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MEDICAL

INFORMATION FOR GROWTH

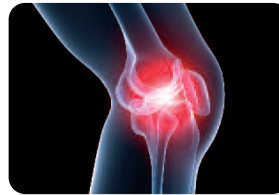
www.avicenne.com

Strategic Market Research & Transaction Services for the Orthopedic industry

Avicenne Medical company profile



June 2022



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CONTACT

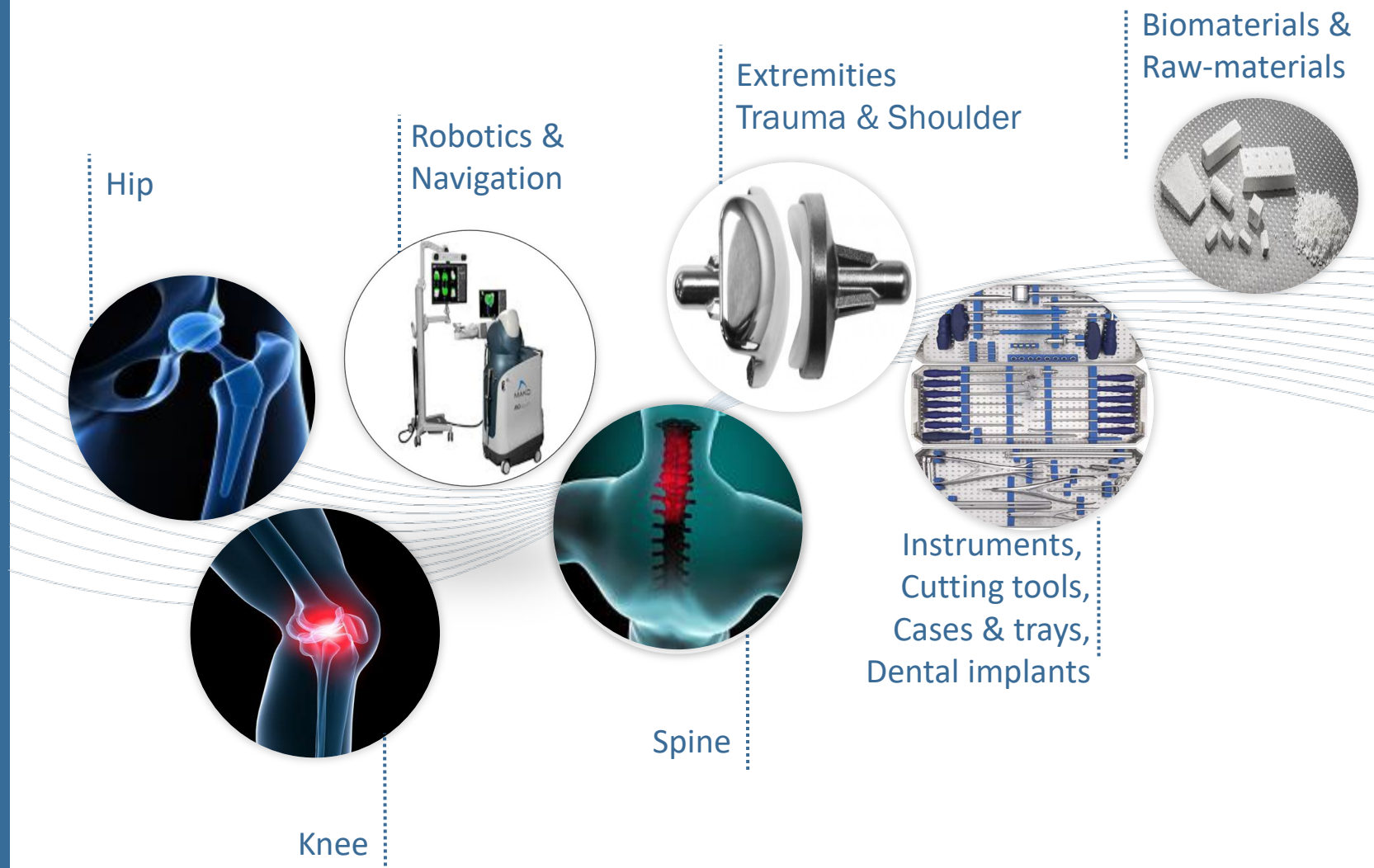
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Our scope

