

DENTAL  MONITOR

OMNIVISION
digital

CLINICAL - SPAIN 2018



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Introduction



OMNIVISION digital

The **OmniVision Digital Spain 2018** is a multi-client descriptive research, analyzing the performances in Italy of the main international manufacturers as regards the new digital technologies, such as intraoral scanners, chairside milling, table top scanners, in lab milling and 3D printing.

The number of interviews performed for this research is **282 dental practices**; and it is fully representative of the population of the dental practices in the investigated country.



Introduction - Statistical Note

The number of interviews performed for the research is 282 dental practices; in order to accurately represent the market, the cases have been properly weighted to be fully representative of the population of the Italian dental practices.

- With a confidence level of 95% the maximum error (confidence interval) is +/- 3,5%.
- The data was processed using EXCEL, SPSS, STATISTICA.
- Due to the objectives of knowledge and the types of questions, the data was processed:
 - Contingency tables
 - Significance test

GLOSSARY

- The **confidence level** indicates the reliability level of the research. For example, a confidence level equal to 95% means that the phenomenon pointed out by the research is correct for the 95% of the cases.
- The **confidence interval** indicates how much the research data diverge from reality. As the sample results, even if representative, cannot be perfectly correspondent to those obtainable interviewing the entire population, each research has an approximation degree which represents the maximum error of the research. For example, a confidence interval of $\pm 3\%$ indicates that if the research phenomenon is equal to 60%, the result can change, in comparison with reality, of an extra 3% or a minus 3% and in this way it is included between 63% (60%+3%) and 57% (60%-3%).

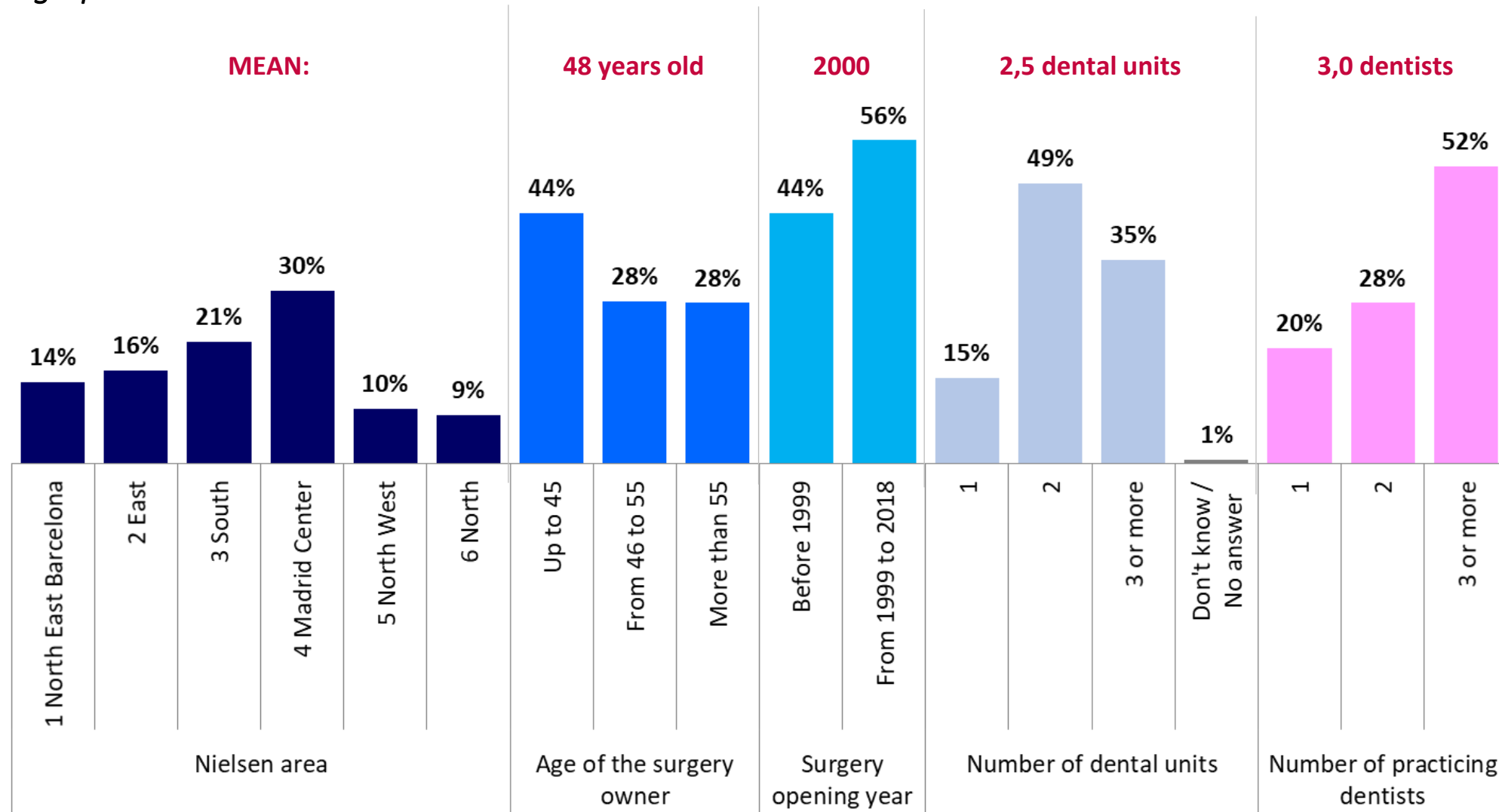


Sample segmentation



Sample segmentation

Demographic and structural clusters



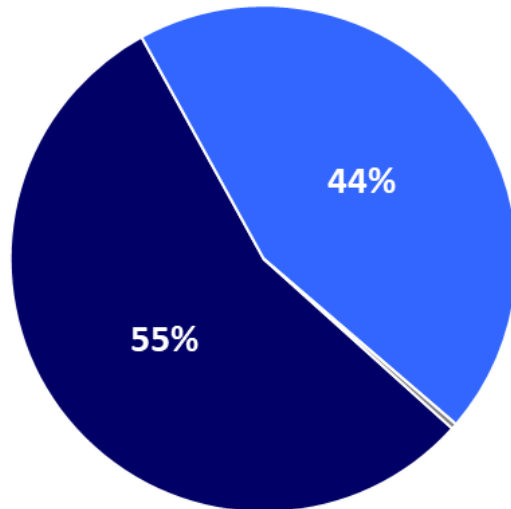
Base: 282 cases (whole sample)



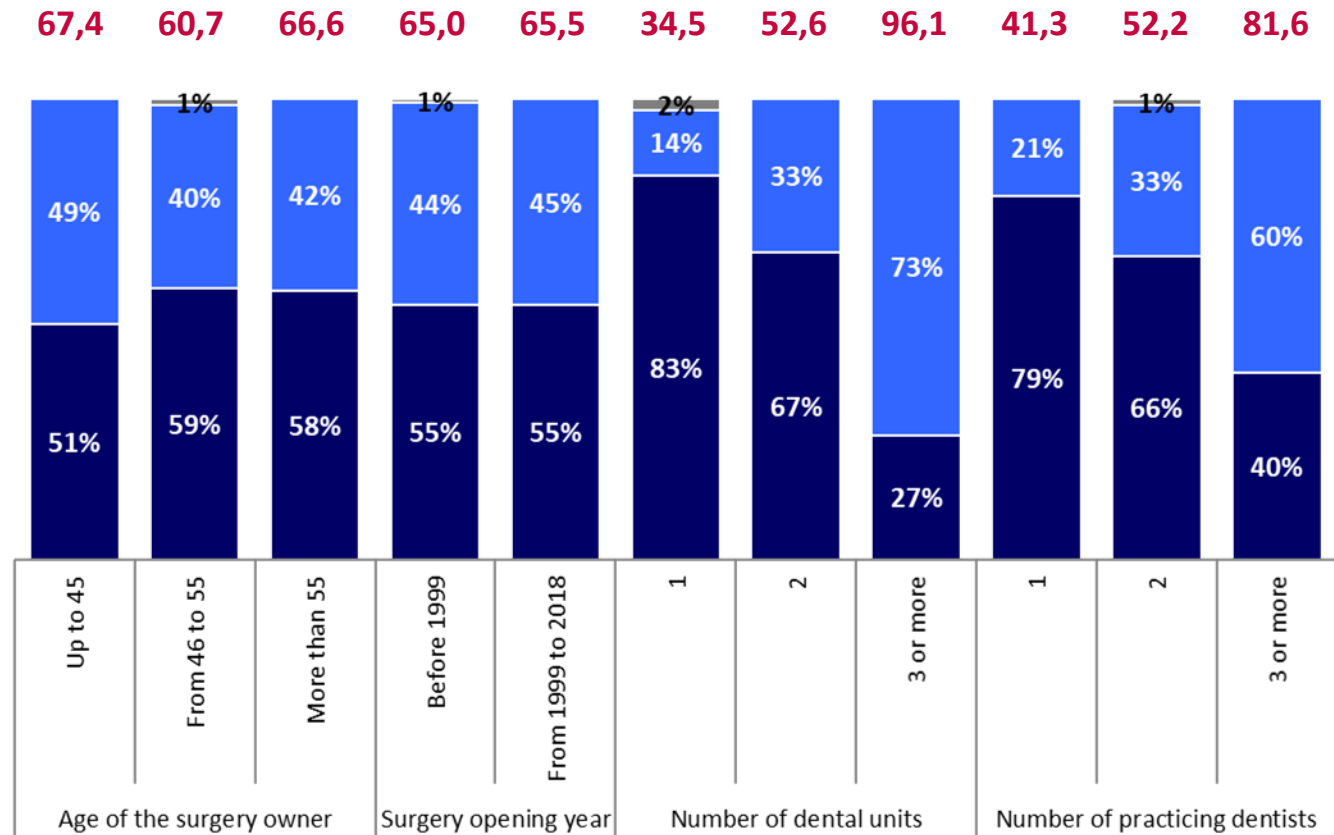
Number of patients per week

What is the number of patients visited in your surgery in an average week?

MEAN: 65,3 patients per week



- Up to 50
- More than 50
- Don't know / No answer

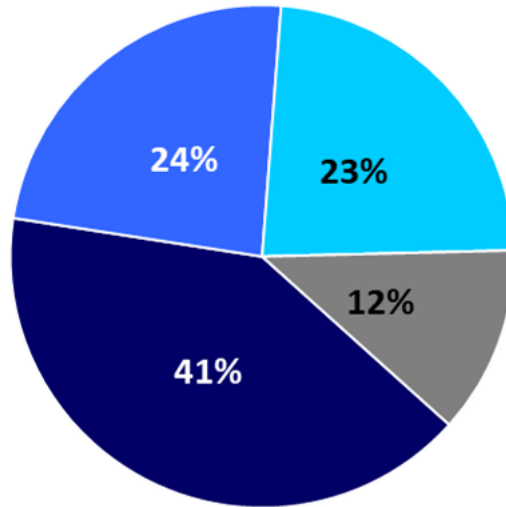




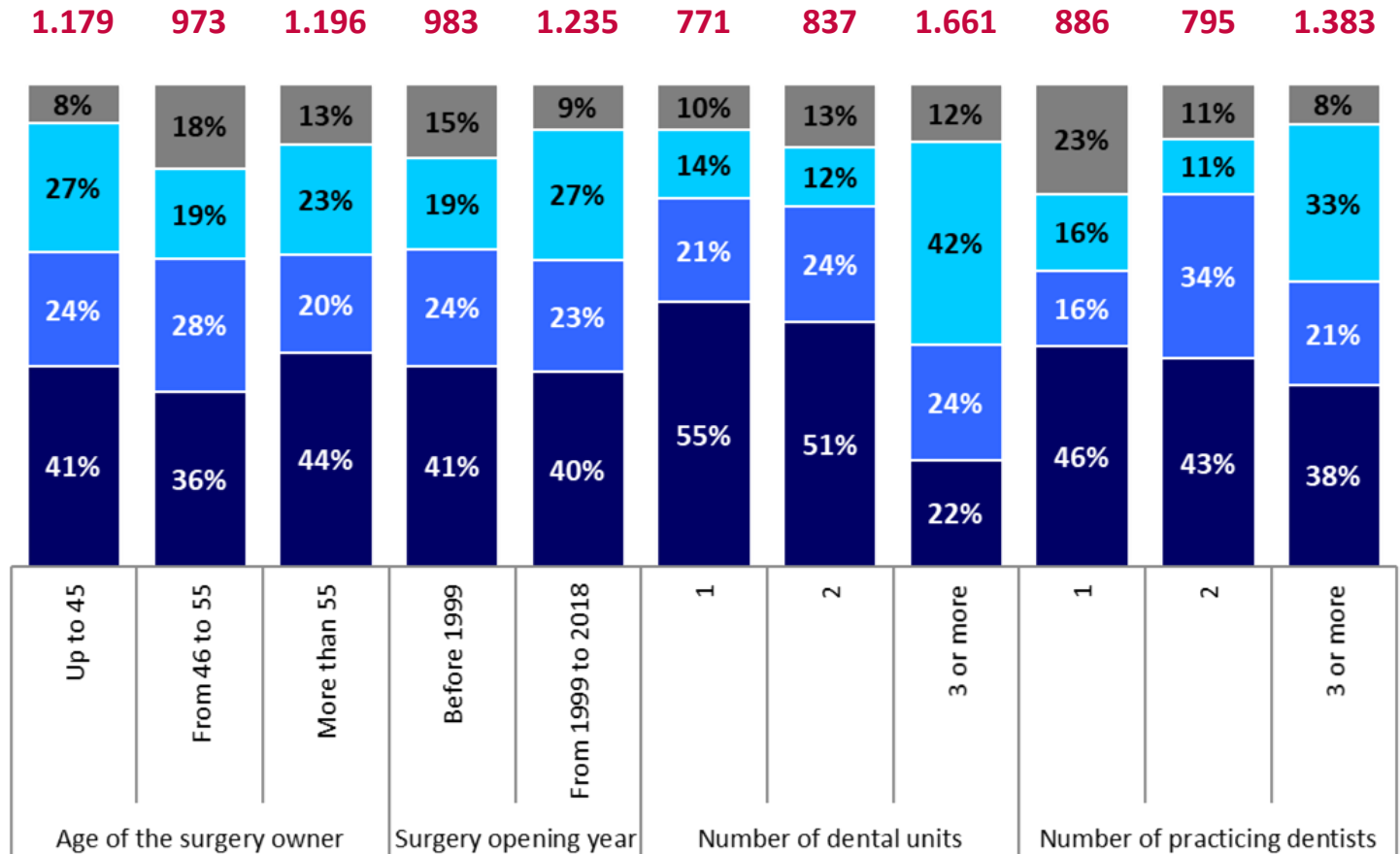
Monthly amount for consumable products purchase

What is the monthly amount allocated for the purchase of consumable products of your surgery (excluding implants, orthodontics, and equipment)?

MEAN: 1.129 €



■ Up to 500 €
■ From 501 € to 1000 €
■ More than 1000 €
■ Don't know / No answer

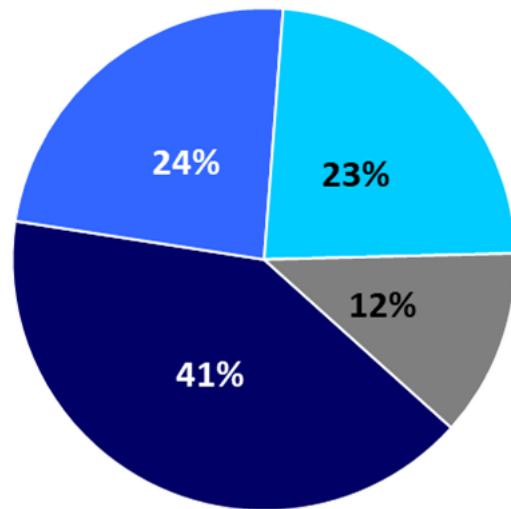




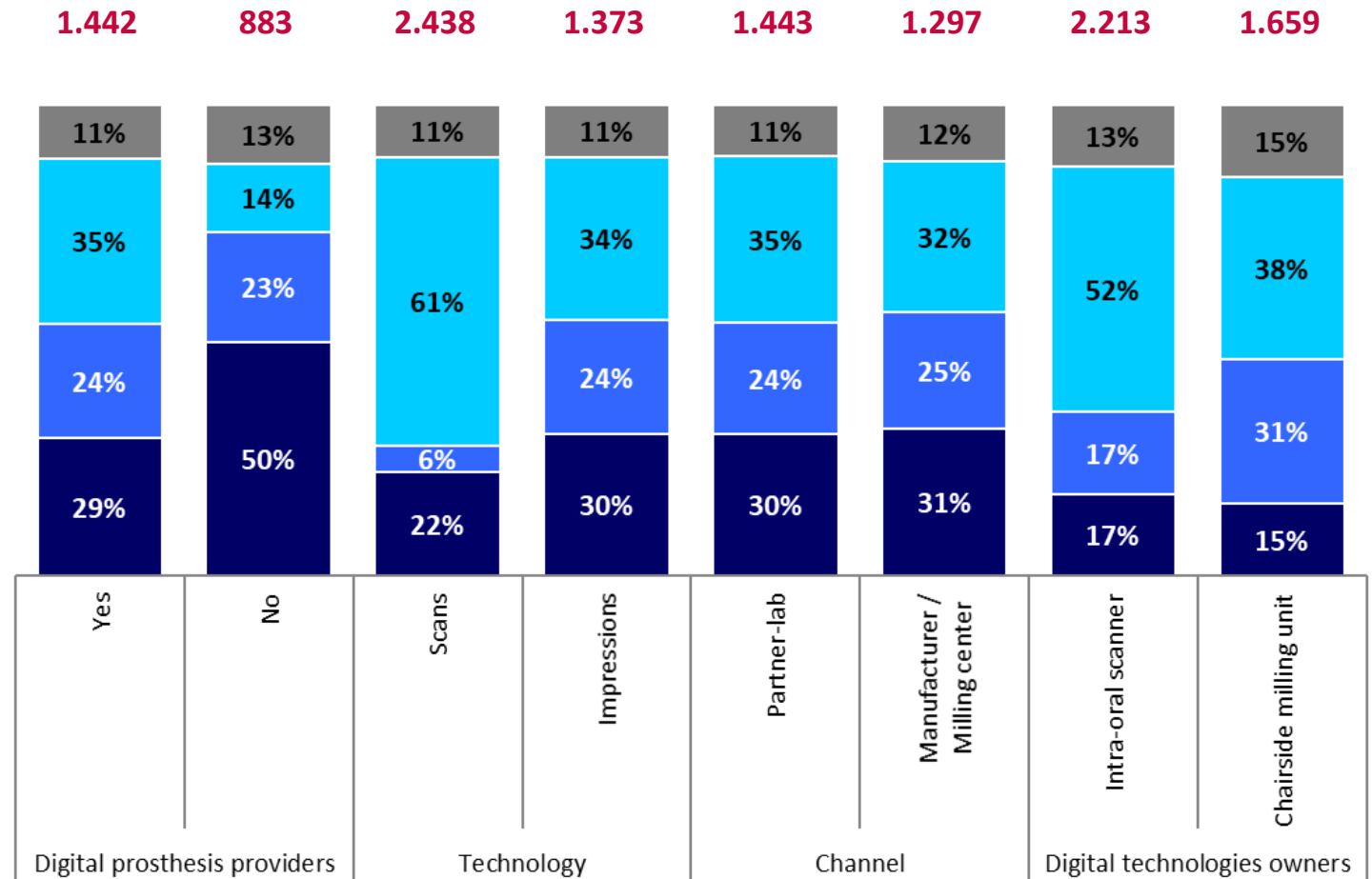
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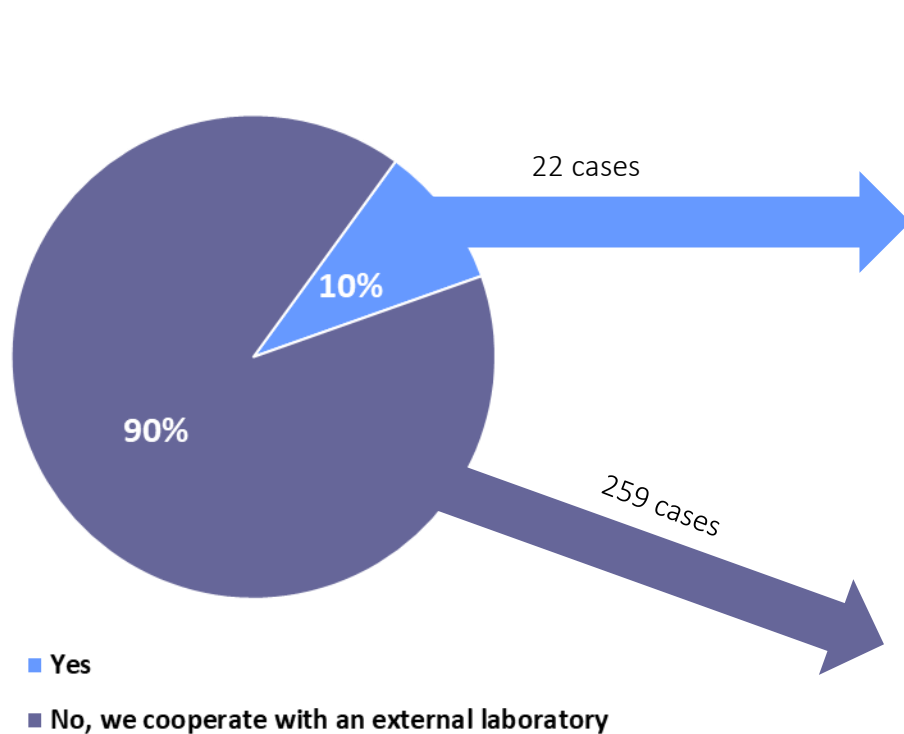
■ Up to 500 €
■ From 501 € to 1000 €
■ More than 1000 €
■ Don't know / No answer





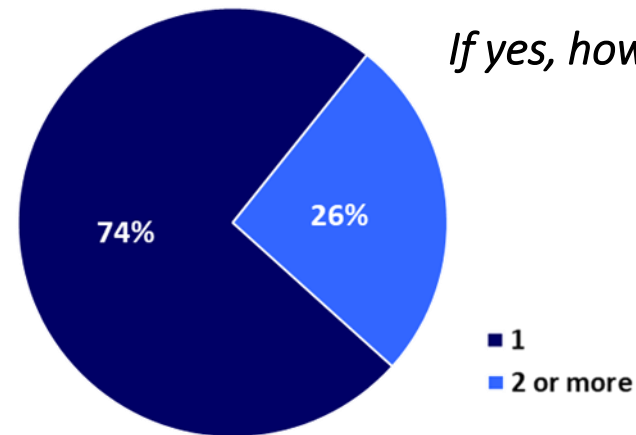
Number of dental technicians and laboratories

Do you have at least one technician at your practice?



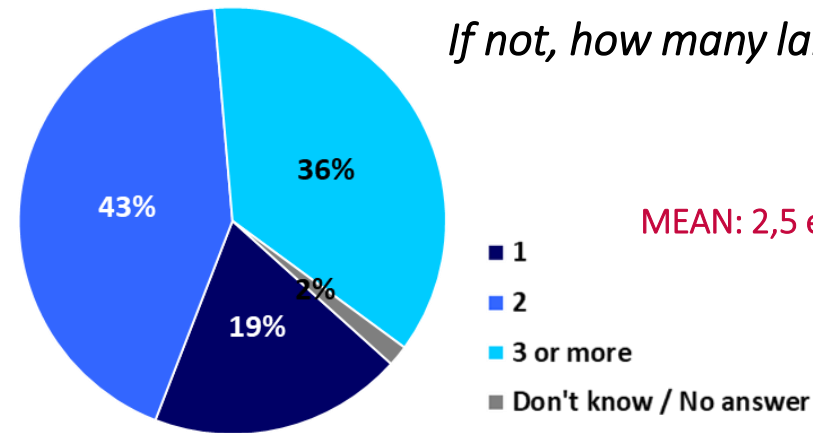
With respect to year 2015, the percentage of dentists working with dental technicians in the surgery has increased (3% of surgeries stating to have at least one technician in 2015).

If yes, how many?



MEAN: 1,5 dental technicians (vs. 2,0 in 2015)

If not, how many laboratories do you cooperate with?

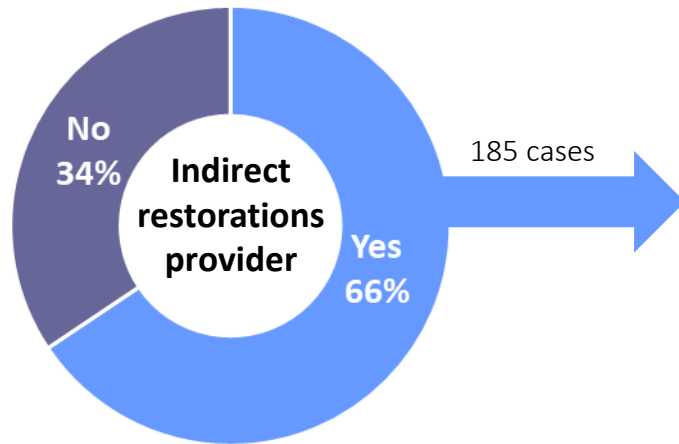


MEAN: 2,5 external laboratories (vs. 2,4 in 2015)

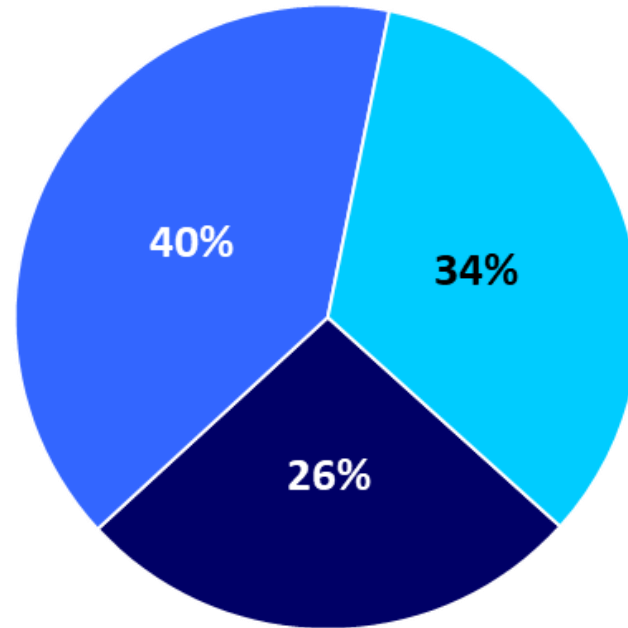


Number of indirect restorations per week

How many indirect restorations (crowns, bridges, inlays, onlays, veneers) does your practice produce on average in a week (including those made with digital flow, internally or in outsourcing)?



MEAN: 5,9 indirect restorations per week



- Up to 2
- From 3 to 5
- More than 5

66% of surgeries produce indirect restorations. On average 5,9 indirect restorations per week are produced.

Average number of indirect restorations

- ↓ 1 dental unit (3,9)
- ↑ 3 or more dental units (8,1)
- ↓ 1 practicing dentist (3,7)
- ↑ 3 or more practicing dentists (7,3)
- ↓ Up to 50 patients per week (4,8)
- ↑ 50+ patients per week (7,3)





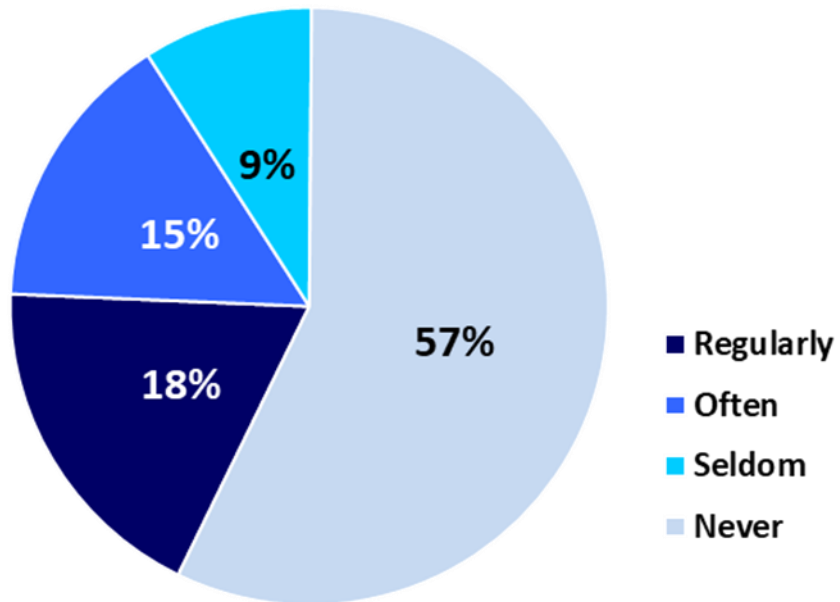
Scenario analysis



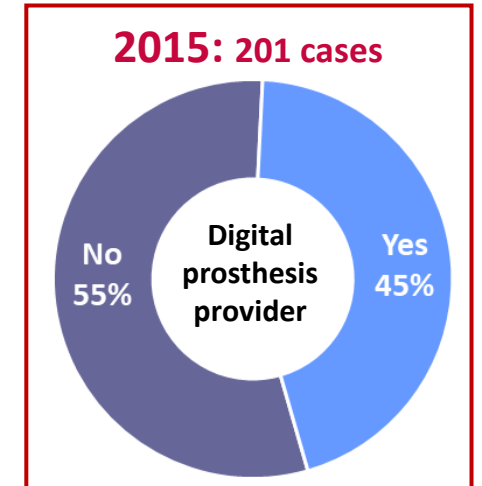
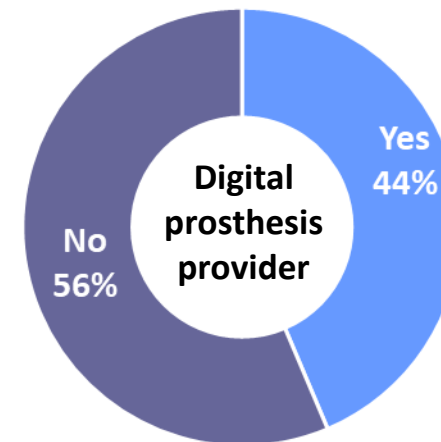
Scenario: Use of digital technologies in practices

Do you provide your patients with indirect restorations produced with digital technologies (also in full outsourcing)?

