Innovation – value creation through new solutions

Innovation is a key factor for long-term success in a competitive environment. In this respect, the focus of the Holcim Leadership Journey lies on customer excellence and cost leadership.

In the construction industry, customer needs are influenced by societal and industrial megatrends. This includes rapid global urbanization, increasing scarcity of resources, climate change and the growing importance of a knowledge-based economy.

The assessment of different trend analyses laid the foundation for Holcim’s innovation strategy.

This strategy aims to:
Meet customer needs exceptionally well along the whole value chain.
Improve sustainability over the whole lifecycle of buildings.
Maximize cost efficiency in the supply chain.

Innovation will contribute to the success of the company in a competitive environment. With its innovative products and solutions, Holcim can fulfill the permanently changing demands of customers, society and other stakeholders.

Collaborative organization to drive innovation

In order to exploit Holcim’s existing innovation potential, an integrated and interdisciplinary innovation organization has been created. A specialized innovation function at corporate level promotes cooperation across the whole Group and supports fast multiplication of best practices. This function is supported by several subject-specific committees.

The innovation committee focuses on guiding innovation processes and building an innovation culture – and it assures alignment with the Group’s strategy. It is supported by external experts.

The Holcim Foundation for Sustainable Construction promotes the global debate on sustainable construction. Last year, it also awarded innovation prizes for sustainable building practices for the first time.

To underline the importance and value of innovation, in 2012 Holcim established an innovation fund, supporting internal projects that show innovativeness and a strong potential for multiplication and attractive value creation across the Group.
Focus on six innovation fields
Holcim focuses on six fields of innovation with the greatest potential to add value. In these fields, Holcim’s Group companies, corporate functions and external partners are developing innovative solutions. The following paragraphs illustrate examples in these fields.

1. Integrated market solutions
Ambuja Cements, India: High-grade concrete solutions
Ambuja Cements successfully addressed the increasing demand for high-grade concrete in urban India. It has developed a special concrete solution with micro-fines for infrastructure and high-rise projects. This product provides value for customers in the form of improved consistency and application characteristics at an attractive price. The Group company also benefits: thanks to new partnerships, industrial by-products – slag or fly ash – are processed into new products, reducing the clinker factor. Furthermore, Ambuja Cements can position itself as preferred solution provider in a strongly growing market.

2. New materials/functionalities
Holcim Lanka: “Extra” – first domestic fly-ash based cement
Holcim Lanka has introduced the first domestic fly ash cement in Sri Lanka, called “Extra”, which is both durable and sustainable, and underlines Holcim’s CO2 emission reduction strategy. Sri Lanka is in a rebuilding phase after 30 years of civil war – the growing infrastructure requires long-lasting products that can withstand the harsh environments found in the coastal areas of the country. To ensure the best performance, the fly ash is co-ground with clinker, optimizing the chemical and physical properties of the cement. With this innovation, Holcim Lanka contributes to the longevity of the rebuilt infrastructure.
3. Low carbon solutions

Holcim Canada: “Contempra” – a novel Portland limestone cement
A new class of Portland limestone cement (PLC) was successfully introduced in Canada. This ecologically advantageous type of cement has been valued in Europe for a long time. Holcim Canada has now also managed to bring this success story to North America. Manufacturing PLC generates significantly lower greenhouse gas emissions, as up to 15 percent of clinker is replaced by limestone. As soon as Holcim Canada can produce PLC to its full capacity, the annual emissions of the Group company will decrease by over 130,000 tonnes of CO2 – which equals the yearly emissions of 25,000 cars. Additionally, Holcim Canada is pursuing certification through the sustainable LEED® building rating system.

Aggregate Industries UK: “Thermastore” – a thermal storage system
Thermastore is a thermal comfort solution for industrial and residential buildings – designed to augment or replace existing heating, ventilation and air conditioning systems. It significantly reduces the energy and CO2 footprint, while maintaining a comfortable internal temperature. For this, a loosely packed aggregates chamber cools air entering a building in the summer months and pre-warms air entering in winter. This solution is used in conjunction with a highly insulated building shell – which is also provided by Aggregate Industries UK with its insulating concrete formwork walling system. Thermastore is part of Aggregate Industries UK’s “Life” range of sustainable products and services. The Thermastore solution reduces CO2 emissions by up to 90 percent compared to traditional air conditioning in commercial buildings. Additionally, the aggregates can comprise up to 100 percent non-virgin material.

4. Low energy solutions

Novel Waste Heat Recovery Technology
Waste Heat Recovery (WHR) based solutions in several cement plants of Holcim transform the waste heat of the kiln into electrical power. This provides power without additional CO2 emissions and further fuel costs. In 2012, three WHR systems totaling 12 MW of electrical power were commissioned in Romania, Vietnam and Switzerland. The systems in Alesd (Romania) and Untervaz (Switzerland) are based on a new technology which makes electricity generation possible even with relatively low exit temperatures. Holcim is the first cement company worldwide to apply this technology jointly on kiln pre-heater exhaust and cooler vent air. The experiences so far show that the next generation of WHR systems will be even more efficient and cost effective.
5. Waste/recycling opportunities

Holcim Germany: Moisture measurement for high usage of alternative fuels
The Holcim Germany Höver cement plant has the kiln running with a thermal substitution rate (percentage of alternative fuels) constantly around 70 percent. Up to 14 tonnes of alternative fuels per hour are used by the main burner – which substantially reduces CO2 emissions and costs of the plant. The combustion requires careful monitoring to deliver the expected constant product quality to the customer. This is why Holcim Germany carries out continuous measurement of the moisture in the material stream via special sensors. If a change is detected, it is immediately balanced by changes in the coal dust feed. This methodology enables the use of consistently high levels of alternative fuels.

Holcim France and Holcim Germany: Co-processing of coarse solid waste
At the Héming cement plant in France and the Lägerdorf cement plant in Germany, two co-processing projects for coarse solid waste lead to innovative solutions. In France, it is a pilot gasification system that transforms alternative fuels into gas. In Germany, a first-of-its-kind coarse solid waste pre-combustion chamber (step combustor) is being constructed. The objective of both projects is to use coarse waste fuels directly without major pre-processing – which lowers operating costs.

6. Lean/clean/efficient operations

Multiplication of efficient drive concepts for vertical roller mills and kilns
Based on very positive experiences from the first pilot applications, two new vertical roller mill drives (Multidrive) and six kiln drives of the Bogiflex type are or have been installed. These optimized solutions significantly reduce production and maintenance costs. They fully support the trend towards high capacity facilities, standardization and state-of-the-art technology. The design improvements and the scale of the equipment particularly lead to low investment costs. The successful experiences have inspired more suppliers to work on solutions for vertical roller mills and kiln drives – which gives Holcim the benefit of a competitive market to choose from.