

RESULTFOCUSED

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We partner with our clients to identify and unlock practical and sustainable solutions.



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TO CHANGE...

By Anton Nieuwoudt

According to Heraclitus "Change is the only constant in life". If one considers the current flux in various parts of the world, both economical and political, one can safely say that "we ain't seen nothing yet."

Who in their right mind would have foreseen in January 2014 that by January 2015 the price of Brent crude oil will be similar to the prices we last saw in 2008? In fact, Brent crude oil prices has shed close to 50% of it's value in the last three months. In the last week alone, the price has dropped from around \$51 a barrel to just below \$46 a barrel.

Consumers have benefitted and continue to benefit from these lower prices, by paying less for fuel at their local forecourt but we still wait to see what effect it will have on other areas. From a logistics and supply chain perspective, many of us are eagerly awaiting the positive effects this will have on rate structures and innovation.

Irrespective of the way one looks at it, the fact of the matter remains

that in today's globally connected economic and political environments change happens almost overnight. A recent video on YouTube highlights "25 mind blowing ways society is about to completely change" - you can find it [here](#). Some of particular interest to me are: 1) There will be more cellphones in the world than people, 2) People will be fluent in every language, 3) The USA will no longer lead the world, but China will followed closely by Russia, 4) Russia will become the global food superpower, 5) The world's population will grow dramatically, 6) Mass unemployment will be a worldwide problem and innovation will be more important than ever, 7) The climate problem will finally start hurting us, 8) People will live much longer, 9) Obesity and depression will become the plagues of the future, and 10) The world might not be a better place after all.

The question now is: What change are you foreseeing in 2015 - personal and professional? Are you

readying yourself and those around you to manage those change and the impact they will have on your everyday life? The scary part is that change is going to happen whether you are ready for it or not, and "when we are no longer able to change the situation we will be challenged to change ourselves" (Viktor E. Frankle).

Both Niels and I truly wish you a year filled with exciting and positive changes, and adventures that will bring you great joy and success.

In this edition of **RESULTFOCUSED** we look at, among others, the Levi's approach to supply chain ethics, what it takes to remain a supply chain leader, the impact of the "Internet of Things" on warehouse management and control systems, as well as some inspiring mantras to help you master work-life balance. **RF**

"To improve is to change; to be perfect is to change often" - Winston Churchill



LEVI STRAUSS' SMART THINKING ON SUPPLY CHAIN ETHICS

By Paul Teague
(supplychain247.com, November 2014)

Despite the higher costs of having more ethical supply chains, some believe that it ultimately pays off for companies, as such efforts can improve reputation among consumers and produce greater loyalty from employees.

Kudos to Levi Strauss, which announced last week that [it will partner with the International Finance Corporation](#) to reward suppliers in developing countries who score highly on environmental, health, safety and labour standards.

The reward for such ethical activities will be lower cost rates on working-capital financing.

The apparel manufacturer's efforts are a great example of the economic benefits that can accrue to companies that pursue sustainability and promote ethics in their supply chains.

A generation or more ago, cynics would have told us that the words business and ethics couldn't be used in the same sentence. Businesses weren't concerned with ethics, only profit, they would say. They were wrong then and any who would say that today would be wrong now. That's in part because corporate executives know that their customers care about ethics.

[Recent surveys by consultancy Software Advice](#) showed that [consumers would pay more for ethically made products](#). One set of surveys sought to determine which specific initiatives in different links of the supply chain would entice consumers to pay a premium for products that would normally cost \$100. One group of respondents said it would pay an average of \$18.50 more if the raw materials were sourced ethically. Another said it would pay \$19.70 more if the product had a carbon emissions offset, and the third group said it would pay \$27.60 more for a product made in a facility with good working conditions.

The consultancy admits there can be a gap between what survey respondents say and what they will actually do. Still, says [Forrest Burnson, market research associate at Software Advice](#), procurement and supply chain professionals can't ignore the fact that consumers are aware of where and how their products are made and who made them. And that awareness can even extend to perceptions of outsourcing.

Burnson says that while consumers rarely complain about the quality of some products

manufactured offshore they do complain about the conditions under which those products are made.

Additionally, respondents to one Software Advice survey said that firms' community-involvement efforts to open factories in areas of high unemployment would prompt them to buy the firms' products.

Even the conservative Forbes Magazine has written that globalisation of supply chains requires "[more robust](#)" corporate citizenship by companies and their contractors, even if the latter are on different shores.

Moreover, consultancy [Capgemini says that companies embracing ethical sourcing are more likely to succeed in the long run](#). That's an attractive prognosis. It seems that Levi Strauss and other firms pushing ethical practices in their supply chains are onto something. **RF**

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WHAT DOES IT TAKE TO REMAIN A SUPPLY CHAIN LEADER?

By Bob Trebilcock
(supplychain247.com, January 2015)

We all know the best performing supply chains and what they have done to reach the top rungs in their industries.

After all, Supply Chain Management Review publishes Gartner's annual Supply Chain Top 25 every September.

But as with winning sports teams, no supply chain can rest on its laurels.

The day after winning the Super Bowl, the World Series, or the Final Four, the best coaches begin preparing for the season ahead. So it is with supply chains: The best run organisations are constantly looking for the areas in which they have room for improvement, as well as the innovations that may put further distance between them and the rest of the pack.

So, what are the priorities for the coming year for supply chain leaders? That's a question we put to supply chain executives at four companies on this year's Supply Chain Top 25: Unilever (No. 4), P&G (No. 5), Cisco (No. 7), and Intel (No. 8).

The initiatives they have put at the top of their To Do lists for 2015 are diverse and reflect the broad umbrella that covers supply chain management. They may also provide food for thought for your own organisation.

Cisco: The Transformational Supply Chain

The Internet of Things, the Cloud, and Big Data are high on Cisco's priority list. The goal: enable the supply chain to support a new business model.

Cisco is undergoing a transformation. For years, this tech leader, with \$50 billion in revenue, was known as a networking hardware company with great software. "Buy the hardware and get the software for free," described Cisco's go-to-market strategy.

Today, that strategy has been turned on its head: Software and solutions are the name of the game. "Our customers are looking for us to provide a complete software and integrated solution, and not just ship the hardware," says John O'Connor, senior director of supply chain transformation. "That's a big shift."

