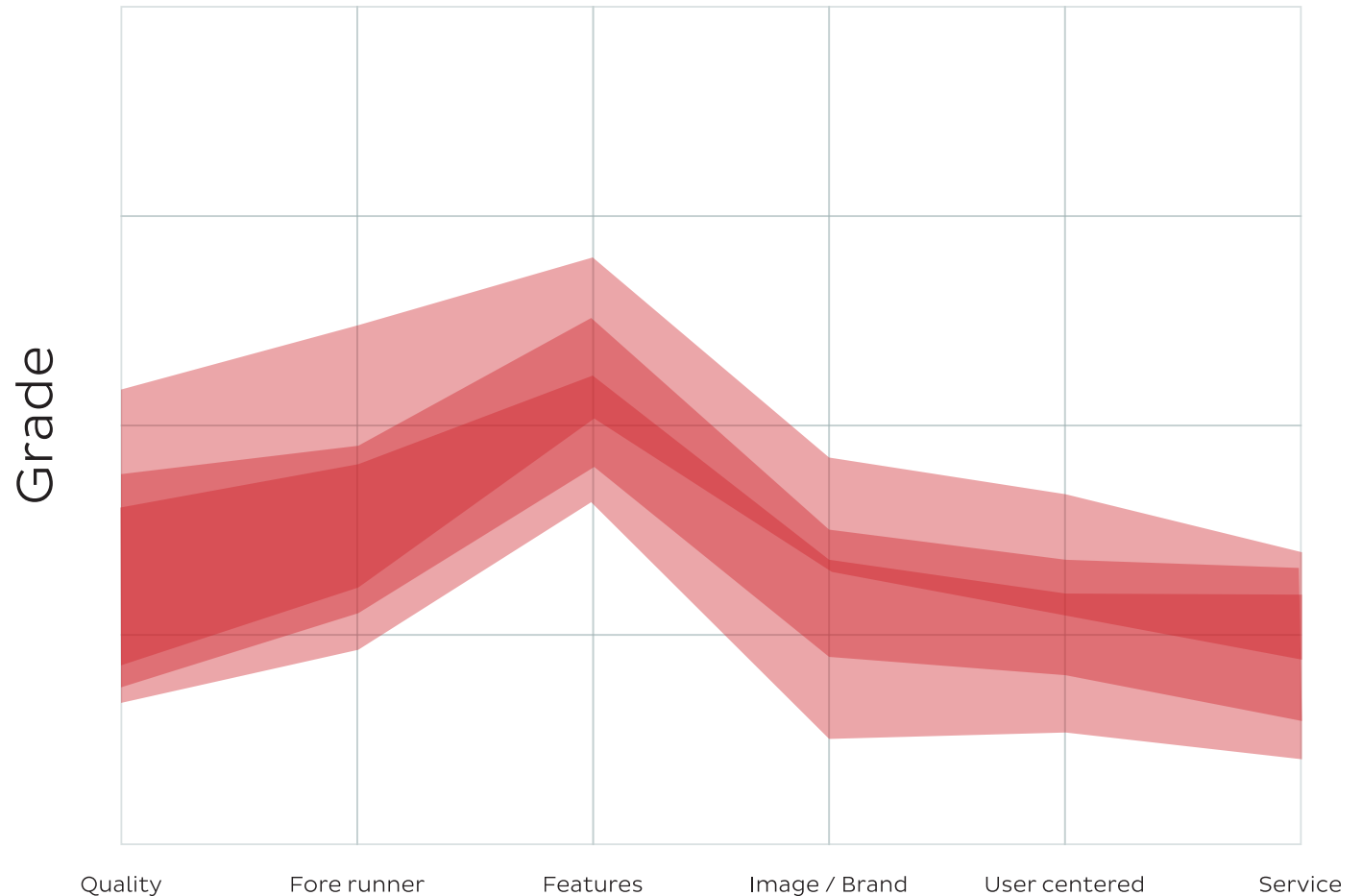
# Carestream

Carestream was clearly seen as a low-end manufacturer. The interviewees agreed that Carestream wasn't a fore-runner in the markets and generally under the average on all factors.



# Vatech

Vatech was founded in 1992 and comes from South Korea. From imaging companies Vatech has the largest product portfolio and they bring new models at least ones in a year when for others the cycle is 5 to 10 years. Vatech's models were not seen durable and trustworthy. One thing that came up in the interviews and can also be seen from the graph how strongly they made it in features. The downside of this was that some of the features were not always useful and user centered.



