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implants

9th INTERNATIONAL OUTSOURCING & SOLUTIONS FOR ORTHOPAEDIC IMPLANTS AND BIOMATERIALS CONFERENCE & EXHIBITION

Worldwide orthopaedic market and the Contract Manufacturing

April 3rd 2013




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Worldwide orthopaedic market and the contract manufacturing

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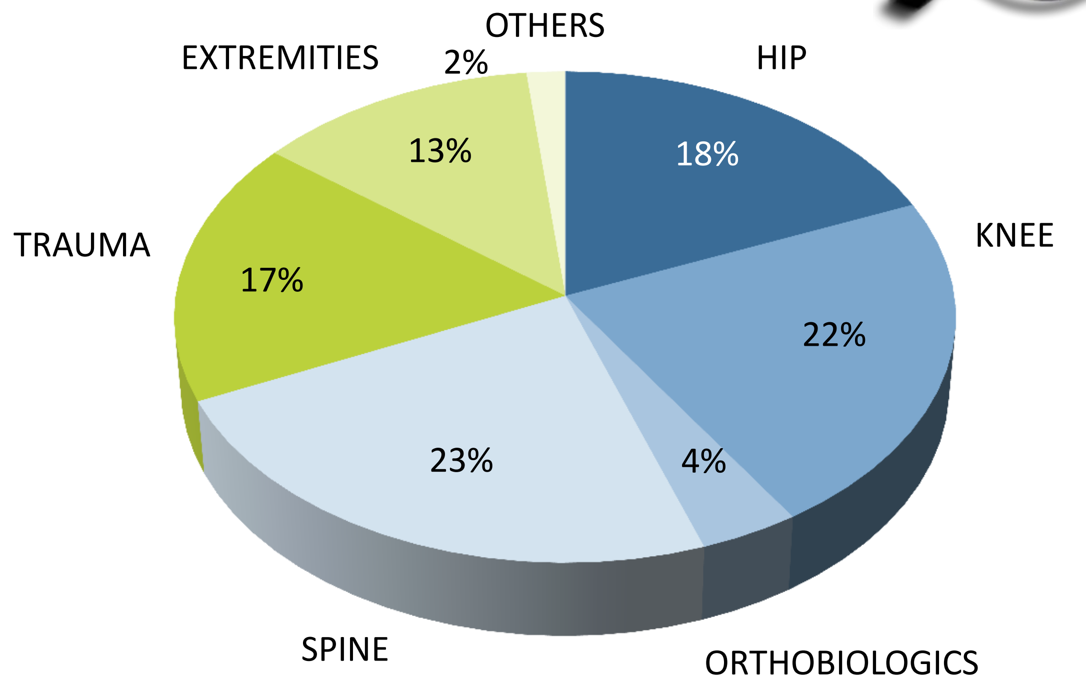
Worldwide orthopaedic markets in 2012: ~34.5 B$ (+4.5%)



KNEE
7.7 B$
+4.5%

Hip
6.2 B$
+1.5%

SPINE
8 B$
+4%

Source: Avicenne research & analysis 2013

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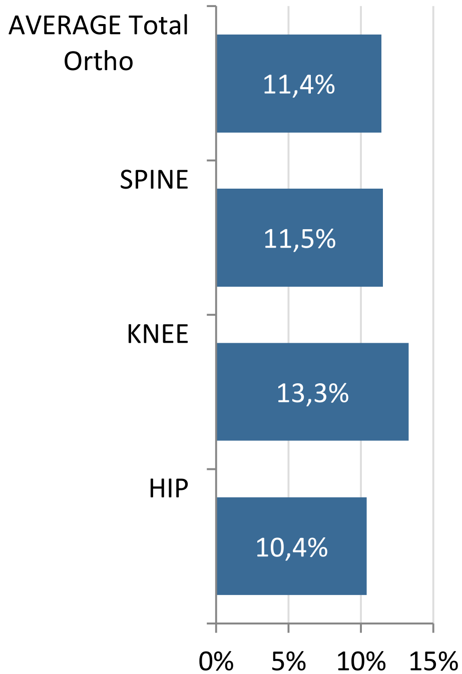
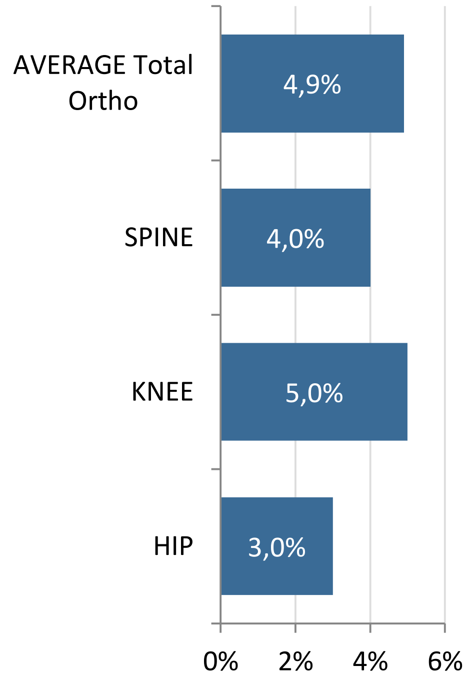
The Worldwide orthopaedic market: growth

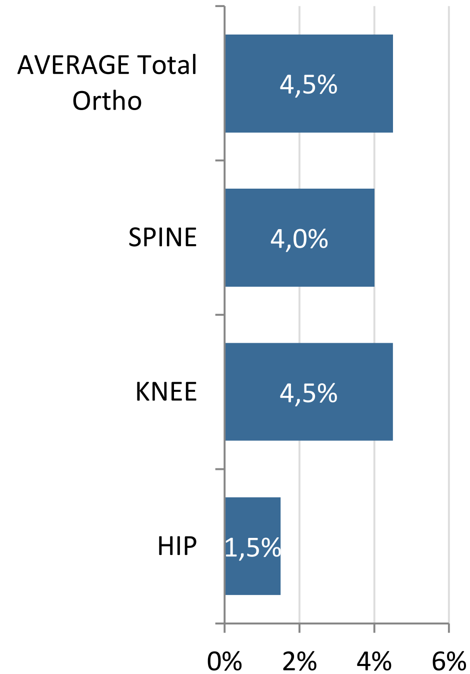
2000 - 2010 CAGR



2010 - 2011 Growth



2011 - 2012 Growth



Source: Avicenne research & analysis 2013

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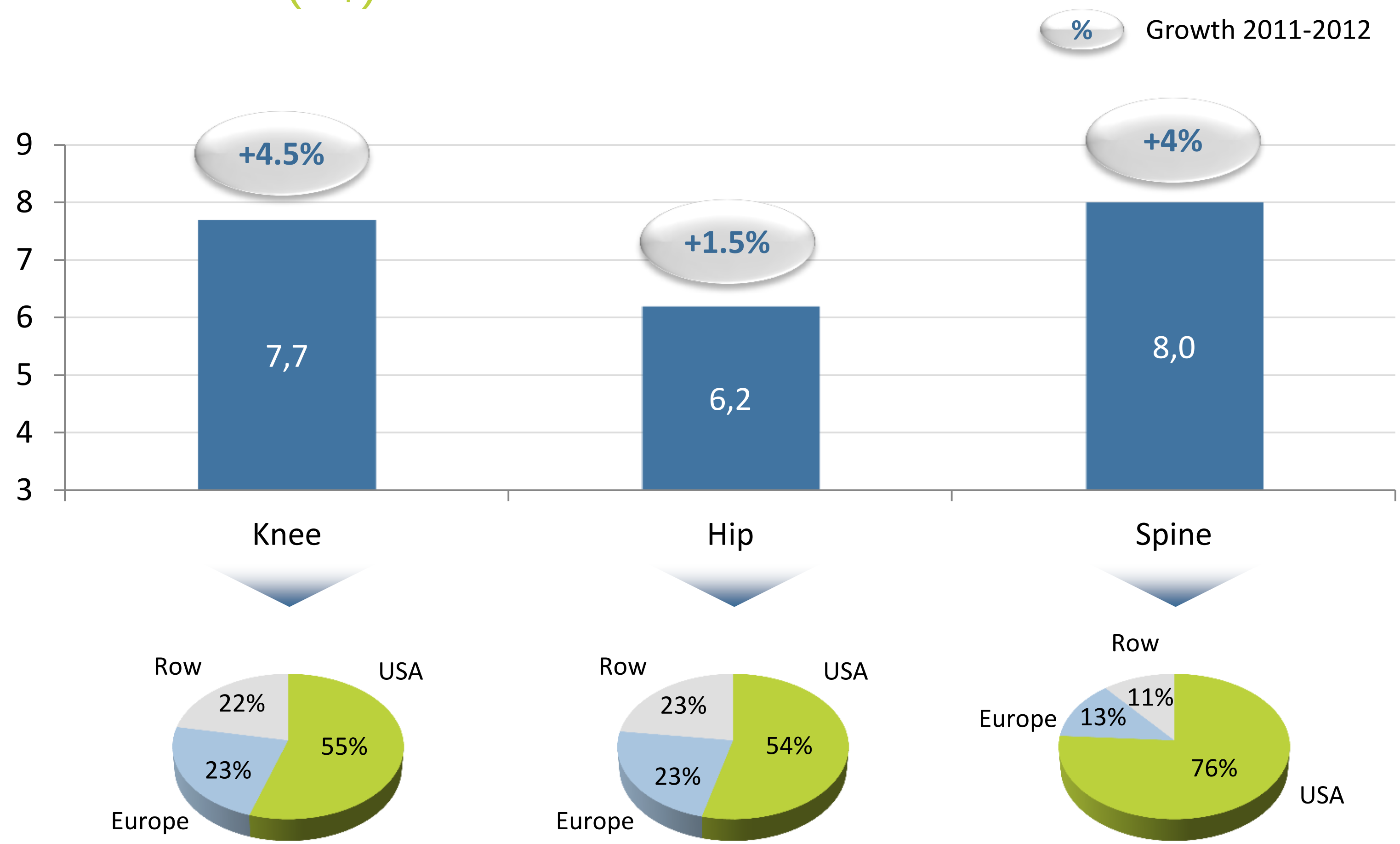
Worldwide implants market in 2012 in value (B$)