As O'Connor's title suggests, Cisco's supply chain is also undergoing a transformation to support its company strategy. It is not easy. First, it is a complex,

distributed global network, with 18 to 20 nodes. Cisco's 2,500 internal supply chain personnel manage some 25,000 individuals outside the organisation who are focused on Cisco's supply chain.

More importantly, Cisco has spent the last two years replacing its legacy systems with new ERP and product lifecycle management systems, a data management platform, and a logistics control tower to facilitate the changes ahead. "To continue to scale, we had to get off of the highly-customised platforms we had been using," says John Kern, senior vice president of supply chain operations.

That work laid the groundwork for investments in new strategies and technologies that will drive the company's future. The big ideas include [Big Data](#), [the Cloud](#), [Mobility](#), and [the Internet of Things](#). "We are thinking about the strategies and technologies that will deliver the next generation of productivity and a differentiated customer experience," says O'Connor. They include:

The Connected Supply Chain. Cisco is working on a radical expansion of its sensing capabilities by increasing its use of RFID, barcode scanning, and sensors on the manufacturing floor and across its network. "If you think of the Internet of Things, we're creating a comprehensive web of connectivity to pull data from people, processes, and things," Kern says. "We want to tap into every node in our network, upstream and downstream." By linking systems and processes, Cisco can use its control tower to automatically change production flows and reroute purchase orders in an instant.

The Mobile Supply Chain. Free the people could be the rallying cry for Cisco's mobile strategy. Instead of working behind a desk on a PC or a Mac, Cisco wants to put its applications in the Cloud and decision-making capabilities in the hands of its supply chain personnel. "We want visibility into inventory up and down the supply chain, including inbound component inventory through product in our distribution channels, to enable our teams to use their smart phones to take real-time action," says O'Connor.

The Analytic Supply Chain. More sensing devices and more nodes translate into more data - Big Data. That includes capturing unstructured data, like customer notes. The next step in Cisco's transformation is to analyse that Big Data in seconds in order to make real-time decisions. The real goal is to evolve from reacting to issues after the fact, to taking proactive steps before a quality or throughput issue occurs.

"We want to look at the performance of products - all the way from sub-tier components through the manufacturing and shipment of finished goods - to identify quality or production problems or to proactively identify where we have an order that may need to be expedited," says O'Connor.

Those strategies are possible because of the core work over the last two years. "We have reliable data and a stable, mission-critical reporting environment," O'Connor

says. "Now, we can leverage those resources for the next wave of supply chain productivity."

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P&G: Customer Centricity and the Responsive Supply Chain

Long known as an efficient manufacturer, P&G is expanding its consumer-centric model to actively include the customers' needs. From the store shelves to the manufacturing floor, P&G is assessing what supply chain solutions provide the most value to retail customers and consumer alike, with faster-than-ever response times.

With approximately 73,000 team members powering a supply network that includes over 130 manufacturing sites and more than 200 distribution centers, P&G's supply management organisation "touches each and every one of our retail customers across the globe," says Yannis Skoufalos, P&G's global product supply officer. Supply Network excellence and professionalism is a very significant contributor behind a planned \$6 billion reduction in P&G's cost of goods over five years, including the delivery of a \$1.6 billion reduction in 2013.

While metrics like cost of goods and case fill rates are traditional measurements, P&G is on a journey to deliver more on what its customers need - one whose brand equity is measured by how it touches the lives of its end consumers. P&G's supply chain performance is measured by the metrics that are important to its myriad of customers, each with its own yard stick.

The goal is to align 80 percent of total business and services in the same way as those that are tracked by the customers. Think of it as Customer Centricity. "Service as measured by our customers is reshaping the way we engage with our market," Skoufalos says. "Some customers track on time delivery and some measure us on EDI data transmissions. As soon as you understand what measurements are important to them, it opens up an array of ideas about what service excellence is all about."

To that end, [P&G has already announced to Wall Street a major redesign of its flagship supply networks in North America and Europe for 2015](#). Two ongoing initiatives illustrate how this restructuring is impacting the supply chain.

First, in North America, P&G is putting a premium on responsiveness with a distribution goal of being within one day's transit to 80 percent of retailers. To do that, P&G is building six mega-distribution centers in strategic locations across the country. The facilities are designed to receive and cross-dock product from all of P&G's business units for speedy and efficient delivery of mixed truckloads. Facilities in Moreno Valley, Calif. and Shippensburg, Penn. are already up and running. The other centers will be operational by October 2015.

To support the network of mega-distribution centers, P&G is also planning to reconfigure its North American manufacturing base, again with responsiveness in mind. Rather than having a dispersed network that is forecast-driven, P&G is adopting a demand-driven replenishment model based on point of sale (POS) information coming from its retail customers.

To speed up response time, it is asking suppliers to create "supplier villages" next to its plants, similar to the just-in-time model employed by the automotive industry. Suppliers can then respond much more quickly to P&G. "Having the ability to take an uninterrupted thread from POS data to the supplier base and on through the distribution network is what we are trying to address," says Skoufalos. "This is the future of supply chain management at P&G."

From the store shelves to the manufacturing floor, P&G is assessing what supply chain solutions provide the most value to retail customers and consumer alike, with faster-than-ever response times.

Intel: Managing a Supply Chain that Enables Moore's Law

Intel's goal is to stay several generations ahead of its competitors in the semiconductor industry. So, the supply chain must stay ahead of the curve.

"Intel's secret sauce is our ability to continue Moore's law," says Jackie Sturm, vice president and general manager of Intel global supply management. "To support that from a supply chain standpoint, we and our suppliers must be one or two generations ahead of our competitors."

Moore's law is named after Intel's co-founder, Gordon E. Moore, who wrote in 1965 that over time, the number of transistors in a dense integrated circuit doubles approximately every two years.

Delivering a continuous and significant advance to Intel's technology every two years or less is a complex and challenging process, especially across a large and diverse supply chain. It requires collaboration between internal technology experts and suppliers of chemicals, specialty gasses, precision equipment, and metals and minerals to meet Intel's growing needs; it also is dependent on the ability to take the chemistry developed in a test tube in a lab - or a garage - and ramp it up to volume in a fab plant.