Coverage of the main orthopedic segments

A US\$45B Market



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Our scope

Coverage of the main contract manufacturing services

A US\$7B Market



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A diversified service offering

Based on 30 years of experience in Orthopedics & Spine

Transaction Services

Strategic Market Research

Vendor Due Diligence	Strategic & Commercial Due Diligence	Management team assessment	Target research & Build up	Customized Strategic research	Key Opinion Leaders surveys
Sizing and market dynamics	Formal Due Diligence based upon:	Strengths & Weaknesses of management team	Screening & Identification of potential targets	Diversification	Key Opinion Leaders' usage & preferences for orthopedic products
Detailed market analysis and positioning of the company	interviewing industry experts & competitors	Identification of suitable candidates to strengthen Management capabilities	Targets Assessment	Market entry	Survey for opportunities & risks of launching new products
Management interviews	Product portfolio assessment		Analysis of the risks, complications and obstacles	Geographic expansion	
Company differentiation & keys to grow market share	Customer portfolio analysis		Final selection of the appropriate targets	New Product assessment & launch	Company reputation: survey among surgeons
Business Plan	Manufacturing organization assessment & site visits		Introduction & Initial discussions	Worldwide Market shares tracking for emerging products	
	Routes to create value				

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Our story: Avicenne has been involved in most of the major deals & events within the Orthopedic Industry

Strategic Due Diligence expertise with a long track record of successful acquisitions for our clients



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Avicenne's long track record of successful acquisitions for our clients



FH ORTHO GROUP

was acquired by

OLYMPUS

Avicenne advised the Buyer

November 2020  



TECOMET

was sold by

CHARLES BANK

Avicenne advised the Vendor

April 2013 



**DEMETRA
TECRES-OSARTIS**

was acquired by

ASTORG

Avicenne advised the Buyers

July 2021   



INTECH Medical

was acquired by

EURAZEO

Avicenne advised the Buyer

June 2017  



LIMA

was acquired by

ARDIAN

Avicenne advised the Buyer

September 2012  



Amplitude

was acquired by

APAX

Avicenne advised the Buyer

April 2011  



MARLE

was acquired by

Carlyle

Avicenne advised the Buyer for build-up

April 2009  



MENIX GROUP

was acquired by

Keensight Capital

Avicenne advised the Buyer

April 2014  

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Our team

Foundation of the company 1992

Orthopedics main activity

Headquarters Paris



LinkedIn profile:



Ali MADANI

30 years with Avicenne
Dauphine University: MBA Technology & Innovation, Masters in Electrical & Electronics Engineering



Christophe PILLOT

29 years with Avicenne
Dauphine University: MBA Technology & Innovation



Jean-Philippe SALVAT

27 years with Avicenne
Masters in New materials & technology



Mike SANDERS

9 years with Avicenne
Delaware University: BS in Chemistry

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Strategic Due Diligence (SDD) examples

Deal	Date	Area	Mission	Details
LIMA				
Hip, knee, shoulder, trauma	2012	Europe USA, Australi	SDD for the buyer Ardian	<ul style="list-style-type: none"> 🔗 Product portfolio assessment 🔗 Competitive advantages of the company in Italy, Germany, Spain, Portugal, USA, Australia, South Korea and Japan in terms of products, market share, image, etc. 🔗 Analysis of the company's distribution channels 🔗 Manufacturing organization assessment 🔗 New products, Business Plan and forecasts 🔗 Analysis of the company's management capabilities to sustain growth 🔗 Support in finding the new company CEO 🔗 R&D projects pipeline up to 2018 🔗 Working Capital benchmarking 🔗 Management case discussions & restatements by segment 🔗 Profitability assumptions and analysis 🔗 Report and Q&A for debt suppliers
AMPLITUDE				
Top Challenger with strong export capabilities Knee, hip, extremities	2011	France	SDD for the buyer APAX Partners	<ul style="list-style-type: none"> 🔗 Product portfolio assessment 🔗 Positioning on existing markets: France, Germany, Italy, Spain, Austria,.. 🔗 Geographic expansion opportunity analysis: USA & Japan 🔗 Other countries upside analysis: Brazil, Middle East, India 🔗 Distribution channel capabilities & risks: external agents vs company sales force 🔗 Company-surgeon relationships analysis 🔗 New products pipeline assessment 🔗 Business Plan forecasts: current products, new opportunities and build-up scenarios 🔗 Opportunities & risks of acquisition

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Strategic Due Diligence (SDD) examples

