



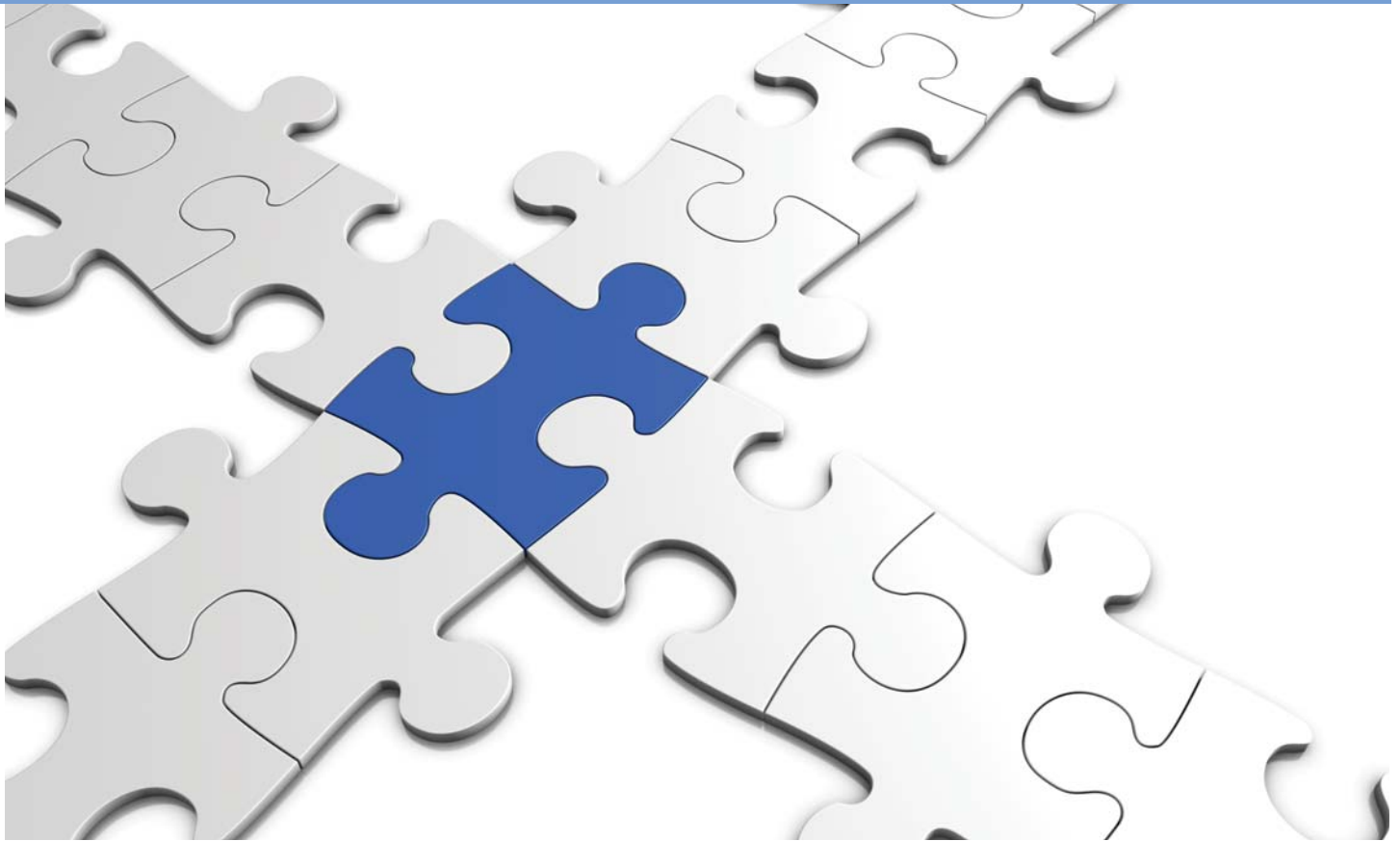
WIPRO
Applying Thought

Supply Chain Strategy For The Consumer Electronics Industry

FUTURE OF MANUFACTURING

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Overview: The \$ 1 Trillion Opportunity Amidst the Complexity in Consumer Electronics Manufacturing

The Consumer Electronics (CE) industry is amongst the most dynamic today. Products that did not exist until a decade ago have undergone rapid change, spawning an endless chain of innovations and new products. As an example, the iPod which was launched in October 2001 has completely transformed the way consumer electronic devices are designed, manufactured and used. Today, there is an amazing array of tablets, smart phones, 3-D TVs, cameras that project images and GPS devices in the market to fit every need and wallet. These devices are witnessing growing demand because they are changing the way people interact, consume entertainment, manage their finances and organize their lives.