Market value (B$)



Source: Avicenne research & analysis 2013

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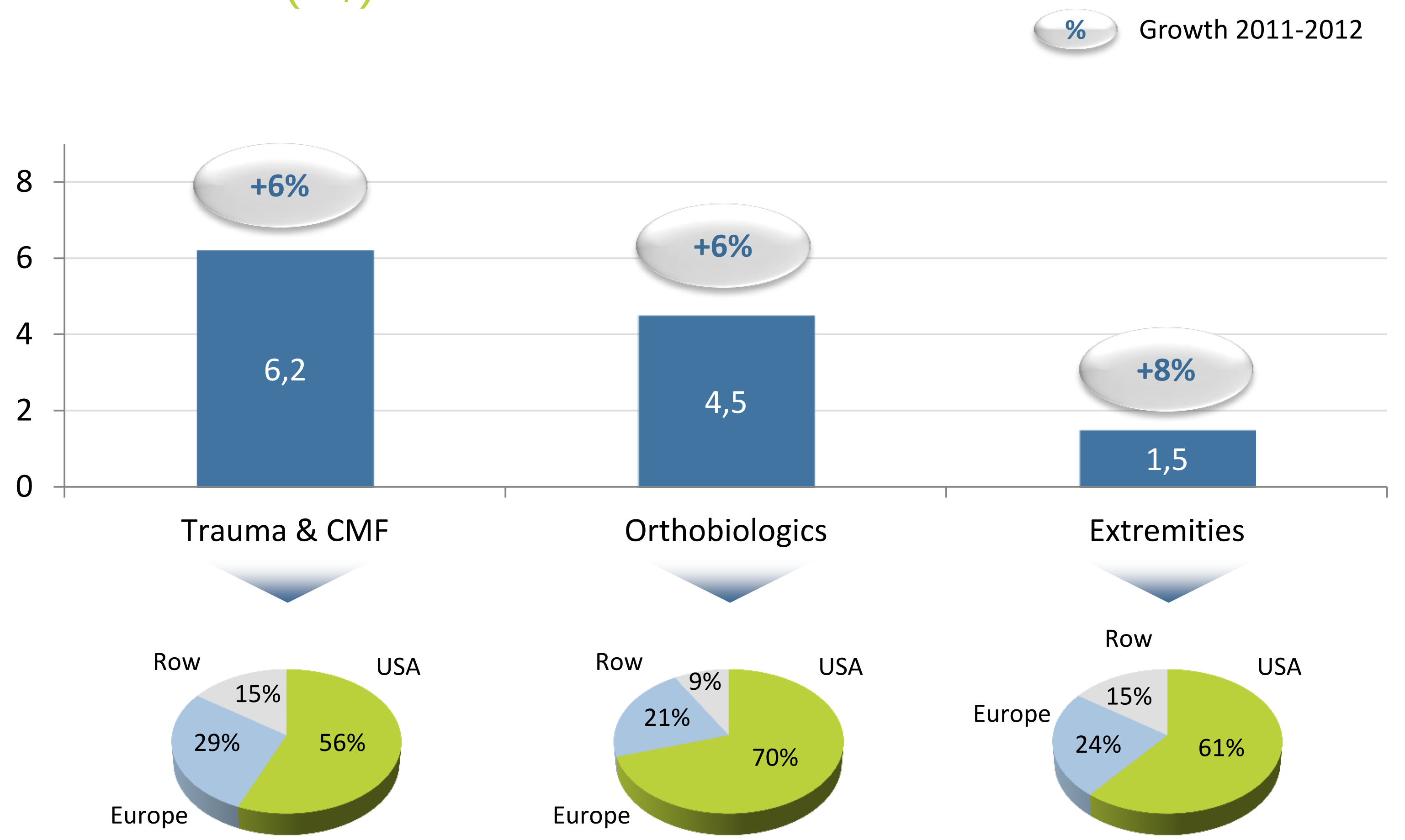
Worldwide implants & Orthobiologic market in 2012 in value (B$)

Market value (B$)



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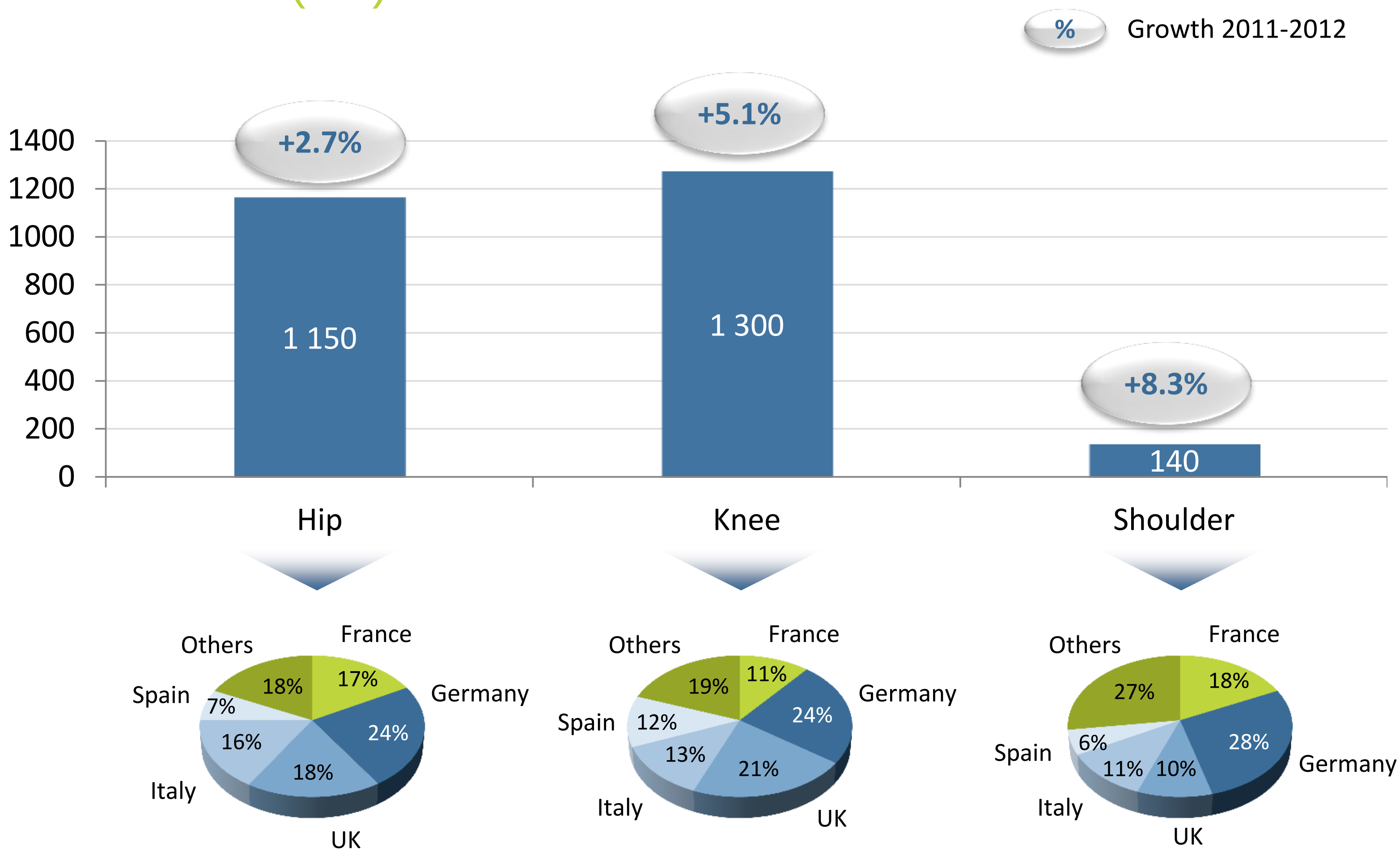
European implants market in 2012 in value (M€)