Deal	Date	Area	Mission	Details
IN'TECH				
Worldwide leader in spine instruments, 66% of its sales generated in the US	2017	WW	SDD for the buyer EURAZEO	<ul style="list-style-type: none"> Market sizing and dynamics of customized instruments Instruments life cycle + demand drivers & limiters Customized & adapted product portfolio analysis OEMs' manufacturing strategies & Contract manufacturing price pressure OEMs' relationships with their suppliers - Criteria for choosing a CMO Manufacturing organization analysis, Capex analysis, Regulatory & Quality department assessment Routes to diversification, potential M&A targets & upsides Technological & strategic risks, competitive risks and Business Plan analysis Investment rationale, opportunities & risks
TECRES AAP Biomaterials				
Merger of #2 and #3 in ortho. cement to build the worldwide leader	2016	WW	SDD for the buyers TECRES & Keensight Capital	<ul style="list-style-type: none"> Product portfolio assessment for combined AAP biomaterials & TECRES Size and forecasts in the global orthopedics cement market In-house vs outsourcing manufacturing strategies Segmentation, sizing and dynamics of vertebroplasty cements & instruments Understanding the competitive advantages of each company Strategic & operational recommendations for the merger Proposal for an appropriate communication strategy within the Industry
TECOMET				
Creation of the worldwide leader in Orthopedic Contract Manufacturing	2013	USA	Advised the owner Charles Bank Capital	<ul style="list-style-type: none"> Size and Forecast of the global orthopedic markets by country, product - with competitors' market shares Reimbursement procedures, trends and impact on the target business Outsourcing strategies and trends of orthopedic companies Segmentation, sizing and dynamics of contract manufacturing by capabilities + the market share details of the top 20 contract manufacturers Risks and opportunities of relocating implant manufacturing to BRIC countries Ratings the criteria for OEMs to choose their Contract Manufacturers Understanding company differentiation & keys to grow market share Strategic & operational recommendations: ways to maximize value

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Examples of Strategic market research, diversification, market share tracking and acquisition target assessment

Deal	Date	Area	Mission	Details
LISI Group				
Strategic advice for entering orthopedics	2011	  	Strategic advice for diversifying in orthopedics. Goal: reach 100 M US\$ in revenues in 5 years	<ul style="list-style-type: none"> Analysis of Orthopedics contract manufacturing by segment: Forging, casting, machining, coating, etc.. Drivers and limiters for each segment and focus on several opportunities Analysis of the dental implants market worldwide Acquisition opportunities analysis in Europe and the USA Business Plan scenarios: analysis & restatements Road map for next 5 years
Several projects (Confidential)	2016		Find & assess appropriate targets for acquisition,	<ul style="list-style-type: none"> Selection of 10 to 30 acquisition targets with defined criteria: <ul style="list-style-type: none"> Serving the Orthopedics OEMs & CMOs in various areas Capabilities in innovation with strong R&D and quality departments Prototype, metrology, testing, machining, cleanroom class III, packaging, competencies Financial perimeter: 10 M US\$ - 150 MUS\$ revenues, level of profitability, etc.
Identification acquisition targets	- 2021	 	strategic analysis of risks and opportunities	<ul style="list-style-type: none"> Analysis of the risks, complications and obstacles Final selection of the appropriate targets Opening channels of communication with the targets
Medtronic				
Market shares tracking for 50 spine products	Over a 4 year period	 	Market share tracking for 50 emerging products launched by competitors	<ul style="list-style-type: none"> Quarterly market shares tracking in 14 European countries for different spine products Perimeter: Stabilization, Dynamics, Orthobiologics & Vertebroplasty with 13 sub-segments in detail Tracking of devices sold, by unit & value Product portfolio assessment of the players Forecasts and trends to identify the future high growth products

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Examples of customized client projects

Strategic market research & build-up

- 🕒 Building a diversification strategy for an aerospace group entering the orthopedics contract manufacturing market: target 100 M\$ in 5 years
- 🕒 Several build-up & target researches for orthopedic challengers and contract manufacturers
- 🕒 Strategy for market share growth and build-up for the leading European Orthopedics contract manufacturers
- 🕒 Worldwide Market shares tracking for the sub-segments of the Spine market (tracking > 50 products) for one of the Spine market leaders
- 🕒 Routes to growth for a European coating supplier
- 🕒 Identifying growth opportunities for a bone substitute market leader
- 🕒 Research on Navigation, Robotics & Positioning Device worldwide market for hip & knee
- 🕒 Study of the raw material needs of OEMs and CMOs in Orthopedics for a leading raw material distributor
- 🕒 Dual mobility cups growth and penetration in Europe, USA, and Japan for a Major orthopedic company
- 🕒 Advice on partner identification and technology transfer to a Middle East orthopedic OEM
- 🕒 Geographic expansion opportunities on the cases & trays segment for a leading European company