# Benchmark

First notice from benchmarked imaging devices are the colors. White is dominant even though in Morita's Veraview X800 the uses of white is even with metallic finish and black.

Planmeca's Viso and Sirona's Galileos Comfort Plus are the products that I personally appreciate the most from these. Morita's device looks a bit too much retro. Carestream's CS9600 looks too heavy from the top and Vatech's Pax Duo3D a bit too complex and plastic.

What I appreciate in Viso and Galileos are the simple forms and minimalistic approach. They differ from the others with bright white color.



# Quality

Quality was the biggest factor in survey answers in premium so what is quality? Quality can be divided in to five definitions which are:

Product based definitions:

Quality are measurable features of a product. quality can be understood objectively and is usually related with price and cost. Professionals who sees quality in this are usually from marketing sector.

Production based definitions:

Also, objective way to see quality where quality means that a product passes the specifications set in its production.

Financial value-based definitions:

Quality comes from products utility value. The product is bought for a certain purpose. Quality is formed in production process. Shortly quality is the relation between price and value in use.

Real-economy value-based definitions:

A subjective way of seeing quality where it is formed from fulfilling a need during its lifecycle no matter the price. The target is to know your client and design the product to fulfill their hiding and imminent needs. This doesn't necessarily mean high production costs.

Heuristic and mythical definitions:

Quality is excellent goodness or luxury. Quality cannot be measured or even defined. Only you know what is quality.<sup>10</sup>

From these definitions I would say based on the interviews the most important points for the end-user were product based and production based.

The first thing that a client who is searching for a premium imaging device is performance and image quality.

After that comes the durability. The imaging device is a big investment and because of it they demand high durability from their device.

Third most important is value based. The

value that a imaging device adds to the clinic is big. With their imaging device the clinic doesn't need to send their patients somewhere else to be scanned and they can proceed quicker with their treatments. Heuristic and mythical definition didn't came up in the interviews.

# Value

Value can be divided into three elements:

- the value in use
- consequences of the use
- situations of use<sup>11</sup>

The value in use comes from the ability to provide quick imaging service for the patients. Extraoral scanners

To consequences of use we can include the image quality of the images that scanner has taken. This was seen as one top factor in performance.

Situations of use consists of one operator and the patient. There the value comes from quick patient positioning and fast scanning. As earlier said in the interviews, the patient positioning is usually where the mistakes are made and affect the image quality.

Value that a CBCT scanner creates is in images that it produces. These images

help dentist to diagnose their patient and proceed in treatments. That technology hasn't changed during those 100 years when X-Ray has existed. How manufacturers are trying to create more value to their devices is by adding more different features to them. These features usually include low-dose imaging where radiation dose is smaller than usually. Other features can be lead-free parts and faster imaging. In features the risk is to have over-quality that means that it is no easier to use and some features are useless. Good comparison are the television remote controllers where too many useless buttons are distracting the users focus who usually uses channel and volume buttons.

