

# RESULTFOCUSED

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## IN ISOLATION

By Anton Nieuwoudt

In his book, *A Brief History of Time*, Steven Hawking notes that it turns out to be very difficult to devise a single theory to describe a complex problem consisting of various partial theories. If these theories are interdependent "...it might be impossible to get close to a full solution by investigating parts of the problem in isolation."

A case in point, from an automotive perspective, is the recent challenge BMW North America (BMW NA) is facing according to [Road and Track Magazine](#). BMW NA has identified a number of components on their N63 twin-turbo V8 engine with a high failure rate. An unlikely item is the batteries which are now being replaced at 10,000 mile intervals. This is due to high engine temperatures that requires additional cooling after the engine has been switched off, thereby draining the battery. The simple solution would be to simply reprogram the engine management system to keep the battery's state of charge at a higher level. But in modern cars, everything affects something else, often in the most

unlikely of ways. Charging the battery more often would affect fuel economy, which would require BMW NA to re-certify the cars with the US Environmental Protection Agency. The revised mpg numbers would inevitably be lower than the ones advertised. Hello, class-action lawsuit.

In logistics- and supply chain management, the total cost concept rings very true as an accurate example of how different functional activities and their associated cost elements are interdependent. When considering logistics cost optimisation, management should strive to optimise the total cost of logistics rather than the cost of each activity in isolation. Attempts to reduce the cost of individual activities may lead to increased total cost. In other words, effective management and real cost savings can only be accomplished by viewing logistics as an integrated system while considering the impact upon the company's customer service objectives which are guided by its marketing strategy.

A recent project experience has showed us again just how interdependent the various functions in modern logistics systems are, by highlighting how projected freight cost savings can be diminished when costs such as inventory carrying costs, warehouse costs and haulage costs are not taken into consideration and managed within the total cost of moving the goods. I urge you to consider this principle when embarking on future optimisation initiatives.

In his issue of *RESULTFOCUSED* you can read among others, about Walmart's new drive for a greener supply chain, three supply chain challenges for the Apple Watch, the top 12 supply chain innovations of all time according to SC Digest magazine, the importance of an information strategy in the supply chain, and the first road-legal big rig that can drive itself.

"If isolation tempers the strong, it is the stumbling-block of the uncertain." - Paul Cezanne



## FROM EVERY DAY LOW PRICES TO CHANGING THE WORLD

By Editorial Staff  
(scdigest.com, March 2015)

Walmart, the world's largest corporation, is fresh out with its 2015 sustainability report, the eighth such document it has produced.

The 2015 document is quite remarkable, with Walmart more aggressively than ever redefining its corporate mission from delivering quality products at everyday low prices to making the world itself a better place, in almost missionary terms.

"For years we've also been thinking in broader terms about what an item actually costs society to produce and deliver - from the bottom to the top of the supply chain - the "true" cost of a product." Walmart states early on. "The net true cost considers issues such as waste-to-landfill, greenhouse gas emissions, economic mobility, worker safety and food safety. These are all examples of the effects production may have on the environment, in local communities, or on the people who grow and make what we sell." It adds: "We believe a business should strive for not just the lowest prices, but the lowest true cost for all. Low prices benefit customers, but low true costs benefit everyone."

The document is actually titled the "Walmart Global Responsibility Report," which by itself may give some indication of its tone, but the 2014 version - the first under current CEO Doug McMillon - was not nearly as in your face about Walmart's zeal to remake the world as the 2015 report is. "In addition to tackling social and environmental issues in our own operations, we need to actively engage in and reshape the systems in which we work," it says.

As an example of this change in tone for 2015, Walmart says one of its missions is to create "economic opportunity for our associates, suppliers and people who work in retail and retail supply chains beyond Walmart." Yes, Walmart now is taking on the task of improving the lives of retail workers generally, whether or not they are employed at Walmart or some other chain. It says it will do that by "clarifying retail career paths, better pre-employment training, more innovative and relevant on-the-job and supplemental training and credentials that employers will accept for advancement." Note that statement references "employers," not Walmart specifically.

This is some pretty deep stuff, and may have long term business and social ramifications, not only in the US but maybe even across the globe. Another quote: "In everything we do, we set bold aspirations for social and environmental

outcomes. We seek to change the way the retail industry operates so that the improvements go beyond Walmart and are lasting."

So we now have the truly social enterprise, from the company that was once at the top of the blacklist for social progressives - what a change. This is obviously going much further than the environmental focus that first pushed Walmart in this direction. Can it pull it off? Can Walmart do all this and keep its price advantages in the marketplace, if it starts focusing on what it views as true social costs?

Walmart is addressing the growing concern over retail associates generally not getting sufficient hours, or having their schedules jerked around by last minute call-ins or cancelations of shifts, driven by workforce management systems that react to what is happening in-store right now.

Those of course will be among the key questions, in this remarkable change in direction for the company over the past few years generally and even more so with this 2015 report. Just a few years ago, the main focus was on keeping shelves stocked with Tide at a market leading price. Now, it's to save the world.

On the employee side, Walmart famously announced plans last year to move associate pay up to a minimum of \$9.00 per hour immediately, and then to \$10.00 in 2016. It is also increasing minimum department management pay from \$13.00 per hour to \$15.00 per hour.