Simultaneously, CE is witnessing unprecedented change from development in social media and digital content delivery. Users of social media and owners of digital content are driving the need for devices, defining factors that impact competitiveness and growth in the CE segment.

The CE industry is further being shaped by emerging sustainability concerns, regulatory pressure and the adoption of contract manufacturing, all of which have moved from discussion to reality in less than a decade.

Consumer demand for better and cheaper devices is shrinking product life cycles and leading to rapid obsolescence. New products are quickly finding their way into markets, increasing the velocity of promotional events and marketing activity.

If consumers were spoiled for choice before, today they are bewildered. This is apparent from the need for assistance from shopping tools such as comparative engines and social media recommendations.

Global retail sales of CE devices are projected to grow 10 percent in 2011 to reach \$964 billion, according to a forecast by analysts from the Consumer Electronics Association (CEA). Sales may even approach \$1 trillion say CEA analysts. For the CE industry, these are exciting times with abundant opportunities for growth if they can manage the increasing complexity in manufacturing.

To leverage the opportunities presented by the explosion in consumer demand, CE manufacturers need to tighten their forecasting, sourcing, distribution and inventory management strategies. But to succeed in the extremely competitive CE space manufacturers must bring a more refined and sophisticated approach to Supply Chain Management. Entirely new capabilities need to be built to understand consumer needs and respond to them even while retaining flexibility in production, distribution and logistics.

6 Supply Chain Challenges in the Future: The New Imperatives

CE is at a major inflection point in terms of product development and manufacturing. Traditional demand planning and supply chain planning are no more adequate to meet the challenges of the future. To manage the intense pressure from competition, shrinking margins and difficult-to-please consumers, CE manufacturers and OEMs need to create a supply chain roadmap that expands the scope and role of Supply Chain Management:

1. Supply Chain Collaboration: The trend to outsource non-core operations is growing along with vertical integration of core competencies. CE manufacturers and OEMs don't want to get locked down with assets and are outsourcing non-core operations that have led to the growth in manufacturing as a service. Core competencies in design and innovation that define differentiators are being retained as manufacturing gets commoditized. Simultaneously, collaboration with retailers has become critical. Increased collaboration and integration of data with retail stores in real time is gaining significance as a means to sense and shape demand.

2. Supply Chain Risk Management: Managing risks emerging from natural disasters and terror attacks as well as demand and supply risks is imperative. While today's globalized sourcing and manufacturing processes are driving down costs, they are increasing exposure to risk. CE manufacturers and OEMs will need to invest in data integration, business intelligence capabilities, KPI tracking ability for suppliers, event tracking capabilities, etc to ensure that they are pro-active rather than reactive and can respond to change swiftly. Supply Chain Models are maturing with sophisticated data capture, monitoring and analysis across the manufacturing chain to mitigate risk.

3. Supply Chain Planning: Across the CE industry, the time to respond to market demands and changes is shrinking. The viral effect of social media can create and destroy demand practically overnight. Manufacturers need to be agile and flexible, ready to expand and grow their supply and manufacturing networks in an environment that does not allow accurate

forecasting. On the demand side, manufacturers need to adopt an aggressive degree of collaboration with retailers so that they are better positioned to respond to changing demand.

4. Reverse Logistics & Sustainability: Rapid changes in technology are resulting in the growth of e-waste. With increased regulation around e-waste management, OEMs are being forced to undertake the responsible management of returns. Consumers too are demanding products that have a lowered packaging footprint, lowered use of hazardous material and safe product disposal guarantees as part of sales agreements. There is an economic opportunity in the recovery of components that the CE industry has sensed. The economic value of Reverse Logistics and Sustainability initiatives will create more stringent methods of evaluating vendors and suppliers.

5. Social Media: The growth of Social Media has impacted the way demand for Consumer Electronics is generated. It has also made it possible for manufacturers to monitor the demand, and use social media as a marketing and feedback channel. On the demand side Social Media has helped fuel demand in new markets and will play an increasingly critical role in supply chain management.

