DENTAL MONITOR

OMNIVISION digital

EUROPE 2021

KEY-STONE Marketing research and consulting

Introduction - Statistical Note

The number of interviews performed for the research is 1.061 general dental practices and 594 dental labs.

- 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

The OmniVision Digital Europe is a research study developed at European level that aims to present the aggregated situation of five countries: Germany, France, Italy, Spain and UK.
At this aggregation level, significance is high, while the number of cases per country produces a high confidence interval, therefore the significance is lower.
Disaggregated data are indicators of possible phenomena, but for an accurate quantitative validation, they should be further investigated by with a larger sized sampling for each country.

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 ± 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%).

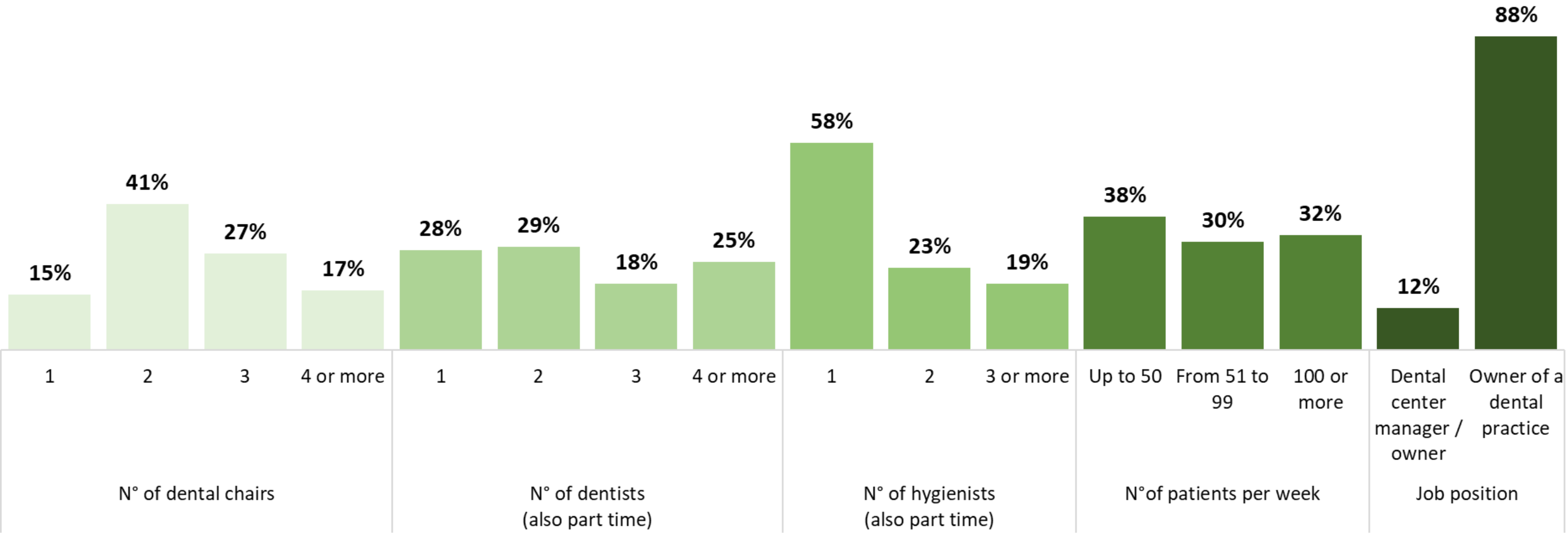
Sample segmentation and profiling

Sample segmentation

Demographic and structural clusters - ALL

CLINIC

MEAN: 2,6 dental chairs 2,8 dentists 2,3 hygienists 88 patients per week



Base: 1.061 cases

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KEY-STONE

Sample segmentation

CLINIC

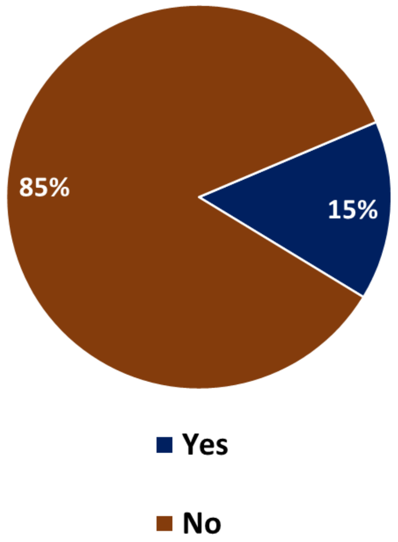
Demographic and structural clusters

		GERMANY	FRANCE	ITALY	SPAIN	UK
N° of dental chairs	1	11%	29%	8%	16%	14%
	2	29%	43%	52%	47%	41%
	3	35%	19%	26%	22%	29%
	4 or more	24%	9%	13%	15%	16%
	2,6	*3,0*	*2,1*	*2,7*	*2,5*	*2,5*
N° of dentists (also part time)	1	34%	41%	20%	17%	8%
	2	27%	31%	35%	22%	25%
	3	15%	16%	23%	22%	21%
	4 or more	25%	12%	22%	38%	46%
	2,8	*2,6*	*2,2*	*3,0*	*3,7*	*3,5*
N° of hygienists (also part time)	1	28%	87%	78%	55%	44%
	2	35%	5%	19%	25%	37%
	3 or more	37%	8%	3%	20%	19%
	2,3	*2,4*	*2,9*	*1,3*	*2,8*	*1,9*
N°of patients per week	Up to 50	21%	33%	66%	46%	19%
	From 51 to 99	35%	34%	16%	27%	48%
	100 or more	44%	33%	18%	27%	33%
	88,1	*104,4*	*87,6*	*61,6*	*84,5*	*103,7*
Job position	Dental center manager / owner	19%	5%	3%	8%	35%
	Owner of a dental practice	81%	95%	97%	92%	65%
	Cases	256	224	200	201	180

Practice labs and partner labs

CLINIC

Do you have an internal laboratory in your dental practice?

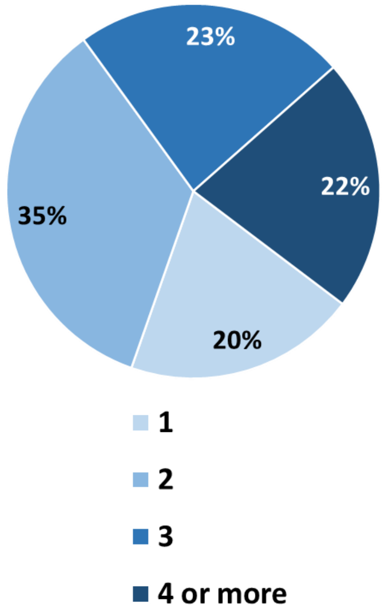


The presence of the laboratory in the dental practice is a specific feature of the German market, less frequent in other countries (less than 10%).
The peculiarities of Spain is due to legislative issues: the laboratory must be separated from the practice by law (even when the activities are in the same location, they must have separate entrance).

Base: 1.061 cases

	Germany	France	Italy	Spain	UK
Yes	33%	8%	9%		
No	67%	92%	91%	100%	100%
Cases	256	224	200	201	180

How many partner laboratories does your practice have in total?



Only 20% of dental practices collaborate with a single laboratory (31% in UK), about one in two clinics has at least 3 laboratory partners.

Base: 1.061 cases

	Germany	France	Italy	Spain	UK
Mean	2,8	2,4	2,5	2,6	2,8
Cases	256	224	200	201	180

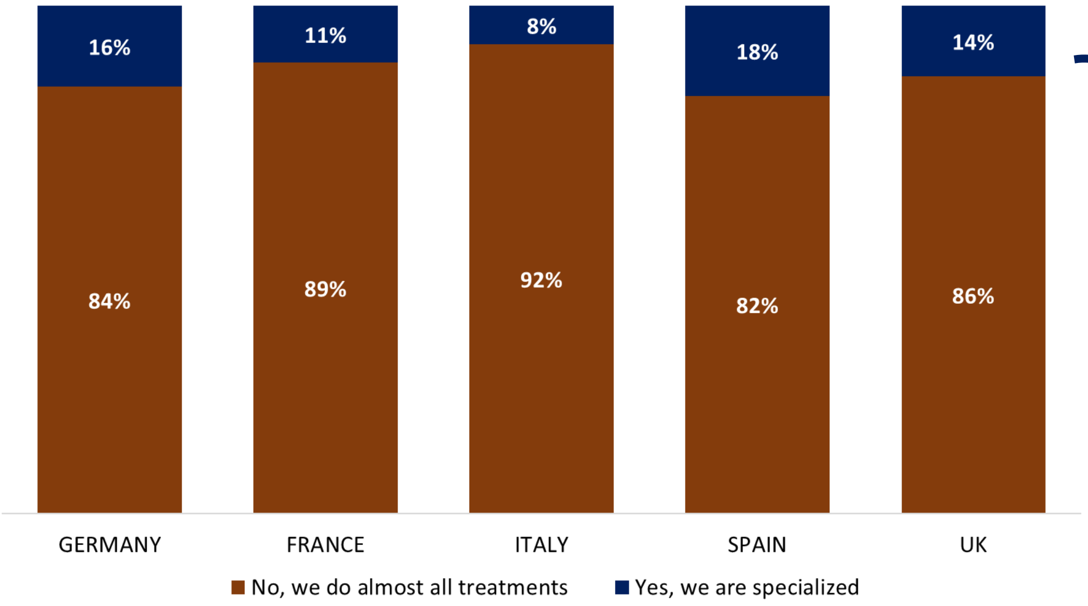
MEAN:
2,6 labs

Specialization of the clinic

CLINIC

The sample do not include practices exclusively specialized in orthodontics

Does your clinic specialize in only a few disciplines, or does it develop almost all treatments?



Cases *256* *224* *200* *201* *180*

If it is specialized: In which disciplines?

	GERMANY	FRANCE	ITALY	SPAIN	UK
Implantology	75%	68%	66%	82%	48%
Surgery	71%	53%	79%	76%	36%
Orthodontics	53%	35%	50%	64%	82%
Periodontology	56%	46%	50%	51%	36%
Prosthetics (fixed / mobile)	51%	19%	67%	49%	54%
Aesthetics	53%	28%	34%	56%	50%
Restorative	53%	28%	25%	48%	60%
Endodontics	35%	25%	59%	49%	54%
Pediatric dentistry	49%	14%	34%	36%	42%
Cases	**256**	**224**	**200**	**201**	**180**

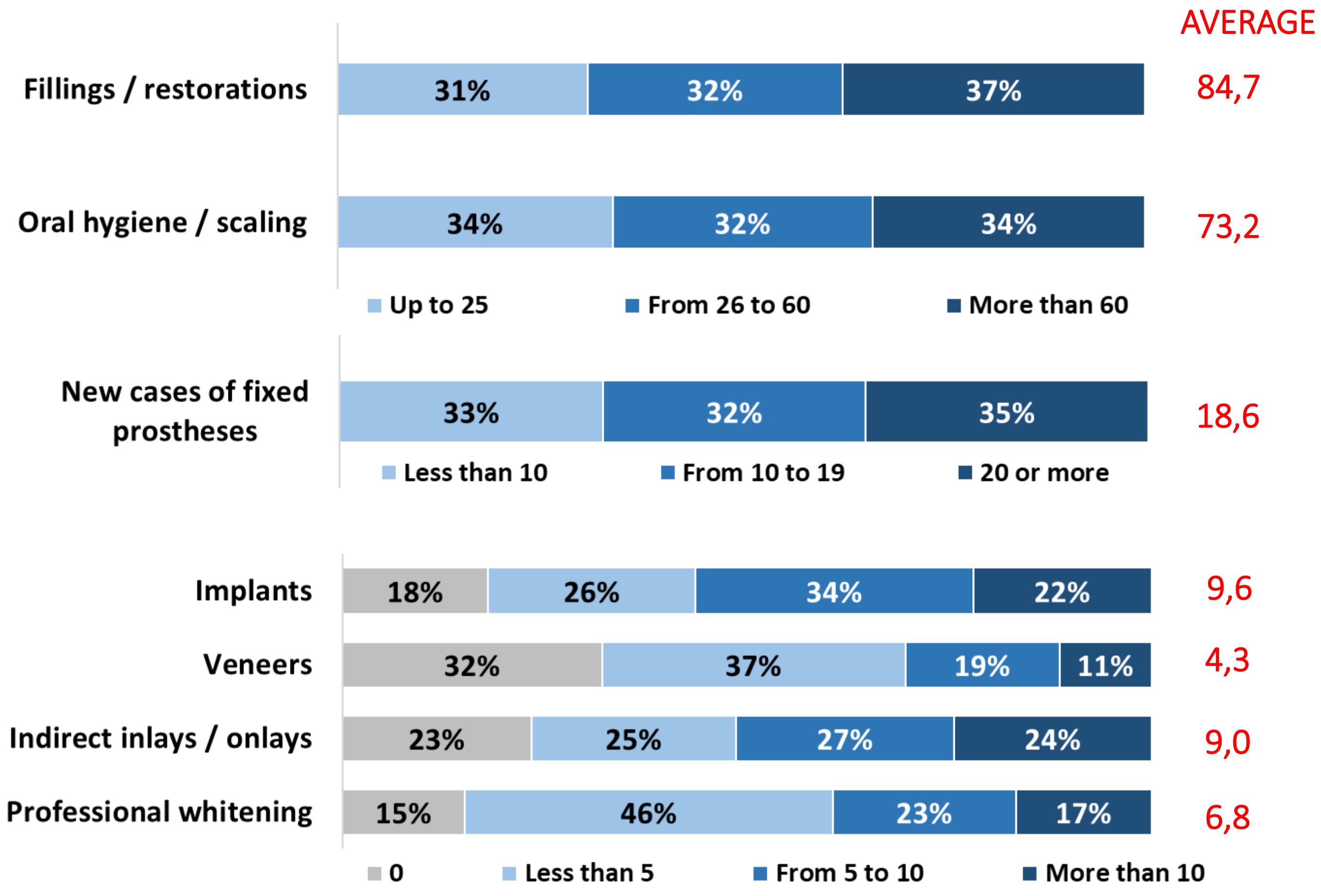
In general, although 13% of dental practices can be considered “multi-disciplinary”, the dental sector - in the analyzed countries - is almost entirely made up of General Practices.
54% of those reporting specializations perform orthodontics (this accounts for 7% of the total number of clinics surveyed, from which those performing exclusively orthodontics have been excluded).

Number of treatments per month

CLINIC

Although the focus of the research is the digital flow, in light of a possible integration of the use of technologies and the different restorative, prosthetic and orthodontic therapies, it has been decided to investigate the number of treatments carried out in the clinic regarding fillings/restoration, oral hygiene/scaling, fixed protheses, implants, veneers, inlays/onlays and professional whitening.

Considering a standard working month in 2021, how many of the following treatments are performed in your clinic overall?



Base: 1.061 cases

The here shown overall mean values of the monthly production (among the surveyed sample), although they should be used as an indication only, allow to retrieve very useful data on the weight for some of the key treatments in the dental practices.

By considering the performance heterogeneity in the surveyed countries (due to the average size of the centers and the characteristics of the demand for dental treatments), the following slide shows the breakdown by geographical area.

Please note, the indirect restorations (veneers, inlays and onlays), are not included in the new cases of fixed prosthetics.

It should be noted that the used "opinion poll" approach, which does not include the responses of "non clinic owners", is not totally representative of the actual stratification of the reference universe with regard to the type and size of the dental practices. Therefore, this methodology <u>does not allow for the projection of the mean values of the sample on the reference universe in order to assess the total market</u>.

Treatments summary

CLINIC

TREATMENTS Y/N	Germany		France		Italy		Spain		UK	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Implants	83%	17%	57%	43%	95%	5%	96%	4%	88%	12%
Veneers	80%	20%	48%	52%	58%	42%	75%	25%	93%	7%
Indirect inlays / onlays	85%	15%	68%	21%	68%	32%	61%	39%	93%	7%
Professional whitening	86%	14%	72%	28%	87%	13%	91%	9%	100%	0%
Cases	256		224		200		201		180	

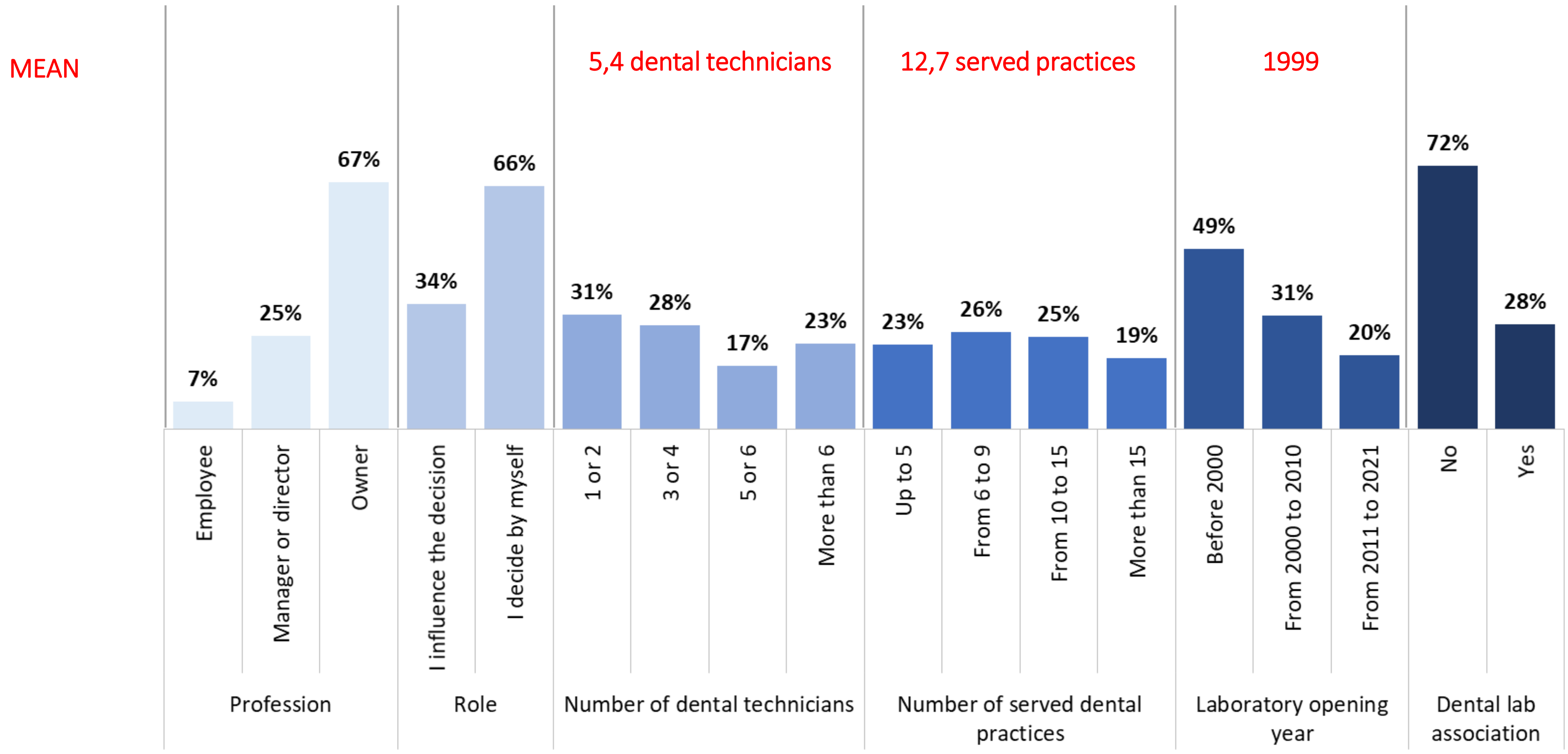
TREATMENTS MEAN VALUES	Germany	France	Italy	Spain	UK
Fillings / restorations	110,3	89,4	53,0	83,3	63,8
Oral hygiene / scaling	103,7	62,3	49,1	42,5	109,2
New cases of fixed prostheses	19,3	27,4	10,0	17,0	18,9
Implants	10,0	7,1	9,3	14,8	7,0
Veneers	5,5	2,7	1,8	4,9	11,0
Indirect inlays / onlays	10,8	12,1	4,4	5,4	12,7
Professional whitening	7,6	3,9	3,8	4,8	25,0
Cases	256	224	200	201	180

In addition to the analysis of the production mean values by geographic area, it is very important to consider the penetration of the different therapies (kind of therapy performed: Yes / No). Nevertheless, the averages are calculated on the total sample: the practices not performing a given treatment have been considered with value = 0.

