
Case Study

Malo Clinic

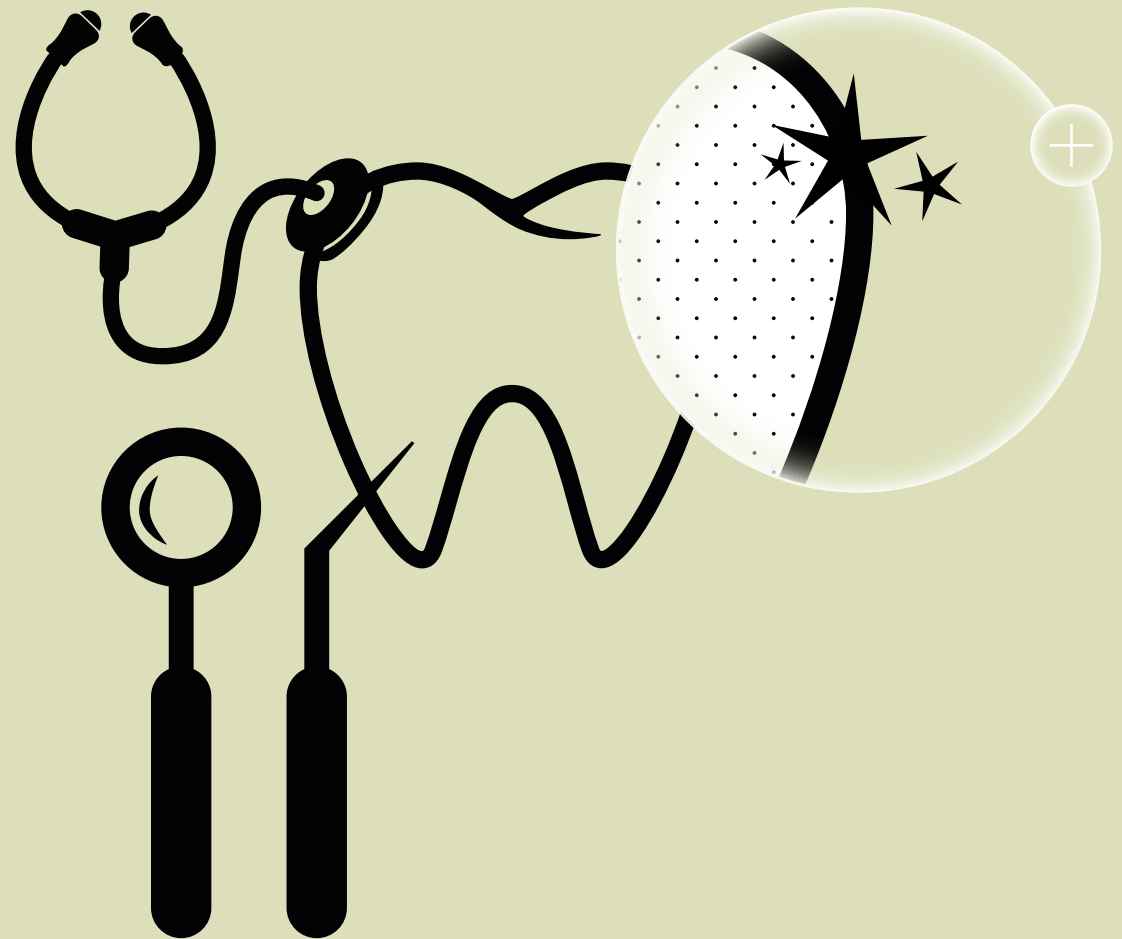
Innovation as an anchor
of global outreach in oral care

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Malo Clinic: Innovation as an anchor of global outreach in oral care

Abstract

Paulo Malo was born in Angola in 1961. At a certain point he decided to become a dental doctor. By the turn of the century his was one of the most innovative dental care operators and ten years after that it was the single most globalised venture in the field of healthcare. Malo Clinic is arguably the most technological advanced and largest operation in implantology and aesthetic stomatology worldwide. The key to interpreting the triumph of this project should be attributed to innovation. This has been the way to introduce pioneering processes (fast techniques and painless treatments) and innovative products (fixed prostheses of new generation and implants without surgery) reaching new markets (toothless patients and segments in the US, Brazil, China, etc.). The commitment to innovation can be seen as an investment in scientific and technological knowledge. But there is also a dimension “non-technological” namely the focus on clinic design and customer handling, creative strategies for building brand and design values, the investment in “spas” and “wellness” treatments, the performance of complex training courses, etc. The strength of this case as a basis for management and public policy lessons can be appreciated as an exemplary integration of science & technology but also marketing & organization.

Keywords

service innovation, tradable services, intellectual property, research intensive education, marketing and design innovation

Acknowledgments

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Personal interviews were held at Malo Clinic headquarters the following executives (by alphabetical order): Carla Costa (Marketing Manager), Marta Roquete (Communication Manager), Miguel Espírito Santo (Advisor to the Board), Miguel de Araújo Nobre (Director of the R&D Department and Oral Hygiene Department), Paulo Maló (CEO Malo Group), Ricardo Rolo (Malo Group Procurement, and Lab Director), Rita Freire (Malo Clinic Education), Rita Lacerda (Malo Clinic Communication Director), Susana Maciel (Human Resources Director). Face-to-face interviews were held on June 9th, 11th and 19th June 2015.

A visit was made to the Malo Clinic Macau on May 21st (Jorge Valente, Vice-President Malo – Macau, received us) and on the 11th June the headquarters’ laboratory was visited.

Selected quotes from those interviews are transcribed in the case. The interviews were in Portuguese language; the quotes were translated into English by the authors.

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Introduction

Warming up in Africa

Paulo Maló is the main character of this story, Malo Clinic' Story. He was born in 1961, the first son of a landowner and his wife, a teacher. Baby Paulo Sérgio Maló de Carvalho has a personal inheritance to be considered, but also a geographical and historical one too.

His parents were settlers in the south of Angola. He spent his early years among the landscapes of colonial Africa, between cattle and melons.¹ He initiated in tasks pertaining to his family's day-to-day farmland and copper-mine dealings. He was used to give a help in these matters, earning his first pocket money this way. But he also exhibited a character at school, where he was on the outlook for good grades.² His grandmother nevertheless feared that he and his brothers were becoming too "wild", driving too young, handling weapons, walking bear feet in the woods. Perhaps autonomy and responsibility were early lessons. But no experience

The young Paulo Maló



they as fathers would allow their own kids to have.

He moved to South Africa after the 25th April 1974 Revolution in Portugal and the ensuing decolonisation process. In the meantime he hoped back to Coimbra, Portugal, where his family had roots. In South Africa he was 13 years old when his parents entrusted him to take care of his brother and sister as they tried to salvage what they could in the turmoil of the handover. Then they settled in Cape Town, where he was to finish his secondary school. He learns English and is shocked by the black-white

segregation, members of his keen are mixed and cannot understand Apartheid.³ He plays rugby and becomes a well-paid male model.⁴ An appreciation for wellness and appearance mattered. Even today he is led to choose his hotels for their fitness centre facilities.

One day in an event organised to bring together teachers and students, he meets Christian Barnard, the famous surgeon who performed the first human heart transplantation. By this time he could have decided to be a veterinary, an agricultural

engineer, a marine biologist, and an astronaut. But the display of scientific skill over the human body surely impressed him. But things were going tougher in South Africa, and life in the Apartheid regime was not proving sustainable. Times they were changing again, and his family loses its wealth for the second time in Africa and decides to leave South Africa.

Moving into dental health

Then Paulo Maló went to Portugal to attend Medicine at Coimbra University, he was 21. Still he worked on odd-jobs, like grilling fish in restaurants in the Algarve. He kept his well-paying model work, doing passarele and photo sessions, until he was 24. He earned money, he saved it, he behaved as if he had plans. And he keeps a busy sporting life, being part of Portuguese national rugby team. One of his uncles' was a dentist and he had a dentist clinic, and this would be a for-sure job. Paulo did not see himself in this profession at first, by then engineering and the sciences were attracting him the most, but dentistry presented an easy path for the future. Under this

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Malo Clinic

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influence, but not very convinced at first, he considers studying to become dental doctor⁵. After a rugby match against the Italian national team he seats on the plane and thinks about his life: he decides to leave medicine, after four years and without completing his training. He enrolls in the Faculty of Dental Medicine of the University of Lisbon and graduates in 1989. At 28 years old is bit late, he admits today. But this would be his trade. And road of dentistry, as it were, will move along with him.

He opened an office in Lisbon, the usual step for a young practitioner. As a dental doctor, he soon revealed special interest for difficult cases. His colleagues saw in him a gift for manual dexterity. Some people they could not do anything with them, to the point they wanted to give them back their money since they kept coming back nagging them. They forwarded him patients with complex problems. So Paulo had appointments with the likes of old ladies who could not find comfort in their prosthesis, patients with severe malformations in the

mouth, young children who had accidents. Paulo saw patients every day as any other dentist. But he tended to be thrown selected cases. Paulo did not shy away new challenges, sometimes even extreme cases. Paulo is building up experience. But, with it, his frustration is also cumulating.