6. Digital Supply Chain: Digital content owners are driving the need for devices. Digital content delivered to smart phones, computers, tablets and TVs is shaping consumption and the demand for devices. The response from CE manufacturers to innovations in the delivery of digital content will decide competitiveness and growth.

Understanding the New Imperatives in Supply Chain Management

The changes sweeping CE manufacturing are vast. They call for a deep understanding of the events and issues around the change, enabling an appreciation for the maturity of supply chain management required in the immediate future. Each of the new imperatives is discussed in detail below, along with evidence to support the new trends along with a view of the shape of things to come.

Supply Chain Collaboration: Outsourcing of Non-Core Operations while Vertically Integrating Core Competencies

Evidence: Top AMR Supply Chain CE companies, Apple, HP and Dell are embracing Contract Manufacturing for their non-core operations to concentrate on design and sales. Lenovo increases outsourcing for notebooks from < 10% to 50

- 70%. Foxconn, the Taiwan based company specializing in manufacturing, assembly and after sales service for CEs, showed a revenue growth of 54% in 2010 (<http://www.businessinsider.com/foxconn-announces-on-year-revenue-growth-in-2010-2011-4>), confirming the trend to outsource non-core operations. While CE is poised for growth in 2011, the EMS and ODM segment saw a growth of 33.4% as per iSuppli Research (<http://www.isuppli.com/Manufacturing-and-Pricing/News/Pages/Electronics-Contract-Manufacturing-Market-Growth-Slows-in-2011.aspx>) in 2010 far outpacing the growth in CE which was a mere 132% as per CEA Analysts. (<http://www.eetimes.com/electronics-news/4211891/CEA-Consumer-electronics-sales-could-top-1-trillion>) On the other hand, Apple acquired Intrinsicity to enhance the performance of its mobile devices, clearly pointing to the need to grow vertical competencies and retain them.

We attribute the need for outsourcing of non-core operations and vertical integration of core competencies to:

- Rapid technology growth requiring complex manufacturing capabilities
- Shrinking Product Lifecycles that require faster Time to Market and therefore require CE brands to concentrate on design and sales
- Low cost manufacturing in third world countries
- Design Differentiators moving Upstream with "System on a Chip"
- Development of Rosettanet standards for Work order collaboration between Brand Owners and EMS / ODMs

Shape of Things to Come: While reliability and Quality of Service, the risk of non adherence to delivery schedules and the risk of non compliance to environmental regulations continue to be an inhibitor to outsourcing and contract manufacturing we can expect the following shape of things to come:

- Large brand owners will invest in core product manufacture and also vertically integrate / acquire certain semiconductor design houses
- Selection of contract manufacturers will become more stringent
- Brand owners will take control of raw material and supplier management
- Usage of RFID to track and control logistics from raw material to finished goods

- Corporate Social Responsibility will be a mandatory criteria for selection of subcontractors
- Control over digital content in the products will be maintained by the brand owner

Supply Chain Collaboration: Retail Integration

Evidence: The demand for new products like tablets and smart phones has grown despite the recession and largely cannibalized the demand for other products emphasizing the importance of collaborating with retailers to sense and shape demand. Panasonic improved its market share in the TV business by collaboration with Best Buy, Circuit City and Sams. Technological advances are enabling real-time collaboration with retailers through shelf-connected supply chains. Sony has embarked on a journey to enable shelf connected supply chains with Walmart for which it won the Walmart Supplier of the Year award.

We attribute the need for collaboration with retailers to:

- Short Product Lifecycles and New Product Demand
- Product proliferation as consumers demand new features
- Frequent promotional campaigns by retailers affecting consumer demand
- WorldWide Retail Exchange (WWRE) that provides easy collaboration of manufacturers with retailers

Shape of Things to Come: While tracking and analyzing highly granular data at the retail store level is a challenge, better computing power in the future will offset this inhibitor. However, in the area of retail collaboration we can expect the following shape of things to come:

- Shelf Connected Supply Chains to integrate the S&OP process of manufacturers with the CPFR & Category Management at the retailer end
- Advanced Demand Sensing models used to forecast short term demand trends
- Retail Event Collaboration to collaboratively plan product promotions based on supply availability at manufacturer's end
- Introduction of information kiosks in retail stores to take orders while fulfillment is through direct distribution to end consumer

