

MAGA Engineering – Sri Lanka – Economic benefits of standards

October 2011 – March 2012

Content of this presentation

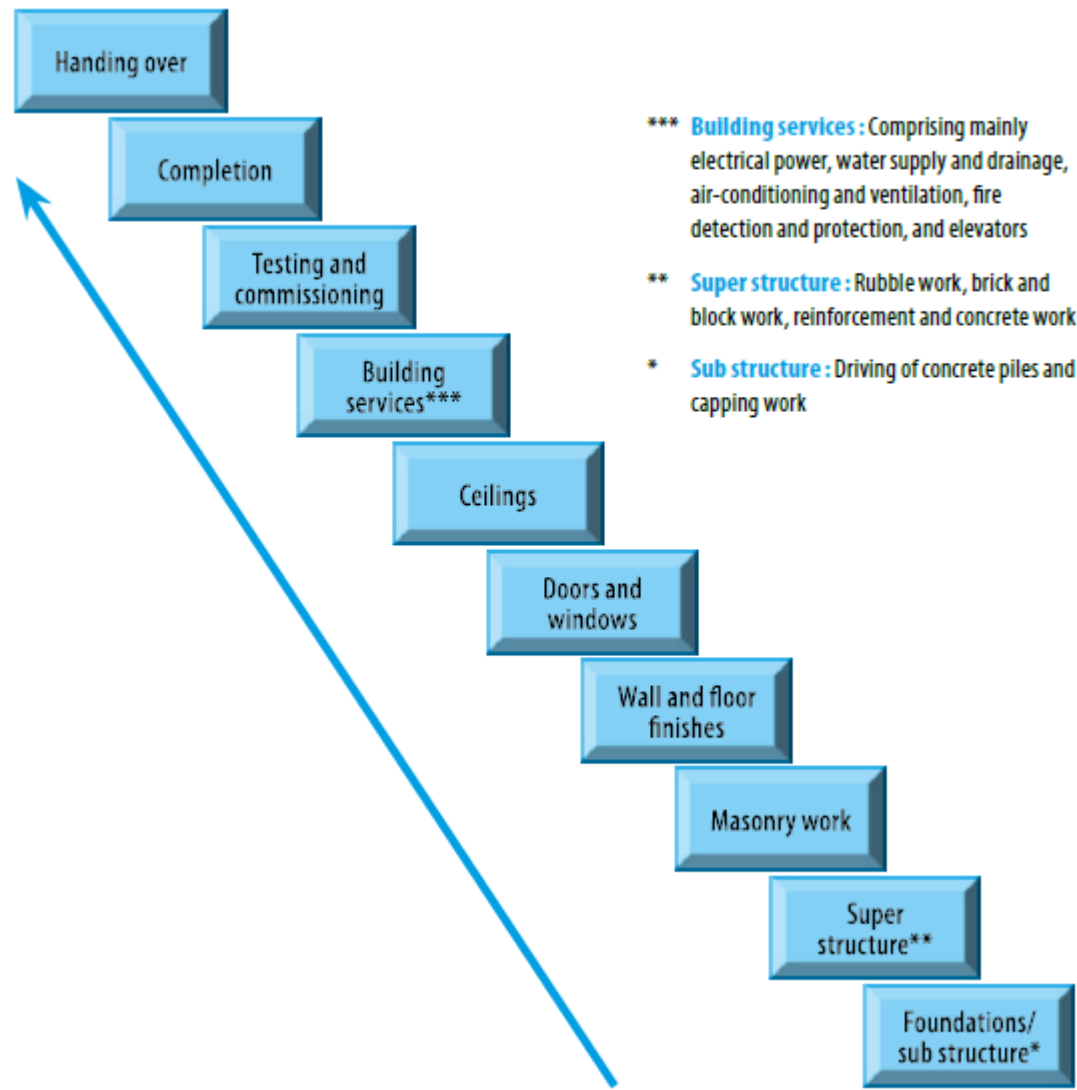
- Maga Engineering (Maga) – Basic company information
- The construction industry and Maga's value chain
- Use of standards at Maga
- Quantification of the impacts of standards
- Additional qualitative considerations