Paulo thinks there must be another way when conventional approaches are unsatisfactory. “We used glue to fix the prosthesis,” he recalls, “I couldn’t do bone transplantation to these people, either because of economic reasons, either because of health conditions.” This was a challenging puzzle. Paulo displayed an ability to concentrate hard and intensively to this day, seemingly forgetting others the in the room while ruminating possible solutions. And there was personal restlessness too. Paulo was growing impatient. “I was dissatisfied with this situation, and with my knowledge and creativity tried to create a solution”.

He was daring enough to think of new implant designs and ingenious enough to try out new modes of work. Paulo is the kind of person that is always

scribbling notes, he is the kind of person that jumps from bed in the middle of the night when strikes upon an idea. He tackles mouth phenomena from the perspective of an engineer.⁶ If there are problems there must be solutions. Cold trained hands to fix problems, but also a creative spirit behind them. He is an imposing figure too: a talker, a well-built figure, towering from his almost 1.90 meters, and his blue-eyes are capable of a fix gaze.

In 1993, he first deployed his ideas for an alternative procedure. “I was shitting on my pants”, he recalls almost twenty years later. After the procedure he could not have any decent sleep and he phone the patient every single day. “Are you all right? Is everything all right?” He then became anxious to move on and to replicate the experiment. More trials. The approach gave all signs of being robust and Paulo is no longer a smart practitioner, he had become an innovator.

And then Paulo made Maló...

For Maló there were two lessons coming out of this moment. First, this was not a finished treatment protocol. It had to be validated. But it opened a precedent.

It could be exploited. But to capitalise on it his organisation platform had to be transformed. In a word: he had to go to the world.⁷

There was a window of opportunity that should be used; he had got a unique take on the problem and he decides to move beyond the confined space of standard dental office. The new approach has the potential for greater diffusion since he believed any aptly trained surgeon equipped with the technique and related ancillary components could do it. That is to say: he strongly believed he could build a business model around his techniques and devices. Money may not have been the trigger, but there was plenty of it to be made as Paulo’s approach promised durable solutions to people facing problems they cared plenty about. These solutions were cheaper and faster than any other available in

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Malo Clinic

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the market. The process was more efficient and the results had nicer aesthetical properties.

There were health as well as economic benefits for patients. But finance was hard to come by. He approached several banks for the capital he needed to purchase a large space in Lisbon. In the end it was a Portuguese publically-owned bank that made the difference.

Here a manager listened long enough. Paulo Maló recalls:

“He believed in me. Passed 80% of the money I needed, plus a loan on the side for refitting works. He gave me all. Caixa Geral de Depósitos was a fundamental stepping stone in the creation of the Malo Clinic.”

By founding Malo Clinic in 1995 Paulo launches a full-blown company venture in the medical area. This was an early example of technology-driven entrepreneurship. Innovation would be his “base camp” from which he could try climb his way up to new highs. But for that a new bank became a special partner, this time a private one, Banco Espírito Santo. This bank was instrumental for the company to scale up and spread up.

He was starting from the outset with an international outlook. Establishing a report with a multinational partner to register and sell the products corresponded to a new type of intensive work Paulo got into. He became an entrepreneur and an exporter at the same time. There was a larger dental industry out there, and Maló needed access to worlds’ markets. For that he needed a credible distribution platform. Since he was starting out he was not in a position to wave bargaining power. So he starts trading his designs and solutions for inclusion in their wide network. This company was Nobel Biocare, a big global player in the field of dental implants, restorative components, computer engineered prosthetics, biomaterials, etc. In time this relationship would become a more balanced and cooperative one.

The roots for future global success in research-based speciality medical services were now firmly anchored. Proving his way among his peers, however, will not be easy as the proposed innovation defied all prevailing paradigms for total edentulous patients.

Innovation that works

Innovation by default

“We don’t have any international benchmark.” Paulo Maló asserts. If there is an experienced dental practitioner he is the one, he travels the world plying his trade. He has covered in profession in time and space. Six years after graduating he set up his own firm, a departure from the simple stand-alone clinic that is still normal in the dental care professional practice. At first it was literally a dental treatment operation, today it is an expanding multi-disciplinary project present in both hemispheres, all continents. But the name of the game is not about just growth and quantitative performance; this is knowledge-based, innovation-driven activity. The very foundation of Paulo’s venture has been betting on quality and dynamics (see Appendix 1).

Malo Clinic can claim to be the worldwide leader in oral care, implantology and dental aesthetics. Simply put, twenty years after its foundation there are no other cases to go around, whereas Malo is present in many

places around the world. At the same time, today there is hardly any dentist or specialist who has not heard about Malo Clinic, its products and procedures. A global operation in the medical sector is a rare phenomenon. Moreover, the fact that Malo Clinic achieved it in the higher-end of his field of expertise is significant.

Malo’s speciality is in difficult cases. The Clinic maintains and continually develops a core focus on advanced oral fixed rehabilitation. It is known for handling successfully the most delicate and challenging situations, including patients that had severe defacing accidents and who suffer from jaw cancer. The unique know-how Paulo and his team developed concerns the treatment and rehabilitation of edentulous or nearly edentulous individuals. This is more than a niche of application (Figure 1). Almost 40% of the world’s population is above 60 years of age (~340 million people). This represents a big promise in terms of health and wellbeing.⁸

8 · Malo Clinic estimates. See also <http://bit.ly/1Ud5lNz> for the incidence and the impact of edentulism on general health. For the importance of reducing social inequalities in oral health see <http://bit.ly/1PEOL7W>.

Case Study

Malo Clinic

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No minor value of proposition in an ageing global society.⁹

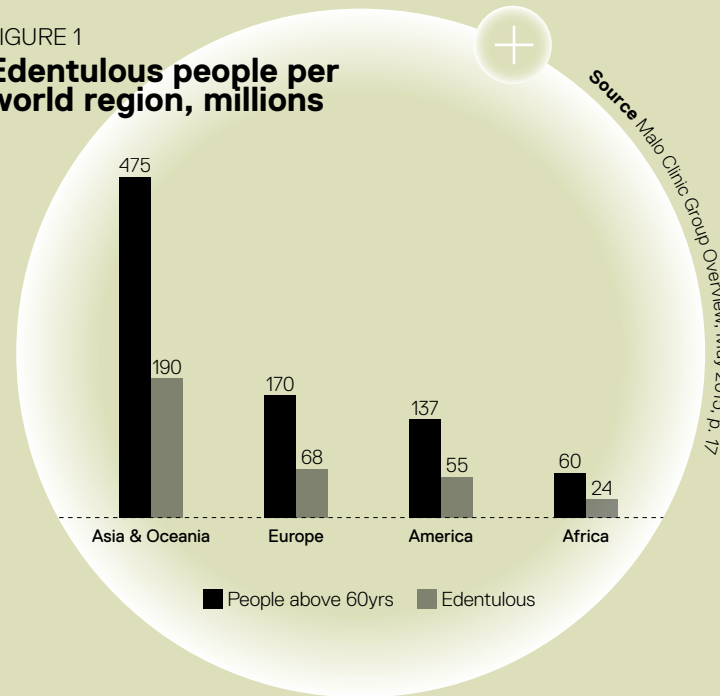
Maló himself with his teams have been attempting new pathways from the start. In his words “It was innovation of technique and products that made us known.” Paulo Maló imagined, articulated and pioneered concepts that made him stand out from ordinary practice and regular approaches. That gave him an edge. But that edge has been sustained. Today Malo Clinic has a fully organised R&D system functioning permanently, a tooth and implant laboratory in constant renewal, and team of surgeons and clinicians with expertise on new treatments. Continual development in technique and technology is the norm.

Innovation was the key determinant for Malo Clinic early success and is its most important

9 · The Financial Times by the mid-2000s noticed the dental care to be “a market with huge growth potential.” “People in the US and Europe are expected to spend vast amounts on cosmetic dental improvements as they age.” <http://on.ft.com/1ibvjW4>

FIGURE 1

Edentulous people per world region, millions



driver for going global.¹⁰

Hitting upon an “hit”

The dentist and the company are best known for a key innovation. The breakthrough was total oral rehabilitation with a simple surgical and prosthetic solution. Paulo Maló introduced it in a

10 · Let’s take a corporate powerpoint presentation from the Malo Clinic dated May 2015. The first adjective used is “innovative”, when characterising what the company does. And when the company lists its “distinctive factors” the word “innovation appears” to name the first of them.

pilot experiment in a real patient and, more than two decades later, it keep being as the state-of-the-art in its class. But, as in all novel attempts, it was no certain affair. Paulo had been toying with the “immediate-function” approach since 1991¹¹. When he moved to make his first pioneering attempt of 1993 he was scared and unsecure of the results. This was the All-on-4 treatment.

