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UKaid from the British people

Standards: Background and Benefits

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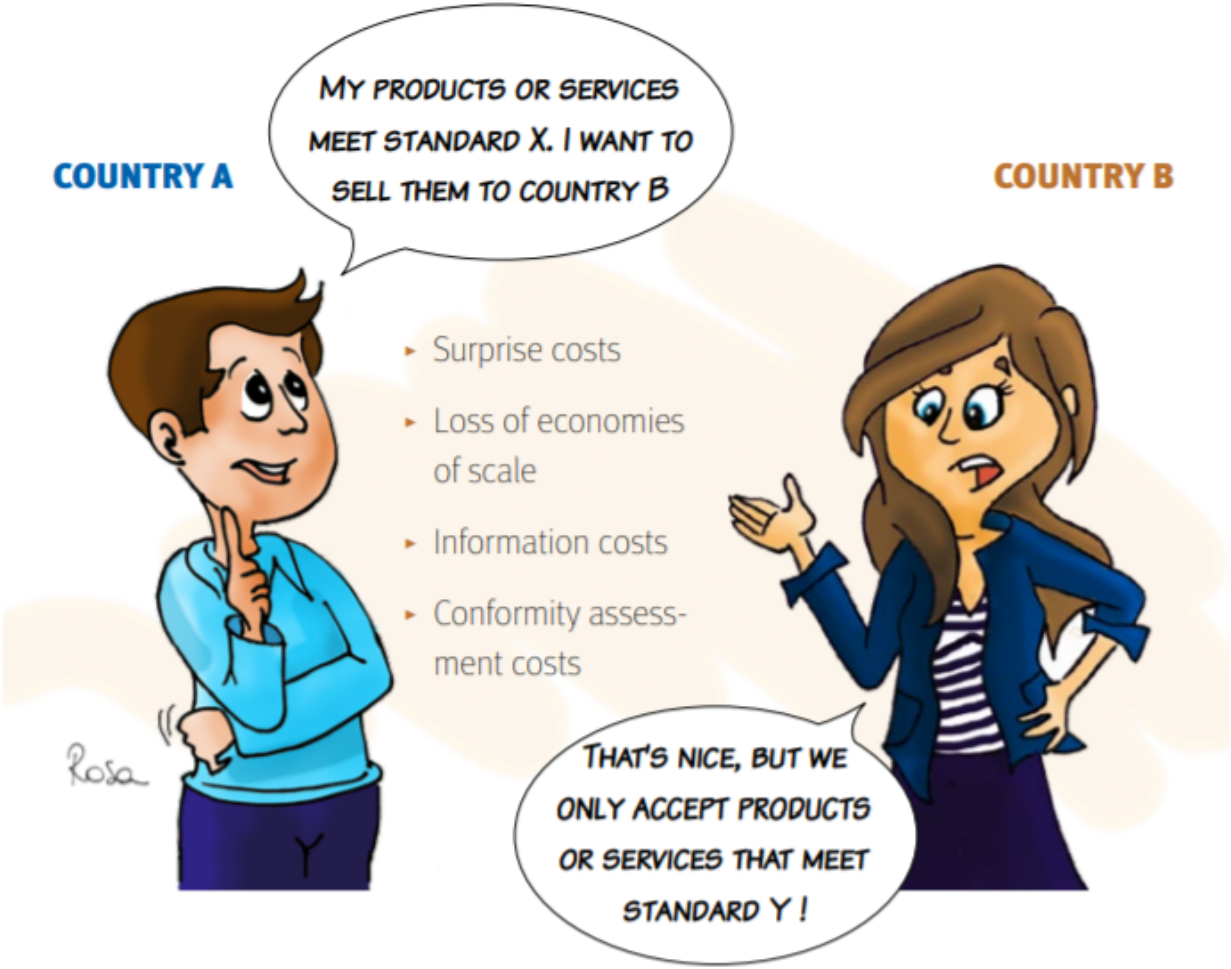

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- **Standards:**
  - Tools devised for the convenience of those who wish to use them;
  - Market-led solutions that capture current good practice and encourage its use throughout the economy;
  - Share knowledge- written by experts, consensus based, Public consultation;
  - They are of themselves generally voluntary, in that there is no obligation to apply them or comply with them; in a few cases their use can be made mandatory by regulatory instruments.

- A standard is generally an agreed way of doing something;
  - It could be about making a product, managing a process, delivering a service or supplying materials;
  - Standards can cover a huge range of activities undertaken by organizations and used by their customers;
  - International standards organizations' commit to ensuring that standards promote rather than hinder trade.

- Standards may be national, regional, or international;
- Standards take a number of forms including:
  - Specifications;
  - Codes of practice;
  - Guides;
  - Test methods;
  - Vocabularies;
  - Classifications.

- Quality management standards to help improve efficiently and reduce product failure (e.g. ISO 9000 series)
- Environmental management standards to help reduce environmental impacts, reduce waste and be more sustainable (e.g. ISO 14000 series)
- Health and safety standards to help reduce accidents in the workplace (e.g. ISO 18000 series)
- IT security standards to help keep sensitive information secure (e.g. ISO/IEC 2000 series)
- Construction standards to help build a house (e.g. ISO 19650 series)
- Energy management standards to help cut energy consumption (e.g. ISO 500001)
- Food safety standards to help prevent food from being contaminated (e.g. ISO 22000).

- Standards can be supported through **conformity assessment:**
  - **Accreditation** determines the technical competence and integrity of organisations offering services such as testing, certification, inspection and calibration (collectively known as conformity assessment). Accreditation can thus be used to verify conformity with a standard.

- **Accreditation** offers a single, transparent and repeatable approach which:
  - builds business and consumer confidence;
  - is voluntarily embraced by business and other service providers;
  - enables innovation in the private and public sectors;
  - reduces the need for central and local government to employ its own;
  - Uses specialist assessment personnel;
  - moderates the need for legislation.

- **Accreditation** is an on-going business process to establish that:
  - the evaluator is impartial;
  - the evaluator is technically competent;
  - the resources and facilities are appropriate;
  - the evaluator's performance meets the required standard;
  - the evaluator's standard of performance can be sustained.

- Case studies illustrating the value of **accredited conformity assessment** to government officials and regulators can be found at www.publicsectorassurance.org

Select topic for case studies, research, and supporting information.