Walmart is also addressing the growing concern over retail associates generally not getting sufficient hours, or having their schedules jerked around by last minute call-ins or cancelations of shifts, driven by

workforce management systems that react to what is happening in-store right now. New York state just announced an investigation into this issue across 13 retail store chains. Walmart says in the report that "associates in the US can see schedules two and-a-half weeks in advance, well above the standard in the retail industry." It also says that it is piloting a program called Scheduling Choice that will help coordinate fixed shifts for associates who want stability. These associates will work the same hours each week, giving them a predictable paycheck and allowing them to plan their lives around work.

So this is the new, new Walmart. Wow. It will certainly place pressure on other major retailers to adopt similar policies.

We could be at an inflection point in the global supply chain. **RF**



## THREE SUPPLY CHAIN CHALLENGES FOR THE APPLE WATCH

By Mickey North Rizza  
(supplymanagement.com, May 2015)

On 9 March, Apple opened up the gates to the Yerba Buena Center in San Francisco, California, to announce what may have been the worst-kept secret in tech history: the Apple Watch.

With typical Apple flair, the company walked through the features, benefits and different models – including a gold edition for a whopping £8,000.

The Apple Watch is a revolutionary and high-profile item, and undoubtedly the world will be scrutinising the company's every move up to the launch and even after. Luckily, Apple is smart, and has perfected its supplier development activities in the APAC region. However, creating a completely new product comes with its own set of challenges. There are no standard configurations to work from and no competitors to mimic. The stakes are high, and Apple will have to do everything in its power to make this as smooth a launch as possible.

Apple is working hand in hand with new suppliers, including its tier-one suppliers and beyond, to make sure all aspects of product development and the supply chain run smoothly. It is vital to have full visibility into what suppliers are doing, and any potential challenges they may run into.

Here are three supply chain challenges Apple is likely to encounter when producing the new Apple Watch.

**Supply constraints**

Creating a brand new product means Apple will be sourcing new materials or parts. Often, because suppliers are inexperienced working with that particular material or part, constraints appear at some point in the supply chain. If they are unable to fulfil orders at the capacity and speed that Apple needs, manufacturing could slow and create delays. Leveraging supplier relationship technology can help Apple keep tabs on the production and yield rates, delivery performance, compliance factors and the unique risks that each supplier may face.

**Lack of employee training**

Sourcing new parts and materials requires suppliers to train their employees on how to handle them. Without proper training and development, the Apple supply chain team may see severe delays in production. It's up to Apple to work with their suppliers directly, and get on the factory floors in order to assess the quality of work being produced. Helping suppliers with training and process improvement can help Apple to see product quality at the level and volumes that they expect.

**Initial low volume production**

We've all heard the description of something working 'like a well-oiled machine'. Manufacturing the Apple Watch will be the exact opposite. Kinks and issues are bound to arise due to the fact that this is a new product. As suppliers ramp up from pilot to production quantities, they may find that certain components have supply issues. It's possible Apple expects this, given it is choosing to release the product in the spring rather than at Christmas time. They are most likely testing the market now, in order to identify where there are potential development and supply chain issues and how they can increase the volume of throughput by November.

Apple is working hand-in-hand with new suppliers to make sure all aspects of product development and the supply chain run smoothly.

Apple has done a tremendous job of generating interest around the Apple Watch. Now we'll just have to wait and see if they can overcome the challenges new product development brings, in order to meet the high demand of consumers. Of course, if history repeats itself, the Apple marketing machine will undoubtedly use short supply to drive demand, but if they can't get it up and running by this autumn – patience and demand just might start to dwindle. **RF**



**THE TOP DOZEN  
SUPPLY CHAIN  
INNOVATIONS OF ALL  
TIME**

By Dan Glimore  
(scdigest.com, April 2015)

Supply chain innovation is an important topic right now, for a variety of reasons.

First, CEOs across the globe are putting innovation as the top or near top priority for the companies they run. It's pretty simple why: innovation is what drives the growth and attractive margins. Supply chain in turn obviously has a key role to play in overall corporate/product innovation. This is perhaps most manifestly seen right now in the Internet of Things and how industrial companies especially are currently or prospectively leveraging IoT to create new products and services.

So, supply chains need to both support product innovation, while also innovating in its own domain. But I would argue that supply chain innovation is not well understood. Certainly we don't have any good ways to measure it.

I have been doing some light collaboration on supply chain innovation with Dr. Jim Rice of MIT, who has also been researching this topic. MIT in fact has something it calls the Forum for Supply Chain Innovation, which is doing research in this area, among other activities.

Hope to have something more to share from the two of us soon on this, but there are a number of issues to be explored, from defining supply chain innovation, to measuring it, to the difference between innovation and continuous improvement and many more.

I am quite excited to be working on these types of questions, which I think will be good for the industry if we can wrestle some of them to the ground.

As some readers may remember, back in 2010 I came up with the top 10 supply chain innovations of all-time. Given my focus on this topic here in 2015, I thought it would be appropriate to repost that list, which I think is a good one. But too add some new value I decided to add two innovations to make it an

even dozen.

I will note Rice used my list during his own excellent presentation on supply chain innovation at the MHI annual conference last October.

It was difficult to create this list, because many innovations either have no clear origins or came from a sort of a combined evolution along a number of fronts. This is especially true in terms of much supply chain technology innovation.