Market value (M€)



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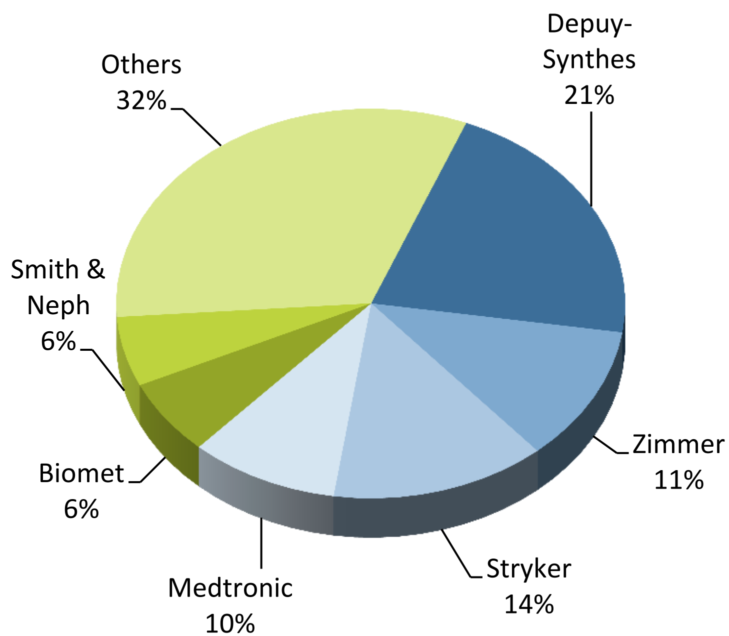
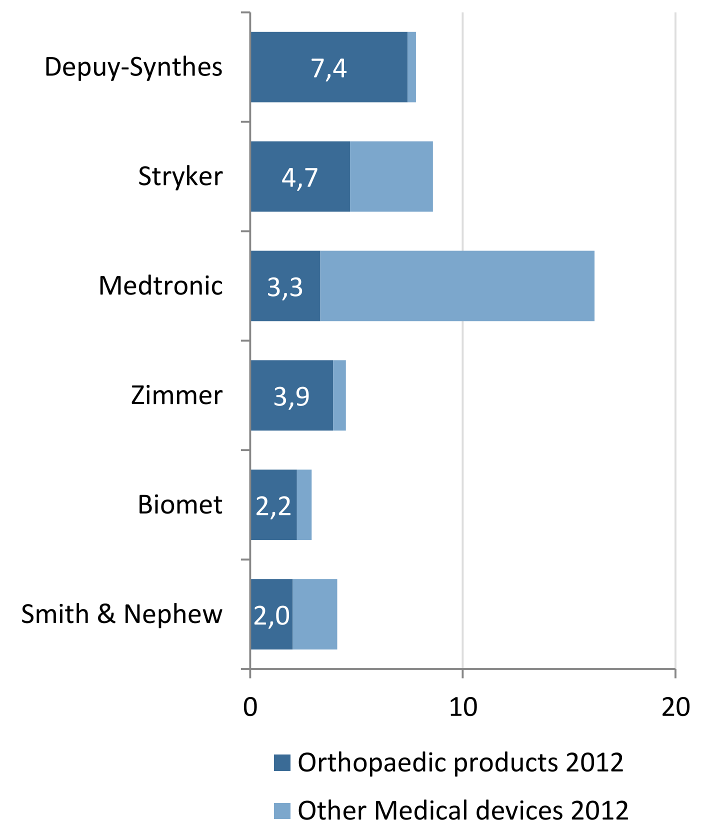
Worldwide orthopaedic market in 2012: competition

2012 Worldwide Orthopaedic Market



2012 revenues of the Major Orthopaedic Companies (B$)



Source: Avicenne research & analysis 2013

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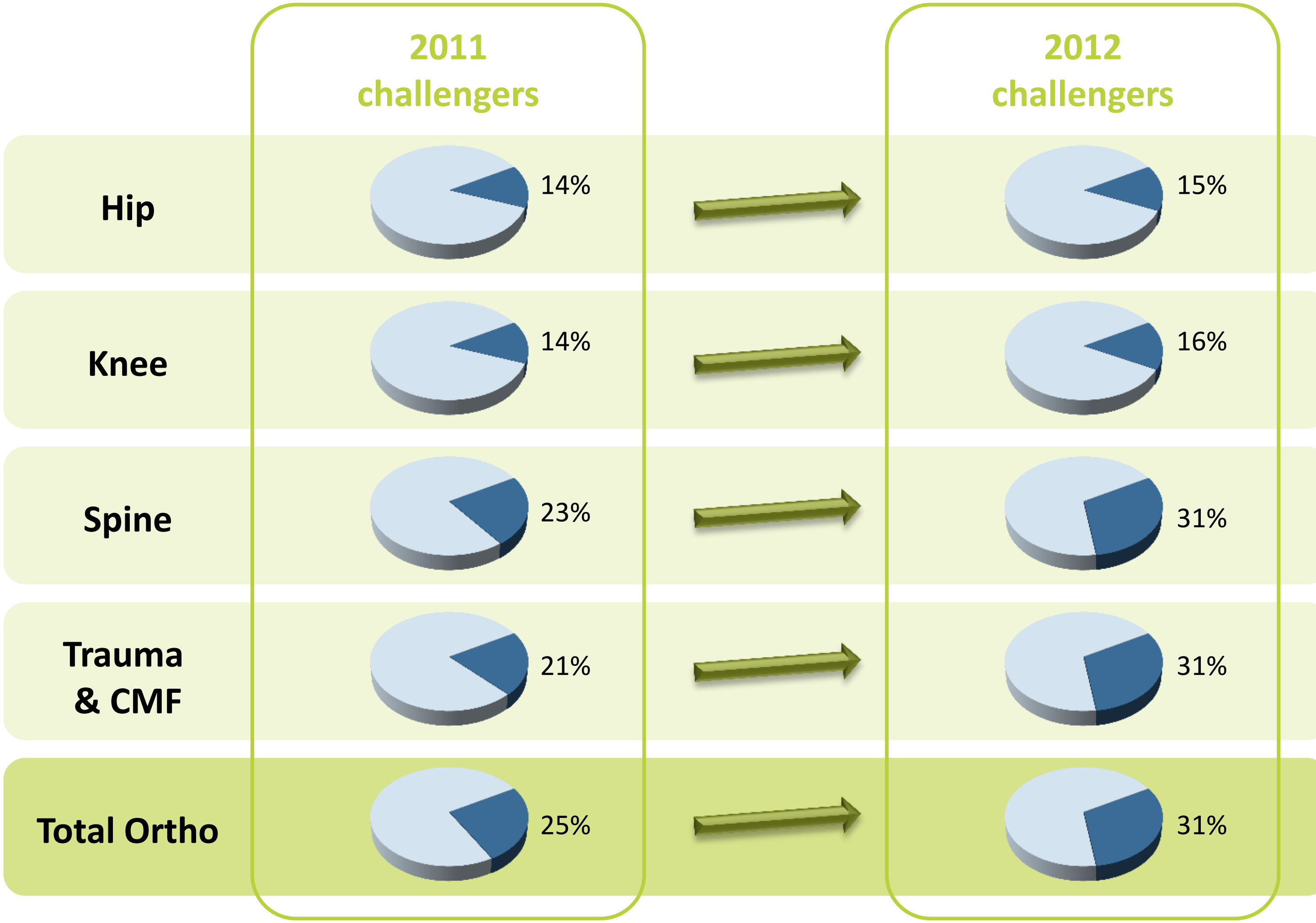
The challengers gained market shares