11 · <http://bit.ly/1fN2xcD>

The literature states that the practice and the supporting technology behind prosthodontics has “evolved tremendously”.¹² Prosthodontics is a complex speciality¹³ since practice and training have to deal with oral and maxillofacial diagnostics, restoration and replacement of missing dental and bone structures, and the engineering and maintenance of dentures, bridges and implants. An extreme situation in this spectrum of possibilities is total tooth loss. And here enters Maló, who advocated a novel, indeed, radically new approach.

Maló’s technique for total rehabilitation of the edentulous is known as the “All-on-4” treatment. This is surgical and prosthetic procedure that was introduced and developed in the 1990s following the work and

12 · <http://www.ncbi.nlm.nih.gov/pubmed/25489155>

13 · In the US there are nine recognized dental specialties. According to the American Dental Association “Prosthodontics is the dental specialty pertaining to the diagnosis, treatment planning, rehabilitation and maintenance of the oral function, comfort, appearance and health of patients with clinical conditions associated with missing or deficient teeth and/or oral and maxillofacial tissues using biocompatible substitutes.”

Case Study

Malo Clinic

MALOCLINIC
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analysis by Paulo Maló and his team. The first case was in 1998. Then advanced was carried out in cooperation with Nobel Biocare, the world's leading implantology goods manufacturer and professional services firm.

The "All-on-4" consists of an oral rehabilitation that is done in little time, with low uncertainty and by dispensing painful, costly and risky bone transplant. A totally or nearly edentulous maxilla and mandible is fitted with a fixed prosthesis by placing four titanium implants, two of them tilted, where jaw bone is available. A fixed prosthesis, or bridge of biocompatible materials simulating a perfect set of teeth, is placed over the implants immediately on the day of surgery. The concept is known as the Malo Clinic Protocol (All-on-4+MALO CLINIC Bridge) and is associated with an array over ten other products such as the NobelSpeedy implant (Figure 2).

That is, in a single visit with a minimally invasive procedure even for patients with virtually no bone volume can be treated. The result is a dentition with functional (chewing, phonetically,

FIGURE 2

Malo Clinic Protocol, All-on-4system and NobelSpeedy implant

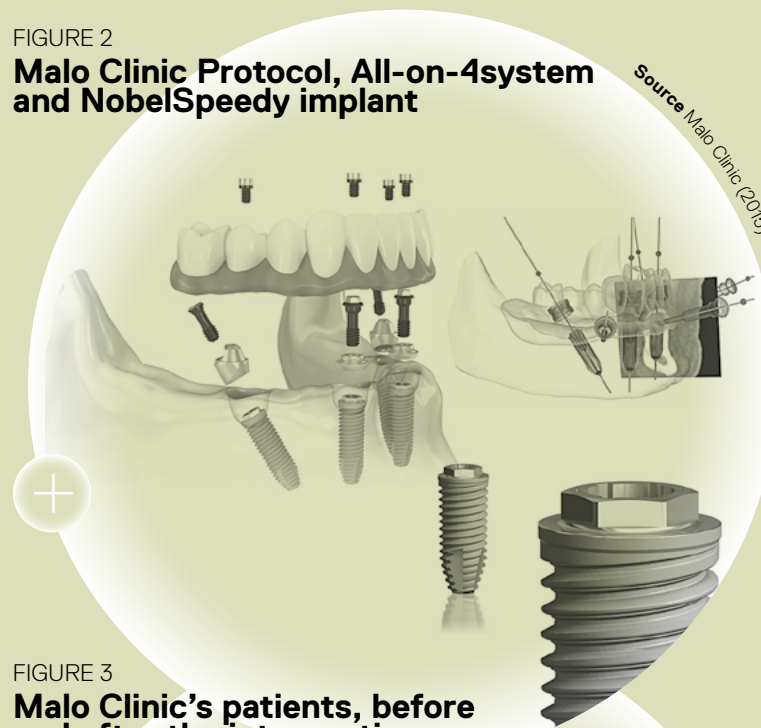


FIGURE 3

Malo Clinic's patients, before and after the intervention



hygienically) and aesthetic qualities that lasts. In between one to two hours, in the hands of well-prepared professionals, the patient suffers a momentous transformation of appearance (Figure 3).

In Paulo Maló's own words:
"Our case was about innovation in the techniques and in the products. (...) That gave us the know-how and the capability to deal with cases with more success, more quality and less cost than our colleagues."

You see, a person then had to make a bone graft that was much violent in terms of surgical aggressiveness. It meant one year without teeth, almost a doubling of cost and a very low success rate in severe resorbed cases. If the patient was a lady above 75 years old the success rate is very low indeed.

We do cases with 94 years old, we place all the teeth in one day, for half the price and with a 98% success rate. It's tremendous because usually when we augment quality and the success rate the cost also rises, it's normal because we are offering a better service."

Case Study

Malo Clinic

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With Malo's protocol half the cost means less €8,000 or €10,000 depending on the country. This because a bone graft means one or two days in hospital and a group of oral and orthopaedic surgeons huddling over four hours of general anaesthesia. Before, overweight people or people with diabetes, osteoporosis or other health conditions that had little chance of success were faced with no solutions. The Malo approach changed all that:

"This is what made us famous and a hook. We could do a thing that other could not do. This represented a window of opportunity. Or would wait and other would copy us or we go abroad and conquer our space while we are unique. What happened is that we kept developing new products that have put us years ahead our colleagues."

This couples with Swedish medical researcher and Professor Per-Ingvar Brånemark discovery of osseointegration (which means the fusing of titanium with bone and tissue) as the two major developments in oral rehabilitation since the mid 1970's.

However, the four implant approach to the maxilla is not the end of the story. Maló and his team were pioneers in immediate teeth loading, were early adopters of CAD/CAM in their dental laboratory for making the teeth, they contributed to immediate implant technology, modified the zygomatic implant and the abutment as well as the surgical protocol (see Box 1).

BOX 1.

Malo's advances

- 1991** Paulo Maló becomes active in the immediate-function approach
- 1993** All-on-4 treatment concept standard first protocol pilot study
- 1998** NobelSpeedy implant development
- 1999** MALO CLINIC ceramic bridge clinical studies, initial phase
- 2004** Nobelspeedy implant international patent.
- 2005** NobelGuide adaptation to the All-on-4 Treatment Concept
- 2005** Study of the All-on-4 Treatment concept hybrid and extra-maxilla, with zygomatic and pterygoid anchorage: initial phase.
- 2005** New zygomatic implant
- 2005** New zygomatic abutment
- 2005** New zygomatic drills
- 2005** All-on-4 treatment concept with extra – maxilla anchorage
- 2006** Internationalisation begins with an investment in a Polish branch
- 2010** The Macau Malo hospital span opens for business
- 2014** NobelParallel CC implant
- 2014** NobelSpeedy NP short implant

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Hurdles of recognition

Academically-based corporate scepticism?

What Paulo Maló achieves with Nobel Biocare (Box 2), the world's largest developer and manufacturer of dental implant technology, is an example of persistence. We needed such a vehicle to scale up the usability of his ideas, a dental goods and instruments maker.¹⁴ But it was not easy to establish the alliance.

Bo Rangert, a biomechanical engineer, would be an early leading expert to be persuaded by Maló. They had had a "good chemistry" from the start and would move along to help the Maló team to establish the results perfect the implant devices.¹⁵ It was Rangert the one presented who first gave notice to Nobel Biocare of Paulo's designs. When they called Paulo they also convened a number of eminent professors in the field. Whereas Rangert asserted the approach worked the academics would laugh and ridicule it: "That is

acceptable in a naval shipyard, but not in the mouth of a patient."¹⁶

They kept working, in spite of the negative feedback at the official corporate level. They studies the effects of using fewer or more implants, the length of the implants, the angle of attack. And Paulo set out to invent new implants compatible with it. The modified implants were designed to give more stability to the bone structure. This was the speedy implant, that Paulo developed in

1998 and pushing the agenda with his own money.

Surely he approached other firms, but these were even more brutal at dismissing the technology.¹⁷ So Paulo kept approaching Nobel Biocare. For eight years he was going back-and-forth to Nobel Biocare with the results of his products and method. Each time the company would assemble a group of seven or eight academics, "university Professors with lots of theory but far clinical

practice". At first they usually said more follow-up was needed. The following meeting Paulo had more follow-up time and more cases. Then they started to argue that the logic was missing and it only worked in Maló's hands, "it was not replicable". It was only through the influence of an outsider, a lady experienced with medical technology start-ups, that a breakthrough happened. In a world of businessmen this lady dressed in red, wore red shoes and dyed her haired red. And notorious for here heavy smoking too.

