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GROUNDWOOD PAPERS

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HP recommends the ColorLok paper quality standard for LaserJet printers.

* Based on testing by Buyers Lab Inc., Aug 2010. For details www.buyerslab.com and www.hp.com/go/colorloklaserprinting. Tested papers that did not meet the ColorLok® quality standard were manufactured in Asia, are primarily sold in China and India today, and contained high percentages of abrasive, large particle fillers (ground calcium carbonate, talc). ColorLok® papers are validated for smoothness and low percentages of abrasive, large particle fillers.
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Cover image courtesy of Albany International.
Labor Day weekend for International Paper’s John Faraci and Temple-Inland’s Doyle Simons proved to be more than burgers on the grill and time off from work. As reported by Ernest Scheyder of Thomson Reuters, the chairman of their respective companies got together that weekend and hammered out a deal that calls for IP purchasing all of the outstanding common stock of Temple-Inland for $32.00 per share in cash ($3.7 billion), along with IP to assume $600 million in Temple-Inland’s debt.

Total value of the deal: $4.3 billion.

This whole thing began back in May when Faraci verbally tossed a deal to Simons, which was followed by a meeting and a couple of letters. At the time, IP was offering to buy all of Temple’s outstanding shares for $30.60 per share ($3.3 billion).

But, Simons and Temple’s Board on June 4 in writing flatly rejected IP’s proposal, basically stating, “...your unsolicited proposal grossly undervalues Temple-Inland and its future prospects.”

On July 12, IP cranked it up a notch and brought the deal directly to Temple’s shareholders announcing the start of a fully financed tender offer of $30.60 per share for Temple’s stock.

In an earnings call with analysts on July 28, Faraci reinforced his company’s stance on the deal by saying, “…we’re committed, we’re serious, we’re patient, we’re disciplined. If things change at some point in time, and we think the right thing for International Paper is to do something else, we’ll make that call. But we’re serious and we’re committed to this and we’ll be disciplined.”

I’ve had the opportunity to interview John Faraci twice in the past 5 years, and if I had only one word to describe him from a “doing-business” standpoint, it would be “focused.” He doesn’t offer speculative views and isn’t much into wishful thinking. Situations are what they are and plans are created to deal with them. He’s sort of the like Bill Belichick of the paper industry.

In an interview with FOX Business Network’s Ashley Webster, Faraci offered his thoughts on $3.7 billion purchase of Temple-Inland.

“We thought this was a good value at 32 dollars a share. This is a very compelling acquisition for International Paper. It will generate a lot of cash. The logic has always been there. This had to be a transaction that made sense for Temple shareholders and International Paper shareholders, and at the end of the day the boards of both companies concluded that it did.

“This is an investment in a business we are already in, and in a cost reduction opportunity to improve the efficiency of both businesses. I wouldn’t say it is a bullish bet on the economy but a realistic investment in a business that will enable us to be more successful going forward and withstand some of the competitive pressures that are there in a tough economic environment.”

The final sentence of his remarks is a great one and the reason IP has been so successful since John Faraci became its chairman and CEO in November 2003. He focuses on the things his company can do and, to a strong extent, control. In other words, IP can’t control the economy, but the economy won’t control IP.

The combination of IP and Temple-Inland would increase IP’s share of the North American corrugated-packaging market to about 40% from its current 27% (approx.). The deal is also expected to yield synergies of $300 million annually within 2 years of closing, which is expected in the first quarter of 2012.

“The world moves on and we’re committed, we’re serious, we’re patient, we’re disciplined.” — John Faraci, Q2 2011 earnings call.

Amen to that. ■
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**NORTH AMERICA**

**International Paper to Acquire Temple-Inland for $4.3 Billion**

International Paper and Temple-Inland Inc. on Sept. 6 announced that they have entered into a definitive merger agreement under which International Paper will acquire all of the outstanding common stock of Temple-Inland for $32.00 per share in cash, plus the assumption of $600 million in Temple-Inland’s year end debt. The value of the deal is approximately $4.3 billion.

International Paper Chairman and CEO John Faraci said, “The strategic benefits of this combination are clear and we are pleased to be able to move forward on terms that are financially attractive for both sets of shareholders,” said John Faraci, chairman and CEO of IP.

“Acquiring Temple-Inland enhances our ability to generate additional cash flow while maintaining our strong balance sheet. We look forward to working with the employees of Temple-Inland as we integrate our businesses and create an even stronger company with substantial benefits for our customers, employees and shareholders.”

Temple-Inland chairman and CEO, Doyle R. Simons, said, “This transaction creates value for both Temple-Inland and International Paper shareholders. The combined company will be positioned to be a leader in providing high quality products for its customers.”

According to IP, the combination is expected to yield synergies of approximately $300 million annually within 24 months of closing, derived primarily from the areas of operations, freight, logistics, selling expense and overhead. The companies have a shared focus on low-cost mills, complementary converting systems and high levels of box integration — Temple-Inland’s products and manufacturing facilities are an excellent strategic fit with International Paper’s current offerings and facilities.

