



AN INNOVATIVE SMART SOLUTION FOR SPINE SURGERY

Eng. Sara Condino



Current activity

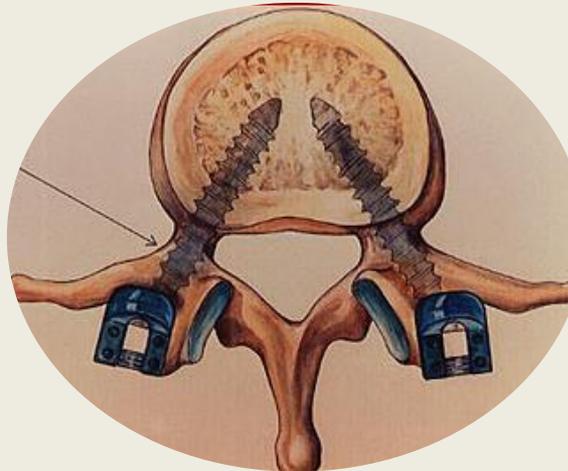
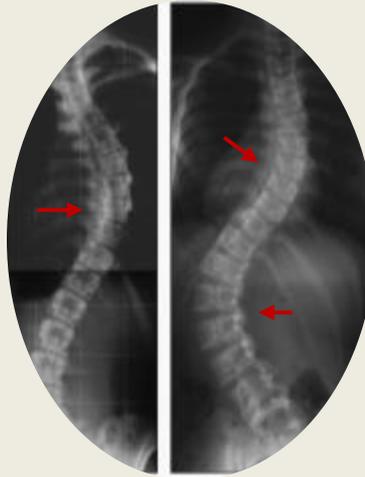