Percentage of surgeries



There is no significant change in comparison to year 2015.



The differences below +/- 2% should be considered not statistically relevant.



Digital prosthesis providers

- ↑ Age of the owner <= 45 (51%)
- ↑ 3 or more dental units (56%)
- ↓ Up to 50 patients per week (37%)
- ↑ 50+ patients per week (52%)

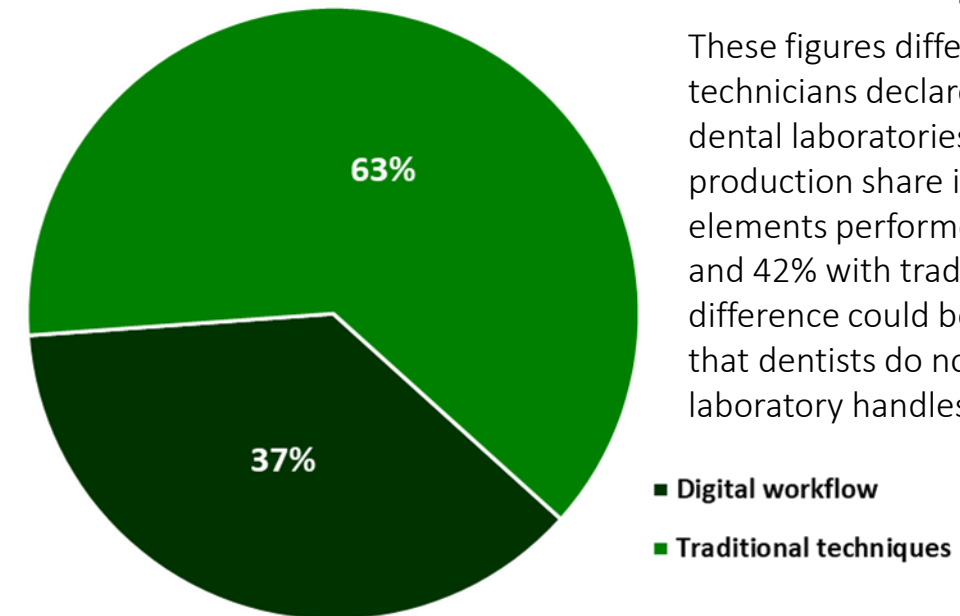


Scenario: Indirect restorations production share

Considering all indirect restorations (crowns, bridges, inlays, onlays, veneers) produced at your practice, please tell us the percentage of them produced with digital workflow even with full outsourcing service, and the percentage produced with traditional techniques.

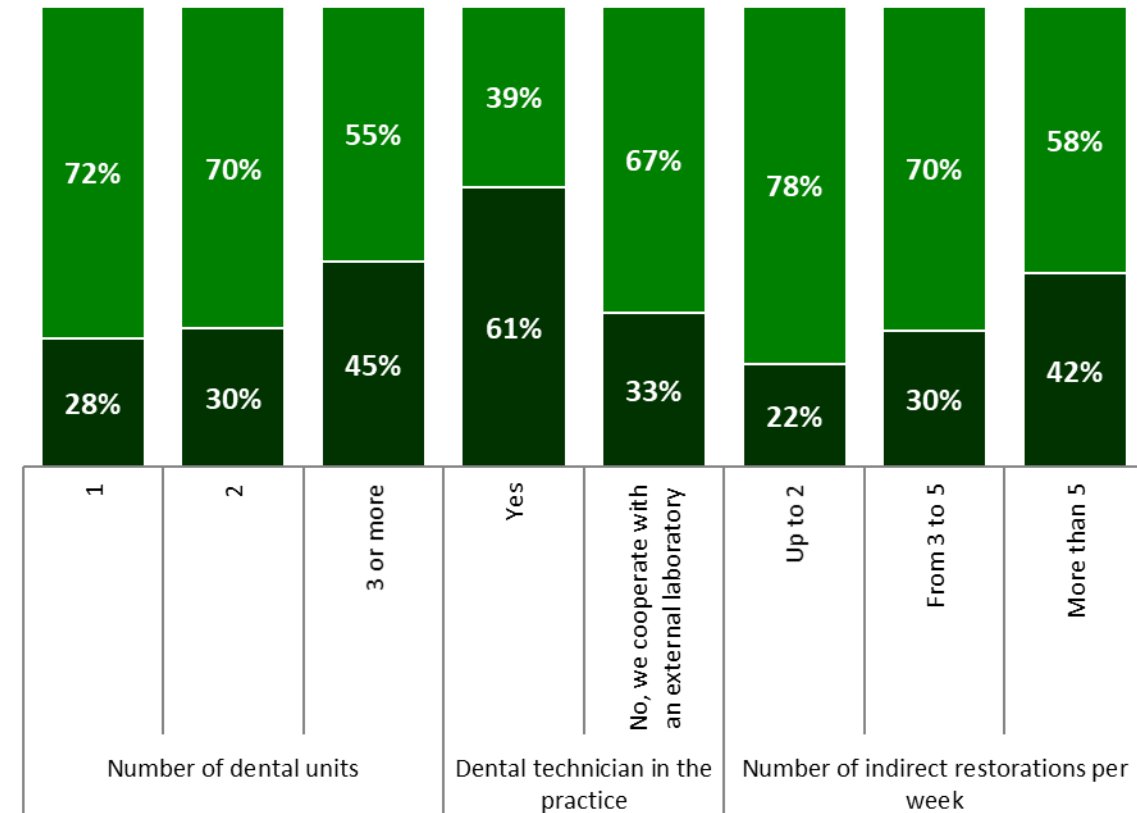
According to dentists, over 50% of the overall production is produced with traditional techniques.

These figures differ from what dental technicians declared in the survey targeting dental laboratories, where the overall production share is made of 58% of elements performed with digital workflow and 42% with traditional techniques. This difference could be explained by the fact that dentists do not know how the external laboratory handles the requested works.



OVERALL PRODUCTION SHARE	2018	%
Indirect restorations	5,9	100,0%
Traditional techniques	3,7	62,8%
Digital workflow	2,2	37,2%
Total (indirect restorations providers)	185	

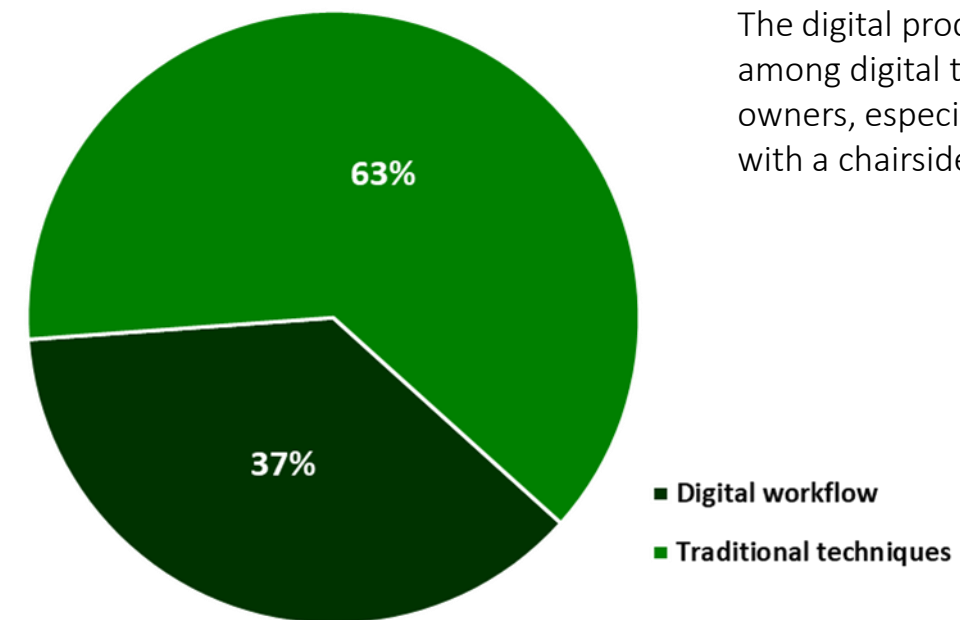
Percentage of indirect restorations





Scenario: Indirect restorations production share

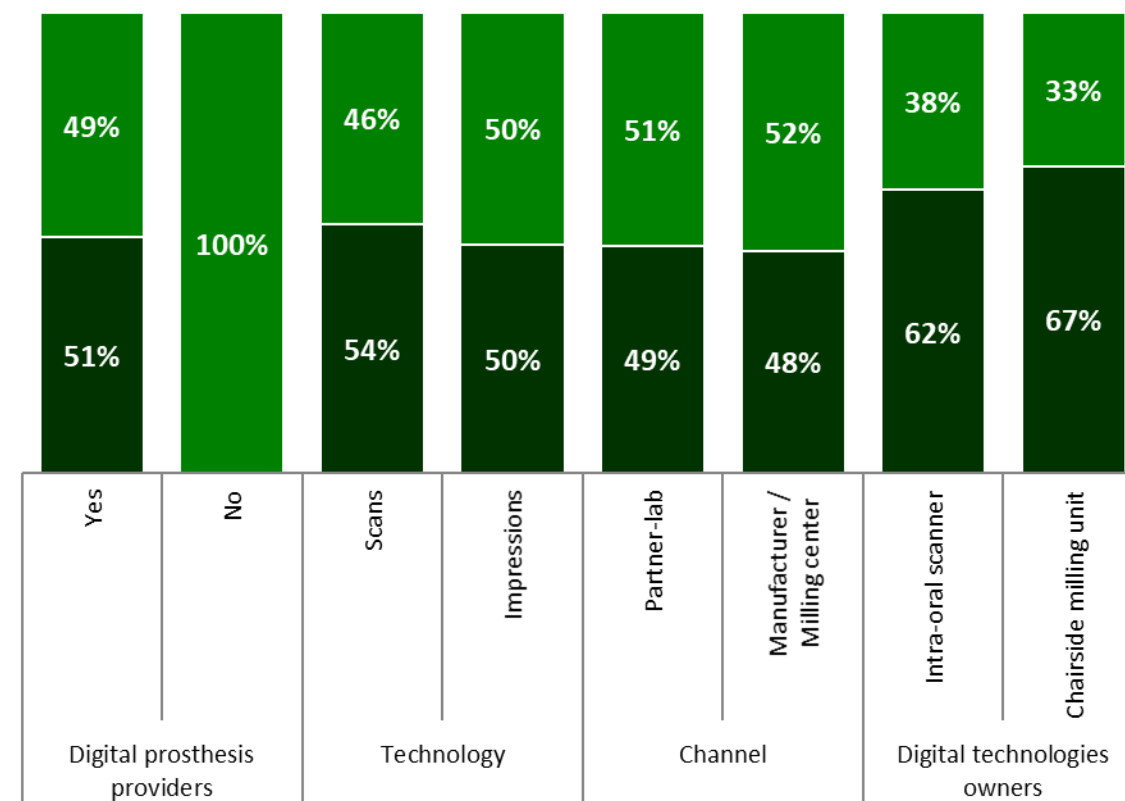
Considering all indirect restorations (crowns, bridges, inlays, onlays, veneers) produced at your practice, please tell us the percentage of them produced with digital workflow even with full outsourcing service, and the percentage produced with traditional techniques.



The digital production is higher among digital technologies owners, especially those equipped with a chairside milling unit.

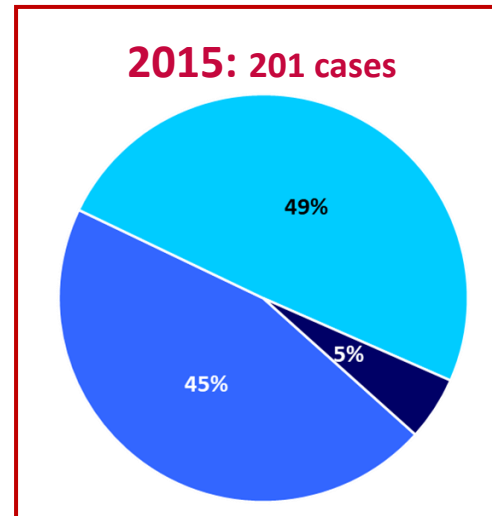
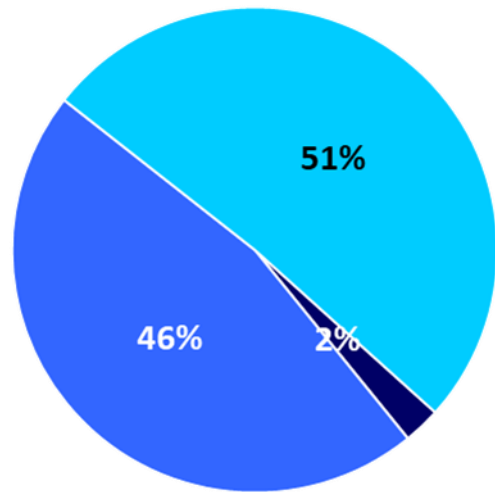
OVERALL PRODUCTION SHARE	2018	%
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Total (indirect restorations providers)	185	

Percentage of indirect restorations



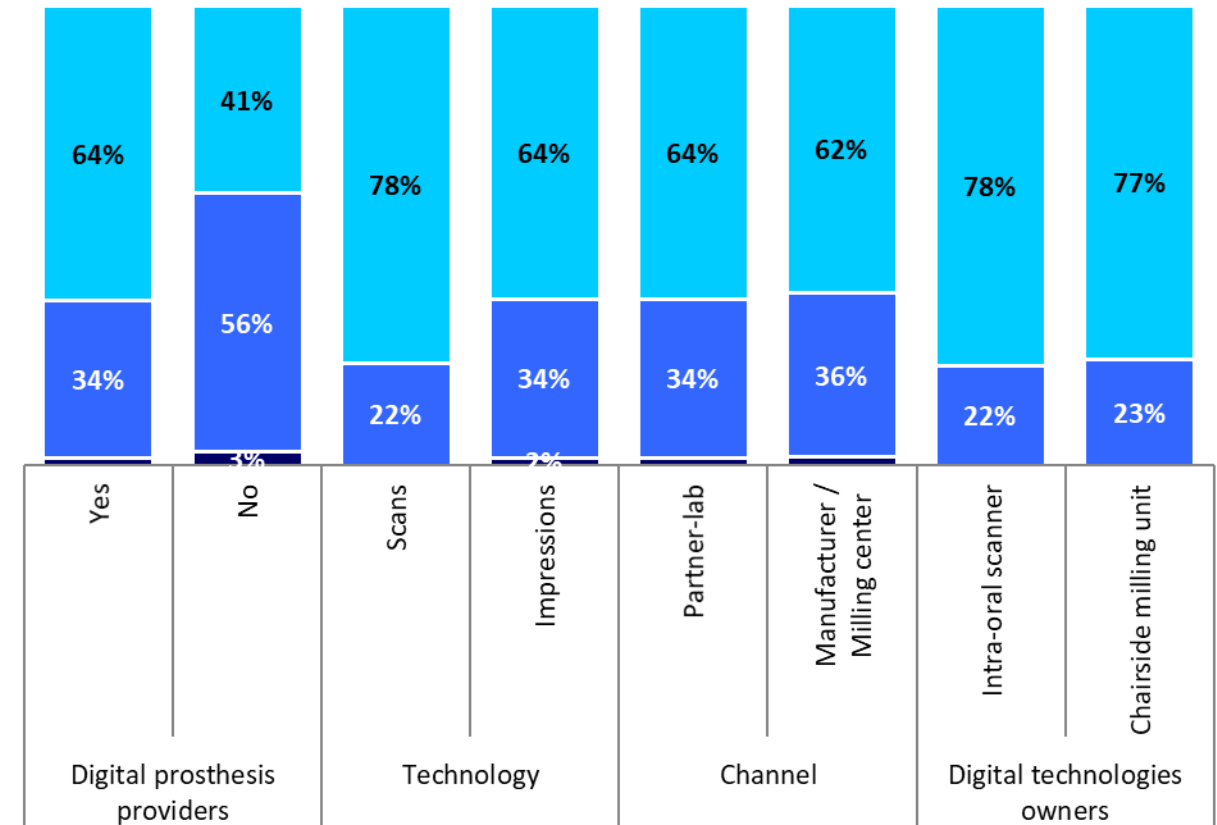
Scenario: Role of digital technologies on prosthetics in the future

How do you feel the new digital technologies will affect the way the prosthetics is carried out in your country?



The differences below +/- 2% should be considered not statistically relevant.

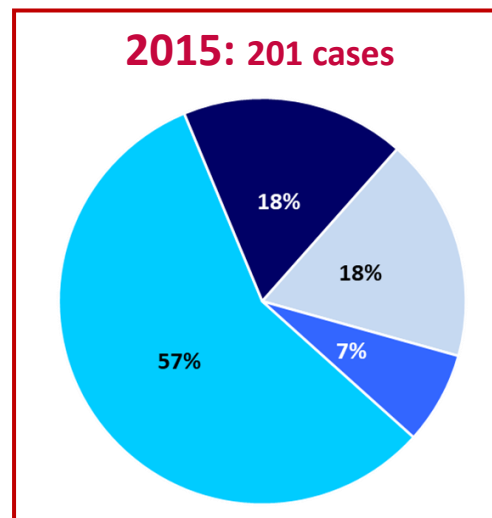
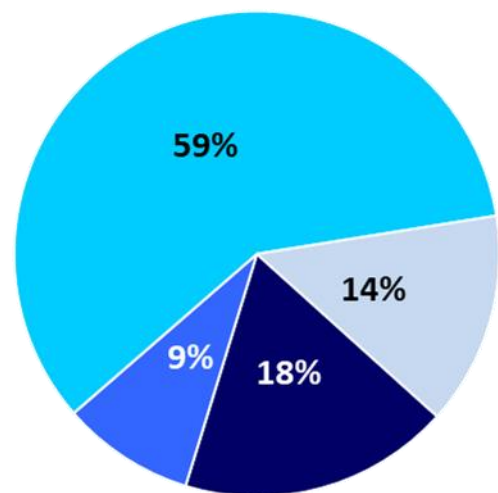
The perception about the evolution of the role of digital technologies is not changed in comparison to year 2015. By deepening the analysis by segments, a significant difference emerges, between digital technologies users and providers of traditional prosthetics. Besides this, it's interesting to note the high percentage for the statement "Digital technologies will replace most of the traditional prosthetics" among the owners of digital equipment.



- They will not play an important role because digital technologies will affect a limited part of the prosthetics
- They will play an important role but I feel the traditional prosthetics will continue to be relevant in the future
- Digital technologies will replace most of the traditional prosthetics

Scenario: Stance versus digital technologies

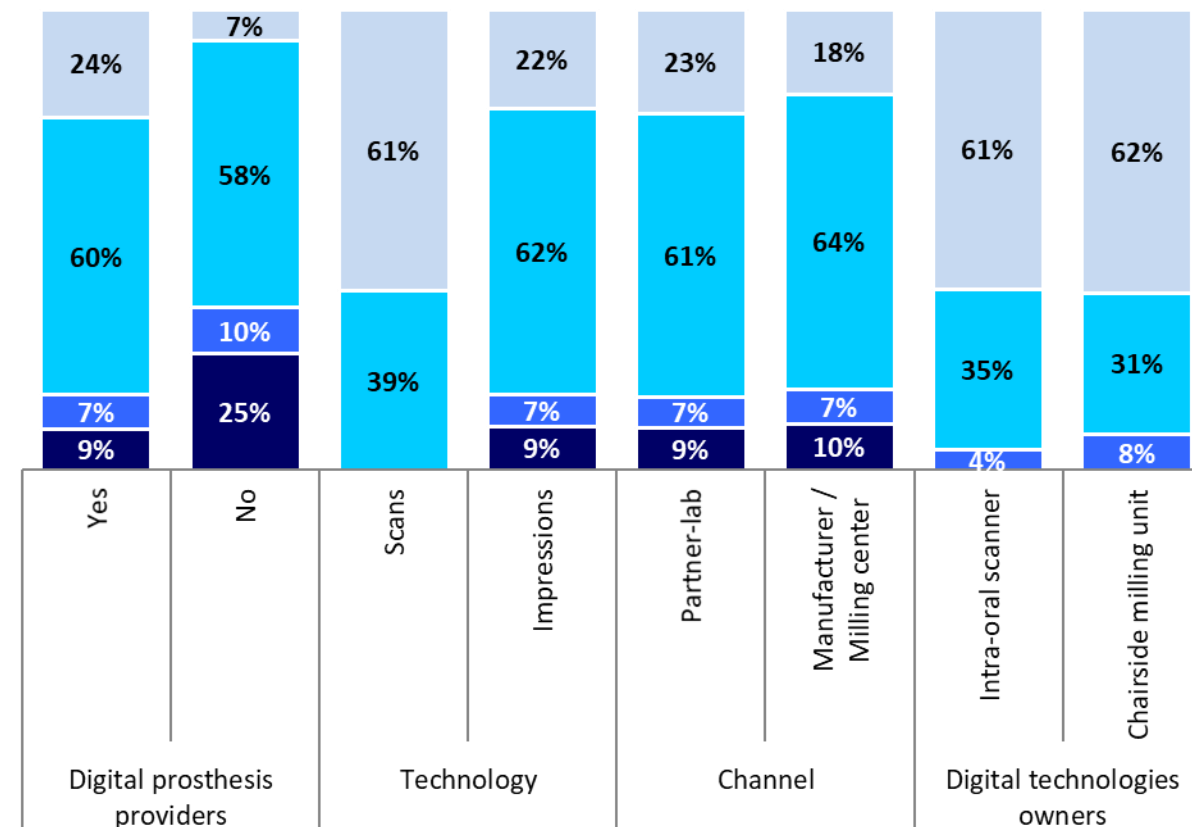
What is your stance versus the digital technologies?



The differences below +/- 2% should be considered not statistically relevant.

The situation is quite similar to the past edition, with the exception of a slight decrease in users of digital technologies who also feel comfortable.

The most relevant differences in the stance versus the digital technologies can be observed between digital prosthesis providers and non providers, also, those using either a scanner or a milling unit stated not to feel uncomfortable versus the digital technologies.

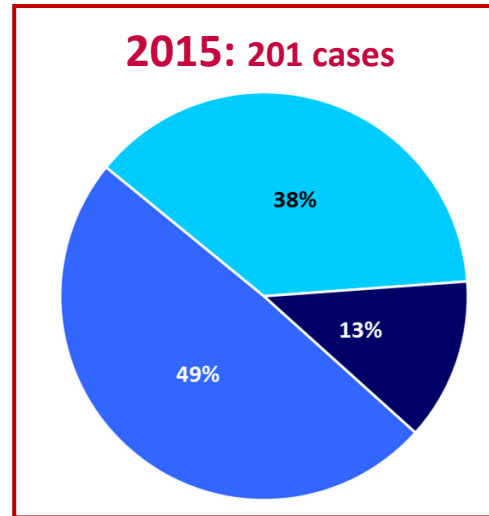
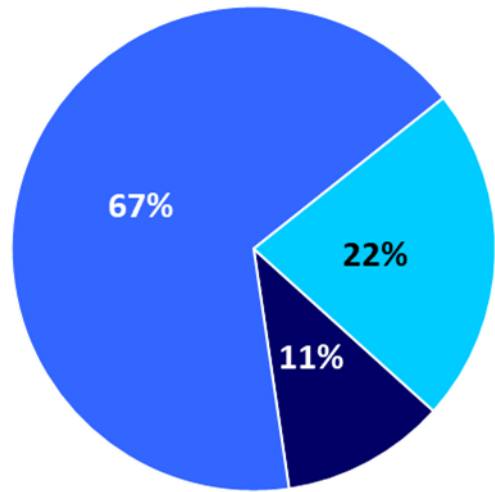


- I feel uncomfortable and rather far from them
- I am using digital technologies because I need, but I am not comfortable with it
- I am getting closer to them because I think they are the future of prosthetics
- I am using digital technologies and I am comfortable with it



Scenario: Role of dentists and technicians in the future

How do you think dentists and technicians role will change with the new digital technologies?

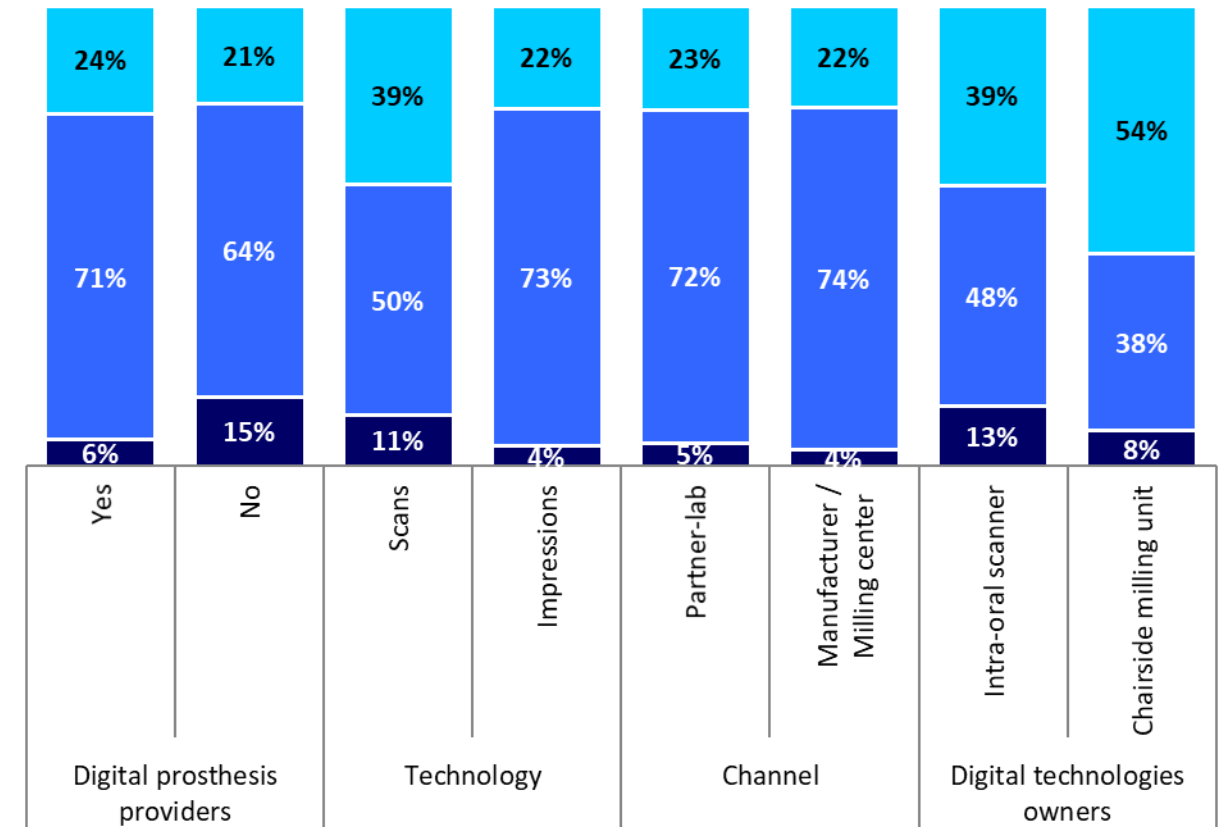


The differences below +/- 2% should be considered not statistically relevant.

The perception about the evolution of the role of dentists and technicians is changed in comparison to year 2015.

It's interesting to note a higher percentage of quotes related to the need for a tighter cooperation between dentists and technicians, and this statement is true especially for the respondents providing digital prostheses already.

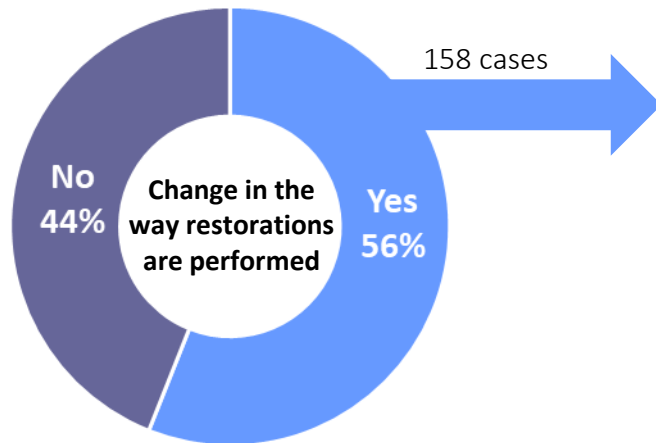
Moreover, among digital technologies owners and scans users, there is a higher incidence of the statement "The dentists will need to get more expertise...".



- The dentists will need to get more expertise about prosthetics, because they will be required to perform part of the work in charge of technicians
- There will be an increase in the cooperation between dentists and technicians because the knowledge of the technician in prosthetics materials, esthetics and digital processing are important
- There will not be any change at all, because everyone will always have its own distinct role

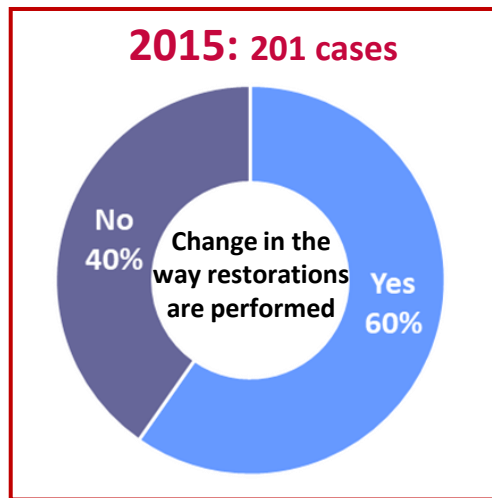
Scenario: Change in the way restorations are performed

In your opinion, does the use of the digital technology change the type of restorations?