So then as now, I was looking for: a) Innovation for which we can identify pretty clearly that some single company or individual(s) was/were responsible for the breakthrough - though of course everything builds off the past, and b) The innovation had a deep and lasting impact on supply chain practice

That said, here is the expanded list, in reverse order:

**No. 12: The First True Network Optimisation System**

While there were a few very primitive single commodity network optimisation attempts by various academics that were not of much value, the first true "multi-product" network optimisation tool was developed by Dr. Arthur Geoffrion and Dr. Glenn Graves, both of UCLA, in 1972. It was formally reported in the literature in a seminal work that appeared in the Management Science journal in 1974. That article is studied by many OR students even today. The network analysed was that of Hunt-Wesson Foods. Geoffrion and Graves became two of the five co-founders of Insight, which still does this kind of work today, and really created the network optimisation industry.

**No. 11: The Kiva Robotic Picking System**

The idea for the orange AGV-like robots that bring inventory to order pickers was first conceived in 2003 by CEO Mick Mountz, and with the help of some MIT professors Kiva brought the technology to market less than two-years later. In 2012, Amazon spent an amazing \$775 million to acquire Kiva - a small company at the time - which is one measure of the system's value, as Amazon now keeps the technology to itself and eventually into dozens of its fulfillment centers. This was true innovation, and has ushered in the "goods to picker" concept that is now so prominent in materials handling circles.

**No. 10: Taylorism**

In the late 1800s, the great Frederick Taylor takes the first scientific approach to manufacturing. In the early 1880s, he invents the concepts of using time studies on the factory floor, and based on that work, the notion of "standard times" for getting specific tasks done. Later develops the concept of incentive systems and piece-rate pay plans. Taylor's ideas were simply seminal - and often controversial - and dramatically influenced the practice of manufacturing over the next few decades and even to this very day.

**No. 9: 3M's Transportation Load Control Center**

In 1982, 3M, like every other company, had to leave transportation decisions to each plant and distribution center. Roy Mayeske, at that time the Executive Director of 3M Transportation, had the idea to centralise transportation planning to look for network synergies. 3M took mainframe software that had been developed for Schneider National - one of its major carriers - and had it modified it to be workable from a shipper perspective. Ship sites called in planned shipments, and then carriers and routings were phoned back. The LCC is now of course a standard logistics practice today.

**No. 8: Distribution Requirements Planning (DRP)**

In the late 1970s, Andre Martin ran operations for Abbott Labs Canada, and found himself caught between manufacturing and distribution managers, who could never seem to get inventory questions right and always blamed each other. Realising that what was needed was a sort of Manufacturing Resources Planning for inventory distribution, Martin led a successful effort to build the first computerised DRP system, which in turn led to a book that created the software category of DRP, as several technology firms built products based on these ideas. Was in many way the start of today's supply chain planning software industry.

**No. 7: The FedEx Tracking System**

After re-inventing the category of express parcel shipments, FedEx went a step further in the mid-1980s with its development of a new computerised tracking system that provided near real-time information about package delivery. Outfitting drivers with small handheld computers for scanning pick-ups and deliveries, a shipment's status was available end-to-end. The FedEx system really drove the idea that "information was as important as the package itself," and was foundation of our current supply chain visibility systems and concepts.

**No. 6: The Universal Product Code**

Though the idea to use some form of printed and even wireless automatic product identification had been around for decades, lack of standards had precluded individual ideas from gaining any sort of critical mass. In 1970, a company called Logicon wrote a standard for something close to what became known as the Universal Product Code (UPC) to identify via a bar code a specific SKU, an effort that was finalised a few years later by George Laurer at IBM. The first implementation of the UPC was in 1974 at a Marsh's supermarket in Troy, OH north of Dayton. The invention triggered the auto ID movement, forever changing supply chain practice and information flow.

**No. 5: The Ford Assembly Line**

Henry Ford actually got the idea for the assembly line approach from the flow

systems of meat packing operations in the Midwest, but it was Ford's adoption of the production approach with a continuously moving line for Model T's in 1913 that revolutionised not only automobile assembly but took the practice of manufacturing to new levels in other sectors as well. Total time of assembly for a single car using the production line fell from 12.5 labor hours to 93 labor minutes, ultimately making cars affordable for the masses, changing not only supply chain but society.

**No. 4: Economic Order Quantity (EOQ)**

Economic Order Quantity is a mathematical approach for determining the financially optimal amount of product to order from suppliers based on inventory holding

costs and ordering costs. The original concept is generally credited to Ford Whitman Harris, a Westinghouse engineer, from an article in 1913, but it was a much later article in the Harvard Business Review in 1934 by RH Wilson that made EOQ mainstream. The formulas are still taught today, and the basis for much supply chain decision-making even in this era.

**No. 3: The Ocean Shipping Container**

It is hard to imagine today, but until the mid-1950s, there was no standard way to ship products on ocean carriers, and most were shipped on whatever container or platform the producing company deemed best. The result was terribly inefficient handling on both sides of the equation, poor space utilisation on the cargo ships, freight damage, and high logistics costs. Enter Malcom McLean, legendary logistics entrepreneur and visionary who invented the standard steel shipping container first implemented in 1956 at the port of New Jersey. Someone would have thought of it eventually, but McLean's invention started the explosion in global trade.

**No. 2: P&G's Continuous Replenishment**

Until 1987 or so, order patterns in the consumer goods supply chain were almost totally dependent on whatever the manufacturer's sales person and retail buyer decided between them. That's until Procter & Gamble bought a mainframe application from IBM for "continuous replenishment" (which had been deployed a handful of times in other markets), re-wrote it for consumer goods to retail, and as a result dramatically changed that entire value chain by driving orders based on DC withdrawals and sales data.