Supply Chain Risk Management: Natural Disasters and Terrorism

Evidence: Japanese companies, Mitsubishi Gas Chemical and Hitachi Chemical, control about 90% of the market for a specialty resin used to bond parts of microchips that go in to smart phones and other devices. The factories of both companies were damaged in the quake in Japan in early 2011, causing a major disruption in chip supply for smart phone manufacturers. Shin-Etsu Chemical Co, the world's biggest producer of advanced silicon wafers, a key material needed for the producing semiconductors, saw heavy damage to its factory in the quake. The semi conductor industry was badly hit. A fire destroyed an electronics component plant of Phillips in New Mexico in 2000. This plant supplied both Nokia and Eriksson. Nokia reacted promptly, securing components from the market. Eriksson, on the other hand, was left with supply shortages which translated into direct lost sales estimated at \$390M. In the autumn of 2001, the 9/11 attacks and a series of typhoons severely disrupted air transport in the South-East Asian region. As a result, Compaq Computer Corp. failed to deliver 300,000 computers to their customers attributing to the company's \$150 million loss in the 3rd quarter of 2001. The 2003-04 outbreak of SARS caused supply disruption to the Taiwanese computer industry, as many leading Taiwanese companies had moved their assembly lines to China due to cheaper labor and production cost. There is a clear need for the creation of a supply chain risk management strategy, allowing CE manufacturers to respond to natural disasters.

We attribute the need for supply chain risk management to:

- Earthquakes, tsunamis, floods & hurricanes which are potential threats that have caused major disruptions to the supply chain of a globalized economy
- Accidents like fire or major electrical power outages in factories that cause adverse effects to the supply chain
- Acts of terrorism that are becoming a major threat and cause of disruptions to the supply chain

Shape of Things to Come: While natural disasters, wars, pandemics and acts of terror cannot be predicted or avoided, the CE industry has to seriously address mitigation strategies in the future. We can expect the following shape of things to come to mitigate risk:

- Sourcing critical parts from multiple suppliers, manufactured in multiple factories, located in multiple geographic regions
- Using widely-available, standard components instead of proprietary, custom-built parts
- Keeping excess manufacturing capacity in factories

- Designing and equipping factories to build a wide portfolio of products
- Using multiple modes of transportation and working with multiple logistics partners



Supply Chain Risk Management: Demand & Supply Risk

Evidence: In late summer 2004 Apple Computer Inc had to delay the launch of its new iMac due to the delay of the G5 chips (a core component) from IBM. This delay meant Apple Computer Inc missed at least part of the coming-back-to school sales with an estimated \$32 million loss in the US. A 72-day shutdown of LG Electronics' Changwon manufacturing plant in 1989 resulted in a \$750 million loss because of the disruption to their domestic and global distribution. The PC industry carried almost 12 weeks of inventory during recessionary times and this hit very hard in the wake of the prices erosion. (Journal of Operational Research Society, 2007) CE manufacturers will increasingly bring discipline to addressing the demand and supply side risks emerging in outsourced manufacturing models.

We attribute the need for demand and supply risk management to:

- Reduced demand during recessionary times or product obsolescence that causes excess capacities
- Single sourcing which is attractive for lower costs and economies of scale but which can be detrimental if the source is damaged
- Delays in material flows from suppliers which can cause ripple effects if a demand opportunity is missed
- Risk of excess inventories and obsolete inventories
- Changes in customer preferences
- Labor unions and strikes in factories that could result in supply shortage
- Risk to Intellectual Property

Shape of Things to Come: While vendor selection criteria become more stringent, the CE industry cannot completely insulate itself from demand and supply side risks associated with inventory and obsolescence. It must therefore seriously address mitigation strategies in the future. We can expect the following shape of things to come to mitigate risk:

- Investments in flexible capacity capable of manufacturing wide range of products
- Better tracking systems and supply chain visibility will be used to mitigate the risks from supply delays
- Usage of postponement strategies and assemble-to-order mode of fulfillment will be used to mitigate risk of inventory obsolescence
- Multi echelon inventory optimization systems will be used to plan optimal inventories to reduce risk of obsolescence
- Initiatives like "Voice of Customer" like those implemented by Dell will be used to track early customer preferences and design and market the products that the customer desires
- Employee relations and employment regulations will be strengthened to avoid supply risks due to strikes.