It should be noted that the used "opinion poll" approach, which does not include the responses of "non clinic owners", is not totally representative of the actual stratification of the reference universe with regard to the type and size of the dental practices. Therefore, this methodology <u>does not allow for the projection of the mean values of the sample on the reference universe in order to assess the total market</u>.

Sample segmentation

Demographic and structural clusters - ALL



Base: 594 cases

Sample segmentation

LABO

Demographic and structural clusters

		GERMANY	FRANCE	ITALY	SPAIN	UK
Profession	Employee	13%	7%	2%	4%	13%
	Manager or director	30%	34%	6%	15%	45%
	Owner	57%	60%	93%	82%	42%
Role	I influence the decision	44%	33%	30%	14%	49%
	I decide by myself	56%	67%	70%	86%	51%
Number of dental technicians	1 or 2	12%	26%	54%	46%	18%
	3 or 4	26%	32%	29%	20%	34%
	5 or 6	23%	17%	8%	20%	18%
	More than 6	37%	25%	9%	14%	30%
	5,4	***7,5***	***5,3***	***3,3***	***4,4***	***6,1***
Number of served dental practices	Up to 5	18%	18%	40%	20%	18%
	From 6 to 9	30%	28%	25%	22%	27%
	From 10 to 15	31%	23%	15%	28%	28%
	More than 15	14%	25%	18%	24%	17%
	12,7	***11,5***	***15,8***	***10,8***	***13,7***	***12,0***
Laboratory opening year	Before 2000	41%	37%	75%	58%	31%
	From 2000 to 2010	39%	40%	18%	21%	37%
	From 2011 to 2021	21%	22%	7%	21%	32%
	1999	***1999***	***2002***	***1992***	***1998***	***2003***
Dental lab association	No	84%	90%	67%	55%	58%
	Yes	16%	10%	33%	45%	42%
	Cases	137	114	125	113	105

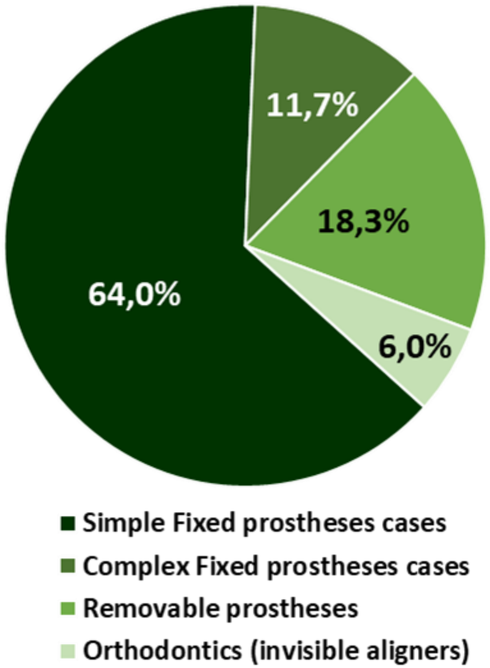
Overall production of treatments - Breakdown

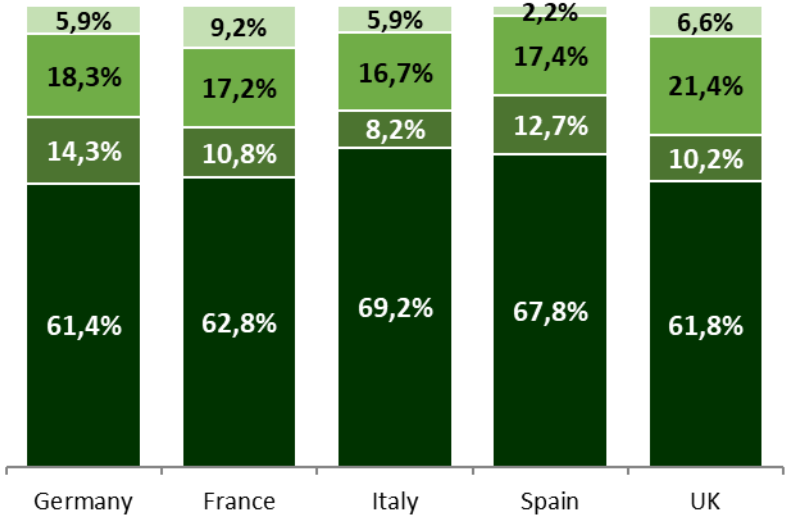
LABO

Considering a standard working month, how many of the following cases are performed in your lab overall?

PRACTICING LABORATORIES (treatments penetration)

Simple Fixed prostheses cases	96%	100%	91%	97%	96%	98%
Complex Fixed prostheses cases	93%	95%	89%	91%	90%	97%
Removable prostheses	87%	96%	84%	93%	75%	87%
Orthodontics (Invisible aligners)	48%	53%	63%	29%	26%	69%





Cases	*137*	*114*	*125*	*113*	*105*

% OF CASES (Base: total treatments, whole sample)

Laboratories are starting to work significantly on the invisible aligners production (48% of laboratories state to produce aligners).

As regards Spain, it should be considered that it is the country with highest number of produced cases and where Align has a very significant share (it has been estimated that around 150.000 cases have been made during 2021).

Base: 594 cases

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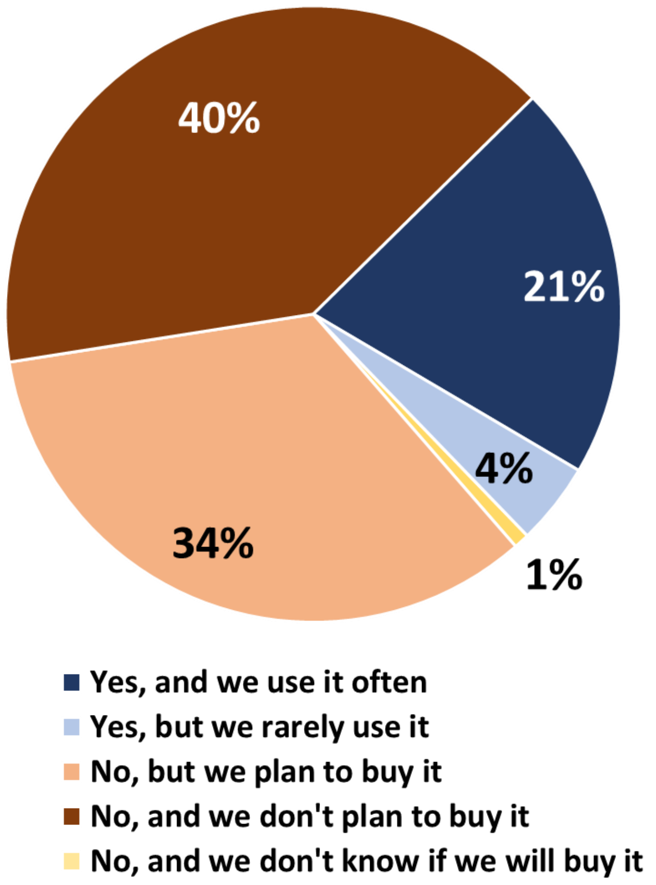
Intraoral Scanners
Technology and brands penetration in the practice

Intraoral scanner penetration

CLINIC

Do you have an intraoral scanner for taking optical impressions?



Base: 1.061 cases

	Germany	France	Italy	Spain	UK
Yes, and we use it often	22%	17%	24%	20%	20%
Yes, but we rarely use it	7%	2%	3%	3%	7%
No, but we plan to buy it	34%	44%	41%	53%	29%
No, and we don't plan to buy it	36%	35%	32%	24%	44%
No, and we don't know if we will buy it	1%	2%		1%	
Cases	256	224	200	201	180

Slightly less than 25% of practices do own an IOS, with high intention to buy in Spain, Italy and France.

Also, it is worth to note the difference in the frequent use of the IOS between aligners providers (25%) vs non providers (10%).

In the countries where Key-Stone manages panels from the industry and distribution, there is a consistent growth in IOS sales. We are now in the phase where both the number of users is steadily increasing and sales of additional machines in already digitalised practices are being recorded.

The market is in a full development phase, with more than 20% of clinics already using IOS, and penetration growing rapidly over time.

When about half of the potential market (about 80% of clinics) is covered (i.e., about 40% of clinics is digitalised), the weight of sales of replacement units will start to increase (also taking into account that the average obsolescence of models is about 7 years). This moment will represent the trade-off of the market, which will develop at a slower pace with an increase in the weight of the software component on the total business.

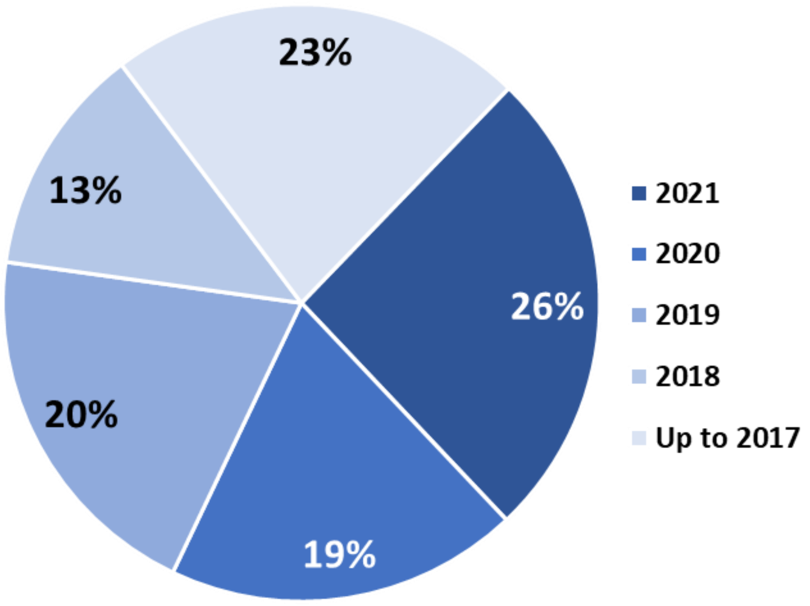
Intraoral scanners AGE

CLINIC

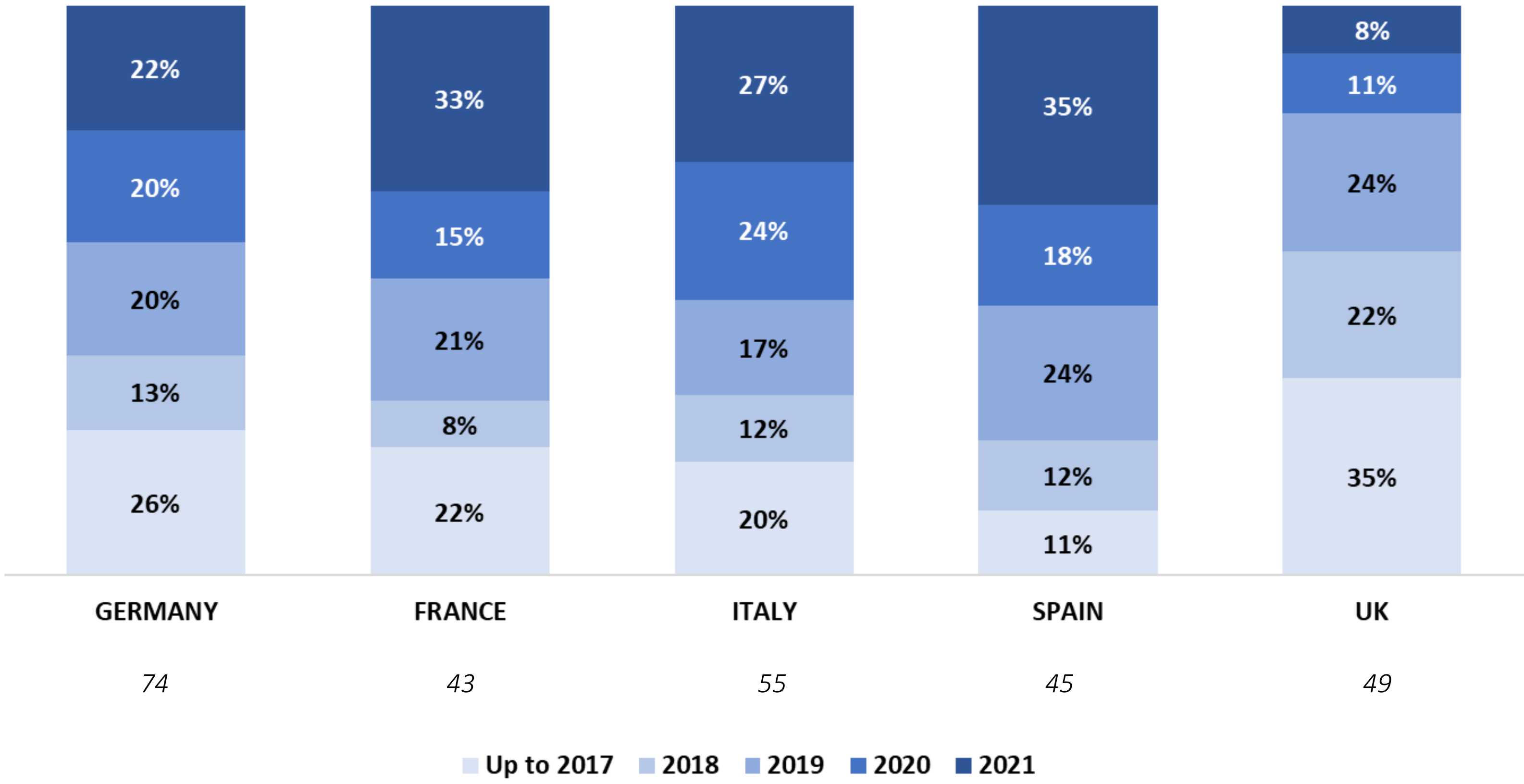
What are the brand and the year of purchase of your intraoral scanner?

Year of purchase

AVERAGE: 2019



Base: 264 cases



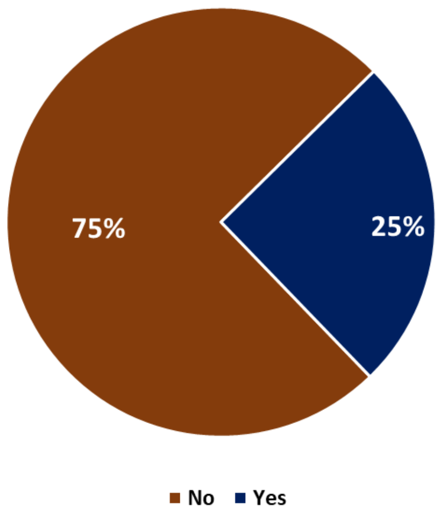
About 45% of the installed equipment is related to the last two years, thus showing a high purchase activity even right after the pandemic.

Intraoral scanners Brand

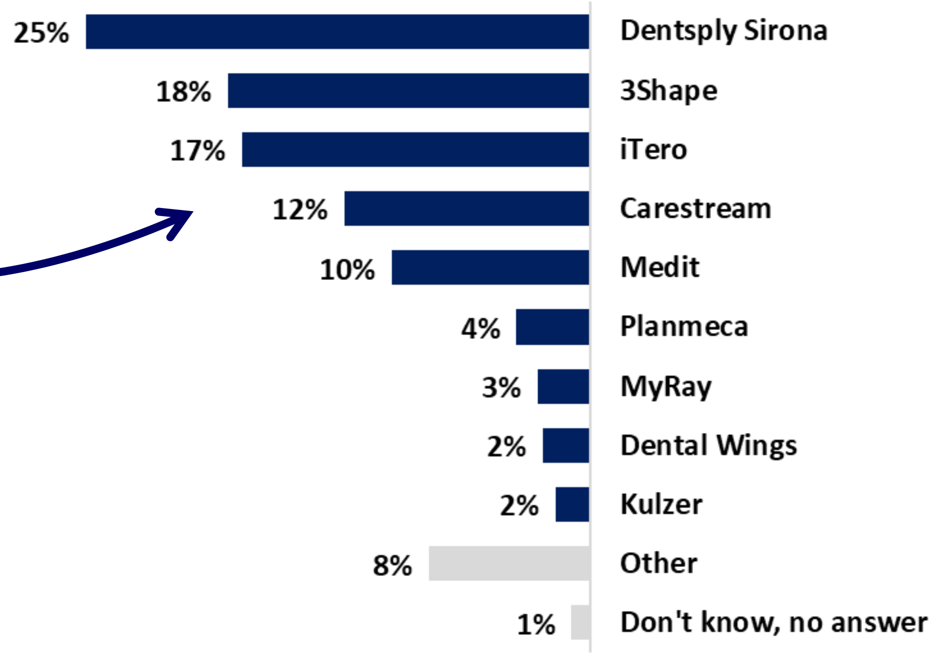
CLINIC

What are the brand and the year of purchase of your intraoral scanner?

Do you have an intraoral scanner for taking optical impressions?



Base: 1.061 cases



Dentsply Sirona has a higher-than-average penetration in Germany and in France.

3Shape is the only player with a leading position in all the analysed countries.

iTero results stronger where the aligners market is more developed, particularly in Spain (33%), where about 150.000 cases per year are made.