And, given that many of the chemicals and raw materials are highly regulated, they must be sourced, handled, tracked, and disposed of in compliance with government regulations. To continue Moore's law, Intel has set at least three priorities for its supply chain for the coming years.

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Ethical Sourcing. Intel is considered the electronics industry's leader in the effort to eliminate conflict minerals from products, specifically tantalum, tin, tungsten, and gold mined in the Congo. "We can say to a high degree of certainty that we are free of conflict minerals in microprocessors and that work in the broader supply chain will continue in 2015," Sturm says.

Intel is also working to improve the health and safety of workers at suppliers in emerging markets. For instance, Sturm recently encouraged suppliers to ensure the availability and use of functioning personal protective equipment devices, like safety glasses and ear protection, at a keynote address in Shanghai where Intel suppliers gather annually for dialogue and learning on supplier sustainability.

Partner of Choice. Intel's engagement with its customers is changing. "We are becoming the partner of choice," says Mani Janakiram, director, supply chain strategy and analytics. "We are doing that by aligning our business strategies with their business values and by making the issues our customers face, our issues." One example: Intel is extending its expansive portfolio of supply chain visibility and analytical tools to predict its customers' demand.

And, it is expanding those tools, with the addition of social media, mobile, and cloud technologies to better leverage Big Data in supply chain. "We have service level and vendor managed inventory agreements in place to lean out the supply chain," he says. "But with visibility and predictive analytics, we will be more effective at positioning and

delivering the parts that our customers require, when they are required."

Demand Shaping. In addition to managing billions of dollars of capacity, Intel works closely with customers to shape demand for new products that then drives the demand for Intel products. At the dawn of the smart phone, for instance, Intel worked with suppliers to develop cost-effective touch displays when that was a nascent technology. It is also important in untapped, emerging markets. "We want to make sure that smaller manufacturers have access to memory and other components to produce the products they need for a market like China," says Sturm.

Unilever: Building a Brighter Future with Supply Chain Management

In Europe, sustainable sourcing, logistics control towers, and distribution hubs are delivering growth and contributing to Unilever's Sustainable Living Plan.

"In the supply chain at Unilever, our purpose is to deliver sustainable and profitable growth," says Neil Humphrey, Unilever's senior vice president of supply chain for Europe. "We are looking beyond financial results to our impact on the world around us, from reducing our environmental footprint to improving the livelihoods of small farmers and the communities in which we operate."

Humphrey is referring to [Unilever's heralded Sustainable Living Plan](#). While building a brighter future is a significant ambition, he says the job of the supply chain is to enable sustainable growth in the context of a brighter future. "For example, in Europe, our brand commands a premium over discounted brands, so we have to deliver an absolute better quality product with the highest standards of sourcing, manufacturing, and delivery."

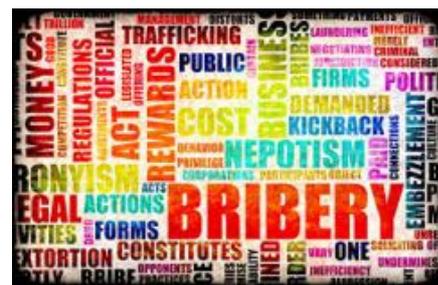
Those goals translate to European factories that are zero waste to the landfill and 50 percent of raw agricultural materials sustainably sourced, including challenging fields such as palm oil and tea. "With our scale, we can insist on certain standards for sustainably sourced raw materials, which in turn will change the way entire businesses operate," Humphrey says.

Control Tower. Three years ago, Unilever implemented a control tower in Europe built around an end-to-end transportation management system that delivers full visibility into the three Cs of customer service, carbon, and costs. "We began by managing inbound material flows across 35 countries in Europe," says Humphrey. "We're now covering all logistics flows by rolling out secondary distribution that will also be managed from this central control tower in Poland."

In-sourcing Rather than Outsourcing. While many companies outsource logistics services to concentrate on core competencies, Unilever is in the process of in-sourcing services that have been done by 3PLs to reduce carbon and costs. "We have the scale and capabilities to improve our service costs while taking one in five trucks off the road in Europe," Humphrey says.

In Europe, sustainable sourcing, logistics control towers, and distribution hubs are delivering growth and contributing to Unilever's Sustainable Living Plan.

Centralising the network. Unilever is in the process of opening five distribution hubs in Europe; this distribution network will eventually be expanded globally. The idea is to have all finished goods shipped through these hubs, which serves to consolidate shipments between customers, factories, and suppliers, reducing the number of deliveries as well as Unilever's environmental footprint. "We'll no longer have a supplier shipping to multiple factories," says Humphrey. "Instead, they can ship to one supply hub that will consolidate shipments to service those factories." **RF**



BRIBERY REMAINS A GLOBAL SUPPLY CHAIN CONCERN

By Patrick Burnson (scmr.com, December 2014)

The Organisation for Economic Cooperation and Development (OECD) has released its first-ever analysis of anti-bribery on a global scale, sounding an alarm for U.S. supply chain managers.

The "overwhelming" role of intermediaries in foreign bribery cases demonstrates "the need for enhanced and effective due diligence, oversight and application" of corporate compliance programs to third parties (whether individuals or entities) in international business dealings, the report states.

- Other key findings:
 - Almost two-thirds of cases occurred in four sectors: mining (19%); construction (15%); transportation and storage (15%); and information and communications (10%).
 - Intermediaries were involved in three out of four cases. In 41 percent of the cases,

The “overwhelming” role of intermediaries in foreign bribery cases demonstrates “the need for enhanced and effective due diligence, oversight and application” of corporate compliance programs to third parties (whether individuals or entities) in international business dealings, the report states.

the intermediaries were agents, distributors or brokers. In another 35 percent of the cases, the intermediaries were corporate vehicles, such as subsidiaries or companies established under the beneficial ownership of the foreign official being bribed.

- More than a quarter of the bribes were promised or given to employees of state-owned companies and a further 11% involved customs officials. Heads of state and ministers were bribed in 5% of cases but received 11% of total bribes.

- In most cases (57%), bribes were paid to win public procurement contracts, followed by clearance of customs (6%) and attempts to gain preferential tax treatment (6%).