Key Opinion Leader surveys

- 🕒 Key Opinion Leaders' usage and preferences for certain orthopedic product designs in Germany, Spain, France, and UK
- 🕒 Surgeon survey in USA & Europe concerning the hip dual mobility cups usage and trends
- 🕒 Opportunities & risks of launching a new knee system for a European challenger
- 🕒 Cutting device European market analysis for power tools for a leading worldwide supplier of cutting tools

Competitive & Technology monitoring

- 🕒 Value of patient specific cutting guides for knee joint replacements
- 🕒 Additive Manufacturing: the new challenge to manufacture orthopedics implants and instruments
- 🕒 Is Robotics a game changer for orthopedics ?
- 🕒 Worldwide Orthopedic patents watch focused on hip, knee, trauma & orthobiologics for several companies

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Our methodology

The Strategic Due Diligence Framework

Executive Summary

- 🔗 Describe major findings of Due Diligence– focus on “Red Flag issues”
- 🔗 Provide overview of findings of other components
- 🔗 Description of scope of analysis, what has been investigated, and focus areas of Due Diligence
- 🔗 Includes info on the sources used and interviews conducted

6 areas of assessment covered

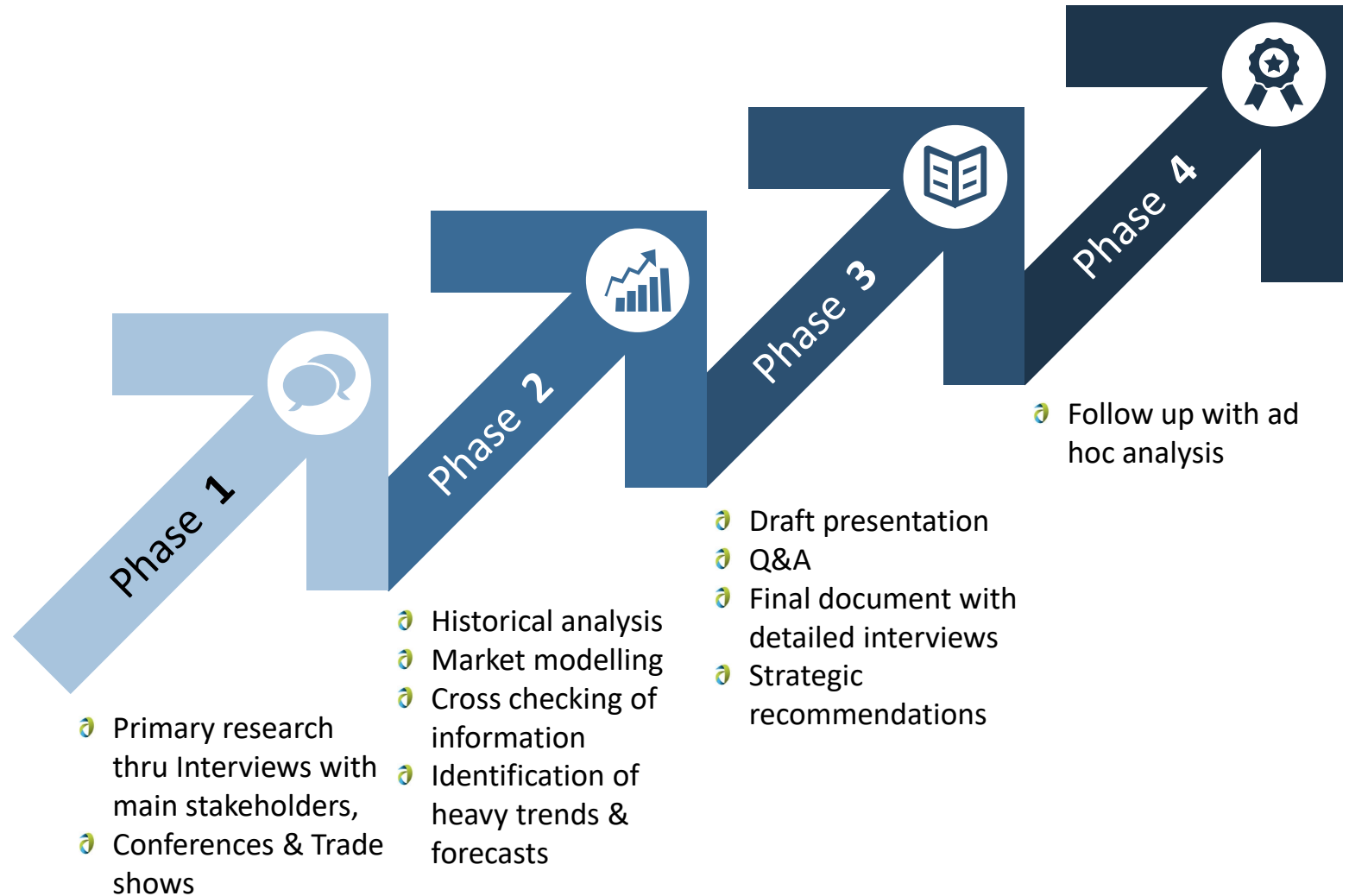
Market Analysis	Competitive Environment	Analysis of Business Model	Analysis of Investment Case	Upside & Build-up Opportunities	Exit Options
<ul style="list-style-type: none"> 🔗 Market analysis to form a perspective on the risks and opportunities of the acquisition 🔗 Definition of the immediate and broader market + assessment of its attractiveness 	<ul style="list-style-type: none"> 🔗 Understanding and assessing the competitive landscape to determine the relative strength of the target company, its Unique Selling Points and sustainability 🔗 Assessment of Product portfolio and pricing strategy, customer satisfaction, Regulatory issues & likelihood of overcoming competitive threats 	<ul style="list-style-type: none"> 🔗 Perspective on attractiveness and robustness of the business model 🔗 Analysis of past and projected performance as well as capabilities of target company 	<ul style="list-style-type: none"> 🔗 Perspective on management’s assumptions and further improvement potentials 🔗 Assessment of management’s base case, + identification and assessment of reasonable further improvements - as well as downside risks 	<ul style="list-style-type: none"> 🔗 Perspective on value creation potential beyond investment case assumptions – “investment case at time of exit” 🔗 Identifying and quantifying further value creation levers that could be achieved during holding period 	<ul style="list-style-type: none"> 🔗 Perspective on exit opportunities after holding period 🔗 Assessment of industry consolidation opportunities and evaluation of potential strategic and financial buyers