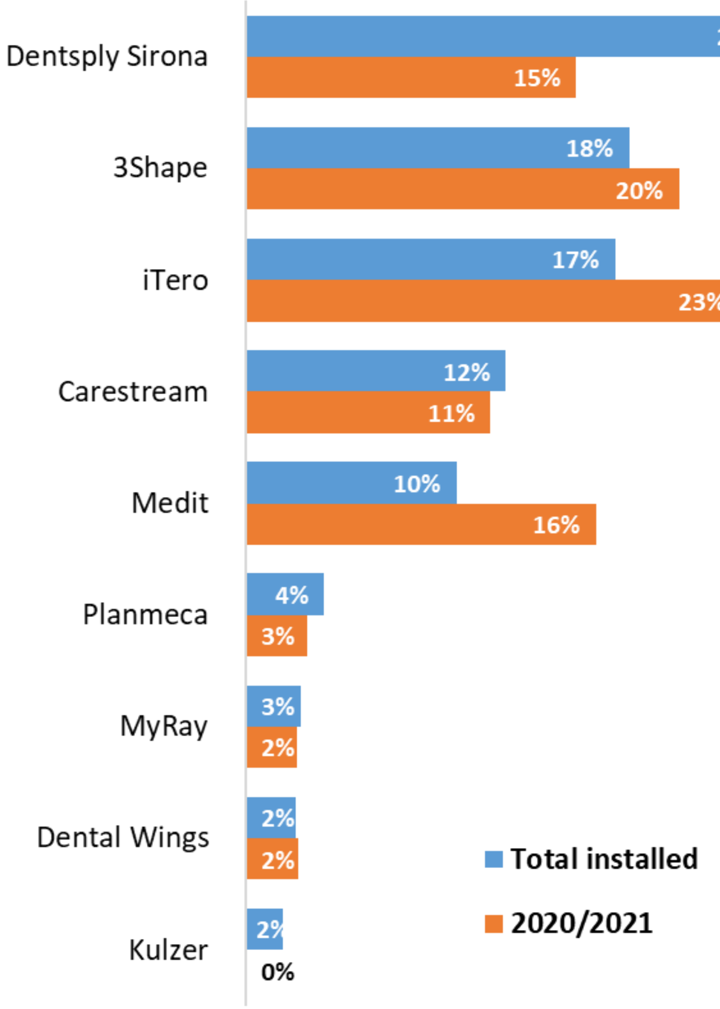
Carestream has a sensible higher penetration in Italy (28%) thanks to a commercial strategy that has favoured a widespread development in the territory through local distribution.

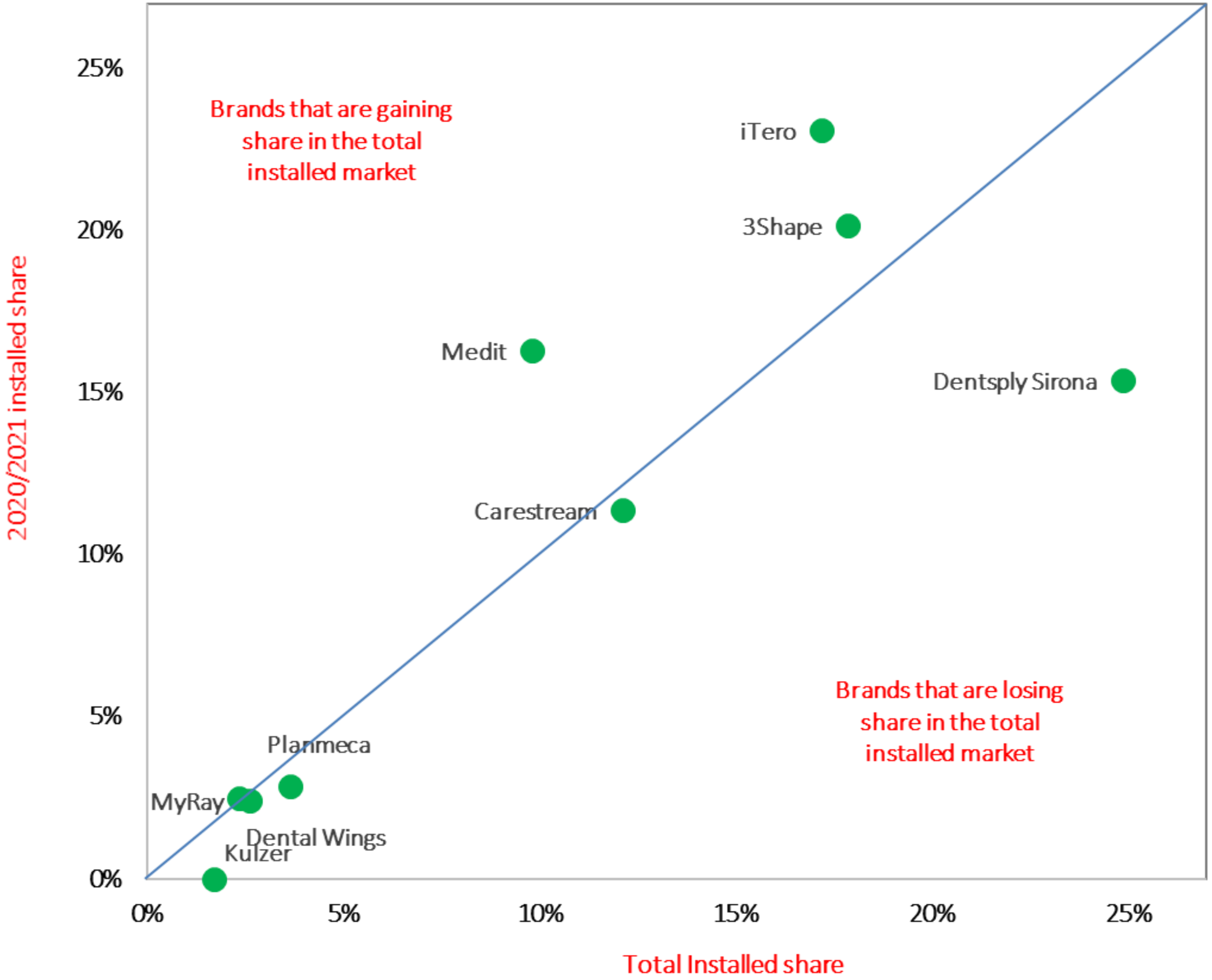
	GERMANY	FRANCE	ITALY	SPAIN	UK
PENETRATION	29%	19%	27%	22%	27%
INSTALLED BASE TOP 3 RANKING	Dentsply Sirona 3Shape iTero	Dentsply Sirona Medit 3Shape	Carestream Dentsply Sirona 3Shape	iTero Dentstply Sirona Carestream	iTero 3Shape Dentstply Sirona
Cases	256	224	200	201	180

Intraoral scanners Brand

CLINIC

What are the brand and the year of purchase of your intraoral scanner? Total installed base vs 2020/2021 period.





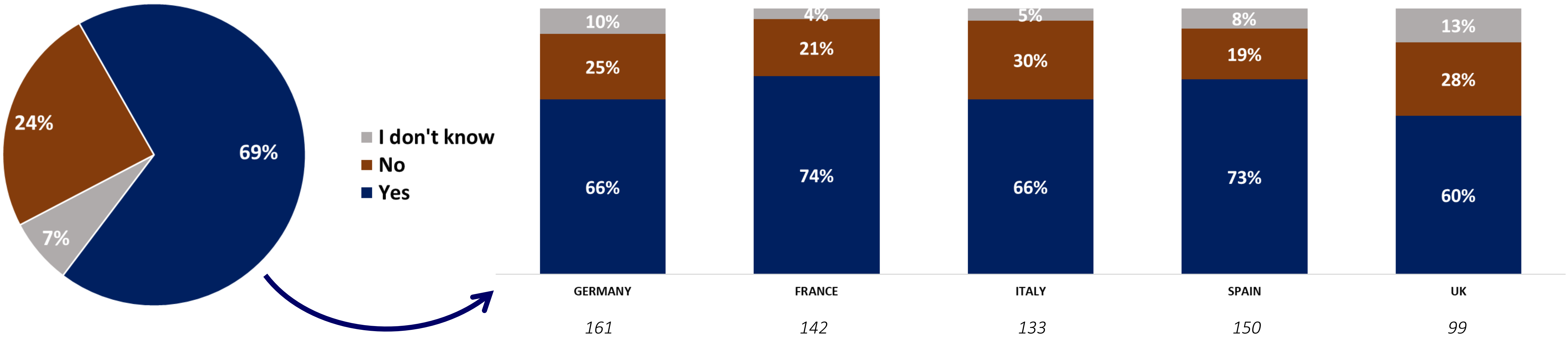
Base: 264 cases

The scatter plot represents the historical evolution of the installed brands

Intraoral scanner intention to buy

CLINIC

Are you planning to buy a new intraoral scanner?



Base: 685 cases

What brand of scanners do you plan to buy or to consider for purchase?

GERMANY	FRANCE	ITALY	SPAIN	UK
3Shape	Medit	3Shape	iTero	iTero
Dentsply Sirona	3Shape	Carestream	Carestream	Dentsply Sirona
iTero	iTero	iTero	Dentsply Sirona	3Shape

The question do not consider those not willing to purchase an IOS, and it was performed also to those already having an IOS.

Among them, about 7% plan to make an additional purchase for both replacement and increase of the installed equipment purposes.

iTero is by far the most quoted brand in UK.

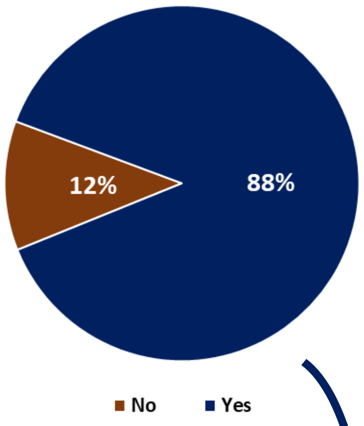
Intraoral Scanners
Labs recommendation

Frequency of the approaches to doctors about digitization

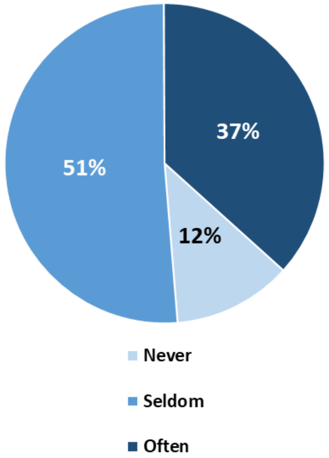
LABO

How often do you approach your doctors about digitizing their practice with intraoral scanners?

Full digital workflow

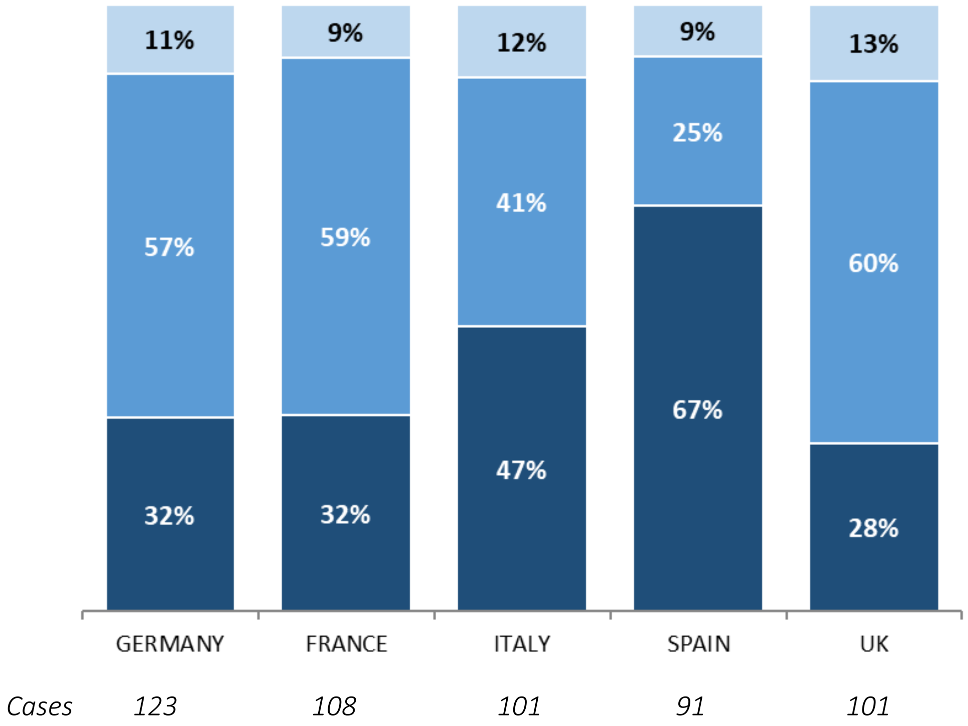


Base: 524 cases

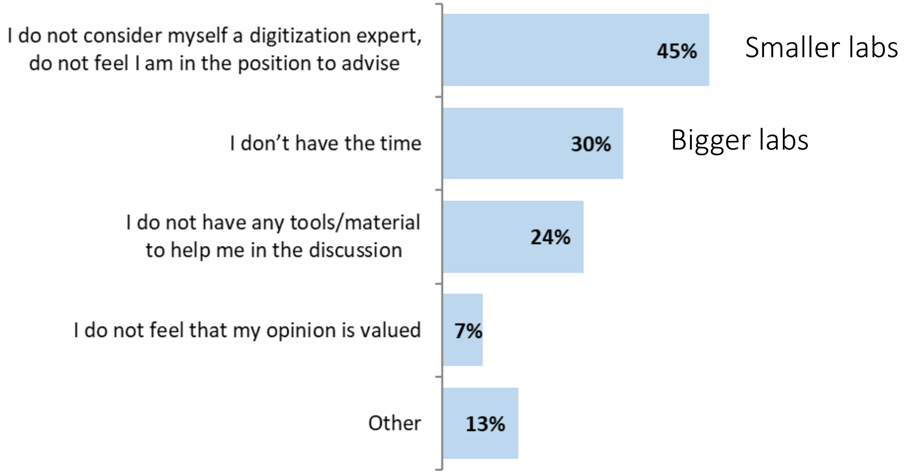


When the impact of IOS scans on the lab business is positive, labs approach doctors more frequently.
Labs approaching dentists for the practice digitization is quite high, lower than average in the Mediterranean countries.
In Spain, the development of digital technologies in the dental sector has accelerated significantly in the last two years, which is the reason why the percentage of laboratories approaching studies on this subject is high.
The reason for not recommending varies with the size of the laboratories: small laboratories do not recommend because they do not feel adequate, while large laboratories, which are the most digitalised ones, are also the ones that can spend less time on this activity.

labs receiving intra-oral scan files



If "Never", why?



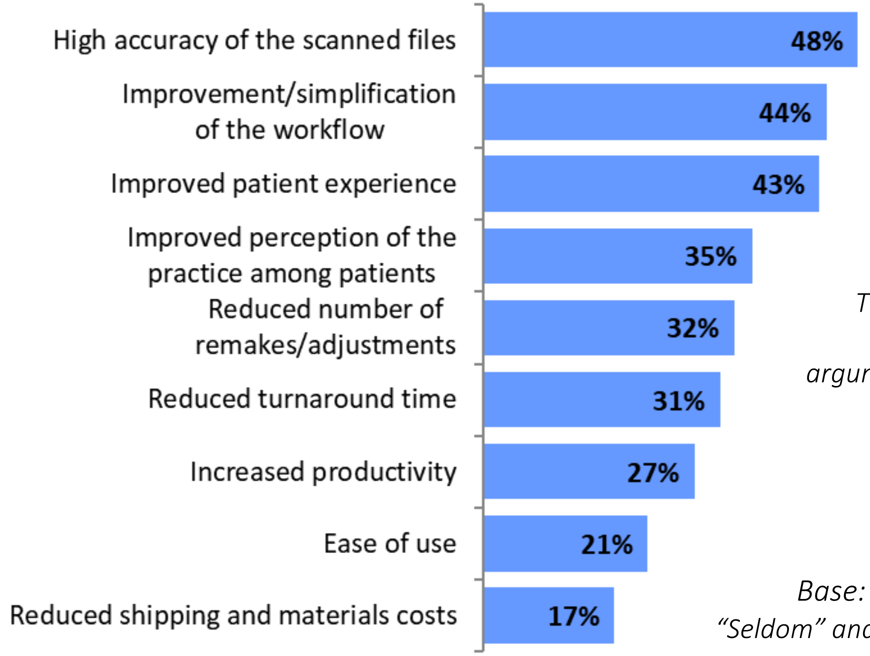
Bigger labs higher than average for a frequent approach (46% "Often").
The frequency of the approaches to dentists is **higher** as the **lab overall business** trend is **positive** (43% "Often").

DI

Main arguments to convince doctors about digitization

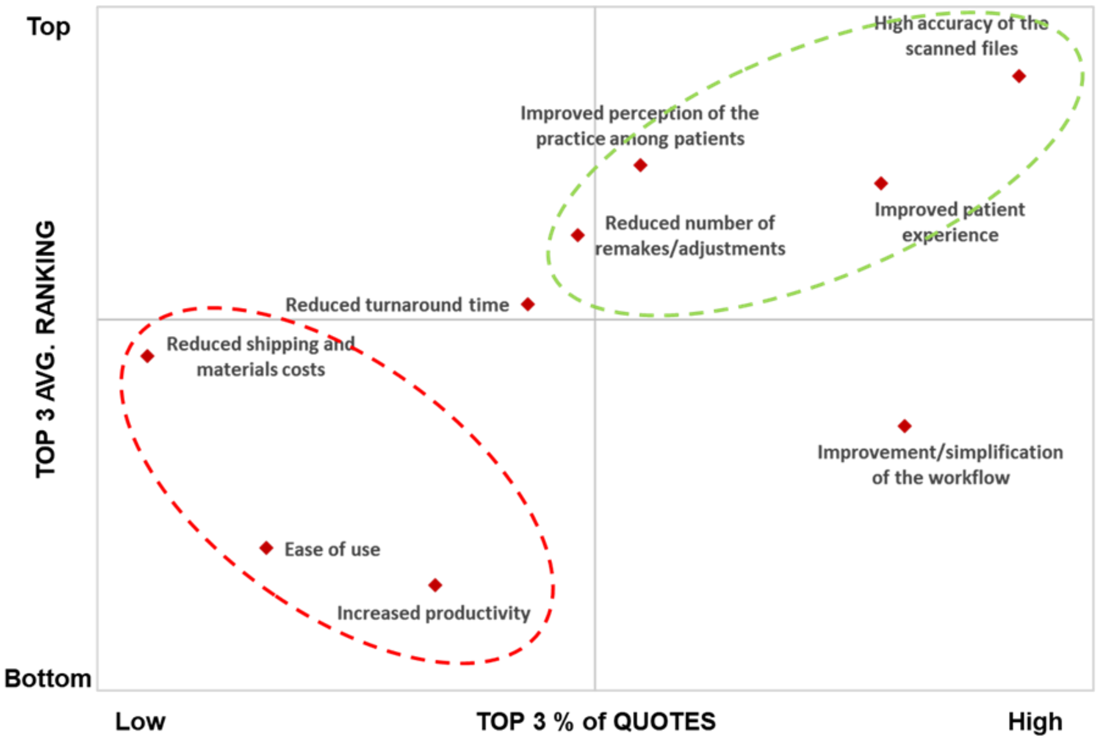
LABO

When discussing with your doctors about starting/furthering the digitization process of their practice with an intra-oral scanner, what argumentation do you use to convince them? - TOP 3 RANKING



Technical, procedural and "patients experience" arguments are used the most.