Standards: Benefits

1. Help meet WTO obligations to reduce technical barriers to trade;
2. Promote innovation;
3. Promote productivity;
4. Facilitate trade;
5. Enhance consumer protection and confidence;
6. Support public policy objectives, and where appropriate offer effective alternatives to regulation.

Standards: Benefits – 1. WTO obligations

- International standards are consistent with the obligations of countries that are WTO members to reduce technical barriers to trade (TBT);
  - "The TBT Agreement aims to ensure that technical regulations, standards, and conformity assessment procedures are non-discriminatory and do not create unnecessary obstacles to trade. At the same time, it recognises WTO members' right to implement measures to achieve legitimate policy objectives, such as the protection of human health and safety, or protection of the environment. The TBT Agreement strongly encourages members to base their measures on international standards as a means to facilitate trade. Through its transparency provisions, it also aims to create a predictable trading environment." https://www.wto.org

Standards: Benefits – 2. Promote innovation

- Standards create a common framework that encourages the sharing of knowledge, this reduces the need for duplication during research and development.
  - Businesses looking to commercialize emerging technologies are part of a developing business 'ecosystem', and the stronger they can exploit the networks within the ecosystem, the faster the market for their products will grow.
  - The development of standards can help an emerging technology ecosystem rally round the issues to promote successful commercialisation of new products.
  - Standards define essential parameters, the safety considerations, testing processes. They set the framework by defining common vocabularies, establishing the essential characteristics of a product or service, and by identifying the best practice within the ecosystems that will ensure successful outcomes.

Standards: Benefits - 2. Promote innovation

- The difference a 'set of rules' makes:
  - Businesses are less likely to duplicate what's already been produced, allowing them to concentrate on the activities within business and products that really add value.
  - Products or services will more easily be integrated with the rest of the ecosystem.
  - New standards are being developed all the time as new sectors, markets and business models emerge, and the sooner these standards are in place, the faster and more efficiently growth occurs.
  - Investors can have more confidence that the innovation will be successful.

Standards: Benefits - 3. Promote productivity

- Standards contribute to productivity because they:
  - Increase efficiency by improving processes;
  - Reduce cost by minimising waste and cutting out the time spent on 'trial and error';
  - Allow production at scale by replacing bespoke variety with standardised solutions, performance or outcomes; this frees up resources for differentiating products and services from those of competitors;
  - Provide a framework for economies of scale and interoperability;
  - Lower the cost of regulatory compliance and the costs of non-compliance;
  - Shorten the time to market of new products;
  - Provides a competitive edge in the market place. In particular for small and medium-sized businesses, as proving compliance with an accepted standard can replace the power of a big brand.

Standards: Benefits - 4. Facilitate trade

- Results consistently demonstrate that companies achieve tangible benefits from using standards.
  - Drive trade by providing a signal of quality to consumers and trade partners;
  - Create a 'common language' for potential trading partners;
  - Tool to facilitate international commerce by reducing technical barriers to trade;
  - Reduce production costs and offering opportunities for economies of scale;
  - Reduce transaction costs.

Standards: Benefits - 4. Facilitate trade

- Academic literature provides strong evidence to support the notion that the use of international standards supports trade:
  - A comprehensive survey of the literature on the relationship between standards and trade (Swann, 2010), shows that using international standards was generally found to be positive for export performance.
    - An exception is where national standards are superior to international standards.
  - The general consensus is that international standards support compatibility, reduce transaction costs and provide a signal of quality to customers, thus boosting the export performance of companies.

Standards: Benefits - 4. Facilitate trade

- World Bank study notes that duplicative conformity assessment procedures are a barrier for export growth:
  - 44% of firms have to conduct significant duplication of testing procedures to meet foreign requirements after domestic requirements met;
  - 30% have to conduct complete duplication of testing procedures;
  - 68% of firms cited testing and certification costs as an important reason for not exporting.
- Shared standards reduce these barriers.

Standards: Benefits - 4. Facilitate trade

- Standards facilitate international trade acting as a 'Passport to Trade' by reducing technical barriers to trade, reducing production costs and offering opportunities for economies of scale.
- Harmonization of standards across countries can act as a major catalyst for trade – allowing companies to sell their products and services without the need for adaptations across multiple markets, facilitating access to markets and global supply chains.
- International standards support interoperability, reduce transaction costs and provide a signal of quality to customers, thus boosting the export potential and performance of companies.

Standards: Benefits - 5. Enhance consumer protection and confidence;

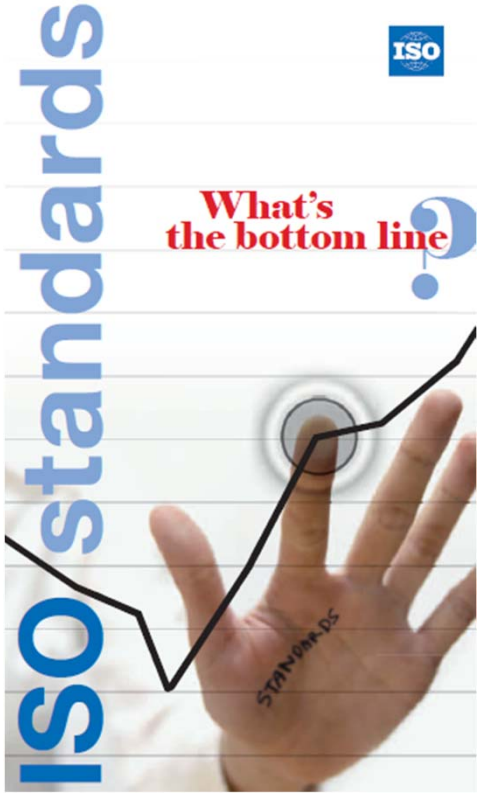
- Poor quality products, low levels of customer service and unfair treatment can all have a negative impact on consumers;
- Standards can help organizations to fulfil their legal and ethical responsibilities.
- Standards are unique because they are developed by groups of stakeholders, including consumer representatives, who have to agree on the content ('consensus decision-making'). This consumer involvement ensures that standards tackle real problems faced by real people.
- Standards can be implemented and updated faster than legislation, so can respond more quickly to emerging trends and new technologies. They help to influence and improve industry a benchmark for good practice, to which all companies can aspire.

Standards: Benefits – 6. Support public policy

- When used in the **public sector**:
  - Enable greater transparency and competition, e.g. in public procurement;
  - Provide essential requirements for industry (via reference in regulations and laws);
  - Improving value for money.
- When used in the **private sector**:
  - Create market incentives to follow internationally accepted practices;
  - Encourage innovation and growth.
- **Consumers** benefit from improved choice, quality and safety as well as price-performance.