Source: Avicenne research & analysis 2013

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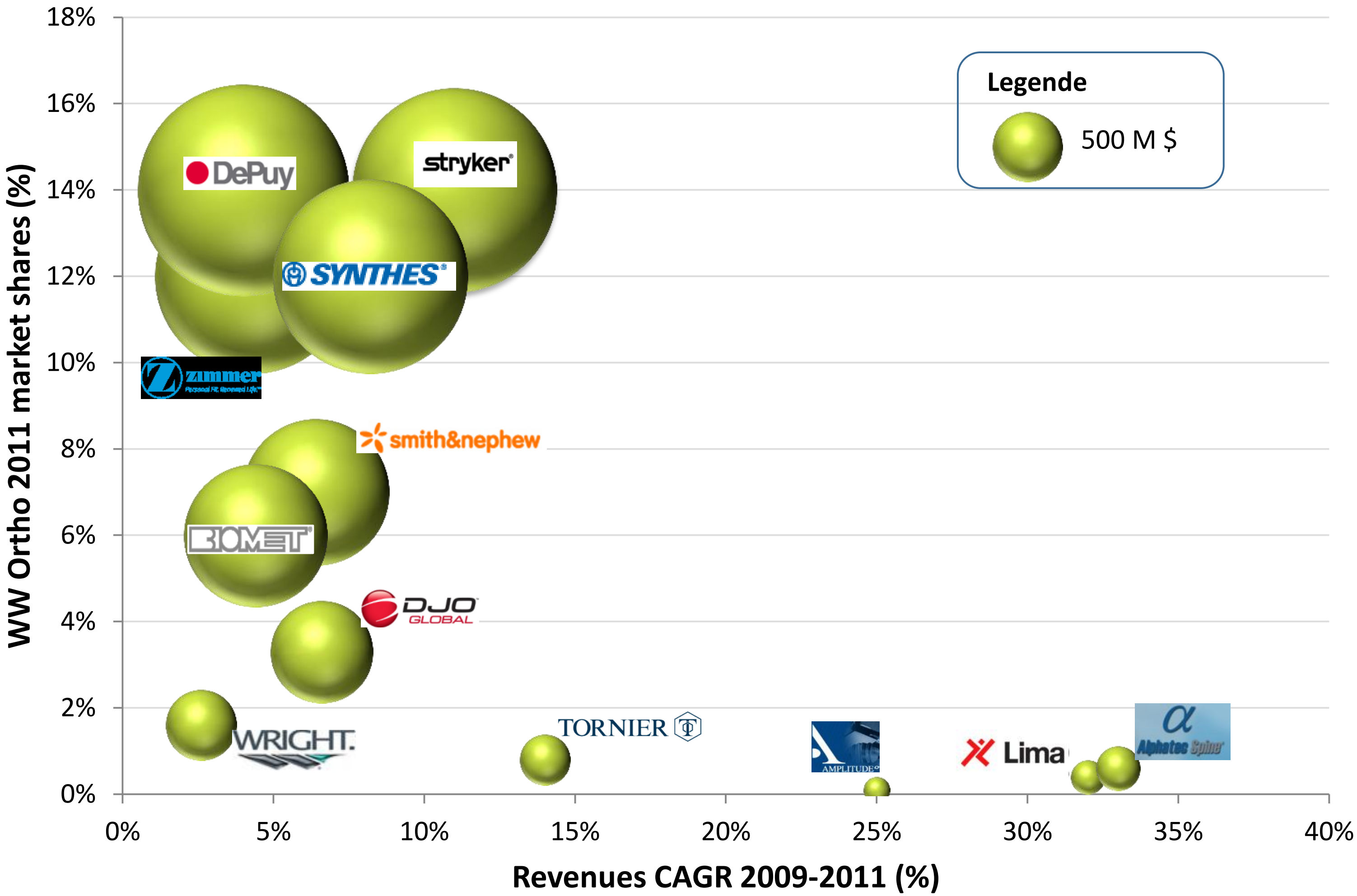
Majors Vs Challengers: Majors save ranking & Challengers the growth!



Source: annual company reports May 2012

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Challengers growing Vs majors

Majors	Challengers
Product standardization	Multiplication of customized
Product range reduction	Product range Extension
Sale channels cost cutting	Attracting new sale forces
More centralized services	Local and high level services

Source: Avicenne research & analysis 2013

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European hip, knee & shoulder markets

Europe	HIP	KNEE	SHOULDER
European Market 2012 in M€ - 14 countries	**1 150 M€** 23% of WW market	**1 300 M€** 23% of WW market	**140 M€** 20% of WW market
Growth per year 2011/2012	**+2.7%**	**+5.1%**	**+8.3%**

Source: Avicenne research & analysis 2013

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Market Drivers

Demographic & Economic	
	Impact 1: Population
	Impact 2: Inhabitants > 65 years
	Impact 3: Health expenses
	Impact 4: Obesity

New products & innovation and revision	
	Impact 1: Mix Product impact

Source: Avicenne research & analysis 2013

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Drivers & limiters:

Population ageing and product mix evolution have been the major historical drivers. Going forward, they should remain the major growth contributors

	Driver		Argument	Impact	
				Past	Future
Price	Price		Reimbursement trends, Competition, clients pressure and public/private mix lead to some price decrease	-	- -
	Product mix	Materials	The increasing use of higher technology implants (ceramic combinations, cementless products) has a positive impact on the product mix	+	+
		Fixation			
		New products, new kinematics, new surgeries, new materials & new instruments	New products, new surgical approaches, new ancillaries and instruments increase the product mix	++	++

Source: Avicenne research & analysis 2013

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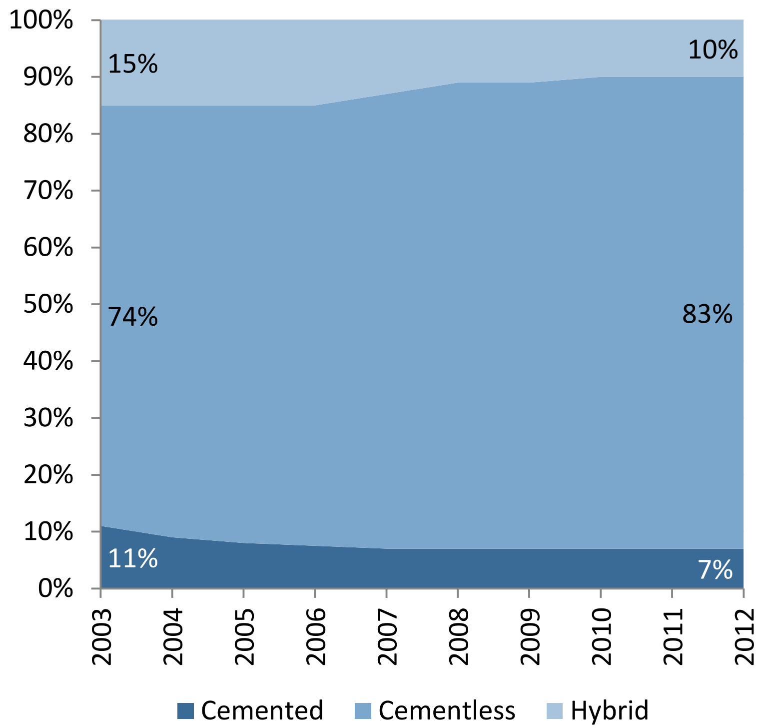
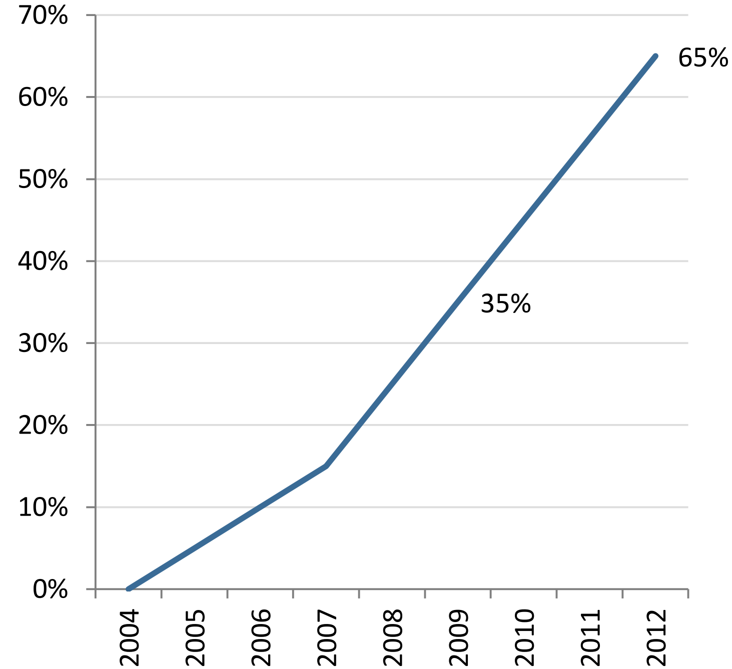
Product Mix pulls the market

Substitution of cemented by cementless or hybrid products should continue with a positive mix impact: example of hip in Italy (% of THP in volume)



% of Mobile cup in partial hip implants in Italy: mobile cup price is more than two times higher than the standard partial hip



