Overview of case studies: Brazil



Case Study: FESTO
(March 2011)

Content

- Examples of application of the ISO methodology
  - Industrial automation equipment company
- Credits
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  - Mr. Daniele Gerundino, Strategic Adviser to the ISO Secretary-General

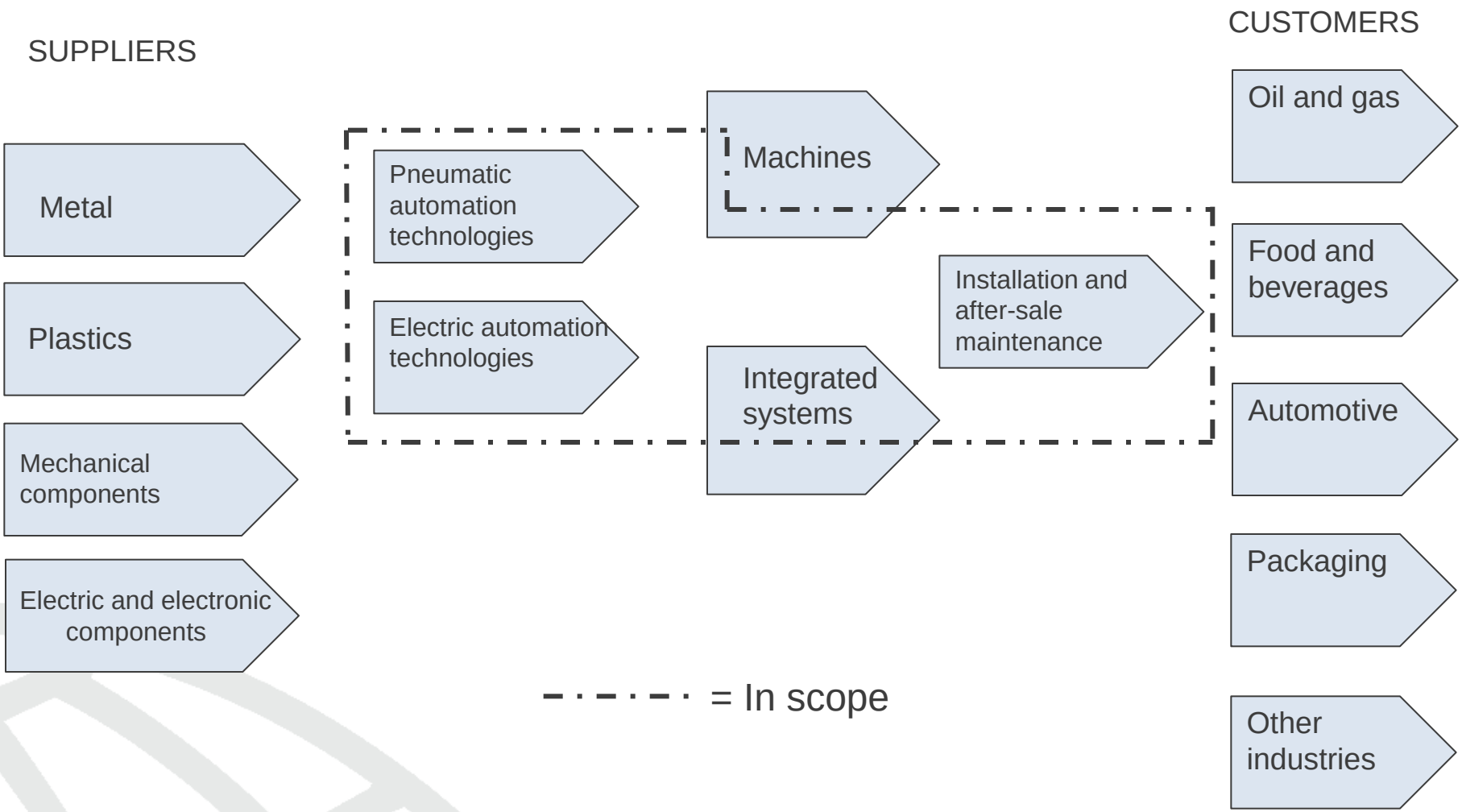
The company – FESTO

- Leading provider of pneumatic and electric drive technology for factory and process automation