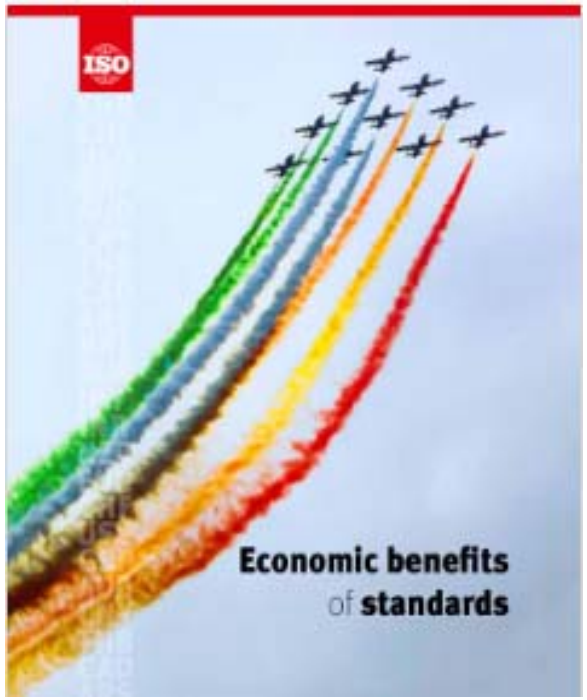
Standards: Economic benefits (ISO)

"Estimates by the Organisation for Economic Cooperation and Development (OECD) and the US Department of Commerce both show that standards and related conformity assessment have an impact on 80 % of the world's trade in commodities"



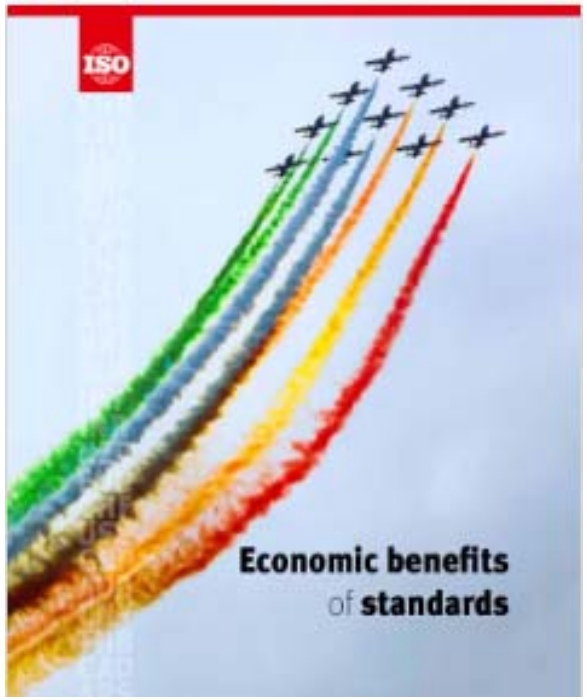
Standards: Economic benefits (ISO)

- ISO Methodology "Economic benefits of standards" is a consistent approach, which has been tested in around 30 company case studies in over 20 countries across the globe.
  - Case studies span enterprises of varying sizes, from small companies of 25 employees with an annual sales revenue of approximately $4.5 million to large conglomerates of several thousand employees boasting an annual revenue exceeding $2.5 billion.

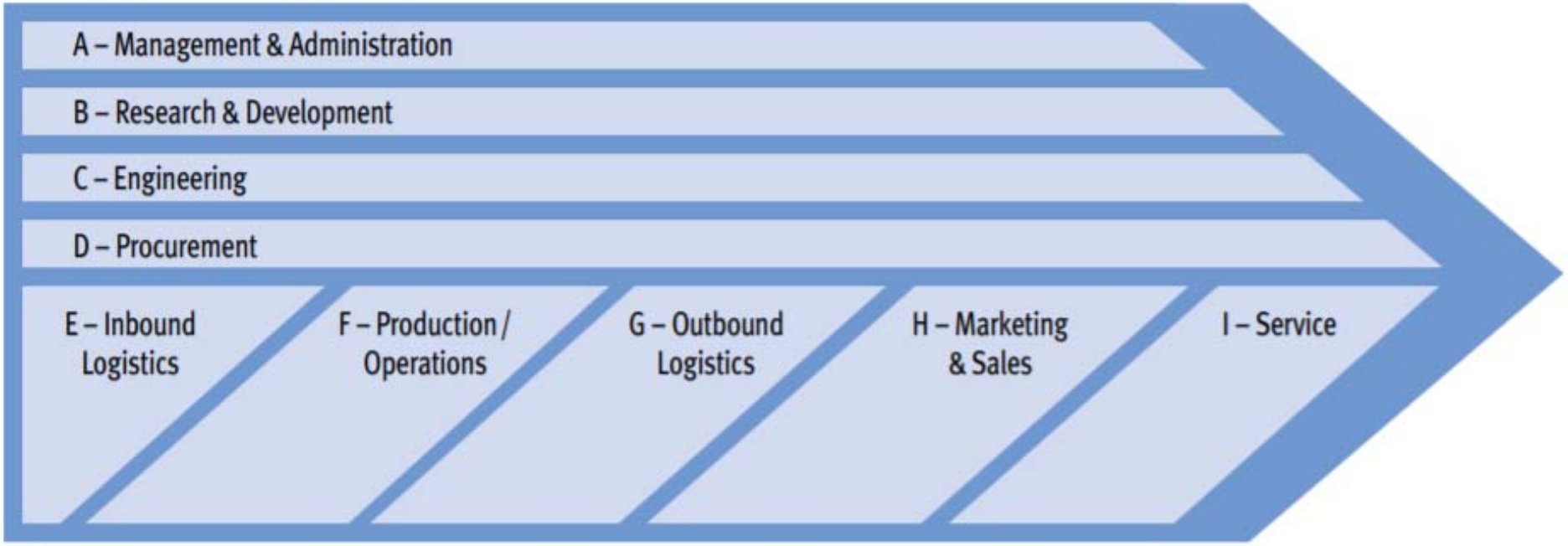


Standards: Economic benefits (ISO)

- Key benefits:
  - Innovating and scaling up operations – expand supplier network, manage new products mitigate risk;
  - Streamlining internal operations – contribution of standards range between 0.15% - 5% of annual sales revenue.