Supply Chain Planning: Demand Driven Supply Chains

Evidence: Dell has remodeled its supply chain from pure play configure-to-order to a segmented one based on the demand streams, namely Retail & Direct; and fulfillment modes, namely BTS, BTO & CTO. The entire Sales & Operations Planning process is segmented and geared up to cater to the diverse needs of each of these segments. After implementation of Demand Driven Supply Chain, Lenovo reported a 17% increase in sales, to nearly US\$16.4bn, and a 30% increase in gross margins, to nearly US\$2.5bn. Before it launched its demand-driven initiative, the percentage of Lenovo's desktop shipments, for example, was only hitting the eight-day target somewhere between 34% and 37%. Today, more than 70% of Lenovo desktop orders are filled within eight days (<http://www.unisys.com/unisys/ri/report/detail.jsp?id=1120000970000310351>). Flextronics has now put in place an online collaboration platform for its 2,500 suppliers in 32 countries where suppliers can view demand changes, adjust production plans, and share information about delivery dates and volumes. Demand driven supply chains are the solutions to tomorrow's chaotic CE markets.

We attribute the need for demand driven supply chain planning to:

- The fact that reaction time for companies to adjust to sudden changes in the market is continuously shrinking; reduced differentiation and constant new product introductions accentuate this problem.
- Social media that has fuelled an explosion in consumer data streams such as consumer reviews, competitive intelligence and similar product launches.
- Shrinking product lifecycles due to increased customer expectations and technology obsolescence.
- Forecast accuracy that is dropping due to product proliferation and due to cannibalization effect of new products.

Shape of Things to Come: Visibility to demand signals is crucial in today's rapidly changing CE industry. Demand signals need to be captured at a very granular level and communicated across the supply chain, OEMs, ODMs and ensure they develop rapid responses to fluctuations. We can expect the following shape of things to come:

- Supply chains will extend far beyond the core enterprise having myriad specialized trading partners working towards sets of common goals. Success or failure of this network of highly interdependent companies will be an outcome of how effectively trading partners, suppliers and others up and down the supply chain collaborate.
- Enabling global visibility across internal and external supply chains combined with proactive alerting will allow action teams to accurately align all supply and demand considerations based on exceptions.
- Driving the supply chain purely based on forecast will no longer be reliable. Real time demand sensing is required to drive the supply chain and adjust direction.
- Usage of RFID will proliferate to read and transmit demand signals closer to product consumption.



Reverse Logistics

Executives from Best Buy, Panasonic, Sony and Toshiba have helped launch an industry-wide initiative to recycle one billion pounds of electronics which would be a more than threefold increase over 2010. Apple introduced its aluminum PowerBook G4 in 2003, and followed this with aluminum unibody enclosure for the MacBook, MacBook Air and MacBook Pro. Aluminum is used in versions of the iPod, iPhone and iPad, and Apple recently said that the aluminum casing of the new iPad 2 is "highly desired by recyclers". In Switzerland, the first electronic waste recycling system was implemented in 1991, beginning with collection of old refrigerators; over the years, all other electric and electronic devices were gradually added to the system. The European Union implemented a similar system in February 2003, under the Waste Electrical and Electronic Equipment Directive. Federal body "United States Environmental Protection Agency" have regulations for recycling of CRTs and Circuit boards in the US. Several states in the US have instituted mandatory electronics recovery programs like the Electronic Waste Recycling Act in California which limits the amount of toxic substances in certain electronic products and establishes a funding system for the collection and recycling of discarded covered electronic devices. Panasonic Corporation of North America, Sharp Electronics Corporation and Toshiba America Consumer Products have established a new electronic product recycling management company, Electronic Manufacturers Recycling Management Company to provide a recycling service to electronics manufacturers. MRM has already entered into collection and recycling agreements with Hitachi Electronics, JVC, Mitsubishi, Philips, Pioneer and Sanyo. Some of the e-waste can be refurbished and sent to developing countries for resale. Many electronics companies are designing their products so that they can be disassembled easily. Dell already uses fewer screws in its computers so that they can be snapped apart easily. Aside from regulatory pressure, there is economic opportunity in reverse logistics that demands the CE industry address issues around retrieval, recycling and disposal of their products.