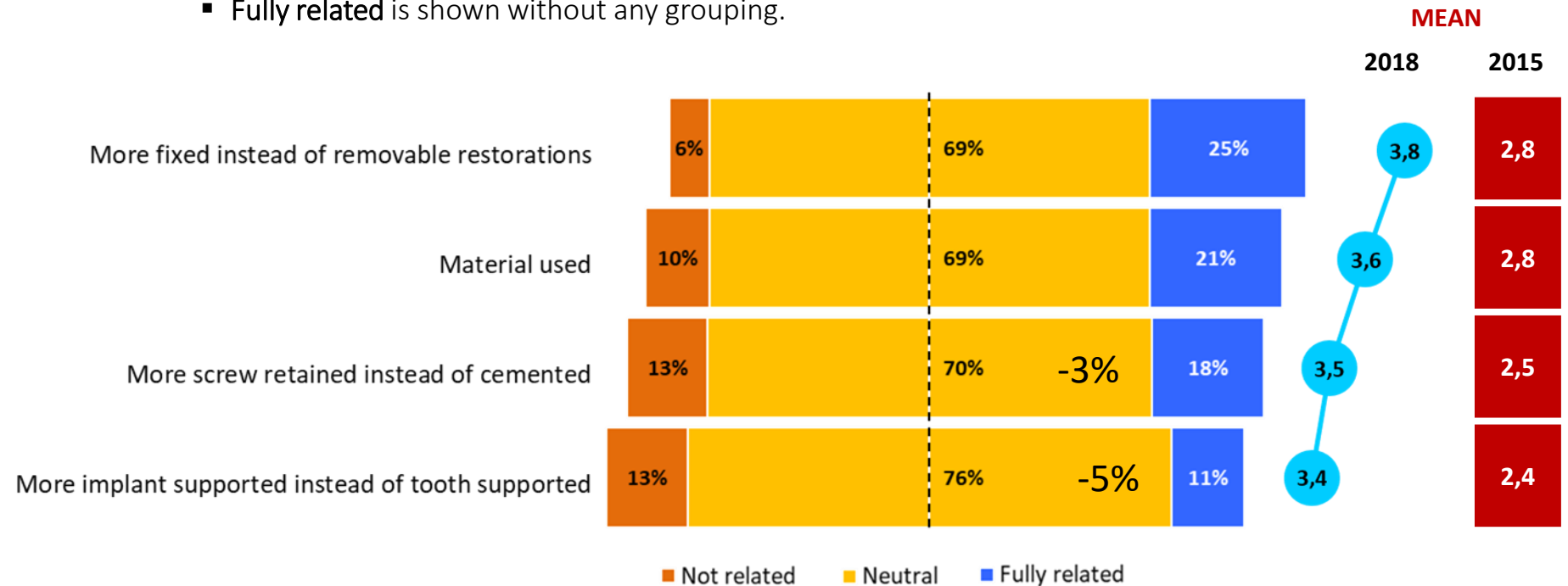


The 5 possible answers have been further clustered in order to better highlight the differences in the scores among the items. The clustering is the following:

- **Not related:** the scores grouped in this cluster are “Not related”, “Rather not related”.
- **Neutral:** the scores grouped in this cluster are “Neutral”, “Rather related”.
- **Fully related** is shown without any grouping.



The differences below +/- 2% should be considered not statistically relevant.

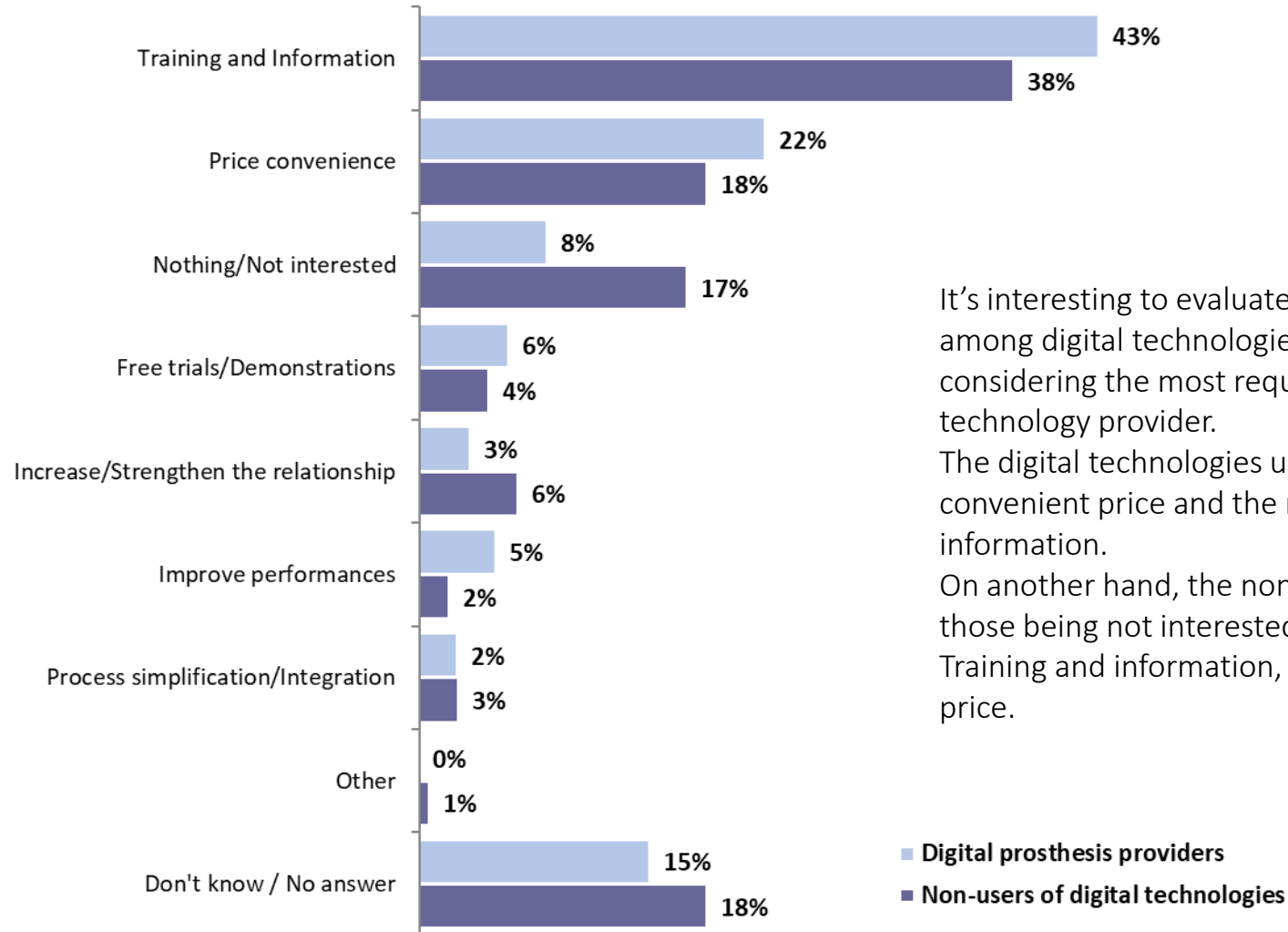


In comparison to year 2015, although the percentage of “Yes” slightly decreases, all the different topics got a higher evaluation. When considering the difference versus the overall mean, it’s interesting to note that a higher gap is for the item “Materials used”, while the positive gap of the item “More fixed instead of removable restorations” still is unchanged.



Scenario: Required features from digital technology providers

What should your digital technology provider offer you, to improve and enhance the way you perform restorations and prosthetics in your practice?



It's interesting to evaluate the different perception among digital technologies users / non users, when considering the most required features from a digital technology provider.

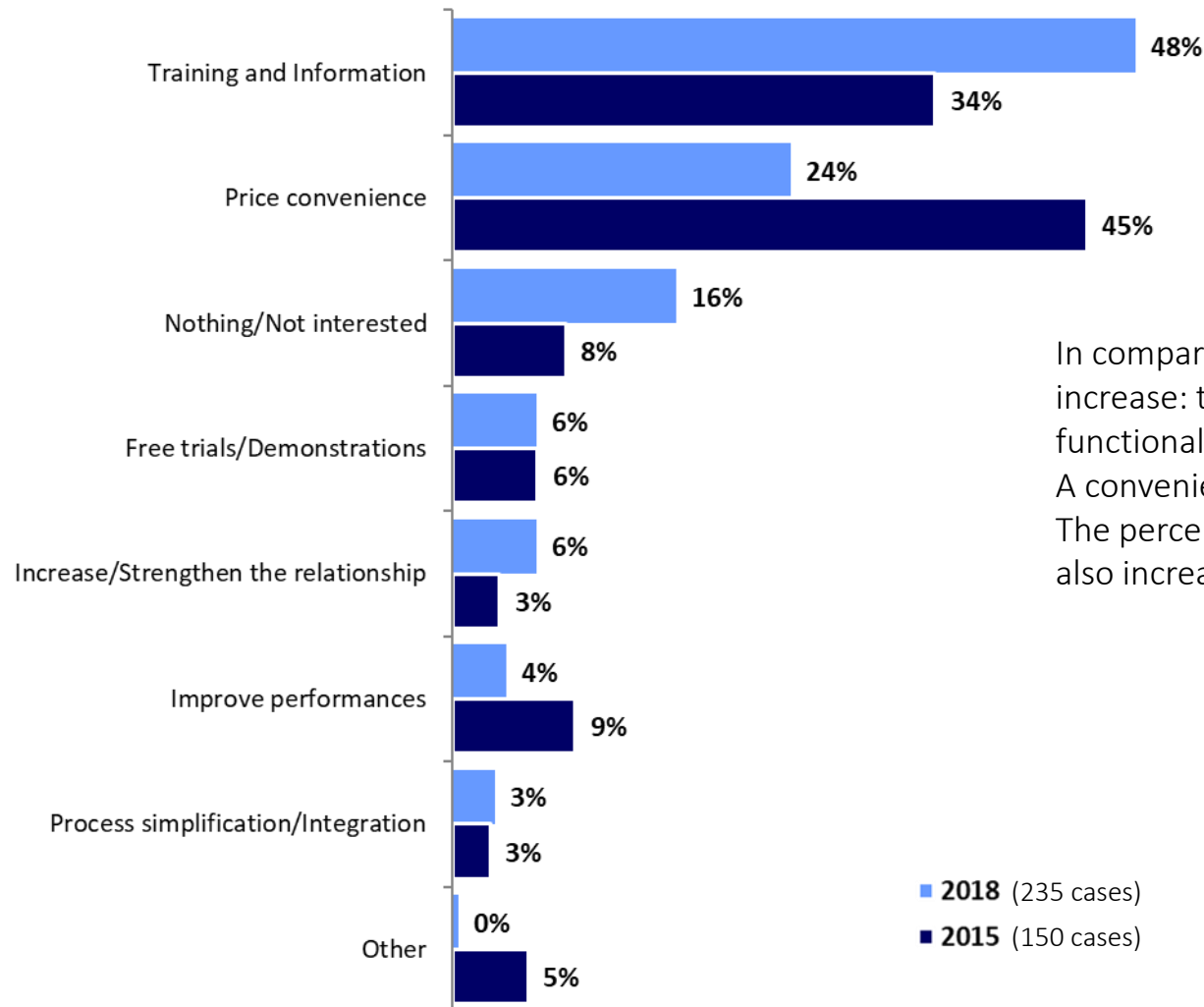
The digital technologies users mostly quoted a more convenient price and the need for Training and information.

On another hand, the non users are rather split between those being not interested and those asking for more Training and information, much more than a convenient price.



Scenario: Required features from digital technology providers

What should your digital technology provider offer you, to improve and enhance the way you perform restorations and prosthetics in your practice?



In comparison to 2015, Training and information shows a relevant increase: those items are felt to be more and more important and functional to an effective approach to the digital technologies. A convenient price still is important but to a lesser extent. The percentage of respondents who are not interested in this topic also increased.

The differences below +/- 2% should be considered not statistically relevant.

Processing without "don't know"

■ 2018 (235 cases)
■ 2015 (150 cases)



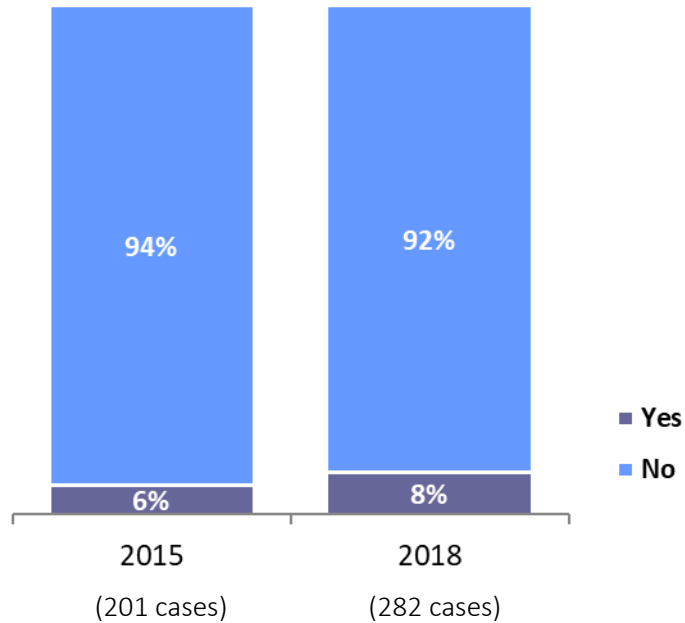
Technologies for production of prosthesis with digital workflow in the practice



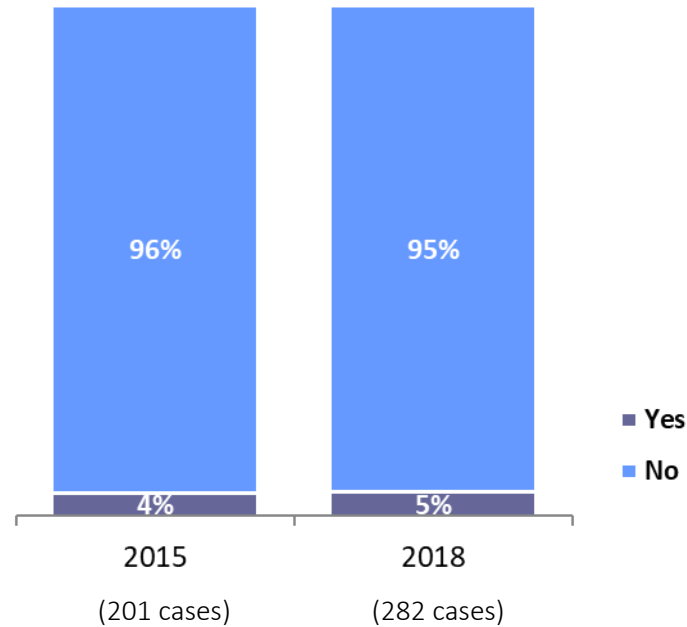
Digital technologies owners

Do you have the following equipment in your practice?

INTRA-ORAL SCANNER TO TAKE
DIGITAL IMPRESSIONS



CHAIRSIDE MILLING UNIT



The penetration of users for both intraoral scanners and chairside milling units is quite stable, as a slight increase can be noted for the intra oral scanners only.

The differences below +/- 2% should be considered not statistically relevant.

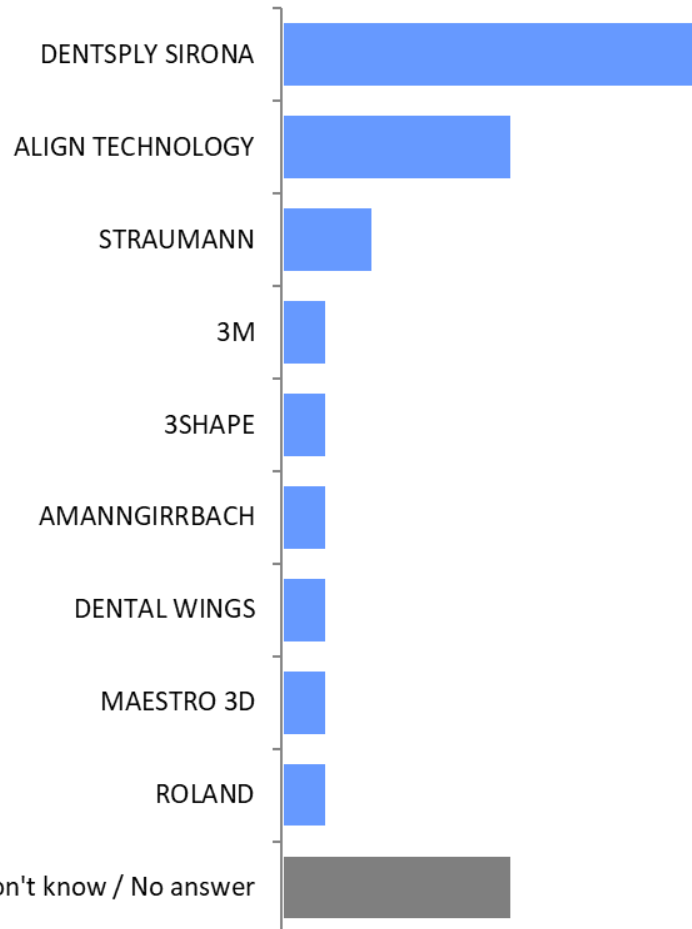


Digital technologies: Equipment numeric distribution - Ranking

What is the brand of your scanners/chairside milling units? **OVERALL**

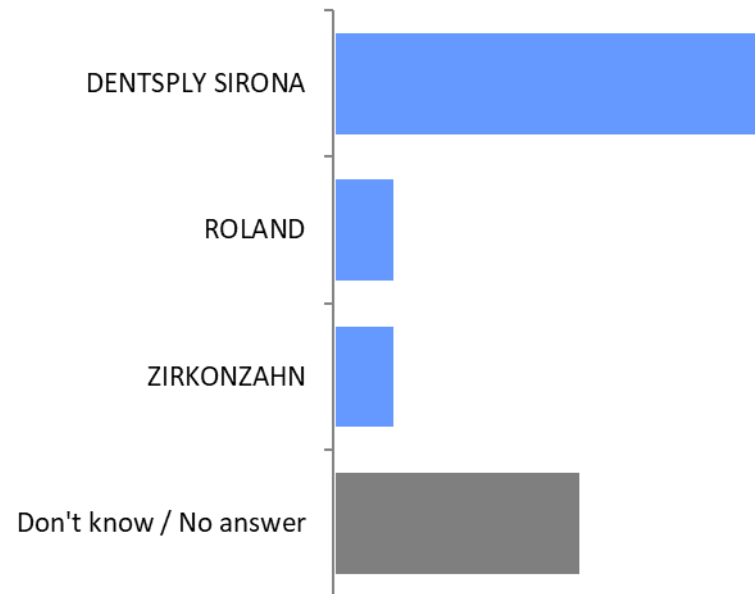
INTRA-ORAL SCANNERS TO TAKE
DIGITAL IMPRESSIONS

Base: 23 cases (intra-oral scanner owners)



CHAIRSIDE MILLING
UNITS ONLY

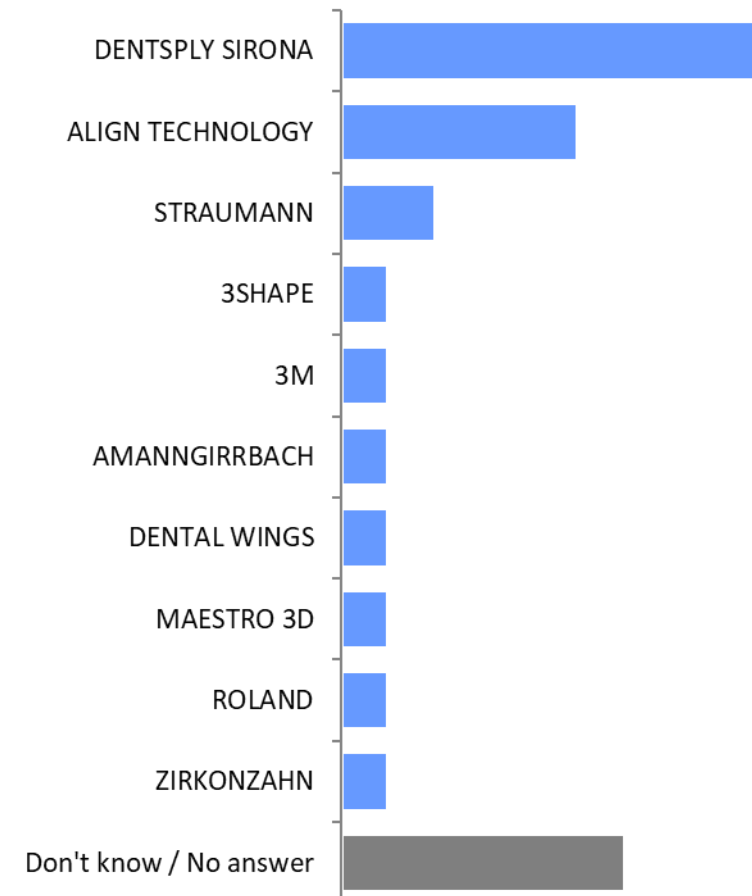
Base: 13 cases (chairside milling unit owners)



Due to the lower number of cases, the charts show the ranking of the mentioned brands, without indication of the percentage.

CHAIRSIDE MILLING UNITS
INCLUDING SCANNERS

Base: 23 cases (digital technologies owners)

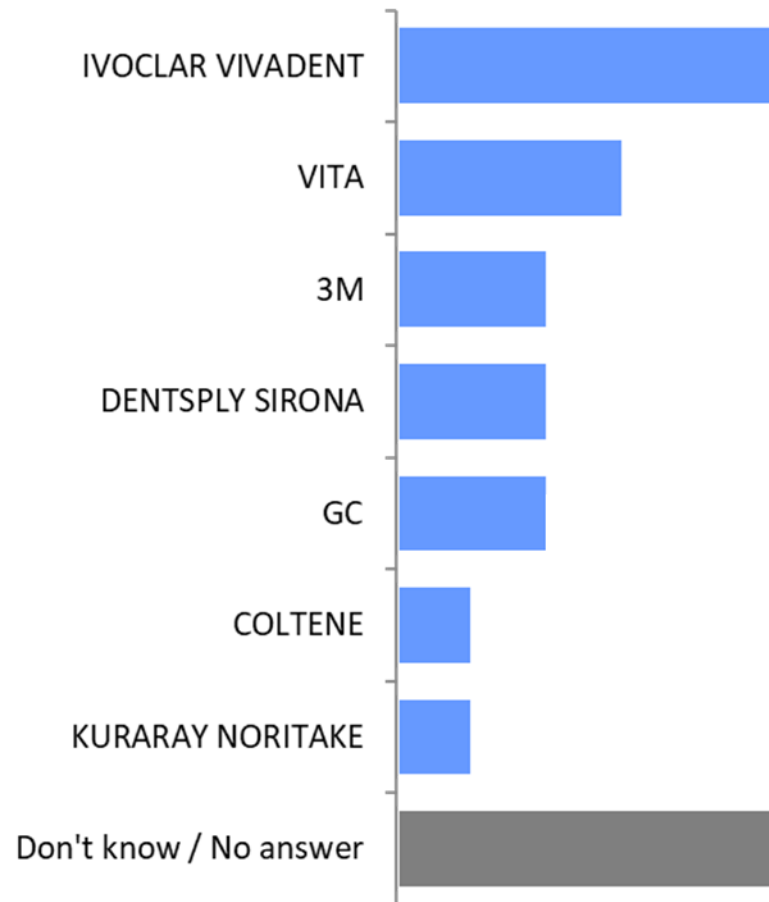




Digital technologies: CAD-CAM consumable materials - Ranking

What are the brands of the Cad-Cam consumable materials that you use with your chairside milling, at your practice?

CHAIRSIDE MILLING UNIT OWNERS



Due to the lower number of cases, the charts show the ranking of the mentioned brands, without indication of the percentage.

Base: 13 cases (chairside milling unit owners)



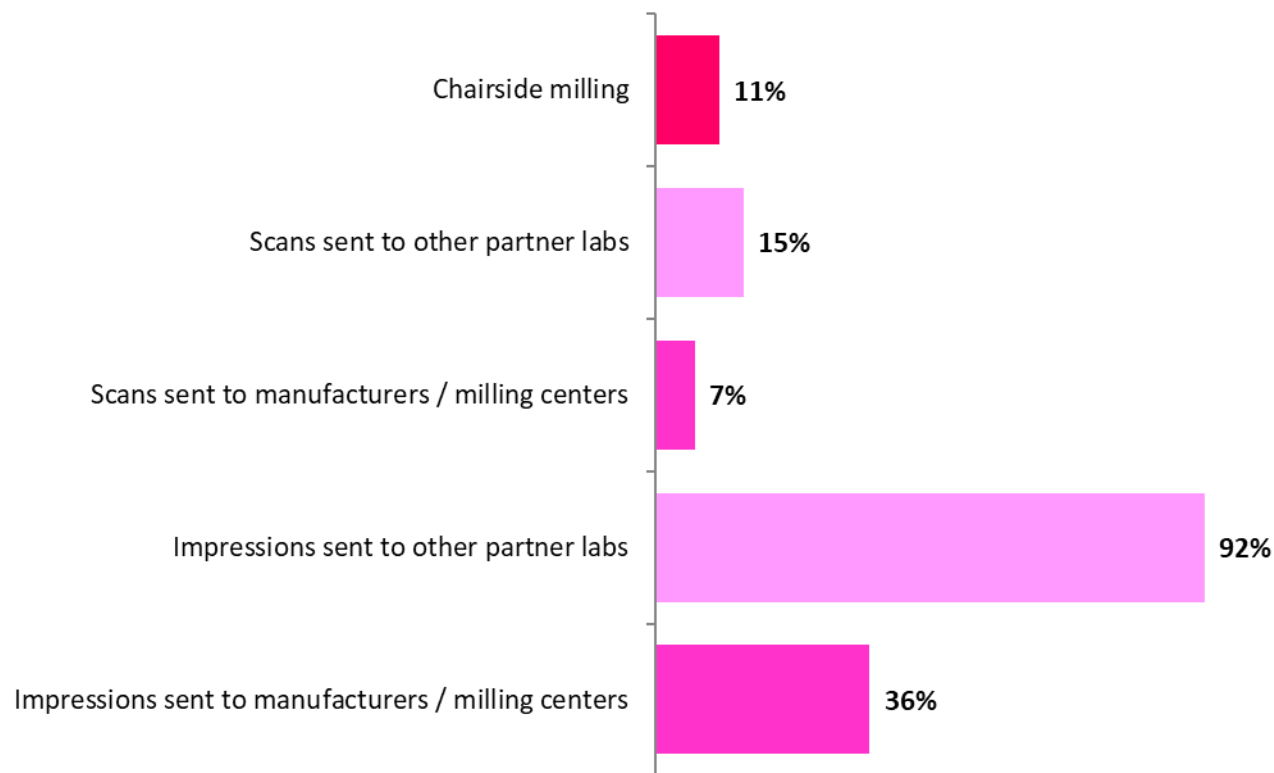
Digital workflow in the practices



Digital technology use - Breakdown by channel

How do you provide digital restorations in your practice?

Percentage of surgeries - digital users only



Since practices may use different technologies and channels, the sum of percentages is higher than 100%.

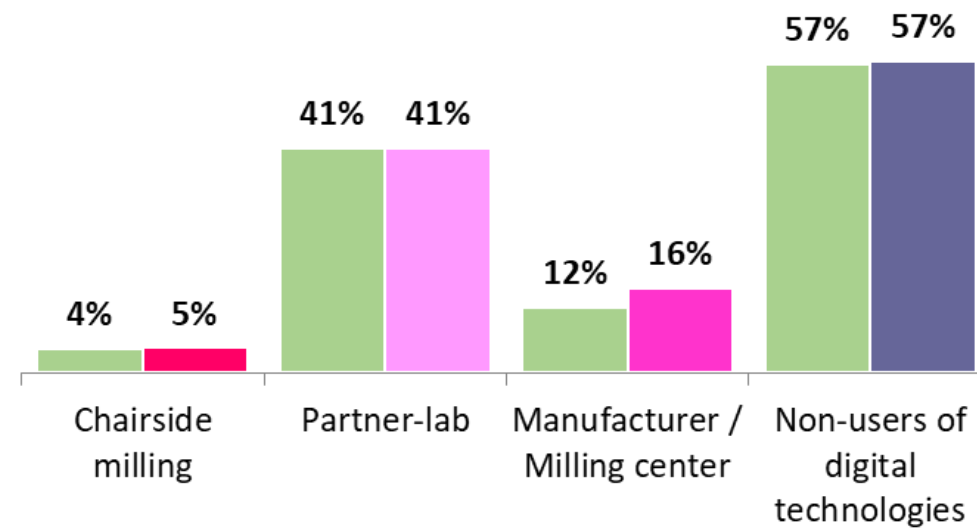
Percentage of surgeries - whole sample

The following chart shows the penetration of the different channels calculated on the whole sample.

The partner-lab is the most used channel, with a 41% of users. 5% of providers of digital restorations do have a chairside milling. Also, it's worth to note the increase in the use of the Manufacturer /Milling center (16% vs 12% in 2015).