- ISO Methodology of the impacts of standards is based on the Value Chain- subdivides the operations of a company into a number of key business functions that, in turn, group together certain activities.



Standards: Economic benefits (Europe)

- Harmonisation of standards across countries can act as a major catalyst for trade – allowing companies to sell their products and services without the need for adaptations across multiple markets;
- To facilitate the functioning of a harmonised common market:
  - ENs produced by the European standards bodies must be adopted as national standards by all their national members;
  - Many bilateral trade agreements involve the mutual recognition of standards.

Standards: Economic benefits (Australia)

- Analysis reveals a strong and positive relationship between standards and economic performance.

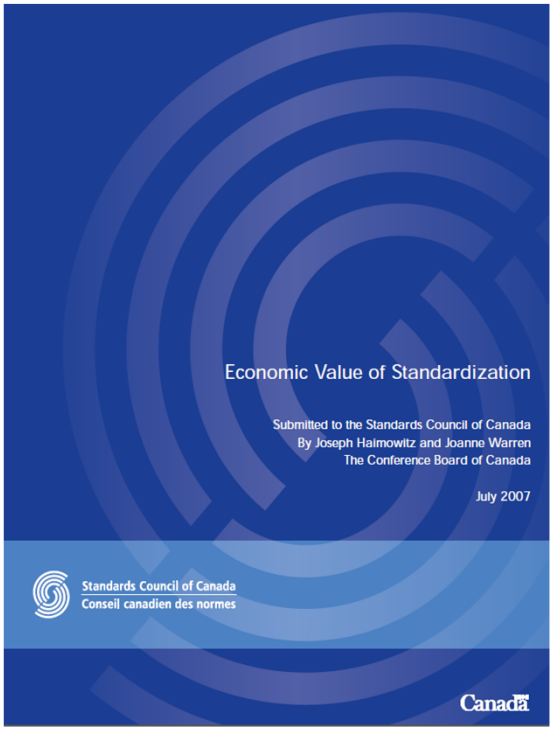
  "Economic growth is dependent upon not only the abundance of traditional inputs such as capital and labour, but also upon the productivity with which these inputs are applied to the creation of valuable outputs. A key component of this productivity is not only the development of innovative technological knowledge but the diffusion of these technological innovations through the economy. It is in the latter that standards play a central role in many economies throughout the world."

STANDARDS Australia

Research Paper:
The Economic Benefits of Standardisation

Standards: Economic benefits (Canada)

- **Literature review:** Benefits of standards including improved compatibility, the identification of minimum admissible attributes, provision of information and product descriptions, the enabling of economies of scale, the facilitation of international trade, and the promotion of innovation.
- **Empirical Work:** standards play an important role in enhancing labour productivity. The impact, over time, of this positive contribution to output growth is substantial. In 2004, the level of economic output (real GDP) would be expected to be $62 billion lower if there had been no growth in standards over the 1981-2004 period.



Standards: Economic benefits (New Zealand)

"…..we have demonstrated that the greater impact of Standards on GDP and the wider economy arises from the impact on total factor productivity, implicitly both labour and capital productivity."

berl economics

Report to:
The Standards Council of New Zealand and
The Building Research Association of New Zealand

THE ECONOMIC BENEFITS OF STANDARDS TO NEW ZEALAND

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August 2011

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Standards: Economic benefits (UK)

- The CEBR UK study identified that standards help businesses to:
  - enhance the quality of their products and the efficiency of their processes;
  - efficiently reduce the variety of goods and services to an optimal level for minimizing cost;
  - facilitate inter-operability of products and processes;
  - efficiently make available technical information to all firms allowing an effective and less costly inter-firm exchange of information.

Domestic benefits of standards:

- Standards act as a passport to trade – reducing technical barriers to trade
- Provide a common platform for countries to do business - standards provide a global trading language – they align the expectations of suppliers and purchasers.
- Harmonisation of standards across countries can act as a major catalyst for trade – allowing companies to sell their products and services without the need for adaptations across multiple markets.
- International standards support compatibility, reduce transaction costs and provide a signal of quality to customers, thus boosting the export performance of companies.
- Companies that use standards tend to be more likely to export relative to the average
- Facilitating access to global supply chains.

UK analysis found that **£6.1 billion** of additional UK exports per year can be attributed to standards

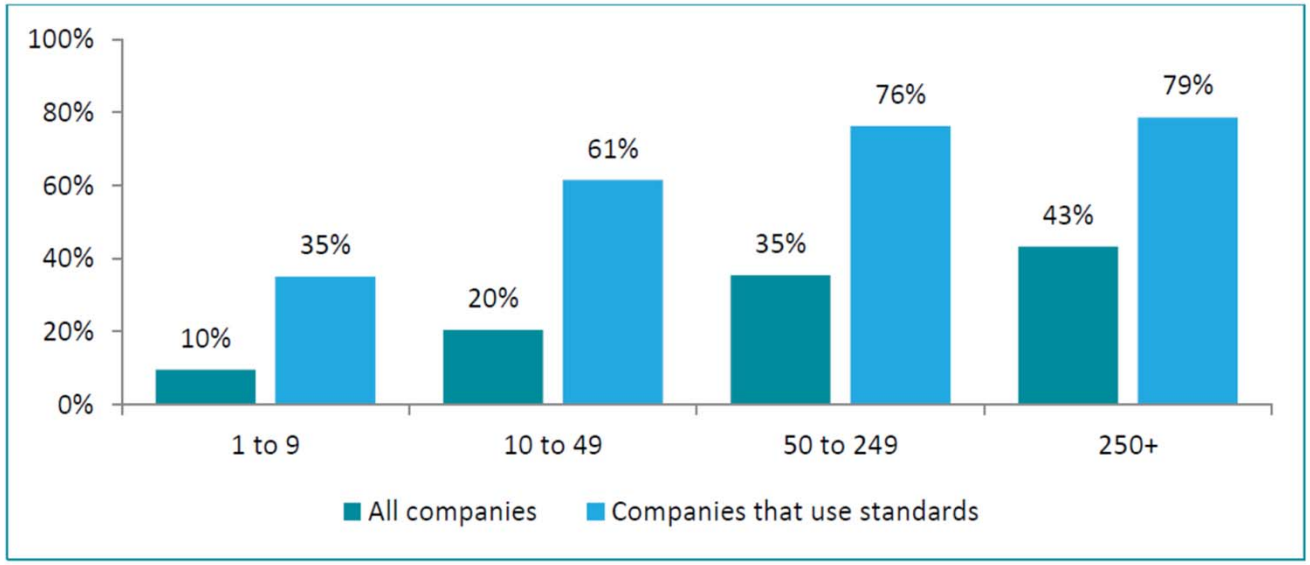
Standards: Economic benefits (UK)

- Use of standards in the UK appears to have contributed towards 37.4% of annual productivity growth.
- In 2013, this would translate to an extra £8.2 billion of GDP emanating from the proper use of standards.