Medical and surgical ad-hoc solutions based on the elaboration of radiological images

THE FUTURE

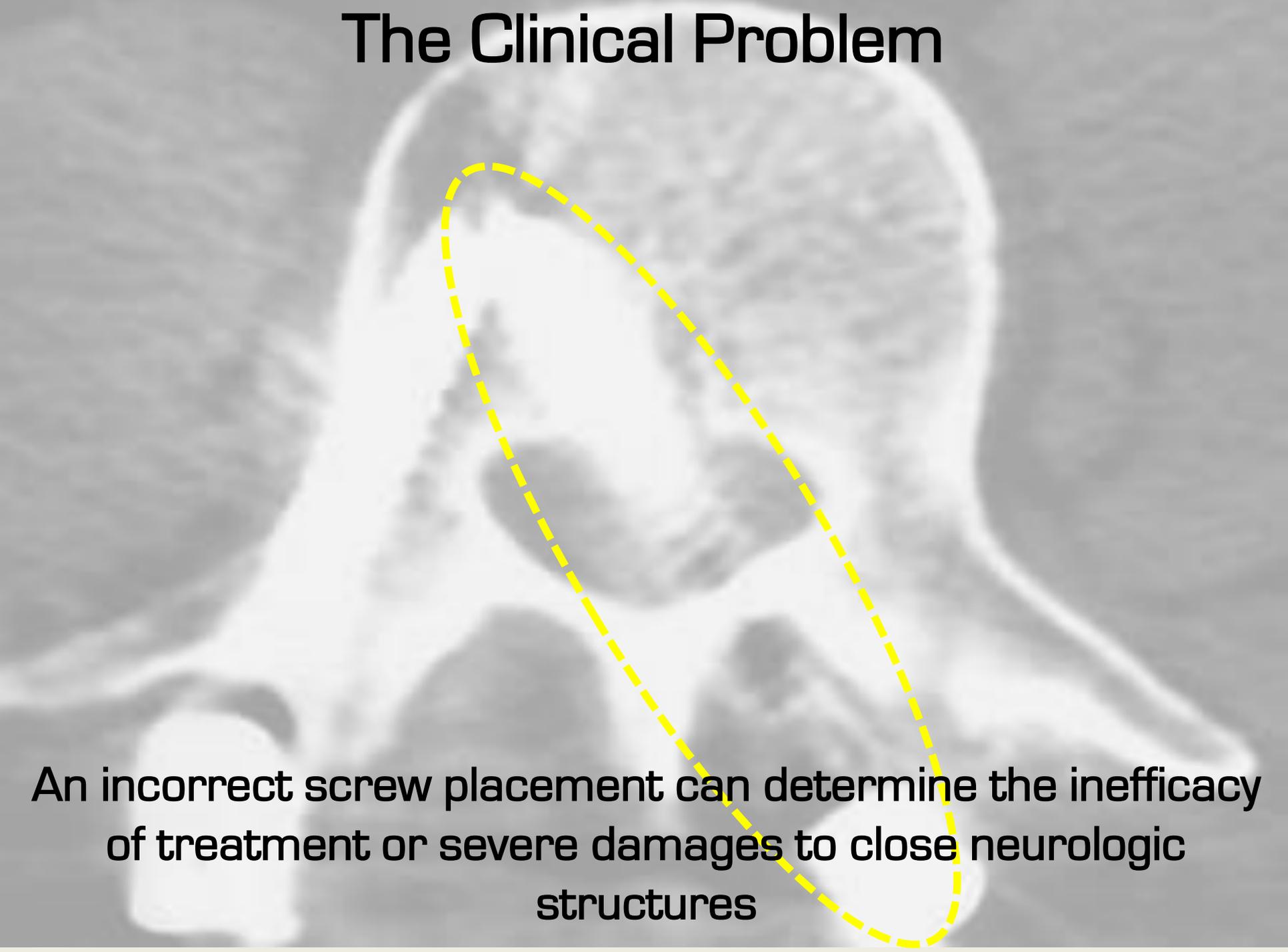
Surgical templates for spinal fusion surgery