Base: 409 cases
"Seldom" and "Often" quotes



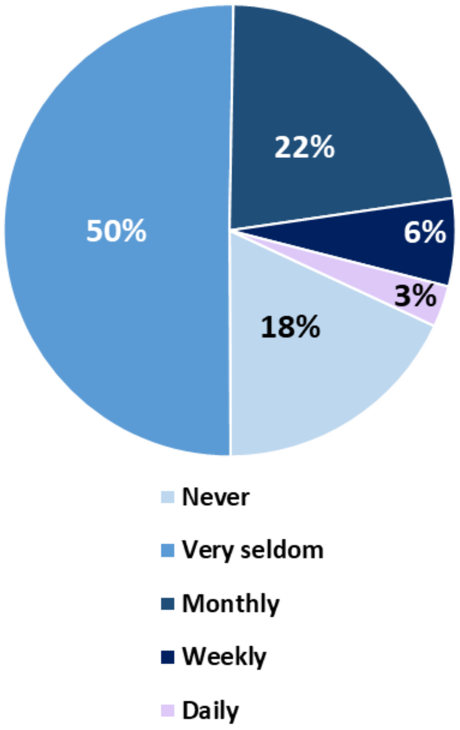
In Italy, the proposed topics are significantly different from those of the rest of the countries. *Simplification of the workflow*, *improvement of the patient experience* and of the *perception of the practice among patients* emerge as relevant, while the impact of the accuracy of the scans is low. Some topics are very often listed in the top three as most relevant, resulting in better ranking averages. The items at the top right of the map, together with the item *Simplification of workflow* suggest that there is a desire to improve the synergy between the practice and the laboratory and the management of the communication flow between them.

- The **owner of the lab** pays more attention to the workflow simplification (54%) and the improved perception of the practice (42%).
- **Lab managers** talk more about the reduced number of remakes (41%).
- Accuracy of the scan files is **more often used** by **big sized labs** (59%).
- Improvement of the workflow is also more often quoted by respondents whose **lab** experienced an **overall increase** of their **business** (51%).

Frequency of doctors approaching labs about IOS recommendation

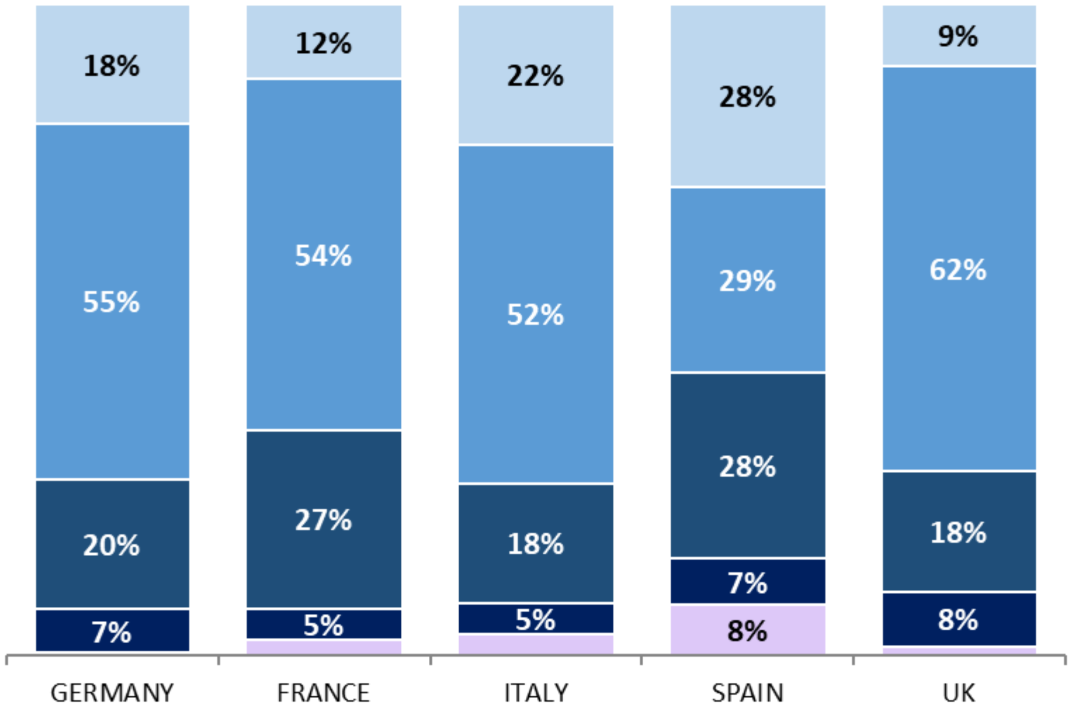
LABO

How often do you get approached by doctors about your recommendation on intra-oral scanner?



Base: 594 cases

The laboratories state that they are approached by dentists with a certain frequency. A frequent approach is considered to be 'monthly' to 'daily'.
Although the frequency of approach is fairly homogeneous between countries, Spain and France show a higher-than-average overall frequency of 'Monthly/Weekly/Daily'.



Cases *137* *114* *125* *113* *105*

- 30% of dental labs are approached at least monthly.

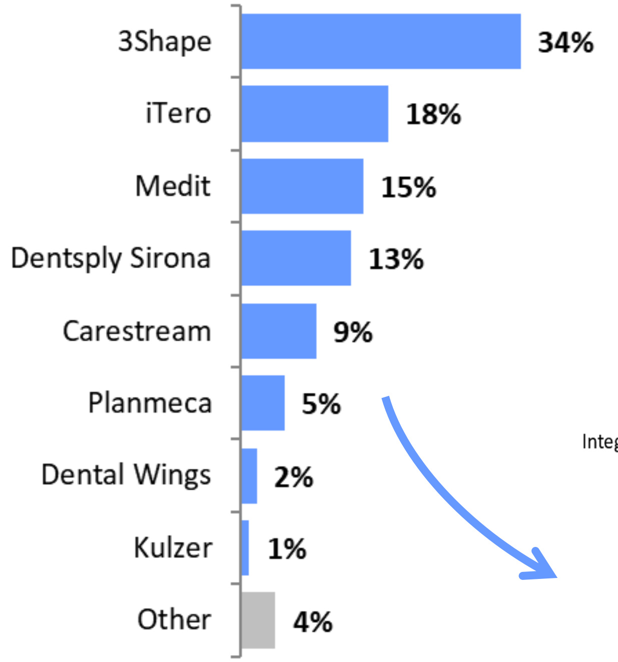
- Frequency of recommendation **increases** as the **labs size** and their **digitization level increase**.
- **This is also true** for **labs** performing a **higher-than-average** number of **ortho cases with aligners**.

Currently, Spain is the country with the lowest penetration of IOS but with higher growth rates and in full digitalization process.

Recommended intraoral scanner brands

LABO

When asked by the clinician, do you recommend a specific intra-oral scanner brand? Which intra-oral scanner brand do you recommend most often?

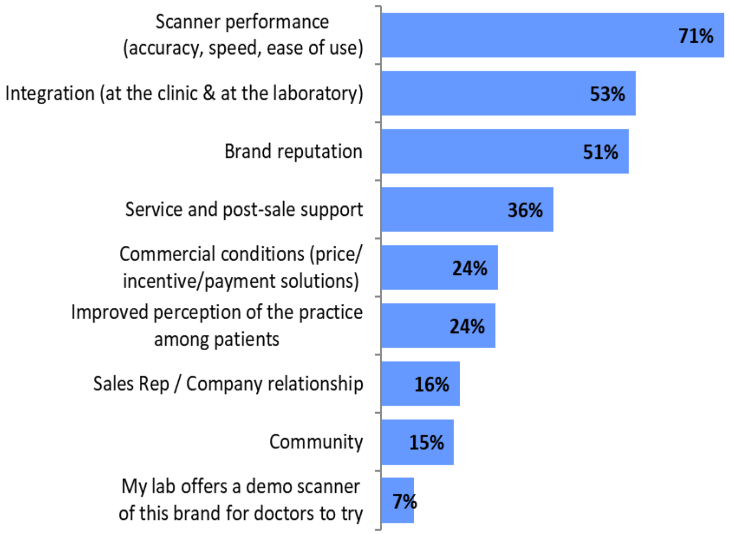


Diverse recommended brands across the surveyed countries: 3Shape is most quoted, iTero is main follower.

Base: 440 cases

Recommendation is very high: on an overall basis, at least 90% of the laboratories approached by dentists recommend a brand. **3Shape** is the most recommended brand in Spain and Italy, while **iTero** is most recommended in the UK. **Carestream** has adopted a very widespread distribution and commercial strategy, which explains the high number of recommendations in Italy (achieving a significantly higher penetration than in the other analysed countries).

Why do you recommend the mentioned IOS brand? (Multiple choice)



Scanner performance and clinic / lab integration are the most quoted reasons.

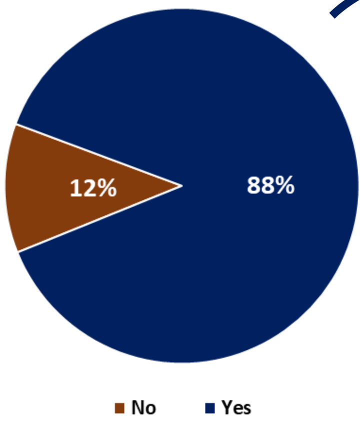
- 3Shape is quoted **more than average** among **big sized labs** (49%), by the **lab owners** (39%), **less recently open** structures and those stating the **business has decreased** (40% and 46% respectively).
- iTero is quoted more than average among **more recently open labs** (25%) and among **labs** receiving **a high share of scan files** (22%). **Less than average** among **labs** performing a **high share of prosthetic complex cases** (12%).
- Medit is quoted **more than average** among **labs receiving** a **lower share of scan files** (23%).
- Dentsply Sirona is quoted **more than average** among **labs receiving scan files from more than half of clients** (20%).

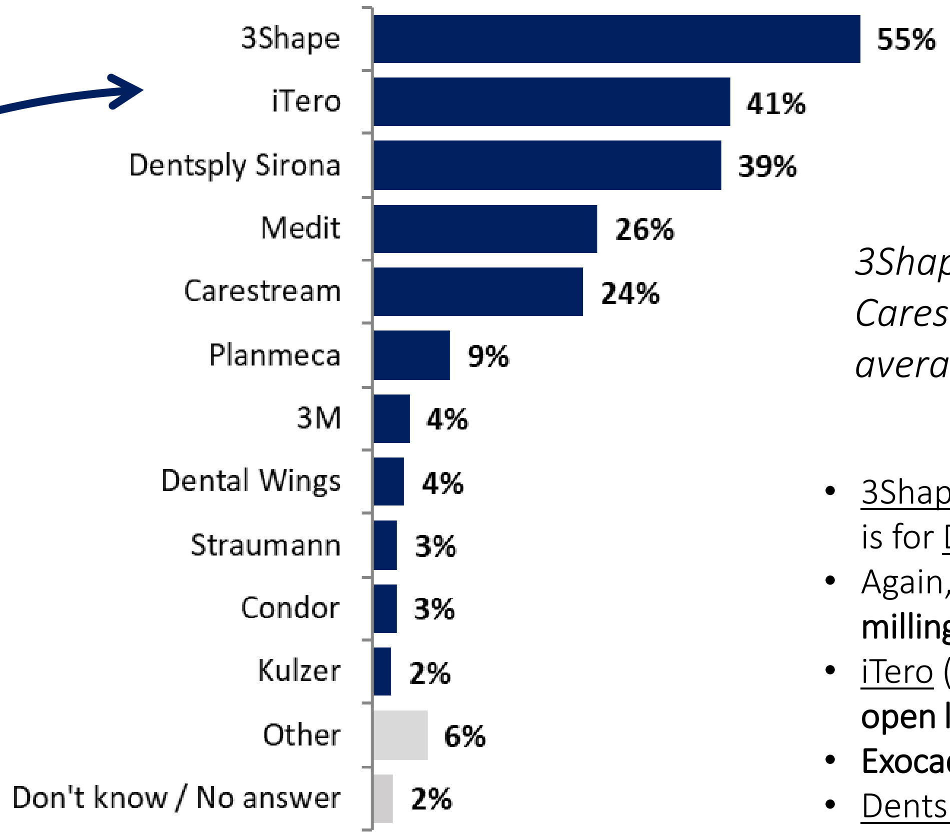
- Brand reputation is quoted more often among **bigger sized labs** (62%) and those **performing** ortho cases with **invisible aligners** (58%).
- **The latter** also quote Community more often than average (20%).
- Integration is quoted **more often** by **labs serving a higher number of practices** (60%).
- Service / post sales support is **more often quoted** by **labs** receiving a **higher share of scan files** (46%).

Intraoral scanners brands when receiving scan files

LABO

What are the TOP 3 brands of the intra-oral scanners that you receive files from?





Base: 524 cases

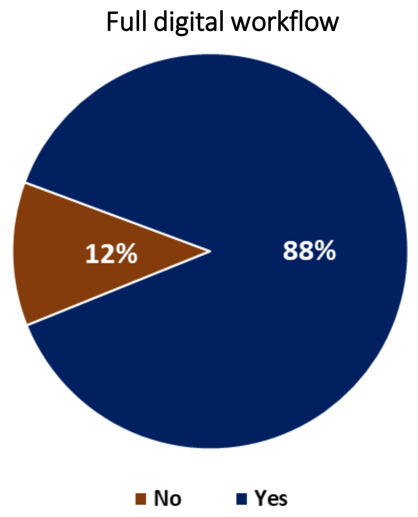
3Shape is top quoted brand for IOS scan files received. Carestream is very widespread in Italy compared to the average in the other countries.

- 3Shape is quoted more than average by **bigger sized labs** (73%) and so is for Dentsply Sirona (52%).
- Again, 3Shape is quoted more than average by **labs** equipped with a **milling unit** (62%) and **3D printer** (60%).
- iTero (52%) and Medit (35%) are more often quoted among **recently open labs**.
- **Exocad users** do show higher than average quotes for iTero (46%).
- Dentsply Sirona is more than average quoted by **labs receiving scan files from more than 50% of their clients** (62%).

Intraoral scanners brands: Recommendation vs scan files reception

LABO

When asked by the clinician, which intra-oral scanner brand do you recommend most often?
What are the TOP 3 brands of the intra-oral scanners that you receive files from?



IOS brand: recommendation	IOS brand: Received files: 3Shape	Dentsply Sirona	iTero	Medit	Carestream	Planmeca
3Shape	55%	26%	29%	24%	33%	17%
Dentsply Sirona	12%	30%	9%	5%	7%	13%
iTero	13%	12%	37%	20%	16%	21%
Medit	8%	12%	8%	38%	8%	2%
Carestream	7%	9%	5%	8%	32%	8%
Planmeca	2%	7%	7%	2%	1%	35%

Base: 524 cases

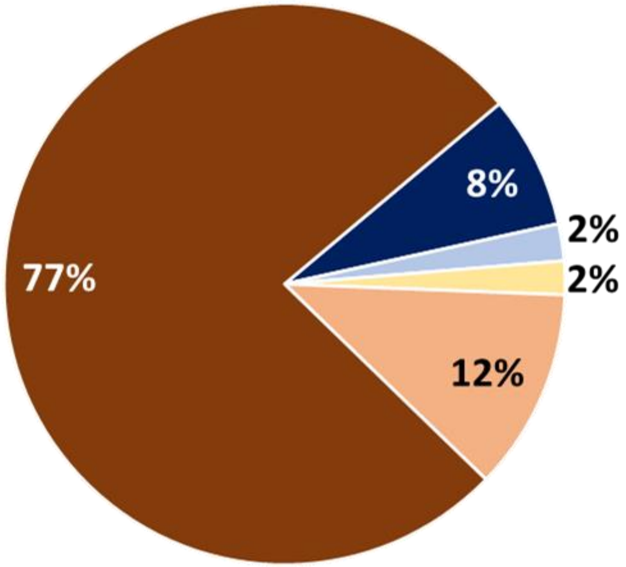
At overall level, a possible relationship between the brand of the IOS from which the scan is received and the recommendation of the IOS brand has been investigated. The results show that 3Shape has the highest relationship between the brand from which the labs receive the scanner and the recommendation. It is also true that 3Shape, due to its popularity and seniority in the IOS market, has a high frequency of recommendation even in labs receiving scans from other brands. In fact, it is always cited as the second brand regardless of the brand of IOS from which the labs receive scans (for Carestream it is the first). This also shows that 3Shape's reputation is very high.

Other digital workflow components penetration

Chairside milling system penetration

CLINIC

Do you have a chairside milling system in your dental practice?



- Yes, and we use it often
- Yes, but we rarely use it
- No, but we plan to buy it
- No, and we don't plan to buy it
- No, and we don't know if we will buy it

Base: 1.061 cases

	Germany	France	Italy	Spain	UK
Yes, and we use it often	12%	6%	6%	2%	8%
Yes, but we rarely use it	4%		1%	1%	3%
No, but we plan to buy it	15%	9%		19%	22%
No, and we don't plan to buy it	66%	83%	91%	75%	66%
No, and we don't know if we will buy it	2%	2%	3%	3%	0%
Cases	**256**	**224**	**200**	**201**	**180**

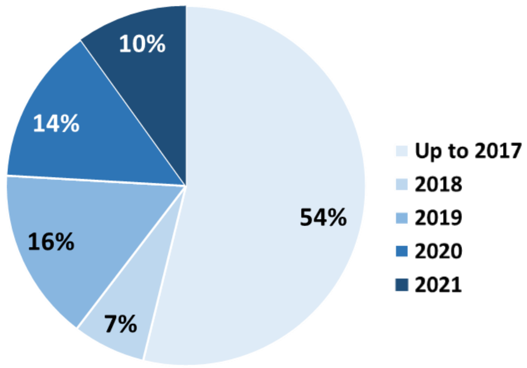
The penetration of the milling center in dental practices is rather low, but it is worth to underline that in Germany this penetration of milling units is historically higher due to the presence of the so called "practice lab". For both UK and Germany, the higher presence of Dentsply Sirona make the penetration of this equipment higher than average.

Most of the installed equipment is rather old, with a slowdown in purchases in 2018 and 2019 and a subsequent growth in recent years (2020-2021).

Given the low sample base, the information is featured by a high statistical error, so it is recommended to use the information as a qualitative indication only.

