Innovating Business Models in the Medical Device Industry

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China`s Medical Device Market

Medical Device Sales (RMB bn) 2002-2018e

Key Drivers

- Aging population
- Growing middle class with spending power and health concerns
- Two-children policy
- Healthcare reform
- Demand for better healthcare by rural and urban poor
- Increase of chronic diseases
- …

Multiple market drivers ensure continuous growth of medical devices industry in China in the mid-term

Source: China Statistical Yearbook, Espicom Business Intelligence
Foreign vs. local players in China`s MD market

Foreign brands account for majority of mid- & high-end MDs sold

Market share of foreign brands:
• 90% in ultrasound equipment
• 90% in magnetic resonance equipm.
• 85% in diagnostic equipment
• 80% in CT
• 80% in high-end monitors
• …

Chinese manufacturers traditionally serve lower value segments due to
• Low R&D capabilities
• Absence of innovative MD start-ups

Companies moved up the value chain
• Government policies support Chinese products in gaining market share

For mid-market MDs, Chinese products will be more capable to keep up with imports both in quality and technology

Source: Enterprise Observer, EU SME Centre (2015)
As product innovation becomes less valued, medical technology companies will need to invest in business model innovation.

**Chinese coronary stent market evolution**

Approx. revenue market share

<table>
<thead>
<tr>
<th>Year</th>
<th>Locals</th>
<th>MNCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early 2000s</td>
<td>~30%</td>
<td>~70%</td>
</tr>
<tr>
<td>Mid 2000s</td>
<td>~65%</td>
<td>~35%</td>
</tr>
<tr>
<td>2011</td>
<td>~60%</td>
<td>~40%</td>
</tr>
</tbody>
</table>

- **Early 2000s:**
  Initial J&J and Boston „create“ the market

- **Mid 2000s:**
  Lower cost players launched mid-tier alternatives at 30%+ discount

- **Since 2011:**
  2nd wave of MNC technology; end-to-end business models required to regain market share

Source: McKinsey
### Question:
What kind of innovations will contribute the most to your company’s performance?

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Global (yoy change)</th>
<th>China</th>
</tr>
</thead>
<tbody>
<tr>
<td>The improvement of existing products or services</td>
<td>79% (-4pts)</td>
<td>78%</td>
</tr>
<tr>
<td>The development of entirely new products or services</td>
<td>66% (=)</td>
<td>81%</td>
</tr>
<tr>
<td>The development of new business processes to improve profitability</td>
<td>63% (=)</td>
<td>62%</td>
</tr>
<tr>
<td>The development of more affordable products and services</td>
<td>56% (=)</td>
<td>62%</td>
</tr>
<tr>
<td>The development or improvement of products customized to local needs</td>
<td>53% (=)</td>
<td>70%</td>
</tr>
<tr>
<td>The development of new business models</td>
<td>52% (+6pts)</td>
<td>60%</td>
</tr>
<tr>
<td>The development of more sustainable processes, products or services</td>
<td>48% (+4pts)</td>
<td>52%</td>
</tr>
<tr>
<td>The development of new customer services</td>
<td>42% (+3pts)</td>
<td>65%</td>
</tr>
</tbody>
</table>

Chinese attach more importance to innovation than the global average

BMI will play an increasingly bigger role in driving business performance

Source: GE (2014)
The business model canvas is a practical tool invented to help companies describe, design, challenge and invent new business.

Business models can be systematically generated.

The three strategies – Transfer, Combine, and Leverage – have been used in the past to create new business models from existing ones.

Source: The Business Model Navigator
In the early 1980s, aircraft engine manufacturer Rolls-Royce achieved large-scale success with its **power-by-the-hour** scheme.

- Rolls Royce did not only sell engines per se, but started selling their **performance by flying hour**.

- The engines are owned, maintained and repaired by Rolls Royce.

Rolls Royce generated 70% of revenues with this business model.