P&G first implemented the approach with Schnuck's Markets in St. Louis, with dramatic results in both lowering inventories while increasing in-stock at retail. KMart was next, taking pipeline diaper inventories from two months to two weeks - but KMart never completely embraced the possibilities. A legendary 1988 meeting between P&G's CEO and Sam Walton led to a CR program there and changed supply chain history, helping propel Wal-Mart to retail dominance and providing the foundation for Efficient Consumer Response (ECR), Category Management, Continuous Planning, Forecasting and Replenishment (CPFR), and more.

**No. 1: The Toyota Production System**

When James Womack and several co-authors wrote "The Machine that Changed the World" in 1990, it was of course not a Toyota car that had such an impact, but rather the Toyota Production System (TPS) that was the foundation of the company's dramatic success across the globe.

Pioneered by Toyota's Taiichi Ohno and a few colleagues, TPS not only is the foundation for today's Lean manufacturing and supply chain practices, but the concepts have penetrated versus every area business. TPS truly did change the world. *RF*

So, supply chains need to both support product innovation, while also innovating in its own domain. But I would argue that supply chain innovation is not well understood. Certainly we don't have any good ways to measure it.



## NEW CHIPLESS RFID TAG COULD TRANSFORM THE INDUSTRY

By Editorial Staff  
(scdigest.com, April 2015)

Are so-called "chipless" RFID tags soon to be the next big thing in the auto ID sector, to the extent of replacing the long-familiar bar code on consumer goods products sold at retail?

Maybe so, according to research coming out of Monash University in Australia this week.

First, some background. The ability to create RFID data storage and antenna through some kind of "printing" process has long been a sort of Holy Grail in the RFID industry. That's in part because for all the talk early on about the "five-cent RFID tag" as being a catalyst for the technology to explode, the reality is that many applications cannot be justified at even a nickel per chip. Consumer goods to retail is the most prominent example of that reality, for which the familiar GTIN code (formally the UPC) printed on a package, label or tag is virtually free. That's a lot less than five cents.

Barcodes on packaged goods could soon be a thing of the past with the rapid expansion of chipless tags, and Monash University researchers are at the forefront of developing this technology, it was announced this week.

RFID tags that do not contain a silicon chip are called chipless tags, naturally enough. The potential promise of these chipless tags is that they could be printed directly on products and packaging for 0.1 cents and "replace ten trillion barcodes yearly with something far more versatile and reliable," say the researchers at IDTechEx.

There are many potential RFID applications that could result in tens of trillions of tags deployed, IDTechEx adds, but which cannot even be justified with a tag that even costs just one penny.

RFID technology companies have been chasing printable RFID tags for more than 15 years. Motorola, for example, announced in the late 1990s a technology it called BiStatix, which at the time it said involved "chip attached to an antenna that is printed in carbon ink and affixed to a label."

But Motorola never released a BiStatix product. It sold off some of the technology

rights to another company in 2004, and from there the trail seems to end.

But that of course doesn't mean many others have been chasing the printable RFID dream.

That includes a research team at Australia's Monash University, led by Dr. Nemaï Karmakar, from the Department of Electrical and Computer Systems Engineering there. That team has been working on various chipless RFID tags for a number of years.

Now, the Monash team has developed fully printable tags for metals and liquids including water bottles and soft drinks cans. Until now, this hasn't been possible because the metal and liquids interfere with the RFID signal. Karmakar says the tags can be printed with an inkjet printer and can be read when they are attached to reflective surfaces such as metal cans and water bottles. Karmakar said he believes the team was the first to be to develop fully printable chipless RFID tags on paper and plastics - and the technology could revolutionise the multi-billion dollar RFID market.

Barcodes on packaged goods could soon be a thing of the past with the rapid expansion of chipless tags.

"The fact that chipless tags be printed directly on to products and packaging means they are far more reliable, smaller and cost effective than any other barcoding system," Karmakar says.

The Monash innovation is much smaller than any other commercially available chipless RFID tags, Karmakar says. However they can still store a high amount of data and information.

"The main challenge that we have overcome is to transfer the technology to paper and plastic while retaining the required printing resolution. It's very promising indeed in its ability to revolutionise the multi-billion dollar RFID market," Karmakar added.

The [Monash website](#) on chipless RFID notes, however, that dedicated reader is designed to read a specific chipless tag. Since the tag is fully dumb, and contains no intelligent chipset, the reader contains all signal processing and intelligence capabilities. Based on frequency, time and hybrid domain tag types, readers are designed. Conventional anti-collision and hand-shaking algorithms cannot be used in chipless tag systems. **RF**



## CAR BOOT DELIVERY TRIAL FOR AMAZON, AUDI AND DHL

By Staff  
(logisticsmanager.com, April 2015)

Amazon, DHL and Audi are to trial a service that allows car owners to use their vehicles as mobile delivery addresses for parcel shipment.

The trial, which will take place in Germany, follows several months of development. The order is placed on Amazon.de, and the parcel is transported by DHL and delivered to the boot of an Audi.

Using a smart phone app, the DHL delivery agent receives the exact location of the car as well as access to the vehicle's boot. After the delivery men have placed the item in the boot and closed its door, the car is then locked automatically. DHL receives confirmation via the app and the car owner is informed of via email.

Jürgen Gerdes, Board Member for the Post – eCommerce – Parcel division at Deutsche Post DHL Group, said: "This pilot project for car trunk delivery for private customers is unique in the German parcel industry; it demonstrates once again our market and innovation leadership as well as our commitment to parcel delivery services tailored more and more to the individual needs of our customers."