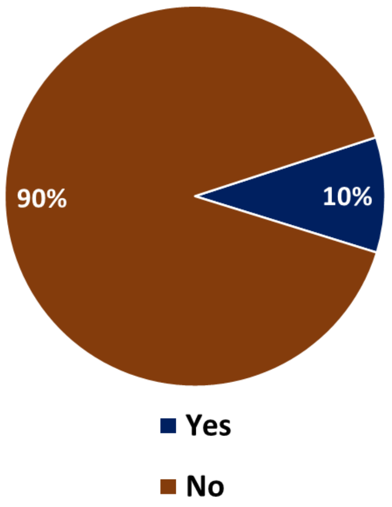
Year of purchase

AVERAGE: 2016



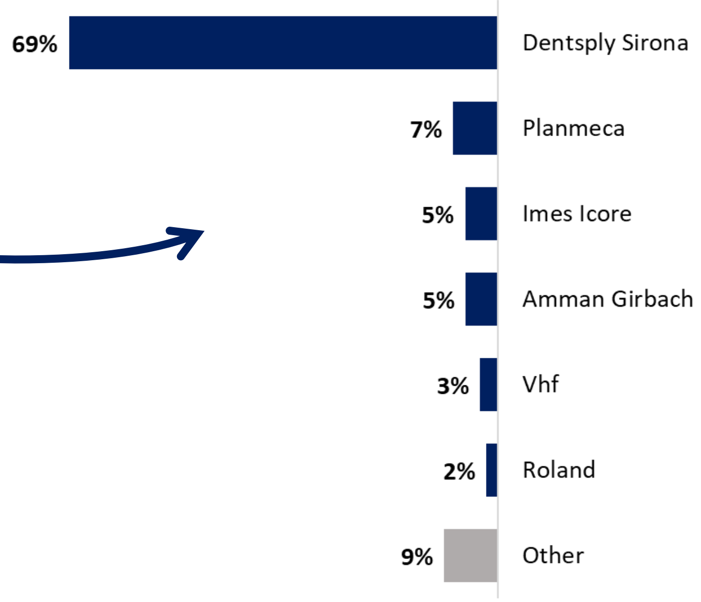
Chairside milling system brands

Do you have a chairside milling system in your dental practice?

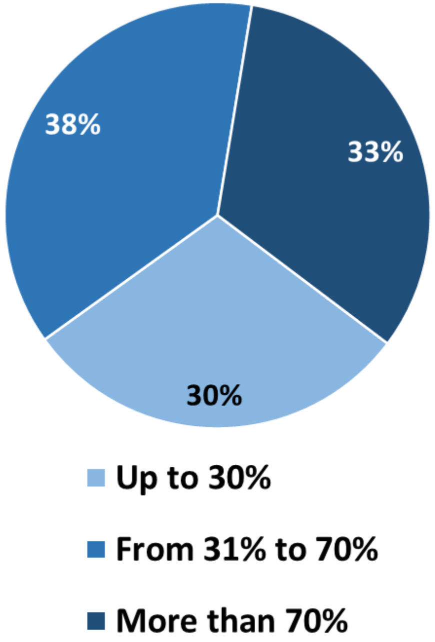


Base: 1.061 cases

What are the brands of your chairside milling system?



Indirect restorations average production*: 49%



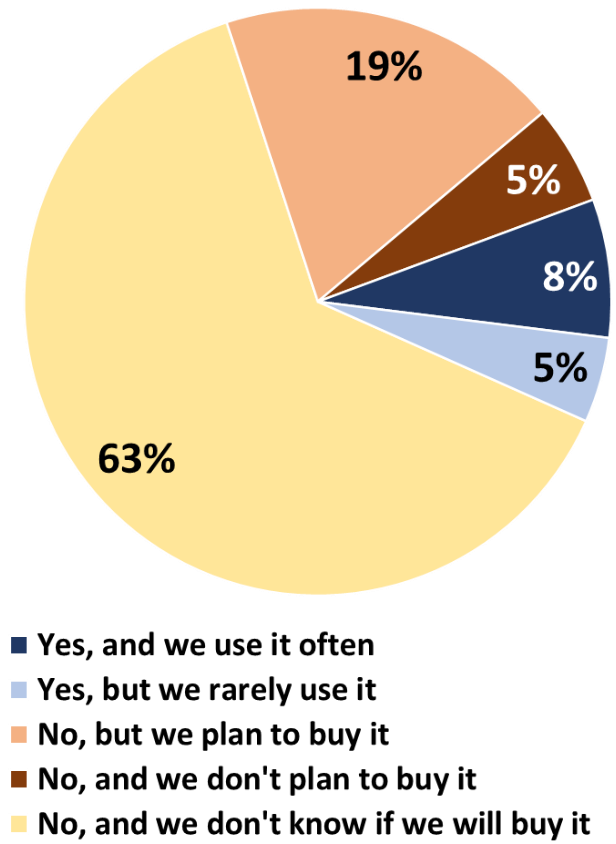
**Considering only the single indirect restorations (single crowns, inlays, onlays, veneers) what percentage do you produce them directly with your chairside milling system?*

	GERMANY	FRANCE	ITALY	SPAIN	UK
PENETRATION	16%	7%	7%	3%	12%
INSTALLED BASE TOP 3 RANKING	Dentsply Sirona Amann Girrbach Planmeca	Dentsply Sirona Imes Icore Vhf	Dentsply Sirona Planmeca Bego	Dentsply Sirona Roland Planmeca	Dentsply Planmeca Imes Icore
Cases	256	224	177	201	180

Among milling systems users, the most quoted brand is by far Dentsply Sirona. When a milling unit is present in the practice, the production of CAD-CAM indirect restorations is quite high, accounting for slightly less than 50% of the total produced indirect restorations. The chairside milling penetration is higher in Germany for historical reasons (in the past, the licensing of dental technicians to practise dentistry has been promoted), while it is less developed in Spain, due to regulatory barriers (it is forbidden to have an in-house laboratory).

3D Printers penetration

Do you have a 3D printer in your dental practice?



Base: 1.061 cases

Past surveys carried out by Key-Stone on 3D printing suggest a quick development of the adoption of this technology in dental practices.

As regards the analysis on the year of purchase, especially in more recent years a high procurement activity has been made.

It is worth to underline the higher-than-average penetration in Germany and UK, while a lower-than-average intention to buy can be noted in Italy and France.

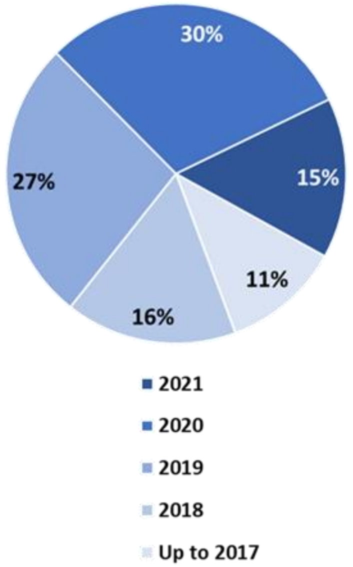
Sales of 3D printers have shown a steep increase in recent years (75% of purchases have been made since 2019), mainly due to improvements in precision, production times and function of use.

Until a few years ago 3D printers were used exclusively for printing individual impression trays and surgical guides; now they are also quoted to be used for printing temporaries and the production of the surgical guides has increased considerably; in addition, some models are capable of processing zirconia or lithium disilicate, thus potentially competing with milling units in the future.

	Germany	France	Italy	Spain	UK
Yes, and we use it often	13%	2%	4%	5%	16%
Yes, but we rarely use it	5%	3%	6%	4%	6%
No, but we plan to buy it	27%	19%	0%	26%	20%
No, and we don't plan to buy it	13%	2%	2%	2%	1%
No, and we don't know if we will buy it	43%	74%	88%	62%	57%
Cases	256	224	200	201	180

Year of purchase

AVERAGE: 2019

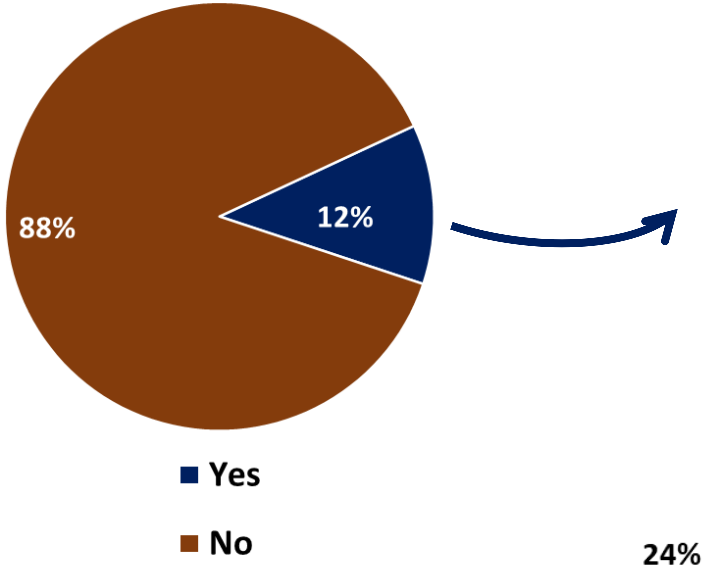


3D Printers brands

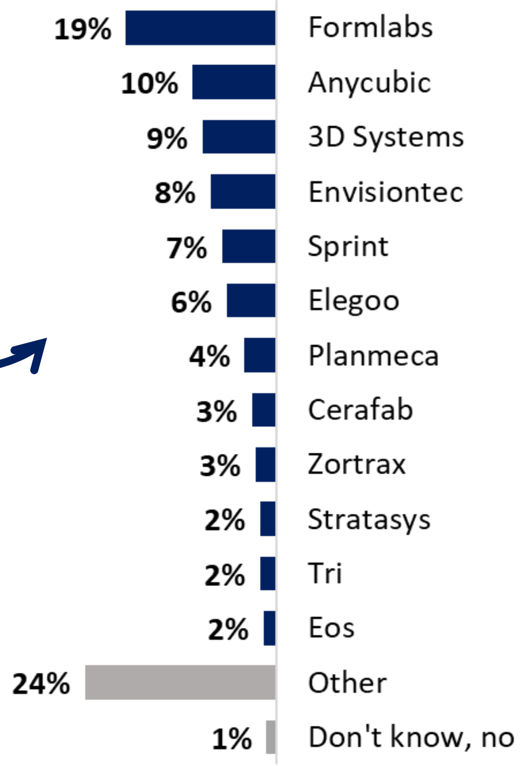
CLINIC

What are the brand and the year of purchase of your 3D printer?

Do you have a 3D printer in your dental practice?



Base: 1.061 cases

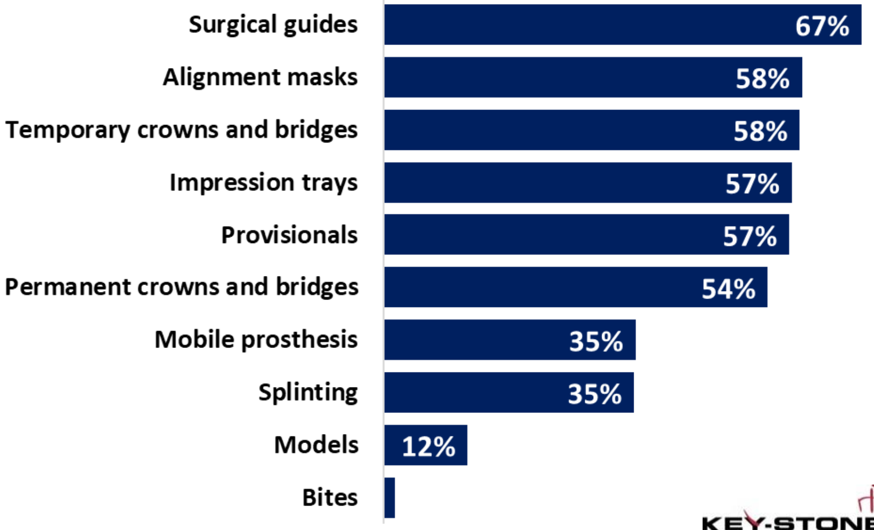


As regards the indications for use of the 3D printers, past surveys also indicate a slight shift in the procedures: while a few years ago the most suitable indication was related to temporary C&B, today the most quoted production procedure is surgical guides, followed by aligners. Among practices equipped with a 3D printer, Formlabs is the leading brand in penetration, followed by Anycubic.

As regards the use of the machines, it seems that in Germany, and partially in the UK, there is a more transversal use across all applications. In Italy and Spain, the technology is mainly used for the fabrication of surgical guides and temporary elements. It is worth mentioning that in these two countries in 2018, the 3D printer penetration in dental practices was around 1%.

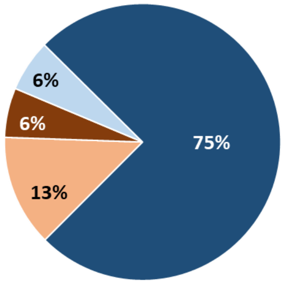
	GERMANY	FRANCE	ITALY	SPAIN	UK
PENETRATION	17%	5%	10%	10%	23%
INSTALLED BASE TOP 3 RANKING	3D Systems Envisiontec Formlabs	Formlabs Elegoo 3D Systems	Anycubic Formlabs Elegoo	Formlabs Anycubic Elegoo	Formlabs Envisiontec Kuzer
Cases	256	224	200	201	180

What are the main processes you carry out with the 3D printer you have in your clinic?

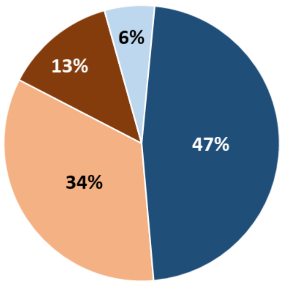


Digital devices penetration – Breakdown by country

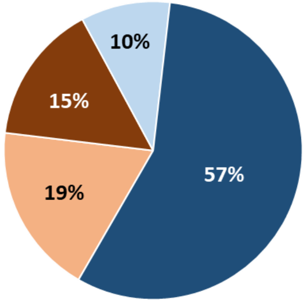
Is your lab equipped with any of the following devices for digital workflow production?



Desktop scanner
penetration: 81%
intention to buy: 6%

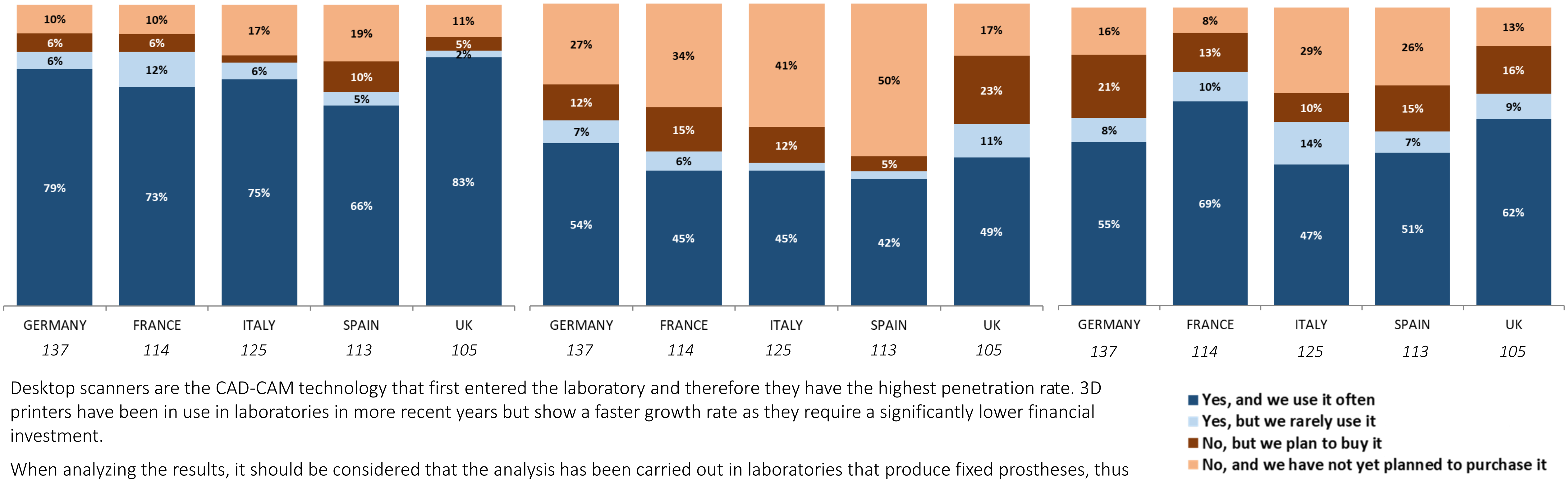


CAD-CAM milling unit
penetration: 53%
intention to buy: 13%



3D printer
penetration: 66%
intention to buy: 15%

Base: 594 cases



Desktop scanners are the CAD-CAM technology that first entered the laboratory and therefore they have the highest penetration rate. 3D printers have been in use in laboratories in more recent years but show a faster growth rate as they require a significantly lower financial investment.

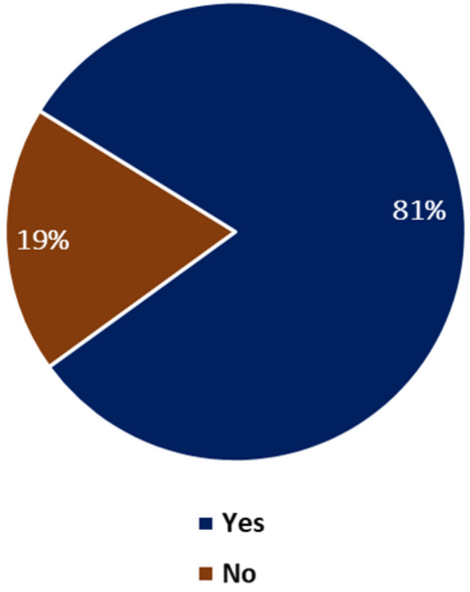
When analyzing the results, it should be considered that the analysis has been carried out in laboratories that produce fixed prostheses, thus the penetration shown in the charts might be slightly higher.

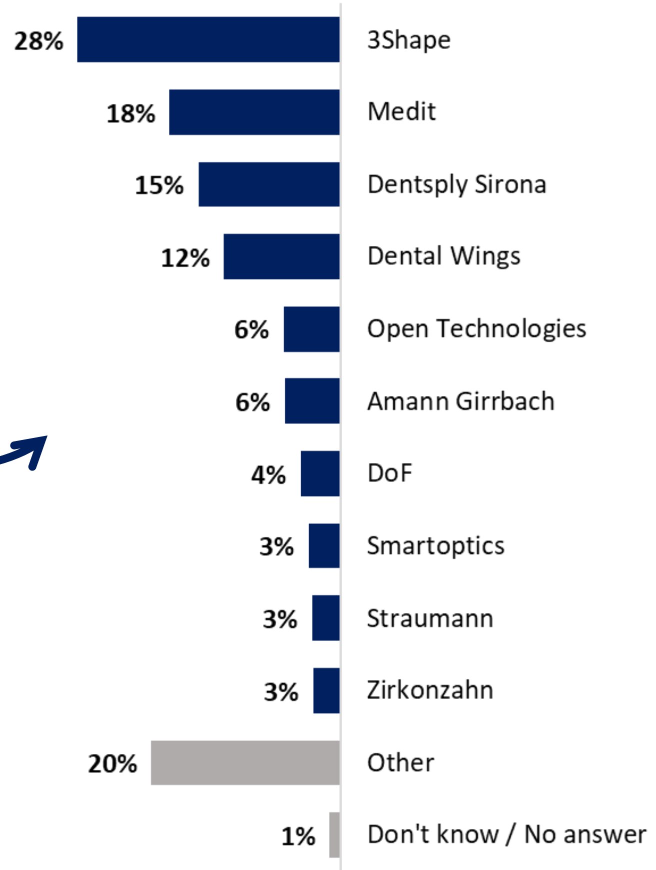
Desktop scanner brands

LABO

What is the brand of your desktop scanner?