- In 41% of cases, management-level employees paid or authorised the bribe, whereas chief executives were involved in 12% of cases.

- Nearly 70% of the cases studied were resolved by way of a settlement, often involving a civil or a criminal fine. The combined corporate penalty was 1.8 billion Euros. Prison sentences were handed down on 80 individuals.

- Bribes in the analysed cases equalled 10.9% of the total transaction value on average, and 34.5% of the profits – equal to \$13.8 million per bribe.

- One in three cases were instigated by self-reporting by the defendant companies or individuals. 13% of cases were instigated by investigations initiated directly from law enforcement authorities.

- Self reporting companies became aware of foreign bribery in their business operations mainly due to internal audits (31%) and M&A due diligence (28%).

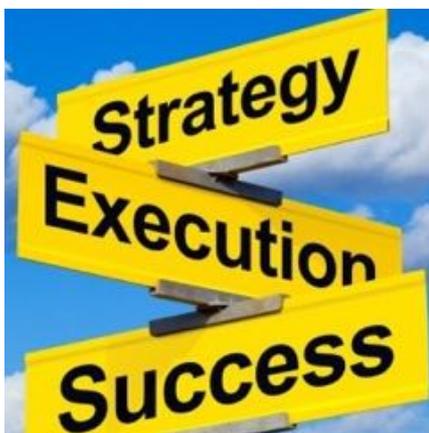
- 7.3 years is the average duration of foreign bribery cases to be concluded, some cases even continued for up to 15 years after the last corrupt act to reach a final sentence.

Compliance programs should focus specifically on due diligence with respect to agents and on verifying the rationale and beneficial ownership of other companies involved in the transaction.” The high level of involvement by senior executives indicates the continuing need for companies to set the right tone at the top, the report outlines.

And even though small- and medium-size enterprises accounted for only 4 percent of the companies sanctioned, corporations of all sizes with global businesses should implement measures to detect and prevent the risk of foreign bribery, according to the report.

The fact that cases are taking longer to a close could be attributed to increased sophistication in bribery techniques but also to time taken to lodge and hear appeals, according to the report.

The report also presents “ideas to reinforce efforts and combat this crime”, for example making the data behind the report public in an online data-base to be maintained by the OECD. A further suggestion is to focus on senior executives or public companies as both bribe givers and takers. **RF**



HOW TO BRIDGE THE STRATEGY TO EXECUTION GAP

By Unknown
(supplychaintrend.com, December 2014)

A business strategy is only as good as its execution. Still many businesses struggle to periodically align their strategy with their annual plans, performance and appraisal settings and execution. This contributes to a lack of employee engagement in strategy and a low success rate of strategy execution, which have been well documented over the years. To overcome the strategy to execution gap, executives may choose to reorganise, but before doing so should consider these four recurring key themes to develop an organisation with strategy to execution capability.

Reset the business culture

If ‘culture eats strategy for breakfast’, as Peter Drucker famously said, executives

need to assess if their business culture is capable to deliver on the many strategic initiatives and budget promises. They need to understand if their culture has a growth mindset, effectiveness and ability to commit and conquer challenges. Peer proven psychometric tools like the MTQ48 and Life Styles Inventory do just that.

The MTQ48 measures the mental toughness or resilience of an individual, project team or organisation. It measures the four key components of resilience; control, commitment, challenge and confidence. Resilience is a major factor in aspirations, well-being, positive behaviours and explains up to 25% of the variation of performance in individuals.

The Life Styles Inventory measures effective leadership skills and constructiveness of organisations. Constructive organisations outperform the least constructive organisations on Motivation (+36%), Inter-unit coordination (+26%), Organisational quality (+29%) and External adaptability (+35%).

A growth mindset culture, where challenge is good, making mistakes to learn from is accepted, and where work is more important than ability can be created. Company cultures without features of constructiveness, resilience and a growth mindset will not be able to deliver sustainable success and will struggle to execute a strategy. Cultural transformation and leadership coaching programs can bridge the gap to the culture that is required to execute the strategy.

Transform performance and appraisal systems

As part of the strategic planning process, executives need to prioritise strategic initiatives and redistribute resources accordingly. However, research from 2006 shows that 60% of organisations do not have strategic initiatives in their budget. It is therefore essential that after a new strategy is signed of, but before any other strategic initiative or capability will be developed, strategy is first integrated in performance and appraisal systems.

Strategy and budget scorecards need to be created and incorporated in employee’s performance and appraisal settings in all echelons of the organisation. This ensures there is a strategy and budget goal setting and measurements system available. Employees are more likely to know what responsibilities and decision authorities they have to support strategy execution and know how they will be rewarded for it. Companies that use the right appraisal and reinforcement systems have up to 18% more role clarity, 32% less role conflicts and their people are 36% more motivated.

Additional to the ‘what we do’, executives need to make their culture reset a reality and incorporate the ‘how we do’ things around here. Performance and appraisal settings need to incorporate desired values and behaviours employee’s need to display day to day. Employees who excel in role modelling the desired values and behaviours

will be rewarded and over time a cultural reset will be established.

Create rolling forecasting & budgeting capability

According to McKinsey, “one important capability that companies must develop ... is rolling forecasting and budgeting”. Business plans are usually updated and aligned only yearly during strategy or budget time. Rolling forecast and budget capability however, aligns business plans monthly or quarterly in a structured way. This provides the opportunity for leaders to get executional feedback and have a continuous pulse check against their budget and strategic initiatives. A horizontal business process like Sales and Operations Planning (S&OP), which found its origin in manufacturing in the 80’s, is well matured now in different industries and can be used as a basis for rolling forecast and budget capability.

To overcome the strategy to execution gap, executives may choose to reorganise, but before doing so should consider these four recurring key themes to develop an organisation with strategy to execution capability.

The advantages of well executed periodic rolling forecast are evident. It will provide periodic visibility in progress against strategy and budget and business assessments in risks and opportunities. In reality year on year resource allocations stay similar for well over 90%. A rolling budget however, also provides opportunity for ongoing reviews of resource allocation. It periodically aligns the business across strategy, budget, resources and execution. Depending on the industry, different types of rolling budget processes can be implemented. What has to be common across all industries is that for rolling budgeting to be successful, the most senior leaders need to run this planning process.