■ 2018 (282 cases)

■ 2015 (201 cases)



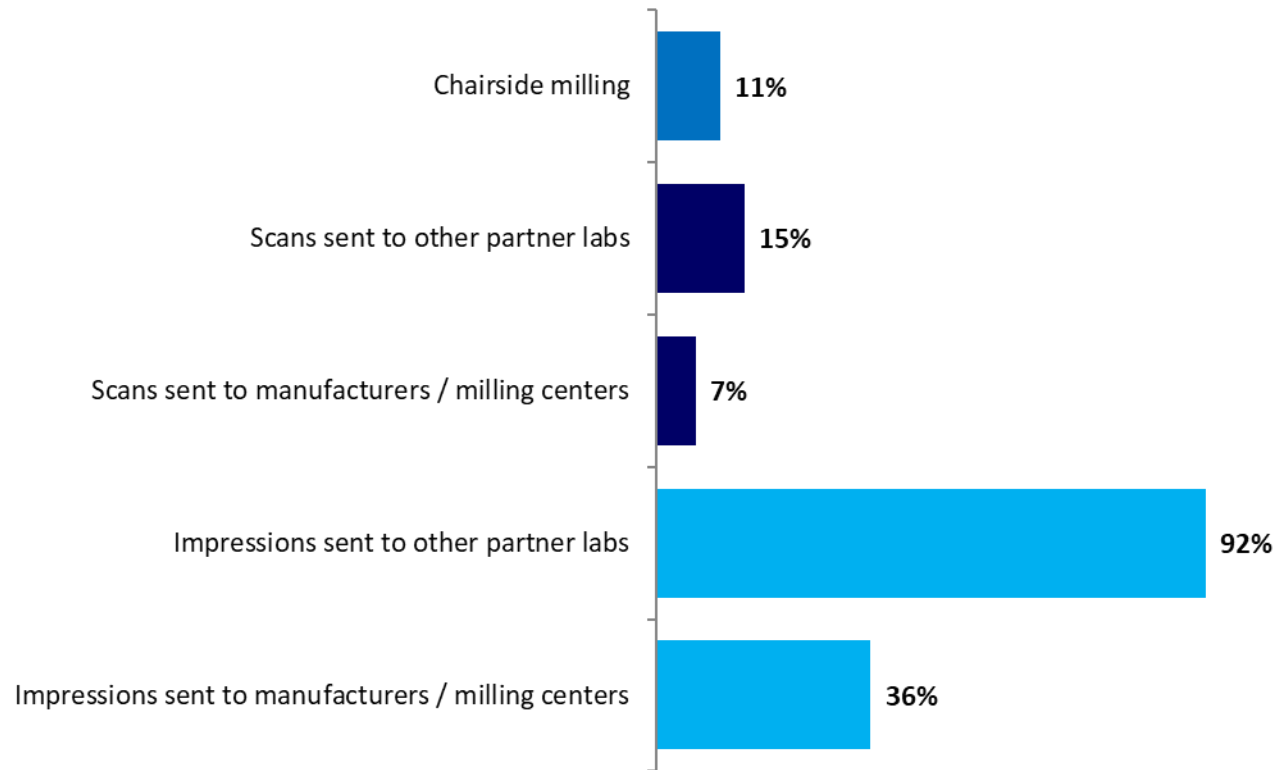
The differences below +/- 2% should be considered not statistically relevant.



Digital technology use - Breakdown by technology

How do you provide digital restorations in your practice?

Percentage of surgeries - digital users only



Since practices may use different technologies and channels, the sum of percentages is higher than 100%.

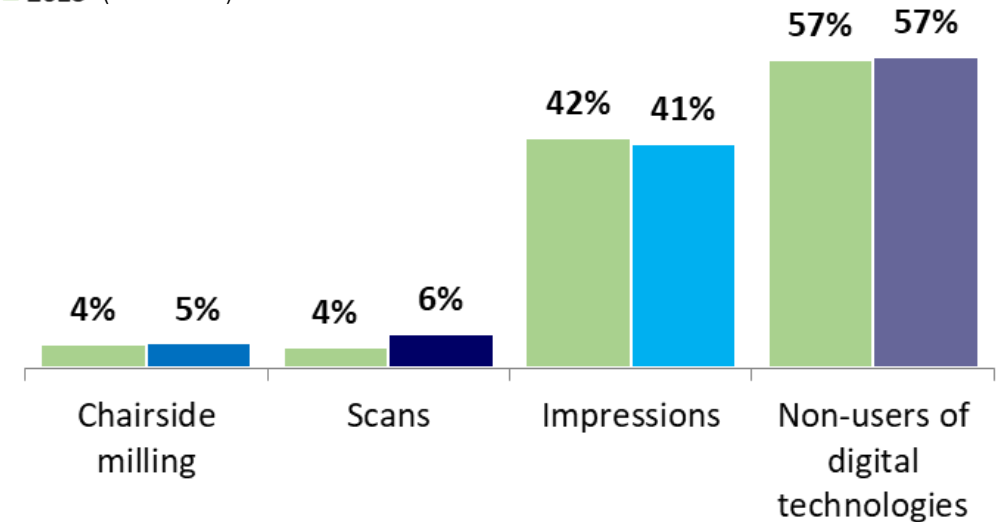
Percentage of surgeries - whole sample

The following chart shows the penetration of the different technologies calculated on the whole sample.

Among digital technology users, the most used way to provide digital restorations is to send impressions in full outsourcing to partner-labs or manufacturers / milling centers, with a 41% of users, but a slight increase in the use of the scans can be noted (6% vs 4% in 2015).

■ 2018 (282 cases)

■ 2015 (201 cases)



The differences below +/- 2% should be considered not statistically relevant.



Digital technology use - Channels and technologies

How do you provide digital restorations in your practice?

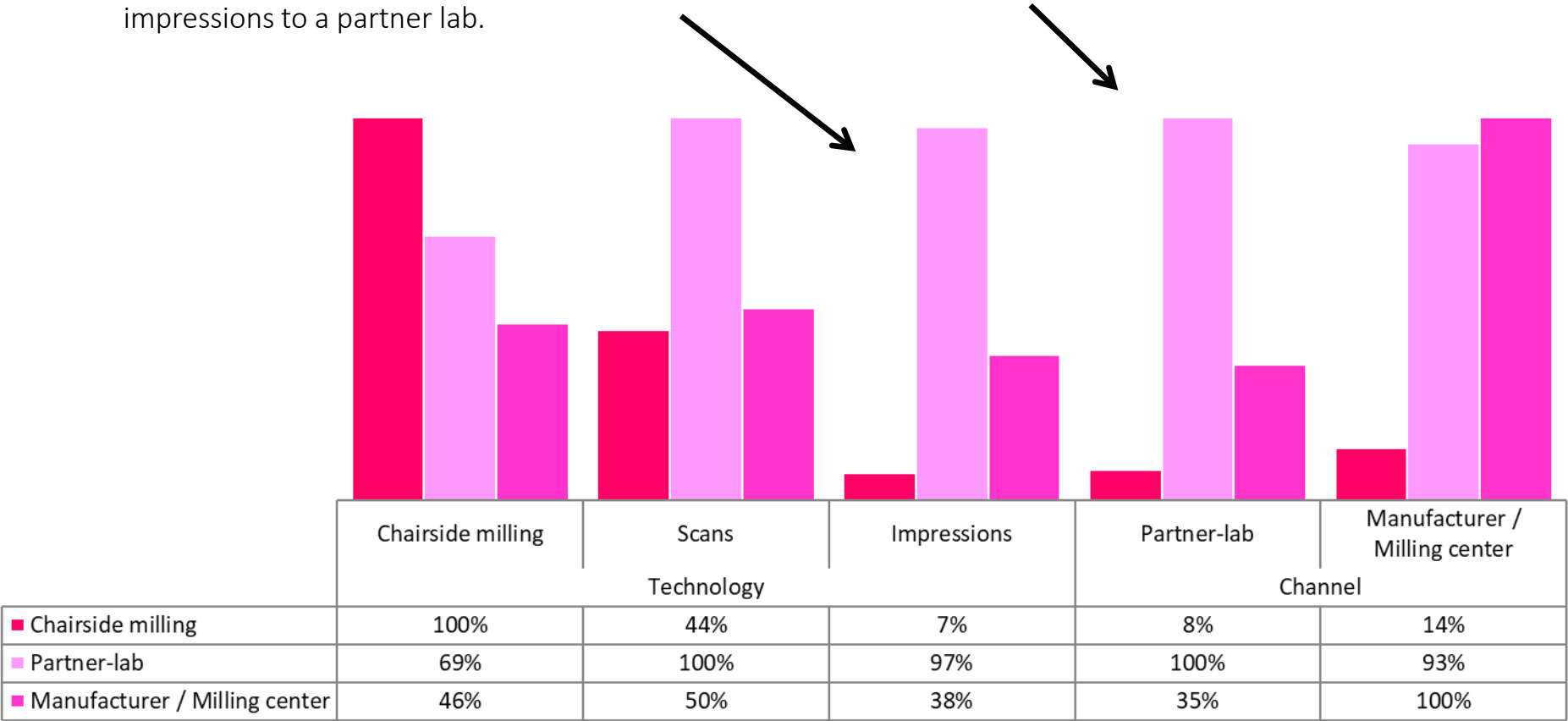
Percentage of surgeries - digital users only

For example, among those performing full outsourcing, 38% of them send the impressions to a manufacturer and 97% of them send the impressions to a partner lab.

For example, those sending their scans or models to a partner lab in 8% of the cases they also have a chairside milling unit and in 35% of the cases they also send the scans or impressions to a manufacturer/milling center.

The chart allows to evaluate the percentage of users of different technologies, in comparison to the same technologies and the different channels used.

Please, see the example on the right.



CHANNELS



Digital technology use - Technologies and channels

How do you provide digital restorations in your practice?

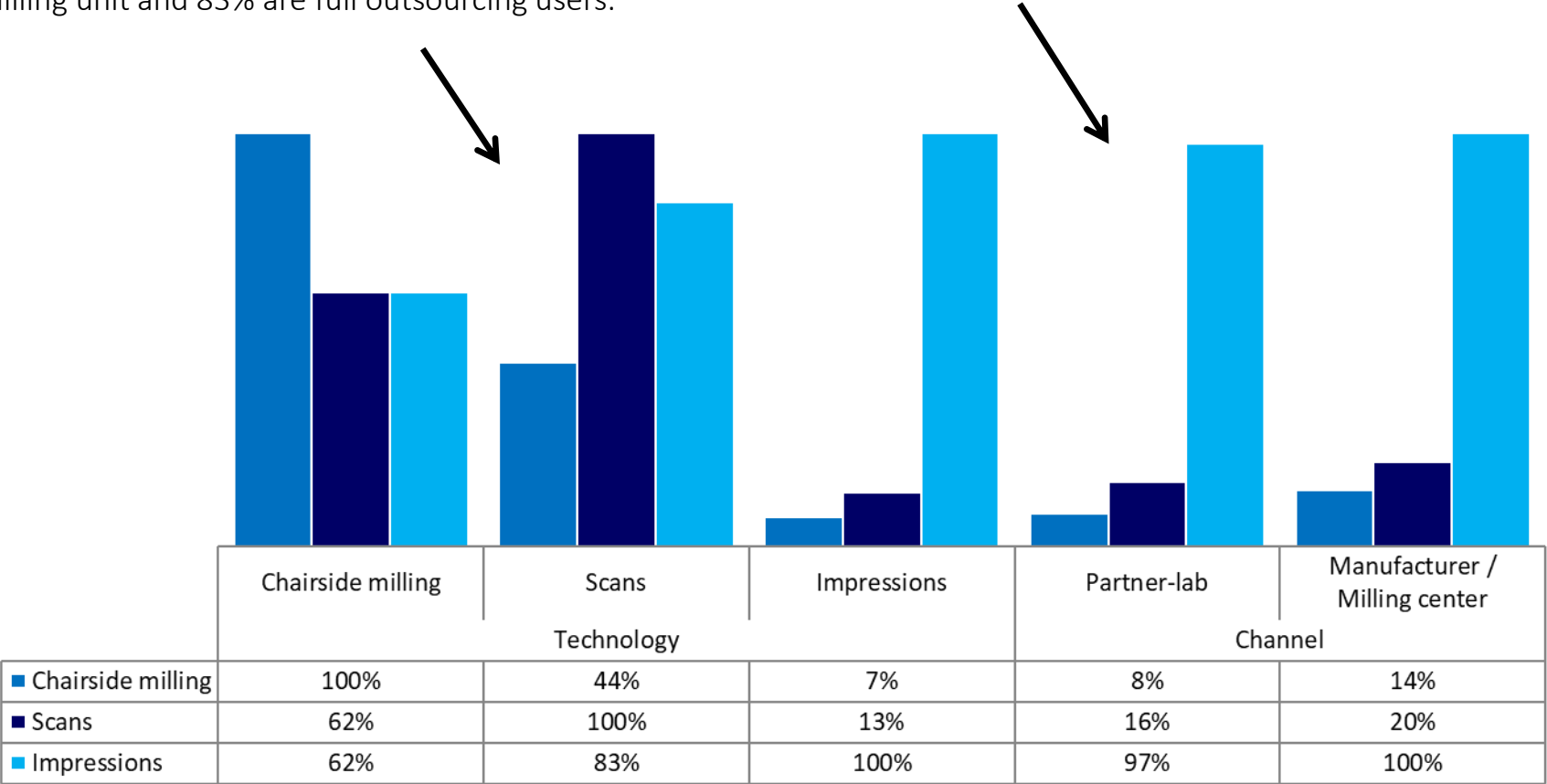
Percentage of surgeries - digital users only

The chart allows to evaluate the percentage of users of different technologies, in comparison to the same technologies and the different channels used.

Please, see the example on the right.

For example, among those sending scans outside for milling, 44% of them also have a chairside milling unit and 83% are full outsourcing users.

For example, those sending their impressions or scans to a partner lab, 16% of them have a scanner for sending scans outside and 8% of them also have a chairside milling unit.

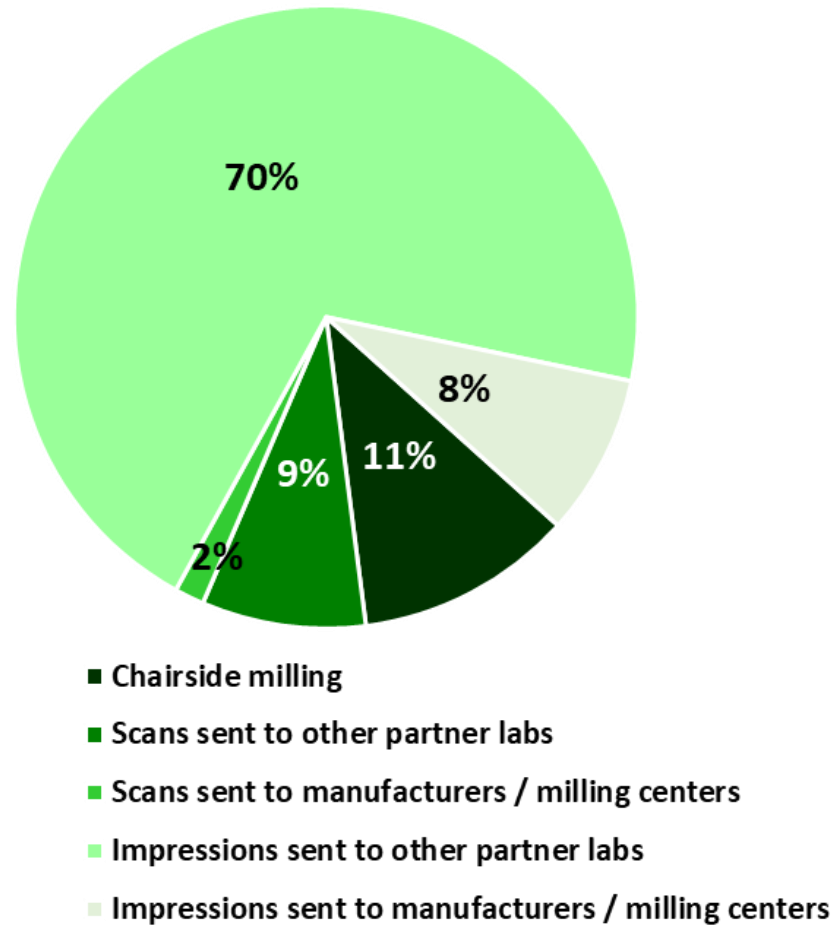


TECHNOLOGIES



Digital prosthesis production share

Considering all indirect restorations (crowns, bridges, inlays, onlays, veneers) produced with digital workflow at your practice, please tell us the percentage of them produced with the following techniques.



Base: 123 cases (digital prosthesis providers)

MEAN (digital prosthesis providers): 3,3
indirect restorations produced with digital
workflow per week

Considering the digital prosthesis providers, 11% of the overall digital prosthesis production is produced with a chairside milling (about 5% in the whole market).

By aggregating the information by Channel we can say that among digital prosthesis providers, **79% of production is made by Partner Lab** (which becomes 34% on the whole sample) and **10% by manufacturers** (which becomes 4% on the whole sample).

Considering the Technologies, **10% of the production is made by scans** and **79% by impressions** sent outside in full outsourcing mode.

Considering the whole market (including the non-providers of digital prosthesis), 4% of production is made of scans and 91% by traditional impressions.

SHARES ON TOTAL SAMPLE

Chairside milling: 5%

Scans sent outside: 4%

Traditional Impressions: 91%

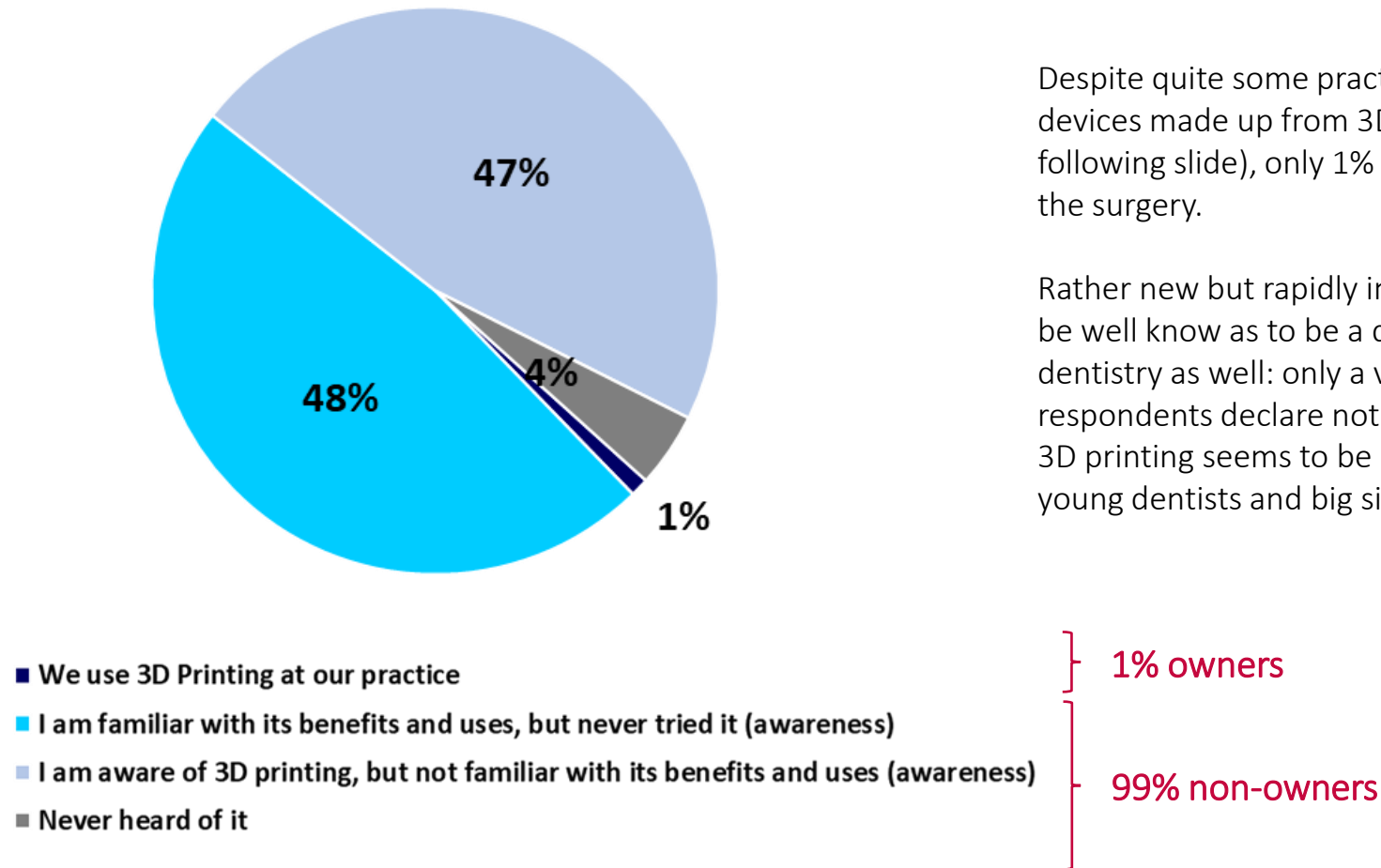


3D printing



3D printing awareness and use

Which statement regarding 3D Printing in dentistry applies to you?



Despite quite some practices providing customized devices made up from 3D printers (as showed in the following slide), only 1% declare to own a 3D printer in the surgery.

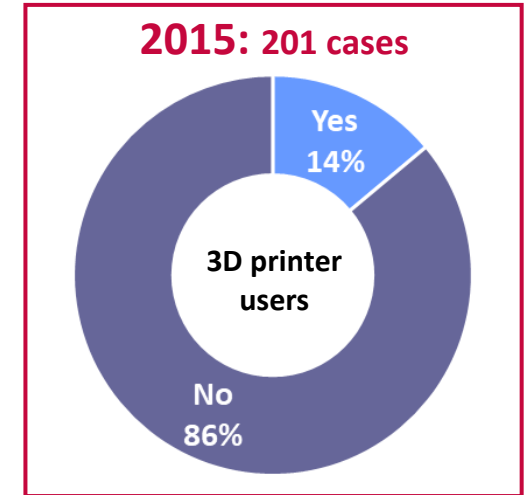
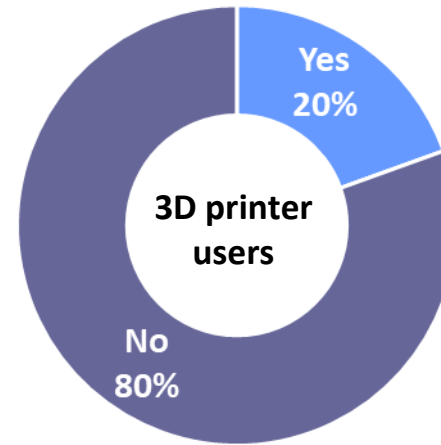
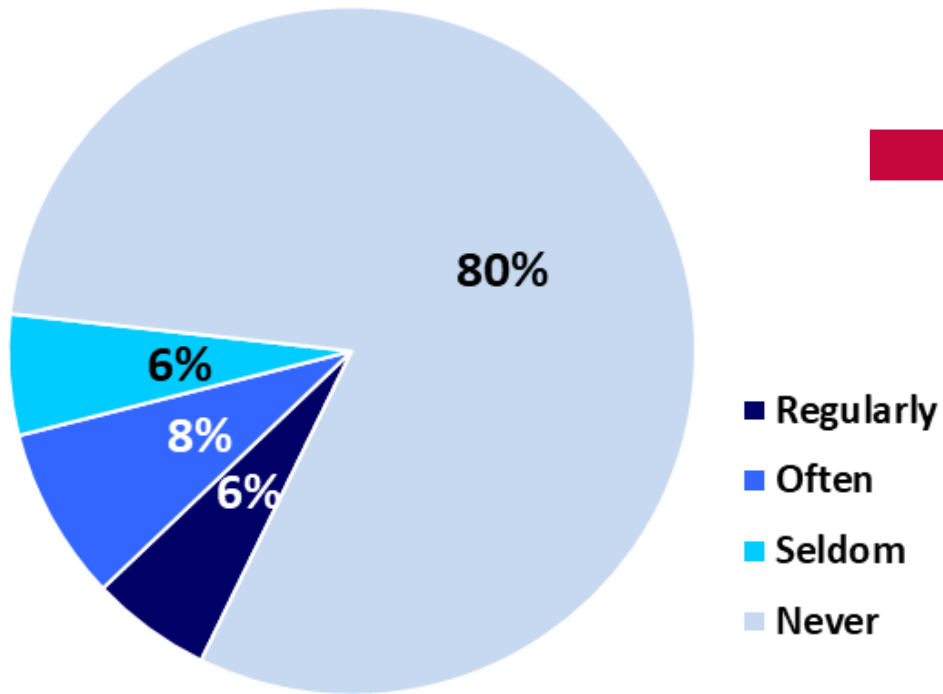
Rather new but rapidly increasing, 3D printing looks to be well know as to be a digital technology available for dentistry as well: only a very small portion of the respondents declare not to be aware of it (4%). 3D printing seems to be more widely used among less young dentists and big sized surgeries.



Use of 3D printer to produce customized devices

Do you provide your patients with customized devices performed with 3D printing technologies, also in outsourcing?

Percentage of surgeries



The differences below +/- 2% should be considered not statistically relevant.



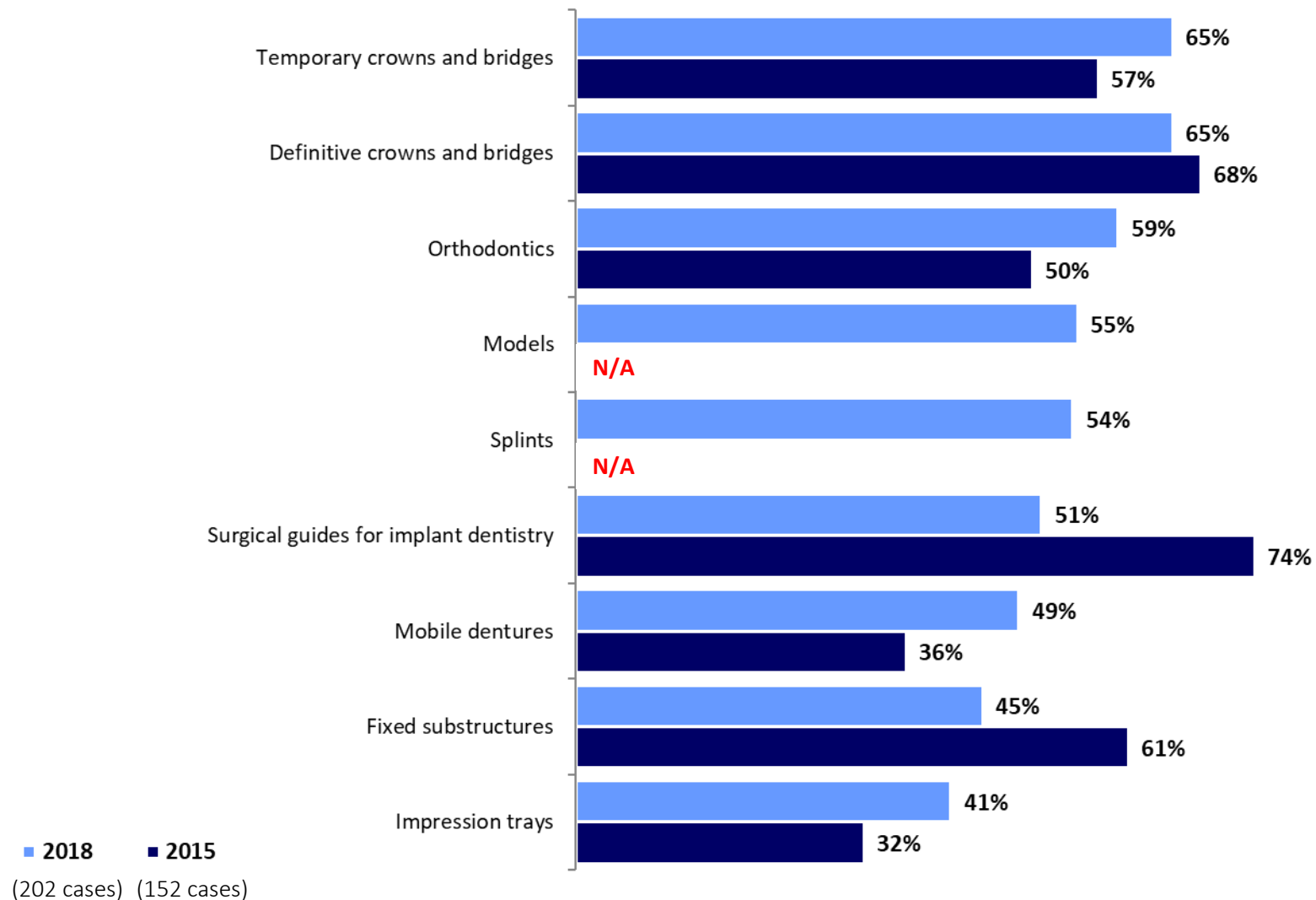
3D printer users (also in outsourcing)

- ↓ 1 practicing dentist (11%)
- ↑ Dental technician in the practice (37%)
- ↑ Digital prosthesis providers (45%)



Most suitable indications for 3D printing

Which of the following indications do you think that 3D printing will be best suitable for?



The comparison with 2015 results shows a relevant decrease for Surgical guides for implant dentistry and Fixed substructures. On the contrary, Temporary crown and bridges, Orthodontics, Mobile dentures and Impression trays has been quoted more frequently.

In the previous edition, “Models” and “Splints” were not in the list of requested items.