Source: European Orthopaedic Market 2012-2017, Avicenne report

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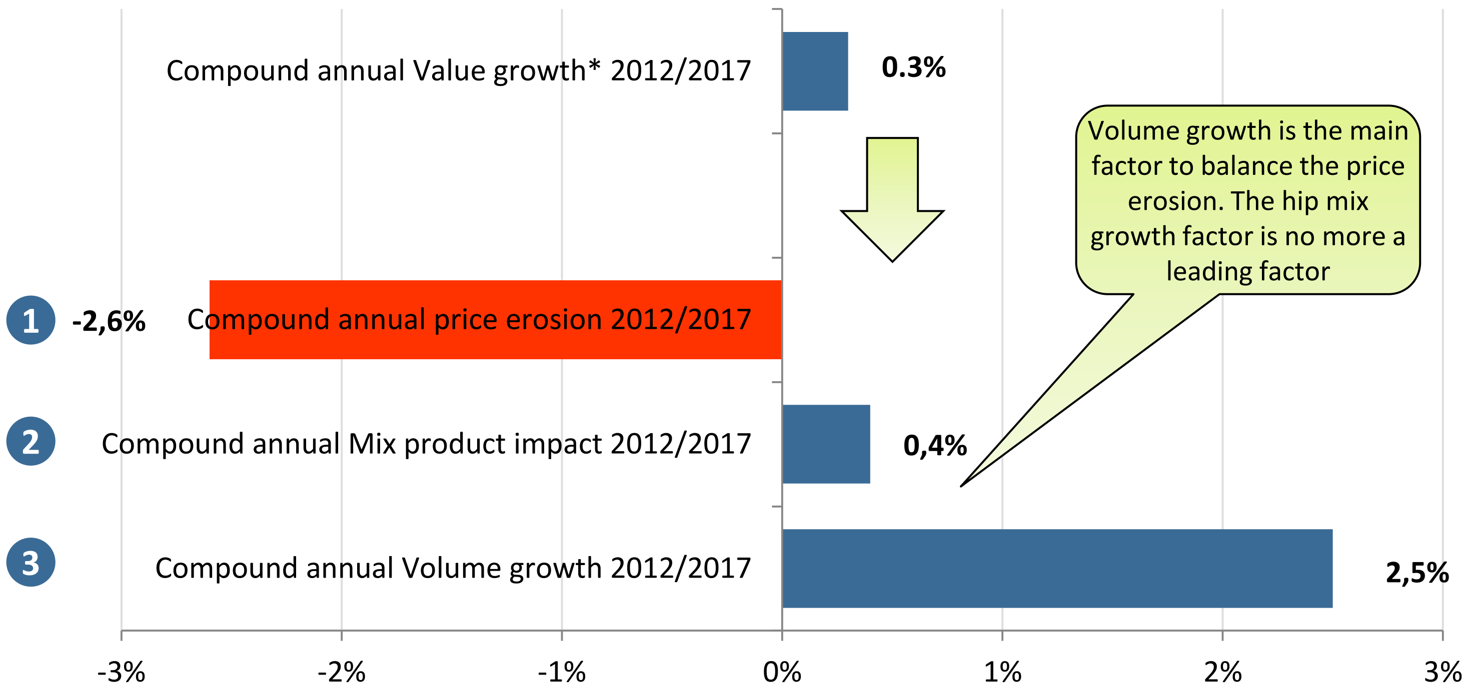
Hip erosion price and the growth factors: example of France

The volume & mix impact balancing price erosion



(*) Excluding currency growth impact

Source: European Orthopaedic Market 2012-2017, Avicenne report

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The market limiters

Reimbursement	**Impact 1:** Price decrease **Impact 2:** Longer Time to market
Buying Groups	**Impact 1:** Price decrease **Impact 2:** More Low-end products demand
Certification	**Impact 1:** Time to market **Impact 2:** Higher development Cost

Source: Avicenne research & analysis 2013

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The orthopaedic sale channels

Three main sale channels co-existing, buying groups dominating in some countries

Sales representative	Agents	Distributors
« company » employees Less expensive than other channels Positive effect to push the « company» sales strategy Negative impact for “company "working capital	Commercial interface with the surgeon Very strong relationship between agent & surgeon Do not buy stocks and instruments Do not invoice the clinics & hospitals Gain commission (% of sales) Negative impact for “company” working capital	Buy stocks and instruments Discount on catalogue prices (-30% to -40%) Invoice the clinics and hospitals Positive impact for “company” working capital

Source: Avicenne research & analysis 2013

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The market limiters

Group purchasing developments in Germany drove the implant prices down… It now serves as a model in lot of other European countries

Group purchasing was a success in Germany…	• For example the basic knee (fixed tibial plate - cemented) is priced at 1 350 €, for some tenders Depuy proposed 900 € for this basic product. • Zimmer had in his customer portfolio the "Endoclinic and DAM Group" for 4 hospitals, with 10 000 knee and hip sales per year! Average price for the knee for this customer is much less than 1 000 €.
…it was much less successful in France and Italy	• Some private hospital groups in France like "Vitalia or Générale de Santé" are trying to centralize their implant purchasing, but it is only the beginning. The discounted price was only a few % lower and those hospitals have to share these savings with the "French Caisse d'Assurance Maladie". • The surgeon name reputation is considered as product marketing showcase of the private hospitals, which are making what is necessary to keep their surgeons. Hence they are not focusing on implants price reduction. • In Italy, purchasing groups make less than 10% of the total orthopaedic market value per year and growing slowly.

Source: Avicenne research & analysis 2013

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Worldwide Orthopaedic Contract Manufacturing

II Orthopaedic Contract Manufacturing market

- Contract Manufacturing market value chain
- Orthopaedic Contract Manufacturing rates
- Contract Manufacturing market
- Competition & Size
- Heavy trends

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Contract manufacturing market value chain

Contract Manufacturers

Implants
1.7 B$

Instruments
1.0 B$

Cases & Trays
0.4 B$

Orthopaedic companies OEM

Revenues in 2012:
34.5 B$

6 majors
Few 100 challengers

Hospitals & Clinics

SYMMETRY
PARAGON MEDICAL
ORCHID
lisi MEDICAL
IN'TECH MEDICAL MANUFACTURING SOLUTIONS
Greatbatch
Marle
accellent

DePuy Synthes
stryker
zimmer
Medtronic — Alleviating Pain · Restoring Health · Extending Life
BIOMET
smith&nephew
TORNIER
Lima
AMPLITUDE

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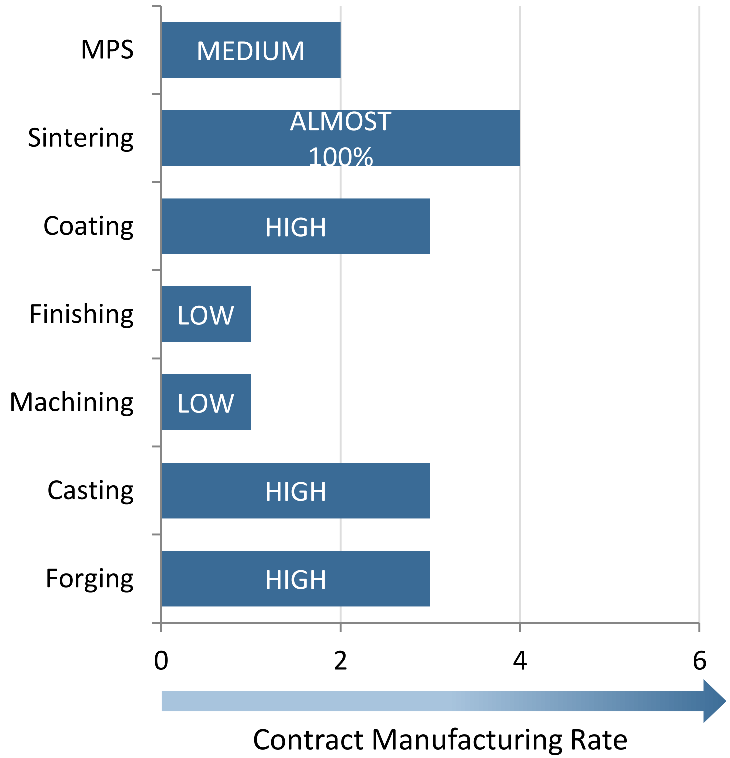
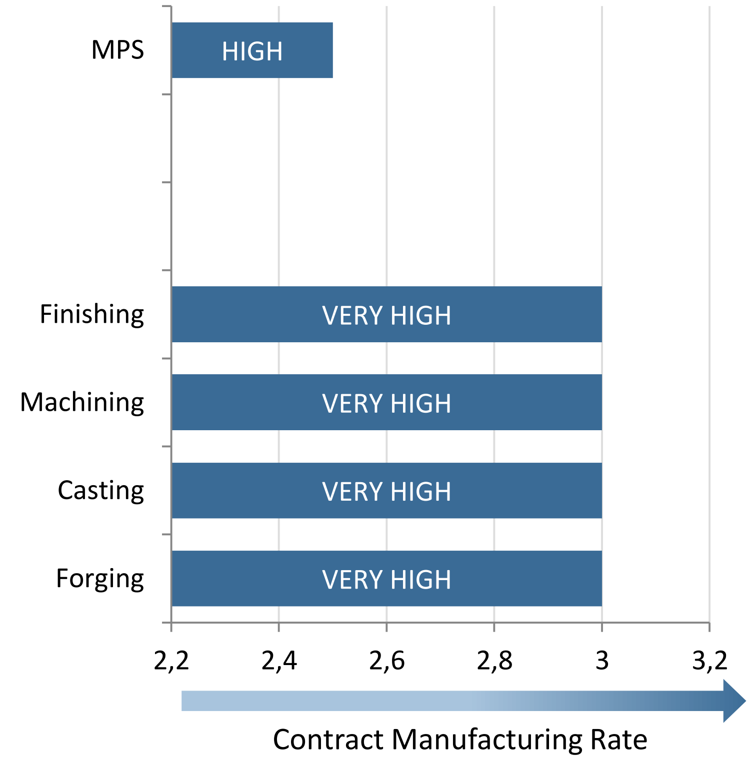
Orthopaedic Contract Manufacturing rates

