Xinxing Ductile Iron Pipes Co. Ltd., China – Economic benefits of standards – Case study

July 2011 – February 2012
Content of this presentation

- Xingxing Ductile Iron PipesCo., Ltd. (hereafter Xinxing) – Basic company information

- Production of pipes & Xinxing’s value chain

- Use of standards at Xinxing

- Quantification of the impacts of standards

- Additional qualitative considerations

Case study: Xinxing Ductile Iron Pipes Co. Ltd., China
Xinxing – Company overview (1)

- Listed on the Shenzhen Stock Exchange since 1997, Xinxing is exclusively sponsored by Xinging Ductile Iron Pipes Group Co., Ltd. (now renamed as Xinxing Cathay International Group, under the state-owned Assets Supervision and Administration Commission of China)

- The company:
  - owns multiple production bases in six cities
  - has a number of subsidiaries and branch companies in different parts of China including ten companies located in North-and Southwest China, as well as in Hong Kong
  - has 17 sales branches across China and 13 overseas sales agencies

- Xinxing operates in several industries and integrates scientific developments, industrial manufacturing and trade

- Its main products include centrifugal ductile iron pipes, hot-rolled ribbed bars, hot-rolled plain round bars, steel grading plates, bimetal (multi-metal) seamless steel pipes and steel-plastic composite pipes
Xinxing – Company overview (2)

- Products are divided into composite pipes for hot and cold water and drinking water, for heating, fuels, and for special fluids (including industrial waste water, corrosive fluid, coal mine water supply, water drainage, and compressed air), water drainage and protection casing.

- They are extensively used in construction water supply projects and in the communication, electric power, petroleum, chemical, pharmaceutical, food, mining and fuel gas sectors.
## Xinxing – Company overview (3)

<table>
<thead>
<tr>
<th>Items</th>
<th>Figures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market share of main products</td>
<td></td>
</tr>
<tr>
<td>– Centrifugal ductile iron pipe</td>
<td>42.5%</td>
</tr>
<tr>
<td>– Steel grating plate</td>
<td>40%</td>
</tr>
<tr>
<td>– Hot-rolled ribbed bar and hot-rolled plain round bar</td>
<td>3%</td>
</tr>
<tr>
<td>Total company profit for 2010 in CNY</td>
<td>1 763 037 100&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>Total profit in 2010 for operations within the scope of the assessment (in CNY)</td>
<td>569 239 000&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>Total no. of employees</td>
<td>17 499</td>
</tr>
<tr>
<td>Employees involved in the business function falling within the scope of the assessment</td>
<td>5 276</td>
</tr>
<tr>
<td>Customers</td>
<td>+ 90 countries and regions worldwide</td>
</tr>
</tbody>
</table>

<sup>1</sup> ~287,678,000 USD  
<sup>2</sup> ~ 92,883,800 USD
Iron and steel – Industry value chain

- Raw material purchase
- Equipment and technology
- Raw material cost
- Iron and steel products
- Product quality
- Product price
- Customer

Case study: Xinxing Ductile Iron Pipes Co. Ltd., China
Model of a company value chain (M. Porter)

The “value chain” is used as a tool in the assessments to structure and analyze the activities of companies.

Case study: Xinxing Ductile Iron Pipes Co. Ltd., China
Key value drivers at Xinxing

- Internal management:
  - setting-up of different departments as autonomous cost centres and legal entities
  - close and efficient linkages between production, supply, marketing, transportation, and application
  - activities focused on profit optimization – improved processes in terms of cost control, working procedures and efficiency

- Innovation and changes in management approaches

- Proactive analysis of market trends resulting in higher responsiveness to market demands and improvements in internal management
Attitude of Xinxing towards standards

- **Xinxing:**
  - participates in the development of ISO standards, Chinese national and industry standards
  - uses 124 compulsory Chinese standards, 691 voluntary standards and 22 technical regulations that are important to its activities, as well as internal working procedures
  - holds certifications to management system standards:
    - ISO 9001 Quality management systems
    - ISO 14001 Environmental management systems
    - OHSAS Occupational health and safety mgmt systems
    - GB/T 19022 Measurement management system
  - and is certified against 12 product standards for ductile iron pipe and pipe fittings and against 3 standards for round steel

- Employees receive training in standards and standards-related matters

Case study: Xinxing Ductile Iron Pipes Co. Ltd., China
Preliminary analysis of the standards impact

- Bearing in mind that Xinxing is a large enterprise positioned in the downstream segment of the iron and steel industry value chain, the following business functions have been selected for the assessment:
  - Management & administration
  - Research & development
  - Engineering
  - Procurement, including procurement of raw materials, fuels, and charges
  - Inbound logistics
  - Production/operations
  - Outbound logistics
  - Marketing & sales
  - After-sales service
Value chain of Xinxing – Business functions selected for the assessment of the impacts of standards are highlighted