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Our methodology



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Leveraging 30 years of high level contacts and market tracking & modelling



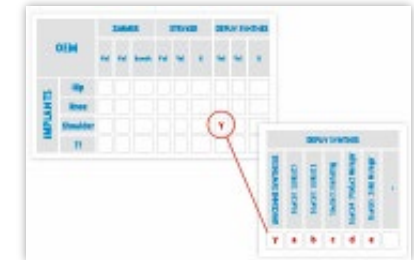
Full value chain coverage

- Entire supply chain & all players: OEMs, Contract Manufacturers
- All product types: implants, instruments, cases & trays, biologics, cements, ceramics
- All manufacturing services: forging, casting, machining, coating, packaging, sterilization

Primary research

- OEM & Contract Manufacturer direct interviews with decision makers thanks to strong links with CEOs, R&D, Marketing, Sales...
- Cross-checking of information thanks to our tried & tested operating models

Operating Models & Cross-checking of information



Secondary research

- 30+ years of historical data on the Orthopedics & Contract Manufacturing markets
- Companies & markets; continuous tracking + detailed market and financial modelling
- Highly detailed segmentation

A 360° view of Orthopedics

Worldwide coverage

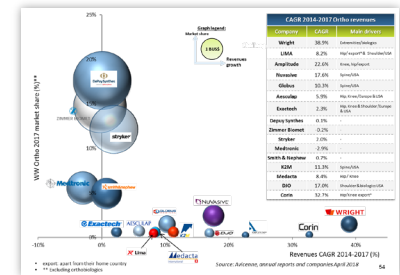
- Developed countries** (USA, Japan, South Korea, Germany, France, UK)
- BRICS countries** (Brazil, Russia, India, China, South Africa)
- Other countries** (Latin America, Middle East, Asia, ...)