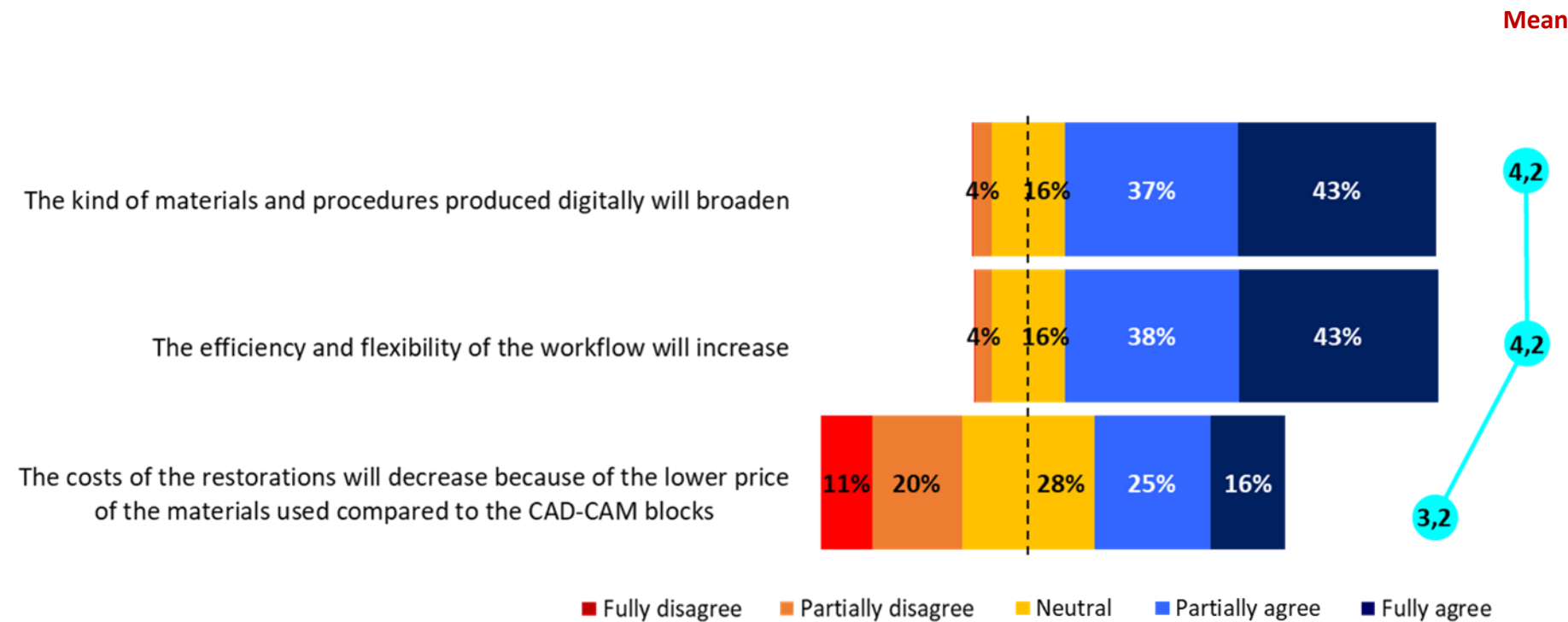
The differences below +/- 2% should be considered not statistically relevant.



Main consequences in dentistry brought by 3D printing

To what extent do you agree on the following statements, with regard to the main consequences that 3D printing will bring to the dentistry?

By analysing the percentage of quotes of the positive scores (partially and fully agree) it is clear that two out of three are the most relevant items, explaining that the respondents expect an increase in the efficiency and flexibility of the workflow, and a wider range of materials available.



TREND ANALYSIS	
% of «agree»	
y. 2018 (Agree)	y. 2015 (Yes)
80%	81%
80%	78%
41%	34%

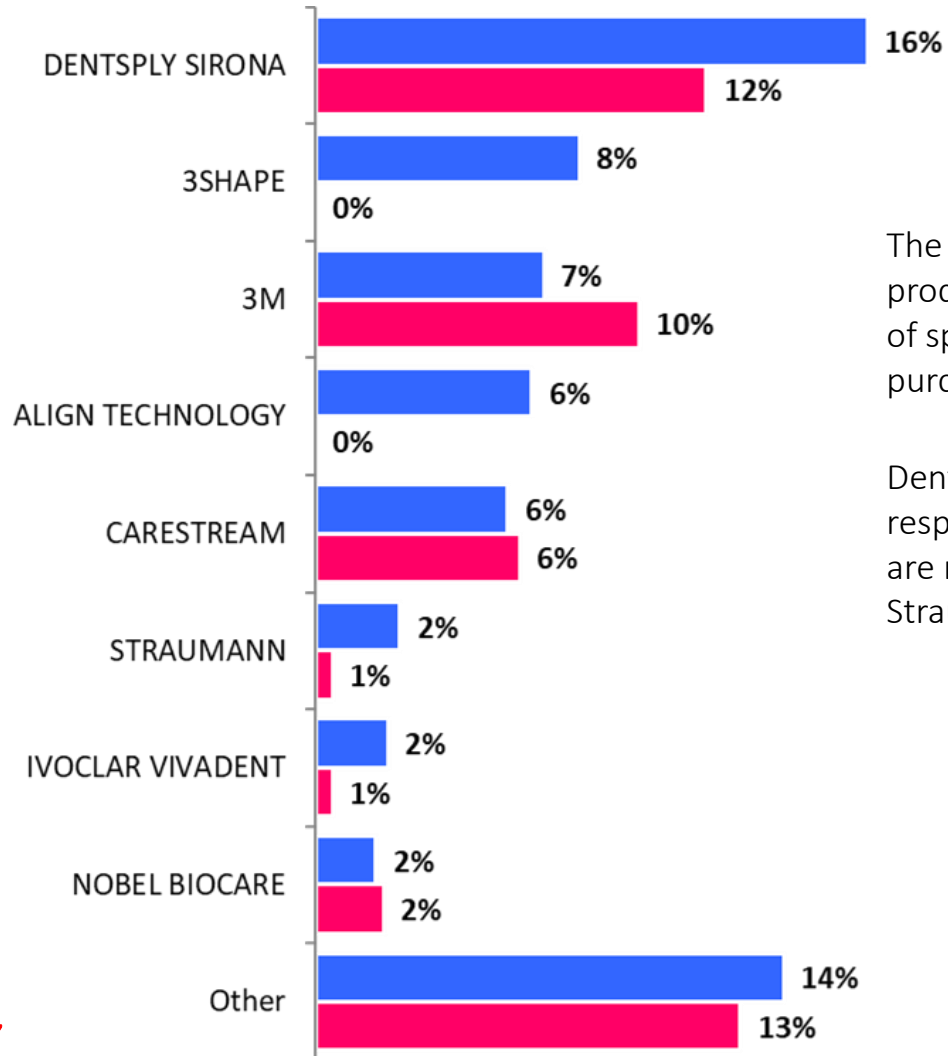


Brand awareness



Digital equipment brands: Unaided awareness

Thinking about the equipment to produce indirect restorations (crowns, bridges, inlays, onlays, veneers) with digital workflow, what brands come to your mind?



The unaided awareness represents the entire group of brands of a certain product family, recalled by the interviewed sample. Within the boundaries of spontaneous awareness, the consumer reasonably decides to make a purchase.

Dentsply Sirona is the most mentioned brand, with a good increase with respect to year 2015. Among the followers, 3Shape and Align Technology are new entries, while 3M loses some points. Ivoclar Vivadent and Straumann increase their performance as well.

The differences below +/- 2% should be considered not statistically relevant.

■ 2018 (282 cases) ■ 2015 (201 cases)

OVERLAP INDEX: 1,23 1,09

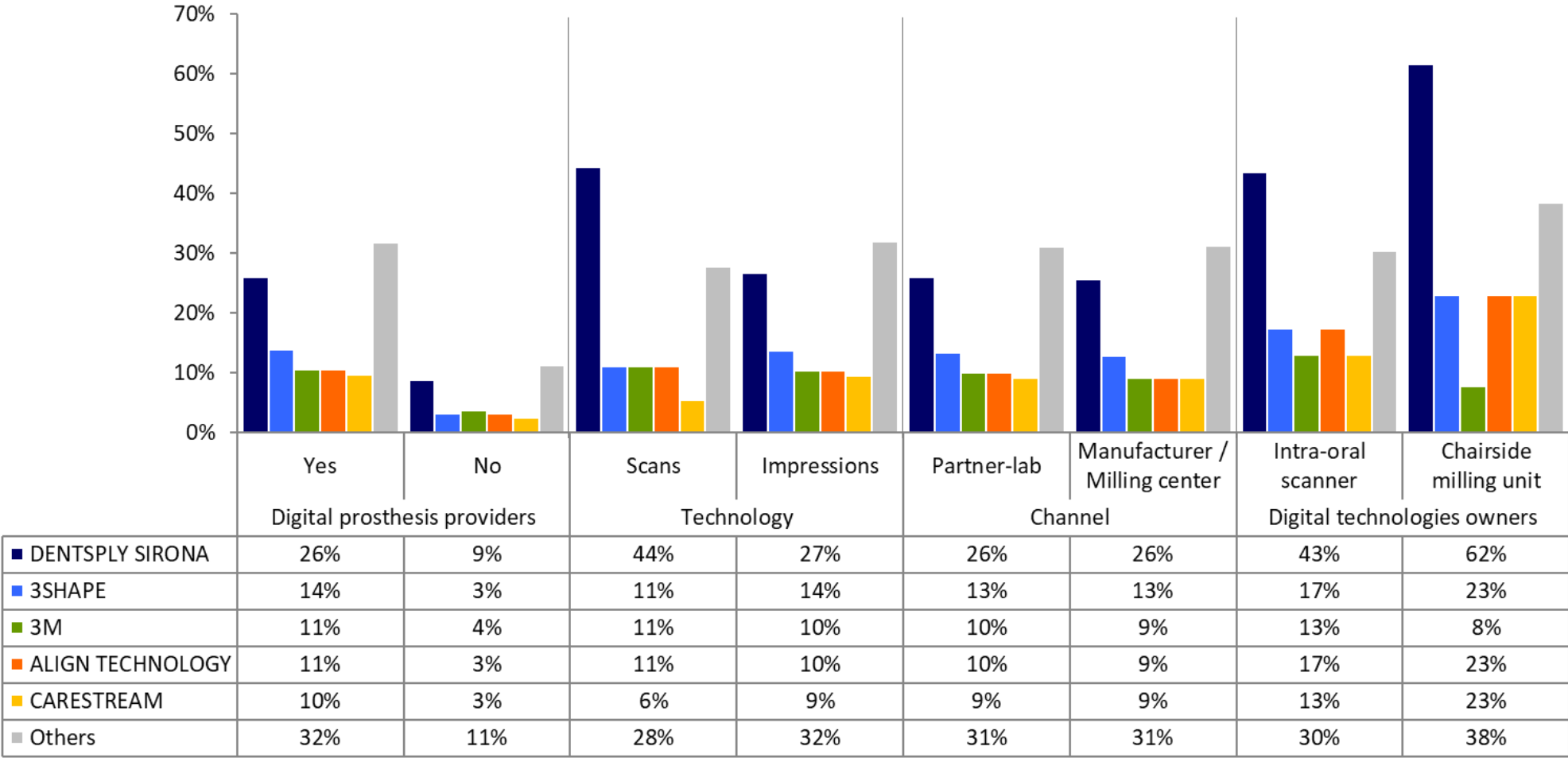
Processing without "don't know"



Digital equipment brands: Unaided awareness

Thinking about the equipment to produce indirect restorations (crowns, bridges, inlays, onlays, veneers) with digital workflow, what brands come to your mind?

The unaided awareness is highly affected by the use of a certain product and this is evident by analyzing the breakdown by digital technologies users and owners.



Processing without “don't know”

OVERLAP INDEX:

1,44

1,08

1,44

1,43

1,42

1,39

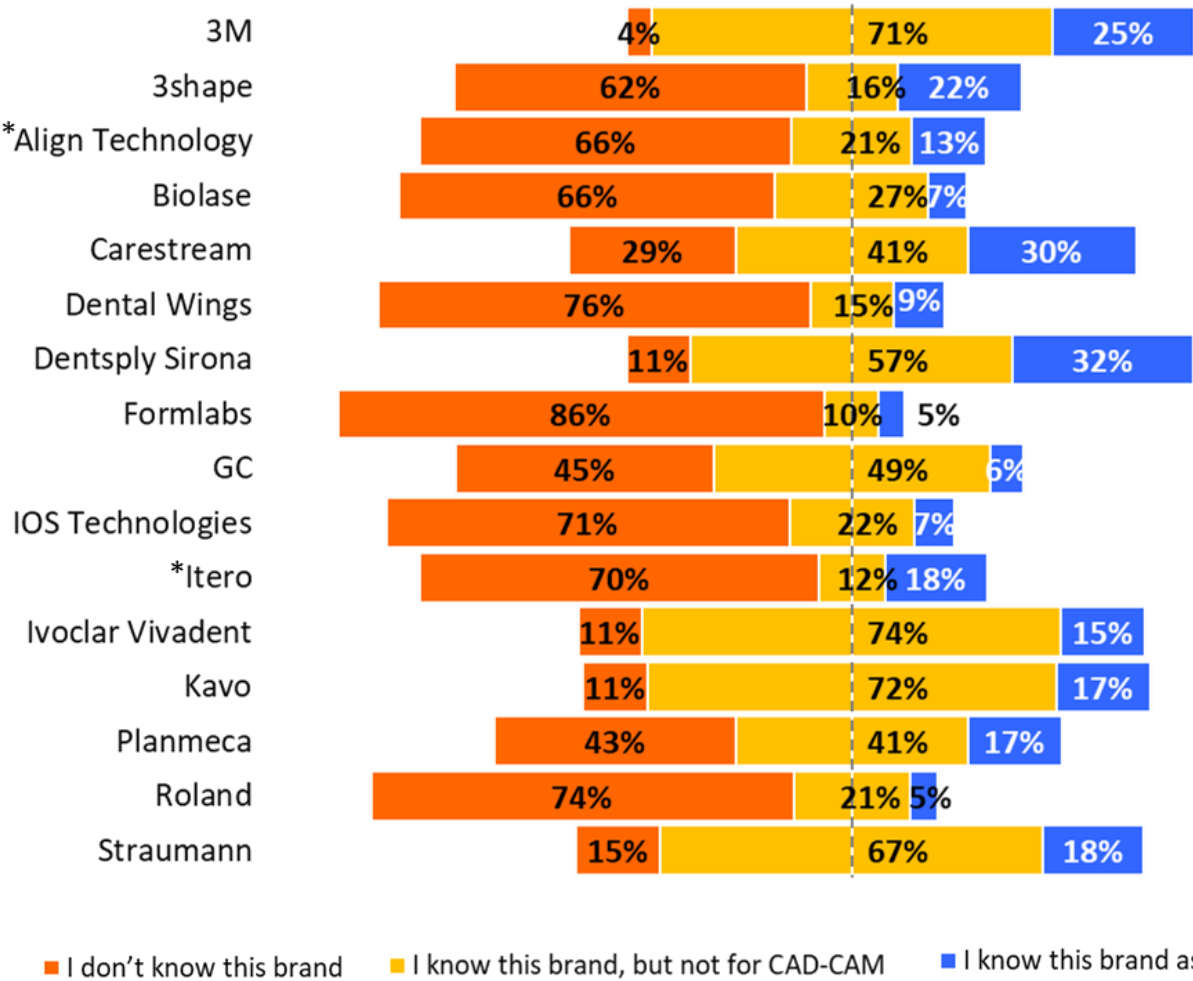
1,65

2,00



Digital equipment brands: Total awareness

For each of the following brands, please state if you know it.



Total awareness represents a consolidation between aided awareness and unaided awareness.

It is worth to underline that some brands like 3M, Dentsply Sirona, Ivoclar Vivadent, Kavo and Straumann show a high percentages of quotes related to the awareness due to other product categories.

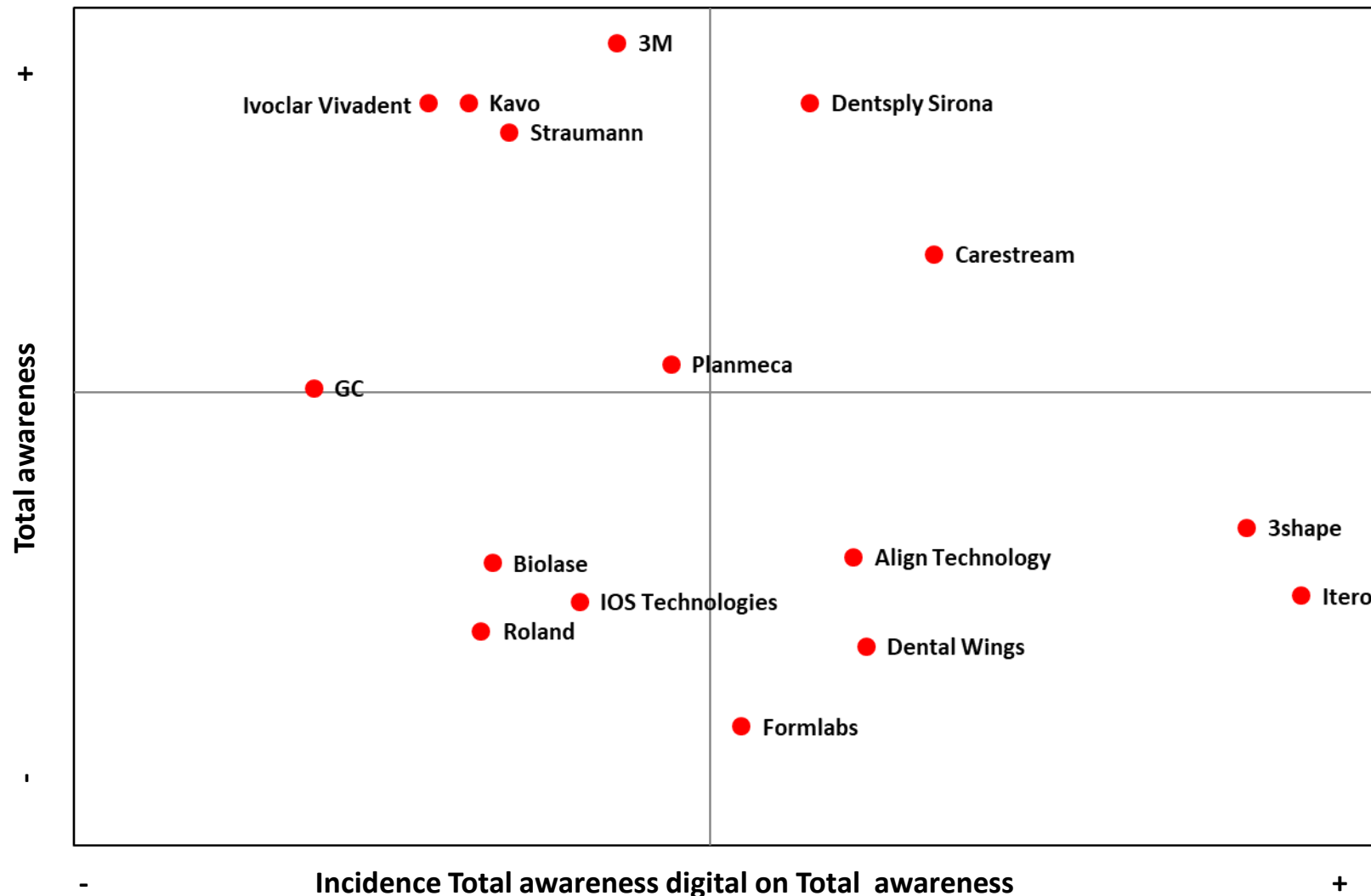
Dentsply Sirona and Carestream show among the highest values of awareness related to the production of CAD-CAM equipment.

* Align Technology and Itero has been considered as two separate brands for the total awareness, with the aim to observe any significant difference.



Digital equipment brands: Total awareness vs. Total awareness digital map

For each of the following brands, please state if you know it.



The map shows on the vertical axis the Total awareness broadly speaking, not strictly related to the digital segment, while on the horizontal one there is the ratio between the Total awareness focused on the digital segment and the Total awareness broadly speaking.

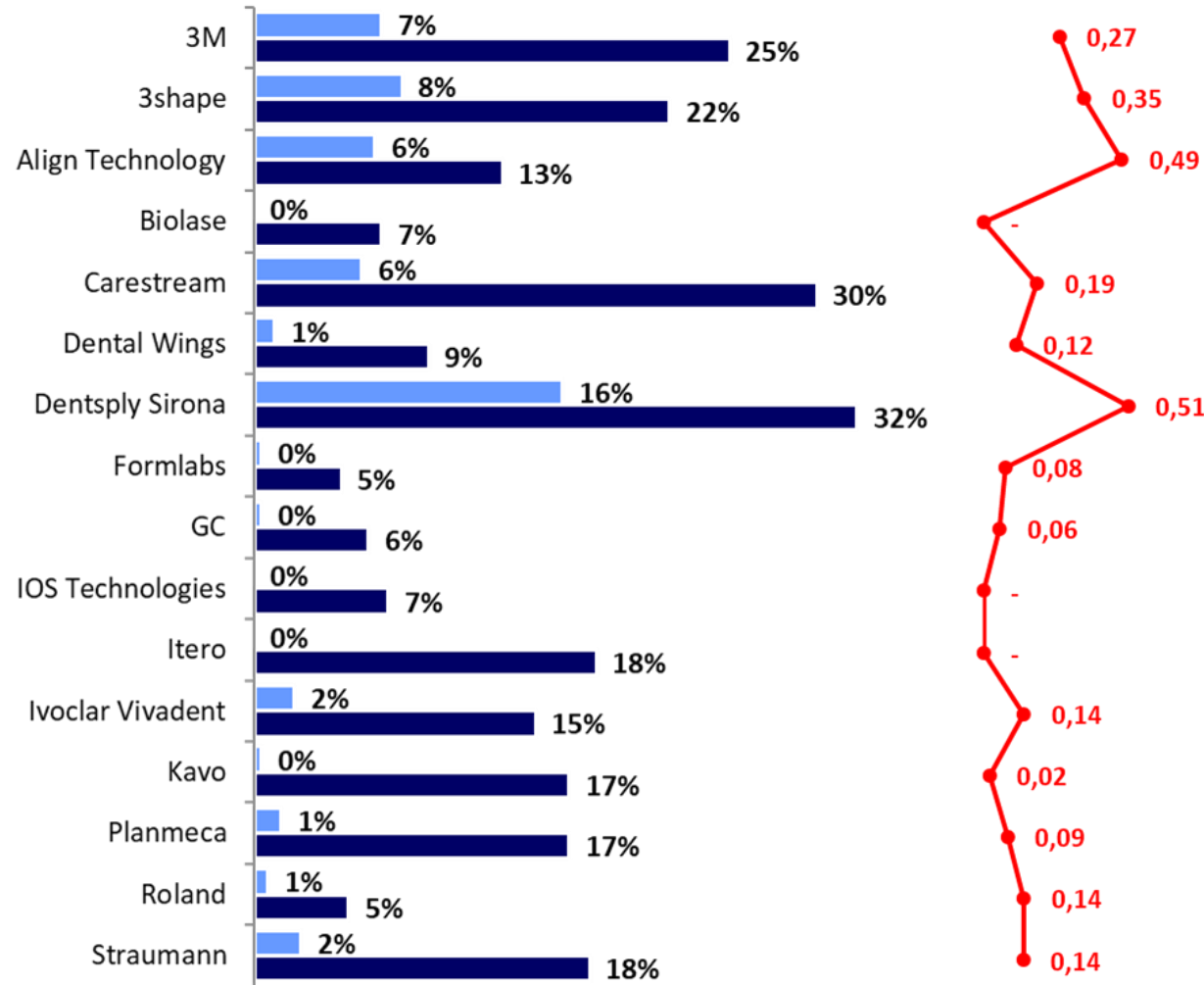
The resulting map shows some brands located in the right side of the map, whose total awareness in the digital segment has a high weight on their total awareness broadly speaking. This is true for those brand traditionally related to the digital world.

It is interesting to note how some brands, clearly identified as to belong to the digital world, in order to increase their performance, should work on the level of their total awareness broadly speaking (thus moving from the lower to the upper side of the map), and some others, already having a high total awareness, should increase their awareness in the digital world, thus moving towards right.



Digital equipment brands: Unaided awareness and Total awareness digital

For each of the following brands, please state if you know it (as a CAD-CAM manufacturer).



The Relevance index is important because highlights the capability of a brand to be recalled spontaneously to mind by respondents, thus potentially, when they need to take a decision for purchase.

It is interesting to note the quite high total awareness in the digital segment of brands like Carestream and Dentsply Sirona: the latter, along with Align Technology, also showing a high Relevance index, followed by 3Shape and 3M.

■ Unaided Awareness
■ Total Awareness Digital
—●— Relevance



Digital equipment brands: Total awareness vs. Relevance map

For each of the following brands, please state if you know it (as a CAD-CAM manufacturer).



The map showing the Total awareness digital and the Relevance highlights that Dentsply Sirona emerges as the brand with the highest ratio between the total and the unaided awareness and the highest total awareness as well.

Carestream shows a high performance as well, but with a lower awareness quality, since it is less frequently mentioned spontaneously.

On the contrary, Align Technology is less known, but with a higher awareness quality, being mentioned more frequently in a spontaneous way.



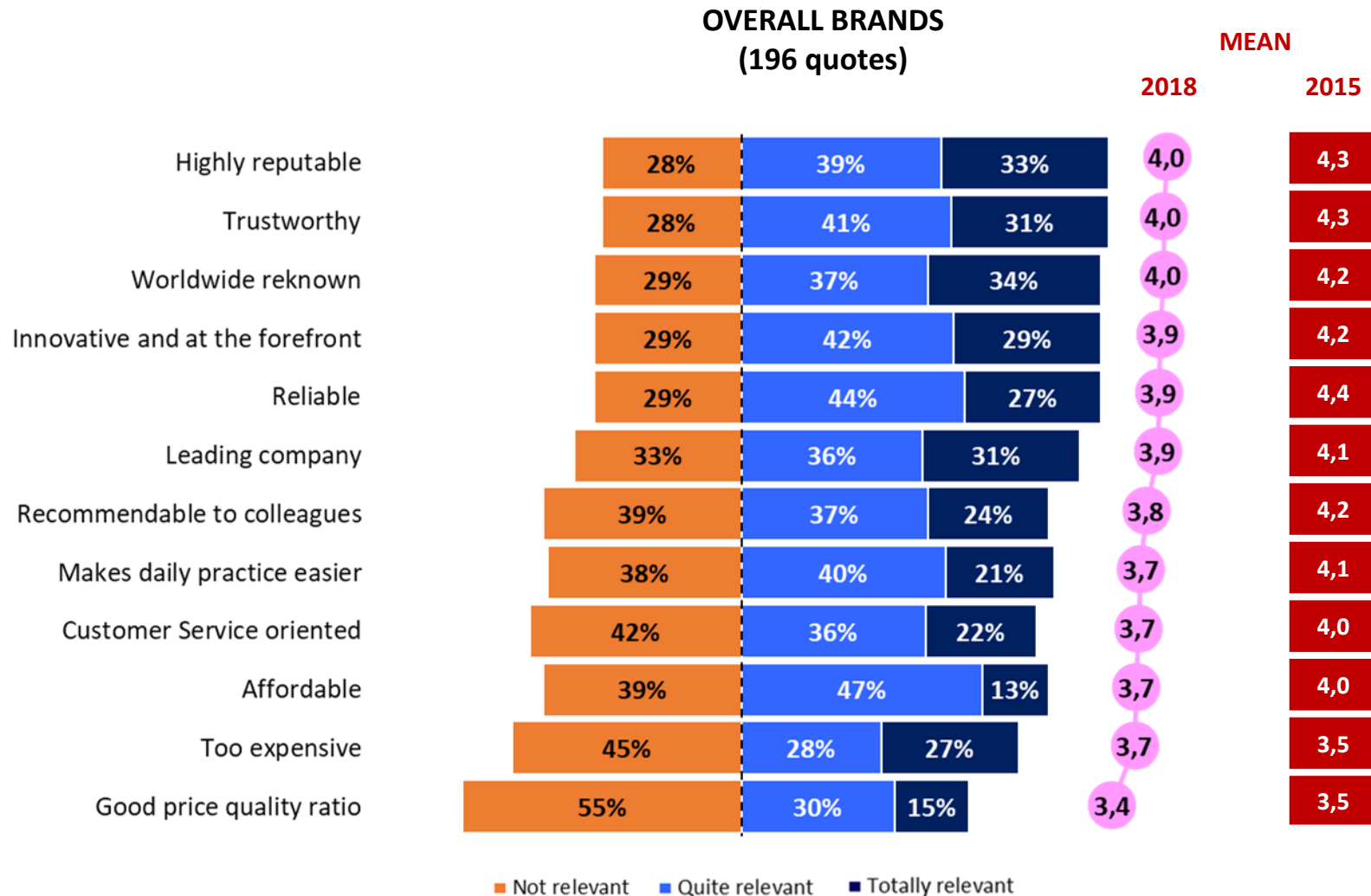
Brand positioning

Items score



Brand positioning: OVERALL BRANDS

With regard to the brands that I'm going to read, could you tell me please what is your opinion about the following statements? Please rate them with totally irrelevant, partially irrelevant, neutral, quite relevant, totally relevant.