# Premium in dental

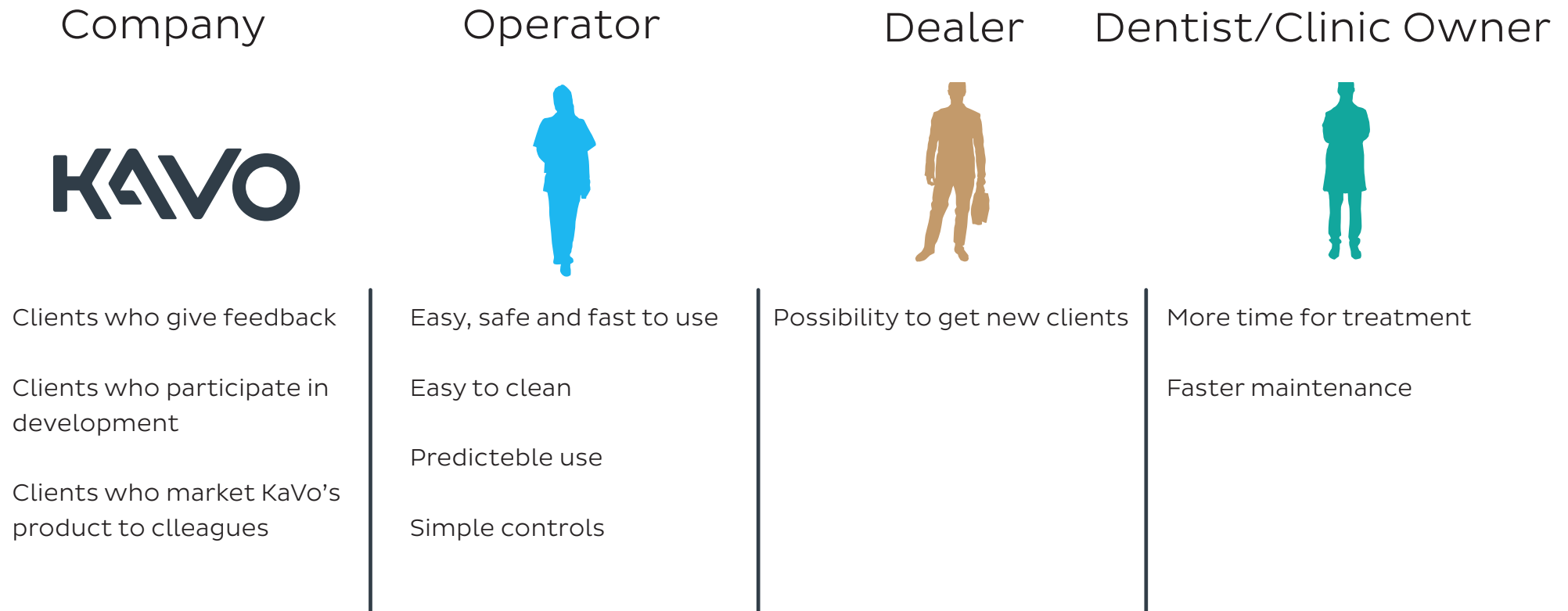
After the analyses we can say that providing premium quality successfully is very demanding due to dealers role in between manufacturer and end-user. Referring to interviewees there exists demand for premium quality products and services on the market.

Premium in dental is a comprehensive package of services and high-end products that are long-lasting. In devices it means honest materials that are durable and don't produce any noise that would lower the feeling of high-end product. This means practically switching cheap plastic parts to some other steadier

materials.

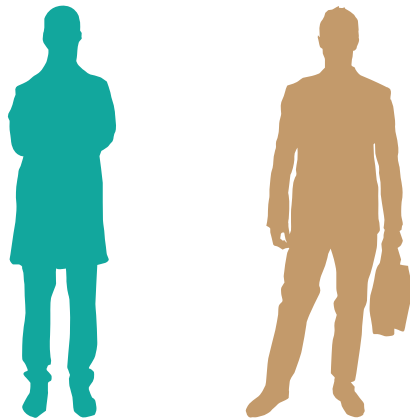
Premium was especially about empathy and noticing the client and their needs more uniquely. KaVo's focus should be in making sure that whatever interrupts clients workflow, it wouldn't be KaVo's scanner.

Promise came more than once in the interviews and by that the interviewees meant couple of things. First one was the promise of scanner operating as said before purchase and second the promise of providing spare parts and services for the full lifecycle of the device.



# Phases

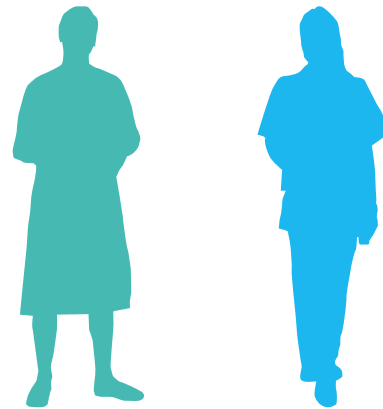
## Purchase



Dentist/client & the dealer

The quality comes from the earlier reputation of company and its device that the buyer has heard from his/her colleagues. Besides devices performance and features compared to competitors, the quality feeling comes from how it's represented in dealer's showroom.

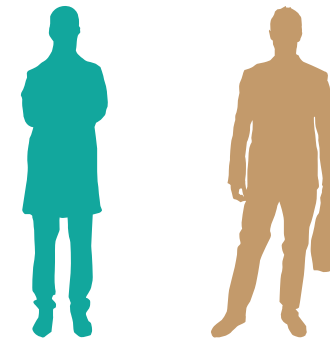
## Use



Patient & operator

Quality comes from the interaction with the device. This includes the controllers and how stable the device looks. in other words, the sense of quality comes from touch.