We attribute the growing importance of reverse logistics to:

- Rapid changes in technology, changes in media (tapes, software, MP3), falling prices, and planned obsolescence that are resulting in a fast-growing surplus of electronic waste around the globe.
- An estimated 50 million tons of e-waste is produced each year. The USA discards 30 mn computers each year and 100 mn phones are disposed off in Europe each year.
- The amount of e-waste being produced - including mobile phones and computers - could rise by as much as 500 % over the next decade in some countries such as India.

- Electrical waste contains hazardous but also valuable and scarce materials. Up to 60 elements can be found in complex electronics.

Shape of Things to Come: With growing concerns over the environment, companies stand a chance to differentiate themselves from competition by adopting reverse supply chains. Reverse supply chain strategies can also help reduce costs and improve recovery of residual value from returned products. We can expect the following shape of things to come:

- Reverse logistics and returns will become a necessary input to the demand management process
- Transforming high-tech service supply chain organizations into profit centers will be a game-changer for companies in this industry
- Technologies like RFID will be used to enable ease of reverse material identification and reuse
- Design of most electronic equipment will be made recycle friendly. Even raw material used in the electronic products will be made recycle friendly.
- Many of the returned items will be refurbished and sold in the second hand market through use of web auctions.

Sustainability and Green Supply Chain

Evidence: The 10 largest CE companies (by global revenue) donated \$882 mn, in both cash and products, to support activities that enhance local environments, social well-being, and/or economic development. U.S. sales of EPEAT-certified desktops, laptops, and displays grew nearly 10 percent in 2009, to a total of 48.5 million units. Currently, more than 27,000 consumer electronic product models meet ENERGY STAR specifications set by the EPA and Department of Energy. Dell set a GHG emissions reduction target of 40 percent by 2015 from a 2007 baseline. (<http://www.carbonfund.org/blog/news/consumer-electronics-trend-sustainability/>) Similarly, Sony, HP and Nokia have established goals to reduce its GHG emissions. AMD has set goals to cut its water consumption by a fifth by 2014. The race to achieve sustainability is earnestly on in the CE industry, with a direct impact on supply chain management.

We attribute the focus on sustainability and green supply chain to:

- Global warming concerns due to CO2 emissions and Ozone layer depletion.
- Fast depleting natural reserves of fossil fuels.
- Semiconductor manufacture which is the heart of all the consumer electronics leads to adverse environmental impact.

- Green building rating systems such as BREEAM (United Kingdom), LEED (United States and Canada), and CASBEE (Japan) help consumers determine a structure's level of environmental performance.
- Tax exemptions provided by countries for lowering the carbon footprint at an individual level has driven consumer demand towards energy efficient electronic products.
- CSR reporting has been made mandatory.
- Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) restricts the use of six hazardous materials like Lead, Mercury, Cadmium, etc in the manufacture of various types of electronic and electrical equipment.
- Internationally respected environmental audits have gained in importance, some of which include:
 - ISO 14001
 - Global Reporting Initiative (GRI) G3 guidelines
 - UN Global Compact
 - SA 8000, for social responsibility
 - Business Social Compliance Initiative's code of conduct
 - Electronics Industry Citizenship Coalition (EICC)

Shape of Things to Come: While many of the CE companies are adopting voluntary disclosures, the applications, tools and processes to measure and monitor carbon footprint, energy efficiency and waste management measures are improving. Both are encouraging developments that will enable better regulatory compliance when enforced. We can expect the following shape of things to come:

- Smart Electronic products utilizing Smart Grid applications geared to improve energy efficiency will flourish.
- Electronics design process will be largely impacted to create sustainable designs which can be easily recycled along with a reduction of hazardous material in the electronic products.
- Reporting of sustainability parameters will become mandatory and enforced with regulations.
- Usage of cloud computing services to reduce the energy used in infrastructure management.
- Just like financial accounting and reporting, accounting for environmental impact will become mandatory. Tax laws based on environmental impact will be enforced.
- Transition from printed media to digital marketing and usage of social media for marketing will gain in popularity.