Contract Manufacturing rate for IMPLANTS



Contract Manufacturing rate for INSTRUMENTS



MPS: Marking-Packaging-Sterilization
Source: Avicenne research & analysis 2013

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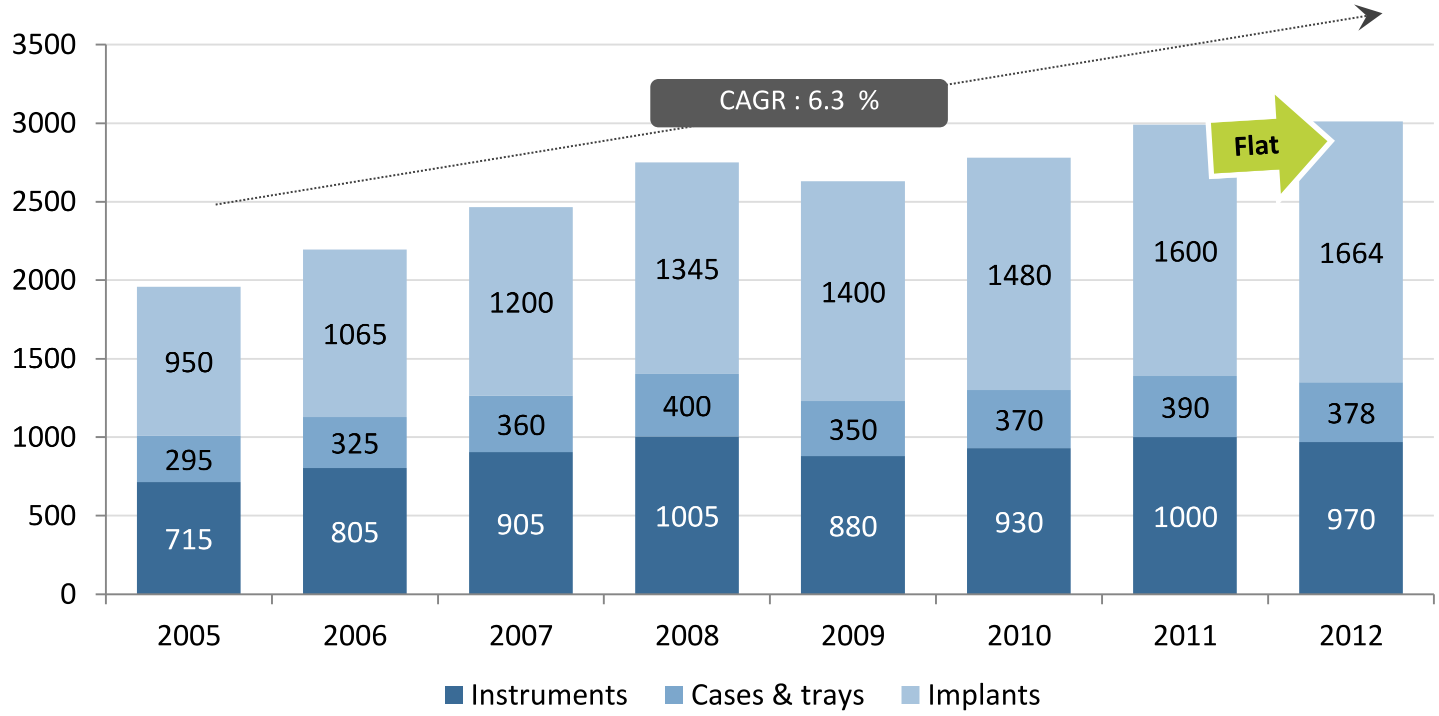
Contract Manufacturing market:2005-2012 3 Billion US$ in 2012

Contract Manufacturing market showing a cycle (M$)



Source: Avicenne research & analysis 2013

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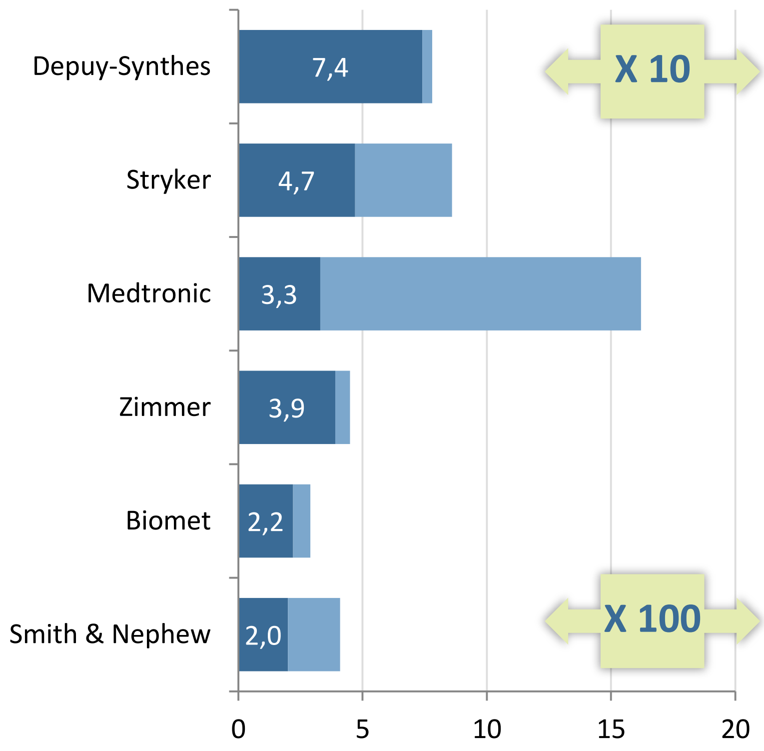
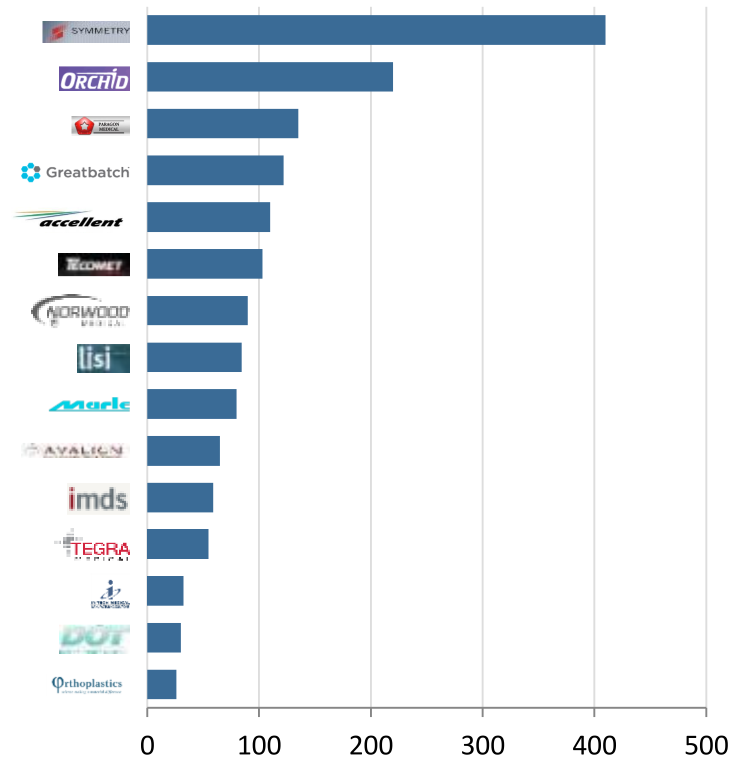
The Orthopaedic suppliers are relatively small, compared to OEM

Major OEM revenues: M US$



Contract manufacturers revenues: M US$



Source: Avicenne research & analysis 2013

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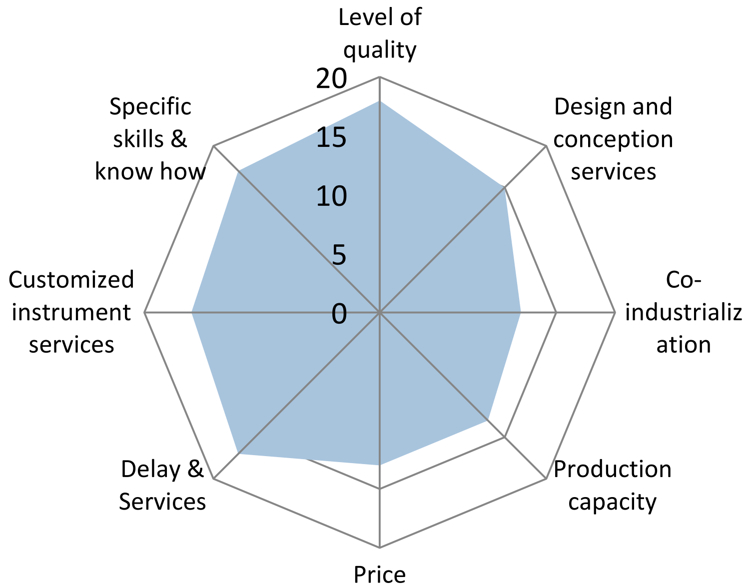
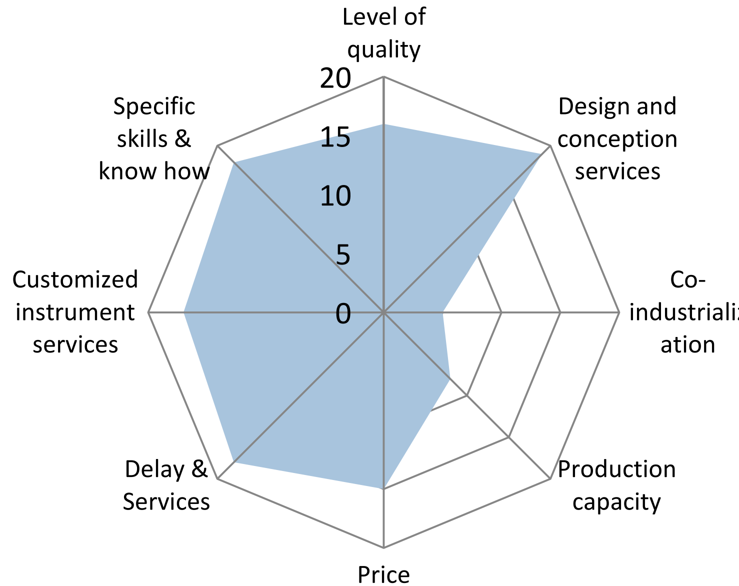
How an OEM chooses its Contract Manufacturers: what are the main criterias?