## Problem situations



Dentist & dealer & manufacturer

Quality comes from how the client and their problem is treated. How fast the service is and will there be any compensation due to postponed scanning's.

**KAVO**





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Concept

# OP 3D Pro Premium

Last part of my thesis is to design a premium-concept of OP 3D Pro where I've taken the results of my research in count. In this part I will proceed as in normal product conceptualization process where I start from defining the target group, environment and design drivers. After these steps comes sketching, modeling and renderings.

In the plastic forms my goal was to observe how design has changed in medical devices from 2009 when current OP 3D Pro was brought to the market.

One clear problem in terms of design and premium quality was the type of plastic used in scanners casques. the plastic panels were too frail and didn't fit the image of a stern and reliable medical scanner. One other detail connected to this was the joints between the panels that looked vague. Also, recesses in panels didn't fit the image of a modern device.

The design in today's devices have a minimalistic approach where functionality, mobility and communication between device and user are taken in count.

The colors have stayed pretty much the same during the years as the white still being the primary color.

From surface finish the glossy is seen better because It is easier to clean in a hospital environment.

Plastic is still the most used material in medical industry. In the interviews the plastic was a problem for premium quality as it didn't give any feeling of it.



# Target group

The most potential client segments are private specialists and all-inclusive dental clinics. Also, some of the clinic chains who want to provide premium dentalcare for their clients are in the target group. These clinics are pretty large practices where all the treatments are provided under the same roof.

# Environment



# Design drivers

Design drivers are goals and guidelines set for the project.

In defining them I'll be using Henry Dreyfuss' five-point formula<sup>12</sup>. I'll follow these points except the Cost as it isn't part of my scope.

Device has to be easy to clean and operate. This means clear surfaces and minimalistic look. Also, the amount of joints should be minimum as they collect dirt.

Things that the device should represent for the client are safety, simple and calming. Safety comes through the way how device communicates with the operator and patient. Part of safety is predictability and that parts don't look fragile.

Simplicity comes from minimalistic design so that user's focus is concentrated on controls and other contact points in the device. Device must clearly communicate from which parts it is operated.

Calming effect in the design comes from

the colors and lighting solutions. Also the sounds the device creates has to be low toned as they are seen more trustworthy.

Design of the device has to stand out from the competing devices. This has to done

carefully because the industry is still quite conservative in terms of color etc... How a premium scanner stands out from others is by honest materials and finishes in the details.



# Moodboard

When analyzing today's medical devices, the first notice was in the colors. The dominating primary color is clear white after which comes dark grey/black in smaller components to create borders in the surfaces. Also, metal surfaces are left sometimes uncoated which in my eyes creates an image of a more durable product.

The devices have also become more minimalistic where focus is centered to functions.