Impact of Social Media

Evidence: International CES, the world's largest tradeshow for consumer technology, used Facebook, Twitter, Flickr and YouTube to spread the word that giveaways were on the go. Big brands like Sony, JVC & Sharp used various social media sites to promote their products and run contests during the show. Best Buy has twelpforce, a social space for their employees to tweet and blog customer support. HP's latest venture is 48Upper which is labeled as "the first Social Collaborative IT Management solution to fully embrace social networking and the power of the community directly within the processes that run IT." Panasonic uses Facebook and Twitter to connect with its customers and employees. Epson's social media campaign uses Facebook and Twitter. They created video campaigns on DailyMotion, Flickr, MegaVideo and YouTube featuring how-tos designed to get customers excited about the Epson brand. Social media is all pervasive and is today part of the CE product design, promotion and support landscape.

We attribute the interest in Social Media to:

- The fact that Social Media can extend a company's web presence far beyond the limits of its e-commerce, lead generation or information sites.
- The ability of Social Media to build awareness of products and brands by attraction rather than interruption, and by pulling rather than pushing. Consumers enjoy the discovery process and don't feel annoyed by it.
- The fact that it helps reach target markets that are difficult or expensive to reach using conventional means.

Shape of Things to Come: Social Media monitoring tools are improving and combined with social analytics, they are yielding actionable insights into consumer behavior, preferences and demands. We can expect the following shape of things to come:

- Social media like YouTube will be used to provide demand insights that can be used to improve performance as well as areas where companies can influence purchase decisions.

- Social media will be used for demand sensing driving the supply chain especially for new products.
- Social analytics will be used to get information on competition and tuning the supply chain to capitalize on weaknesses of the competition.

Digital Supply Chain

Evidence: By setting an embedded device with performance boundaries for components Diebold is notified when one of the ATM's electronic devices is at risk of failure, hence improving customer service. Sony, Toshiba, LG and others have complementary products and/or accessories that are timed to release with the GoogleTV software. Any delays will directly impact these supply chains. (<http://blogs.gartner.com/matthewdavis/2010/12/21/googletv-delay-implications-for-supply-chain-coopetition/>) The lead time to procure raw materials, manufacture and ship electronics is several months long and, once set in motion, very difficult and costly to slow down. Google TV provides remote control apps for your smart phone or iPad so that you can control the TV from those devices. Samsung with its Galaxy tablet, Dell with Streak and Apple with iPad have pioneered digital content delivery for mobile devices. Acer announced 3 new ventures Alive (the App store), Smartphone on Android Platform, Tablets on Honeycomb OS (Google's 3.0) platform. All leverage digital content availability.

We attribute the growth in digital supply chains to:

- Digital streaming technology that makes it possible to stream content anywhere, anytime.
- The market acceptance for enhancements in digital delivery and usage, including cloud computing and mobile phone applications.
- On-chip firmware that acts as a platform to support improved security and operability of consumer devices.
- Embedded software that enables manufacturers to manage capacity across networks.
- Remote diagnostics that can identify component issues before the user even knows there's a problem.
- Content download that can turn smart phones into media displays.
- More intelligence being built into electronic devices with concepts like "System on a chip".

Shape of Things to Come: The CE industry is evolving into more than a content delivery mechanism. We can expect the following shape of things to come:

- In the very near future, supply chain design and planning will have to incorporate content delivery as part of their planning processes in addition to the physical supply chain.
- With digital content being used, digital asset management and digital rights management will become critical.
- Digital content will become of commonplace use for all consumer electronics. Eg: Applications in the refrigerators which can take a photograph and transmit information about its contents to the mobile phone or tablet.
- In addition to business devices, consumer devices will come with embedded applications and software that will transmit the health of the appliance to the manufacturer who will then raise a service call for the same.



CEA: Consumer electronics sales could top \$1 trillion, 1 May 2011 - <http://www.eetimes.com/electronics-news/4211891/CEA--Consumer-electronics-sales-could-top--1-trillion>

Summary

The future of Supply Chain Management in CE is being driven by technological, social and environmental changes. The deeper concerns of business – compliance to regulatory norms, social responsibility, reducing exposure to business risk, response to growing competition, meeting consumer demands and shrinking product development cycles – will be addressed through more mature Supply Chain Management Models. It is not just efficiency and optimization of operations that Supply Chain Management of the future will address – it will likely make the difference between success and failure.

CEA: Consumer electronics sales could top \$1 trillion, 1 May 2011 -

<http://www.eetimes.com/electronics-news/4211891/CEA--Consumer-electronics-sales-could-top--1-trillion>



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