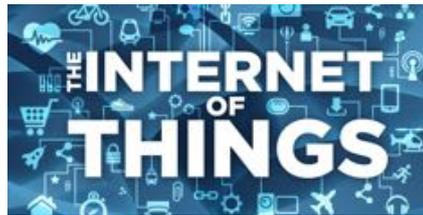
Let the information flow

Research suggests that information flow is the strongest contributor to good strategy execution. Cultural reset, transformed performance and appraisal systems and a rolling budget are great inputs to have serious and targeted conversation with employees and let the information flow. A cultural reset provides the opportunity to share information on values and behaviours. This can happen during performance meetings, but ideally as a day to day practice. The output of a rolling budget

review provides an ongoing opportunity to inform employees on strategic initiatives, gaps to budget, resource allocation and strategy execution.

An internal communication strategy to address the right stakeholders with the right information through the right channel at the right time can have a powerful impact and keep employees engaged with the business in a structured way. When designing an internal communication strategy leaders have to realise that; ‘smart leaders today, engage with employees in a way that resamples an ordinary person to person conversation more than it does a series of commands from on high.’ Senior leaders can provide additional personalised commentary on business status through blogs to create more intimacy and inclusion. Last but not least round tables, awareness sessions and engagement surveys can be used to listen and get direct information feedback from employees.

All four themes will require leadership vision, courage and vulnerability to tackle the sometimes tough cultural problems and drive change to create new capability. It will require planning, discipline in execution and potentially years of continuous improvement to get to a desired state. However, when companies start tackling these four key themes, they will build the foundation for strong organisational strategy to execution capability. *RF*



WAREHOUSE MANAGEMENT SYSTEMS & WAREHOUSE CONTROL SYSTEMS IN THE AGE OF THE INTERNET OF THINGS

By Steve Banker
(supplychain247.com, November 2014)

In the age of [the Internet of Things](#), an increasing number of materials handling systems (MHS), and even components of the larger systems, are gaining both sensors and intelligence.

However, existing [warehouse control systems](#) (WCS) have not been engineered for this new age.

Going forward, we believe that [warehouse management](#) (WMS) and warehouse control systems architectures need to be re-conceptualised to enable optimum warehouse performance.

Materials Handling Systems and the Internet of Things

In one definition of the term “Internet of Things,” almost all objects have sensors, connectivity to a broader environment, and intelligence. Sometimes the object has just a sliver of intelligence; but it can be much more substantial. Objects can be products, equipment, containers, or other things as well. For our purposes, the objects we are focused on are forms of materials handling equipment.

Traditionally, we said that warehouses were operated in either a manual, semi-automated, or highly automated fashion. In a manual warehouse, pickers used carts, forklifts, and other “dumb” forms of carriage to go to picking locations, gather the inventory, and deliver those goods to the shipping dock. However, [forklifts are becoming intelligent](#). With the right kind of control system, a warehouse using forklifts becomes semi-automated.

The Intelligent Forklift

Traditionally, the forklift was the backbone for manual material movement in a factory or distribution center, a “dumb” piece of machinery that was entirely dependent upon the operator. In contrast, modern forklifts epitomise the evolution to intelligent, sensor-enabled equipment. [Today’s “smart” forklift](#) includes diagnostics that allow the equipment to signal when it needs to be serviced, speed controls, anti-slip technology that monitors wheel spin and improve traction on slick floors, collision detection, fork speed optimisation, and more.

Intelligent forklifts promote new process flows in the warehouse. When integrated to a WMS, the forklift’s fork can be raised or lowered much quicker. The WMS directs a forklift to a pick location. Once at the location, the forklift knows whether the pallet to be picked is being stored at a height of three feet, six feet, etc. The operator pushes a button on the console and the forks move at the maximum safe speed, a speed considerably faster than the operator would be apt to move them.

Speed controls can be used to help ensure safety. For example, [RFID tags](#) placed in the floor can signal the forklift that this is a busy section of a warehouse traversed by humans. The forklift automatically knows it cannot exceed a set speed, for example two mph, and the governor automatically limits the top speed to two mph in those sections of the warehouse.

In mixed case picking, intelligent forklifts can integrate with pickers wearing voice systems, follow them up an aisle, lift the pallet to the correct ergonomic height for picking based upon the location of the inventory in the warehouse racking, and then, when ordered to do so, autonomously (without a human driver) make the trip to a [shipping dock](#) for unloading.

The most intelligent forklifts today are built with real-time location systems that allow drivers to proceed to a specified location and pick up (or put down) a load without the need for drivers to scan the location to prove that they have picked up (or

delivered) the right load. This solution is designed for full pallet moves in either a warehouse with racks or a bulk warehouse in which pallets are stacked on top of each other.

The Intelligent Material Handling Component

Intelligence is also becoming more componentised and distributed in conveyor and sortation systems. Modern conveyors resemble modular Lego blocks. Distinct segments of the conveyor can have their own sensors and intelligence. This makes this form of materials handling more flexible and the investment in these technologies less risky.

For example, imagine a warehouse in which daily throughput volumes have increased over time. One can now pop in a new five-yard segment containing the conveyor, a divert sensor, the sortation device, and a motor. If the WCS signals a divert, the distributed control at the component level can kick the inventory off the conveyor, and the engine on that segment of the conveyor revs up to close the gap with other items on the conveyor.

The Traditional View of WMS and WCS

Traditionally the WMS contains the order, inventory, and location logic. The WCS has the move logic. The WMS knows that this many units of this SKU need to be picked and where that inventory is located.

When inventory is inducted into the automated materials handling system, it is the job of the WCS to move those items. The WCS does not need to know what inventory is being moved, or how that inventory fulfills customer orders.

Actually, it's much more complicated than that. If we are talking about moving goods by conveyors, the traditional view is apt. But if we are talking about [automated storage and retrieval systems](#) (AS/RS), the WCS also needs to have the location logic for the goods stored in the AS/RS. And the providers of highly automated materials handling solutions will tell you that in particular situations for some process flows, the WCS also needs to contain a subset of [inventory data](#).

Still, at its heart, a traditional WCS is all about moving goods via intelligent materials handling systems. Because traditional forklifts are not intelligent, the idea of using WCS to integrate with forklifts in this example would have been unthinkable just a few years ago.