Standards: Economic benefits (UK)

- The likelihood of a company being an exporter is higher if that company uses standards.

Figure 5: Proportion of exporting companies, by employment size band



Source: Annual Business Survey 2012 – Export and Import Activity, BSI Standards in Industry survey, Cebr analysis

Standards: Economic benefits (UK)

28.4% of annual UK GDP growth can be attributed to standards, equivalent to **£8.2 billion**

37.4% of UK productivity growth can be attributed to standards

73% of companies say that standards allow greater control of environmental problems

£8.2bn is the amount that standards contribute to the UK economy

£6.1bn of additional UK exports per year can be attributed to standards

SMEs are **41%** more likely to export if they use standards and larger companies are **36%** more likely to export

89% of companies say that standards contribute to the optimization of compliance with regulations such as health and safety legislation

84% of companies say that using standards enhances their reputation

Standards: Economic benefits (UK)

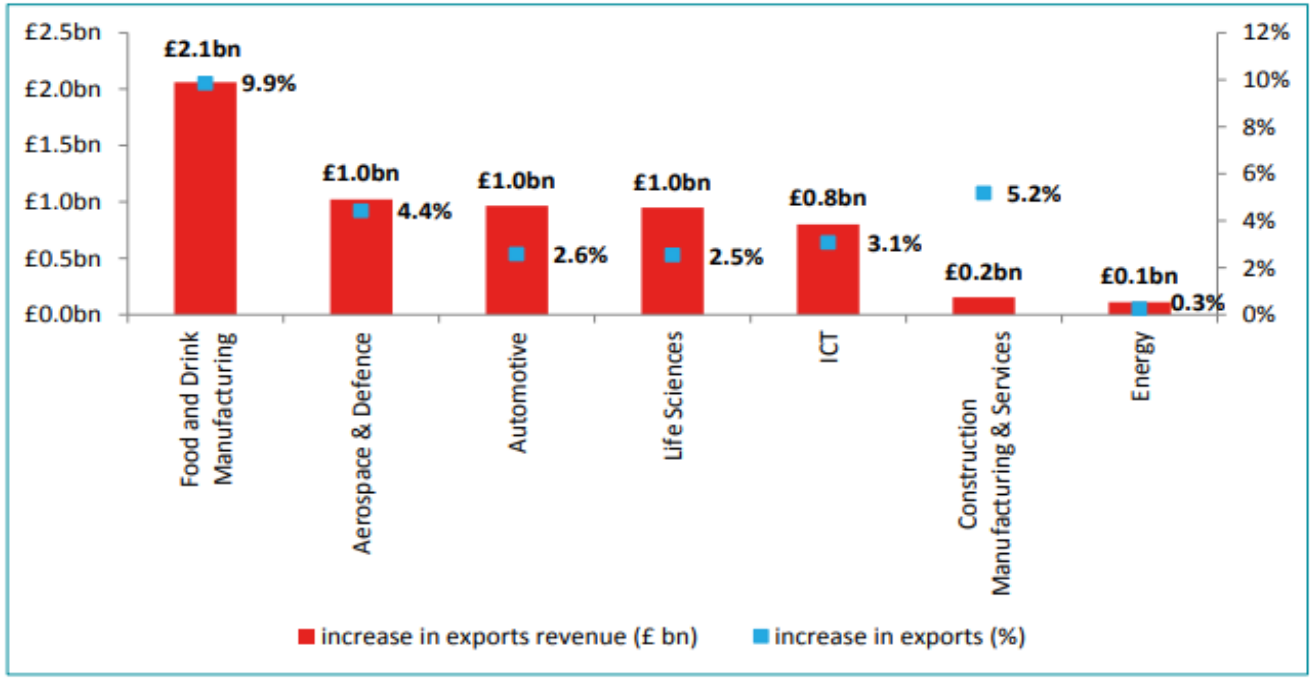
- Standards increase productivity, supporting domestic growth:
  - 10% increase in net stock of standards associated with 1.06% increase in labour productivity;
  - Positive and significant contribution of standards to domestic productivity in the UK – supporting 37.4% of annual labour productivity growth.
- Standards support companies to grow and increase their likelihood of exporting:
  - UK exports are boosted by standards: Small and medium-sized businesses are 41% more likely to export and large businesses are 36% more likely to export if they use standards.

Standards: Economic benefits (UK)

- In the UK, 2% of GDP is directly dependent on a robust NQI measurement system;
  - Measurement interventions achieved cost benefit ratios in the range of 1:10 to 1:35.
- Independent research has confirmed that accreditation has a positive economic value of nearly £1bn on the UK economy each year;
- Every £1 spent on accreditation was seen in a study to produce a fifty-fold economic benefit for the UK, could be assumed to also apply where overseas bodies choose to use UKAS accreditation.

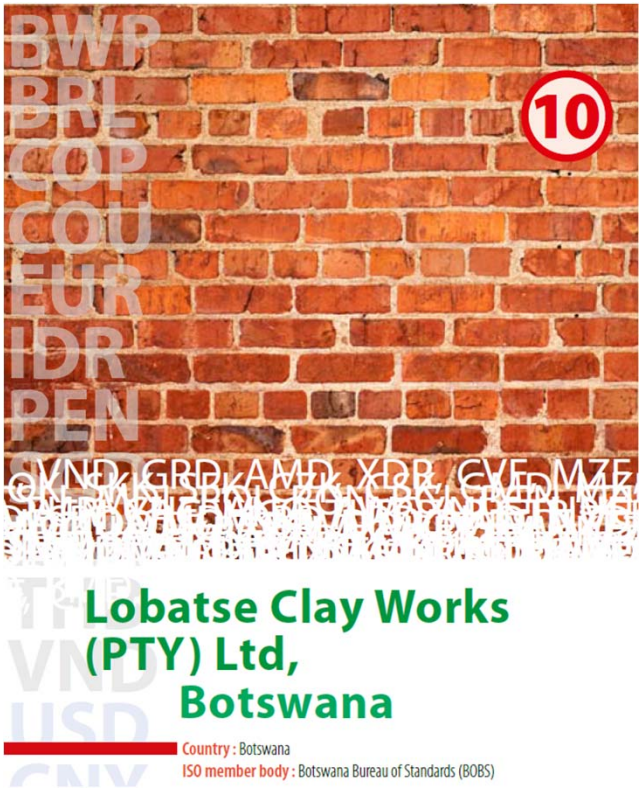
Domestic benefits of standards:

- Increase in export revenues that can be attributed to standards – UK:



Standards: Economic benefits;
Case study: Botswana - Lobatse Clay Works

- The company started operating two decades ago and was performing well until it encountered some difficult trading conditions, resulting in lower profit margins. It was declared bankrupt in 2006;
- BDC then injected funds into the business to aid recovery;
- LCW has since attributed part of its subsequent success to the use of standards implemented when it began trading again.



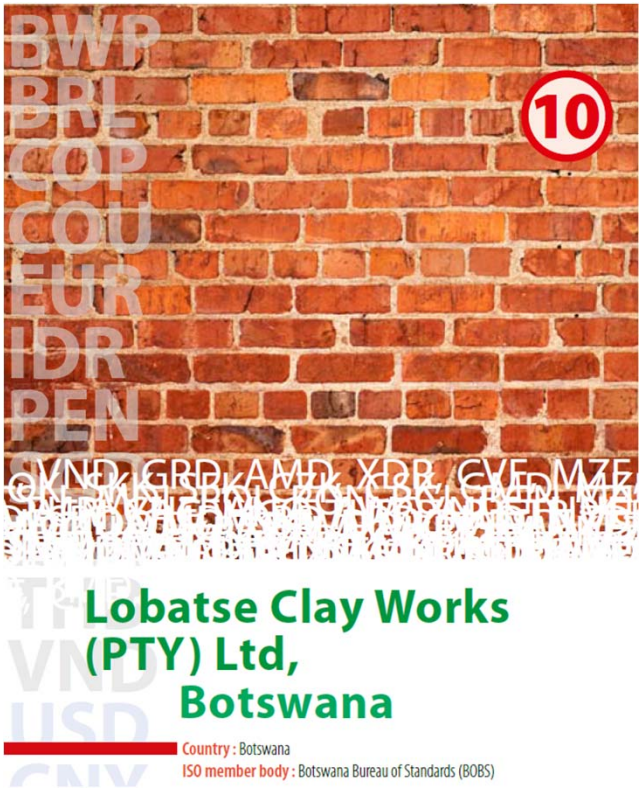
Standards: Economic benefits;
Case study: Botswana - Lobatse Clay Works

Impacts	Description
Better internal information transfer	Using standardized documents and specifications makes communication of internal information on products and services more efficient.
Better training of personnel	Production/operations staff can be trained better because relevant specifications for products and services are standardized.
More efficient processing	Due to the reduced number of non-standardized products, production/operations can become more efficient.
More efficient assembly	Assembly processes are more efficient due to modular product architecture.
Better quality of equipment and supplies	Higher quality of equipment and supplies based on standards reduces failure rates and related correction costs.
Better quality management	Quality management based on standards can be implemented more effectively.
Better health/safety/environmental compliance	HSE management based on standards can be implemented more effectively.

Table 1 Possible impacts of standards on the production/operations function

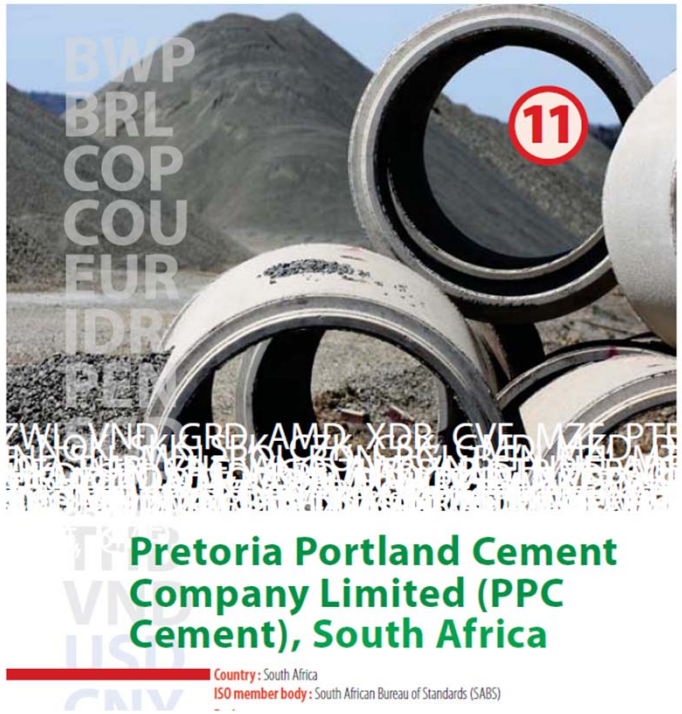
Standards: Economic benefits;
Case study: Botswana - Lobatse Clay Works

- The impact of standards on the production process was calculated as 4.96 % of the company EBIT, and as 2.63 % of total sales/turnover;
- For a company such as LCW, operating in a competitive environment, these are significant figures that demonstrate that standards contribute considerably to the economic and financial performance of the company.