As a result of the agreement, IP terminates its initial tender offer to acquire all of the outstanding common shares of Temple-Inland for $30.60 per share, and Temple-Inland will hold a special meeting of its stockholders to vote on the transaction.

In addition to the approval of Temple-Inland’s stockholders, the deal is subject to customary closing conditions, including antitrust approvals.

IP expects to close the deal in the first quarter of 2012.

**Groundbreaking for Cascades’ New Greenpac Containerboard Mill**

Cascades and its partners hosted the construction kick off in early September for the new Greenpac Mill LLC (Greenpac) containerboard mill, to be located in Niagara Falls in New York State.

The groundbreaking ceremony was held in the presence of Niagara Falls Mayor Paul Dyster, Regional President of the Empire State Development (ESD), Sam Hoyt, Cascades’ founders, Bernard, Laurent and Alain Lemaire, Marc-Andre Depin, President and CEO of Norampac, the three other project partners and numerous other guests.

Greenpac is a new corporation created through the efforts of Cascades with the Caisse de depot et placement du Quebec, Jamestown Container and Containerboard Partners. Its creation was also made possible thanks to the leadership of GE Capital, who structured a secured financing in the form of senior debt, through an international banking syndicate, Cascades said.

“Greenpac is the result of a close collaboration between Norampac and its partners, and its realization symbolizes the beginning of a new era for our company and our industry. Through Greenpac, Norampac will be able to offer high performance and innovative products which will better respond to the growing demand for lightweight packaging,” said Marc-Andre Depin.

The Greenpac mill will be constructed for a total cost of US$430 million on a property adjacent to an existing Norampac facility in Niagara Falls, New York.

When operational, the mill will manufacture a lightweight linerboard, made with 100% recycled fibers, on a single machine having a width of 328 inches (8.33 meters) and an annual production capacity of 540,000 short tons.

The paper machine will be manufactured by Metso, Voith will provide the stock preparation equipment and anaerobic effluent treatment plant, and Siemens will provide the power and control technology. MiniMill Technologies, Inc. (MMT) has been chosen to support Norampac and its partners in the project management.

Start-up is planned for the summer of 2013.
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NewPage Files for Creditor Protection

NewPage Corp. on Sept. 7 announced that its corporate parent, NewPage Group Inc., and certain of its U.S. subsidiaries filed voluntary cases under Chapter 11 of the United States Bankruptcy Code. The company’s Consolidated Water Power Company subsidiary is not part of the filing.

Separately, the company’s Canadian subsidiary, NewPage Port Hawkesbury Corp., has brought proceedings before the Supreme Court of Nova Scotia under the Companies’ Creditors Arrangement Act of Canada (CCAA).

NewPage said that it expects to work closely with its creditors and other stakeholders in the U.S. to formulate a Chapter 11 plan that details how it intends to satisfy its liabilities and restructure its balance sheet to emerge as a financially stronger company. The company expects to continue operating its U.S. businesses as usual throughout this process with an undiminished focus on providing customers with high-quality paper and employees with a stable and safe working environment.

To help ensure it has adequate liquidity to achieve these objectives and continue to operate and compete successfully throughout the restructuring, NewPage has obtained a commitment led by J.P. Morgan for up to $600 million in Debtor in Possession (DIP) financing.

“We strongly believe that the court-supervised restructuring we began today is the most effective means of strengthening our financial position and enhancing our standing as the leading producer of printing and specialty paper in North America,” said George F. Martin, president and CEO for NewPage.

“We expect to continue to run safe and efficient operations, be candid with all of our stakeholders and act as a responsible community member both during and after our financial restructuring,” Martin added.

In addition, NewPage Port Hawkesbury Corp. is in discussions with potential buyers and hopes to complete a successful sale of the mill while under the anticipated court protection.

In August, NewPage announced its plans to shutdown both of the mill’s paper machines indefinitely — PM1 on Sept. 10 (newsprint) and PM2 on Sept. 16 (supercalendered). However, the mill’s status is “hot idling”, or ready to restart on short notice.

Kruger Products to Install New Tissue Machine at Memphis Mill

Kruger Products L.P. (KPLP) announced that it will continue to expand its presence in the North American tissue market by implementing new state-of-the-art manufacturing equipment at its Memphis, Tennessee mill. The US$316 million investment will increase the company’s production capacity by 18 percent, or 60,000 metric tonnes per year of additional products to be distributed for the most part in U.S. markets.

“The proximity of our Memphis Mill to growing U.S. markets will further strengthen our competitive position in North America, which will benefit all our establishments in both Canada and the U.S.,” said Mario Gosselin, chief operating officer for Kruger Products L.P.

The project, which involves the investment of a new tissue machine and a state-of-the-art facility to accommodate this new asset, is partly financed by a US$211 million loan from the Caisse de depot et placement du Quebec, a leading Canadian institutional fund manager.