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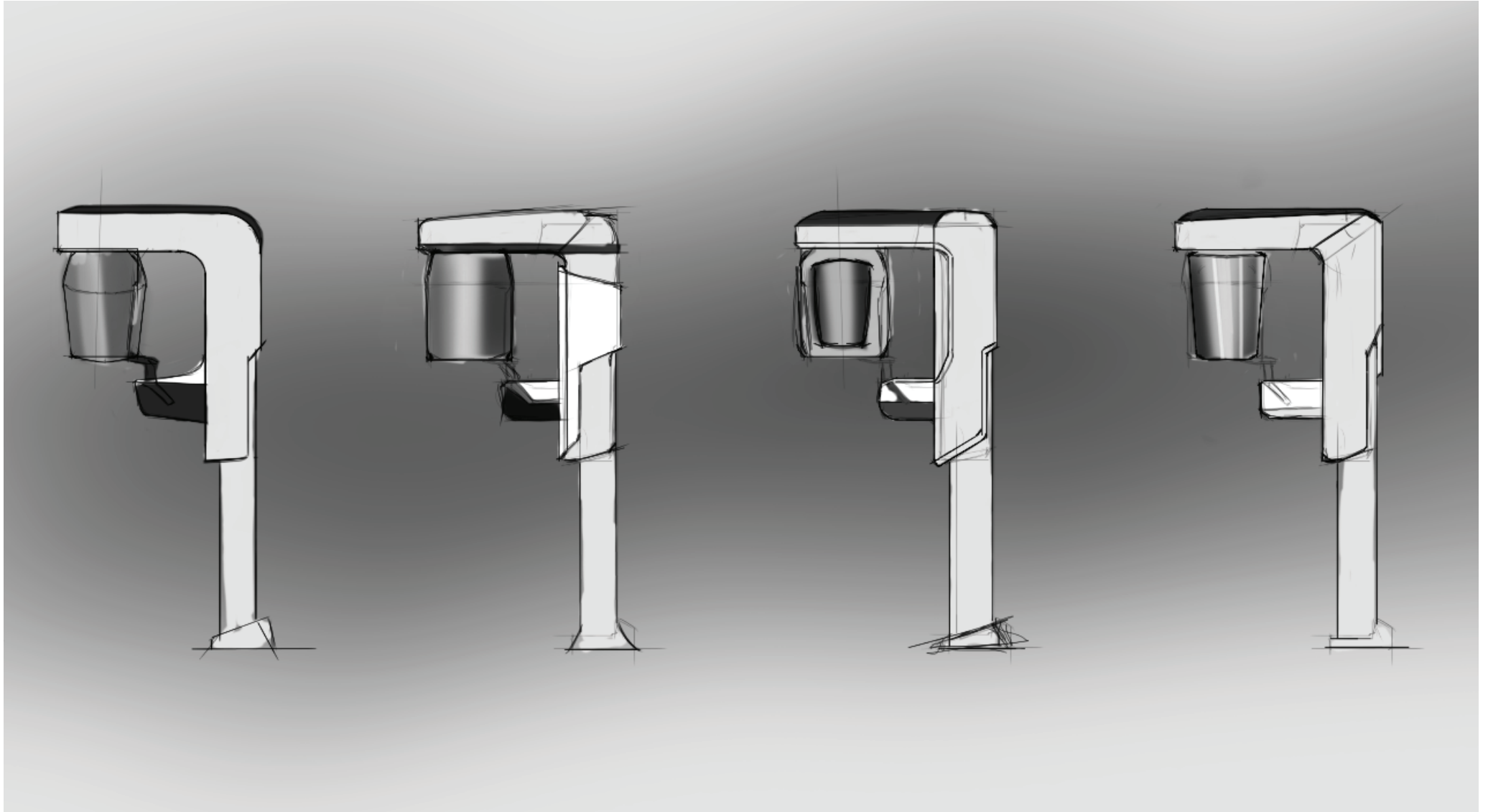
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