

Petra Engineering Industries Co., – Jordan – Economic benefits of standards

June 2011 – April 2012

Content of this presentation

- Petra Engineering Industries Co., basic company information
- HVAC and Petra's value chain
- Use of standards in Petra
- Quantification of the impacts of standards
- Additional qualitative considerations

Petra Engineering Industries Co. – Company overview

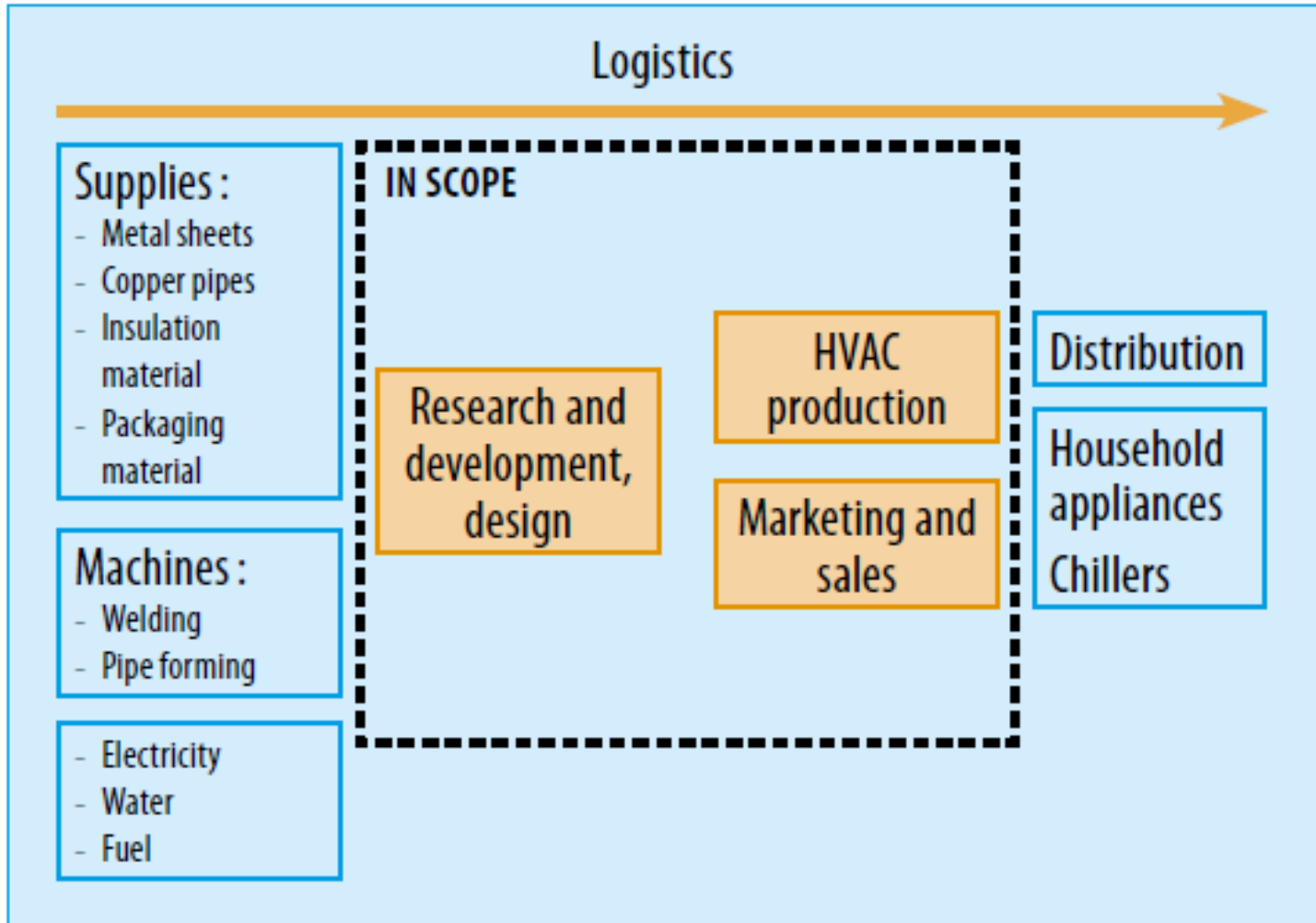
- Founded in 1987 Petra produces a wide range of Heating, Ventilation and Air Conditioning (HVAC) equipment
- The company currently runs a 300 000+ m² production facility at Muwaqar, around 70 kms south of Amman, with over 1 500 employees
- A new facility is being built at Mafrag that will cover an area of over 200 000 m² and be equipped with technically advanced production lines
- Petra exports to more than 50 countries

Petra Engineering Industries Co. – Company overview (2)