Domtar Acquires Attends Healthcare for $315 Million

Domtar has acquired privately-held Attends Healthcare, a manufacturer and supplier of incontinence products, from KPS Capital Partners, L.P. for $315 million.

“This is a good transaction that allows us to take measured steps into the consumer products market in a product area where high single-digit global growth is expected,” said John D. Williams, president and CEO of Domtar.

“We believe there is the potential to double Attends’ earnings within five years and we are committed to unleashing the great organic growth potential. With this acquisition, we will consume internally some of our high quality Lighthouse™ fluff pulp produced in our nearby Plymouth, North Carolina mill. Domtar will continue to look for innovative ways to build growing businesses based on sustainable wood fiber.”

Attends produces a complete line of incontinence care products and washcloths marketed primarily under the Attends brand name. The company operates a 775,000 square foot facility with nine production lines and a state-of-the-art distribution center in Greenville, North Carolina.

Attends has approximately 330 employees, annual sales of approximately $200 million, and an estimated run-rate EBITDA of $39 million.
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RUSSIA

Ilim Completes Process Control System Upgrade at Ust-Ilimsk Pulp Mill

Ilim Group said that a new automated process control system has been installed at the company’s Ust-Ilimsk pulp mill in Russia. The system was installed in the cooking and bleaching shops of the Branch’s Pulp Line 1.

Total investment cost was USD 1.5 million.

According to Ilim, the new process control system will increase the production output at PL-1 and improve the cooking, washing and bleaching processes. In addition, the new system will help the mill reduce the consumption of chemicals and pure cold water and decrease the environmental impact on the Angara River.

The upgrade project also includes replacement of the old liquor presses and improvement of the washing process flow, Ilim said.

Ilim’s Ust-Ilimsk pulp mill produces bleached softwood kraft pulp, unbleached sheet pulp, unbleached pressed pulp, wood chemicals and biochemical products. The mill has the capacity to produce 630,000 tons of market pulp per year.

AGI World and Shorewood Packaging Agree to Merge

International Paper and Atlas Holdings signed a definitive agreement to combine their consumer packaging solutions businesses, pending regulatory approval and other customary closing conditions.

As a result of the agreement, Shorewood Packaging and AGI World will become AGI-Shorewood, creating one of the largest specialty packaging businesses in the world with operations in North America, Europe, Asia, Australia and Latin America.

“For more than a decade, Shorewood Packaging has been an important part of International Paper and has made many contributions to our company, particularly through leadership in innovation and creative services for customers,” noted Tom Kadien, senior vice president of International Paper’s Consumer Packaging and IP Asia businesses.

Once the transaction is complete, the new company will employ nearly 4,000 people and will operate 24 manufacturing facilities around the world. In addition, AGI-Shorewood will be a nimble supplier, strategically focused on its key consumer packaging, media and entertainment, and tobacco packaging markets, which include beauty and personal care, cosmetics and fragrance, healthcare and pharmaceuticals, consumer electronics, golf, confectionary and specialty foods and tobacco and specialty gravure.

Mike Ukropina, currently president, Shorewood Packaging, will lead the new AGI-Shorewood organization as president and CEO.

Upon closing of the deal, Atlas will own 100 percent of the combined AGI-Shorewood business in the U.S. and International Paper will own a 40 percent interest in the combined AGI-Shorewood business outside of the U.S. The various regional transactions are expected to close before the end of 2011.
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EUROPE
UPM to Permanently Reduce Papermaking Capacity by 1.3 Million Tonnes

UPM said that it has completed a comprehensive review of the long term competitiveness of its publication paper mills, including asset efficiency, production input availability and costs, as well as end-use markets.

As a result of the review, UPM plans to adjust its magazine paper capacity to match the needs of its global customer base. Therefore, UPM has started negotiations with employees on the plan to permanently remove 1.2 million tonnes of magazine paper capacity in Finland, Germany and France, and 110,000 of newsprint capacity in Germany.

The plan also includes restructuring of the overlapping paper sales and supply chain networks and global functions.

The planned measures include:

- permanent closure of the UPM Myllykoski mill in Kouvola in Finland
- permanent closure of the UPM Albruck mill in Germany
- restructuring of overlapping paper sales and supply chain network as well as global functions

In addition, UPM plans to temporarily close PM 2 producing uncoated fine paper at UPM Nordland Papier in Germany and streamline operations in Pietarsaari pulp and paper mills in Finland.

The planned closure of the Myllykoski and Albruck mills and PM 3 of UPM Ettringen would be scheduled by the end of 2011.

The sale process for the Stracel mill is expected to start this fall and be completed within twelve months.

The implementation of the plan would reduce the number of employees by about 1170.

“The profitability of our paper business is clearly below the level required to run long-term sustainable operations,” said UPM’s president and CEO, Jussi Pesonen. “The profitability of our paper business is clearly below the level required to run long-term sustainable operations. The planned restructuring would further strengthen the cost competitiveness of UPM’s paper operations and reduce the future need for major maintenance investments.”