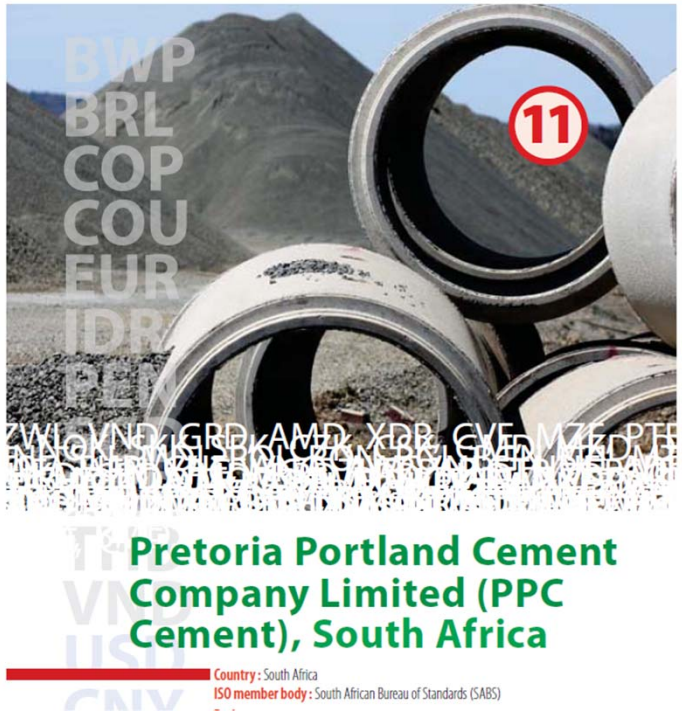
Standards: Economic benefits;
Case study: South Africa - Pretoria Portland Cement Company Limited (PPC Cement)

- PPC manufactures products that must meet regulatory requirements, and standards help them achieve this objective.
  - Standards allow PPC Cement to apply standardized test methods, which make it easier to demonstrate compliance with regulations, while regulators reference the very same standards in laws that regulate the industry in which PPC Cement operates.
  - The company also applies voluntary standards throughout its organization to achieve consistent quality, a sustainable business and a safe and secure working environment.



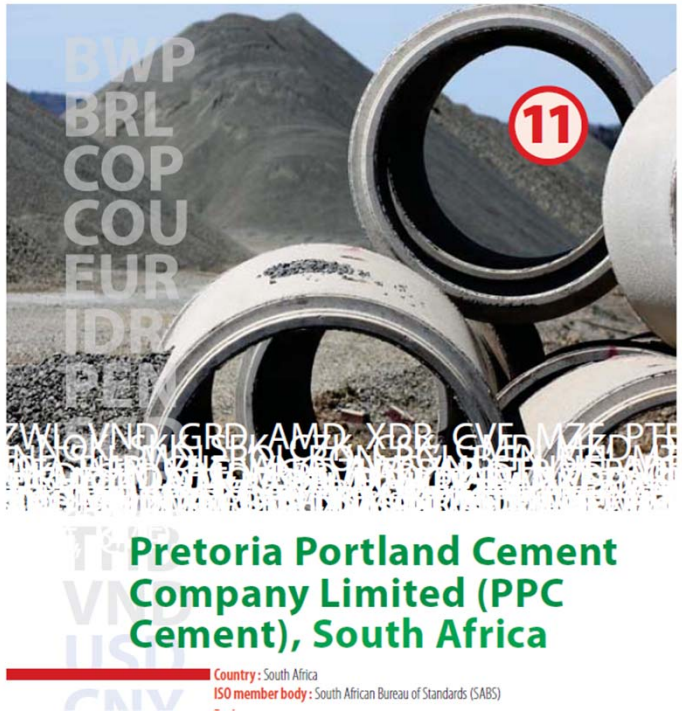
Standards: Economic benefits;
Case study: South Africa - Pretoria Portland Cement Company Limited (PPC Cement)

- PPC participates in various national and international standards development committees.
  - The company believes that by helping develop national and international standards it will broaden its competitiveness at a national and international level.



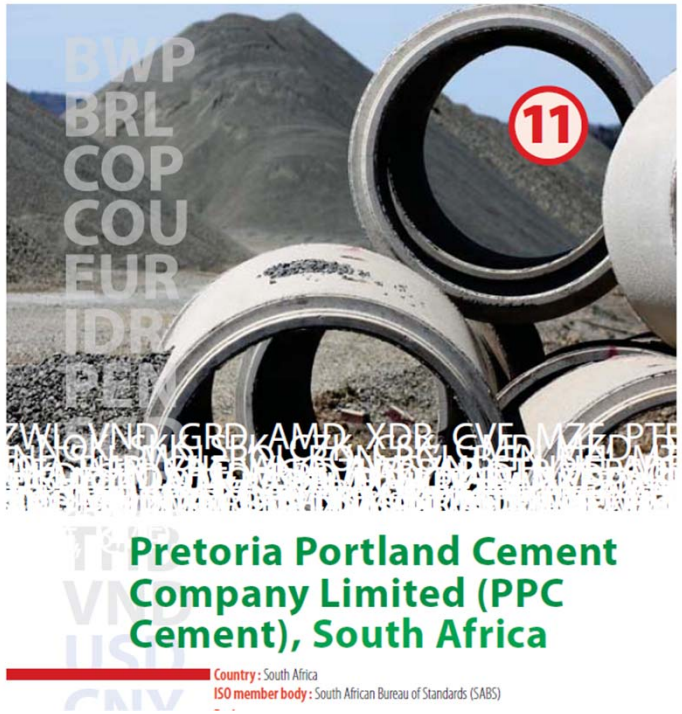
Standards: Economic benefits;
Case study: South Africa - Pretoria Portland Cement Company Limited (PPC Cement)

- The following business functions of PPC Cement were selected to determine the economic benefits of standards:
  - Research and development;
  - Procurement;
  - Production/operations;
  - Sales and marketing.



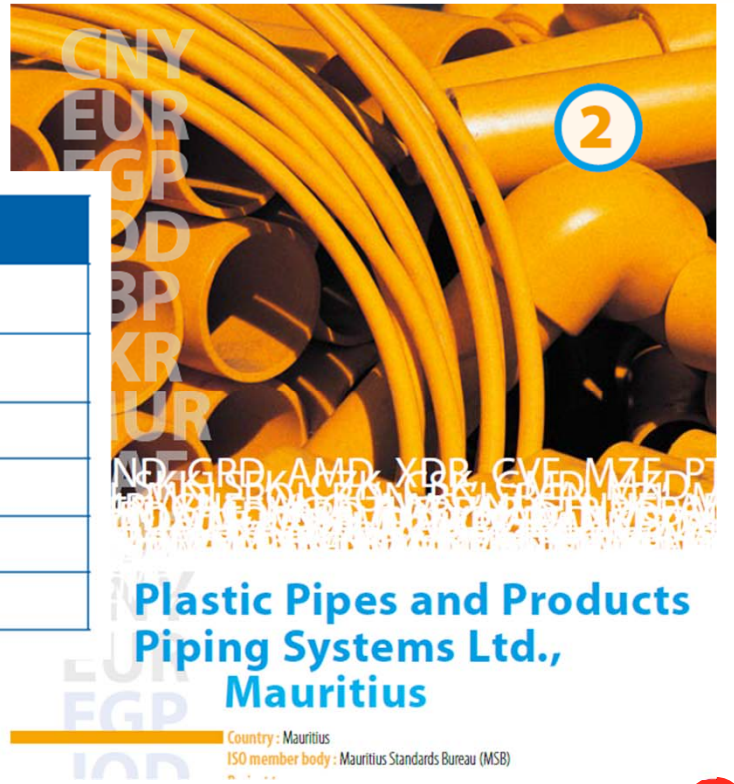
Standards: Economic benefits;
Case study: South Africa - Pretoria Portland Cement Company Limited (PPC Cement)

- Conclusions:
  - Standards contribute to cost savings in all four of the selected functions, and have the greatest impact on personnel costs.
  - The use of quality management standards, e.g. SANS 9001, and health and safety management standards, e.g. OHSAS 18001, contribute to cost savings by helping PPC enhance work force competency and staff training, and by minimizing health and safety risks, thereby reducing personnel costs.