Implants

- Hip
- Knee
- Spine
- Extremities
- Trauma

Contract Manufacturing

- Implants
- Instruments
- Cases trays
- Biologics



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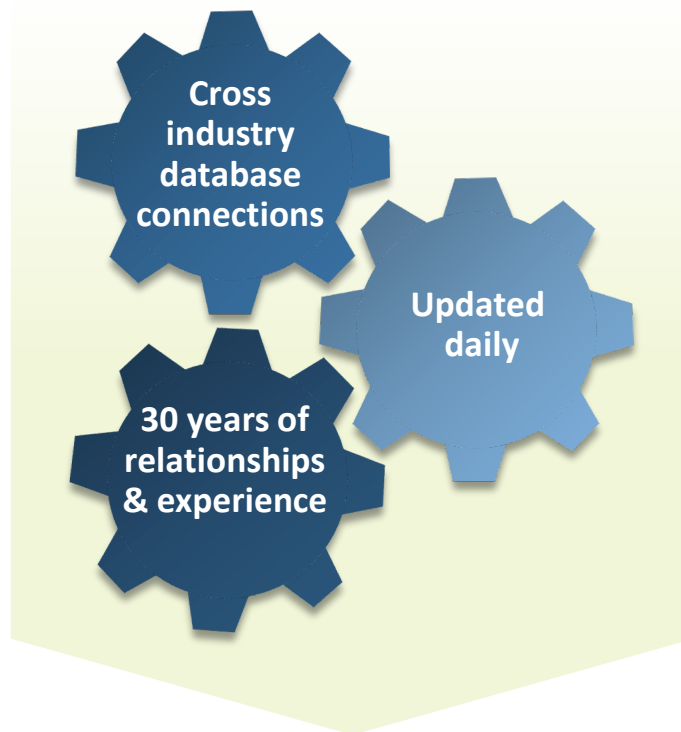
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Our methodology

A dense contact network built up over 30 years

Our contact network



50,000+
qualified contacts
in orthopedic industry

Our Orthopedics database:
50,000+ qualified contacts



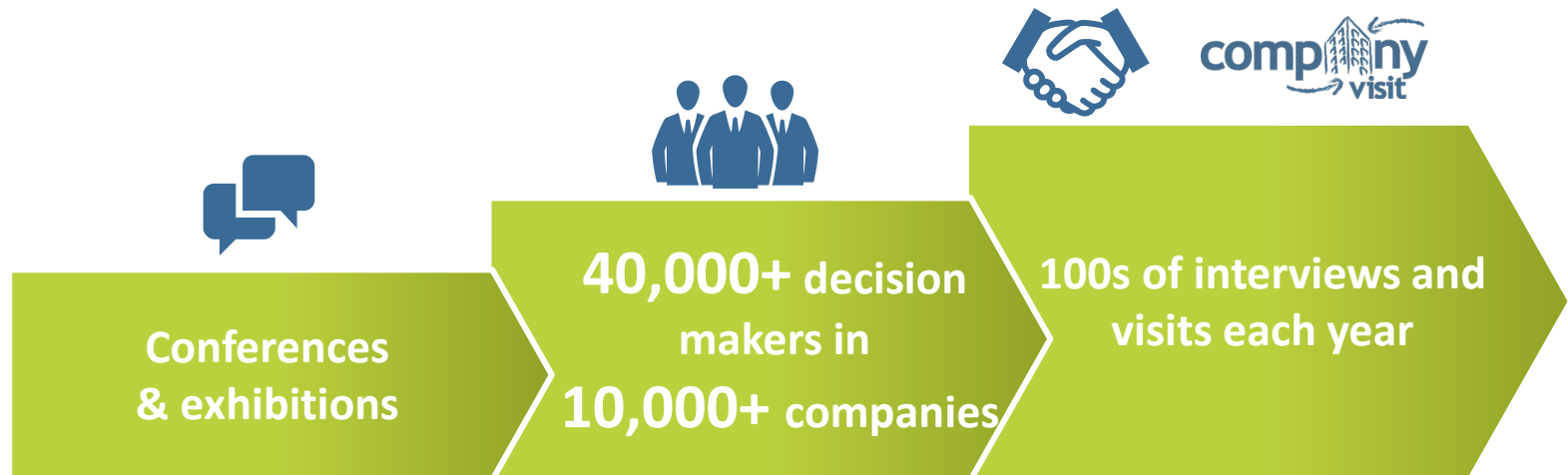
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Our methodology

Direct interviews & visits with companies



IMPLANTS conference



The international meeting on innovations & solutions for orthopedic implants & orthobiologics, chaired by Avicenne, attracts 300+ decision makers. It is both a place to take the pulse of the industry and a key networking event.