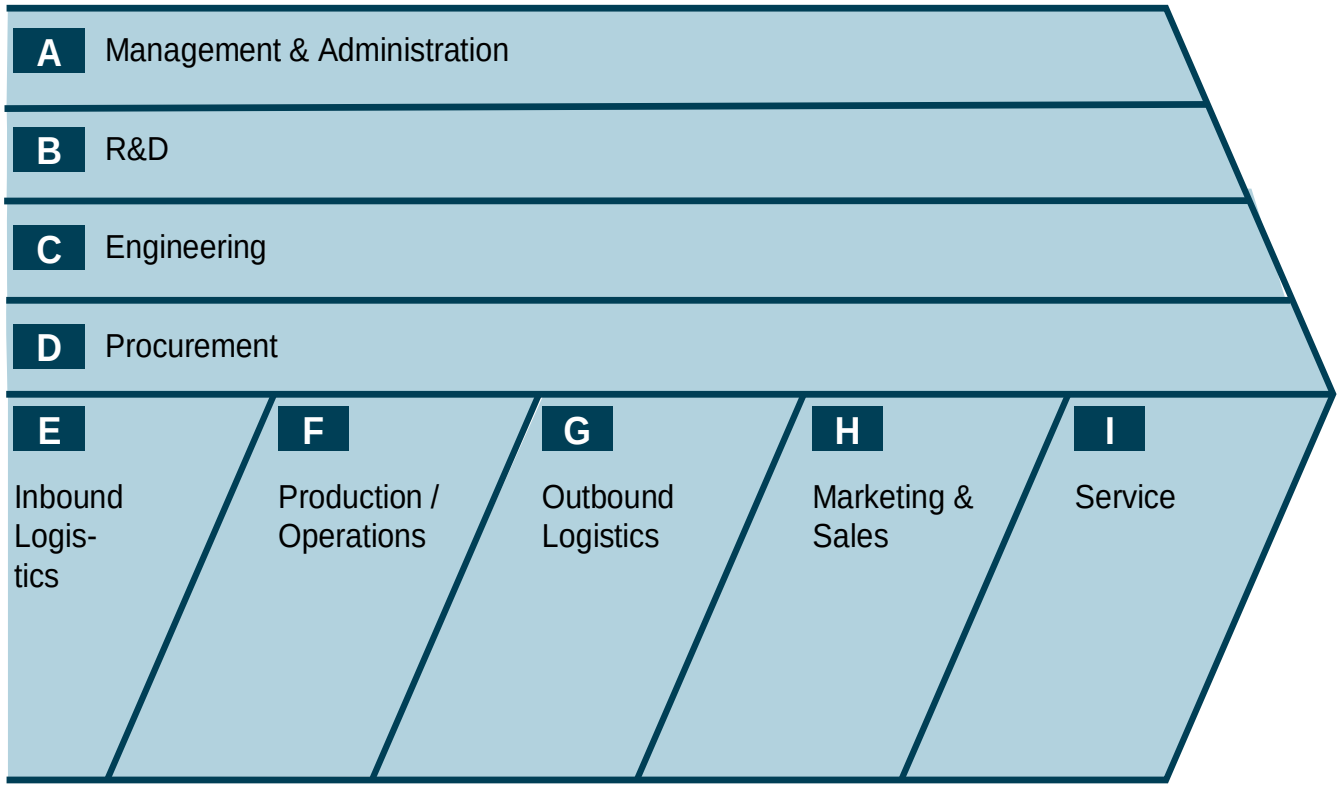
- The company serves a large variety of customers from different industries – with approximately 30,000 catalogue products, customised solutions, ready-to-install automation systems and a matching range of services from stand alone products to before- and after-sales support

- The study has been conducted on the company Brazilian subsidiary which operates in South America (and, for some categories of products, serves the world market)

Industry value chain



Model of a company value chain (M. Porter)