Maga Engineering – Company overview (1)

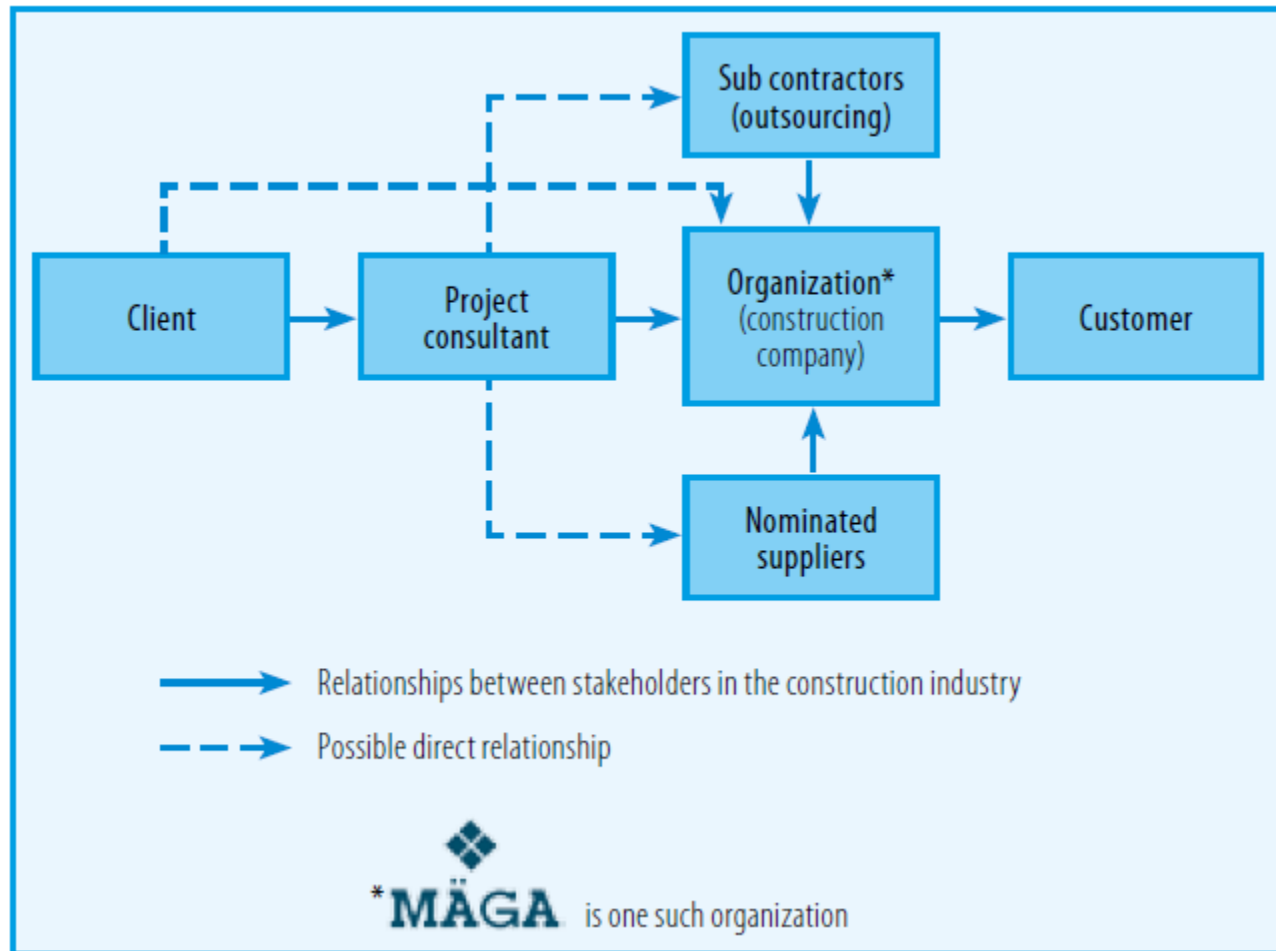
- Maga started business as a construction company in 1984, when it became involved with several international contractors executing projects in Sri Lanka
- It is the market leader in volume and quality of work and is the first Sri Lankan company to be recognized as a Business Superbrand (finest reputation in its field) and has won the most quality awards issued by the Institute for Construction Training and Development (ICTAD)
- The company gained ICTAD «M1» status¹ in the categories of Buildings in 1990, Highways and Bridges in 1996, Water Supply and Drainage in 1999 and «C1» status in all of the above in 2009
- Engaged in construction activities outside the country since 1987, Maga has completed over a dozen building, civil and marine engineering projects overseas