“The paper industry faces severe challenges due to high raw material, energy and logistics costs, and considerable overcapacity,” said UPM’s president and CEO, Jussi Pesonen. “The profitability of our paper business is clearly below the level required to run long-term sustainable operations. The planned restructuring would further strengthen the cost competitiveness of UPM’s paper operations and reduce the future need for major maintenance investments.”

“We have decided to respond to the magazine paper overcapacity challenge for our own benefit,” said Pesonen. “In addition, we would ensure the efficient use of our remaining capacity. However, this plan would not solve the cost challenges of the industry,” Pesonen added.

“With the planned actions we would respond to the magazine paper overcapacity challenge for our own benefit. In addition, we would ensure the efficient use of our remaining capacity. However, this plan would not solve the cost challenges of the industry,” Pesonen added.

SCI Slares SEK 800 Million for Tissue and Newsprint Machine Rebuilds

SCI announced that it will invest SEK 460 million (approx. USD 72.4 million) in a tissue machine upgrade in the U.S. In addition, SCI will spend SEK 350 million (approx. USD 55 million) to rebuild a newsprint machine in Ortviken, Sundsvall (Sweden) to produce improved newsprint.

SCI said the tissue machine upgrade project in the U.S. will help the company meet demand for premium products in the U.S. market. However, SCI did not disclose which U.S. operation where it plans to perform the machine upgrade.

SCI expects production to begin in late-2012 or early-2013.
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The overall feeling or “tone” in the market for groundwood papers (which includes coated and uncoated grades) hasn’t been all that bad during the first three quarters of 2011 in large measure because of a sustained rise in prices since mid-2010 for key grades. These increases have allowed mills in some sectors to at least improve profit margins over 2010. But a quick look at market fundamentals makes it readily apparent that serious structural problems plague the market for these grades and make it difficult to be overly upbeat.

First, and fundamentally, the problem remains poor demand in the big U.S. market and in Europe as well. Sales volumes haven’t been all that bad in certain segments and for some mills, but nevertheless, overall demand has contracted. This weakness has made it impossible for groundwood producers to post significant improvements in the bottom line.

Last year U.S. demand for printing papers posted a modest recovery as the industry dragged itself up by its boot straps from the depths of the 2008-2009 recession. At the time it provided some hope that after enduring the worst downturn in decades there was reason for optimism. But even the recovery was muted by historical standards and it has become accepted wisdom that some portion of paper demand has been lost and won’t be recovered.

Unfortunately, the rebound was short lived. U.S. demand growth has ground to a halt once again and similar problems are plaguing European markets. Through the first half of 2011, printing and writing paper demand is estimated to be down a little less than 5% compared to 2010. Data through May show North American printing and writing paper demand down 4.5% at 9.1 million metric tons, according to the Pulp and Paper Products Council (PPPC). Shipments for the same period were 8.1 million metric tons, down 5.6%, but imports were up by 5.5% at 930,000 tons. The biggest drops in demand were posted by coated groundwood grades, which were off 8% at 1.48 million tons (shipments were down over 7% over the same period). Uncoated mechanical demand was also off by about 5% at 1.9 million m tons. Shipments in July for uncoated groundwood grades dropped over 10% vs. 2010 levels.

**Technology/Market Changes Realign Demand**

The demand problem or the lack thereof, is the result of a combination of the effects of a sluggish economy and competition from other media and technology. It’s obvious that a shift in consumption has occurred given that demand is going down while the economy, while weak, is slowing expanding.

Most groundwood grades (except for uses such as books, etc.) are used directly for advertising materials (newspaper inserts, catalogs) or in products where advertising volume directly relates to paper demand (magazines). Essentially
all of these markets continue to consume less paper. While magazine advertising has improved a little, it remains far below prior levels. Demand for catalogs and other direct mail also remain sluggish. According to the U.S. Postal Service standard mail volume is down 2.5% for the three quarters ending in June compared to the prior year level.

Newspaper inserts (a major use of SC grades) continue to suffer due to the demise in the overall newspaper market and losses to other media. Total newspaper advertising revenues, which includes advertising inserts, ROP and classifieds, are down 9.2% through the first six months of 2011 vs. 2010 levels, according to Newspaper Assoc. of America data. And specialized grades such as lightweight grades for directories continue to be hurt by similar competitive factors.

New developments have also emerged that are a challenge to printed products and advertising, notably tablets such as the I-Pad and E-readers. These pose a threat to a variety of print products including magazines, books and newspapers. The adoption of these products, and apps such as Facebook, is occurring far more rapidly than previous technology developments. This is making it not only difficult to gauge their impact on paper use but makes the threat more ominous.

As mentioned, there are a few bright spots, including magazine advertising where pages grew 1.3% during the first two quarters of 2011 for the sixth consecutive quarter according to the PIB.