Founded and chaired
by AVICENNE since **2005**

<http://www.implants-event.com>



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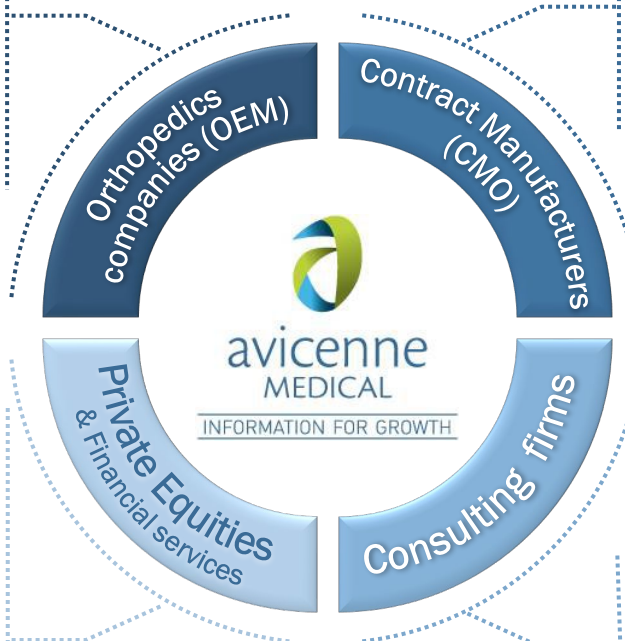
Our customers

Aesculap-B Braun, Amplitude, Aston Medical, Bioland, Biomet, Biomicron, Carl Zeiss, Ceraver, Cousin-Biotech, Dedienne, Depuy Synthes, Eurospine, Evolutis, Exactech, FH, FX Solutions, Geistlich, Help Ortho, Implanet, Implant Industries, Integra Life Sciences, Kisco International, Lepine, Lima Corporate, Mathys, Medtronic, MBA Surgical, Medacta, Meril Life Sciences, Nexis, Olympus Corporation, OST, Ortho Baltic, Orthosoft, Ossacur, Osteotech, Plus Ortho, Progenor, SEM, Seremm, Scient'x, Smith & Nephew, SME, SMI, Stryker Corp, Stryker Limerick, Stryker Spine, Spineway, SGM-Codim, Stanmore Implants, Stryker, Summit Medical, Surgical Devices Pty, Symbios, Tornier now Wright Medical, Transtructure, Transysteme, Zimmer Biomet, Wright Tornier, X'Nov...

All invest, Apex Partners, Altor Equity Partners, Alpha Associés Conseil, Astorg Partners, Appolo Global Management, Ardian, Argos Soditic, Astorg, Banque Lazard, BC Partners, BIP Investment Partners, Capza, Carlyle Group, Charterhouse, Chequers Capital, Charlesbank Capital, Clayton Dubilier & Rice, CM-CIC Investissement, CVC Capital Partners, EKKIO Capital, EMZ Partners, Essling Capital, Eurazeo PME, European Capital, Goldman Sachs, HSBC, Keensight Capital, Kinsella Group, LBO France, LGT Capital Partners, NATIXIS Partners, Noalпина Capital, Oaktree Capital, PAI Partners, Permira, Piper Jaffray, Piper Sandler, Pragma Capital (now Sparring Capital), Rothschild Five Arrows, Simuval, Tikehau, Tincum, UI Gestion, Warburg Pincus, Zurmont Madison...

Alltec GmbH, Autocam Medical, Acnis international, Addup Solutions, Avalign Technologies, Caplugs, Ceramtec, Cetim, EOS, Element Materials, Eurocoating (now Lincotek Medical), Finetubes, Forginal, GF Machining, Geoffroy, Integer-Greatbatch now Viant, HWG, Intech, Inomed Technology, Invibio Victrex, Ionbond, Jabil Medical, Jenoptik, Heptal, Komet, LISI Medical, Manoir Industries, Marle, Medical Group, Mediliant, Medin Technologies, Metal Craft & Riverside, MW industries, Nowak, Nypro, Oerlikon, One Ortho, Orchid Orthopedic Solutions, Osartis, Paragon Medical, PolymerExpert, Projection Plasma System, RTI Surgical, Sandvik, Seabrook Medical, Seco Tools, Stainless, Straits Orthopedics, Somepic, Surgical Devices Pty, Symmetry Medical, Tecomet, TE Connectivity, Teknimed, Terolab Surface Medical, Vaccucast, VSMPO Tirus, Wichard, Willemin Macodel, Zollern,...

