



# NextGen Performance<sup>™</sup> REALISED

Issue III - 2009

## The Overlooked Catalyst: Human Capital

**Q**uestion: What do cobalt-moly, nickel, zeolite, hydrofluoric acid (HF), and humans have in common? Answer: They are all catalysts. A catalyst by definition is a substance that promotes a desired reaction. Therefore, just like cobalt-moly, nickel, zeolite, and HF, humans promote desired reactions. While it may be a different way of viewing employees and co-workers, the analogy between people and catalysts provides a good way of viewing the role of the employee in improving organisational effectiveness and driving bottom-line results associated with such improvement. *NextGen Performers* understand that, just like other catalysts, people facilitate the interactions of various process variables to yield the desired products under a given set of conditions. And, *NextGen Performers* tap into the potential of this overlooked catalyst.

The performance of people, like catalysts, can be optimised to improve effectiveness, which can have dramatic impacts on the performance of an organisation. The single largest differentiator between mediocre companies or good companies and *NextGen Performers* is not technology, nor is it the age of their facilities; the differentiator is the level to which employees are engaged and supported to drive excellence. This article considers how companies can optimise the often overlooked and most

important catalyst for performance – human capital. Especially in the current economic environment where capital investments are limited or even non-existent and operational costs are under pressure, tapping into human performance may be one of the most cost-effective approaches to driving significant improvements within the facility.

### The Human Element of the Equation

When attempting to make operational improvements or address operational issues, we typically think of changes to equipment, processes, and/or operating conditions. In doing so, we tend to overlook or trivialise the untapped value of our workforce as a catalyst for improved performance. The reason for this is simple. As managers with a technical background, we tend to look for technical solutions. However, if the same opportunity is approached from a slightly different angle, one will often find that there are behavioural options requiring much lower levels of investment and delivering substantial returns. Even for opportunities that clearly require a more technical solution, there are usually behavioural elements that must also be addressed to achieve full value. When reviewing the value of an organisation's workforce, one should consider the value of changing on-the-job behaviours to drive positive changes in plant performance. The important point here is the focus on behaviour; it is

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## Environment and CCS

The Stern Review regards Carbon Capture and Sequestration (CCS) as an essential mechanism to help reduce carbon dioxide (CO<sub>2</sub>) emissions to the atmosphere during power generation.

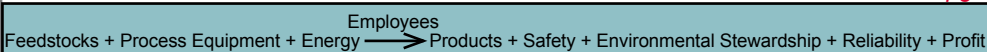
Around the world there are a number of pilot power plants and small demonstration power plants – and political will and financial commitment to invest in more of the same; however, there are no full size CCS power plants in operation. The lack of full size plants is partially due to: high capital cost because of complexity and integration issues around scaling the technologies and the environmental impact of CCS.

While CCS is all about reducing the environmental impact of CO<sub>2</sub>, to achieve this aim there are a number of environmental impacts attributable solely to CCS.

Broad environmental impacts specific to CCS relate to scale, quantities of CO<sub>2</sub> produced, and a drive to coal - a dirtier fuel. The need to increase the size of a CCS power station to take account of energy loss needed to drive the CCS process leads to a consequential increase in environmental impact. Fiscal incentives, such as the European Emission Trading Scheme, help drive the CCS investment to maximise the CO<sub>2</sub> produced in order to be able to claim the maximum CO<sub>2</sub> credits. In addition, this need to maximise CO<sub>2</sub> production will drive the power generator to carbon rich, and, unfortunately, comparatively dirty fuels such as coal.