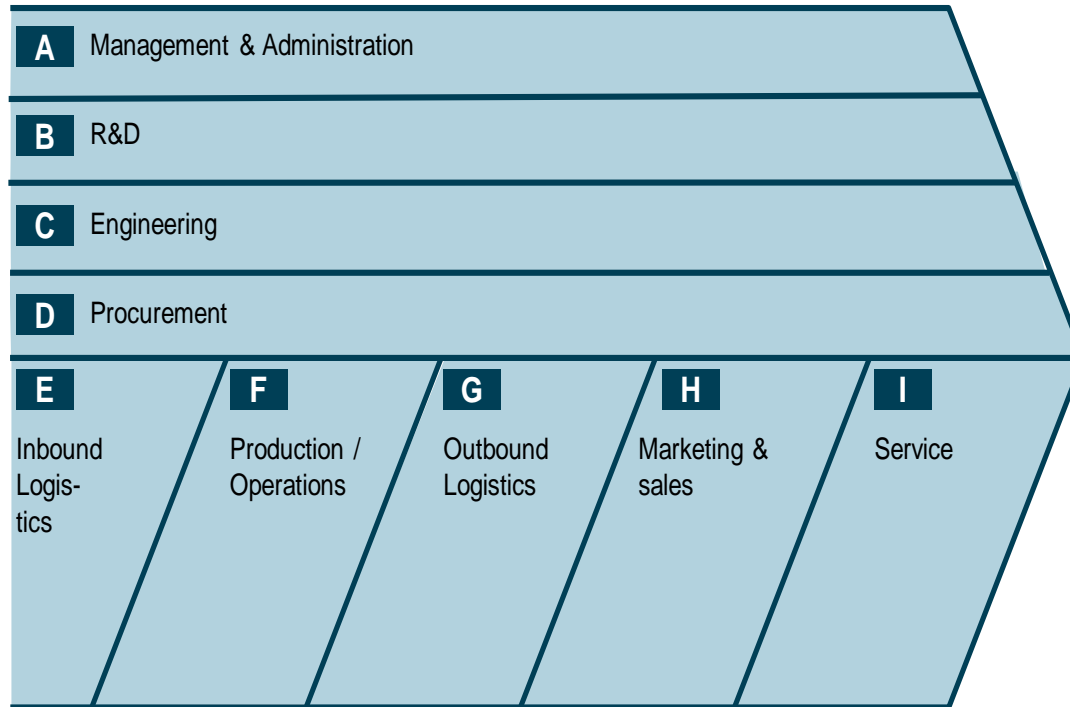
	Key markets for Petra	% of total sales
1.	Saudi Arabia	29.37 %
2.	Jordan	26.89 %
3.	Qatar	9.86 %
4.	USA	8.88 %
5.	UAE	8.81 %
6.	Egypt	3.21 %
7.	Iraq	2.41 %
8.	Palestine	2.09 %
9.	Kuwait	1.64 %
10.	Sudan	1.51 %
	Total:	94.67 %
	Rest of the World:	5.33 %



HVAC industry value chain



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

Key value drivers at Petra

The key operations and business functions that contribute to the success of the company are:

	Business function	Activities	Value driver
1	Management and administration	Management systems Quality planning HR management Correction, prevention and innovation	Better quality management Better environmental management Reduced liability cost
2	Research, development and design	Applied research, and product development	Clearer product specification Variety reduction Customized and high quality products
3	Procurement	Screening of suppliers Selection of suppliers Contracting suppliers	Partnership with suppliers More efficient receipt of supplies Better product availability Variety reduction Better information transfer Reduced storage cost
4	Production	Production planning Order processing Quality assurance	Operational efficiency Compliance with safety and energy efficiency requirements
5	Marketing and sales	Market planning Client acquisition Contracting	Customer trust Better customer communication

Attitude of Petra towards standards (1)

- Petra has adopted many standards, including those for energy efficiency and has gained certifications for these standards:
 - ISO 9001: *Quality management systems – Requirements*
 - ISO 14001: *Environmental management systems – Requirements*
 - CE Mark (*European conformity*) – Petra's products comply with machinery, low voltage, energy efficiency and electromagnetic compatibility directives
 - UL (Underwriter's Laboratories) – According to the 1995 heating and cooling equipment standards, Petra's products are UL listed for having complied with relevant safety and high quality requirements
 - ETL Listing (Intertek Testing Services) – Proof of product compliance (electrical, gas and other safety standards) to North American safety standards.