*ICTAD «M1» status: a national registration and grading scheme for construction contractors – a screening process to determine the capabilities of prospective contractors to undertake different types and sizes of projects. Registration and grading is determined by evaluating a contractor mainly on financial capability, technical ability of staff, plant and machinery, and experience gained in relevant fields. Initially under this scheme, contractors were classified on financial ability under 10 grades (M1 to M10)

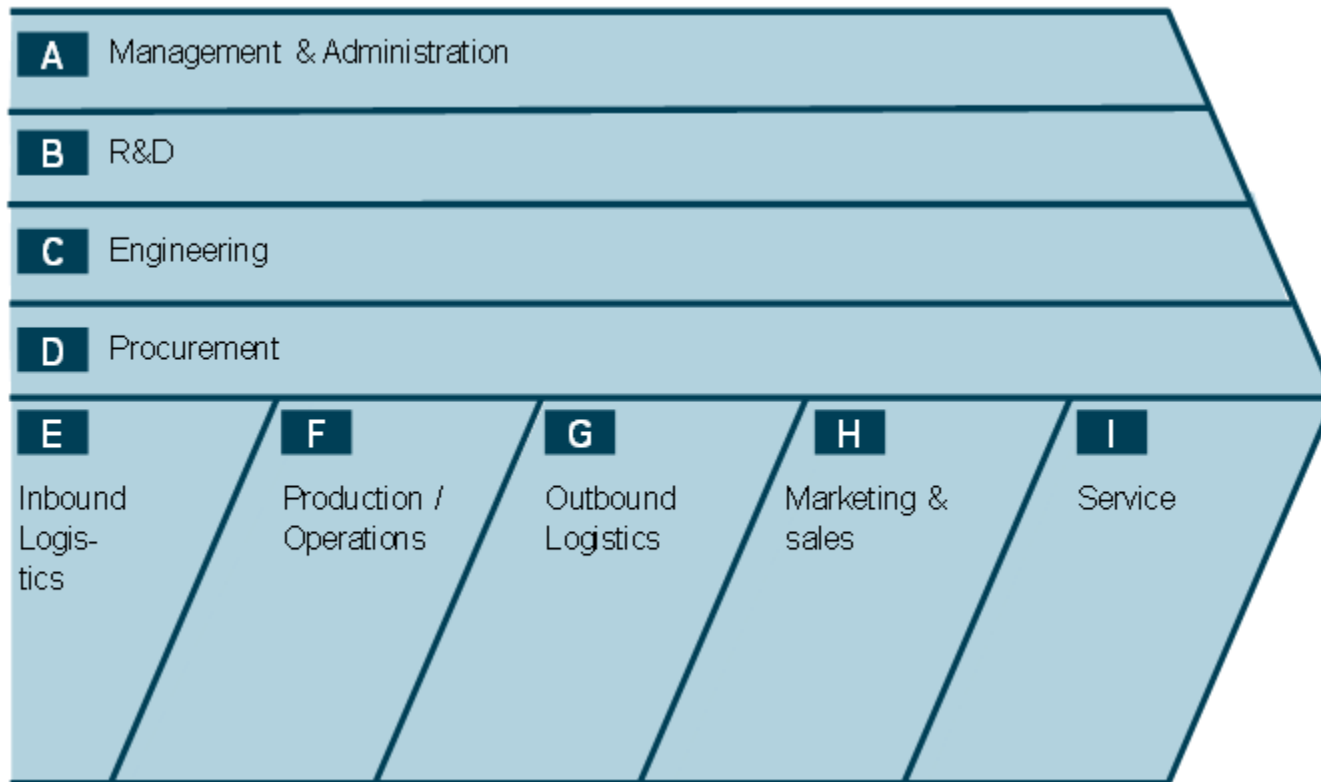
The building construction process



The construction industry – Governance, organization and core process



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 Maga Engineering

Maga's competitive advantage lies mainly in its:

- professional expertise and construction quality, coupled with:
 - flexibility
 - mutual cooperation, and
 - dedicated teamwork
- reputation and increased turnover enabling the company to maintain market leader status in the Sri Lankan construction industry
- extensive resource base which has helped to provide cost-effective design and construction management solutions as well as a country-wide supply of ready-mixed asphalt and pre-cast concrete products

Attitude of Maga Engineering towards standards

- Since its inception, Maga has ensured that its operations comply with relevant standards
- Maga holds certifications to:
 - ISO 9001 quality management systems
 - ISO 14001 environmental management system
 - OHSAS 18001 occupational health and safety management system

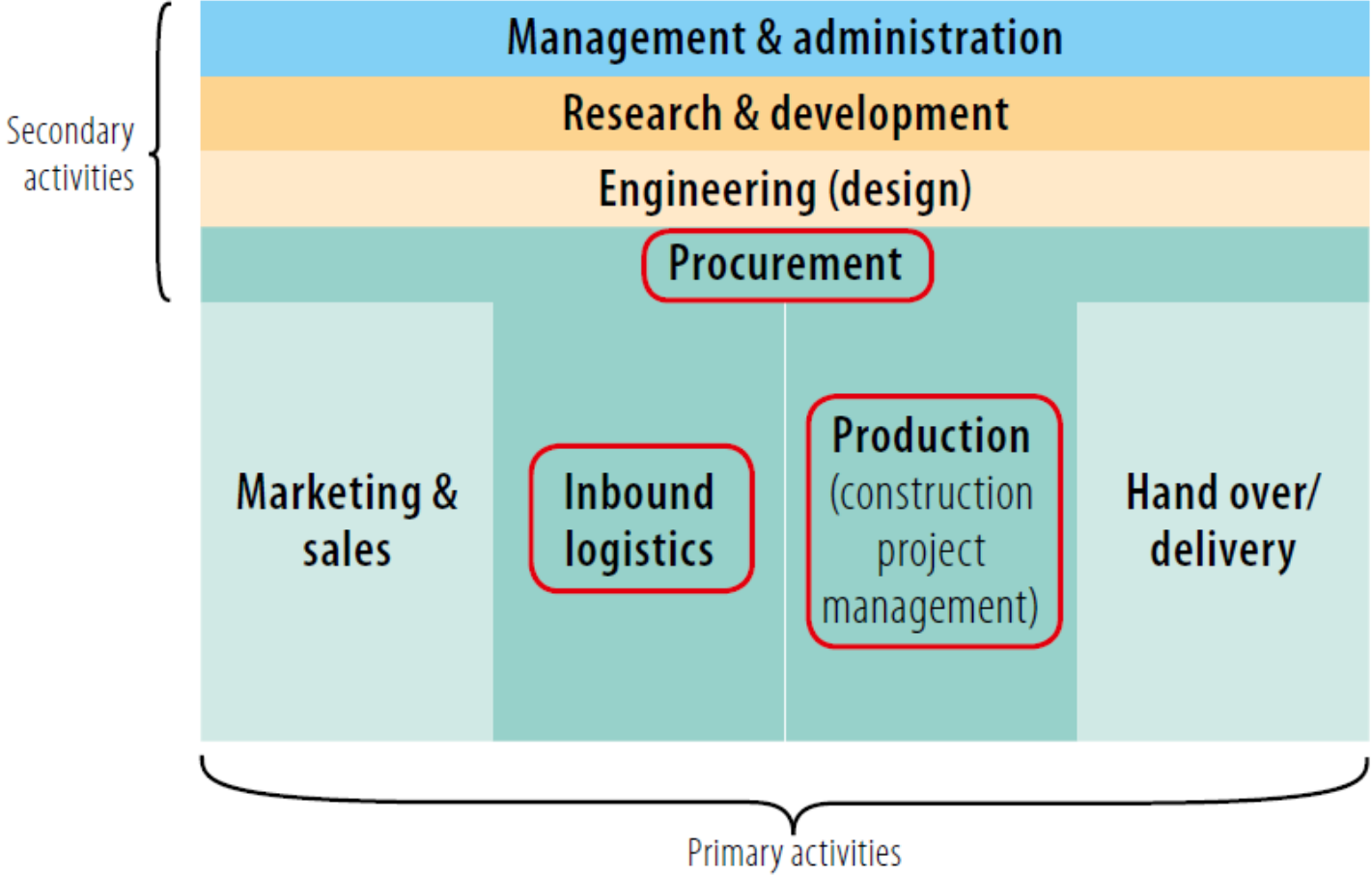
and implements

- relevant national standards for raw materials
- ISO 9001 for most of its purchasing processes (selection and evaluation of suppliers, stores management such as sorting, stock verification and preparation of monthly bills
- ISO 14001 to manage energy use and key emissions

Preliminary analysis of the standards impact

- In agreement with Maga, it was decided to limit the scope of the case study to the following key business functions for the building construction sector:
 - Procurement
 - Inbound logistics
 - Production (construction project management)

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



Selection of a sample construction project

- Building projects undertaken by large companies like Maga are very complex and cannot be evaluated using a simple annual framework. Owing to this construction industry characteristic, it was decided to determine the impact of standards on a single sample project. The Sambuddha Jayanthi building project has been selected for the case study for the following reasons:
 - it was completed recently, enabling to obtain reliable data and information
 - the project duration could be considered as average compared to other projects undertaken by Maga
- The findings from the Sambuddha Jayanthi project have been applied to 11 similar concurrent building construction projects having an average duration of 22 months to calculate the total average contribution of standards for all 11 projects over the period of one year.

Main standards used by Maga