A New Conceptualisation of the WMS/WCS Stack

Warehouse control in the age of the Internet of Things, requires a new conceptualisation of WCS. The new view segments warehouse control into three segments.

In highly automated warehouses, a warehouse is designed from the ground up around end-to-end flows based upon "advanced" materials handling systems. Because different materials handling systems operate at different speeds and have different carrying capacities, a key job for the WCS is to achieve global throughput

optimisation by properly buffering and throttling the various subsystems.

In a [semi-automated warehouse](#), one key aspect of the WCS is to solve the "islands of automation" problem. In many warehouses, over time new materials handling systems have been added. For example, a short conveyor section in the shipping department one year, a carousel a couple of years later, conveyors in the receiving department after that, and so forth.

Each of these distinct materials handling systems has its own control system that needs to be integrated with the WMS. This ad hoc process of integrating to the WMS drives up costs and makes WMS upgrades all but impossible. Thus, a key job of a WCS in a semi-automated warehouse is to be the central integration point between the WMS and the various material handling systems that have been added over time.

In the age of the Internet of Things, an increasing number of materials handling systems, and even components of the larger systems, are gaining both sensors and intelligence. Warehouse management and -control systems architectures thus need to be re-conceptualised to enable optimum warehouse performance.

A forklift that integrates through a control layer to some of the logic in a WMS to move its forks faster and more efficiently is now engaged in a move activity. That means intelligent forklifts need to be part of a larger warehouse control solution in this new WMS/WCS stack.

A small section of a conveyor, with its own logic and sensors to allow it to move items within its small domain more efficiently, is also engaged in a move activity. [Wii technology](#) provides a useful analogy of what is likely to come to the warehouse in the future. The Wii is an electronic game that senses the motions of players; it is inevitable that this form of technology will come to the warehouse.

For example, it is possible to imagine a worker loading a truck supported by an [extendable conveyor](#). One can imagine that worker making hand gestures to speed up or slow down the conveyor speed and other motions that signal the conveyor to extend

further into the trailer or begin to pull back into the warehouse. Thus, [we clearly need to visualise a WCS as integrating with new forms of sensor intelligence](#).

There's never been a neat line separating the types of logic contained in a WMS and a WCS, and this isn't going to change. Semi-automated warehouses also need to attempt to attain global throughput optimisation. However, the logic to do this is frequently found in a WMS, sometimes in the WCS, but more often will require cooperation between the two.

For example, if a manual pack station is the warehouse bottleneck, a conveyor feeding those stations needs to be able to throttle up and down to provide a buffer to avoid overwhelming those stations. Acting as a control tower, a WMS can utilise visualisation to allow a warehouse manager to see whether work is proceeding on schedule or slowing down at those stations. If the pack stations are falling behind, the manager can reposition labor from other sections of the warehouse to ramp up warehouse throughput.

In highly automated warehouses, the WCS technology is critical. In these warehouses, local zone needs must be balanced to speed up or slow down, with global optimisation of all move activities occurring in the warehouse. While this will create new hurdles, it is likely that agent-based software development will be needed to solve this requirement.

Meeting These New Challenges

Clearly, our key recommendation for materials handling and WMS suppliers is to reexamine their WMS/WCS architectures and ask themselves whether these can support far more types of materials handling systems and sub components of those systems that have sensors, connectivity to a broader environment, and intelligence.

In an era of distributed intelligence, a robotic revolution, and an environment in which new forms of "goods-to-person" automation are arising, it is inevitable that we will see value migrate from certain types of solution providers to others. Value will migrate away from solution providers focused on highly automated warehouses based on fixed (bolted down) material handling systems.

That is because highly automated warehouses don't flex well as order volumes and profiles change, and thus can carry a high-risk profile even though they can provide un-patrolled throughput. Value is beginning to migrate toward more mobile (non-bolted down) forms of materials handling used in goods-to-person processes.

WMS and materials handling suppliers that can provide WCS solutions that can treat a forklift as an advanced form of automation, allow companies to add new forms of automation while protecting the WMS upgrade path, and provide logic that helps optimise throughput (even in warehouses where bottlenecks may shift over time between manual and materials handling system choke points), will be the winners in this brave new world. **RF**



AUTOMATED CONTAINER TERMINAL PRODUCES ZERO EMISSIONS

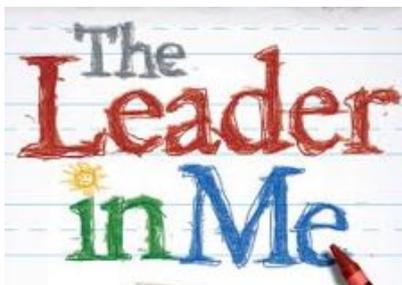
By DC Velocity Staff
(dcvelocity.com, January 2015)

Because it will be handling the world's largest containerships, APM Terminals' brand-new Maasvlakte II container terminal in Rotterdam, the Netherlands, was designed for efficiency. Every task that could possibly be done without human intervention has been automated. The terminal includes eight remote-controlled ship-to-shore cranes—the first in the world to be operated without anyone in the cab. The cranes place containers on "lift automatic guided vehicles," which travel from the dock to the container yard using an onboard navigation system that follows a transponder grid. (Similar technology is in place at Hamburg's Altenwerder Container Terminal.) Once the containers arrive at their destination, the AGVs deposit them into storage racks. Later, automated rail-mounted gantry cranes move the containers from the racks to the rail terminal, to a waiting truck, or to another area of the yard as needed.

The terminal, which opened to landside intermodal business in November and will be fully open for maritime business in February, has another claim to fame: APM says Maasvlakte II is the only container terminal in the world that produces zero emissions on site. Because its entire fleet of ship-to-shore, on-dock, and yard cranes; AGVs; and personnel transport vehicles are battery-powered, the company says, the terminal will produce no carbon dioxide, nitrogen oxide, or particulate emissions.

From 01 Jan 2015, 100 percent of Maasvlakte II's electricity needs are being supplied by wind power.