Heliane Canepa was appointed as President and CEO of Nobel Biocare in 2001 and stayed until 2007. Canepa has been credited with steering the company into the world's leading position in the specialised dental care and restoration business.¹⁸ Before coming to Nobel Biocare Heliane Canepa had been recognised already twice, in 1995 and 2000, as Swiss Entrepreneur of the Year and listed in 2005 by the *Financial Times* as the sixth of the 25 most successful business women in Europe. The newspaper credited her

16 · <http://bit.ly/1fN2xcD>

17 · <http://bit.ly/1fN2xcD>

BOX 2.

Nobel Biocare



Nobel Biocare traces its roots to 1952 when the first titanium implants were introduced in animal experiments. When implants were recognised by Swedish and US authorities in the early 1980s a partnership was established to industrialise the approach.

The company is named to Nobel Biocare in the mid-1990s. In the mid-2000 the Financial Times recognises it as the leading dental implants concern in the world.

In its communication material Nobel Biocare credits Paulo Maló as *the pioneer of the All-on-4 surgical protocol*. Straumann, Nobel Biocare's largest competitor, also credits Paulo Maló as the developer of the Malo Clinic Protocol in its commercial material.

Source: <http://bit.ly/1O2jviY>

14 · <http://bit.ly/1fN2xcD>

15 · <http://bit.ly/1hoSOu0>

18 · <http://bit.ly/1LJui41>

Malo Clinic

MALOClinic
HEALTH & WELLNESS

for “brilliant marketing skills” and observed the Nobel Biocare seemed “buoyed by her energy”.¹⁹ Canepa was committed to strengthening the links between research and business, keen to retune the company’s product range and to aggressively promote the company’s latest surgical innovations with conferences, workshops, hands-on demonstrations worldwide. She is the power-broker that would make the Maló dream a tangible success. One day she called him. “She believed my products and method,” he says “and she decided to go forward with it.” This was significant. Maló, goes on: *“She believed in the project. This was not pre-planned. She went to the chief research engineer and he said that the ideas were workable from an engineering point of view where scientifically they were valid too. And she as CEO decided against the advice of the wise men committee. The All-on-4 has since been released and is by far the most innovative product in the last 40 years. This product ensured that Nobel Biocare gained market share.”*

Friendly to users, but unfriendly to peers?!

If Canepa was like a corporate godmother back the Nobel Biocare internal chief expert was like a scientific coach. Rangert had been involved the studies of biomechanical analysis. He was experienced in understanding and articulating why concepts worked the way they did. Rangert was used to take technical information and promoting treatments concept to clinical practitioners, mainly.

As Miguel Nobre, head of R&D at Malo Clinic, looks back he acknowledges the importance of these interactions: *“He taught us many things. And when he died in 2007 I felt the need to move on and take my own masters in epidemiology. Only then we started to write all our studies ourselves.”*

R&D department of Malo Clinic had to deal several times with rejection when submitting papers with evidence. Working with Paulo since before the year 2000 he has experience of that. Winning the peers respect and confidence was not easy. The “all-on-4” was disruptive with the dominant concepts in terms

of dental implants. A decisive landmark was the publication of a paper in 2003 where Maló and his team fully articulated the new treatment concept, this was a full ten years after Paulo’s first hands-on clinical experiments.²⁰

Miguel Nobre is reminded the day they received a rejection of a scientific journal signed by the editor. Willing to improve their text, Malo Clinic team asked what was needed to do to have the article approved, but it seemed not to exist an objective reason for that. The final editor’s answer was: “Because.” This kind of situations made Malo Clinic research team to reinforce their empirical studies and to get used to persistence.

Detraction and recognition

It has been a somewhat up-ill journey for the Maló project in terms of recognition. His first experiments with the “immediate-function” approach were met with suspicion and even rejection. “They were calling me mad”, he recalled in an

interview.²¹

“... we started to develop a technology called immediate function, it is my expression – we take out the tooth, we placed the implant in the cavity that is the hole the tooth leaves in the bone and we placed a new tooth above it. It was the beginning of our rise. They were calling me mad. I gave a conference in Miami and they told me it was a complete stupidity. In another conference in Gothenburg, two professors said it was ridiculous.”

The standard procedures was different:

“We took off the tooth; we let it pass four or five months for the bone to close. We made the hole and placed the implant. After having waited three, four or five months we placed the tooth on it.”

There was resistance from the establishment:

“As in everything in medicine there are dogmas and people who think they know everything. That was the classical way of doing it. But if I asked: “Why one does this way?, they would answer: “Because this is the way” and I

Malo Clinic

MALOClinic
HEALTH & WELLNESS

hate to be told that. It gives me a mix of anger and challenge that makes me want to prove the contrary. If they do not explain it is because they do not know and if they do not know is because there is the possibility of doing in another way. But it was a war.”

And he states “The fact I was a Portuguese did not helped.”

Meaning:

“Being Portuguese does not bring credibility in the field of new technologies or very sophisticated inventions. If I set out to improve a wine or a cheese or some grilled sardine is all very fine.”

More and more evidence was out that the approach was a viable solution. But it was also a fact that the dental care community did not absorb the innovation smoothly. Even after the Nobel Biocare involvement and the commercialization of these products all over the world, there were still some challenges to face.

Paulo Maló had his fair share of problems with the Portuguese medical body. At a point Maló was even inhibited for plying his trade for two months: “He was suspended for claiming to be the pioneer he

cannot claim to be, for saying he is the best and that is against the ethical rules.” said the Head Ethics Commission of the Portuguese dental medical professional body who he is also Full Professor of Malós alma matter.²² However, he goes on to say:

“I do not question the technique. There is no evidence of bad practice.”

So what is the problem then?

“The problem is his bragging. Claiming to be the only able one is a lack of respect for his peers. That malicious advertising. He did not invented it, perhaps he has more cases behind him.”

Paulo Maló and his head of research refer to scepticism as a constant, in Europe, as well as in the US.

Indeed, there is a dearth of scientific literature discrediting the approach or the surgeon himself. A recent book on oral rehabilitation, edited by a professor and consultant from Australia, cite Malo and his team in connection

22 · <http://bit.ly/1F5Ss18>

to implant-supported fixed technology.²³ A recent book edited by a scholar of School of Dental Medicine of the University of Pennsylvania, refers to Paulo Maló and colleagues as the authoritative source for the description of the “All-on-4” approach.²⁴ Its advantages and popularity are recognised as well as its the short-term outcomes but mentions the need to substantiate the validity of the long-term results.

However, even more recent review work already reports evidence pointing in positive direction. One example is an editorial review organised by Harry Dym, the Chair of Dentistry and Oral Surgery at The Brooklyn Hospital Center and maxillofacial surgery at Columbia University College of Dental Medicine. Here we can see a report on the very high success rate over a 10 year period (99.2%) while also pointing to the immediate psychological effects

23 · *Oral Rehabilitation: A Case-Based Approach*, by Iven Klineberg and Diana Kingston (eds) (2012), John Wiley and Sons, John Wiley & Sons, p. 409. <http://bit.ly/1hnBwxl>

24 · Daniel W. K. Kao, *Clinical Maxillary Sinus Elevation Surgery*, John Wiley & Sons, Mar 26, 2014. <http://bit.ly/1KkPGwq>

on patients.²⁵ Here too the “all-on-4” is explicitly credited as a Paulo Maló design.²⁶

The company reaches out

Sharpening the skills

Having called the attention of the international medical community but provoked some scepticism among dental researchers the idea became to invest in education.

One of Maló’s Clinic priorities is training their own staff. The education of dental doctors and the training of all the technical workers is also a way of combining technical capacity and individual empowerment with the culture of the company. All the people involved in technical and clinical service to the client has a preparation in the headquarters. The workers are also stimulated to circulate within the group, meaning that when a new clinic is

25 · *Implant Procedures for the General Dentist*, Harry Dym (ed.) (2015), Elsevier Health Sciences. (p. 467).

26 · *Implant Procedures for the General Dentist*, Harry Dym (ed.) (2015), Elsevier Health Sciences. (p. 427).