- Steel bars for the reinforcement of concrete (SLS 26)
- Steel wire (SLS 139)
- Cement (SLS 107)
- Ceramic tiles (SLS 1181)
- Quality management systems (ISO 9001)

Business functions	Standards						Financial impact (in LKR)
	SLS 26:1993	SLS 107:2008	SLS 139:2003	SLS 375:2009	SLS 1181:2005	ISO 9001:2008	
Procurement	√	√	√	√	√	-	1 054 048 00
Inbound logistics	-	-	-	-	-	√	63 600 00
Production (construction)	-	-	-	-	-	√	1 739 972 08
Total savings derived from use of standards (in LKR)							2 857 620 08

Financial impact of standards (1)

- Assuming that no standards had been implemented in 2001, but that by 2011 all relevant standards currently used by Maga had been implemented, the financial impact over the past ten years is estimated to be:
 - Procurement: 1 054 048 00 LKR (~ 803,084 USD)
 - Inbound logistics: 63 600 00 LKR (~ 48,457.1 USD)
 - Production: 1 739 972 08 LKR (~ 1 325 690 USD)
- Total savings derived from the use of standards over 10 years:
2 857 620 08 LKR (~ 2 177 230 USD)

Financial impact of standards (2)

- By applying the findings from the Sambuddha Jayanthi building to similar projects and assuming that Maga uses more or less the same standards, it was estimated that the
 - Total average contribution of standards for 11 projects over a period of one year represents a **contribution to total annual revenue of 0.54 %**

Some additional qualitative considerations

- Most of the purchasing processes such as selection and evaluation of suppliers, and stores management processes e.g. sorting, stock verification and preparation of monthly bills have become more efficient following ISO 9001:2008 implementation
- Maga has switched to alternative energy sources as a result of ISO 14001 implementation, but its impact cannot be quantified since the company does not keep comprehensive energy savings records
- A reduction in the costs of testing and rejecting raw materials, in rework and repairing defects were identified for three major raw materials only since data required for other raw materials such as roofing sheets and pipes were not available in detail. Therefore some of those impacts were not totally quantified.
- Maga has gained a significant marketing advantage in winning contracts as a result of ISO 9001 certification



Thank you

Confidence has a nickname...

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