As if the operation weren't "green" enough, as of Jan. 1, 100 percent of Maasvlakte II's electricity needs are being supplied by wind power. Under a two-year contract, Amsterdam-based NV Nuon Energy will provide electricity generated by offshore and onshore wind farms in Europe. **RF**



WHAT MASLOW'S HIERARCHY WON'T TELL YOU ABOUT MOTIVATION

By Susan Fowler
(hbr.com, November 2014)

At some point in their careers, most leaders have either consciously — or, more likely, unwittingly — based (or justified) their approach to motivation on Maslow's Hierarchy of Needs. Maslow's idea that people are motivated by satisfying lower-level needs such as food, water, shelter, and security, before they can move on to being motivated by higher-level needs such as self-actualisation, is [the most well-known motivation theory in the world](#). There is nothing wrong with helping people satisfy what Maslow characterised as lower-level needs. Improvements in workplace conditions and safety should be applauded as the right thing to do. Seeing that people have enough food and water to meet their biological needs is the humane thing to do. Getting people off the streets into healthy environments is the decent thing to do. But the truth is, individuals can experience higher-level motivation anytime and anywhere.

Despite the popularity of Maslow's Hierarchy, there is not much recent data to support it. Contemporary science — specifically [Dr. Edward Deci](#), hundreds of Self-Determination Theory researchers, and thousands of studies — instead points to three universal psychological needs. If you really want the advantage of this new science — rather than focusing on a pyramid of needs — you should focus on: autonomy, relatedness, and competence.

Autonomy is people's need to perceive that they have choices, that what they are doing is of their own volition, and that they are the source of their own actions. The way leaders frame information and situations either promotes the likelihood that a person will perceive autonomy or undermines it. To promote autonomy: 1) Frame goals and timelines as essential information to assure a person's success, rather than as dictates or ways to hold people accountable. 2) Refrain from incentivising people through competitions and games. Few people have learned the skill of shifting the reason why they're competing from an external one (winning a prize or gaining status) to a

higher-quality one (an opportunity to fulfill a meaningful goal). 3) Don't apply pressure to perform. Sustained peak performance is a result of people acting because they choose to — not because they feel they have to.

Relatedness is people's need to care about and be cared about by others, to feel connected to others without concerns about ulterior motives, and to feel that they are contributing to something greater than themselves. Leaders have a great opportunity to help people derive meaning from their work. To deepen relatedness: 1) Validate the exploration of feelings in the workplace. Be willing to ask people how they feel about an assigned project or goal and listen to their response. All behavior may not be acceptable, but all feelings are worth exploring. 2) Take time to facilitate the development of people's values at work — then help them align those values with their goals. It is impossible to link work to values if individuals don't know what their values are. 3) Connect people's work to a noble purpose.

If you really want the advantage of this new science — rather than focusing on a pyramid of needs — you should focus on: autonomy, relatedness, and competence. Unlike Maslow's needs, these three basic needs are not hierarchical or sequential. They are foundational to all human beings and our ability to flourish.

Competence is people's need to feel effective at meeting every-day challenges and opportunities, demonstrating skill over time, and feeling a sense of growth and

flourishing. Leaders can rekindle people's desire to grow and learn. To develop people's competence: 1) Make resources available for learning. What message does it send about values for learning and developing competence when training budgets are the first casualty of economic cutbacks? 2) Set learning goals — not just the traditional results-oriented and outcome goals. 3) At the end of each day, instead of asking, "What did you achieve today?" ask "What did you learn today? How did you grow today in ways that will help you and others tomorrow?"

Unlike Maslow's needs, these three basic needs are not hierarchical or sequential. They are [foundational to all human beings](#) and our ability to flourish.

The exciting message to leaders is that when the three basic psychological needs are satisfied in the workplace, people experience the day-to-day high-quality motivation that fuels employee work passion — and all the inherent benefits that come from actively engaged individuals at work. To take advantage of the science requires shifting your leadership focus from, "What can I give people to motivate them?" to "How can I facilitate people's satisfaction of autonomy, relatedness, and competence?"

Leaders have opportunities every day to integrate these motivational practices. For example, a leader I coach was about to launch a company-wide message to announce mandatory training on green solutions compliance. Ironically, his well-intentioned message dictated people's actions — undermining people's sense of autonomy and probably guaranteeing their defiance rather than compliance. His message didn't provide a values-based rationale or ask individuals to consider how their own values might be aligned to the initiative. After reconsidering his approach, he created this message embedded with ways for people to experience autonomy, relatedness, and competence: There are three ways you can share our commitment for implementing green solutions as an essential part of our Corporate Social Responsibility initiative.

- Join others who are passionate about reducing their carbon footprint for a fun and interactive training session on November 15. (Relatedness)
- Read the attached manifesto and take a quick quiz to see what you learned by November 18. (Competence)
- Send us your story about what you are doing at work to be environmentally responsible by November 14. (Autonomy, competence, and relatedness)
- You can choose any or all three options. (Autonomy) Let us know your preference(s) by email (Autonomy) by October 31 or stop by our table at the all-company Halloween party (Relatedness). If you choose to opt out of all three choices (Autonomy), please tell us what we can do to appeal more directly to your values around corporate social responsibility (Relatedness).

Don't underestimate your people's capacity — indeed, their longing — to experience high-quality motivation at work anytime and anywhere. **RF**



6 INSPIRING MANTRAS TO HELP YOU MASTER WORK-LIFE BALANCE

By Fred Mouawad
(mashable.com, December 2014)

As CEO of eight different companies, it's become a conscious decision for me to maintain a positive work-life balance. Over the last 20 years of entrepreneurship, I've learned that the key to maintaining this balance is managing my time efficiently; to help myself and my fellow entrepreneurs achieve this, I created [Taskworld](#), an online task management program.

To further help balance work and my personal life, I abide by the following six mantras, which I encourage everyone to follow. These simple tips have helped me stay productive while still enjoying life to the fullest.

The right fit leads to the right balance

If you are looking for balance between your personal and professional life, the key lies in finding a job at a company and industry that fits your aspirations and skills. It's all about finding a profession your heart and mind wants to be involved with. If you are stuck in the wrong job, your time will be spent as a chore. Balance is achieved when you are happy about how you spend your hours; life is too short and hours too scarce not to follow your passion.