More specific issues include the use of chemicals in the CCS process and the need for a CCS- specific infrastructure. The amines that are typically used to capture CO<sub>2</sub> in flue gases

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We collaborate with our clients to create unique solutions to their specific challenges, which may include:

### Strategic Challenges

- Effective Business Strategy/ Decisions
- Increased Return on Investments
- Enhanced Returns on Acquisitions/Divestitures
- Reduced Risk (Strategic, Capital, Other)

### Market Challenges

- Enhanced Yields
- Effective Responses to Crude/ Feedstock and Product Markets
- Improved Financial Performance
- Market Risk Management

### Environmental Challenges

- Reduced Emissions
- Enhanced Compliance

### Operating Challenges

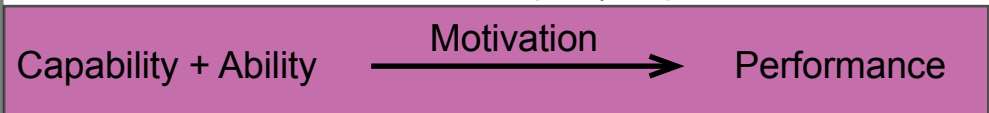
- Improved Organisational Effectiveness
- Reduced Maintenance Costs
- Improved Energy Efficiency
- Behaviour-based Reliability/ Performance
- Improved Safety Performance
- Operational Risk Management



**NextGen Performance<sup>™</sup>**

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behaviour that has the greatest potential to impact performance. Effectively leveraging the full potential of one's workforce requires that employees are enabled and empowered, which drives change in on-the-job behaviours driving performance improvements. This can be best represented by the following Performance Model:



To properly leverage this model, it is first important to understand the individual components, and then drive behavioural changes that address all three aspects to achieve the desired improvements.

### Capability

Capability represents the cognitive and physical competency to accomplish something. Where employees are concerned, capability represents the capacity to perform a work function at the desired level of performance. Underlying Capability, in this context, are the knowledge, skills, and attributes possessed by an individual that may be applied to be proficient at work activities, drive innovation, and effectively navigate the work environment.

Employee Capability is driven by two main systems: (1) staffing and (2) ongoing learning and development. The staffing process provides organisations with the opportunity to ensure new employees develop and possess the base level of required capabilities. However, most organisations have a large number of existing employees; therefore, the most impactful mechanism for improving employee capabilities is through focused training activities. To effectively develop employee Capability, training should focus on the core competencies that underlie a specific area of performance and not just train on the specifically defined tasks (the "checklist" approach). This focus on competency ensures employees are provided with the capability to think and adapt within a set of parameters and not just complete a task based on rote response.

By providing employees with greater understanding of desired objectives or operating parameters, this allows an organisation to unlock the significant intellectual capacity that already exists, but is often not fully leveraged.

### Ability

Ability represents the level of empowerment granted to an individual to make changes that impact performance. Stated another way, Ability is defined as being provided with the responsibility, authority, and tools required to complete a set of work activities. When looking at the Performance Model, Ability represents the enabling factors provided by the company to convert capability into performance.

The provision of Ability within an organisation can be broken into two systems: (1) the Performance Support System and (2) the Performance Management System. The Performance Support System should ensure that employees have the tools and information available when, where, and in the form needed to support a particular job function. Often, this system is neglected or forgotten when developing programs to improve employee performance. The adage "knowledge is power" may seem trite; however, NextGen Performers know that this is a significant contributor to success. The Employee Performance Management System should clearly outline the roles, responsibilities, and competencies for a given position, and link measurable performance indicators to those responsibilities, which links to motivation. This linkage will help management personnel easily provide feedback and coaching to employees. Additionally, this will make it easier for management to truly empower employees by providing a clear means for monitoring and overseeing execution of that empowerment.

To illustrate the value of Performance Support Systems, here is an example from the steam and power generation area of a large, integrated refining/petrochemical complex. To better support the console operators in driving optimal process performance, a performance metric system was developed utilising various pieces of process data to report on unit performance in terms of monetary value. This system, combined with focused training for the operators on how they could manipulate the system to affect this value, resulted in improved performance as well as some friendly competition between different shift teams on achieving the best daily performance.

Consider an example relative to Performance Management Systems. A certain ceramic

cookware manufacturer undertook a significant quality improvement program. Everyone from the CEO down to frontline supervisors were speaking about quality, the associated metrics, and the criticality of quality to the long-term, sustainable competitive position of the company. However, one overlooked matter significantly impeded results. Incentive compensation was driven around a principle metric related to volumes of cookware shipped. As the employees said, "For the first 25 days of the month, we talk quality, do the measurements, and focus on improvement activities. The last five days of the month, we just ship the 'ware.'" Since the performance metrics were not aligned with the objectives, achievement of the objectives was undermined. The answer could have been as simple as creating monthly volumes predicated on a specific defect rate, thus supporting the quality efforts versus considering it in isolation.