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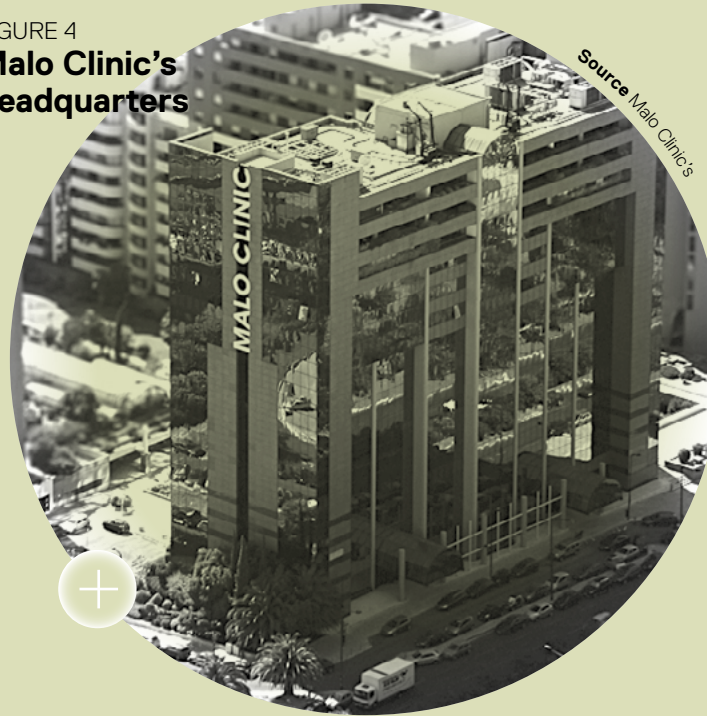
open an internal call is made for those who might be interested.

But one of the most interesting practices on the training area is that today these very specialised workers of Malo Clinic are themselves the ones teaching the partners and even competitors through training courses and residencies the Educational department promotes (see Figure 4). It was established with its own trademark in 2005. The educational department develops 30 to 40 annual courses and residencies for approximately 3500 persons a year. This is the largest education centre in the world for advanced fixed rehabilitation and implantology.

Thus training is also a disclosure process. Why was this activity established as an operation in its own right? Training became a money maker, generate a revenue of millions. Revenue maximisation occurs while capitalising on already existing resources. For instance, the clinic does stop working and the staff is slightly reallocated to accommodate (i.e. students lean over when experts are operating key tasks). This is possibly the

FIGURE 4

Malo Clinic's headquarters



What is exactly training for?

Every person with education on dental medicine or even as a specialized technician can apply to participate in one of these courses, and then the clinical staff evaluates the applicant background. This person will see the normal functioning of the Clinic, including the surgery observation through a CCTV system, having contact with the clinical and laboratory areas. Partners are welcome, but also are newcomers. This

resulted in sharing know-how and techniques, increasing the number of peers interested in working or studying this method.

At the same time courses and residencies are available for the peers other complementary knowledge-transmission activities are carried. Paulo Maló presents the Malo Clinics' protocol in international conferences, seminars and workshops. In these events many doctors get interested by the method and came to Lisbon to receive training. Nowadays, one may say the Educational Department is also a tool in the internationalization of Malo Clinic.

But education was a sensitive issue at the beginning and it wasn't easy to make the kick off. It started in 2000 at a more national level but in 2004 it already functioned with a systematic program and was international. Before that and since the end of the 90s there was this internal discussion in the clinic if it was better to open the technology and method or to maintain it restricted. Both choices had positive and negative aspects.

biggest high-end dental education operation in Europe right now.²⁷ And, of course, the strategy whereas spreading knowledge allows Malo's surgery technique to penetrate in many markets. But there is also another issue: "the totally toothless person is a disaster ... This is not fair. That was the main reason for teaching it."

27 · <http://bit.ly/1fN2xcd>

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Looking back Paulo states:

“Not to promote knowledge was to maintain the monopoly of the technique, but that would bring two problems: this technique had to be validated for colleagues around the world (peers), for the case of a treatment failure not having problems with justice or corporative professional associations. To obtain this critical mass we needed to more people publishing our method and not people directly dependent of Malo Clinic; another question was to make this products and method appealing for a company like Nobel Biocare we would need more people buying and using our technique and products”

The result was the development of educational area and a specific protocol with Nobel Biocare for training of dentists and technicians. Today Malo Clinic has its own courses and tailor made courses for Nobel Biocare's groups. Specialised education became a business operation in its own right. Malo Clinic is increasingly sought as training ground (see Figure 5).

Education revealed also an important mean to find new

FIGURE 5

Asian trainees, news item in a Portuguese technical magazine



Chinese came to Portugal make training

The Malo Clinic received 60 Chinese professionals linked to dentistry for training. The Liaoning Stomatology Association and Private Dentist Association of Guangdong, from the Chinese Guangzhou region, sent their doctors for advanced training with the team Malo Clinic and Paulo Malo and acquire know-how '.

The large Asian presence is justified by the bet of the company on this market,

especially in Macau, Shanghai, Beijing and Guangzhou and, as well, the new partnerships with the Taivex Health Management and the Taipei Medical University Health System MedicalCenter two major health groups in Asia .

The international program “All-on-4 Treatment Concept” took place in the same way the Asian training but had 27 participants from countries such as Lithuania, Russia, the UK, Australia and India.

Source: Dentalpro, November, 2013, <http://bit.ly/1KtGRPt>

partners, most of them attracted by the success of all-on-4 technique, which still is the most known hit of Malo. When Malo Clinic signs a partnership

education is part of the deal, although the most complex cases are still done in the headquarters or by the senior specialized clinical staff of the headquarters

as a way to maintain a restrict control of quality. Paulo Malo himself stays most part of the year operating in the several international clinics.

Very recently and in the one of the most promising international market, Malo Clinic developed special partnerships in the education area. China has become the most dynamic market for the group and among other educational activities; there are study clubs and special residencies.

Having these courses and residencies spreads the Malo name and techniques. But it brought with it another challenge. They had to permanently innovate to be ahead of the ones receiving this training, because some of them might be competing with them. This demand justifies the activity the R&D department maintains and the involvement of all dental medicine staff in research. Led by the direct contact with the patient (knowing his needs) and by an organization oriented for innovation (with R&D department directly connected with the department following up the patients) the

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company assurances its leading position in the “all-on-4” method. Again innovation guarantees the business success sustaining the place Malo Clinic has in the national and international market.

Service and Communication

Designing oral care service

Service design at Malo Clinic (see Figure 6 for an illustration) can be unpacked in at least three layers. There is a strategy for the front-office, how appearances and experience is moulded. There is a customer-centred set of operations for the treatment processes. And there are a number of underpinning back-office organisational capabilities in place.

Taking the pain and discomfort out of dental practice begins well before the therapy itself. Corporate identity and ambience design were critical dimensions in the business concept from the start. The philosophy and aesthetical signature of Malo Clinic’s brand image and clinics’ design were authored by

Alexandra Malo, Paulo’s youngest sister.

Throughout service design, Malo Clinic, intends to be different and closer to the client/patient. All the service is organized around the patient’s needs and experience. At Malo’s clinics one finds organized service, a clean decoration and functional spaces. While waiting patients are in a comfortable waiting room with a device which will give them the calling sign. During waiting time they can use different services at their disposal: a nice café, beauty treatments, shopping some products or just read magazines and newspapers available (Malo Clinic has an agreement with a media company, and this is included). Children have a playground place to play and have fun. The customer’s experience is not spoiled when waiting for a medical intervention. The clinic’s service begins by creating the sensation of not being in a clinic, but a leisure centre to take care of their health and wellness without syringes or hospital odours (Figure 6).

The operational routines and patient flow are also streamlined. Entering the doctor’s cabinet

FIGURE 6

Curated environment of a Malo Clinic facility



the patient will be attended following the internal briefing based on the interconnection of dental area, verifying all clients’ needs, retrieving her historical record and activating the indicated services. This is an area that has been worked out in the sense of lessening the waiting time for the patient when she needs interventions from different departments. For instance, the laboratory department has been key in developing new routines for fast moulding ceramics and casting of implants. Under urgent services flexibility in lunch-time when the work is articulated

between the doctor and the prosthesis/dental implant technician in order to have always someone working with the patient. The patient shall never be alone while under treatment at Malo Clinic (Figure 7).

But this goal of providing an integrated and streamlined service does not happen only in at the level of the individual clinic. All the clinics are connected by an internal communication network, but also using social media as “We chat”, “What’s up?”, “Skype”, trying to maintain identical service output and outcomes in every clinic around

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the world. This allows Malo Clinic to have communication in real time throughout the organisation. Also they use visits and doctors and technicians exchange to promote discussion on the applied methods. When some service innovation is introduced (even if the idea comes from someone outside of the headquarters), it is trialled and validated at the headquarters. If it is proved to yield a service improvement it will then spread to all the clinics.

Broadcasting Malo's way

The work of communication and marketing is mainly done at the headquarters²⁸: they have marketers, communication technicians and designers. The website is a creation of their own. Externally procured tasks did not function as expected, so Malo Clinics tends to internalise functions. The head of the

28 · Rita Lacerda, Marta Roquete, Carla Costa. Communication and Marketing. Malo Clinic, Headquarters – 19th June, 3.50 pm

department, Rita Lacerda says that “we are closer both to the clients and to the technical work we have in the clinics.” So they persuaded the administration that outsourcing should be used only in very specific cases. In Portugal they are responsible for all the communication and marketing. They are a team of 13, but they were more sometime ago. In an area very strict in terms of communication and marketing, every promotional material has to be carefully studied. Comparisons cannot be done and treatments cannot be offered. So the company had the challenge of spreading the new concept of oral rehabilitation introduced by the clinic to an uninformed public. As an innovative method it was difficult to make everyone understand the process. So answers were found in unexpected proposals.