Is your lab equipped with a desktop scanner?





	GERMANY	FRANCE	ITALY	SPAIN	UK
PENETRATION	84%	84%	81%	71%	85%
INSTALLED BASE TOP 3 RANKING	3Shape Medit Dentsply Sirona	Medit Dental Wings 3Shape	3Shape Dental Wings Open Technologies	Medit Open Technologies Dentsply Sirona	3Shape Dentsply Sirona Medit
Cases	137	114	125	113	105

The desktop scanner shows the highest penetration in the dental labs.

As previous surveys show, 3Shape still is the most quoted brand among dental labs.

Dental Wings and Dentsply Sirona still are present in the top quoted brands in overall, with top three penetration performance in several investigated countries.

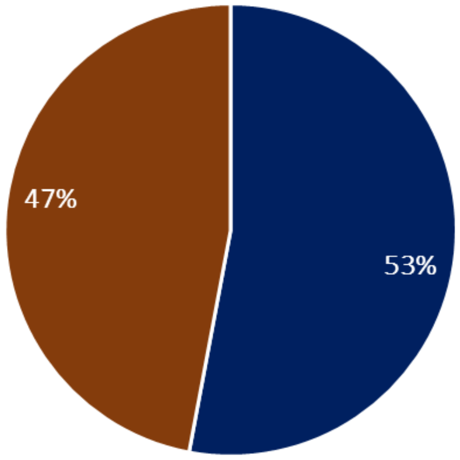
Medit, showed an outstanding performance, and it proved to be among the most quoted brands, with top position in France and Spain.

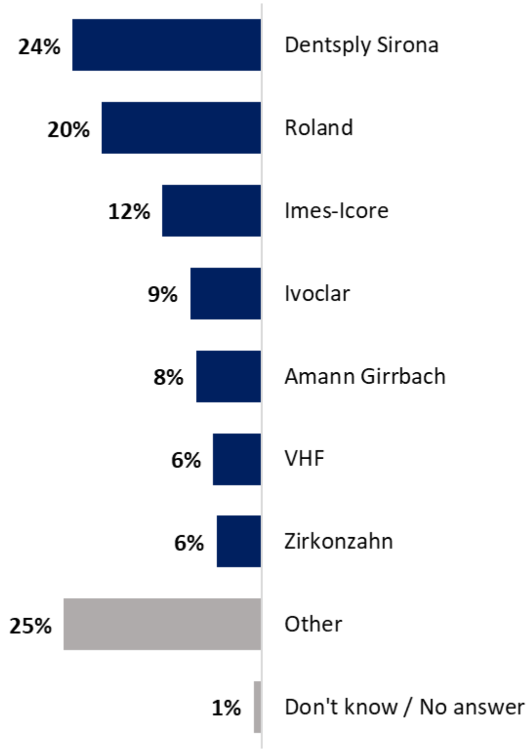
3Shape was quoted more than average among labs with a higher number of dental technicians (more than 5 technicians: 44% vs 28% overall) but less than average in more recently open labs (from 2011 to 2021: 19%). On the other hand, Medit is more than average quoted in recently open labs (from 2011 to 2021: 31%).

CAD-CAM milling unit brands

What is the brand of your CAD-CAM milling unit?

Is your lab equipped with a CAD-CAM milling unit?





In the segment of milling units installed in the dental lab, Dentsply-Sirona still is the leading brand, thanks to the Cerec system, with top penetration performance in France, Spain and the UK.

In comparison to the previous edition of the OmniVision Digital, it is worth noting an improvement of the penetration performance by Imes-Icore (focused on the production of milling units only), Roland and Ivoclar.

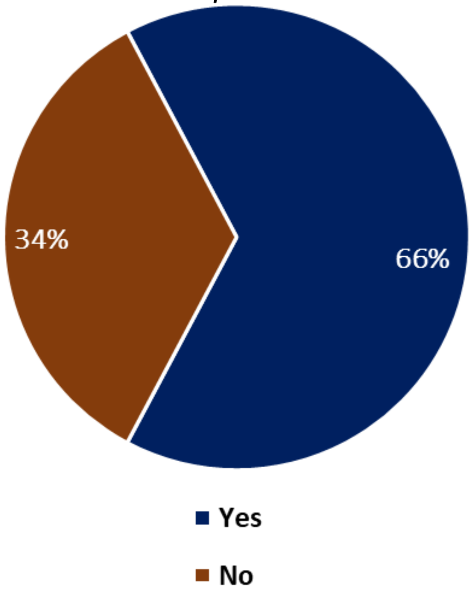
Also, it is clear that the market is mainly made up of players focused on the production of milling systems only: Roland, Imes-Icore, Amann Girrbach, VHF, Zirkonzahn. Among this, only Amann Girrbach, Zirkonzahn produce also consumables.

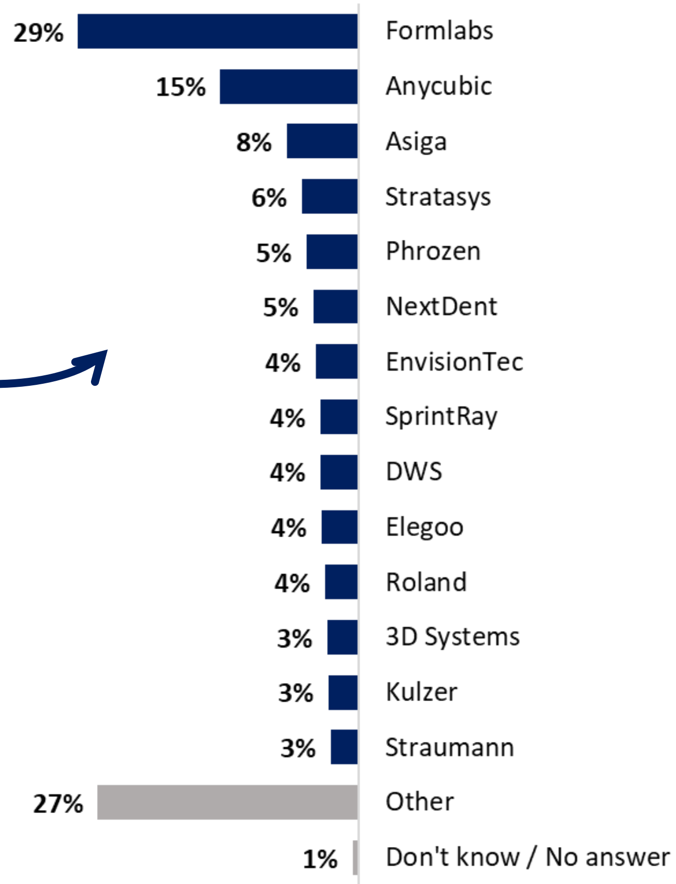
	GERMANY	FRANCE	ITALY	SPAIN	UK
PENETRATION	61%	51%	47%	44%	60%
INSTALLED BASE TOP 3 RANKING	Imes-Icore Densply Sirona Amann Girrbach	Dentsply Sirona Roland Imes-Icore	Roland Dentsply Sirona Amann Girrbach	Dentsply Sirona Imes-Icore Roland	Dentsply Sirona Roland Ivoclar
Cases	137	114	125	113	105

3D printer brands

What is the brand of your 3D printer?

Is your lab equipped with a 3D printer?





	GERMANY	FRANCE	ITALY	SPAIN	UK
PENETRATION	61%	78%	61%	58%	70%
INSTALLED BASE TOP 3 RANKING	Formlabs Anycubic Asiga	Formlabs Stratasys Anycubic	Anycubic Formlabs Phrozen	Formlabs Anycubic Phrozen	Formlabs Asiga Stratasys
Cases	137	114	125	113	105

Formlabs is the most quoted brand overall, leading the penetration ranking in every country except Italy.

Anycubic is the main follower overall, thanks to an affordable price and an intensive distribution.

Apart from a concentration for the top position, the rest of the penetration seems to be very fragmented.

The market is made up mainly of players coming from outside the traditional dental market, or present in the dental market only for 3D Printing systems.

Anycubic received a higher than average number of quotes among smaller sized labs (1-2 technicians: 33% vs 15% overall; less than 10 served practices: 22%).

Formlabs penetration is higher than average among labs receiving a higher share of scan files from dentists (more than 50% of practices sending scan files: 41% vs 29% overall).

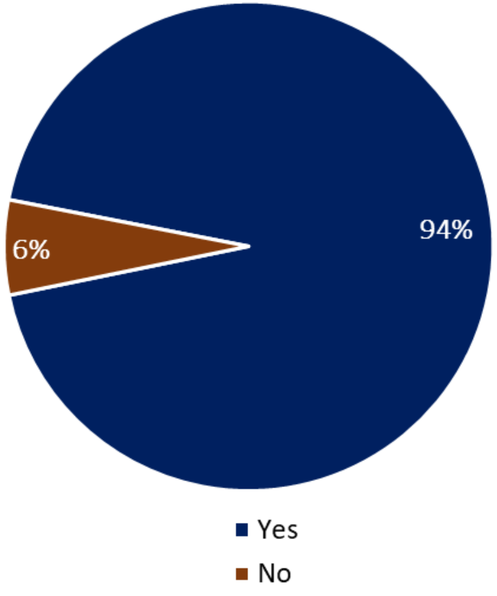
Asiga is more quoted among bigger sized labs.

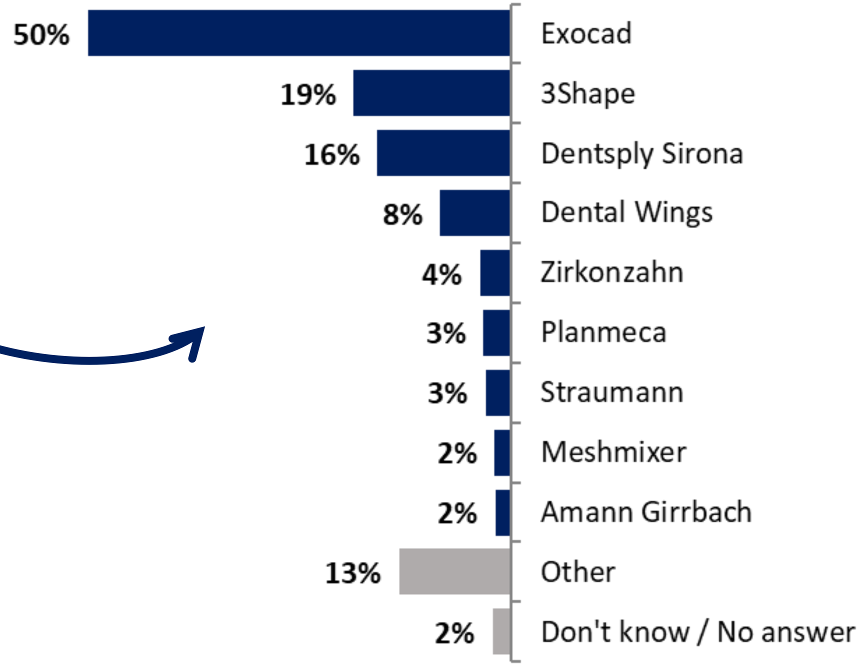
CAD Systems brands

LABO

Please, list the digital design (CAD) systems that you use in your laboratory in order of preference.

Do you use a digital design (CAD) system in your laboratory?





	GERMANY	FRANCE	ITALY	SPAIN	UK
PENETRATION	98%	96%	88%	90%	96%
CAD SYSTEM USED TOP 3 RANKING	Exocad 3Shape Dentsply Sirona	Exocad Dentsply Sirona 3Shape	Exocad Dental Wings 3Shape	Exocad 3Shape Dentsply Sirona	Exocad Dentsply Sirona 3Shape
Cases	137	114	125	113	105

Exocad is the undisputed leader in CAD design brand penetration.

- Exocad is **more quoted** among respondents stating **training and education** is **very important** (59%) and those stating the **lab business has increased** (57%).
- Also, it is **more quoted** when the reception of **physical models to digitize is high** (59%).
- 3Shape is **more quoted** among **bigger sized labs** (34%) and when the number of **simple fixed prosthesis** cases is **high** (25%).
- Also, it is **more often** quoted among **labs serving a high number of practices** (26%).
- **Exocad users** do **more** simple fixed prosthetic cases than average.
- Those **not equipped** with a **desktop scanner** or a **milling unit** do **more** removable prosthetics.

Exocad appears to be the most widely used system overall. However, it should be noted that the brands reported are those declared by the respondents, and as Exocad is a brand also used by other equipment manufacturers, it is not possible to assess how many of the other quoted brands refer to Exocad itself.

Impact of digitization on the dental labs

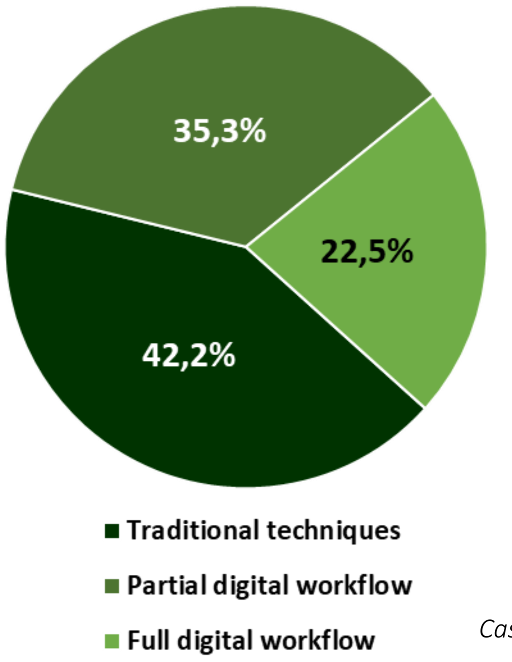
Techniques breakdown

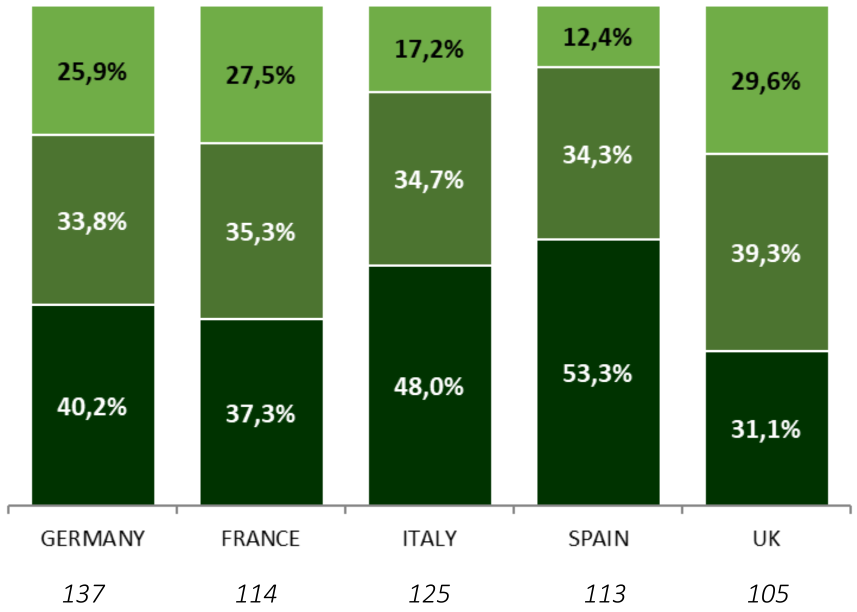
LABO

Considering all works / procedures received from your clients clinicians, what is the breakdown according to the following modalities?

PRACTICING LABORATORIES (techniques penetration)

Traditional techniques	**93%**	**96%**	**93%**	**96%**	**86%**	**92%**
Partial digital workflow	**87%**	**91%**	**91%**	**80%**	**81%**	**94%**
Full digital workflow	**88%**	**89%**	**95%**	**81%**	**81%**	**96%**





% OF WORKS (Base: whole sample)

Base: 594 cases

- **Labs stated digitization is very high**, 88% of labs receive scan files.
- Predominance of "Traditional" significantly **higher** in **Spain**, while it is **lower** in the **UK**.
- Full digital workflow in **Italy** significantly **lower** than average.
- **Smaller labs** showing **lower** than average percentages for Full digital workflow (16,9%). They also show **lower than average interest in increasing share** of works through **scan files**.

Percentage of reception of intraoral scan files and IOS penetration in practices might not exactly match because: 1. IOS not used for all works; 2. some files go direct to milling centers; 3. some files go direct to aligners companies.

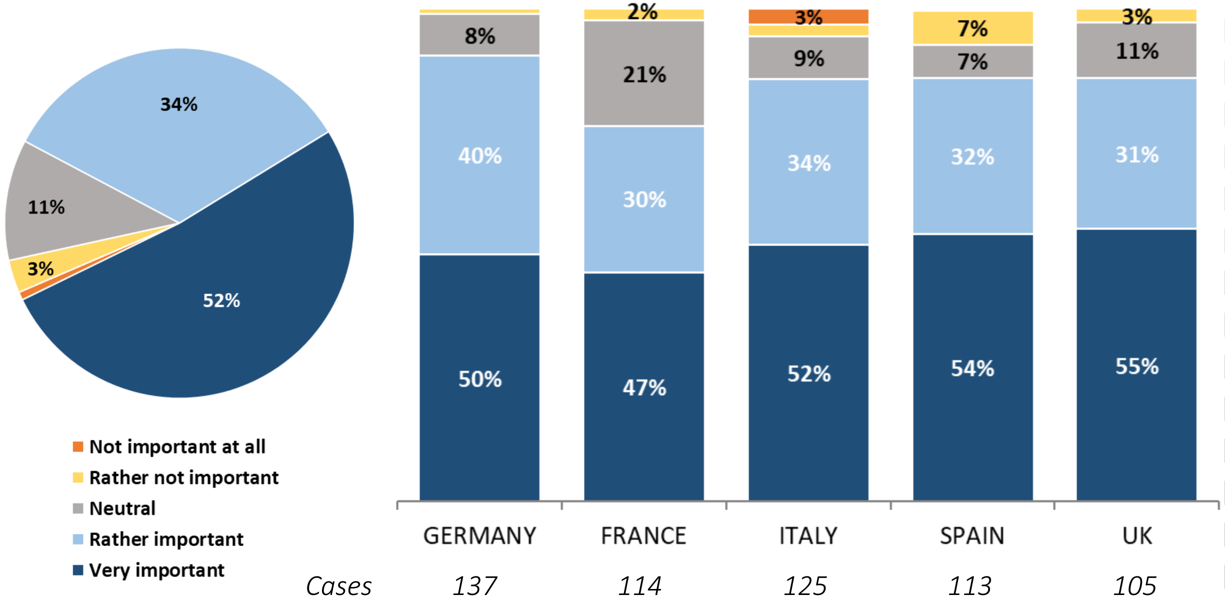
Full digital workflow penetration is very high: in some countries, as Spain and Italy, use is still fragmented and probably sporadic.