**Price Gains Provide Boost to Offset Cost Increases**

In contrast to the dire news on demand, operating rates have remained at the 92% level or well above, which has allowed mills to post price increases on most grades. Prices for uncoated SC grades have recently been flat, but SC producers had earlier completed a $40/ton increase on SC papers effective April 1. Pricing has been stronger in coated groundwood markets where prices have risen to the $925 level (40 lb., No. 5). This is a substantial price recovery from Augusts 2010 when prices were close to falling near $800/ton. SC prices have seen similar increases over the last year and one half, although to a slightly smaller degree.

Coated groundwood mills recently were able to push through a modest price gain as it’s been reported they were able to enact most, but not all, of a $30/ton increase announced for July 1. However, coated groundwood demand remains weak as well, with U.S. shipments down almost 8% for the Jan.-July period compared to the same period last year. If prices rise during the third quarter, as expected, this would be the sixth consecutive quarterly gain, i.e. prices have risen since second quarter 2010.

**Cost Pressures on the Rise**

While prices have moved up, coated papers in particular (and other grades as well) are facing rising costs for energy and key raw materials. Corn prices have jumped substantially to unheard of levels resulting in much higher prices for starch. Latex prices have also risen substantially due to higher feedstock and energy costs. Pulp prices have also been rising for some time but recently they’ve eased.

Without doubt the only thing saving the market from falling apart from otherwise weak fundamentals has been the continued effort by producers to cut capacity. Printing paper capacity decreased substantially last year in Europe and North America and recent cuts continue this trend. U.S. capacity for printing and writing papers in 2011 is 22.0 million short tons according to AFPA, down nearly 675,000 tons from 2010. Coated groundwood capacity, at 3.6 million tons, is down almost 10% from a 2010 level of 3.9 million tons. Additional cuts have been enacted or announced that will effectively lower real capacity even further.

Market weakness, as well as the negative impact of rising costs and a strong Canadian dollar, has also driven major capacity closures in Canada. Among the largest is the closure of NewPage’s Port Hawkesbury, NS mill (360,000 tpy capacity for SC). A range of other shuts have also been enacted.

Significant additional capacity closures have been announced recently that bode well for mills looking to maintain prices as they strive to maintain margins. UPM announced plans to close capacity in Europe totaling over 1 million tons, including coated groundwood and SC capacity representing roughly 4-5% of industry capacity for each grade. This is another big step in list of many such closures that maintain a healthy balance of supply and demand.

Given the tenuous nature of groundwood paper demand, technologies that pose threats to print products and a growing, nagging worry about the direction of the economy, it’s even harder than usual to predict the future and to be overly optimistic. Nevertheless, producers continue to make critical strategic supply decisions in North America and Europe and appear resolved to do whatever it takes.

Thus, despite a level of demand so poor that it would typically, and strongly, suggest that not only are price gains unlikely, but should fall, chances are good that pricing will remain strong. Of course if the economy stumbles and demand really plummets all bets are off. It’s just too bad that a little good news on pricing is made possible by mill and machine closures and job cuts. That’s the reality today for printing and writing mills.

Harold Cody is a contributing writer for PaperAge. He can be reached by email at: HCody@paperage.com.
heads up

An Evolving Industry

A few years ago, I examined the problems our industry faced. I couldn’t see a way forward at the time, but the industry did. And it has evolved in an encouraging manner.

By David Price

We still face most of the problems I listed a few years ago, such as closures, downsizing, and contracting markets, but the industry has developed in positive and unexpected ways. The positive aspects are energy platforms, new hardwood plantations in Latin America, innovation in new paper-based materials and a new pro-active media campaign.

Energy Platforms

"Energy platforms" is the fashionable term consultants use for the growing biomass technology most modern pulp mills are perfecting. This trend does not need too much explanation because this magazine, over the last decade, has frequently led with news stories and features on biorefining, biomass, recovered waste and so on.

The technology has revived the prospects of ageing pulp mills and, in addition, new players from outside the industry got involved. They include energy, chemical and the automotive industries. At first, these dynamic and deep-pocketed players seemed a threat to the more traditional practices of the forest industries. But suppliers and innovators soon meshed together. Money did not seem to be a problem. Federal, state and local authorities had millions of dollars to invest in “green” technology. MeadWestvaco was able to tap into $285 million to build a new, cutting-edge biomass boiler and to upgrade its power infrastructure at its Covington, Virginia mill. The project is scheduled to start-up shortly.

Southern Pulp

In a year’s time around 3 million tonnes of hardwood pulp will be ready for harvesting in Brazil, Chile, Uruguay and Argentina. And much more is being planted. Most of it will be for the Chinese market and the remainder for Europe and domestic markets in Latin America.