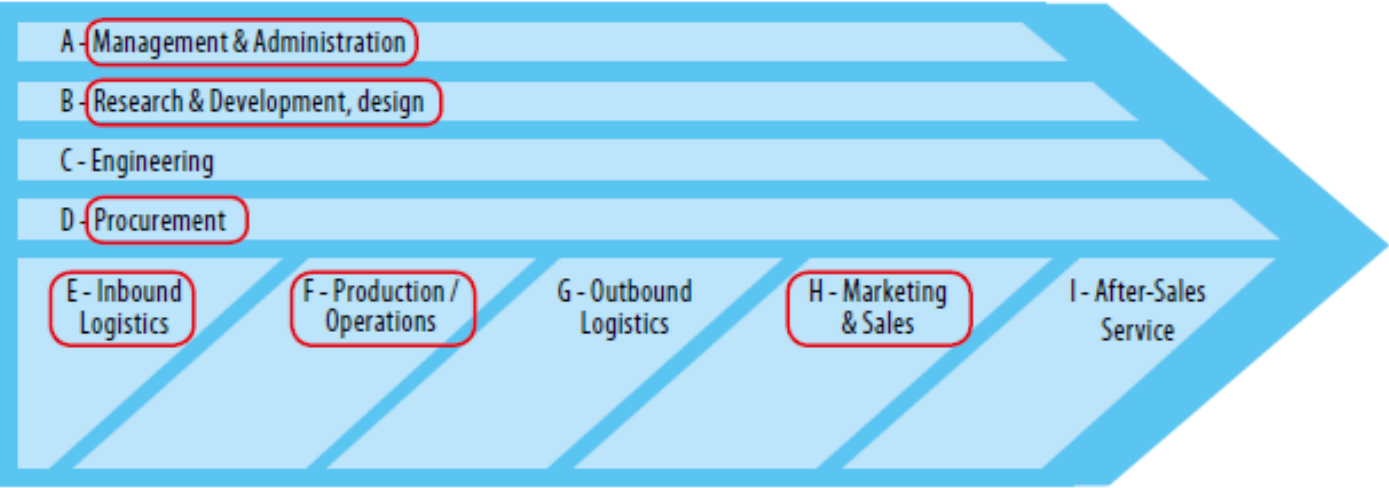
Attitude of Petra towards standards (2)

- ARI Certifications – AHRI Certified™ is the trusted mark of performance assurance for heating, ventilation, air conditioning and commercial refrigeration equipment, issued by the *Air-Conditioning, Heating, and Refrigeration Institute (AHRI)*.
 - Eurovent Certification – certifying that the performance ratings of air-conditioning and refrigeration products meet the European and international standards.
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- Petra is a member of the national IEC technical committee, and is involved in the standardization for energy efficiency
 - At the national level, Petra has been awarded the «King Abdullah II Award for Excellence» based on TQM principles (ISO 9004) and is a member of the Golden List Programme for export model managed by the Jordan Customs Department.

Preliminary analysis of the Standards Impact

- Based on a preliminary analysis and interviews with Petra management, the following five business functions have been selected for the assessment:
 - **Management and administration**
 - **Research, development and design**
 - **Procurement**
 - **Production**
 - **Marketing and sales**

Value chain of Petra – Business functions selected for the assessment of the impacts of standards are highlighted



Management and administration

- Reduced risk of liability claims for defective products due to conformity of product and components to standards, and having obtained certification of critical components
- Decrease in training costs due to the use of standards
- Savings due to the use of recycled (treated) water for irrigation purposes
- Total savings : **0.051% of the average sales revenue from 2006 to 2010**

Research and development and design

- Reduced design manpower due to a computerized documentation system (based on ISO 9001), and to design software which also reduced the design time
- Savings due to use of validated software thus avoiding testing
- Total savings : **0.432% of the average sales revenue from 2006 to 2010**

Procurement and inbound logistics

- Purchasing from certified suppliers cuts the costs of input testing despite an increased purchase cost from such suppliers
- Savings due to a higher level of reliability / quality of products through the use of standardized components resulting in a decreased number of returns
- Total savings : **3.704% of the average sales revenue from 2006 to 2010**

Production, testing, quality assurance

- Decrease in number of inspectors due to the existence of clear work instructions and quality assurance at the design stage
- Savings due to testing in Petra's approved labs instead of external testing in US labs
- Total savings : **0.011% of the average sales revenue from 2006 to 2010**

Marketing and sales

- The implementation of standards led to the introduction of Petra products in new markets such as the US, where UL standards compliance is a must. In addition, conformity to energy efficiency standards was a prerequisite of entry to the Saudi Arabian market resulting in an increase in Petra's share in this market in 2010. However, operational indicators were not defined for this business function since entry into the US market, for example, had already taken place a number of years ago and was not related to continuous development.

Conclusion: Impact of standards on the company EBIT

Assessed Business Functions	Savings as a % of the costs of the 4 assessed business functions
Management and administration	0.051%
Research and development and design	0.432%
Procurement and inbound logistics	3.704%
Production, testing, quality assurance	0.011%
Total aggregated savings	4.2%

- Savings due to the impacts of standards result in a **4.2 % of Petra's average sales revenue between 2006 and 2010**

Some additional qualitative considerations

- Better environmental management and health and safety management compliance has led to an improved reputation for the company in the market
- Reduction of the storage area and processing time needed for supplies handling as a result of procurement from certified suppliers, according to standards
- Efficient customer service resulting in higher customer satisfaction
- Compliance to standards contributes to an increase in product market share, and is often a precondition of initial market entry



Thank you

Confidence has a nickname...

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