Source: The Business Model Navigator
# Building Blocks of MD Business Models

<table>
<thead>
<tr>
<th>Options</th>
<th>Product type</th>
<th>Operational support model</th>
<th>Sales model</th>
<th>Clinical support and service</th>
<th>Brand name</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reduce price on existing products</td>
<td>High level support</td>
<td>Indirect channel</td>
<td>Field-based support and training</td>
<td>Use existing brand name</td>
</tr>
<tr>
<td></td>
<td>“De-engineer” premium products</td>
<td></td>
<td></td>
<td>Non-field based support and training</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Build new low-cost products from scratch</td>
<td></td>
<td></td>
<td>No clinical support</td>
<td></td>
</tr>
</tbody>
</table>
Lean Selling Model

- Selling simple pacemakers and defibrillators in cost-sensitive markets
- Devices configure themselves
- Selling, training, and support only online

- Least expensive sales model possible
- Limiting service support
- Suitable for:
  - simple sales cycles
  - recurring purchases
  - limited service-support needs
  - end of their life cycle products

Plain Products Model

- With Orex, Carestream moved down the value chain to offer X-ray value products
- “De-engineering” premium products or developing new low-cost offerings
- Sales and servicing models are left intact
- Suitable for products that:
  - offer large scope for reducing cost of goods sold
  - have complex sales cycles or require critical support

A local GE team developed a handheld ultrasound scanner at 15% of the cost.

GE Healthcare's premium-priced ultrasound scanners failed in China – 90% of hospitals could not afford them.

Sales reached $278 mn in 2008 and developed countries use GE's portable scanners in ambulances and operating rooms.

New business models are emerging across the healthcare ecosystem

Source: Bain & Company
Example: Walk-in Clinics (US)

- Located in mini-malls and discount stores
- Basic medical care without appointments
- Minimal staff (non-physician practitioners)
- Quick throughput of patients (visits take ca. 15 min.)
- Low prices
Evolution of the “Mobility” Business Model

Car ownership
- BMW
- GM
- Ford

Car sharing
- mobility
- CAR2GO
- DriveNow
- Zipcar

P2P car rental
- RelayRides
- WhipCar

Mobility Solution

Rental/leasing
- AVIS
- Europcar
- Hertz

Ride sharing
- Lyft
- Nuride
- zimride

Taxi APP
- Uber
- Didi

Source: The Business Model Navigator
Disruptive Innovators Entering the Field

Chinese internet giant Alibaba is taking a step further towards their goal of disrupting China’s medical industry.
THANK YOU!

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Shanghai, China, 2016
**Academic track**

- **2008** - Chair Professor, goetzpartners Chair of Innovation and Entrepreneurship, Tongji University (CN)
- **2008** - Visiting Professor, University of St. Gallen
- **2006 - 2007** - Postdoc, University of St. Gallen (CH) / Jacobs University, Bremen (D)
- **2004 - 2005** - Visiting scholar CEIBS (CN), Warton-SMU Research Centre (SG)
- **2002 - 2005** - PhD candidate and project manager, University of St. Gallen (CH)
- **1997 - 2002** - Mechanical Engineering and Business Administration, TU Braunschweig (D)

**Practical experience**

- **2005 -** - HAN Executive Advisory and Development: AMETEK, Astrium, BASF, BHS, Bosch, Bristol-Myers Squibb, Brueckner Group, Chiron-Werke, CWS-boco, Haniel Group, Heraeus, Huber & Suhner, KAEFER Group, Kiekert Automotive, Kirchhoff Automotive, Leica Camera, Media Markt, Metro Group, Meyer Werft, Micronas Semiconductor, Mitsubishi Plastics, Rheinmetall Defence, Shanghai GM, Stora Enso, Takkt, Voith, and Volkswagen … (D, CH, CN)
- **2007 - 2014** - Chief Investment Advisor, Chief Representative, Haniel Group China
- **2004** - Visiting associate, McKinsey & Company Inc. (D)

**Research Interest**

- Strategic management
- Innovation and marketing
- Entrepreneurship

**Publications & Lectures**

- 15 publications in international journals
- 13 papers and presentations at international conferences, 3 book chapters, 1 book
- >100 executive workshops, EMBA & MBA classes
- Lecturer at Uni St. Gallen, ETH Zurich