Eucalyptus plantations have been a success for the industry as they mature quickly (about seven years) and the fiber performs well on the paper machine. Opposition to plantations has been strong but often unjustified. In Argentina and Uruguay, for example, forests were cut down for cattle ranching. In time, pasture was overgrazed and, consequently, degraded. Eucalyptus plantations seemed an ideal crop for exhausted soil. The species is now the fiber of choice for the industry. The eco-lobbies now recognize that the eucalyptus does much to revive degraded land.

Consequently, the popularity and merits of eucalyptus trees have caused major problems for northern softwood producers in regions like Sweden and Finland where growing times and harvesting costs are high. But some papermakers such as Stora Enso and UPM bit the bullet and invested
in, or partnered with, southern producers in Brazil and Uruguay. Ten years ago, who could have imagined that a Finnish paper company would supply the Chinese market from its Brazilian hardwood plantations?

**Innovation**

Pulp and paper producers lost technology leadership to the suppliers some time ago. Yet that change seems to have taken place smoothly, creatively and, happily, with little controversy. The “Editor’s Note” addressed this in the last issue of *PaperAge* when he reported on innovative work done by European firms, PTS and Innventia. There are now paper products out there which can be used in lightweight construction products, vehicle manufacture, insulation, smart packaging solutions and paper batteries.

I’ve been to a South African packaging mill which had a problem with its piles of sludge. The local university experimented by adding a polymer to the mess. It resulted in a product that was hard enough to be nailed, planed, chiseled or sawn to make fences, gates, doors and animal pens.

Another example of creativity (not far from me here in the UK), are farms that use deinked and sterile sludge from local fine paper mills for animal bedding.

**Fighting Back**

My last “heads up” reported on a new and encouraging trend in the industry’s media activity which is vigorously pro-active in promoting our interests. This is now ramping up strongly in Europe and the USA. There is still much to do, but a structure is now in place which we can all add to and help develop.

I still think we need to get on-side with major celebrities and the media. We also need to continue to lobby hard with key politicians — something that seems to be less of a problem in the USA than in Europe. Politicians on my side of the Atlantic seem to be accident-prone to financial and sex scandals; not enough of them are able to commit to protecting natural resources, waste recovery, etc. In short, they can’t see votes —yet — in the forest industry communities. But the industry’s new campaign, *Two Sides*, is opening up a path to candor and understanding.

Compared to my gloom nearly three years ago, I’m now writing in a mood of feel-good optimism. At a time when things could not be worse for our industry, things are happening inside and alongside it which are making a difference to its products, our image and its future.

David Price is a contributing writer for *PaperAge*. He can be reached by email at: DPrice1439@aol.com.
Today’s papermakers are challenged with the task of competing in a marketplace that is faced with global competition and rising costs driven up by ever increasing energy expenses. Many are finding the task of obtaining money for upgrading equipment to meet the challenge quite difficult. Albany International’s philosophy has always been one that meets these challenges head on by developing and supplying product technology that provides positive impact to a machine’s costs and productivity.

One such dryer fabric concept called AEROPULSE, unique to Albany, exhibits a structural feature that produces a “dynamic permeability” effect. What is dynamic permeability? It is the effective permeability of a fabric as it travels through the machine at given speeds. As machine speed increases, the effective permeability increases as well. This is a contrast to standard fabric structures which actually decrease in dynamic perm when speeds increase. In an aerodynamically active fabric, the increase in effective permeability provides greater ventilating benefits not provided with typical dryer fabric design.

What makes AEROPULSE different from any other dryer fabric? It is in the technology’s non-sheet side construction. Yarn materials are woven in such a way that they are positioned in the structure to direct air through the fabric. All fabrics carry boundary air, but this technology has the ability to take the boundary air and utilize it to optimize pocket ventilation (see Figure 1). The layer of boundary air is directed through the fabric at the converging nip of the pocket roll. The angled filler on the backside of the design directs the air through the fabric in an unrestricted way. This unrestricted, fluid movement of air provides the dynamic permeability as it is directed into the pocket.

Airing It Out
Driving performance improvement with aerodynamically active dryer technology.

By Richard Smith
A unique characteristic of the AEROPULSE technology is the way the air moves in the pocket. It takes air into and out of the pocket by means of the fabric, unlike PV air and higher perm fabrics that create axial air flow from the pocket edges. Overall more air is moved in and out of the dryer pockets. This function of the design provides the means to improve drying profiles and sheet handling.

It’s important to realize that permeability is a mechanism provided by a dryer fabric to move air in the pocket, especially if an active pocket ventilation system doesn’t exist. If more ventilation is needed one may think, “just increase the cfm,” but that can lead to sheet blowing and overall poor machine performance. AEROPULSE’s dynamic permeability greatly enhances the dryer fabric’s ability to dry the sheet without flutter. The concept has a proven track record in applications where sheet instability hinders machine speed.