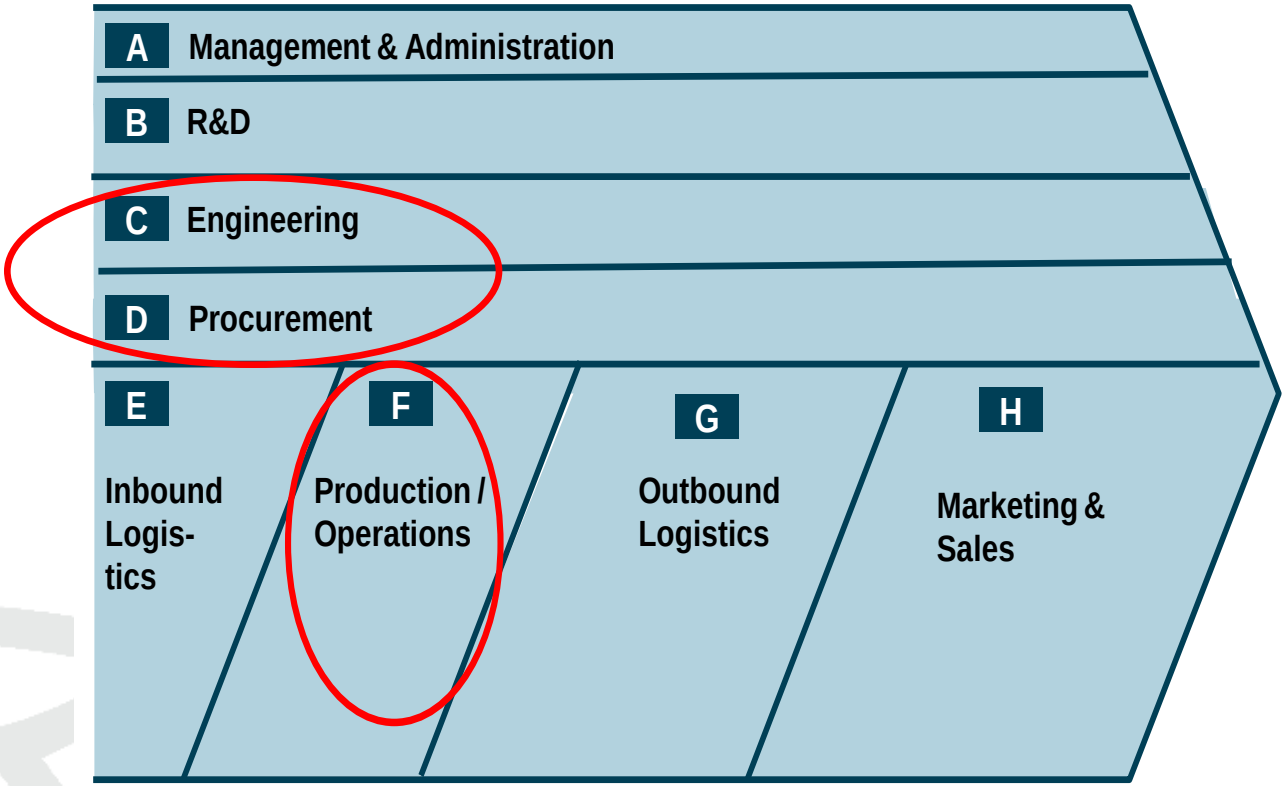
A company value chain & the business functions « A » to « I » that constitute the Value Chain

Preliminary analysis of the Standards Impact

- The company has a library of approximately 150 technical standards, primarily product and test standards. More than 80% of them are external standards (ISO, EN, DIN, ASTM, etc.). ISO 9001, 14001 and TS 16949 are also thouroghly applied
- Based on preliminary analysis (supported by the Standards Impact map) the business functions most significantly impacted by standards are:

  – Procurement
  – Production
  – Engineering

Company value chain and selected business function for an assessment of the impacts of standards (highlighted)



= Focus of the analysis

Procurement (1)

- Total cost of procurement (materials and parts): **90 million BRL**
- Metals: 30% of total
  - Alluminium alloys (for Injection molding)
  - Steel Bars (stainless steel bars for machining)
  - Aluminium bars (stainless aluminium bars for machining)
- Mechanical parts for the machining process: 50% of total
- Plastics and other items: 20% of total
- *Several standards (primarily ISO, EN and DIN) are used as a basis for material and parts specifications – primarily metals*

Procurement (2)