This was the case of some radio broadcasts (for instance in a local radio in Algarve, Portugal) and of the TV show “Portugal a Sorrir” (Portugal Smiling). They oversee and co-produce “Portugal a Sorrir”. Having a partnership with this TV show was not easy, as the issue rose some internal discussion on the

kind of public watched the show (it is broadcasted in the morning) and about the exposure the Clinic would have²⁹. Although all the doubts things were easily and naturally going. The idea emerged from a personal case: to cover the story of a person with an oral cancer who needed a solution for her problem. It did not come out of an internal brainstorming or something the marketing team had planned by themselves. The patient was not finding solution and Paulo Maló decided to offer her the opportunity to have a treatment. She was living in London, but being followed by a Portuguese journalist. She spoke on a Thursday with Paulo Malo and got the operation the day after. The case was followed on TV with great success. Afterwards there was a new case about a man who had suffered shotgun shooting and again Paulo Malo did a surgery *pro bono*. In this case there was TV involvement.

Internally they were facing some resistance to these experiments. Not because of being *pro bono*, but because it was a popular slot

FIGURE 7

All-round display of attention, the Malo team in action



Source Visão, 2010, March 10, <http://bit.ly/1F5Ss18>

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that is not the prime customer target. But Paulo Maló and the communication and marketing team believed in this path. By that time a major TV show presenter had an “All-on-4” treatment (see Figure 8). This media star was very happy and became a fan, promoting Malo in a number of ways. He was toothless and “was so thankful and so furious at those who had told him his problem had no solution that he thought his own case had to be known”, tells Maló.³⁰ The TV show was monthly broadcasted, but having so much success that Paulo Maló decided to make it twice a month. Finally there was some sympathy at Malo towards this actions and the idea was adopted.

The show involves the Communication and Marketing department and the medical team doing the intervention. The participants are chosen by Malo Clinic according to their life stories and the fact they have low income. Then they make a before and an after, focusing not only in appearance, but mostly in

how people’s life changes. Their aim is to assure it is more than a physical change; it also results in a psychological transformation because people feel they have more success in socialising their experiences.

Today there is such a show running also in Poland, as a support for their operating there but in a slightly different format, as the media and advertising law in Poland is very different from the Portuguese.

FIGURE 8
The pivotal media figure



Source Malo Clinic's

New Knowledge is New Normal

The innovator in chief

Malo's is seldom on record claiming he invented it all. On the contrary, he is careful to position his claims. Regarding the “Speedy” implant *“I made from the drill to the implant, passing by the way of placing the prosthesis, I did everything to create a protocol. I did not invent the implants, I have changed them. I did not invent the total fixed prosthesis, I have changed it. I have changed those products to work without bone transplantation, with a higher success rate, cheaper, having the teeth in the same day. For half of the price.”*³¹

Miguel Nobre echoes this point: *“If we separate the main elements of the techniques we weren't the first to use it. But in a combined way we were the first to deploy the four implants for immediate rehabilitation, using four angulated implants. So we were the first ones to do total*

rehabilitation in just one day. We started by the jaw, because it was a win-win situation (there was quality and quantity bone to receive the technique).”

Then, it was a learning curve: *“... in the beginning I was only doing this method to the younger patients, with very good bone.... Then we moved for the less perfect cases – older people, less bone, the ones needing take the teeth and place the implants at the same time...”*³²

As the technique is more and more out in the open the issue seems to be keeping on learning; learning faster than competition, that is: *“I love competition – but until today no one was able to improve this technique faster than me.”*³³

Malo Clinic kept on developing more and better products adapted to the technique, trying to improve every year. This is the story of NobelSpeedy (from Nobel Biocare) and its unique group of product, from which Paulo Maló received fees on the sales. Malo

30 · <http://bit.ly/1fN2xcD>

31 · <http://bit.ly/1fN2xcD>

32 · <http://bit.ly/1fN2xcD>

33 · <http://bit.ly/1fN2xcD>

also offers the implant of 25 mm or the zygomatic implant, the one receiving COTEC award. With this design the maxillary bone to do implants is not needed, and that was a technical jumpy as well as a cheaper and quicker method from the point of view of patients.

The record of self-owned intellectual property has increased recently:

- Paulo Sérgio Maló de Carvalho. Fixed prosthesis supported on Metal- ceramic dental implants for prosthetic rehabilitation of edentulous patients. Utility model number 10759. December 12th 2012.
- Paulo Maló. Device for transferring the position of an angled abutment from a model to an implant. United States of America patent US8142192 B2. March 27th 2012.
- Paulo Maló Carvalho, Lars Jörneus, Henrik Petersson. Medical implant and method of implantation. International patent WO2010003433 A1. January 14th 2010.
- Paulo Maló Carvalho. Fixture

for anchoring in jaw bone. International patent WO 2004/091424 A1. October 28th 2004.

Recognition via awards and prizes kept powering in (Box 3).

Research it, evaluate it, do it all over again

Miguel Nobre, Malo Clinic's chief scientist, says that:

"When When I started at Malo Clinic, 16 years ago, we were already involved in a partnership with Nobel Biocare for development of products. It was getting out the first implants with oxidized surface that became the standard of implantology. By that time Paulo Malo thought about creating the R&D department."

The key business of this R&D was to muster evidence behind the "All-on-4" technique. This means that Malo is awake to the business of publishing papers in authoritative journals (Figure 9). It is a credibility game. Establishing on paper what is already proven in practice.

There was much resistance in the dental medicine profession,

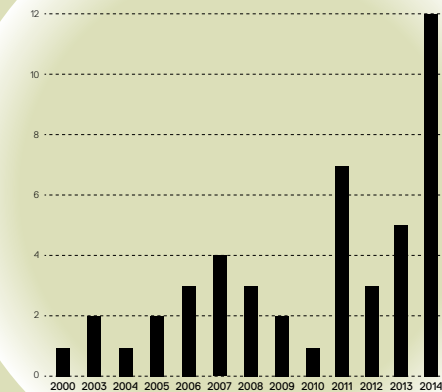
BOX 3

Awards and recognitions (sample)

- ▣ "Iberian award 2001 Clinic Implantology –SEPA e Nobel Biocare"
- ▣ "INSEAD's Entrepreneur of the Year Award" – 2007
- ▣ "Produto Inovação COTEC UNICER 2010" -This award aimed to promote business innovation in Portugal, distinguishing the Implantology and Fixed Oral Rehabilitation surgical techniques and devices, All-on-4
- ▣ "Innovator of the Year 2011" from Mediazone Group assigned by the publishing "Hong Kong Most Valuable Companies
- ▣ Malo Clinic selected National Champion in the 2013/14 European Business Awards

FIGURE 9

The pivotal media figure



Source: Malo Clinic's scientific output

so they thought about moving upward in terms of legitimacy proving scientifically the methods and the success rates of the techniques. Their main concern in terms of formal research is the clinical

epidemiology. The evaluation of dental applications has always a focus on the patients, so it is very practical and not aligned with the fundamental scientific research.

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But to what else is research for?

Malo's research has an empirical basis, it is applied and the endpoint is always the patient. It is about increasing their success through improving the technique and giving more life quality to the client. The R&D team is focused on the development of innovative products and techniques adapted to the approach they already master.

The concern is to be accepted by the peers and to face attempts at discrediting the methods that made Malo Clinic famous. But publishing and dealing with questions helps to perfect the technique and its presentation. The Malo researchers started doing a roadmap from the doubts and questions the method might raise within the dental doctor community. Each time there is a new product variation or a change to a part of the protocol, Malo Clinic goes for publication engaging directly with scientific stakeholders. Feedback is now a core input for continuous improvement.

But a key R&D work is now to follow up all the patients receiving

Malo treatments all over the world. A system for gathering all the data about their evolution and situation is now established. And this is a huge asset now, systematising patients histories and developments. Increasingly in Malo's work one may find studies with short follow-up but also for longer periods (the longest study was based on a fourteen year follow-up). It is not by chance that Miguel Nobre is directing both the R&D department and the Oral Hygiene Department. It is the easiest way to share the same protocol when analysing the patients and collecting the data needed to demonstrate the technique is applicable.

Nowadays, moreover, actors from the fundamental scientific research already come to Malo. These institutions are interested in developing partnerships as part of more fundamental agendas, for instance in the genetics area. This emergent type of research collaboration is grounded in PhD student projects.

Malo Clinic has already two partnerships in research with the Medicine Faculty (University of Lisbon) by the side

of Malo's headquarters. It was the Stomatology Service who proposed to Malo Clinic this cooperation. This partnership resulted in some of Malo's dentists starting a PhD in this faculty. Recently this kind of collaboration in research is unfolding. It is a win-win process as the university can help them in the area of pain treatment and, in exchange, Malo Clinic can teach their technique. Malo also considers the possibility of post-graduate courses to medical staff sharing some of their techniques, covering dentistry, aesthetics doctor and general physicians. But as the partnership begun recently it is not decided if it is going to be deeper or only maintain the present model.