- ***Traditional techniques:*** *labs declaring to receive models or impressions that they produce with traditional techniques*
- ***Partial digital workflow:*** *labs declaring to receive models or impressions that they digitize and produce with the digital workflow*
- ***Full digital workflow:*** *labs declaring to receive intraoral scan files*

The importance of digitization in the lab

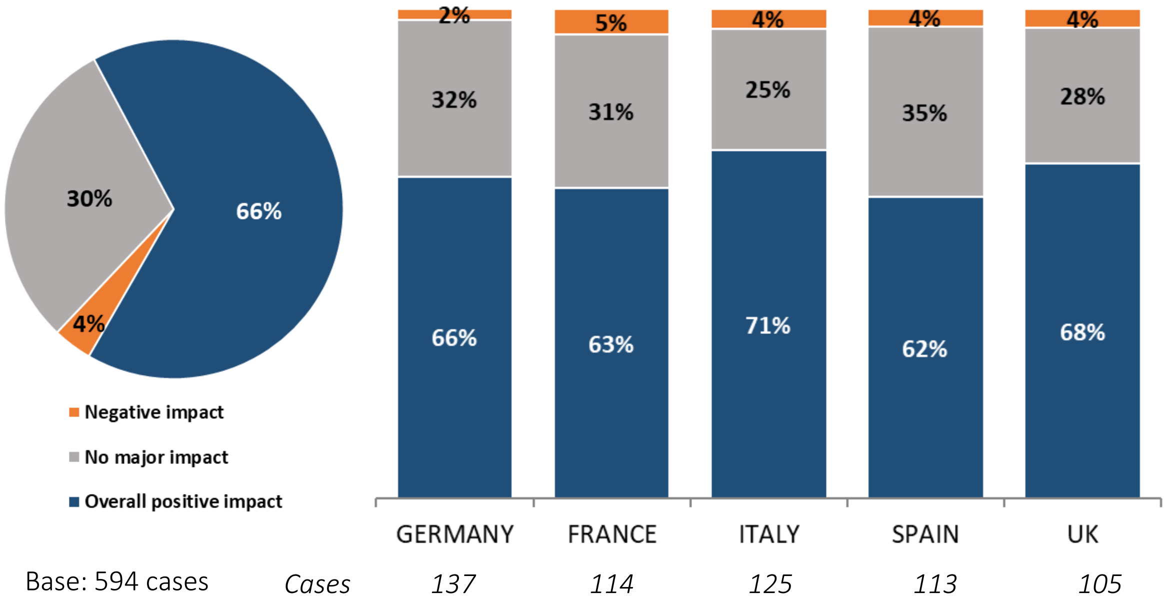
LABO

How do you rate the importance of digitization of your dental laboratory?



Base: 594 cases

What impact do you feel the acceptance of the IOS scans has had on your dental laboratory business?



Labs digitization is considered to be very important. A **lower** importance is recorded for **smaller labs**, while the opposite is true for bigger sized labs.
In addition, **When training and education** is considered **very important**, <u>importance of digitization of the lab is high too</u> (62%).
Moreover, among **iTero platform users** and **when lab business has increased**, the opinion that importance of <u>digitization</u> of the lab is <u>very high</u> **increases** (59% and 63% respectively).

Even the interest in increasing the share of scans from dentists is high*:

In overall **82%** of interviewees are **interested**.
The <u>interest</u> is **lower for smaller labs** (72% for "Yes").

**Would you be interested in increasing the % of intra-oral scans received vs. analog impressions in your lab?*

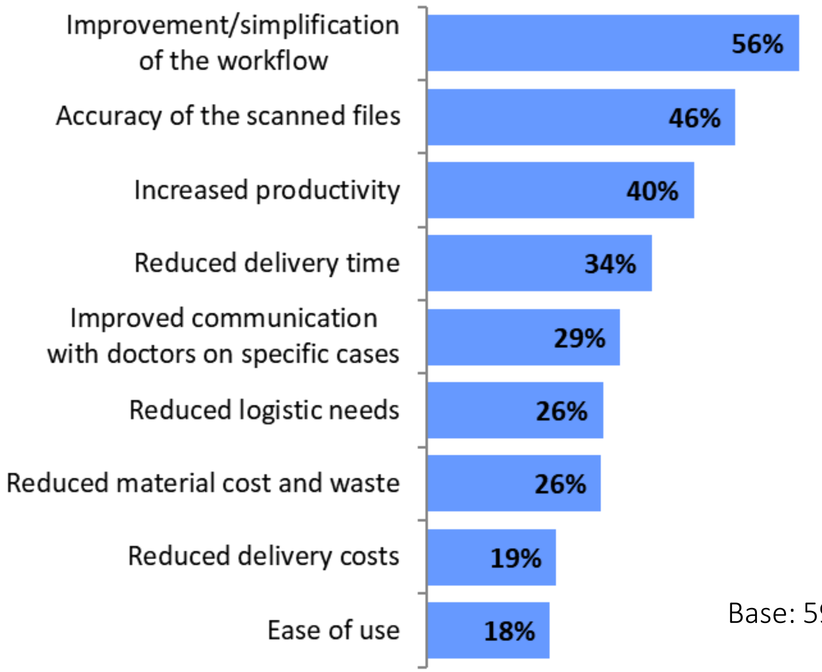
Positive impact is widely quoted overall.
Again, **smaller sized labs** quote a **lower-than-average** <u>positive impact</u> (55%).
Respondents attributing a **high importance to training and education** do quote a **more than average** <u>positive impact</u> (73%). The same is for **bigger sized labs** (73%).
In addition, **labs performing** ortho cases with **aligners** do feel **more than average** an overall <u>positive impact</u> (72%) **and those** performing a **higher number of simple fixed prosthesis cases** too (73%).

OMNIVISION digital

KEY-STONE

Main 3 advantages of working with intraoral scans

What are for you the main 3 advantages of working with intra-oral scans? TOP 3 RANKING



Base: 594 cases

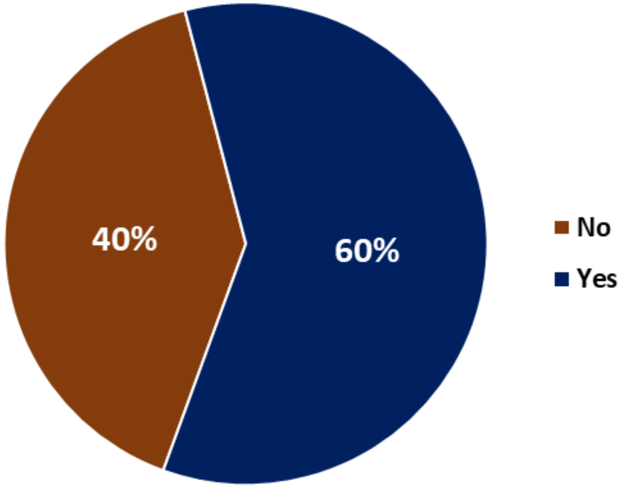
The main perceived benefits are related to the improvement of the workflow. In fact, the main items relate to simplification of the workflow, increased accuracy of scanned files and therefore increased productivity in the laboratory. In Italy there is a greater perception of increased productivity, while in the UK and France the perception is greater for the accuracy of scans.

- Reduced delivery time **higher** than average for **Spain** (46%).
- Ease of use **higher** than average in the **UK** (27%).
- Accuracy is **higher** than average in **bigger labs** (60%), and among **labs producing orthodontic aligners** (57%).

Doctor digitization impact on laboratory staff

LABO

Do you feel that doctor digitization with intra oral scanners has had an impact on your laboratory staff?



Base: 594 cases

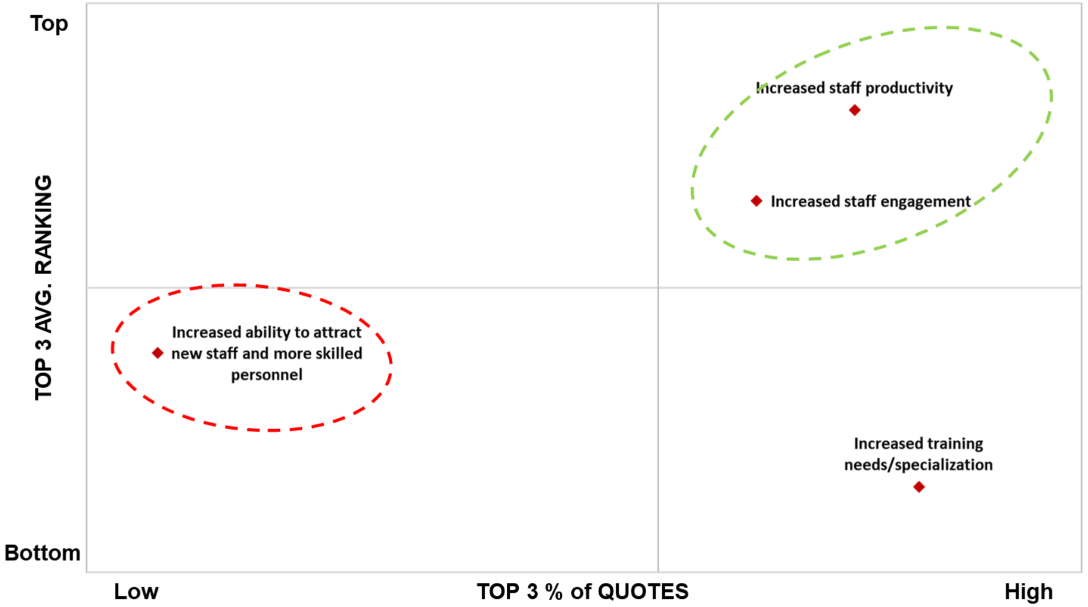
Digitization with the intraoral scanner has a positive impact on the laboratory staff according to 60% of the sample. The phenomenon is most relevant in UK (70%). The impact is more present on **big labs** (72%) and, generally speaking, among all **labs experiencing** a higher-than-average **involvement in the digital workflow**.

The **opposite is true for smaller sized labs** (51% for "Yes") **and** in general for those **labs not highly involved in the digital workflow**.

More **recently open labs** do see a **more frequent impact** (76%), while the opposite is true for less recently open ones (52%).

Labs producing a **higher number** of cases of **fixed prosthetics** (70%) or **ortho** cases with aligners (71%) do quote "Yes" **more than average**.

What impact do you feel doctor digitization with intraoral scanners has had for your laboratory staff? TOP 3 RANKING



The impact on the laboratory staff is linked to the increased productivity and staff involvement. In Italy, there is a greater perception of an increased need for staff training.

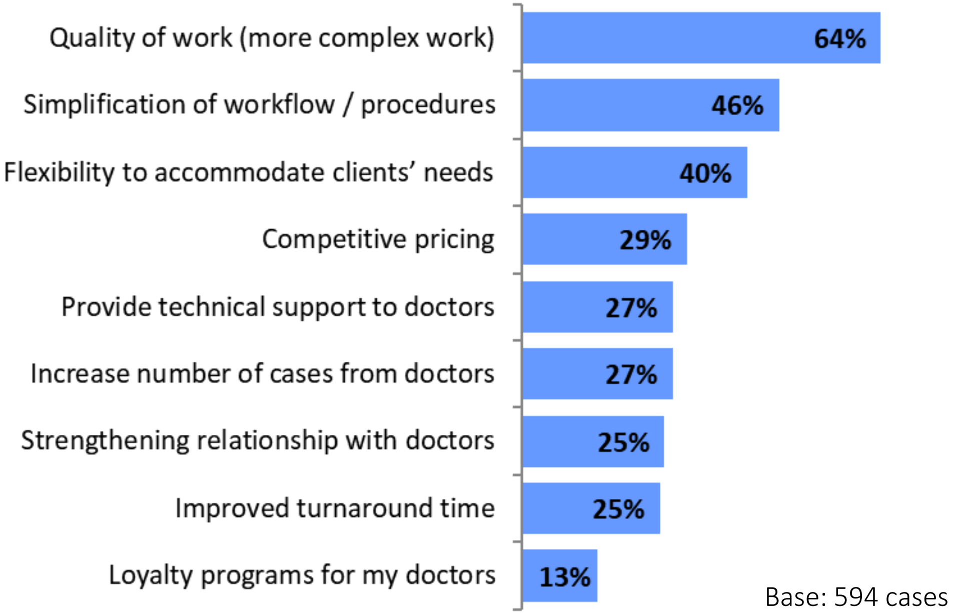
Higher than average quotes for Increased training needs (89%) for those respondents attributing a **high importance** to **education**.

- **Labs receiving scan files** from **more than 50% of clients** do quote a **lower than average** Increased training needs (76%), and a **higher than average** Increase in productivity (89%).
- **Recently open labs** do quote more often increased staff engagement (90%).
- **Labs producing** a high share of **traditional works** more often quoted Increased training needs (95%).

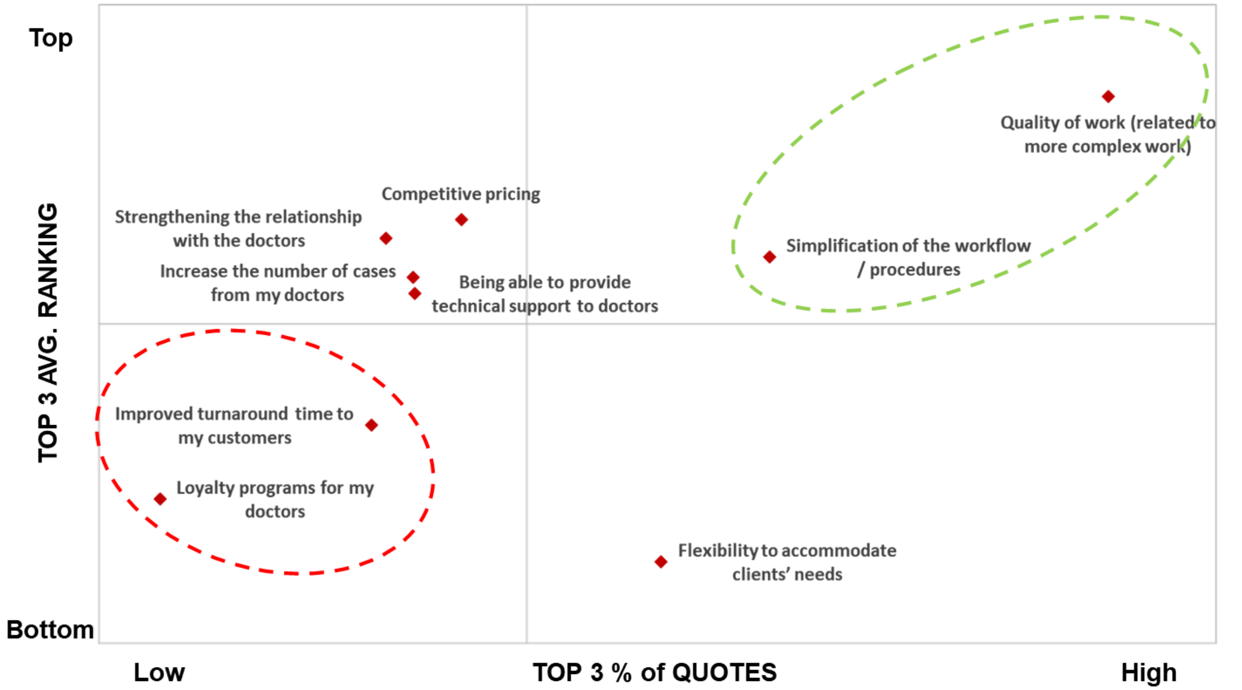
Lab needs in terms of business support

Actions to help the business grow

What do you think is going to help you grow your business in the future? - TOP 3 RANKING



Quality of work and simplification of the workflow are the most sought-after actions.

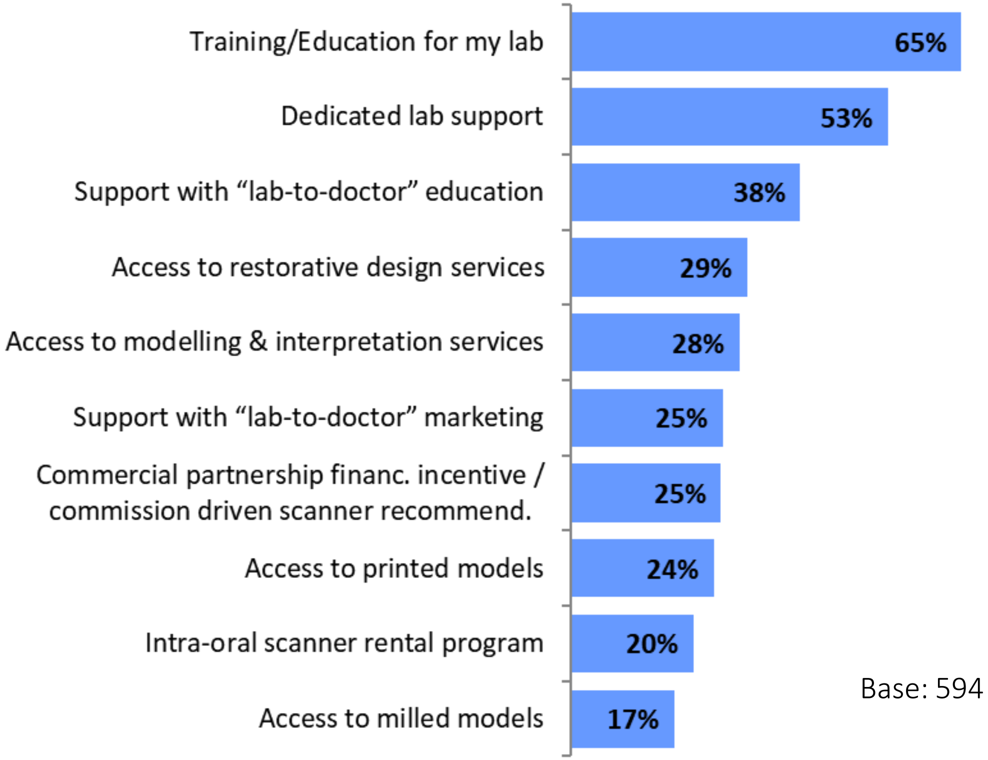


In terms of increasing business, the possibility of increasing the level of *quality of work* (the possibility of doing more complex work) and the *simplification of workflow* seem to be priorities. In Italy, *workflow simplification* and the *possibility of providing technical support* to dentists is of greatest interest. In the UK, the possibility of being able to *strengthen the relationship with the dentist* is one of the most important aspects, in addition to the possibility of *shortening the production time of the finished work*.

- Competitive pricing is more often quoted by **bigger sized labs** (38%) **and by labs producing** ortho cases with **aligners** (38%).
- **Labs recommending Medit** and **Carestream** IOS state more frequently Quality of work (79% and 77%).
- **Labs** producing a **high share of traditional techniques** quoted more than average **Simplification of the workflow** (58%) and so is for **labs serving a low number of dental practices** (54%).

Expected additional support and services

What additional support & services would you expect from digital provider's side? (Multiple choice)



Base: 594 cases

Training / Education and Support are most quoted needs for additional services.