The 5 possible answers have been further clustered in order to better highlight the differences in the scores among the items and the brands evaluated. The clustering is the following:

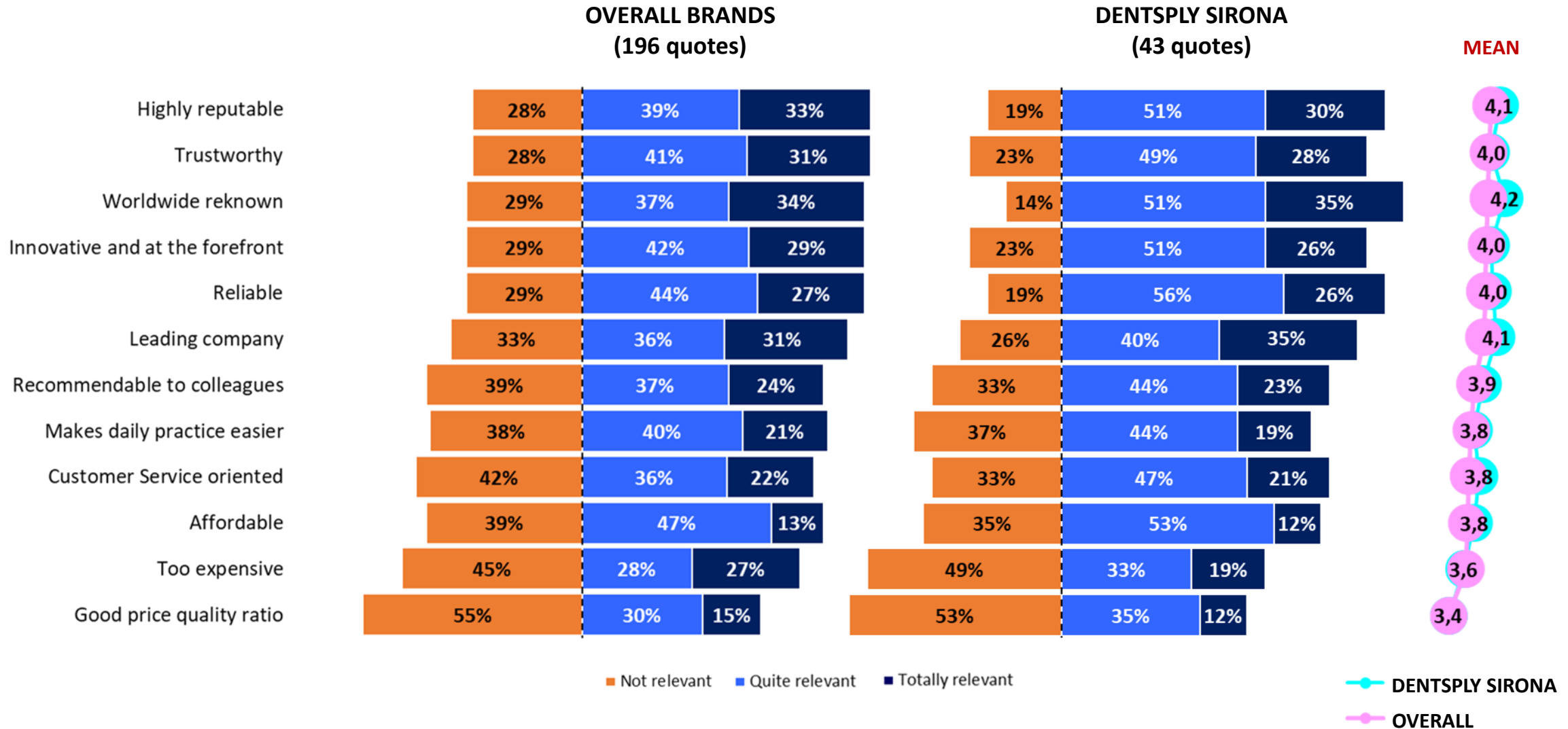
- **“Not relevant”**: the scores grouped in this cluster are “Totally irrelevant”, “Partially irrelevant”, “Neutral”.
- The other clusters **“Quite relevant”** and **“Totally relevant”** are related to the original answers without any grouping.

In overall, Reputation and Trust received the highest mean scores. It is worth to underline how the items related to the pricing seemed to be less relevant to the mentioned brands.



Brand positioning: OVERALL BRANDS vs. DENTSPLY SIRONA

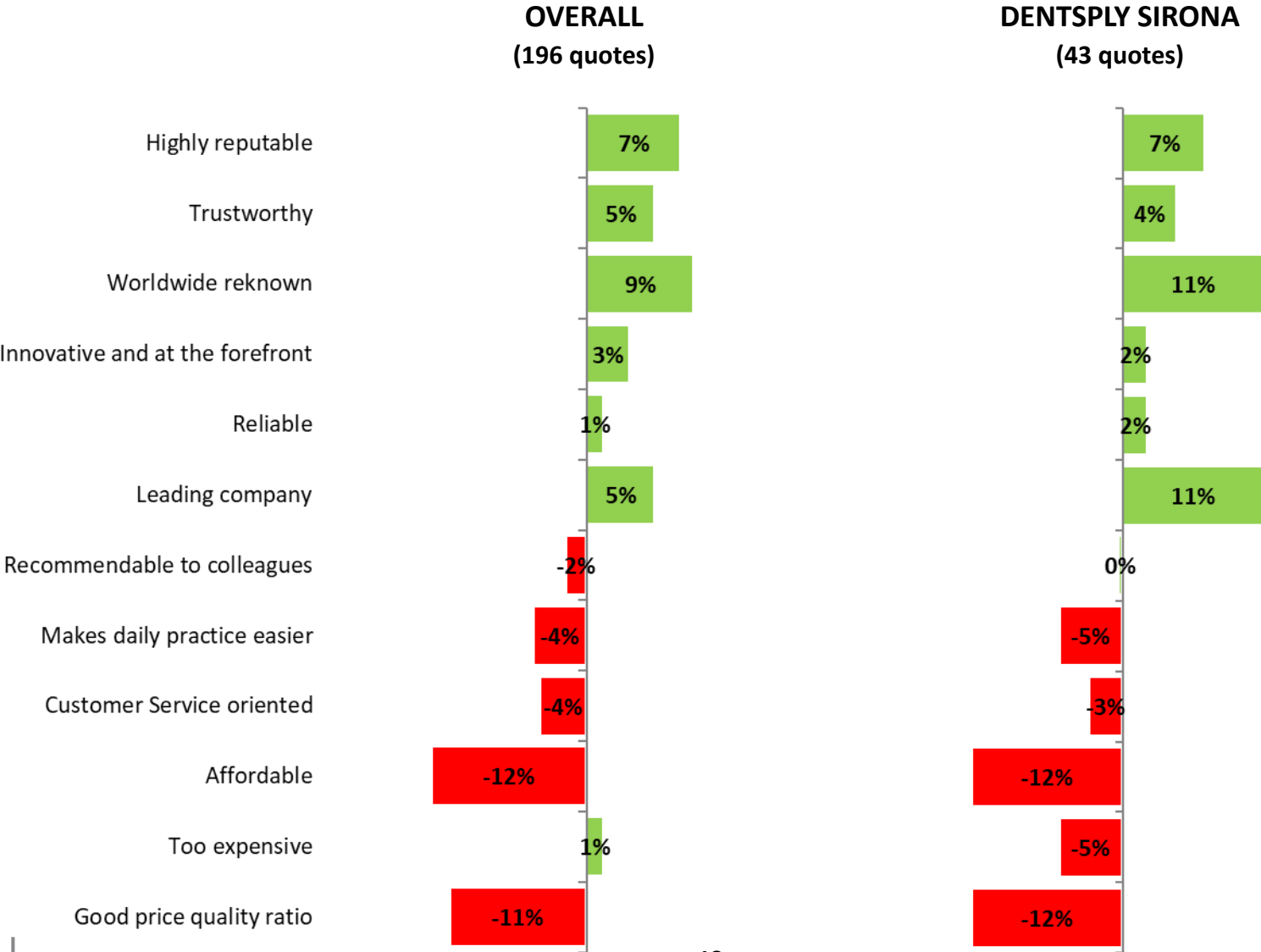
With regard to the brands that I'm going to read, could you tell me please what is your opinion about the following statements? Please rate them with totally irrelevant, partially irrelevant, neutral, quite relevant, totally relevant.





Brand positioning: Focus on “Totally relevant” - Difference from mean

With regard to the brands that I’m going to read, could you tell me please what is your opinion about the following statements? Please rate them with totally irrelevant, partially irrelevant, neutral, quite relevant, totally relevant.





Focus on Recommendation

Bivariate correlation analysis

Bivariate correlation analysis

The bivariate correlation analysis is a technique that helps to identify and measure the influence of the independent variables (in this case, current and former users) on the dependent one (in this case, the recommendation). The bivariate correlation analysis has been used to quantify the relation between the score on the single items and the rating on the recommendation.

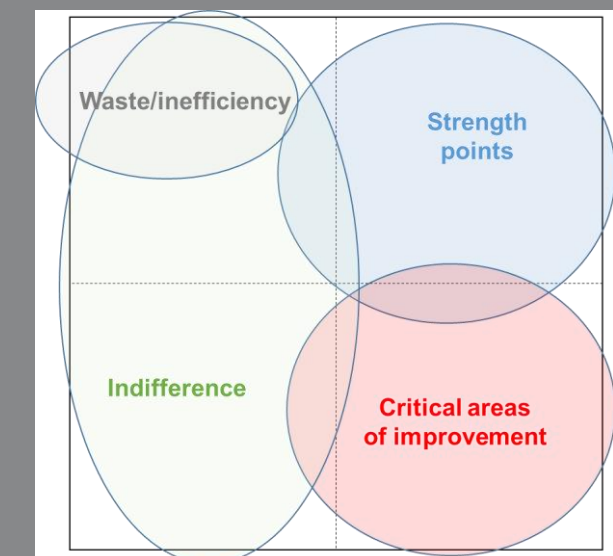
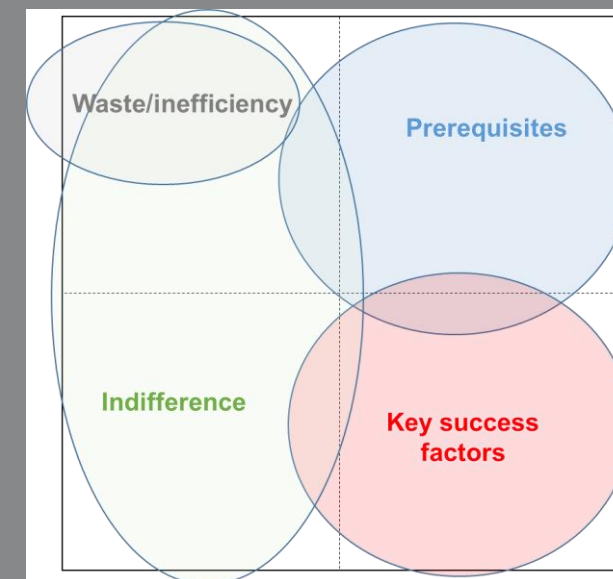
Therefore, it is possible to retrieve a “hierarchy of importance” from the individual statements and to display them in a chart, and then on a map. The vertical axis always shows the scores that the different items have received, on average, while the horizontal axis shows their influence on the recommendation. In this way, its obtained an “estimated importance” of each item proposed to the interviewees, which results a bit different from the one explicitly stated. The analysis of the weight of each of the factors, and not only of the declared importance, allows for some interesting considerations. The items have a different meaning according to the point of view with which they are considered:

- **Recommendation related to the whole market**

Here we can highlight some prerequisites (upper-right corner of the map, where almost all the competitors perform positively), some key factors of success (lower-right corner of the map, where companies are not always able to meet the expectations with regard to strategic issues), and indifference areas (lower-left side of the map) which become waste/not efficient areas when a company decides to invest in those items belonging to the upper-left side of the map, since they show a lower weight on the recommendation.

- **Recommendation related to a specific company/product**

Here the scheme is the same, but we can highlight the strength points in the upper-right side of the map, which can determine inefficiency or indifference if placed in the left side of the map. In the lower-right we can note an improvement area, where we can find the weak points of a certain company (higher than average item weight on the recommendation but lower than average item score).





Brand image vs. Recommendation: Correlation analysis

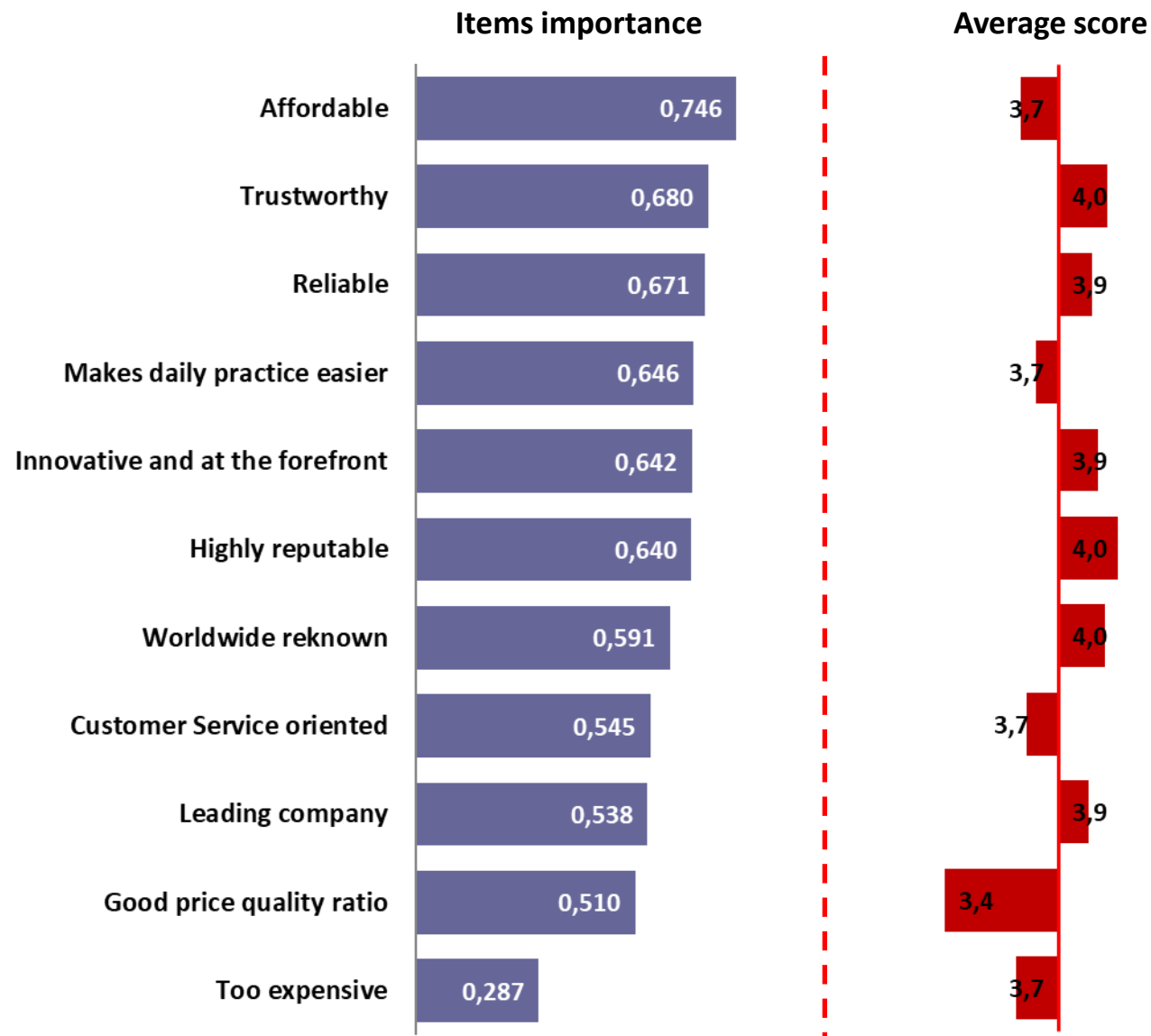
How much are worth the single items on the recommendation?

OVERALL BRANDS

The charts show the weight that the items evaluated have on the propensity to recommend a given brand, and on the right, their individual score.

Affordability, trust and reliability are the items showing the highest correlation with the recommendation.

The analysis for Dentsply Sirona, highlights that innovation, reputation, trust and reliability are the items with the highest weight on recommendation. Also Affordability shows a higher than average importance in Dentsply Sirona recommendation model, but its score resulted to be below average, thus, it should be considered as a critical area of improvement. When considering the overall analysis, not to forget is the quite relevant importance of the item “Makes daily practice easier”, whose score resulted to be below average.





Brand image vs. Recommendation: Correlation analysis map

How much are worth the single items on the recommendation?

OVERALL BRANDS

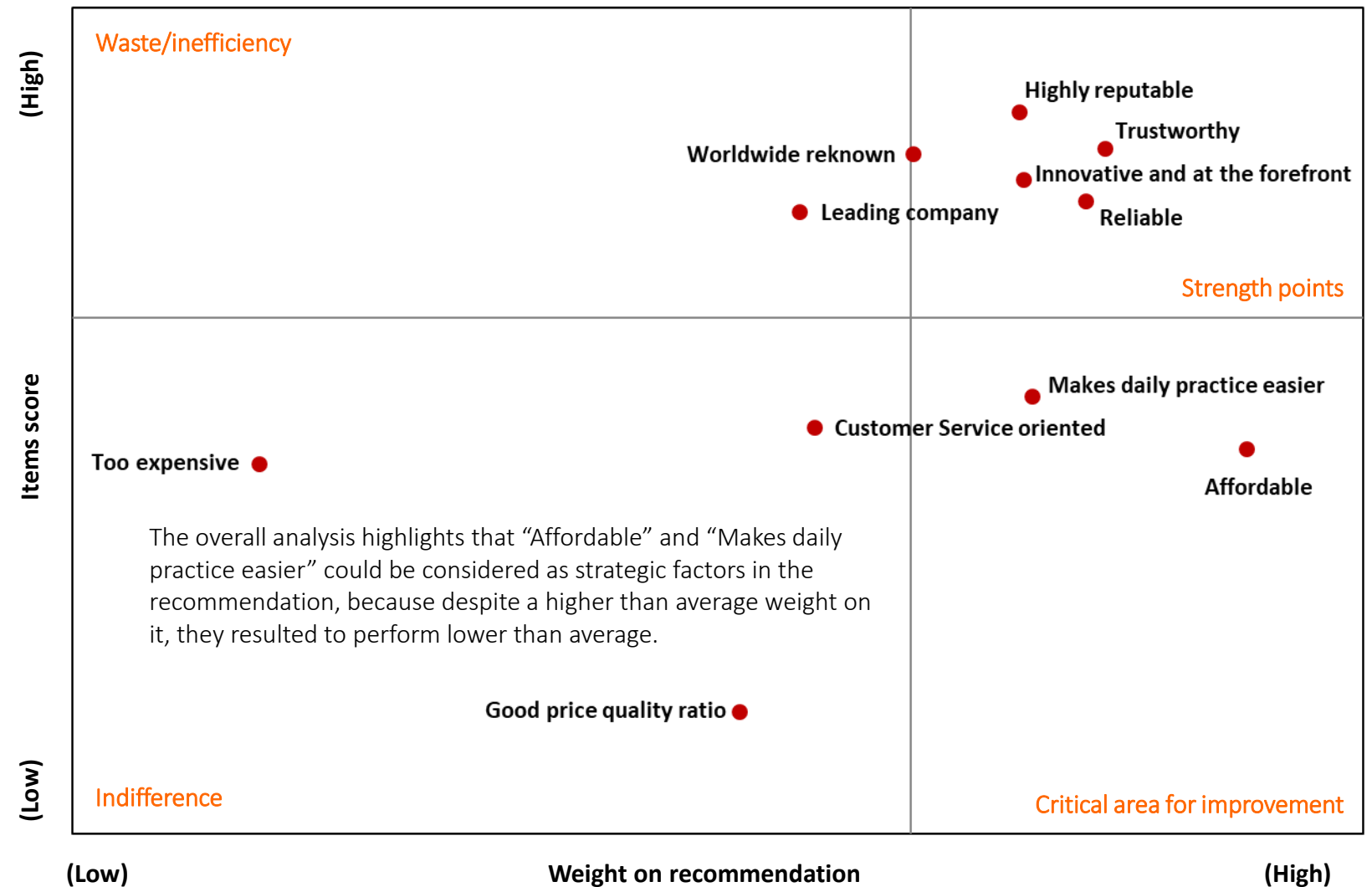
The map is the visual result of the two different charts seen in the previous slide.

On the horizontal axis there is the weight on the recommendation of each item, and on the vertical axis is the average score of each item.

The items are arranged on the map in a way as that at the top right are the items that are very important to the recommendation and that received a high score.

At the bottom right there are the items very relevant to the recommendation but with a lower than average score.

This map shows the items evaluated in overall and serves as a reference for the comparison with the performance of each brand.





Brand positioning

Factor analysis



Brand positioning: Factor analysis

The **factor analysis** is a multi-variate statistical analysis used to investigate and give explanation of the correlations among a given number of variables. It relies on the concept that the correlations among the variables are not random, because they are due to some existing common factors. The aim is to identify and quantify the above said common factors. The factor analysis is a psychometric analysis, and it is used in the behavioural sciences, like social sciences, marketing, product management and other environments where a big amount of data is present.

In this case, we have used the factor analysis to identify **the main recommendation drivers** for the main brands stated in the unaided awareness.

The best results of the factor analysis have been achieved with 3 main factors:

- **REPUTATION**
- **CUSTOMER ORIENTATION**
- **EXPENSIVENESS**

Factor 1 (REPUTATION): this factor includes the items related to the image of the company, its ability to be a leading and highly reputable brand and its attitude towards innovation.

Factor 2 (CUSTOMER ORIENTATION): this factor is made up of those items referring to a certain ability of the company to be customer oriented, not only in terms of customer service, but also with all those aspects regarding the ability to make the daily practice easier and its value for money.

Factor 3 (EXPENSIVENESS): this factor is clearly related to the pricing policy and it shows a positive high correlation with the expensiveness, suggesting that a higher price could be a warranty of quality.

3 Factors	REPUTATION	CUSTOMER ORIENTATION	EXPENSIVENESS
Leading company	0,893		
Worldwide reknown	0,853		
Highly reputable	0,782		
Innovative and at the forefront	0,688		
Trustworthy	0,625		
Good price quality ratio		0,813	
Makes daily practice easier		0,760	
Affordable		0,696	
Reliable		0,596	
Customer Service oriented		0,551	
Too expensive			0,931



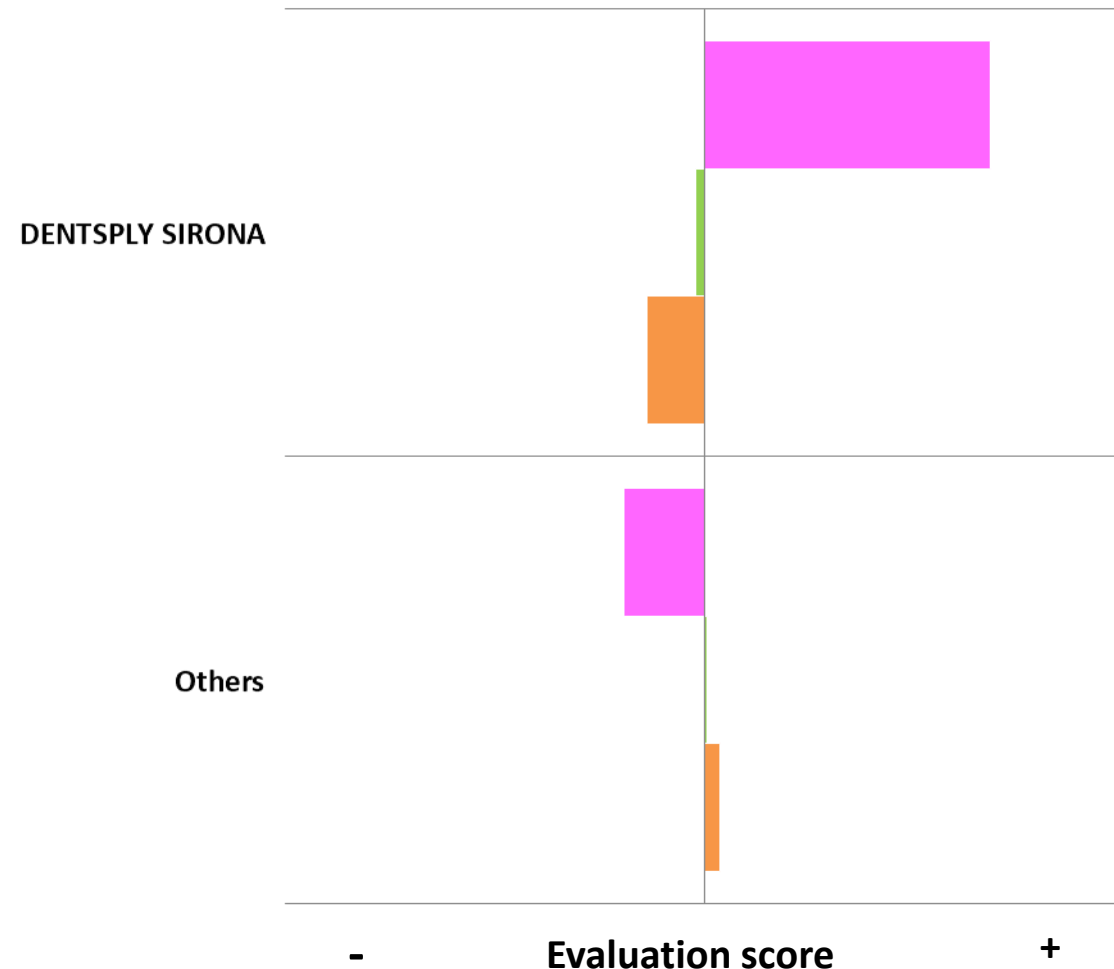
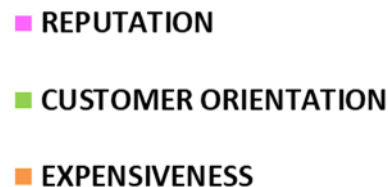
Brand positioning: Factor analysis - Difference from mean

The displayed values represent the evaluation score of those factors, with a value ranging from -1 to +1 where 0 represents the overall mean value.

For each investigated factor, the horizontal bars represent how much the performance differs from the overall mean (vertical axis).

Dentsply Sirona got a higher than average evaluation on reputation and the performance on the expensiveness factor is on par with the overall analysis.

The other follower brands got a lower performance in terms of reputation.



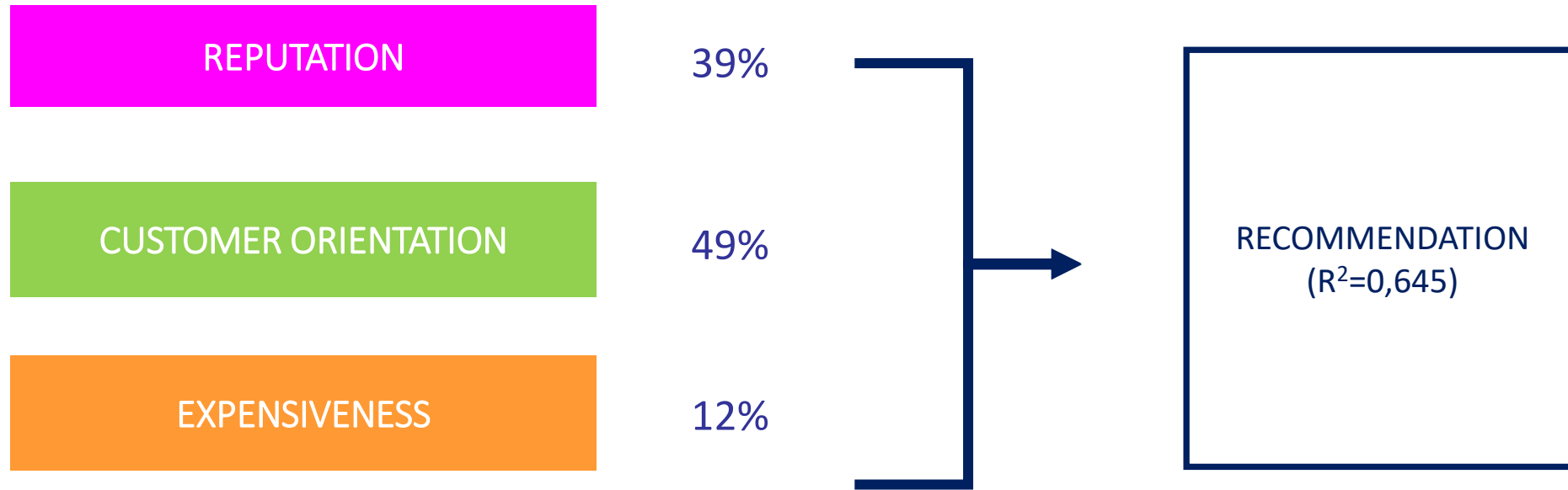


Brand positioning

Multiple regression analysis



Brand positioning : Multiple regression analysis



In order to complete the factor analysis, it is important to also assess the weight of these factors on the recommendation to understand if an improvement in one of them can also affect the way a particular brand is recommended. Therefore, these factors are used as a basis for a further analysis, called “Multiple regression analysis” that aims to understand how they explain the recommendation. The figure " $R^2 = 0,645$ " means that about 65% of the recommendation is explained and it is based on the given factors.