Spinal fusion surgery

- Scoliosis
- Spinal stenosis
- Spinal infections
- Bone tumors
- Spinal cord tumours
- Spinal trauma
- ...



The Clinical Problem



An incorrect screw placement can determine the inefficacy of treatment or severe damages to close neurologic structures

The solution

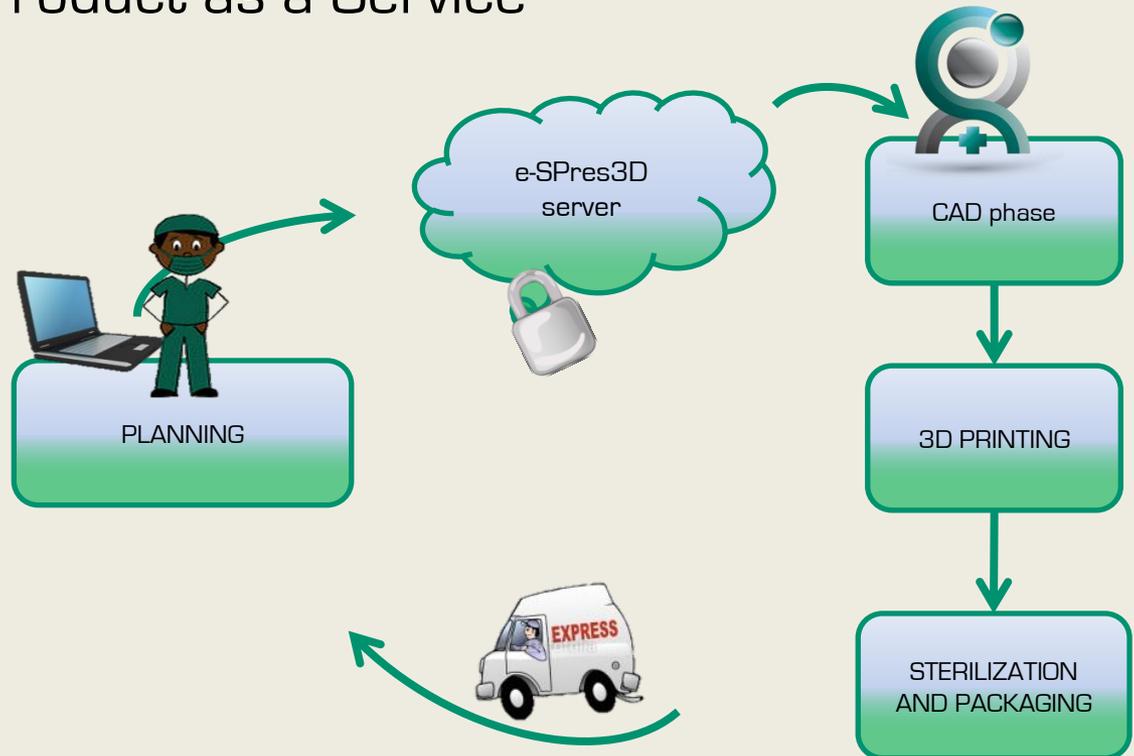


- ✓ Customized surgical templates , radiological images-derived
- ✓ The surgeon preoperative plan is transferred to the operative site, guiding the surgical drill to the optimal entry point and along the best trajectory

Business model

Product as a Service

Same model of
Materialise
innovators you can count on



The customer

Orthopaedic clinics

Manufacturers of spinal implants

Advantages

- *Improvement in precision*
 - *Less Intraoperative complications (- 48%)*
 - *Fewer reoperations (- 92%) = - 400K€/year (hospital with 200 cases/year)*
- *Reduction of operative time*
20 min/vertebra vs 60 min/vertebra = - 450€/livello
- *Reduction of anesthesia time*
- *Reduction of intra-operative x-ray exposition*

Obtained Results

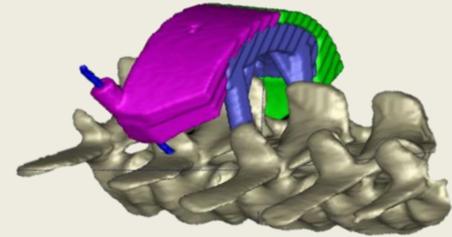
- In vitro test -> Published results
- Ex vivo test -> Published results, excellent medical feedback
- Ethical Committee approval for the first clinical test
 - Monocentric clinical trial
 - Three patient (12 levels)
 - Evaluation of the template positioning

PATENTED SOLUTIONS:

PCT **N° WO2012140569** All claims accepted

National phases started (Europe and China)