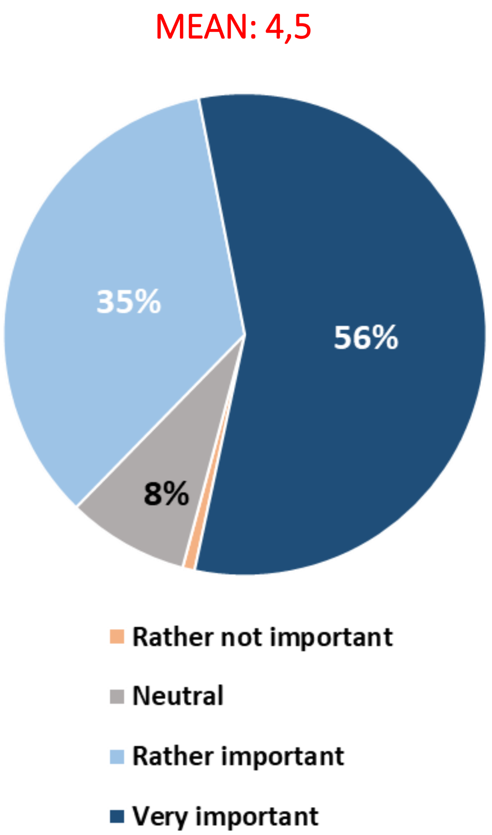
- Dedicated lab support is more often quoted by **bigger sized labs** (64%) and in general by labs **receiving higher than average scan files** from clients and those **equipped with milling unit** (59%).
- "Lab-to-doctor" education support is more often quoted by **labs attributing a high importance to training and education** (44%), by those **receiving high shares of models/impression works to digitize** (48%) and by **smaller sized labs** (46%).
- Access to restorative design services is more often quoted by **labs receiving a higher share of scan files** (37%) and **those producing a higher number** of ortho cases with **aligners** (37%).
- Access to modelling and interpretation services are more often quoted by **labs with higher share of clients sending scan files** (34%) and by **those performing higher production** of ortho cases with **aligners** (41%).
- Commercial partnership is more often quoted by **labs with high share of clients sending scan files** (33%) and **those less involved in traditional techniques** (31%).

In the UK the issue of *dedicated laboratory support* and access to *restorative design services* are the most relevant.
In some countries more elements are mentioned, for example in Spain and Italy both training and support in providing a synergistic training path between laboratory and clinic is very important. In fact, dentists often turn to the laboratory for guidance on digital flow management.

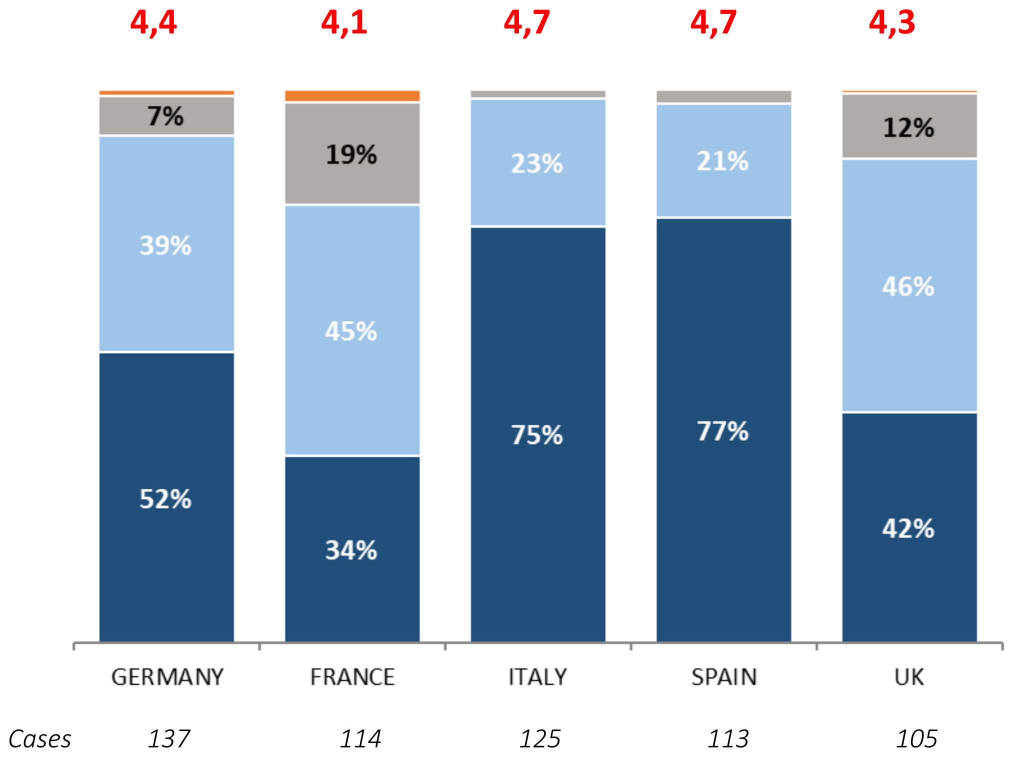
Lab needs in terms of training

Importance of training and education

How do you rate the importance of training and education?



Base: 594 cases

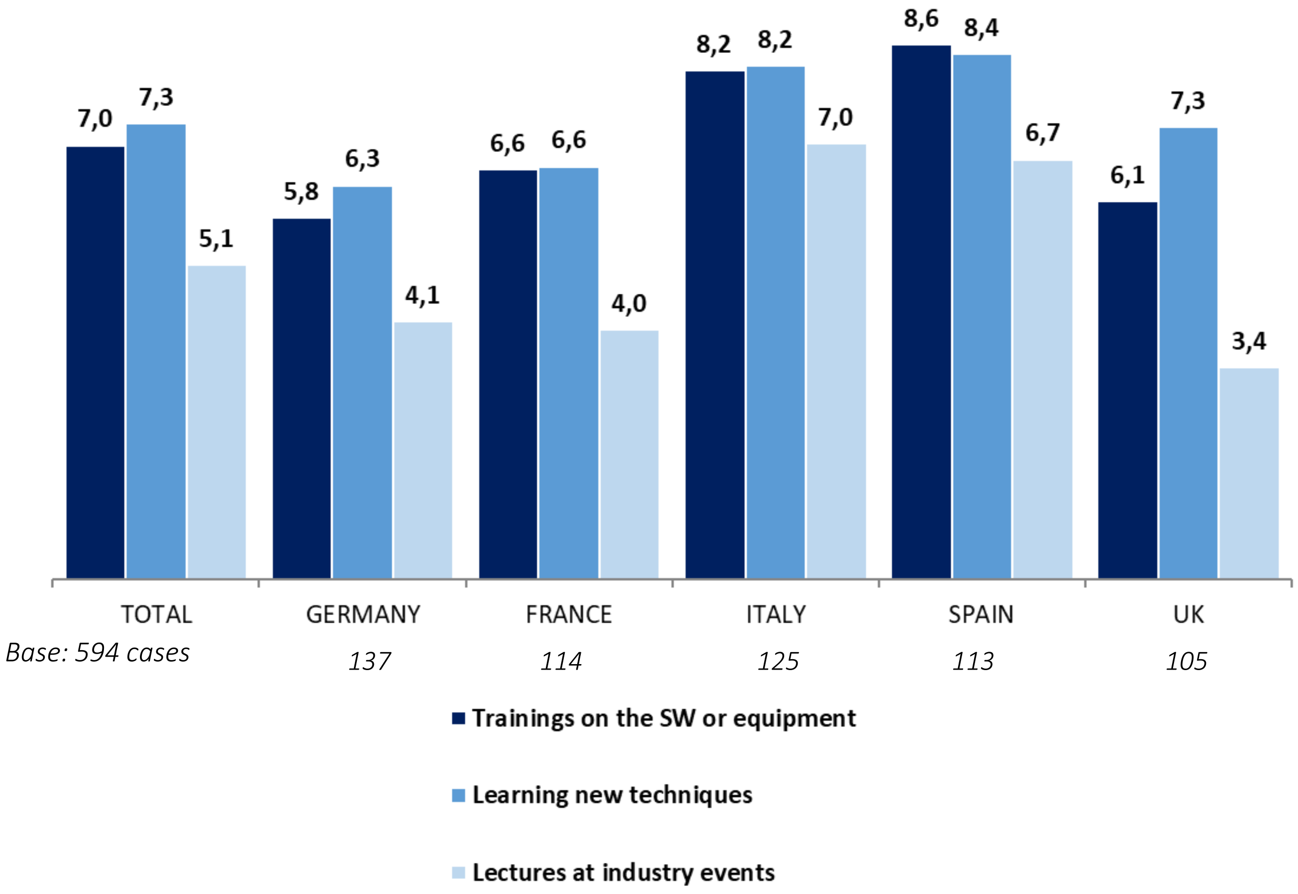


Importance of training / education is very high throughout, even more so in Southern Europe.

- Training / Education is higher than average very important among **smaller labs** (65%).
- And so is for **less recently open labs** (64%) and for those **receiving a lower share of scan files** (70%).
- Again, it is higher than average "Very important" for those who think that IOS scans have had a positive impact on the laboratory business (62%).
- **Where digitalization rate is lower**, the perception that **training** is **very important increases** (expansion phase).

Attended type of trainings

What types of trainings do you attend? How often (no. of days)?



AVERAGE DAYS PER YEAR (Base: respondents attending training events)

Almost all respondents attend training sessions.
Training penetration is over 90% in all countries, with peaks in UK and Germany, where it is over 95%.

- Training days dedicated to Learning new techniques or training on SW and equipment are **higher than** Lectures at industry events.
- **Bigger sized labs** and **those performing** ortho cases with **aligners do spend more days than average**.
- **More digitized labs** are those spending **higher than average days**.
- **Smaller labs**, being them also less digitized, **spend less days a year**.
- **Those considering digitization of the lab has an impact** on the lab staff, are also spending **more days than average on training**.

Desired types of training

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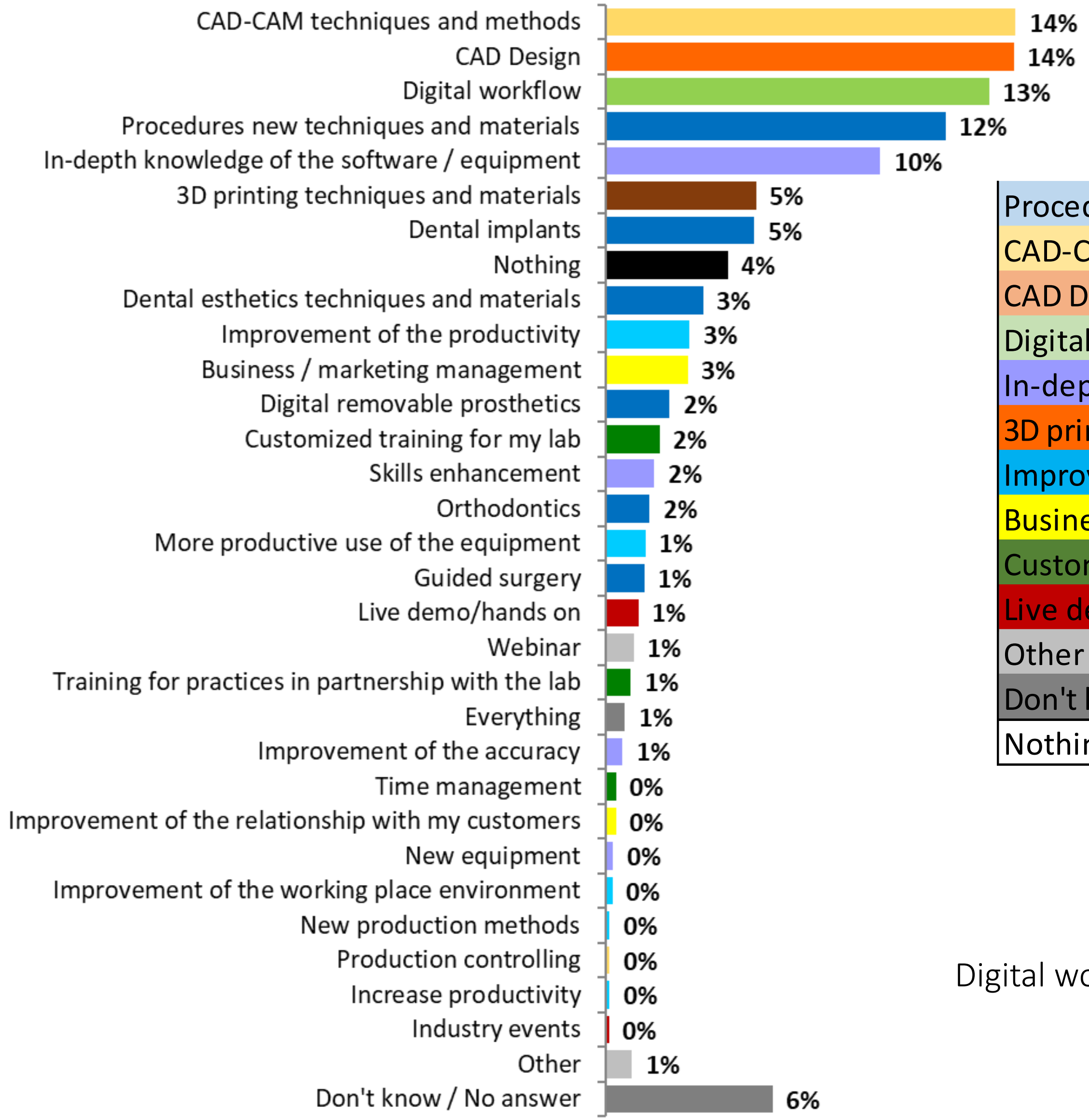
What types of trainings would you be interested in? (Open answer, not consolidated)



	ALL	BIG LABS *	DE	FR	IT	ES	UK
Procedures new techniques and materials	24%	4%	31%	19%	31%	15%	21%
CAD-CAM techniques and methods	14%	19%	11%	11%	10%	14%	20%
CAD Design	13%	17%	13%	25%	17%	10%	0%
Digital workflow in general	13%	5%	12%	9%	12%	13%	15%
In-depth knowledge of the software / equipment	12%	3%	13%	5%	6%	16%	16%
3D printing techniques and materials	5%	15%	5%	10%	3%	3%	3%
Improvement of the productivity	5%	12%	6%	2%	0%	6%	8%
Business / marketing management	3%	11%	1%	2%	6%	3%	2%
Customized training for my lab	3%	6%	3%	0%	0%	4%	7%
Live demo/hands on	1%	6%	2%	0%	0%	3%	0%
Other	2%		1%	0%	1%	4%	1%
Don't know / No answer	6%		2%	11%	6%	6%	3%
Nothing	4%	4%	1%	6%	6%	4%	2%

*Big Labs with more than 15 technicians employed

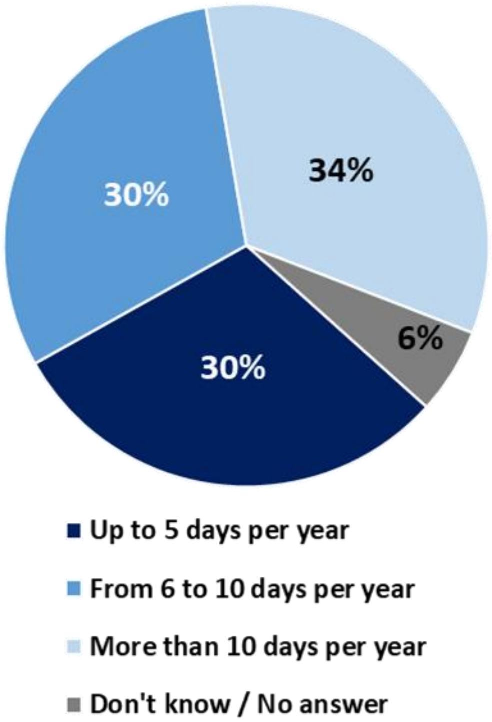
Learning new techniques and digital workflow are the most sought-after topics.
Digital workflow and techniques for using CAD-CAM are among the main topics researched in the courses, along with improving knowledge of new techniques and materials.

Time and money per year to dedicate to education

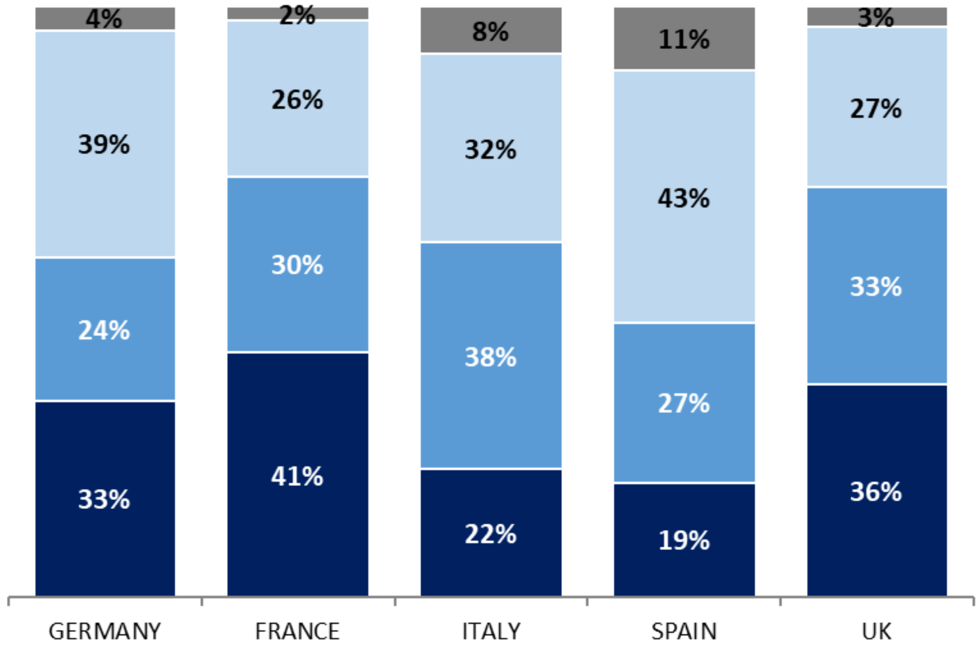
LABO

How much time are you willing to dedicate to your own and your staff education (number of days per year)?
How much money are you willing to spend (per year) on your own and your staff education?

Average number of days / technician / year	**2,2**	**1,8**	**2,1**	**3,5**	**3,0**	**1,8**
Average number of technicians	**5,4**	**7,5**	**5,3**	**3,3**	**4,4**	**6,1**
Average number of days per year	**12,1**	**13,3**	**10,9**	**11,4**	**13,4**	**11,2**
Expected average budget per year		**2.252€**	**1.850€**	**1.353€**	**1.626€**	**1.633€**



Base: 594 cases



Cases	137	114	125	113	105

The original answer regards the total number of days per year for laboratory staff. The data on the average number of technicians in the laboratory has been added later to derive the number of hours per capita to be spent on training. While the overall total number of hours is not very different between countries, introducing the average number of technicians, it can be seen that the hours per capita are lower in countries where there is a higher density of technicians per laboratory, while they are higher where the number of technicians per laboratory is lower. Spain and Italy are still the least digitized countries, but they are growing rapidly: more training and education needs are present.

DENTAL MONITOR

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