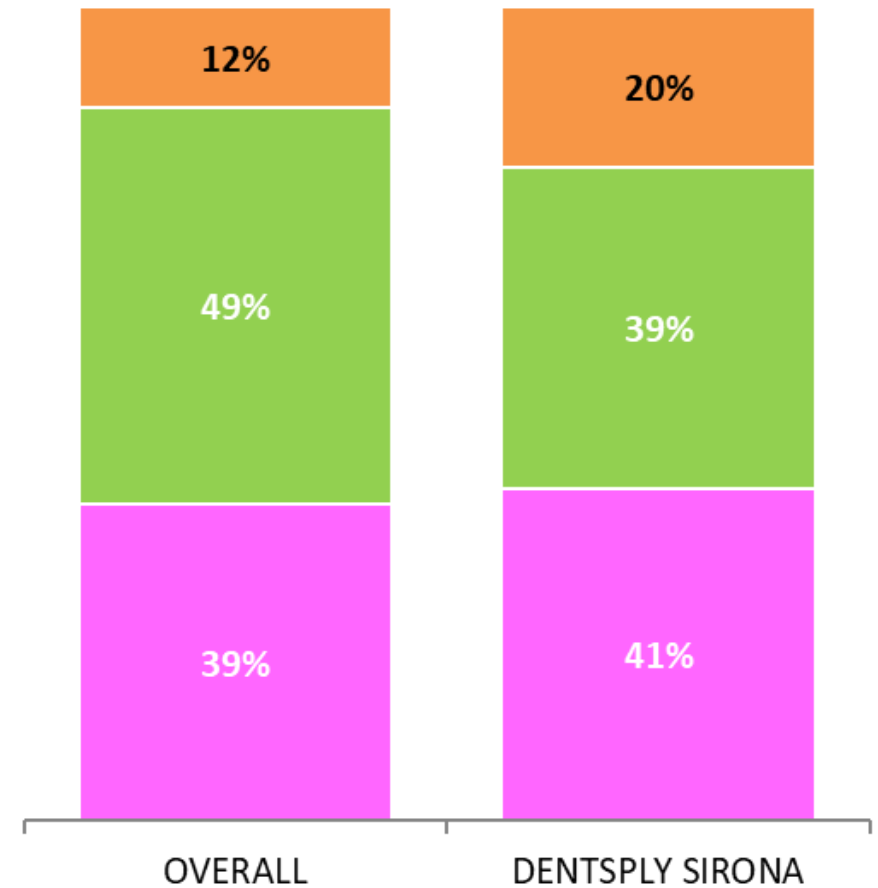
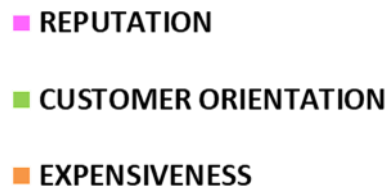
The overall model shows that the weight of the “Customer orientation” factor is about 49%, therefore the importance of this factor is relevant. The second most important factor is the “Reputation” and “Expensiveness” show the lowest weights.



Brand positioning : Multiple regression analysis

The chart highlights the weight of the analyzed factors on the recommendation, for Dentsply Sirona and for the other brands in overall, with the aim to understand if an improvement in one of them can also affect the way a given brand is recommended.

In comparison to the overall breakdown, Dentsply Sirona is characterized by a lower than the average weight of Customer orientation and a higher weight of Expensiveness.



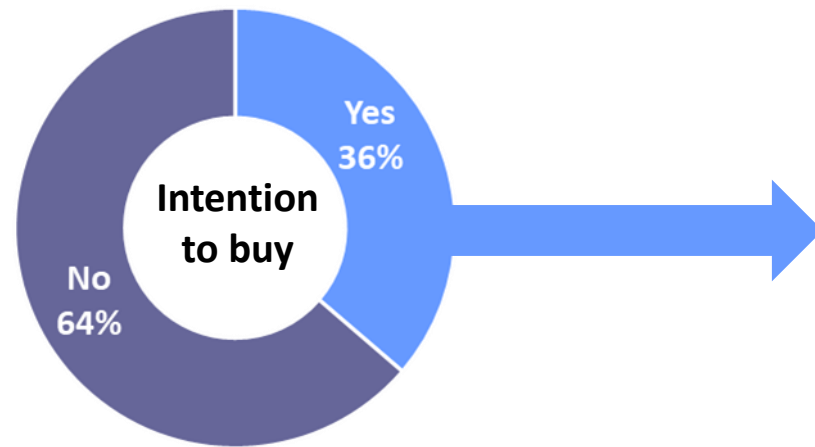


Intention to buy



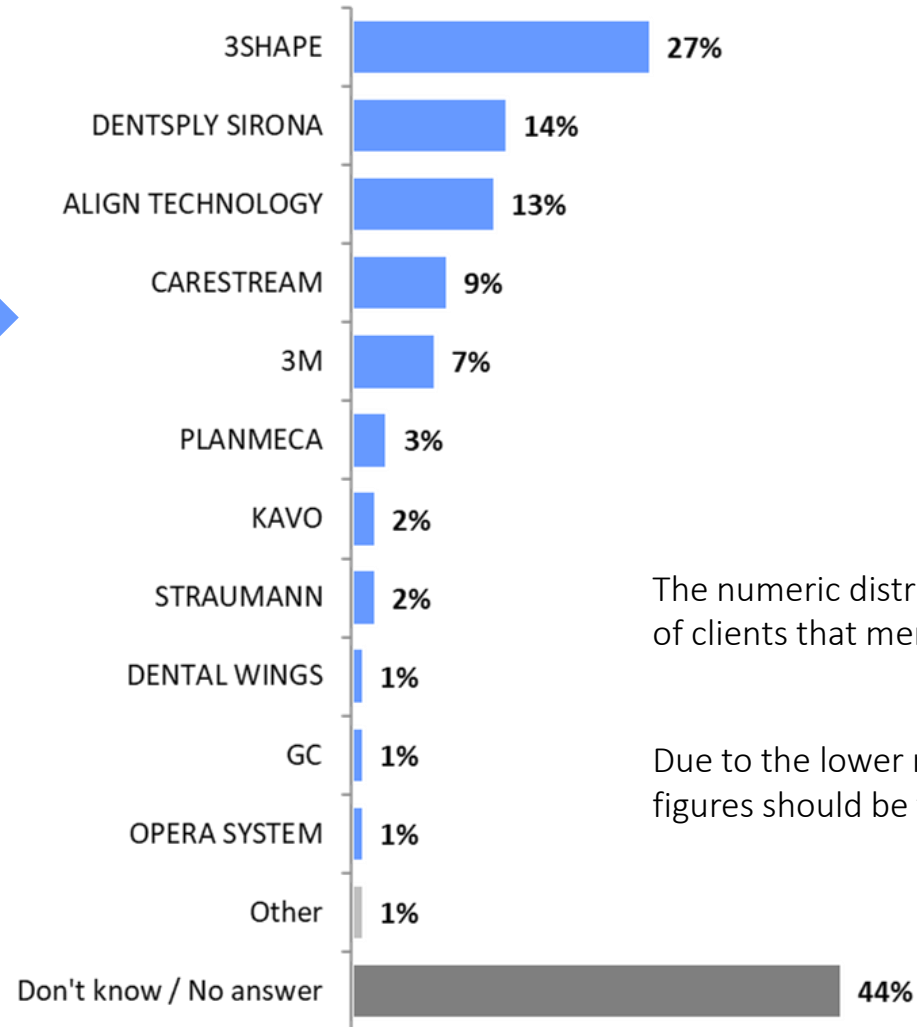
Technology intention to buy: Intraoral scanner

Are you willing to purchase an intra-oral scanner to take digital impressions within 2 years? If yes, what brand(s) are you going to consider for purchase? **NON-OWNERS**



Intention to buy

- ↓ Age of the owner > 55 (25%)
- ↓ Opening year before 1999 (27%)
- ↑ Opening year 1999-2018 (44%)
- ↑ 3 or more dental units (51%)



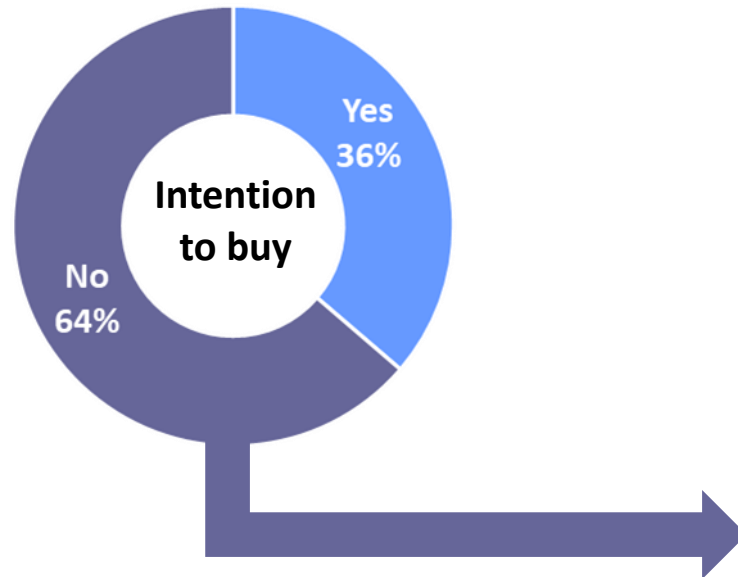
The numeric distribution is the percentage of clients that mentioned a certain brand.

Due to the lower number of cases, these figures should be taken as an indication only.

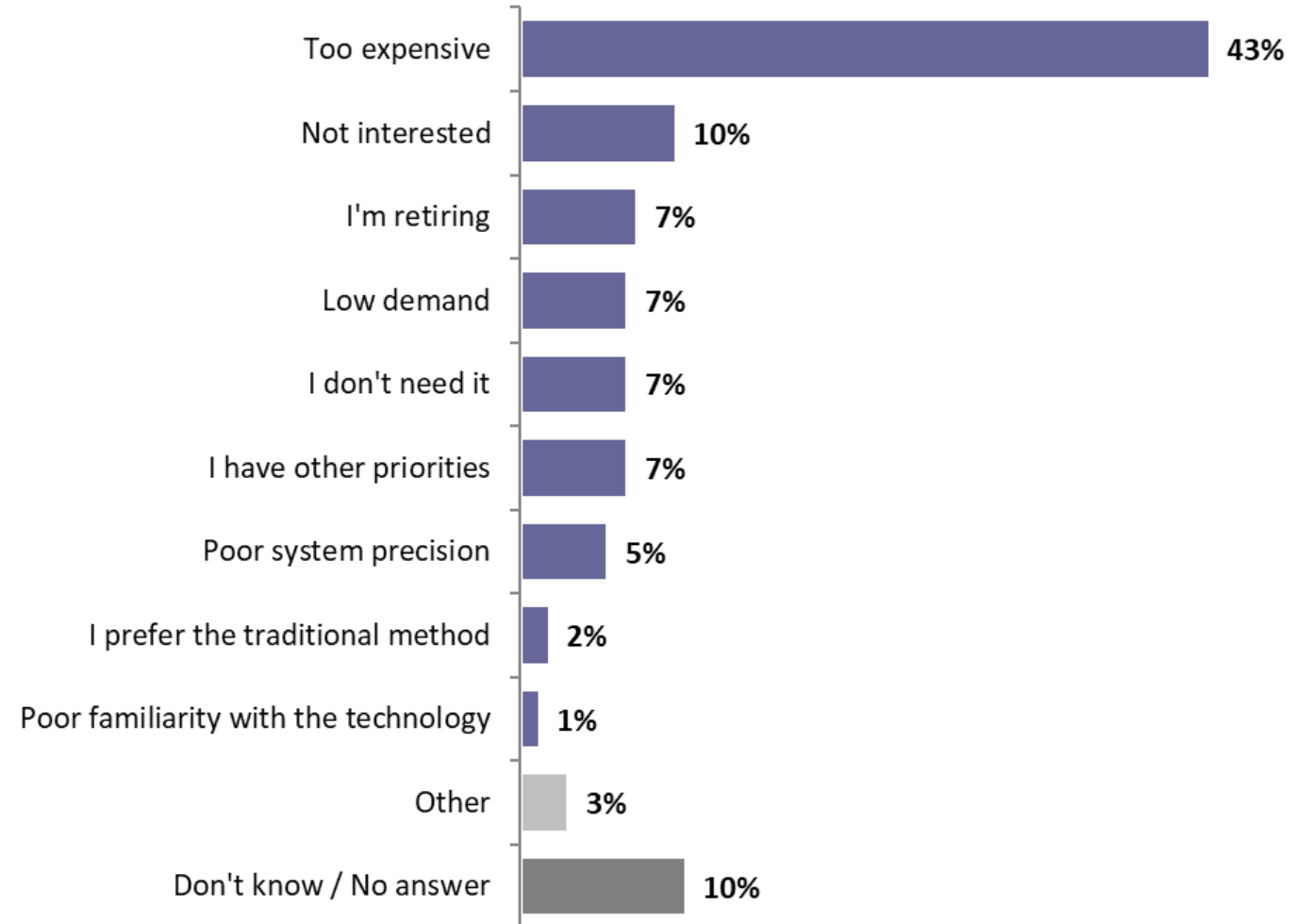


Technology intention to buy: Intraoral scanner

Are you willing to purchase an intra-oral scanner to take digital impressions within 2 years? If not, why? **NON-OWNERS**



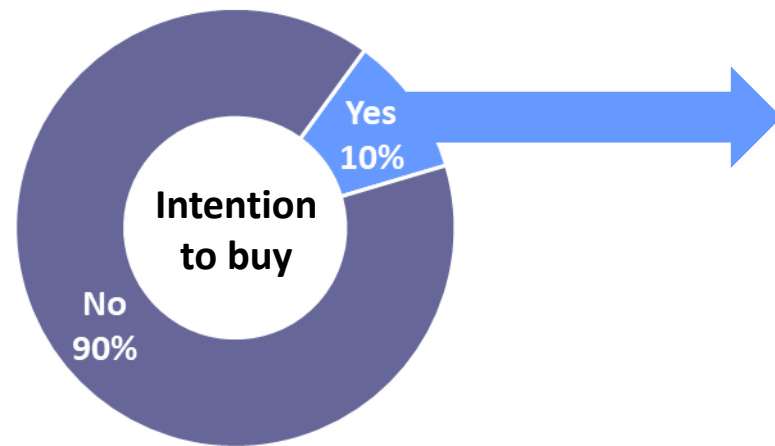
More than 40% of the respondents have mentioned the expensiveness as the most relevant resistance to buy. The next following reasons highlight a given hard resistance, mainly due to the lack of need / interest / demand, or because the respondents are close to the retirement age.



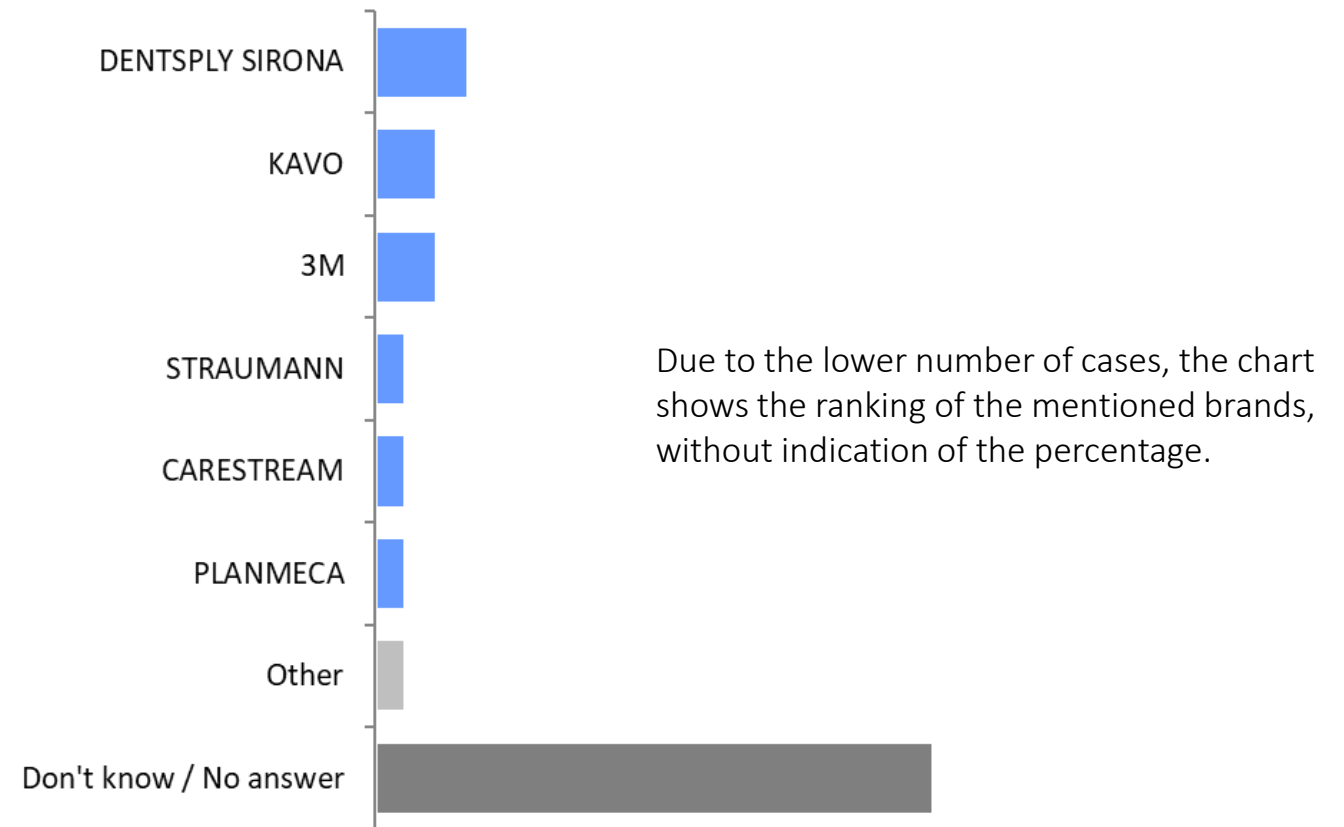


Technology intention to buy: Chairside CAD-CAM milling unit

Are you willing to purchase a chairside CAD-CAM milling unit within 2 years? If yes, what brand(s) are you going to consider for purchase? **NON-OWNERS**



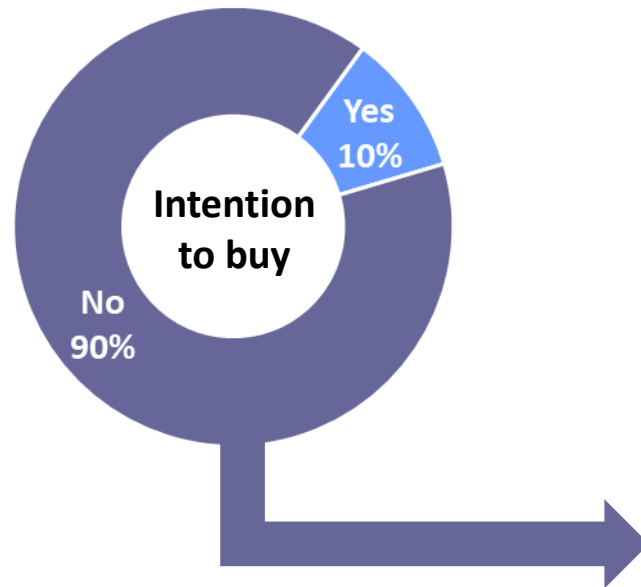
The deepening by demographic and structural clusters doesn't highlight any significant difference.



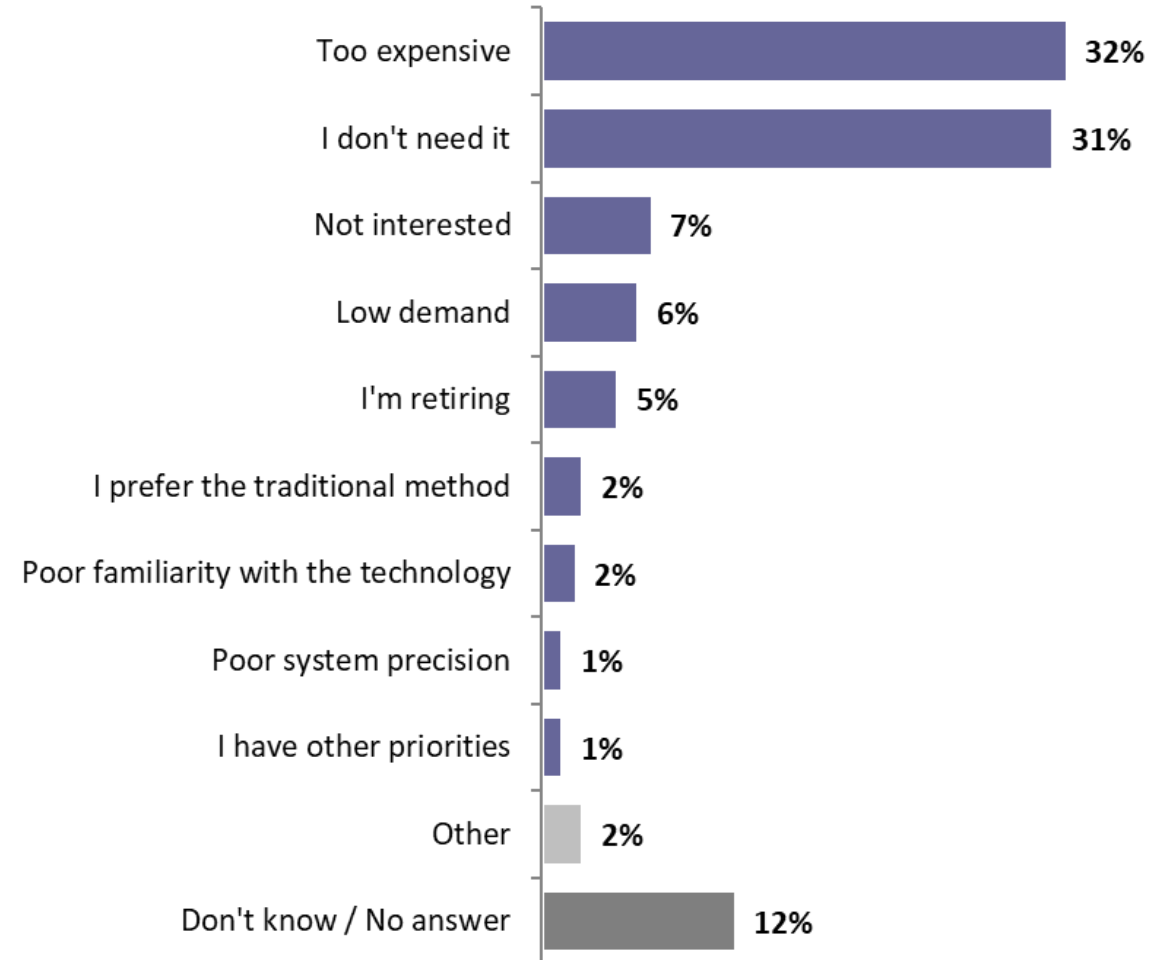


Technology intention to buy: Chairside CAD-CAM milling unit

Are you willing to purchase a chairside CAD-CAM milling unit within 2 years? If not, why? **NON-OWNERS**



The majority of the respondents have mentioned the expensiveness as to be the most relevant resistance to buy. Also, it is remarkable that a relevant percentage of respondents is not interested in this topic.

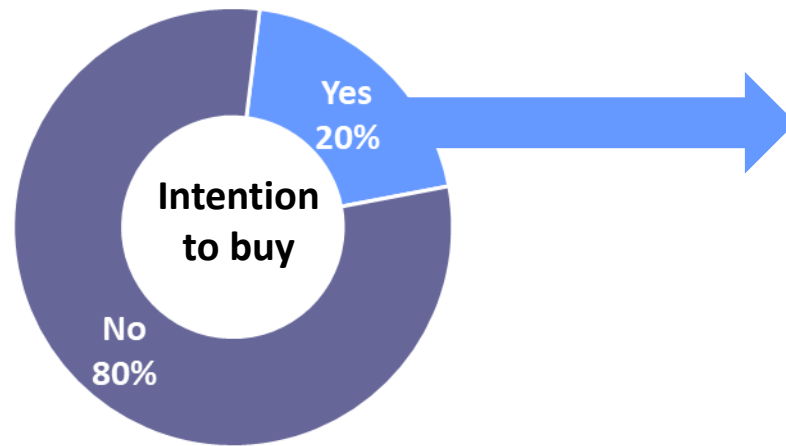




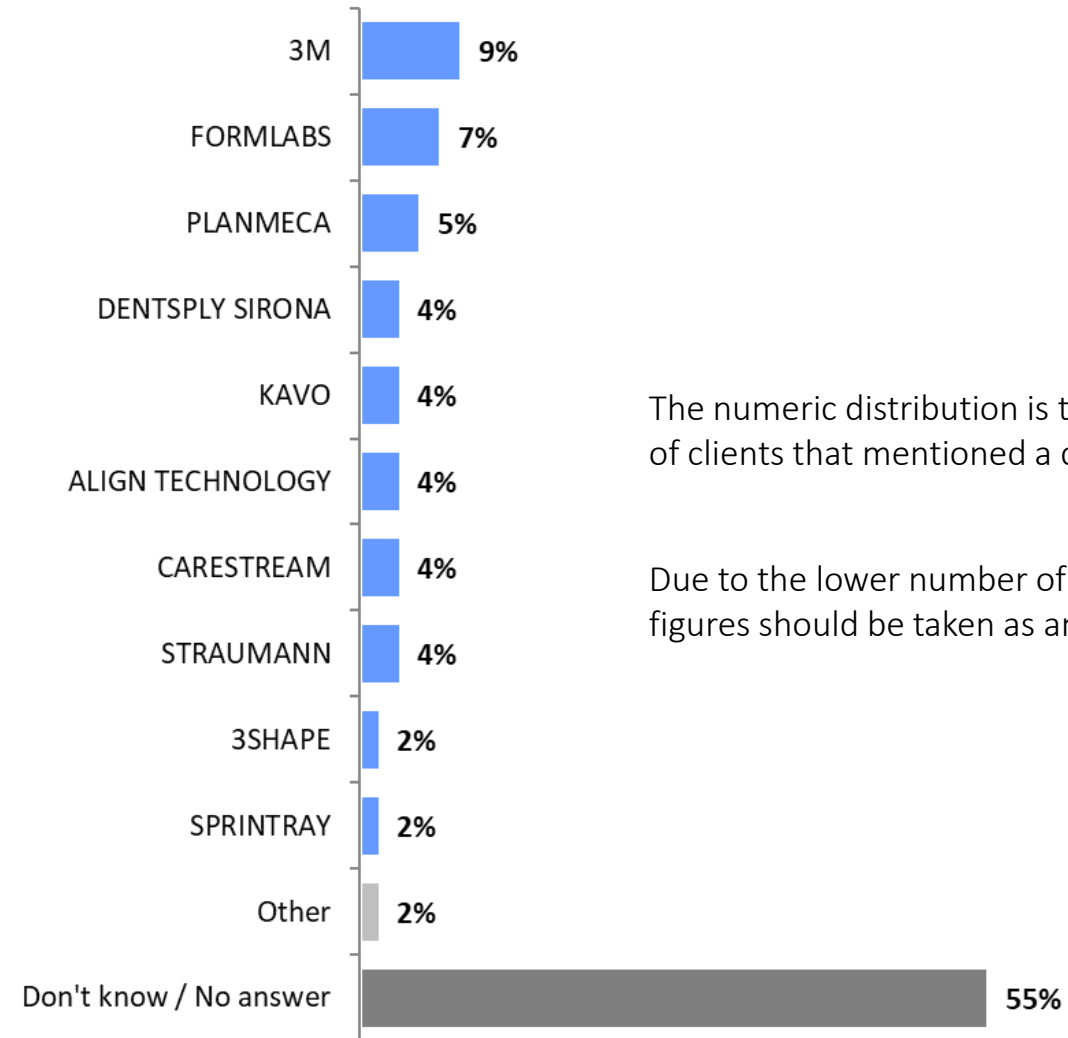
Technology intention to buy: 3D printing unit

Are you willing to purchase a 3D printing unit within 2 years? If yes, what brand(s) are you going to consider for purchase?

NON-OWNERS



The deepening by demographic and structural clusters doesn't highlight any significant difference.



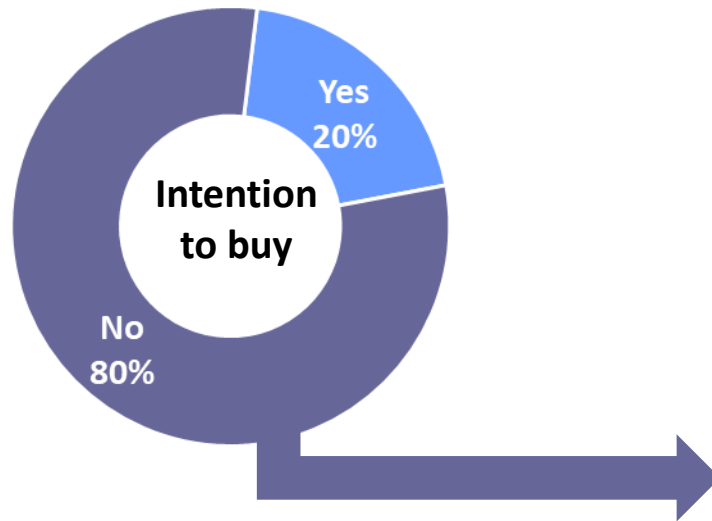
The numeric distribution is the percentage of clients that mentioned a certain brand.

Due to the lower number of cases, these figures should be taken as an indication only.