It is a known fact that one of the costliest areas of the paper machine is the dryer section (see Figure 2). The cost of generating steam is very expensive, so effective steam use is imperative. The Tappi standard for ideal steam efficiency is 1.2 lbs of steam per pound of water evaporated. With many machines today operating at less than optimum efficiency, there is ample opportunity to lower energy costs. For example, machines running at a steam consumption rate of 1.4 pounds of steam per pound of water evaporated could potentially save hundreds of thousands of dollars annually in energy costs simply by lowering consumption to only 1.3.

The dryer pocket is where drying action takes place (see figure 3). This is a key area of the dryer section for controlling the costs of drying, in the open transfer of the pocket where the sheet gives off water (mass transfer).
In order to do so efficiently, the air in the pocket must be dry enough to cause the moisture to flash from the sheet. Moisture levels in the pocket are considered ideal at .20 pounds of water per pound of dry air, but many machines fail to sustain this environment. If moisture levels are elevated due to poor ventilation then drying will be impeded, resulting in low productivity and higher energy costs. (See impact of high pocket humidity to drying rates in Figure 4.)

Targeting wet pockets with aerodynamically active technology provides a way to improve drying efficiency. Below is an example of a humidity study taken before and after the application of the AEROPULSE (Figure 5). The fabric was installed on the 1st bottom conventional run following a uni-run position. Bottom fabrics ventilate top pockets while top fabrics ventilate bottom pockets. It is evident that the bottom fabric lowered the elevated top pockets, resulting in a productivity gain of $245K annually on this dryer limited machine.

**MACHINE APPLICATIONS**

Application in the marketplace has yielded additional advantages as well. Improved moisture profiles resulting in faster machine speeds and fiber savings have been documented. One example of success occurred in a North American fine paper machine experiencing a moisture variance of 3%. When the first aerodynamically active design ran the moisture profile, variance improved to less than 1%. This occurred with only one position running the technology. Eventually all main dryer sections had the technology applied and overall machine performance was substantially improved.

A great example of the effectiveness of “dynamic permeability” occurred when running the technology in a packaging grade application that historically had run 800-900 cfm spiral fabrics. As everyone knows, it is a common thought that high perm spirals are better at drying than lower cfm woven counterparts due to the ventilation characteristics of the high permeability. However, results proved that the lower permeability AEROPULSE XLK outperformed the spiral due to the “dynamic perm effect.” Again it just shows how specific characteristics a dryer fabric can impact machine performance.

This technology has generated millions of dollars in savings. Many results have come from steam savings when machines are drive-limited and increased machine speeds when steam limits have existed. One such success occurred on a bleached board machine located in North America. The machine produces coated bleached board in a weight range of 150 to 250 lbs at a speed range of 1200 to 1750 fpm. After running four aerodynamically active fabrics in the 3rd and 4th top and bottom, the machine speed increased by 20 fpm. This was measured on their dominant grade, resulting in an annual revenue increase of $1.8MM. The success has been documented and signed off by the company’s management. Over the last six months, the machine has set all-time productivity records and continues to operate at high performance levels. Another fabric was later installed in a 2nd section position. Upon startup, the customer claimed an additional 10 feet of speed was gained, resulting in additional revenue to the bottom line.

The bleached board success is one of many examples of what has resulted from the application of this product. Similar results have occurred in other grades as well. AEROPULSE fabrics have been successful across the full spectrum of paper grades from heavyweight linerboard to lightweight fine paper.

Albany International continues to look for concepts and ideas that work to provide value to its customers. As customer demands increase we strive to meet those demands. Aerodynamically active technology is one of a number of differentiating concepts from Albany providing benefits to the paper industry.

Richard Smith is Dryer Fabrics Product Manager - Kraft Grades with Albany International. He has over 36 years of involvement in the paper industry and holds a degree in Textiles from Tri-County Technical College. He can be reached by email at: richard.smith@albint.com.
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Automation Partnership has a Wide Horizon

With leaner organizations and fewer engineers in today’s pulp and paper mills, working with an automation supplier in process and quality development can prove very beneficial and lead to better product quality and lower operating costs.

By Mark Williamson

Located only about 120 kilometers south of the Arctic Circle, Stora Enso Fine Paper’s Veitsiluoto mill in Kemi, Finland is the northernmost paper mill in the world. The chemical fiber furnish for two office paper lines in the integrated mill is provided by a single continuous digester kraft fiber line, commissioned in 1977, which has a capacity of 375,000 tons per year of ECF bleached hardwood and softwood pulp.

Since the pulp mill is integrated with the paper mill, consistent quality of the fiber supply is very important for final paper quality. Of course, over the past several years, there have been many pressures to ensure cost efficiency, since the costs of wood, chemicals and energy have been increasing. To maintain a good competitive position within the Stora Enso organization and on a global scale, cost efficiencies must be controlled and improved on a continuous basis.

“As our pulp mill has matured, the life-cycle priorities have changed along with the process and the automation systems. The types of controls, their applications and the relationship between the supplier and the vendor must be flexible enough to change as well,” says Kimmo Pelander, Pulp Mill Production Director at the Veitsiluoto mill.