Nowadays, moreover, other actors from the fundamental scientific research already came to Malo. They are interested in developing partnerships to push ahead more fundamental agendas, for instance in the genetics area. They have international standing and, however, and this new development is grounded in PhD projects we are nurturing.

Sustaining dental care business model

Human side, people management

The Malo Clinic story begun by a need for solution of the most complex cases of edentulous people and continued with the need to prove the method was possible. This path obliged Paulo Maló to become more a more a team-assembler.

The company had to focus quality, rigour and a high skilled working force. And this is present in the enterprise organizational culture. Workers empowerment and motivation is based on the opportunity of working with the newest techniques in dental health sector, which allows them to be very skilled players in their area. As there are hyper specialized services, most of training is distributed according the specialization of each worker, exception made for general training courses.

Human resources as a critical capability

The exclusivity of workers is considered one of the pillars of

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internal work organization. This makes them concentrated in the philosophy of the company, and being available to work for improvement.

Although the company has some benefits for the workers like discount on services and facilities in payment, the major motivation seems to come from the idea of excellence and quality of work meaning to improve every day and to build personal and institutional capacities.

Human resources department is recent and appears with the boom of clinics in national territory and with the international expansion, and the consequent complexity brought by new partnerships under different models. All the services and departments were affected by Malo Clinic growing, but some like the clinical department were more prepared. For other services it was important to adapt. The ceramics laboratory is a good example of that, creating and adapting protocols and procedures permanently to improve the final result. It earned its own autonomous trademark in 2008, a community trademark

valid in all Europe as Malo Clinic Ceramics.

Diversification dynamics

Qualities of service and quality of service

As seen before, Malo believes health services should have a consistent association with wellness. Therefore the company developed some services integrated in the clinics' spaces. Although these services were not medical ones, they could complete the sensation of feeling well. The opening of a Spa in the same space as the clinics in Macau, the investment in the Luso thermal baths and the integration of a gymnasium in the same building as the Lisbon clinic represent this concept of integrated service clustering. At the Lisbon clinic, for instance, other services as performed such as a hairdresser, an aesthetics boutique or even a gourmet shop selling products like wine (Malo's wide, as a matter of fact). These services the function of making a clinic will be much more than experiencing

a cold medical service and this was the justification for this investment in surround areas that one may think are not directly connected with the dental health or health universe. But the Clinic itself created the traffic that helps reinforce the other operations.

But while inside Portugal expanding this way was possible it was not clear it would have the same results in other places. So focusing on its core business Malo Group found the way for internationalization: dental health was the area bringing recognition to the company and the reason why the name was known worldwide. This does not mean in the future Malo Group will not have prestige in other areas like wellness. But for the time being the idea is to reinforce the brand by beginning with the most known area of activity: the dental health solutions.

One of the main concerns of the geographical diversification, meaning internationalization, was the fact quality had to remain the same. Difficult cases are coming to the headquarters for treatment. Laboratory material and component are standardise

and sometimes produced at the headquarters so as to assure homogenous quality. Since Malo Clinic name was known because of advanced methods like the "all-on-4" or the NobelSpeedy it is deemed essential that placement methodologies and complementary materials are in line with the standard requirements.

Paulo Maló follows this perspective. That is why, he says, internationalizing services is more difficult than exporting his wine (he is a producer of wine). The main challenge is to deal with heterogeneity stresses. Keeping the quality and controlling its outcome in terms of customers' experiences.

Going global

Internationalising in the health sector brings other kind of demands too. When it moved towards this strategy Malo Clinic changed its logo and applied for a large number of trademarks. Regulation is intense in the medical and dental care sectors. In same countries clinics have to be owned by locals (or having studied locally) or have to

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HEALTH & WELLNESS

employ a high number of local doctors. The type of presence has to be calibrated to fit the particular laws and customs of target markets. For this reasons sometimes a foreigner cannot be owner of an establishment or a professional there.

Malo evolved a kit of approaches. Today there are three different models to internationalise: the company has its own clinics (like in Poland); the group has shared clinics with local partners (Colombia, Australia, Japan for instance); and, a new internationalization model. In this new model the brand is first licensed (in this way the market is tested), when the brand is well established in the country Malo Clinic's medical staff joins the local team (marketing and communications are articulated with the headquarters), then the company launches the clinic as full partner, as the market and the local organisation are already prepared for this.

Navigating these constraints, Malo Group decided to go forward and in less than ten years the company is present in all the continents (Figure 10).

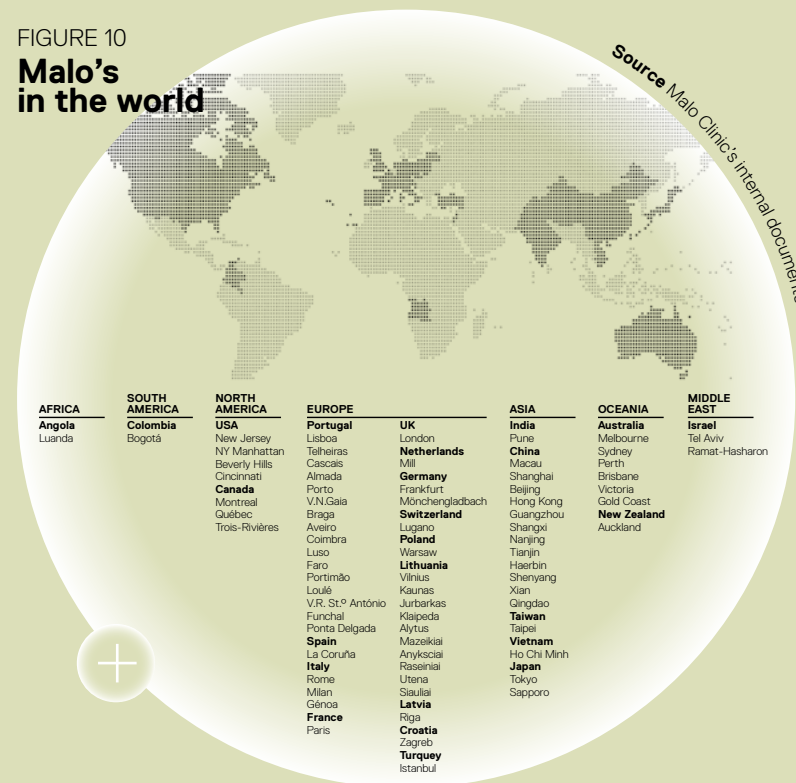
Of course during this process they were learning and they had hard lessons to digest. A big hole in the map is like Brazil. Malo went for it, and failed. Looking back Paulo Maló says:

"The Brazil failure became an enormous management success. We learnt things applied just to our sector... Things you can't find in the books. It taught us things we couldn't imagine they could exist... this is a service and we learnt all the difficulties a health service has to face to internationalize."

In this case language and culture did not help. Maló assumes being Portuguese was sometimes an obstacle to be recognized and respected at the beginning, mostly by his peers or by the industry. But the Portuguese footprint in the world was instrumental during the initial stage of the group's expansion through the world. Paulo Maló recognizes it:

"The only good thing was to have a huge emigrant community who supported our work from the first time. They were our first clients abroad. It was like I was the 'Cristiano Ronaldo' of the teeth... they were proud of

FIGURE 10
**Malo's
in the world**



having a Portuguese as the best dental doctor. That was so in Switzerland, in Germany, in New Jersey, in Luxembourg, in London. It was important to have them there... we have one of the greater diasporas in the world and when we were going to a country we looked for the places where existed Portuguese communities."

The group took the risk of going out in places they believed it was easier to reach clients. Even

though there were bad experiences in Brazil and another one in the US (they had to shut down one clinic in California as they were not keeping with the standards) along the way, these made them improve the internationalisation process. Today they are recognized as a reliable brand and as a company with high business skills in dental health area.

Even though the commitment of the company with

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internationalization is deep, finding the partners to settle the clinics (with all its infrastructure and equipment) requires work and investment. Part of this investment is made directly by the company, meaning the results obtained in other areas are channelled for internationalization. One of these results are the fees from intellectual property. This finance is like a reinvestment as having more partners and clinics will increase the demand for and value of the technology.