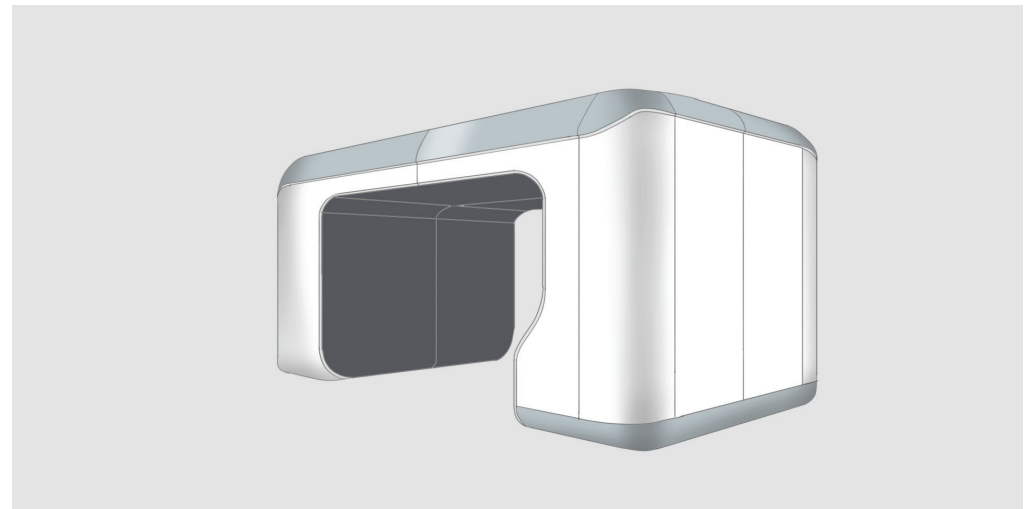
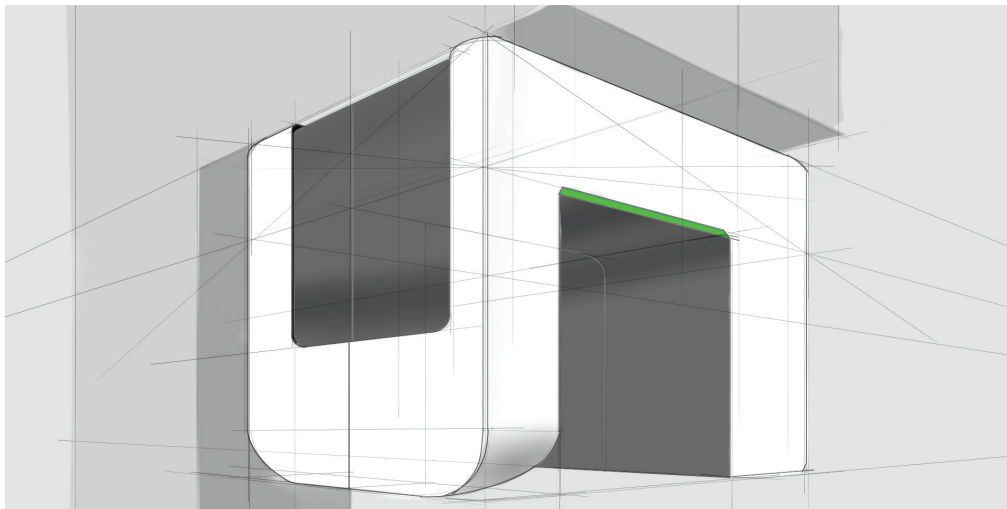
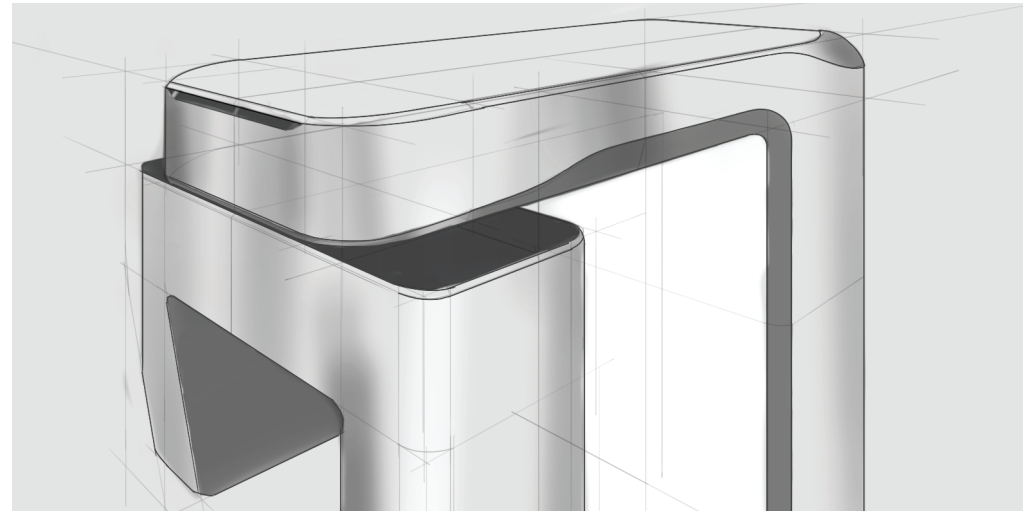
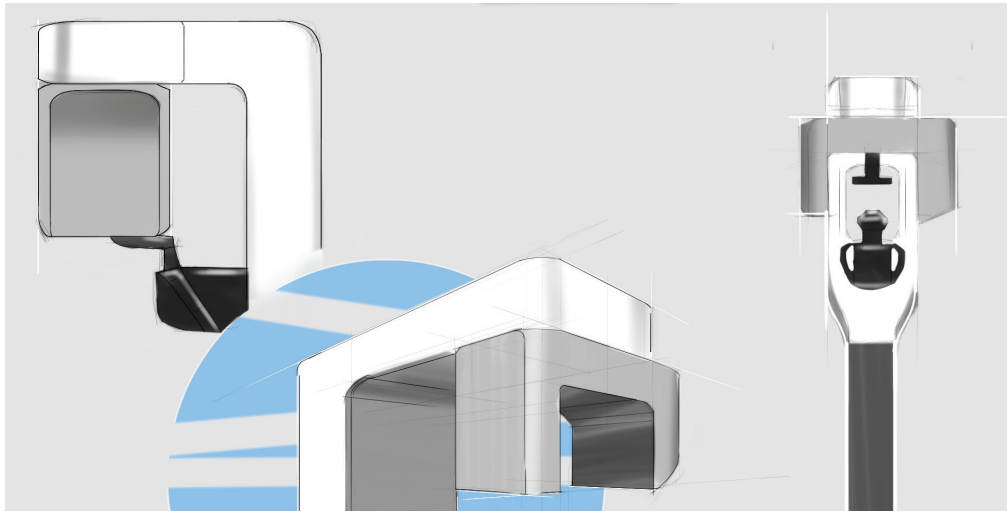