### Motivation

Motivation represents the desire of an individual to impact performance. When looking at the Performance Model, this desire represents the motivating force that provides the catalyst for converting capability and ability into outstanding performance. In this case, Motivation represents a desire for achieving a defined standard of performance or for changing some aspect of performance. Putting this into perspective, assume the average organisation has the "basics" already in place: a workforce with capability and ability. The differentiator is Motivation (or attitude), which many organisational behaviourists attribute to being 65 percent or greater of the overall performance impact (compared to Capability and Ability which comprise the remaining 35 percent).

Unlike Capability and Ability, Motivation cannot be provided to an employee as it represents a more innate belief basis for each individual. However, managers can tap into that belief system to Motivate employees by clearly linking the desired improvements in organisational performance to the more personal factors



of motivation for the employees. More clearly stated, employees can be motivated through strong leadership that clearly and effectively articulates a compelling reason to change to the workforce. As an example, a small refinery was embarking on an entire plant improvement effort with an initial focus on safety. With a Recordable Incident Rate (RIR: incidents per 200k manhours) of ~2.5 they had a long way to go, but Motivation of the workforce was not difficult as everyone wanted improve. After one year and a focused training and support program, the safety record improved to ~0.8, which was a significant accomplishment in which the plant took a great deal of pride. A new challenge arose from this performance; how could management motivate the work force to continue driving improvements in safety performance. The answer came from the Health, Safety, Security, and Environmental (HSSE) Manager in the form of a clear, motivating message that translated the impressive 0.8 RIR into a real numbers seven was the number of individuals injured on the job, and he related how "this is not fair." This simple, but motivating message, helped drive further improvements with are RIR of 0.5 the next year - proof that proper Motivation coupled with Capability and Ability can achieve significant performance improvements and substantial bottom-line results.

### "Catalysing" Your Organisation

Given the foundational knowledge of how to leverage human capital as a catalyst to drive performance, what does one do with the information? *NextGen Performers* know the answer, which is relatively simple: Start doing something. While this sounds overly simplistic, it is one of the most common problems facing the process industry. Overwhelmed by the daunting challenges associated with the current economic times, curtailed capital spending, continuous pressure to reduce costs and little if any available moneys to fund opportunities, the idea of investing in training and organisational development often seems too discretionary for the current time. Nothing is further from the truth, since a focus on organisational effectiveness can have significant impact given the size of the investment. While some think that behavioural programmes are not worth the time, making the investment would yield high returns in facility performance. What seems counter-intuitive can have a significant impact. Accordingly, sometimes to best answer is to start with a smaller, more discreet effort to realise an initial result, unlock hidden value, and continue to progress forward leveraging the overlooked catalyst: Human Capital.

## Training Seminars

### Training Skills for Process Plant Trainers (TSPPT)

- 12-14 Aug – Houston, Texas, USA
- 17-19 Aug – Bangkok, Thailand

### Achieving and Sustaining Operational Excellence (OpX)

- 16-18 Sept – Denver, Colorado, USA
- 5-7 Oct – Singapore

### Improving Refinery Profitability

- 23-25 Sept – Houston, Texas, USA

For more information or to register, visit [www.kbcat.com](http://www.kbcat.com)

### Environment and CSS continued from pg 1

are unpleasant chemicals and particularly when part of the waste stream. A large number of additional chemicals are required for the efficient operation of the CCS technology with risks of damage to the environment through spills and accidents. There is a need to be able to transport the CO<sub>2</sub> to the selected sequestration asset, typically an exhausted offshore gas reservoir. While there may be existing gas pipelines, it is probable that some elements, if not the

## Thought Leadership

Simon Calverley Senior Staff Consultant recently presented "NextGen Responses to Current Economic Challenges," which detailed low cost, high impact strategies for the current environment.