The order is placed on Amazon.de, and the parcel is transported by DHL and delivered to the boot of an Audi.

The three firms plan to conduct their joint pilot project over the course of several months in the greater Munich area, during time which selected customers will have the chance to test the service. Audi will register customers taking part in the early stage of the pilot. **RF**



## TOP-PERFORMING SUPPLY CHAINS: PHARMACEUTICAL COMPANIES

By Lora Cecere  
(supplychainquarterly.com, April 2015)

Supply chain excellence is not easy to define. At Supply Chain Insights, our goal was to do it in a meaningful and objective manner. After three years of research, in 2014 we developed the Supply Chain Index to quantify not just supply chain excellence but also supply chain improvement. We found that improvement (defined as the rate of change) when coupled with performance (current capabilities) and compared to a peer group was a good measurement of supply chain excellence.

To test the model, we studied balance sheet patterns for over 2,000 public companies and shared those results with over 150 executive teams. The metrics we selected are based on correlation to market capitalisation: growth, inventory turns, operating margin, and return on invested capital (ROIC). (For more details about the Supply Chain Index and its associated metrics, see "The Supply Chain Index: A new way to measure value" in the Q3/2014 issue of CSCMP's Supply Chain Quarterly.)

We believe supply chain excellence is based on the ability to improve that portfolio of metrics. To help the reader, we have applied the model to different industries; this article looks at progress in the pharmaceutical sector. Progress in driving supply chain excellence in this sector is stalled. The reason? With a growth agenda and intense investment in research and development (R&D), growing regulation, and the building of global capabilities, the last decade has been a time of change for the global pharmaceutical companies. Their progress has not been equal to that in the consumer goods or food and beverage industries. The many mergers and acquisitions among companies in this category have also slowed progress in achieving supply chain excellence.

With a focus on both performance and improvement, which company did best? In the pharmaceutical industry, it is tough to judge which company is the leader—that is, who has the best metrics. The company posting the best performance in the portfolio of metrics is AstraZeneca; however, the company is not improving (as measured by the Supply Chain Index for the two periods studied). The companies making the greatest

improvement are Biogen Idec and Novo Nordisk. Moreover, most companies in this sector are making progress on individual metrics, but not on the entire portfolio. Traditionally, supply chain performance has not been as strategically important in this high-margin sector as it has been in other industries. However, this is changing. With the slowing of growth and rising regulation, supply chain excellence matters more than ever.

To effectively respond to the many changes in their industry, pharmaceutical companies will need to build better end-to-end supply chains. But given their strong project-based and functionally "siloeed" culture, where will they find the capable and innovative supply chain talent to lead those efforts? The nuances of this industry run deep, and many individuals have failed in their attempt to make the career transition to pharmaceuticals from high-tech and consumer goods. There also is a shortage of mid-management global talent. For the leaders, the answer is to devote resources to building their talent pool. For the laggards, it will probably be a case of "too little, too late."

RF



## SUPPLY CHAIN TRANSFORMATION - THE IMPORTANT ELEMENT OF INFORMATION STRATEGY

By Bob Ferrari  
(kinexis.com, April 2015)

We often context and plan supply chain transformation initiatives under the three-pronged perspectives of People, Process and Technology enablers. I would urge transformation teams to seriously consider a fourth component, that being Information, including the velocity, context and clarity of information. While some may be of the mistaken belief that the element of Information is solely the perspective of IT, it is rather a jointly-owned, cross-functional element of transformation.

Across various industry supply chains, a lot of executive level visionary thought and leadership energy is becoming focused on supply chain transformation efforts, namely moving the needle towards more agile or resilient supply chain response capabilities. The reasons are many and varied. Today's

clock speed of rapid and continuous business change requires that industry supply chains be more agile and able to anticipate changes in customer, product, or fulfillment segment needs, quicker than competitors. The complexity and sheer speed of events occurring across the global supply chain implies an exceptions-based focus, allowing advanced technology to monitor and oversee day-to-day customer focused fulfillment. Having a bold vision to the end-state capabilities required across the value-chain is essential. With the increasing demands of online and omni-channel customer fulfillment, the end-state is often defined as the supply chain being more predictive and exceptions-driven in terms of response.

Many of today's industry supply chain and sales and operations planning (S&OP) teams however, find themselves drowning in too much data while lacking in important insights. Hence transformation efforts can start on the wrong footing.

While some may be of the mistaken belief that the element of information is solely the perspective of IT, it is rather a jointly-owned, cross-functional element of transformation.

The “Case-in-Point: Avaya’s Supply Chain Transformation” case study references the Value Pyramid, specifically the high value pyramid that inverts the paradigm of data and information to stress less time spent on low value and time-consuming data and information tasks and more time spent on higher value predictive and prescriptive analysis, capabilities and actions. As an example, less time and attention consumed in achieving forecast accuracy and more time allocated to sensing and predicting various demand patterns for products based on customer needs.

Achieving these transformative capabilities takes time and clear perspective, particularly the focus on information and planning competencies. Like the other components of transformation, the Information component requires cross-functional perspective not only including a close collaboration with IT support teams but a supply chain focus on the elements of analytics capabilities. Efforts include development and adherence to overall information architecture that umbrellas broader forms of information, both structured and unstructured in nature. It should include an outside-in information lens, with information streams tied to key business process streams. It implies not only accurate data, but data and information streams that feed higher levels of understanding as to why events are occurring and what events to anticipate.