# Sketches

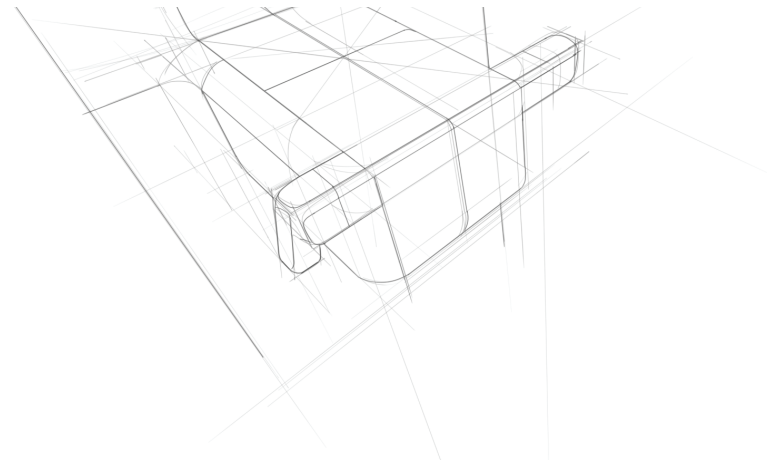
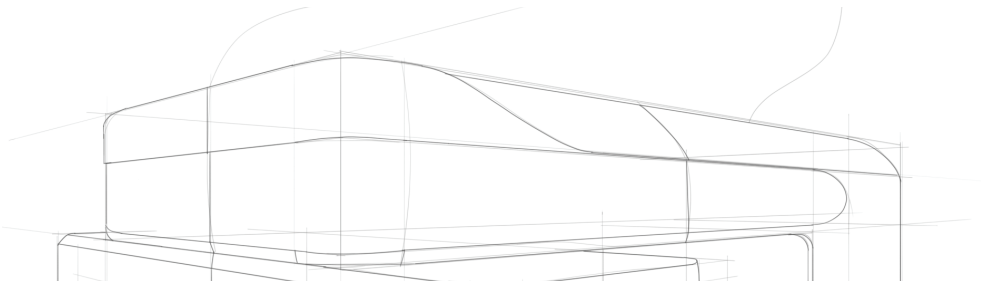
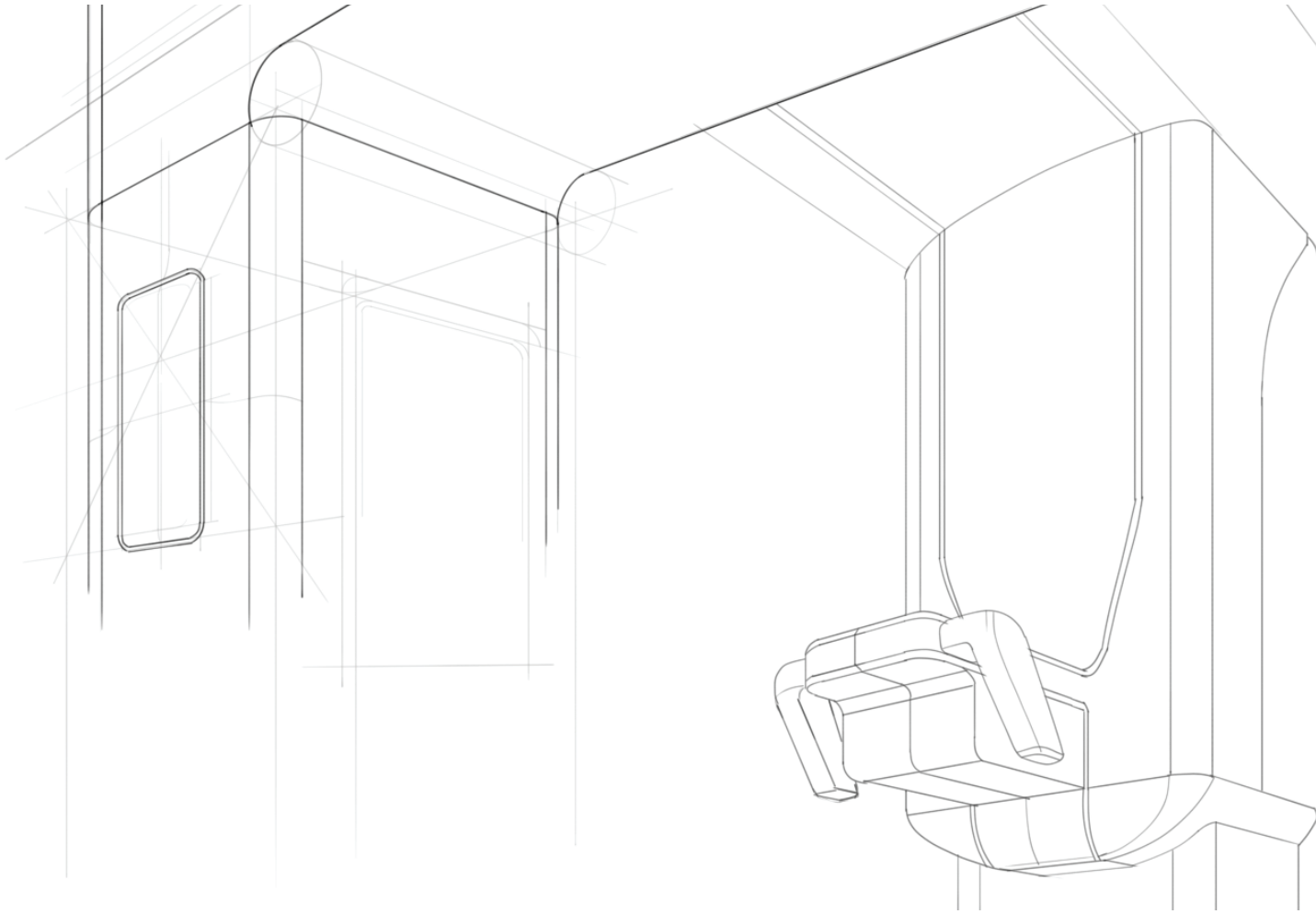