Joris Mertens, Senior Staff Consultant will present "Reduce Your Refinery Carbon Footprint," which discusses reducing CO<sub>2</sub> emissions and quantifies typical achievable benefits.

To learn more or for your copy, please contact us at [answers@kbcat.com](mailto:answers@kbcat.com)

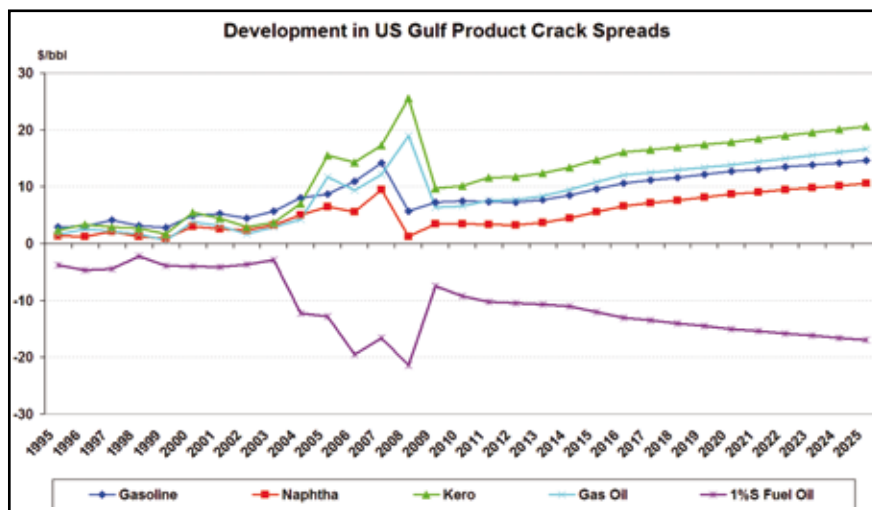
entire CO<sub>2</sub> pipeline system, would need to be constructed with environmental impacts. It is worth noting that the potential of CO<sub>2</sub> to pool on release will mean the route selection process will have to take account of risk to humans and wildlife. Offshore, the impacts relate to the need to construct appropriate infrastructure to enable injection of CO<sub>2</sub>. Whilst leakage and accidents must take account of potential damage to plants, animals, and people, leakage undermines the justification for CCS.

## REFINING MARGINS

by Peter Stewart and Antonios Panagiotopoulos

- Refineries have increased utilisation rates ahead of the driving season after heavy spring maintenance. Refiners are trying to maintain margins by matching output with low oil product demand.
- The demand outlook appears very weak for 2009 and 2010 since the world has not fully recovered from the consequences of the economic slowdown.
- Middle distillates weakness year to date in 2009 looks set to continue further as near record inventories and substantially lower demand figures provide no support for any increase.

- Gasoline prices showed some signs of strength ahead of US Memorial Day weekend, which traditionally marks the start of the US summer peak driving season. However, the gains were based on expectations rather than solid rising demand figures.
- Fuel oil cracks have slightly declined from their spring rally, but remain at single digit discounts to crude in all regions. Electricity demand for air conditioning use should provide some support for strength in fuel oil values.
- Overall, the weaker margin environment is expected to continue in the market unless demand improves.





NextGen Performance<sup>®</sup>

**KBC Advanced Technologies, Inc.**

15021 Katy Freeway  
Suite 600  
Houston, Texas 77094, USA  
T +1 281 293 8200  
+1 800 726 5914  
F +1 281 616 0900

**KBC Process Technology Ltd**

KBC House  
42-50 Hersham Road  
Walton on Thames  
Surrey KT12 1RZ, UK  
T +44 (0) 1932 242424  
F +44 (0) 1932 224214

**KBC Advanced Technology Pte Ltd**

435 Orchard Road #16-02/03  
Wisma Atria  
Singapore 238877  
T +65 6735 5488  
F +65 6736 4759



**Where do You Want to be on the Performance Curve?**

**YOUR COMPANY** + **KBC** → **NextGen Performance<sup>®</sup>**

**Catalyst: P+M+T**  
 P = People  
 M = Methodologies  
 T = Technologies

**Your Company + KBC Produces NextGen Performance<sup>®</sup>**

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