- Standards impact 1: **Work savings**
- The amount of work needed to complete the purchasing process for non-standards based metals is estimated to be 5 times more as opposed to standards based metals
- Orders for standards-based metals represent about 25% of the total for metals (i.e. 25% of 30% in total – i.e. 7.5% of total orders)
- Personnel cost for the purchasing department is 40% of 13 million BRL, i.e. 5.22 million BRL
- Savings due to the use of standards in processing orders can therefore be estimated as: 80% of 7.5% of 5.22 million – i.e. some **312.912 BRL** per year

Procurement (3)

- Standards impact 2: **Purchase savings**
- Standards-based goods, in the average, cost 30% less than non-standard-based ones
- Orders for standards-based metals represent about 25% of the total for metals (i.e. 25% of 30% in total – i.e. 7.5% of total orders)
- Savings due to the use of standards-based metals can therefore be estimated as: 30% of 7.5% of 143 Million – i.e. some **3.219.750 BRL per year**, or **2.25%** of the procurement costs

Engineering (1)

- Work of the engineering function is extensively based on standards
- The interviews were focused on assessing the impact of standards introduced recently by the company
- It was possible to evaluate the impact Standards for geometrical and positional tolerances (such as ISO 5458:1998 and other standards from ISO TC 213), which, in the past two years, replaced standards for dimensional tolerances

Engineering (2)

- Benefits due to the implementation of these standards:
  - Savings of design time for the engineers
  - Reduction of projects' elapsed time and related work
  - Reduction of time-to-market
  - Improved communication between engineering and manufacturing (helping more rapid machine set-up and to reduce machine time for products)
  - Increased reliability of manufacturing

Engineering (3)

- Standards impact 1: **Work savings (design time)**
- The savings in design time due to the introduction of these standards affect about 1/3 (33%) of engineers.
- Estimate savings of design time: 10%
- Personnel cost for the engineering department is 50% of 7.16 million BRL, i.e. 3.58 million BRL.
- Savings due to the use of standards for geometrical and positional tolerances can therefore be estimated as: 10% of 33% of 3.58 Million – i.e. some 118.058 BRL per year, *or **1.6%** of the costs of the engineering function*

Engineering (4)

- Standards impact 2: **Savings due to projects' time reduction**
- The total amount of engineering hours **per month** required from product design to production set-up has been estimated in 2.670 hrs
- Estimate of total reduction of time: **5%**
- Hourly cost of concerned personnel: 127 BRL
- Total cost of personnel involved: 338.670 BRL per month – i.e. 4.07 million BRL per year
- Savings due to the use of standards for geometrical and positional tolerances can therefore be estimated as: 5% 4.07 million – i.e. some 203.202 BRL per year

Production (1)

- The company is strongly committed to continual improvement
- QMS (ISO 9001) was introduced in 1994 – but a major re-design took place from 2006, when the company entered in the global manufacturing programme of the group and the “Made by Festo” project was launched
- The local subsidiary participated in the “Made by Festo” corporate programme and certification schema
- The major impact was on the production business function

Production (2)

- Impact of the “made by Company” programme: development and implementation of new procedures, including more stringent KPIs (Key Performance Indicators) and higher controls
- The new procedures were accompanied by the establishment of self-managed production teams – each of them has to take objectives in relation to 6 indicators: Quality, Productivity, Cost, Organization, Sefety/Environmental improvements, Employees development

Production (3)

- Examples of specific improvements achieved in the past two years:
  – the production of “circle lips” has been re-engineered to use standardized components. The same operation, with the new machining process, can be done in 50% of the time
  – the production cycle of “caps” has been optimize – and the efficiency gain has allowed to eliminate one night shift.

Production (4)

- Standards impact: **Production efficiency gains**
- The mix of measures introduced through the standards-driven continual improvement process has allowed to achieve **1.59 million BRL savings** in production costs (about 13% of total production costs of last year)
- The use of standards was estimated to contribute for about 1/3 to the above improvement (i.e. **524.700 BRL**)

Standards EBIT impact of the selected business functions

Business functions	EBIT impact
Procurement	3.532.662 BRL
Engineering	321.260 BRL
Production	524.700 BRL
Total	**4.378.662 BRL**

- This corresponds to **1.90%** of the company turnover (total: 239 million BRL)

Thank you for your attention!

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