Planning capabilities should be transformed from historic forecast-driven to more demand sensing and market intelligence driven, tying casual information data points into insights. As an example, consider how specific climatic weather patterns or events affect demand for products, either continuous or seasonal. What about demographics of a particular market tied to social media buying trends or customer responses to new products? Consider how related products have been trending and whether that has an effect on other specific products.

Information cannot solely be planning related, but needs to include broad elements of fulfillment execution. The implication is, of course, that rather than hierarchical planning and execution processes, the perspective turns to net-change continuous planning and execution capabilities supported by more advanced technology. Rather than the moniker of a “Big Data” approach, consider an emphasis on a smarter, more insightful data approach grounded in analytics- and insights-driven decision-making. These capabilities imply a singular streaming data and information model that feeds integrated business or sales and operations planning and decision-making needs over time. In supply chain transformation, the element of Information adds to the dimensions related to People. Do not neglect the skills impact implied with the transformation to more predictive, prescriptive or insights-driven value-chain response. It is a different mindset, one that is grounded in analytical thinking, comfort with advanced technology

and a deep knowledge of all of the various internal and externally focused processes that make-up the current or planned future value chain. Allow time for the organisation to mature or nurture these skills in incremental crawl, walk and finally run segments of maturity. **RF**



## THIS IS THE FIRST ROAD-LEGAL BIG RIG THAT CAN DRIVE ITSELF

By Sean O’Kane  
(theverge.com, May 2015)

Last night, atop the Hoover Dam, Freightliner unveiled the Inspiration Truck — a partially autonomous big rig that could save lives, mitigate driver fatigue and stress, and reduce CO2 emissions up to 5 percent. Daimler, which owns Freightliner, says it has done more than 10,000 miles of testing on the truck. And now it’s street-legal, having been officially granted one of Nevada’s “Autonomous Vehicle” license plates (the first for a commercial truck) by Nevada governor Brian Sandoval at a media event before the unveiling.

The Inspiration Truck and Daimler’s underlying “Highway Pilot” technology isn’t meant to replace truck drivers completely. Instead, it’s meant to solve the problem of fatigued driving, something that plagues truck drivers who have to pull long shifts. According to Daimler, 90 percent of truck crashes result from driver error, and in one out of every eight of those cases driver fatigue plays a role.

Dr. Wolfgang Bernhard, Daimler AG’s truck boss, says that the Inspiration Truck mitigates that problem significantly. At a media event before the unveiling, he spoke about how taking control away from drivers positively impacts their ability to focus for long periods of time. “We measured brain activity with or without autonomous function, and it clearly shows that driver drowsiness decreases by about 25 percent when the truck is operating in autonomous mode,” he said.

Daimler and Freightliner chose Nevada as the venue for the unveiling because the state was the first in the nation to put regulations in place that allow the testing of autonomous vehicles. (Three others and the District of Columbia have since followed.)

Nevada is also home to some of the first university curriculums dealing with autonomous vehicles, like the Nevada Advanced Autonomous Innovations Center found at the University of Nevada, Reno.

The Inspiration Truck is considered “level 3” on NHTSA’s [automation scale](#). That’s the second-highest level of automation — the same that Google’s self-driving cars currently operate on. It means that the vehicle is advanced enough to enable the driver to cede full control in certain traffic or environmental conditions. The driver can interrupt and regain control, but the vehicle should allow a “comfortable transition time.” As with other self-driving cars, that level of automation brings up a number of issues, some of which were discussed earlier in the day. A big one is liability — if the driver is ceding control to an automated system, where does the blame get placed if something goes wrong?

Bernhard compared it to the control a pilot has over a commercial airliner. “Technically speaking these vehicles are operating ‘partly automated,’” he said. “So [the driver] is still in charge of what happens. He’s responsible.”

Martin Daum, the president and CEO of Daimler Trucks, hedged on that answer slightly more, saying that liability is not a question for today, but for the future. “Certainly before it becomes mass production the liability question has to be discussed and has to be solved by the regulators,” Daum said. “Ultimately it’s the people — like with any law — it’s the people that decide and the industry has to follow.”

The Inspiration Truck and Daimler’s underlying “Highway Pilot” technology isn’t meant to replace truck drivers completely. Instead, it’s meant to solve the problem of fatigued driving, something that plagues truck drivers who have to pull long shifts.

Another big issue is whether the Inspiration Truck will need any additional infrastructure as its production scales up. Bernhard said no, and he and the company plan to show us what he means at a much more hands-on event later today. The only thing that can assist them right now are the white guidelines painted onto the roads, which he claims are “fully intact” or can be repaired at a low cost in many states. While

things like a broader infrastructure or vehicle-to-vehicle communication would bring additional benefits, the Inspiration Truck can operate at level 3 autonomy without any extra help. "That vehicle does not need any support other than nice white stripes," he said.

We saw another one of Daimler's divisions tease its own autonomous truck last October when Mercedes announced the "Future Truck 2025." According to Daimler, the "Highway Pilot" technology behind the Mercedes version is the same that powers the Inspiration Truck, though the designs are very different — the Future Truck 2025 is thoroughly conceptual and futuristic, while Freightliner's version looks like it could roll down the highway today. And, in fact, it did at the end of the media preview at Las Vegas Motor Speedway. With Bernhard at the wheel, he and Nevada's governor Brian Sandoval drove the truck right off the premises — though it's uncertain if they let the truck take over once they were on the road.