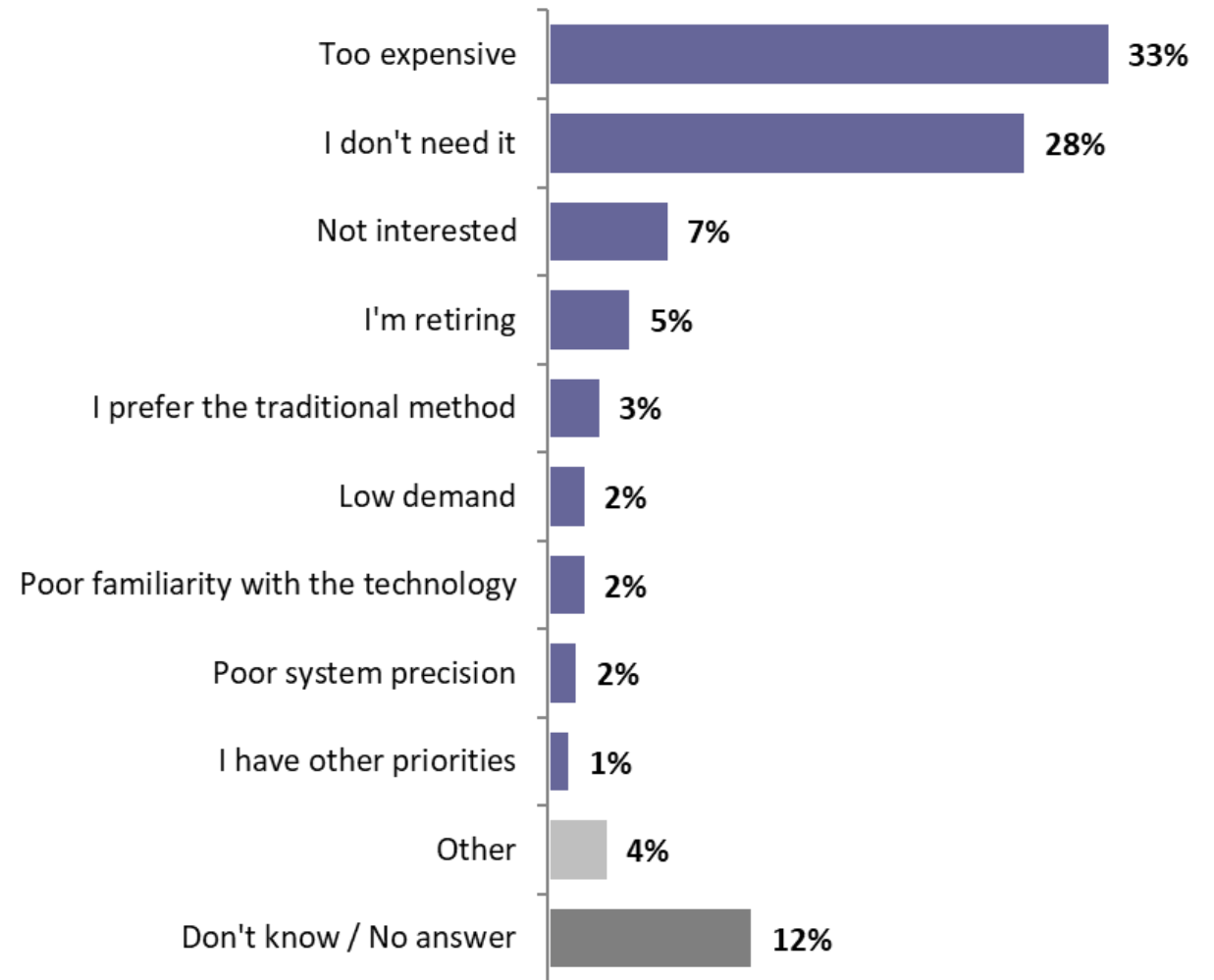


Technology intention to buy: 3D printing unit

Are you willing to purchase a 3D printing unit within 2 years? If not, why? **NON-OWNERS**



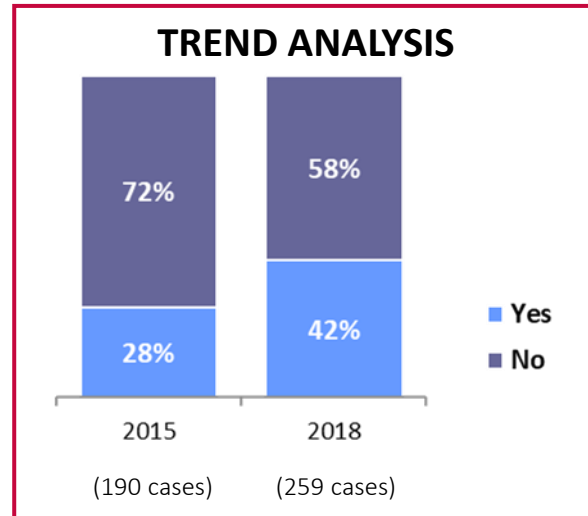
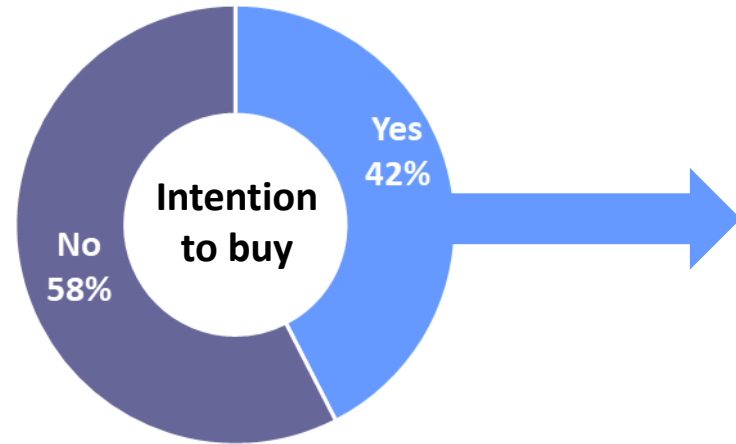
The majority of the respondents have mentioned the expensiveness as the most relevant resistance to buy. Also, it is remarkable that a relevant percentage of respondents is not interested or believes that 3D printing is not a must have technology.



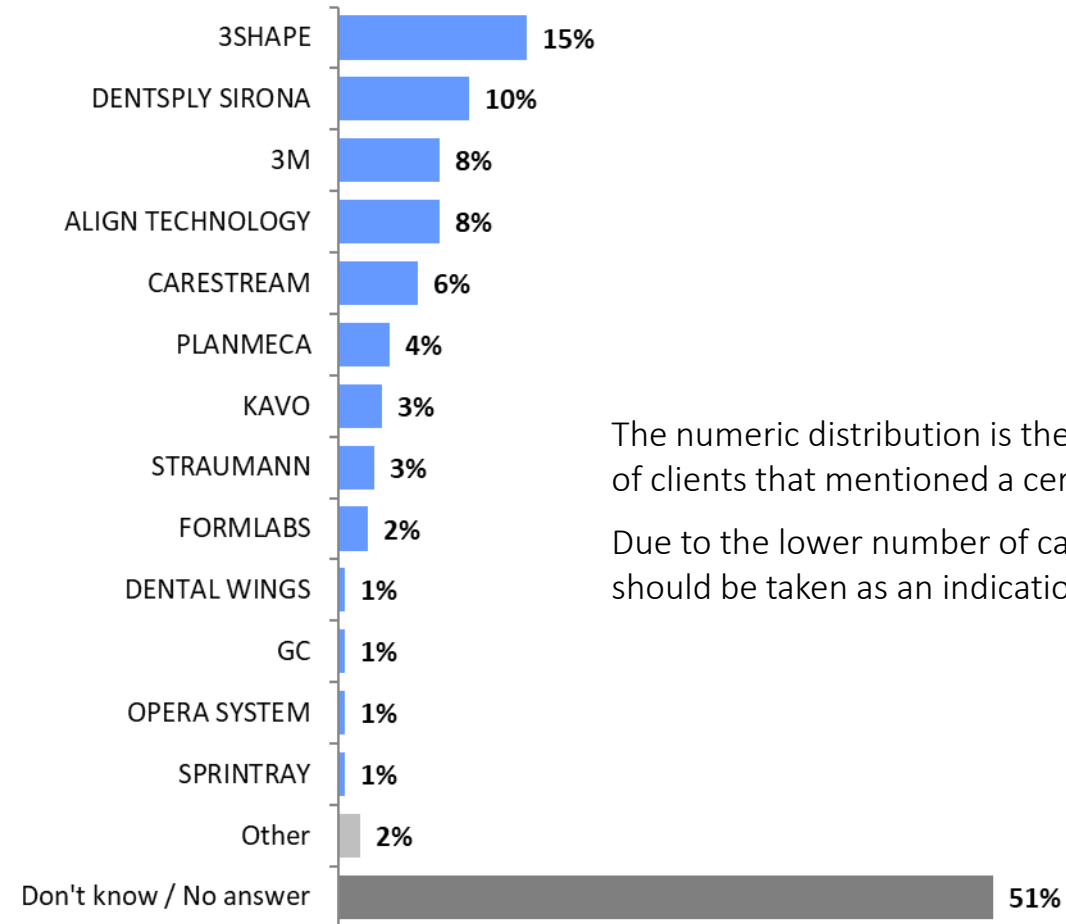


Technology intention to buy: OVERALL

Are you willing to purchase an intra-oral scanner, a chairside CAD-CAM milling unit or a 3D printing unit within 2 years? If yes, what brand(s) are you going to consider for purchase? **NON-OWNERS**



The differences below +/- 2% should be considered not statistically relevant.



The numeric distribution is the percentage of clients that mentioned a certain brand.
Due to the lower number of cases, these figures should be taken as an indication only.

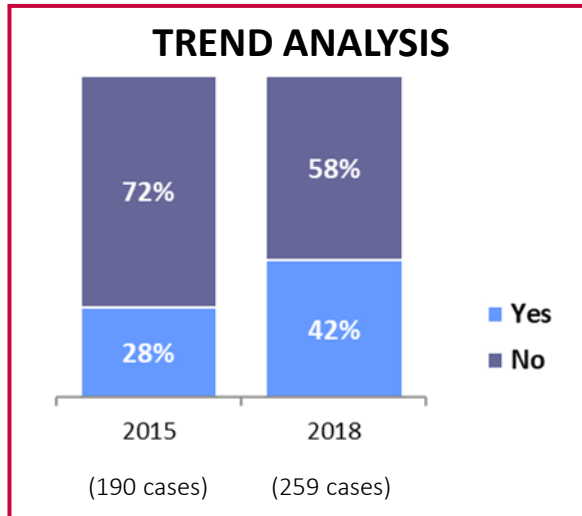
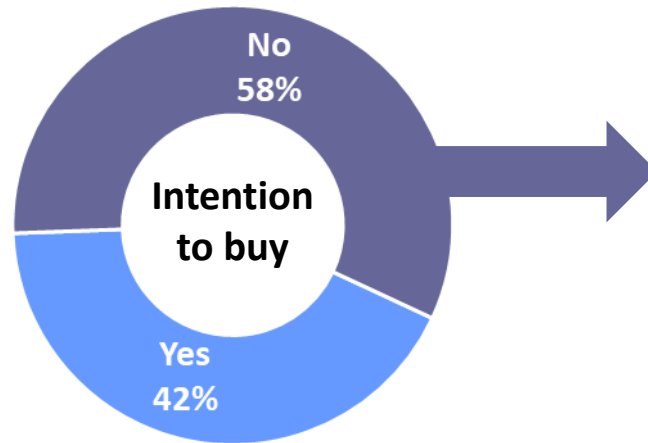
Base: 88 cases

Processing without "don't know"



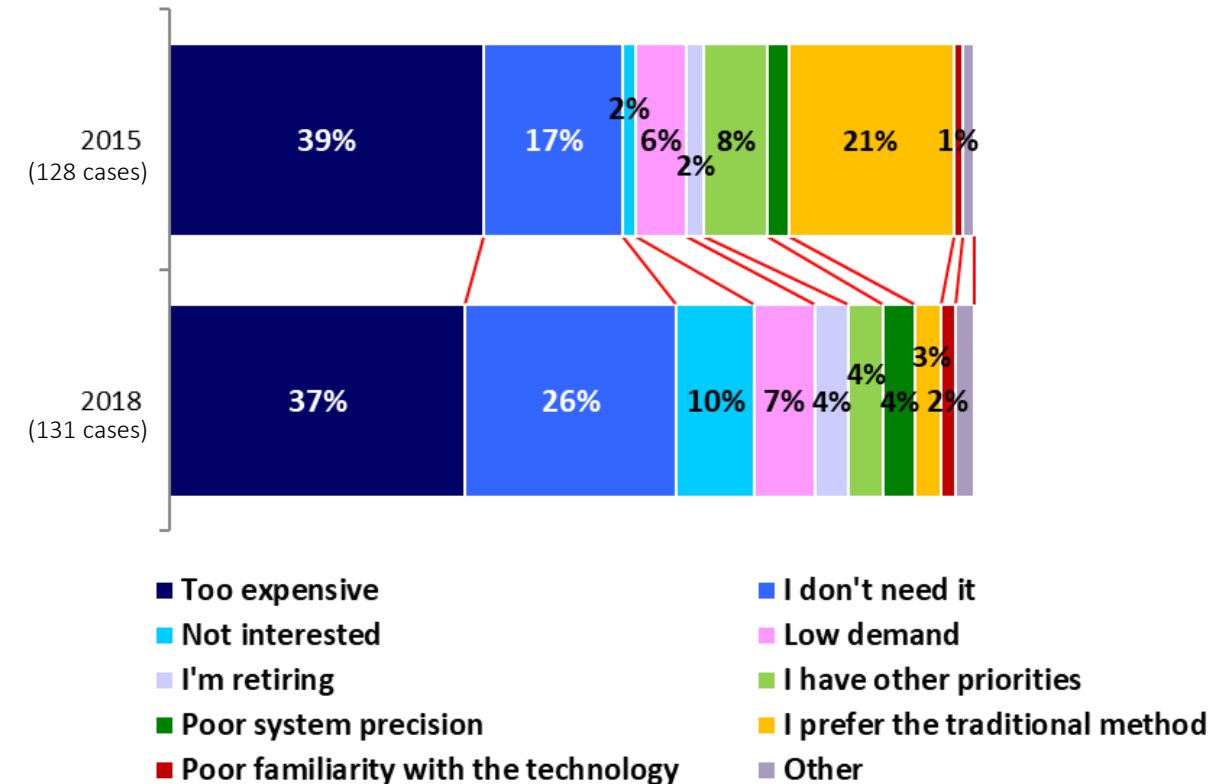
Technology intention to buy: OVERALL

Are you willing to purchase an intra-oral scanner, a chairside CAD-CAM milling unit or a 3D printing unit within 2 years?
If not, why? **NON-OWNERS**



In comparison to year 2015, there is a higher percentage of quotes related to a lack of interest for the digital technologies or because it is felt as not needed yet. It's interesting to note that the incidence of quotes regarding the preference for the traditional method decreased remarkably.

Due to the differences in the overlap index (1,91 in 2018 vs 1,36 in 2015), the graph shows the percentage of answers instead of the percentage of respondents, so the overall sum is 100%.



The differences below +/- 2% should be considered not statistically relevant.



Customer experience and Loyalty metrics



LOYALTY METRICS

OVERALL SATISFACTION

The overall experience with a company and the extent to which their needs are met.

Overall Satisfaction

PERCEIVED VALUE

The utility and benefit of a product relative to the cost paid for that product.

Perceived Value

NET PROMOTER SCORE

A user’s willingness to recommend a company to colleagues is a key driver of revenue and profit growth in most industries. Respondents are categorized as either “advocates”, “neutrals”, or “detractors” of each brand. For each brand overall, the NPS subtracts the percent share of detractors from the percent share of advocates, to show net impact on word-of-mouth referrals

Likelihood to Recommend

REPURCHASE INTENTION

The likelihood a user will continue to use a company’s products in the near future.

Repurchase Intention



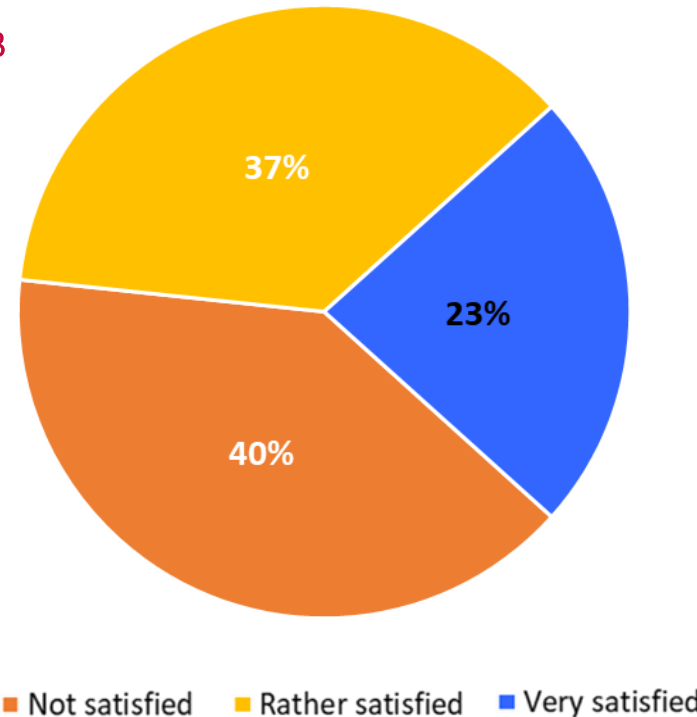
Overall Satisfaction: Main brands

*Let's consider now each one of the used CAD-CAM brands, please rate your satisfaction concerning the following factors.
(Scores from 1 "Completely unsatisfied" to 10 "Completely satisfied")*

The 10 possible answers have been further clustered in order to better highlight the differences in the scores. The clustering is the following:

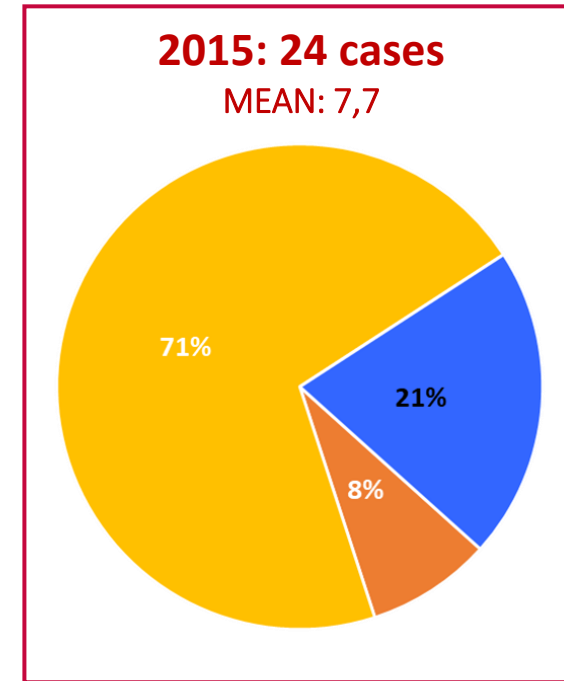
- **Not satisfied:** the scores grouped in this cluster are from 1 to 6.
- **Rather satisfied:** the scores grouped in this cluster are from 7 to 8.
- **Very satisfied:** the scores grouped in this cluster are from 9 to 10.

MEAN: 6,3



2015: 24 cases

MEAN: 7,7



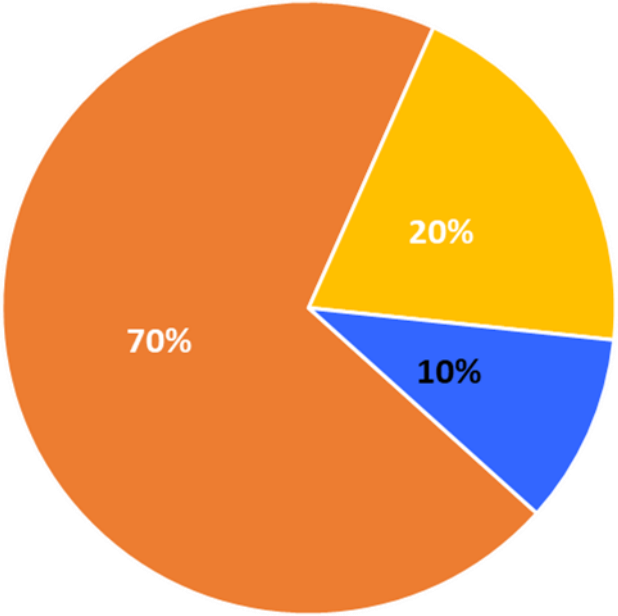
The current results show relevant differences versus 2015 analysis: the answer "Not satisfied" increased considerably compared to 2015. In overall, the satisfaction mean score decrease is not subtle.

Due to the lower number of cases, these figures should be taken as an indication only.

Perceived value score: Main brands

To what extent would you agree that the CAD-CAM equipment of the following company brands have an ideal price/quality ratio? (Scores from 1 “Strongly disagree” to 10 “Strongly agree”)

MEAN: 5,4



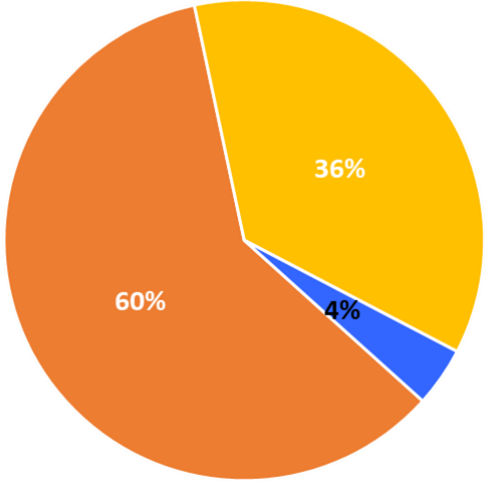
■ Low Value/Price ratio
 ■ Medium Value/Price ratio
 ■ High Value/Price ratio

The possible answers have been further clustered in order to better highlight the differences in the scores. The clustering is the following:

- **Low Value/Price ratio:** the scores grouped in this cluster are from 1 to 6.
- **Medium Value/Price ratio:** the scores grouped in this cluster are from 7 to 8.
- **High Value/Price ratio:** the scores grouped in this cluster are from 9 to 10.

2015: 25 cases

MEAN: 5,6



The current edition’s results highlight a relevant increase for the response “Low Value/Price ratio”; nevertheless, it is worth to underline the increase for the response “High Value/Price ratio” as well. Due to the lower number of cases, these figures should be taken as an indication only.

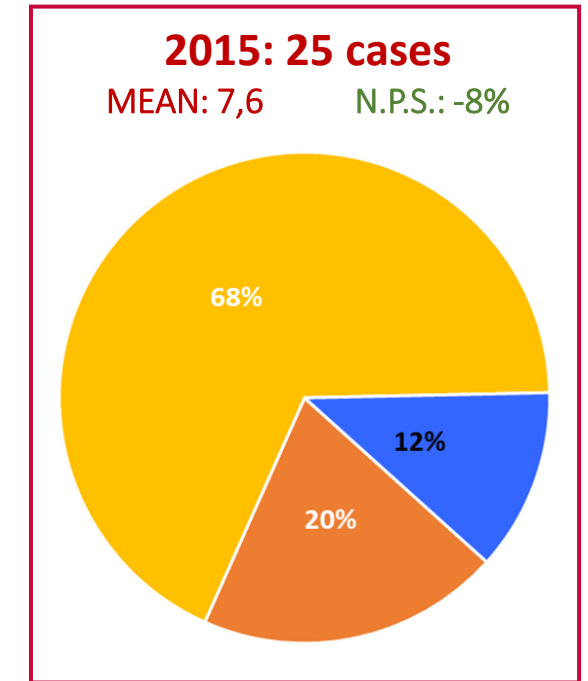
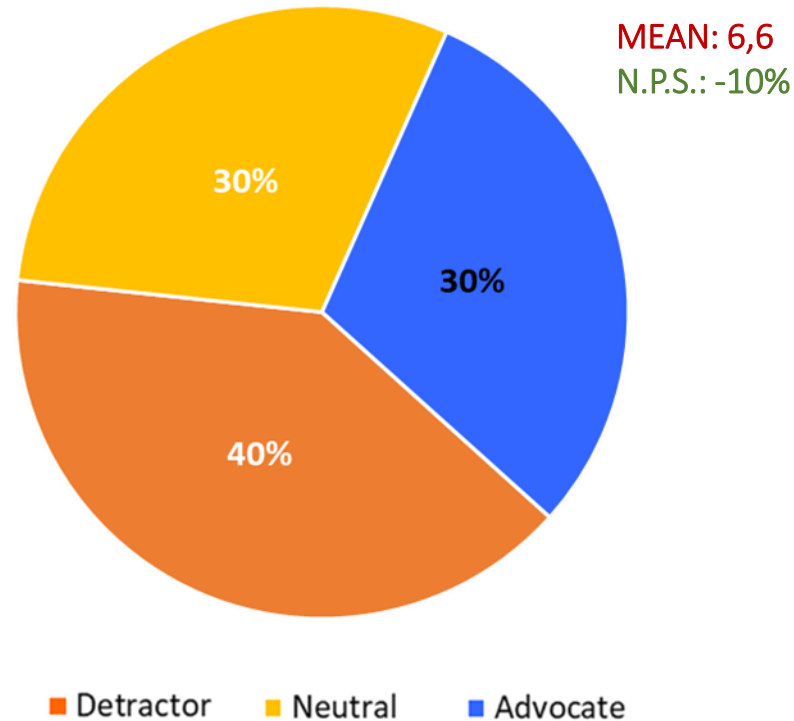


Net promoter score: Main brands

How likely are you to recommend the following CAD-CAM company brands to a colleague? (Scores from 0 “Extremely Unlikely” to 10 “Extremely Likely”)

The possible answers have been further clustered in order to better highlight the differences in the scores. The clustering is the following:

- **Detractor:** the scores grouped in this cluster are from 0 to 6.
- **Neutral:** the scores grouped in this cluster are from 7 to 8.
- **Advocate:** the scores grouped in this cluster are from 9 to 10.



The same issue observed in the perceived value score can be seen in the comparison of the NPS scores 2018 vs 2015. Although the NPS almost is unchanged (-10% in 2018 vs -8% in 2015), the percentage of both the Detractors and the Advocates increases remarkably. Due to the lower number of cases, these figures should be taken as an indication only.



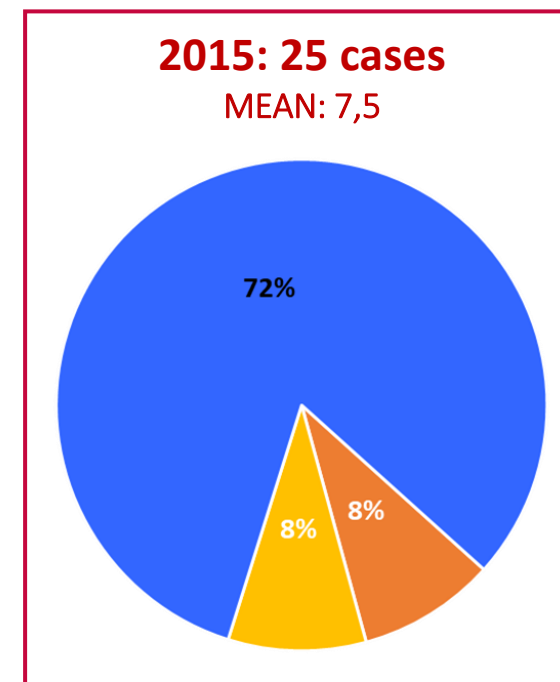
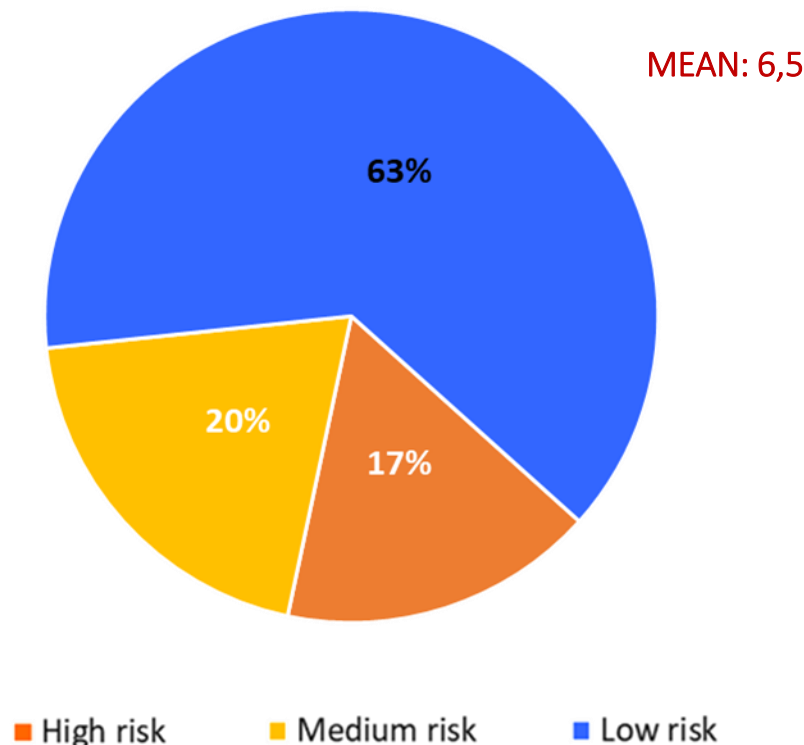
Repurchase intention score: Main brands

5 years from now, how likely are you to still be using the CAD-CAM equipment of the following company brands? (Scores from 1 “Definitely will not be using” to 10 “Definitely will be using”)

The possible answers have been further clustered in order to better highlight the differences in the scores. The clustering is the following:

- **High Risk:** the scores grouped in this cluster are from 1 to 3.
- **Medium Risk:** the scores grouped in this cluster are from 4 to 6.
- **Low Risk:** the scores grouped in this cluster are from 7 to 10.


The defection risk derives from the assumption that a low value of repurchase intention may mean a risk that in the future the product will not be used anymore. Lower scores in the repurchase intention bear a higher defection risk, while higher scores mean that a current customer will probably still be using that product also in the future.




The Repurchase intention score highlights a remarkable decrease for the “Low risk” cluster and a subsequently increase of the “High risk” and “Medium risk” clusters. Due to the lower number of cases, these figures should be taken as an indication only.



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