Side profile studies where I tried to see what types of forms and silhouettes would work. The premium OP 3D Pro is limited only to the design which means the dimensions of the current device remains.

- What is Premium in dental-



Second thing that I was studying was how to make the scanner more minimalistic and closer to basic forms. Most of the devices contained carker surfaces that worked as a secondary color. In this sketch I was studying how It could be applied in scanners C-arc. In this one the color of the inner surface doesn't work as it is too dark.



- What is Prem



# Concept

In my final concept I wanted to bring more KaVo's brand to the device and decided to take grey color used in their logo as a secondary color on the device after white. I wanted the device to look more calming and friendly why I decided to add curvatures and fillets to certain edges in it. Otherwise the dimensions remained the same as I wrote in the beginning. Main focus for me was to strip down the device from everything extra that took the focus out from controls and other contact points.

Something that I added were the lights that do not exist in the current device. One around mirror so it wouldn't be too dark for the patient and the green light which indicates the state of the device.





- What is Premium in dental-



- What is Premium in dental-

# Conclusion

When looking the results, it appeared that thoughts on premium quality didn't really differed from other industries. Premium quality was seen in services and devices. What made something premium was after the interviewees the high quality in images that device produces and in features.

The dealers were seen to be the biggest obstacle when talking about services. One idea that came to my mind was that premium could be sold under a license which would include quality control auditions from the manufacturer.

In the interviews the opinions were mutual for most part. Opinions on what clients were interested about was something where interviewees disagreed from some part. Where all agreed was that there is demand for premium in dental business but in what scale no one knew exactly.

The surveys that I conducted didn't succeeded so well as I hoped but I think it was good to try them. Because of small number of participants, it was hard to make conclusions on what the interviewees saw important in premium and how our competitors are doing from their point of view.

## Endnotes

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Illustrations and Renderings: Antti Kulovesi