"Obviously there's some more testing we have to do," Bernhard said. "We have to see how this thing performs in the rain, the sun, cold days, or at subzero." That's something that Daimler will have to wait for, as other states could be slow to adapt the same self-driving-friendly regulation that Nevada already has. Bernhard also pointed out that just getting a "patchwork of states" on board won't help — particularly since big rigs often operate interstate — and as Daum sees it, state regulation is just the beginning. Federal regulation will be necessary before we see a fleet of Inspiration Trucks (or other trucks running Daimler's Highway Pilot technology) swarm the highways. **RF**



## MOORE'S LAW AND THE SUPPLY CHAIN

By Staff  
(scdigest.com, April 2015)

An important anniversary in the annals of technology occurred last week. On April 19, 1965 a young Gordon Moore first graphed the progress of technology improvement that would come to bear his name.

Moore observed 50 years ago that the performance (speed, price, size) of microchips regularly doubled every 18 months. Moore was working at chip maker Fairchild Semiconductor, still going strong all these years later, but of course he would later go on to co-found chip giant Intel.

Moore's initial plot later showed up in an article he wrote for Electronics magazine. And though he was not the only one at the time to make the same basic observation, a decade or so later the idea became known as "Moore's Law," perhaps the most famous concept in tech industry history.

In the image of the initial plot nearby, the progress looks like a nearly straight diagonal line. But that is because it is plotted as a logarithmic function. If it was plotted more conventionally, it would show what today would like slow progress in early years, and then explode upward in terms of processing power.

Many over the years have predicted the end of Moore's Law, as chip technology would eventually hit a wall. And indeed, the pace of progress in recent years has slowed by about half, meaning performance is improving roughly 50% every 18 months - still a pretty rapid pace.

Just as importantly, Moore's Law is being applied to other areas besides chip technology - basically anything "digital" or digital-like - from 3D printing to mapping the human genome.

SCDigest editor Dan Gilmore wrote the following in 2013, after hearing a presentation by famed technology inventor Ray Kurzweil after he gave a keynote presentation at the JDA Software user conference that year: "Digital genius and inventor Ray Kurzweil gave a keynote presentation on what the real ramifications are for the never-ending exponential growth of information-based technologies. When the project to map the human genome was only 1% complete in 7 years, for example, "linear" thinkers fretted about the slow pace. Kurzweil instead said "Great, we're almost done." Sure enough, the whole project was complete another 7 years later (1, 2, 4, 8, 16, etc.)," Gilmore wrote. He added: "Kurzweil says "3D digital printing for physical items will explode over the next decade - and that I know will deliver huge threats and opportunities for companies and their supply chains. Companies must pay attention to this starting immediately."

In addition to 3D printing, Moore's Law is driving many other areas that impact the supply chain. For example, chip advances are now allowing supply chain software companies to solve complex problems (e.g., forecasting every SKU at every retail store) that simply took too long to compute in the past.

The same level of new computing power will enable a new generation of "always on" or real-time planning environments.

And Moore's Law is powering the amazing rise of robots of all sorts in our supply chains - a development SCDigest believes most readers would agree is sure to expand. While there certainly have been advances in the physical capabilities and dexterity of these robots, the real progress is being made in data processing power and the real-time controls of these machines.

We are early in the robotic game - with the technology following Moore's Law, we can expect some mind-boggling advances in coming years.

Moore's Law is powering the amazing rise of robots of all sorts in our supply chains. Just as importantly, Moore's Law is being applied to other areas besides chip technology - basically anything "digital" or digital-like - from 3D printing to mapping the human genome.

Drones, Cloud computing, RFID, mobility, "Big Data" - these are just a few of the other supply chain-related areas impacted by Moore's Law.

Last week, Wall Street Journal writer Michael Malone says that "If some of the recent breakthroughs in atomic-level transistors, nanotechnology and biological computers prove fruitful, Moore's Law could again accelerate, or at least continue to rule, for decades to come. It now seems more likely than ever that a thousand years from now, what will be remembered most about our time will be its stunning efflorescence of innovation and entrepreneurship. By then Moore's Law will have become Moore's Era."

Fifty years later, Moore's Law is going strong - it has a will continue to revolutionise our lives and our supply chains. **RF**



## HOW EMOTIONAL INTELLIGENCE BECAME A KEY LEADERSHIP SKILL

By Andrea Ovans  
(hbr.org, April 2015)

Anyone trying to come up to speed on emotional intelligence would have a pretty easy time of it since the concept is remarkably recent, and its application to business newer still. The term was coined in 1990 in a research paper by two psychology professors, John D. Mayer of UNH and Peter Salovey of Yale. Some years later, Mayer defined it in HBR this way: “From a scientific (rather than a popular) standpoint, emotional intelligence is the ability to accurately perceive your own and others’ emotions; to understand the signals that emotions send about relationships; and to manage your own and others’ emotions. It doesn’t necessarily include the qualities (like optimism, initiative, and self-confidence) that some popular definitions ascribe to it.”

An understanding of what constitutes emotional intelligence is important not only because the capacity is so central to leadership but because people strong in some of its elements can be utterly lacking in others.