Majors: criterias to choose its Contract Manufacturers in instruments



Challengers: criterias to choose its Contract Manufacturers in instruments



- **Level of quality:** 1- finishing & adjustment 2–esthetic 3- simplicity 4- hand held
- **Co-industrialization:** re-thinking production process and functional sizing

Source: Avicenne research & analysis 2013

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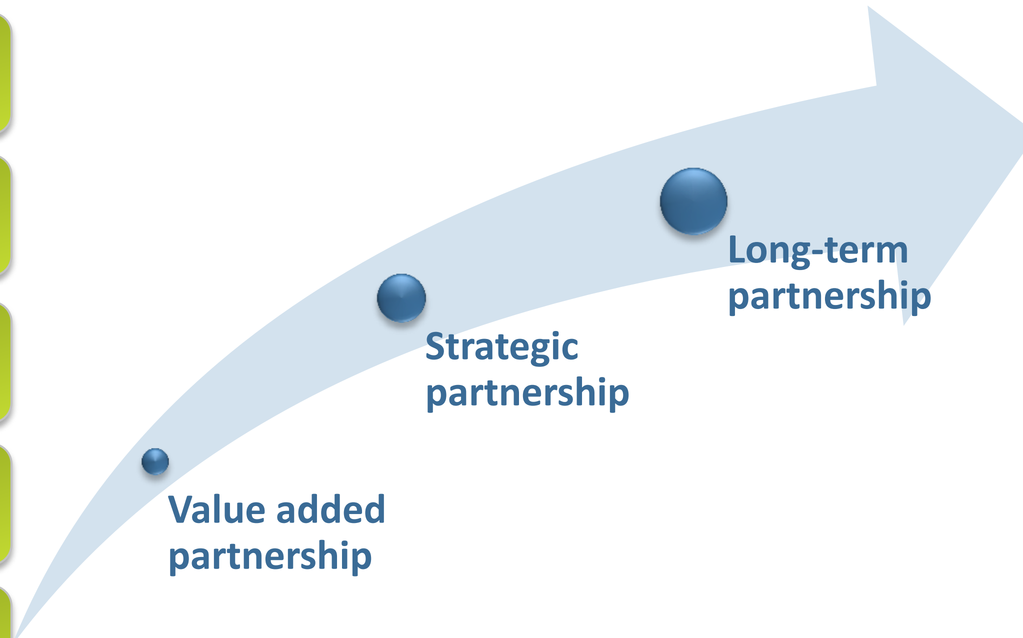
Heavy trends:

Majors OEM are waiting for strategic partnerships and long term collaboration to outsource more and more

OEM are looking for Contract Manufacturers who recognizing mutual interdependency and targeting common goals

- **Common Improvements**
- **Long term Planning**
- **Services**
- **Sharing risks**
- **Robust supply Chain**
- **Reliability**



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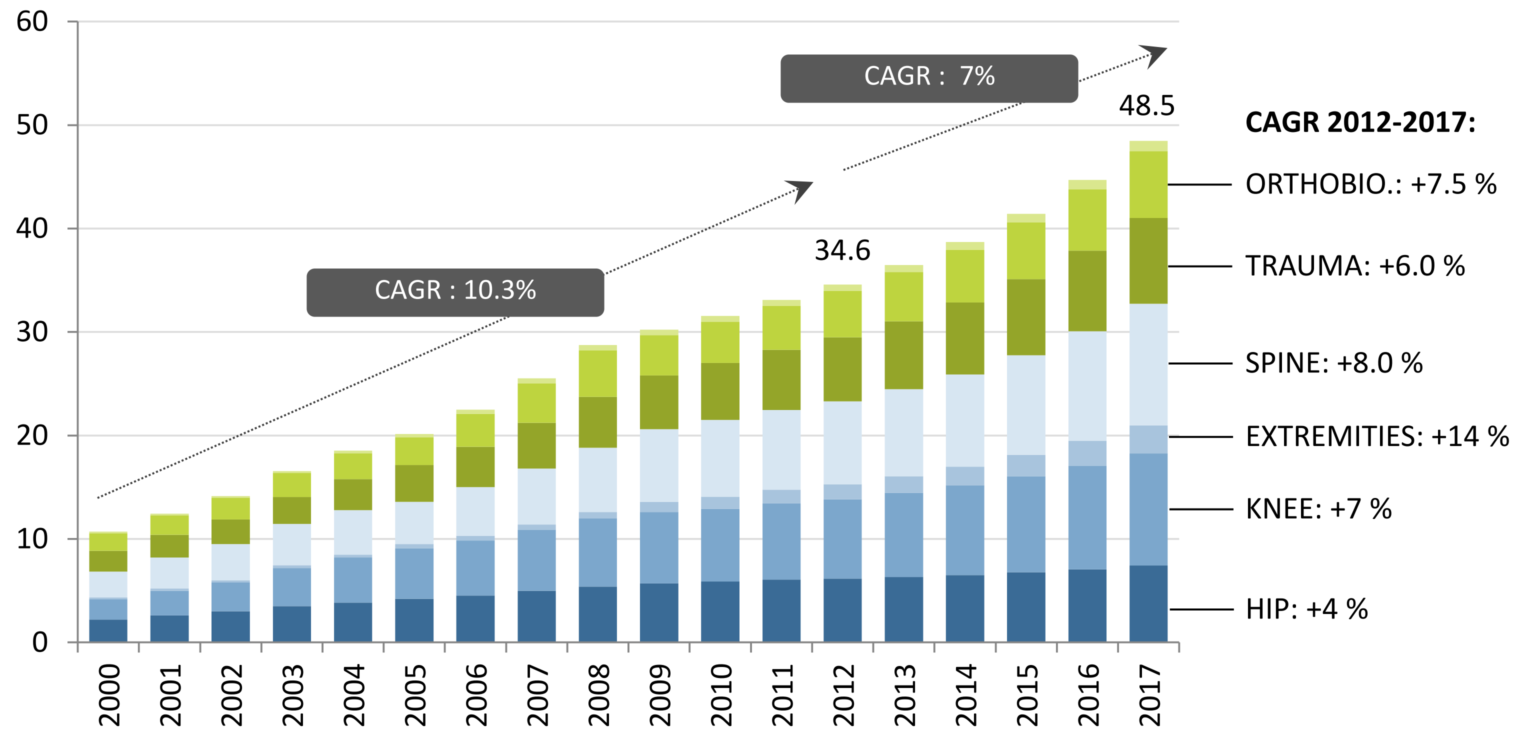
Forecasts for the worldwide orthopaedic market