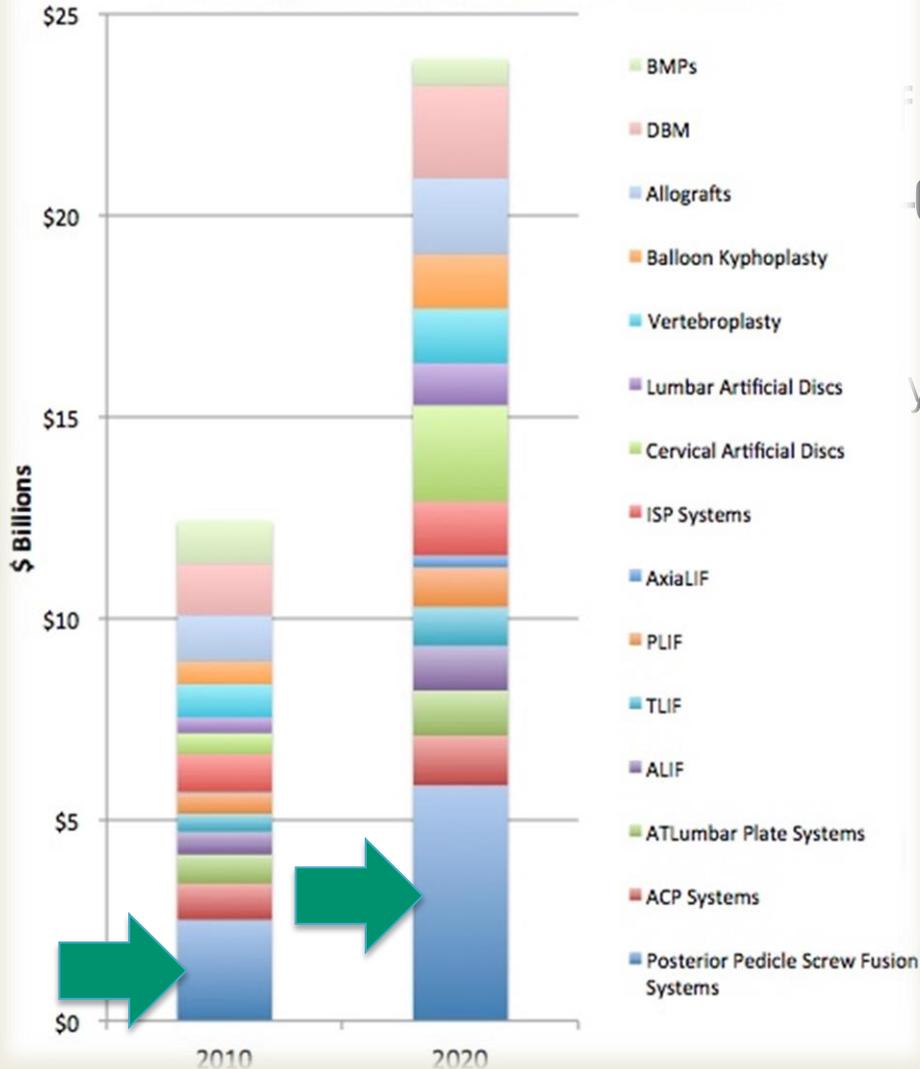
The Competitor



	Mazor Robotics: Renaissance™	e-SPres3D s.r.l.
Precision increase	😊	😊
X-ray reduction	😊	😊
Operation time	😐	😊
Impact on the surgical workflow	😡	😐 😊
Possibility to perform minimally invasive procedures (max 25%)	😊	😡
Economic Impact	😡	😊

The Market

Global Spine Surgery Market 2010 & 2020



the market:

CM [2011] & DRG codes

year

At least 70%
with transpedicular screws

interventions/year
MedMarket Diligence (report #M520)
Trending in Spine surgery

Price

Production cost: **200 Euro**

(assuming a production capacity of 4000 pieces/year)

Price to the final customer → **1200 -1500 €**
patient kit

Financial Forecast

	YEARS				
	1	2	3	4	5
		ITALY	EUROPE	EUROPE +USA	EUROPE +USA
Revenue	0 K€	89 K€	369 K€	3.608 K€	12.108 K€
EBIT	- 617K€	- 732K€	- 961K€	482 K€	5.225K€
Share capital	700 K€	1.000 K€	900 K€		
Procedures Number		59	246	2.406	8.073
Employees	4	5	8	15	15+

↑
Possible EXIT

Exit

- Acquisition by **Materialise**
- Acquisition by
 - Medtronic**
 - DePuy**
 - Biomet**
 - Stryker**
 - ...

Team



Marina Carbone - CEO (ad interim)

Biomedical Eng., PhD Biorobotics Scuola Superiore Sant'Anna
research and development @ EndoCAS - 5 years experience



??? - CEO

Experience in Marketing and Business Administration



Sara Condino - Certification and Testing

Biomedical Eng., PhD Health Technologies - University of Pisa
research and development @ EndoCAS and Scuola Superiore Sant'Anna - 6 years experience



Vincenzo Ferrari - Product Engineering

Computer science Eng., PhD Health Technologies - University of Pisa
Technical/scientific coordinator of EndoCAS
R&D coordinator @ SW-SCADA e Machine Vision Companies - 5 years experience

Clinical Advisory Board

Paolo Parchi - Orthopaedic Surgeon, Researcher, co-inventor of the patent,
Consolidated experience in spine surgery

Carla Cappelli - Radiologist, PhD.
Consolidated experience radiological images elaboration

Mauro Ferrari - General and Vascular Surgeon, Prof.
director of a clinical / surgical department



la terza dimensione della cura del paziente

info@espre3d.com

www.espres3d.com

+39 050995689