<table>
<thead>
<tr>
<th>Management &amp; administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research &amp; development</td>
</tr>
<tr>
<td>Engineering</td>
</tr>
<tr>
<td>Procurement: including procurement of raw materials, fuels, and charges</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inbound logistics</th>
<th>Production/operation: iron making, steel</th>
<th>Outbound logistics</th>
<th>Marketing &amp; sales</th>
<th>After-sales service</th>
</tr>
</thead>
<tbody>
<tr>
<td>train and truck transport</td>
<td>making, steel rolling, and pipe casting</td>
<td>train and automobile transport</td>
<td>Sales of cast and steel pipe and steel grating plate products</td>
<td></td>
</tr>
</tbody>
</table>
Management & administration

- Use of quality, environment, health and safety management system standards as well as Chinese energy saving standards has enabled
  
  – Total annual cost savings of 4.8 % of aggregated costs and revenue of the department

Case study: Xinxing Ductile Iron Pipes Co. Ltd., China
Research & development

- The use of design standards has improved efficiency and reduced the number of design faults and costs. Implementation of standards make it possible to choose a typical specification from a group type and conduct fewer research programmes.

  - Total annual savings amount to 8.61% of aggregated costs and revenue of the department
Engineering

- Use of construction standards has allowed to reduce construction and investment costs, and increase efficiency in the organization of construction and acceptance checks.

- Total annual savings amount to **10% of aggregated costs and revenue of the department**

Case study: Xinxing Ductile Iron Pipes Co. Ltd., China
Procurement (incl. Inbound logistics)

- Standards used resulted in a general increase in the efficiency of procurement, less personnel and shorter procurement times in purchasing crude fuels, equipment and charging materials for the furnace.

- Total annual savings amount to **13.4% of aggregated costs and revenue of the department**
Production/operation

- Being the department that uses the most standards, the advantages are many. However some of the main benefits from a standardized production are:
  - reduced investment costs in moulds and repairs through a reduction in the number of mould cycles required for non-standardized products.
  - continuous casting production through standardization of steel varieties
  - improved quality and reduced waste
  - interchangeability and compatibility of equipment and reduced costs of spare parts and failures
  - Etc.
- Total annual savings of 32.16% of aggregated costs and revenue of the department

Case study: Xinxing Ductile Iron Pipes Co. Ltd., China
Marketing & sales (incl. Oubound logistics)

- Parallel implementation of standards from different regions open up markets in which the standards are used thereby increasing sales volumes. Implementation of standards enables more efficient business negotiations and allows conformity of products.

- Total annual cost savings of **28.10% of the department’s aggregated costs and revenue**
After-sales revenue

- Implementation of a quality management system helps to improve production, distribution and service quality. Supervision and quality control of materials is more effective and losses are reduced.

- Total annual savings of 2.93% of the department’s aggregated costs and revenue.

Case study: Xinxing Ductile Iron Pipes Co. Ltd., China
Conclusion: Impact of standards on the company EBIT

<table>
<thead>
<tr>
<th>Business functions (in the value chain)</th>
<th>Impacts (in CNY)</th>
<th>% contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management &amp; administration</td>
<td>3 260 000</td>
<td>4.8 %</td>
</tr>
<tr>
<td>Research &amp; development</td>
<td>5 850 000</td>
<td>8.61 %</td>
</tr>
<tr>
<td>Engineering</td>
<td>6 798 400</td>
<td>10 %</td>
</tr>
<tr>
<td>Procurement (incl. inbound logistics)</td>
<td>9 110 900</td>
<td>13.4 %</td>
</tr>
<tr>
<td>Production/operation</td>
<td>21 859 300</td>
<td>32.16 %</td>
</tr>
<tr>
<td>Marketing &amp; sales (incl. outbound logistics)</td>
<td>19 103 100</td>
<td>28.10 %</td>
</tr>
<tr>
<td>After-sales service</td>
<td>1 991 500</td>
<td>2.93 %</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>67 973 200</strong></td>
<td><strong>100 %</strong></td>
</tr>
</tbody>
</table>

Savings due to the impact of standards amount to **0.67% of Xinxing’s annual sales revenue for 2010** while the percentage of the EBIT is close to **14%**
Some additional qualitative considerations

- Application of the assessment study has contributed to:
  - a better understanding by various stakeholders of the benefits of standards
  - enhancing the awareness of enterprise managers and technical staff of the importance of standards

- The gathering of objective and scientific data and the conclusions reached can potentially stimulate the initiative of enterprise managers towards standardization work, and to leverage standardization as a means to increase company competitiveness

Case study: Xinxing Ductile Iron Pipes Co. Ltd., China
Thank you
Confidence has a nickname…