Worldwide orthopaedic market: CAGR 2012/2017 de +7 %



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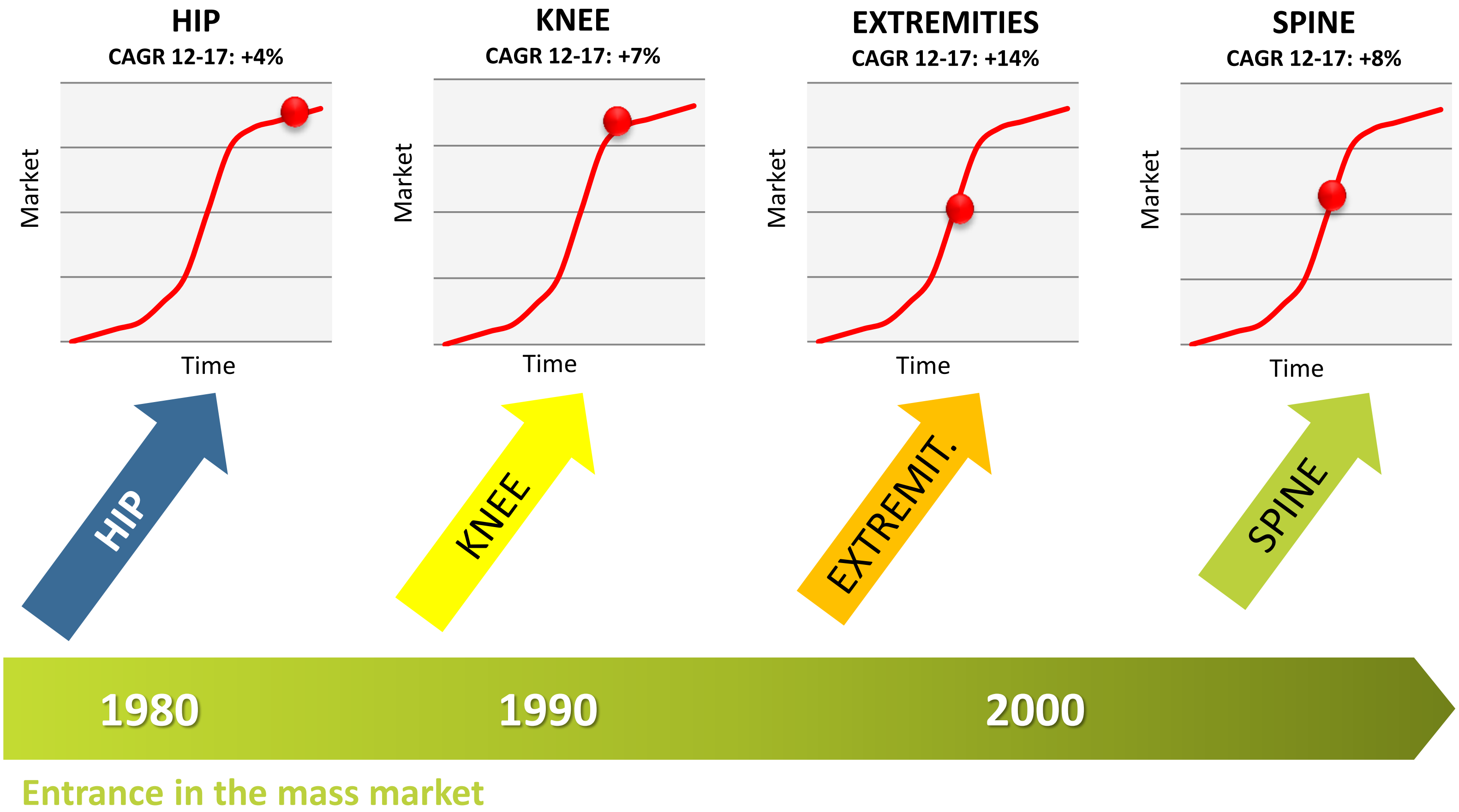
The life cycle of the orthopaedic products: growth forecasts by 2017

Hip and knee are more mature than extremities and spine



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Take home messages (1/2)

1. Worldwide orthopaedic market continues its growth with a CAGR of 7% by 2012 to 2017.
2. Highest growth for orthopaedic implants would be on those following markets: shoulders, extremities… and in countries like Japan, China, India, Brazil,...
3. The Challengers Vs Majors: usually a double digits growth for the dynamic challengers… Majors are losing market shares but maintain margin.
4. Concentration in the orthopaedic market is continuing: we predict more acquisitions and mergers.
5. Concentration in the Contract Manufacturing market is continuing: the target is the critical size to be able to supply more services, more production capacity, more quality services and share more risks…
6. Today OEM do not find a large range of offers from their Contract Manufacturers. As soon as the OEM find the right supplier he starts to outsource.

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Take home messages (2/2)

7. OEM and particularly Majors are waiting for extend partnerships with their suppliers: common product improvements, long term planning of developments and productions.
8. OEM looking for partners with robust supply chain.
9. Majors OEM sold their facilities to Contract Manufacturers, we are expecting this trend for the future.
10. If China is becoming the new investment place for manufacturing generic instruments in short and mid term, we do not think the main part of implants and customized instruments will switch from Europe or US to BRICS countries.
11. OEMs need structured suppliers ready to:
    - Deliver within shorter time frames and enable flexibility.
    - Be efficient in terms of less waste and thus reducing manufacturing costs.
    - Share with them more responsibility and risk concerning regulatory constraints.

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THANK you!

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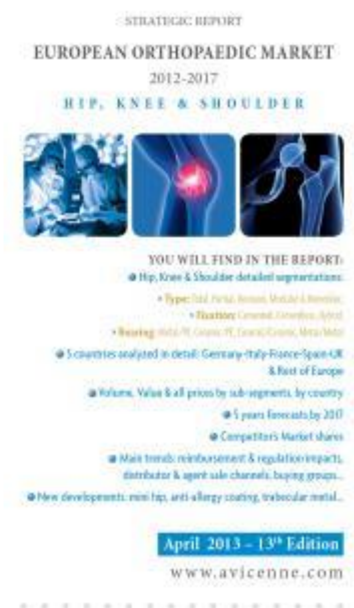
Annexe: AVICENNE marketing reports

"European Orthopaedics Market"

April 2012 13rd edition

- First publication in 1993
- Yearly up-date
- Hip, knee, shoulder
- Based on +80 interviews
- 650 pages & 800 graphs detail the European Market in Germany, France, Italy, Spain, UK, and other countries

Available immediately

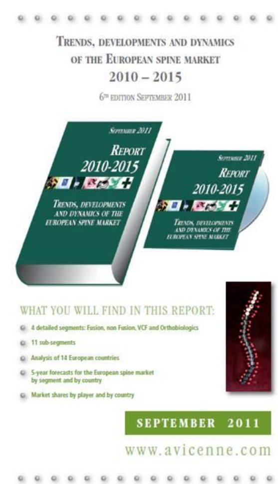


"Trends, Developments & Dynamics of the European Spine Market"

Sept. 2011 6th edition

- Première publication en 2000
- Publication annuelle
- Système universels, cages…
- 70 interviews d'acteurs dans le domaine du rachis
- 400 pages & 300 graphs détaillant le marché européen du rachis en Allemagne, UK, France, Italie, Espagne, Belgique et Suisse

Available immediately

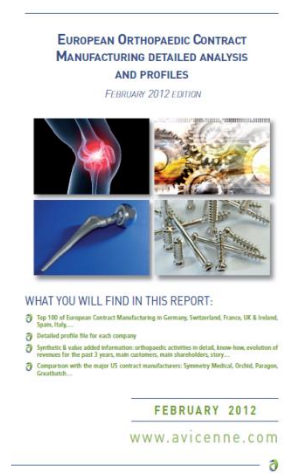


"European Orthopaedic Contract Manufacturing detailed analysis and Profiles"

Feb. 2012 edition

- Les 100 plus importants sous-traitants européens de l'orthopédie
- Analyse détaillée par fiche individuelle
- L'évolution des revenus sur plusieurs années, activités et savoir faire, principaux clients, principaux actionnaires, détails dans l'orthopédie…
- Comparaison avec les sous-traitants majors américains

Available immediately



"Orthopaedic patent watch"

Yearly edition

- 4 segments surveillés : hanche, genou, trauma et biomatériaux
- Publication du bulletin de veille tous les 2 mois
- 50 brevets présentés par numéro de façon claire et avec schéma
- Ces éléments permettent :
  - D'identifier les tendances en matière de R&D
  - De connaitre les choix technologiques du concurrent

Available immediately

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Orthopaedic Contract Manufacturing competitor response: concentration by acquisition

Symmetry
- 2011 Surgical Instruments Codman & Shurtleff
- 2008 DePuy OEM Bedford Facility
- 2007 SSI/UCA
- 2007 TNCO
- 2007 Clamonta
- 2006 Everest Metal
- 2006 Riley Medical
- Merger: 2003 Symmetry / 2003 Mettis Ortho

Orchid
- 2008 Azary
- 2007 MPS
- 2007 Keller
- 2007 Anzon
- 2006 McDee
- 2005 Bio-Coat
- 2005 Bio-Vac
- 2004 Unique Design
- 2003 Stro Met Inc
- 2001 HY-VAC
- 1992 Stealth Technologies
- 1977 Unique Instruments

Sandvik
- 2008 Eurocut
- 2008 Medtronic Memphis Facilities
- 2007 JKB Medical Tech
- 2007 Doncasters

Greatbatch
- 2008 Depuy Facilities
- 2008 PRECIMED
- 2007 EAC
- 2007 Ouan Emerteq
- 2007 Intellisensing
- 2007 Enpath Medical
- 2007 Biomec Inc
- 2004 NanoGram
- 2002 Manufacturing
- 2002 Globe Tool
- 2001 Sierra-KD
- 1998 Medical Components
- 1998 Hittman Materials
- 1977 Wilson Greatbatch

Lisi Medical
- 2010 Stryker Herouville Facilities
- 2008 INTERMED
- 2007 Jeropa USA
- 2007 Hugueny
- 2007 Seignol

Worldwide orthopaedic market and the contract manufacturing

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