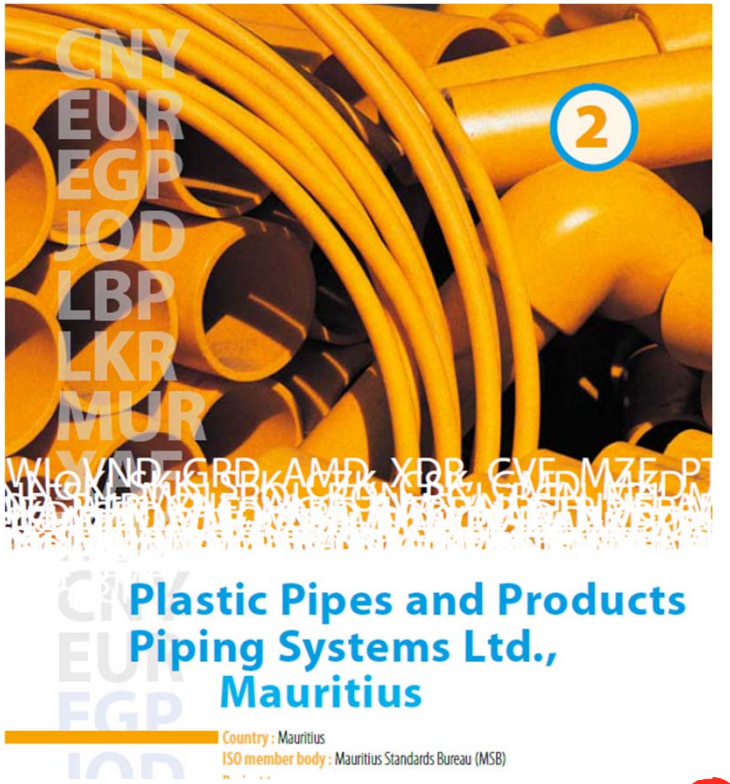
Standards: Economic benefits; Case study: Mauritius - Plastic Pipes and Products, Piping Systems Ltd.

Business function	Impacts of standards
Procurement	Consistency in quality of raw materials
Inbound logistics	Increase in productivity
Production	Increase in the stability of processes
	Increase in efficiency
	Higher energy efficiency
	Reduction in waste and scrap



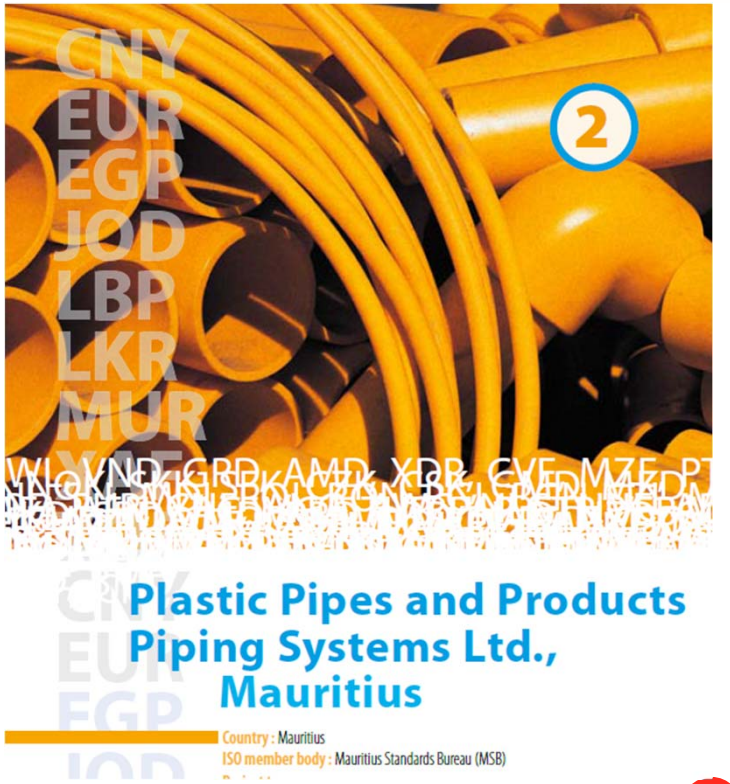
Standards: Economic benefits; Case study: Mauritius - Plastic Pipes and Products, Piping Systems Ltd.

Business function	Operational indicator	Quantitative benefits (in million MUR)	Quantitative benefits (% sales revenue)
Inbound logistics	Time, manpower needed for testing incoming raw materials **(reduced by 50 %)**	0.009	0.007
Production	Reduction in downtime **(from 5 % to 3 %)**	2.42	2.0
	Reduction of waste in production processes **(by 1.6 %)**	1.91	1.58
	Energy consumption per unit of product **(reduced from 0.8 KWh/Kg to 0.6 KWh/Kg)**	1.09	0.9
a) Contribution from " regular " products:		5.43	4.5 (%)
b) Contribution from structured wall pipes: Production – Saving in the use of raw materials (by 25 %)		5.7	4.7 (%)
Total contribution (a + b) :		11.13	9.2 (%)



Standards: Economic benefits; Case study: Mauritius - Plastic Pipes and Products, Piping Systems Ltd.

- The contribution of standards to corporate value creation is estimated at 4.5 % of average annual sales revenues for the period 2007 – 2011;
- If we include the special process for the production of structured wall pipes, it increased to 11.2 % in the last two years;
- Standards have made a major contribution to the production function, leading to greater efficiency and effectiveness and less downtime and scrap.



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