It took almost a decade after the term was coined for Rutgers psychologist Daniel Goleman to establish the importance of emotional intelligence to business leadership. In 1998, in what has become one of HBR’s most enduring articles, “What Makes a Leader,” he states unequivocally: “The most effective leaders are all alike in one crucial way: they all have a high degree of what has come to be known as emotional intelligence. It’s not that IQ and technical skills are

irrelevant. They do matter, but...they are the entry-level requirements for executive positions. My research, along with other recent studies, clearly shows that emotional intelligence is the sine qua non of leadership. Without it, a person can have the best training in the world, an incisive, analytical mind, and an endless supply of smart ideas, but he still won’t make a great leader.”

The article then goes on to introduce five components of emotional intelligence that allow individuals to recognise, connect with, and learn from their own and other people’s mental states:

- Self-awareness
- Self-regulation
- Motivation (defined as “a passion for work that goes beyond money and status”)
- Empathy for others
- Social skills, such as proficiency in managing relationships and building networks.

An understanding of what exactly constitutes emotional intelligence is important not only because the capacity is so central to leadership but because people strong in some of its elements can be utterly lacking in others, sometimes to disastrous effect. You can see Salovey, now Yale’s provost, making this point vividly in a talk he gave at a 2010 leadership conference in which he describes how a single picture (which we can’t even see) illustrates the remarkable disparity in the emotional intelligence of President Clinton, who was so remarkable in his empathy and yet so devoid of self-control.

In subsequent work, Goleman focuses more deeply on these various elements of emotional intelligence. In 2001, with Case Western Reserve professor Richard Boyatzis and U.Penn faculty member Annie McKee, he explored the contagious nature of emotions at work, and the link between leaders’ emotional states and their companies’ financial success in “Primal Leadership.” In 2008, in “Social Intelligence and the Biology of Leadership,” Goleman and Boyatzis take a closer look at the mechanisms of social intelligence (the wellsprings of empathy and social skills). And most recently, in “The Focused Leader,” Goleman applies advances in neuroscience research to explain how leaders can increase each element of emotional intelligence by understanding and improving the various ways they focus their attention, both expansively and narrowly.

It is perhaps an indication of how young this field is (or perhaps how fundamental Goleman’s typology is to it) that pretty much the entire canon of thinking on the subject in HBR also focuses on one or another of these elements of emotional intelligence as Goleman laid them out.

In “[Cultural Intelligence](#),” for instance, Elaine Mosakowski of the University of Colorado, Boulder, and LBS professor Christopher Earley take an in-depth look at one important social skill, the ability to adjust to different contexts, offering a diagnostic to help you gauge your abilities and a six-step

process for improving them. In “[Contextual Intelligence](#),” HBS professor Tarun Khanna examines how leaders develop what Goleman calls “cognitive empathy,” the aspect of social intelligence that “enables leaders to pick up implied norms and learn the unique mental models of a new culture.” In “[Emotional Agility](#),” consultants Susan David and Christina Conleton, focus on one aspect of self-regulation, detailing a process for recognising and rechanneling your negative emotions, an idea echoed in Kellogg school professor Leigh Thompson and U. Chicago behavioral science professor Tanya Menon’s approach to coping with [envy at work](#). And in “[Building the Emotional Intelligence of Groups](#),” Steven Wolff of Marist College, and another CWR professor, Vanessa Urch Druskat, examine how emotional intelligence is manifested in and strengthens teams.

The year that Mayer and Salovey coined the term emotional intelligence was the same year functional magnetic resonance imaging (fMRI) was invented, making it possible for the first time to see what was happening in the brain while it was in action. Goleman’s work is infused with these insights, and HBR has reported on the most surprising research in this area, particularly in the last five years:

- on the mechanisms of [charisma](#),
- on what’s happening at a physical level [when you understand what another person is saying](#),
- on when [emotional reasoning trumps IQ](#),
- (and conversely [when anger poisons decision making](#));
- on when [flattery works and when it doesn’t](#),
- and on the [merits of gossip](#) in fostering social networks.

And just this month, HBR’s editors reported on the [strong link between empathetic leaders and financial performance](#). Collectively they form an impressive and growing body of evidence suggesting the integrated nature of our rational and emotional selves and the impossibility and inadvisability of separating the two at work.

Still, it is sign that the field is reaching a certain level of maturity that we are beginning to see some counterarguments. Most notably, a Wharton professor, [Adam Grant](#), who in his own research has reported [a lack of correlation between scores on tests of emotional intelligence and business results](#). While Goleman and others [contest his methods](#), Mayer himself pointed out in 2002 HBR article that “emotional intelligence isn’t the only way to attain success as a leader. A brilliant strategist who can maximise profits may be able to hire and keep talented employees even if he or she doesn’t have strong personal connections with them.” But building those strong connections is still [probably a safer bet](#) than ignoring them. **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 Kwazulu-Natal based manufacturer of engineered wood products, we continue to provide subject matter support for various logistics cost saving and process efficiency improvement initiatives. **RF**

dasRESULTAT (Pty) Ltd.

PO Box 524  
Modderfontein  
Johannesburg  
Gauteng  
1609

dasRESULTAT is a results 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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[@resultfocused](https://twitter.com/resultfocused)

Anton Nieuwoudt  
[anton.nieuwoudt@dasresultat.com](mailto:anton.nieuwoudt@dasresultat.com)  
+27 82 495 3419



[za.linkedin.com/in/antonnieuwoudt/](http://za.linkedin.com/in/antonnieuwoudt/)

Niels Rudolph  
[niels.rudolph@dasresultat.com](mailto:niels.rudolph@dasresultat.com)  
+27 79 588 8098



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