Staying longer at work doesn't necessarily earn you brownie points

Working hard and putting in long hours may be essential in certain industries. This is fine, as long as you are fulfilled and growing in the process. It becomes problematic when you do it and feel forced to be doing it, or if you're only putting in extra hours to impress your boss and colleagues. What ultimately matters is your output and overall performance; more time invested does not always equate to productivity. Be mindful of how you spend your time and always focus on results.

Don't try to lead a double life

The traditional concept of work-life balance has its share of flaws. Your work is an aspect of your life as a whole. Problems arise when you start treating work as an unwanted part of your time. The best way to avoid creating an issue is to not to have any distinction at all between "work time" and "personal time."

Look at your hours as a finite resource with a holistic view. You only have so many hours in a week, so figure out what you value in life and allocate them accordingly. Your calendar is a reflection of your values. If, for

example, you care about exercising, make sure you plan for your exercise time the same way you plan for business meetings. Always make sure you're spending the scarcest of your resource in ways that truly give you satisfaction and meaning.

The employee, not the employer, has the ultimate power

We are all masters of our destiny. The responsibility of having a balance in life rests more on the employee's shoulders than the employer's. Although some employers may be demanding, that doesn't mean they control your personal time. The power is in your hands; you either take control of your time or let others do it for you. It's your choice.

Always make sure you're spending the scarcest of your resource in ways that truly give you satisfaction and meaning.

Understand the root of procrastination

Procrastination by definition is the act of postponing important tasks to do less important or unimportant tasks. Procrastination occurs when you lack one or more of these factors: will, discipline and energy. Lack of will indicates your passion lies someplace else. Lack of discipline arises from misplaced priorities. When it comes to energy, it's all about managing it. Some people have more energy in the morning, some in the evening. Figure out the best time to allocate your tasks, then the best way. The key to fighting procrastination is to carefully plan for what you have to do, and then getting it done at that time.

Offer uncompromised quality

By being thoughtful about what you choose to do (or not to do), you can focus on quality at work. If you take on too much, quality will suffer. Have a good sense of the capacity you have and gauge it so you get more out of your time spent. A good way to measure this is thinking about what you can do with 20% of your time to have 80% impact on your life. Not all work is equal. Delegate or eliminate what doesn't add much value.

While work holds penultimate importance in my life, I've also made a conscious choice to make room for hobbies and personal time. Seeing my children in the morning, family dinners; these are the things that are extremely important to me, and the reason I've created a how-to for a better work-life balance. **RF**

Note - All credit goes to the particular author and/or publication of the articles shared in this publication.

Result focused logistics and supply chain advisory services

By Anton Nieuwoudt / Niels Rudolph

dasRESULTAT is a results focused logistics and supply chain management advisory company with greater than 30 years combined experience in various functional areas of logistics and supply chain management across diverse industries.

Our primary objective is to support our clients to reduce operational costs and increase their service offering to their clients through optimising their supply chain, by offering a wide range of services based on our own practical experience.

Leadership

dasRESULTAT stands under joint leadership of Anton Nieuwoudt and Niels Rudolph.

Anton has close to 15 years experience in logistics- and supply chain management across various industries.

Prior to co-founding dasRESULTAT as a boutique logistics and supply chain advisory company, Anton was at Accenture where he was involved in various projects in the Retail, Mining, FMCG and Energy sectors. Here he was able to expand and apply his fulfillment, supply chain management, supplier management, project management and business consulting expertise.

At DB Schenker, Anton gained experience in integrated logistics management, spare parts logistics as well as inbound- and outbound logistics solution implementation.

Anton holds a Bachelors degree in Marketing from the Rand Afrikaans University and a Masters degree in Logistics Management from the University of Johannesburg.

Niels has more than 20 years experience in logistics- and supply chain management mainly within the 3PL industry.

Prior to co-founding dasRESULTAT as a boutique logistics and supply chain advisory company Niels founded ORAscm as a specialised logistics consultancy company. He also worked at DB Schenker and PriceWaterhouseCoopers in Germany as a project consultant.

Niels spent the largest part of his career at DB Schenker in various roles in Germany, Singapore, Malaysia and South Africa. During his last role at DB Schenker in South Africa, Niels was responsible for logistics development, reporting directly to the CEO. Here he applied and expanded his knowledge to develop logistics solutions across the local automotive, high-tech and retail industries.

Niels holds a Diplom Betriebswirt (BA) from Staatliche Berufsakademie, Mannheim (Germany).

Functional experience

Our functional experience include among others warehouse design & management, transportation management, inventory management, demand planning, supply planning, supply chain planning, supplier relationship management and project management.

Industry exposure

We have had exposure to industries such as retail, automotive, consumer goods and services, petrochemical, mining and defense aerospace.

Core offerings

Through our core offerings we can support our clients to achieve strategic, tactical and operational results. These offerings cover areas such as Strategic Supply Chain Planning, Fulfillment, Sourcing & Procurement, and Project Execution.

Significance

Through our part-time lecturing commitments to the University of Johannesburg we continue to be actively involved in tertiary education and student mentoring programs to encourage excellence in up-and-coming supply chain professionals.

Credentials

Since founding the company in the fourth quarter of 2012 we've been involved in various engagements.

Our primary engagement in 2013 has been with a leading global third party logistics company. Here we've been instrumental in the turn-around of their contract logistics department, transportation management strategy and operating model design, Africa business development strategy, and procurement strategy development.

Secondary engagements during our first year of operations included a warehouse performance assessment at the Cape Town operations of a global apparel company, supporting a logistics service transition at a German automotive manufacturer, and providing warehouse implementation support for an agricultural equipment manufacturer.

We continue to support a transportation consulting company with project management and subject matter advisory at a South African FMCG company. With this client we have since May 2014 also embarked on a journey to evaluate and redesign their Import-Export service provider landscape which has flowed into a full blown group level RFQ process for carrier and clearing services. Along with the client we were able to unlock an overall 15% saving in their annual freight spend and associated landside and finance charges.

At a KZN based manufacturer of engineered wood products, we continue to provide subject matter support for various logistics cost saving and process efficiency improvement initiatives. **RF**

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dasRESULTAT is a result focused logistics and supply chain management advisory company.

We partner with our clients to identify and unlock practical and sustainable supply chain solutions.



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