Arthur D. Little, AT Kearney, Alvarez et Marsal, Bain & Company, Boston Consulting Group, BC Partners, Health Advances, KPMG Strategy, LEK Consulting, McKinsey & Company, OC&C Strategy, Oliver Wyman, PWC, Roland Berger...



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Benefits of collaborating with AVICENNE



Strategic & operational consultancy in the Orthopedics industry since 1992 and strong links with the main decision makers

**Guaranteed Confidentiality & Strong Ethical Standards:
a Key Value**

Worldwide coverage of the whole industry value chain:

- 📍 OEMs, Contract Manufacturers as well as Surgeons, research laboratories, experts...
- 📍 Areas:
 - 📍 North America: USA, Canada
 - 📍 Europe: France, Germany, UK, Italy, Spain, Switzerland, Belgium, Austria, The Netherlands, Portugal, Nordic countries, Eastern Europe
 - 📍 Asia Pacific: Japan, Australia, South Korea
 - 📍 Emerging markets: Brazil , Russia, India, China, Latin America, Middle East, Africa

Clear Methodology, Results and Recommendations

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AVICENNE's off the shelf market reports

"Worldwide Orthopedic & Spine Contract Manufacturing market report 2021-2026 & Top 100 supplier profiles"

June 2022 11th edition

- 🕒 First published in 2014
- 🕒 OEMs strategy for outsourcing & home-made
- 🕒 Detailed markets & sizing for:
 - 🕒 Forging: hip stem, hip cup, femoral knee...
 - 🕒 Casting: femoral knee, tibial knee, hip cup...
 - 🕒 Hip, knee, spine & trauma and instruments machining & finishing
 - 🕒 Cases & trays: hip, knee, spine, trauma
 - 🕒 Coating: stem, cup, femoral, tibial
 - 🕒 Ceramics: hip heads, hip liner
 - 🕒 Cleaning & packaging...
 - 🕒 Special focus on Raw Materials for orthopedics: Stainless Steel, Cr-Co & Titanium needs for OEMs and Contract Manufacturers
- 🕒 Top 100 Contract manufacturers detailed profiles



Available

"European Orthopedic Market 2020-2025" Hip, Knee & Shoulder

November 2021
18th edition

- 🕒 First published in 1993
- 🕒 Yearly up-date
- 🕒 Hip, knee, shoulder
- 🕒 Based on 100+ interviews
- 🕒 820 pages & 1,550+ graphs & exhibits to detail the European Market in Germany, France, Italy, Spain, UK, and other countries
- 🕒 Special focus on the worldwide orthopedic market, player dynamics and global market shares

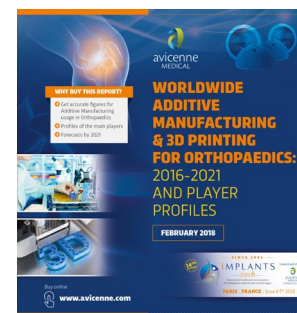


Available

"Worldwide Additive Manufacturing for orthopedics 2016-2021 & player profiles"

February 2018 1st edition

- 🕒 First published in 2018
- 🕒 Yearly up-date,
- 🕒 Market for Additive Manufacturing for Orthopedics
- 🕒 Based on 50+ interviews of:
 - 🕒 Additive Manufacturing machine suppliers
 - 🕒 Dedicated (specialist) companies in Additive Manufacturing
 - 🕒 OEMs heavily invested in Additive Manufacturing or using it extensively
 - 🕒 Contract manufacturers offering Additive Manufacturing services



Available

"Orthopedic patent watch"

Yearly edition

- 🕒 Focus on 4 segments: hip, knee, trauma and orthobiologics
- 🕒 Report published each 2 months
- 🕒 More than 50 patents presented by number registration - with technical diagrams
- 🕒 On demand:
 - 🕒 Identifying the new products & R&D trends,
 - 🕒 Monitoring your competitors' strategic development choices.



Upon request

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