Only through flexible partnering, ingenious use of intangible assets and the channelling of earnings into business development could Malo develop expand so rapidly and keep its internationalisation momentum. One key example is how Maló's business in China is developing. The first stone of a projected giant university campus was laid in 2015 (see Figure 11). There will be a Malo Clinic in the campus with full services and the latest high-tech gear.³⁴

Lessons

The Malo story starts in the early 1990s in a dental cabinet with a challenging problem and develops towards a worldwide known dental clinic. It all started with new therapeutic processes and dental products. "I am not a medical doctor," he says, "I am a mouth engineer."³⁵

Today it has grown into a big operation. Here is one of the most significant events of the quarter of century in the complex dental surgery and restorative implants. Here is too a global commercial venture in medical services. This are considerable developments. The advances in procedures and designs Paulo Maló is associated with are at the

root of it. But Paulo's approach to dental problem-solving is heterodox. This meant many barriers, some of them social and institutional in nature, had to be negotiated, managed around or simply broken-through by sheer persistence or pure luck. Can, indeed, many of the strategies be read as a response to hurdles and organised resistance in the companies environment?

Innovation at Malo was at first the result of his intellectual curiosity and creativity, dissatisfaction with established procedures and devices, the cumulative acquisition of experience with difficult clinical cases and relentless entrepreneurial drive. "The inventor is an eternal dissatisfied", Paulo says. Malo's impetus and sustained trajectory that suggests that in his case this factors were self-reinforcing. How difficult, it may be questioned, was this mix of factors difficult to replicate by others. "Paulo is like a locomotive." Said his wife, who he met in the mid-1990s when he was doing a training course. "Either you jump and you go with him or you are left on the ground." She must know. She was his teacher before being his partner.

FIGURE 11
Malo is expanding in China



Source: Malo Clinic's internal documents

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The Maló story suggests that a commitment to innovation made him achieve in no other practitioner of dentistry was able to do. Scale up, spread out and dynamise structurally transform practice itself. And go beyond the individual dentist shop. His Malo Clinic is a singular case in size and geographical breath in the medical area. Innovation and internationalisation came hand-in-hand. In the process Maló showed how a final consumer-oriented could be become research-intensive tradable service. To what degree was this success unexpected when, compared, say to standard firm-oriented knowledge-based professional services?

Opening fresh technical opportunities is one thing, but value extraction is quite another. By no means straightforward. Knowledge had to be refined and validated. Financial arrangements for growth in capacity had to be sought. It was necessary to enter into agreements with a big multinational that could work to open up market possibilities. Reputation had to be built and defended in a variety of fronts.

Certainly, not all entrepreneurs have the skill or the luck to persuade the wide array of actors needed to unlock the potential value latent in initial ideas. At the same time Maló never withdrew from the frontlines of innovation. He is the general fighting in the trenches. Was Maló's charisma that made the difference or the collective arrangement of forces he was able to assemble and channel?

Even after the initial success the issue is often how profits were re-invested in further science and business development. After 2000 a number of organisational novelties start to happen. Malo Clinic begins more fully internalising in-house research structures. R&D begins to be systematised by then. It is mandated to build a scientific shield around Malo's technological propositions. However, from it rents and secondary benefits are derived that can be appropriated profitably by the company as a whole. It allows the firm to better absorb feedback from users and to generate possibilities to coordinate with stakeholders hitherto difficult to enlist as allies,

namely individual academics and university institutions. Will this R&D capabilities (oral challenges appraisal and costumer-oriented skills) and assets (Malo's enlarging case database) be further leveraged in the future, say, by entering the science services to dental equipment multinationals or to the university industry? Can Malo's intellectual property rights management and intangibles licencing contract design then match its innovation prowess?

Notwithstanding, a knowledge-intensive business already branched out. Training emerged as a business activity in its own right from Malo's internal training needs. Capitalising on Malo's sophisticated problem-solving capabilities, R&D resources and physical assets this has become a high-margin service. Providing in-depth and on-site training to others also feeds back into the reputational and internationalisation roles of the firm. This activity seems to strengthen the Clinics ability to better select future partners and set-up decentralised networks. How the community of Malo alumni can be further capitalised

in the future is yet to be seen?

Not all changes are based on dental expertise and engineering. Malo also introduces a number of organisation and marketing innovations, becoming more sophisticated in terms of patient catering, ambience design, back-office information management, and outward communication policies. Service management became more holistic, but also the routines supporting the service became more integrated, developed and technology-intensive. This industrialisation of such a sensitive and delicate trade as a medical service is a rare phenomenon. He operates in many cities, he takes pride in knowing all his direct employees, he keeps the companies culture and upholds its standards first-hand. How exactly this is to be sustained over time as the company expands is a challenge. Which service innovations will follow?

The diversification performance is also remarkable. Malo Clinic, after venturing itself into wellness (SPAs) and healthcare (specialised and general practice) seems to have stopped this drift.

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The challenge is now to focus on the expansion and consolidation of its global oral care operations. There is a talk against reinforcing the conglomerate character of the group. Narrowing the spectrum of themes is correlated with a deepening in the science and a stretch in geography. Is R&D and branding the optimal sources for reaping the static and dynamic economies of scale? Where will the limits to vertical integration be drawn?

So far Malo's operation is unique in the world. He stands out as an innovator and as an exporter in sophisticated services. For sure a remarkable experience for a country with notorious difficulties in creating world brands, let alone in science and technology or in the tradable consumer services. Paulo Malo spends much time flying. He happens to see himself as an African with Portuguese passport. He feels he belongs to the world.

From individual cases of oral distress and total dental absence Maló, the man, drew brilliant lessons about the workings of implants in general. Now, is he a notable exception or the first of

a new paradigm of knowledge-intensive consumer services?

What general lessons can we, in turn, derive from his example?

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APPENDIXES

Appendix 1. Corporate identity

OUR VISION

To offer an innovative technique allowing for fixed (non-removable) teeth as a solution to a universal problem that affects a significant percentage of the world's population (the edentulous) in a single intervention lasting less than 6 hours.

In addition to routinely being accomplished on the same day, the technique can almost always be performed without the need for bone grafting and ultimately is more economical than traditional implant techniques used for full mouth rehabilitation. Lastly, it can be delivered on a global scale, thus reinforcing our leadership position in the field of oral rehabilitation.

To further develop medical services in strategic countries throughout the world that will include a complete health "check-up", away from the aggressive and potentially contaminated hospital environment, with a high standard of quality and in unmatched comfort, as well as to help increase the quality and life expectancy of our patients.

OUR MISSION

Ensure the provision of services of excellence in key countries, with bases on the following vectors:

- Improvement of techniques, processes and materials through continuous innovation;
- Disseminate the clinical protocols of the oral rehabilitation process to facilitate international development and expansion;
- Expand the network of MALO CLINIC into key countries, maintaining our standards in the quality of services rendered, the medical and diagnostic equipment used, and in the facilities and create barriers to the entry of other international players;
- Develop strategic partnerships which add value to the development plan, framed within our vision and standards.

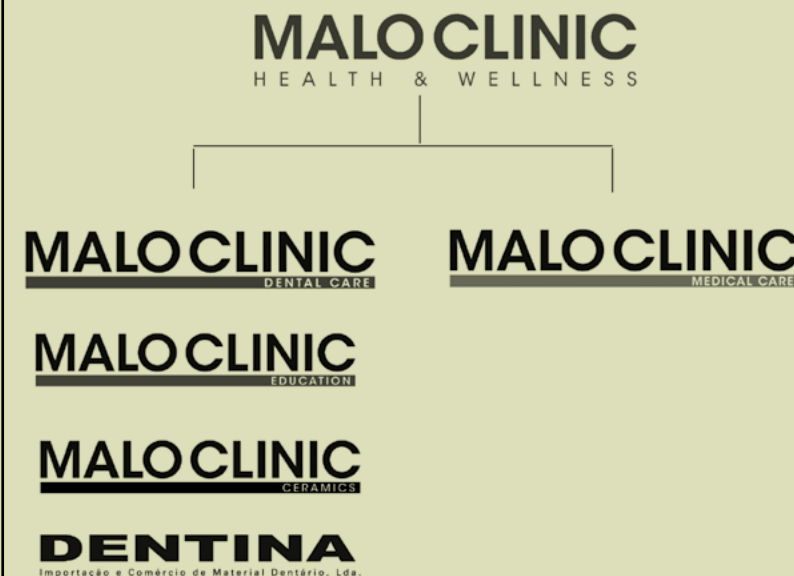
For the complete health "check-up" - To develop strategic partnerships with recognized and prestigious institutions in the healthcare industry, which complement the valences of the MALO CLINIC and allow access to the latest diagnostic modalities, best doctors and specialized entities of recognized quality, and make it possible to offer these services of medical excellence in a SP A environment.

OUR VALUES

- Treat patients with a continued focus on providing excellent medical care and customer service.
- Remain open to innovative processes and continued research in order to enhance the quality of our services and of patient's lives.
- Promote a culture that encourages teamwork, initiative, trust, goal-oriented work and the respect for others, in a pleasant and informal environment.
- Encourage the commitment to the Groups' values and objectives.

Appendix 2. Corporate structure

The Malo Group, 75% owned by Paulo Maló, is an umbrella name.



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Case Study

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