The results of advanced process controls (APCs) have been documented, showing a significant reduction in brightness variation and a reduction in chlorine dioxide consumption in the bleaching line. In the recovery boiler the reduction degree has been increased and sootblowing steam consumption has decreased.
The Veitsiluoto mill has invested heavily in process automation from Metso, particularly over the past 15 years. Control and information system technology has been upgraded, new process and product quality measurements have been added and advanced process optimization controls (APCs) have been implemented to ensure that the mill produces consistent high-quality pulp efficiently and with the lowest possible costs. Technology has marched ahead, but the human factors have been important as well, since the supplier and customer must share common goals, values and working relationships.

"With leaner organizations in our pulp mill and fewer engineers, we have learned that working with Metso as partners in process and quality development has been very beneficial, leading to better quality and lower costs," notes Pelander.

REGULAR UPDATES AND EXPANSIONS

Since the first analog systems in the 1970s, the automation system infrastructure has been developed and extended. The first installation of advanced process control was in 1993, coinciding with the startup of the new ECF bleaching line and oxygen delignification process. Starting in 1995 and continuing through 1997, all the original control systems were replaced by Dematic XDi systems in what was called an Automation Renewal program. During the subsequent years, a Metso DCS of a current vintage has formed the platform for APC in most unit operations in the fiber line and recovery line. Today, Metso DNA CR is the platform for all process control and APC.

The documented benefits of these controls are numerous and have included more stable final pulp brightness with lower bleaching chemical consumption, higher pulp yields and more stable fiber strength, more stable recovery boiler operation and lower sootblowing steam energy consumption.

In later years, more APCs have been added, some in conjunction with process upgrades and some to achieve better performance with existing process equipment. For instance, in 2003 a new washing optimization control was added to improve the stability of the existing brown stock washing line. The much lower residual COD in the filtrate indicated consistently cleaner pulp, which would reduce bleaching chemical demand. A new bleach line APC was added in 2007 and 2008, reducing brightness variability by a further 10%.

The cooperation of the Veitsiluoto mill and Metso has also resulted in the validation and practical applications of new process and product quality measurement over the years. The kajaaniKAPPA Q combined kappa and fiber property analyzer, installed in 2006, is one recent example. The mill history with process analyzers is a long one dating back to 1993 when one of the first commercial Kappa analyzers was installed. The mill agreed to be the development site for
the first combined analyzer, which measures the Kappa number at several process locations and also measures how fiber properties develop though the fiberline. This was very important to the mill since the fiber furnish is used in the integrated paper mill and its quality directly affects paper product quality. With this analyzer, process disturbances can be clearly seen in variations of curl, kink and shive content. With this up-to-date knowledge, fiber damage can be minimized by tuning the process conditions or the equipment operation.

In 2008, a new information system was commissioned to replace the original one from 1995. The new desktop Windows-based system is more user friendly, allowing users much more flexibility to personally customize reporting and analyze the process. Energy use reporting and environmental reporting is now automated and easily accessed.

**LIFE-CYCLE SERVICE**

Over the past twelve years, the Veitsiluoto mill entered into a series of life-cycle service agreements with Metso to sustain and improve the performance of APCs and pulp mill processes. These life-cycle service contracts have grown to include more unit operations within the pulp mill as more optimization controls were added. The results of these programs are measured by key performance indicators, which measure the process and product quality benefits of the controls and, most importantly, how well the operators accept and use them.

Pentti Tolonen, Pulp Mill Planning Manager, explains some of the advantages of these performance agreements. “Pulp processes need to be continuously developed, and advanced controls need retuning as processes are updated and operating conditions change. Each work shift tends to run the process in its own, different way. APCs standardize the process operation and ensure product consistency. Even quality at lower operating costs is the desired result.”

Additional vendor resources are available for process development that is important to the mill, like the kajaani-KAPPA Q application. “The customer is very involved in process development through regular meetings, reporting and follow-up. Operators are involved in the control development process as well,” adds Tolonen.

**CHANGING PRIORITIES**

As explained by Pelander, the priorities of the mill have changed over the past fifteen years. The top priorities of ten

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<td>Minimizing environmental load (water, air and solid waste)</td>
<td>Minimizing environmental load (water, air and solid waste)</td>
<td>Increasing availability, higher reliability</td>
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<td>Decreasing consumption per ton of pulp: wood, chemicals, energy</td>
<td>Minimizing quality variations of final pulp</td>
<td>Keeping fixed costs in control (maintenance, personnel)</td>
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<tr>
<td>Keeping fixed costs in control (maintenance, personnel)</td>
<td>Decreasing consumptions per ton of pulp (wood, chemicals, energy)</td>
<td>Getting help from supplier partners, win-win situation</td>
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<tr>
<td>Developing lean and well working organization with positive attitude to work and changes</td>
<td>Learning how to develop production with low investment level</td>
<td>Learning how to develop production with low investment level</td>
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Mill priorities have changed over the years. Many of the objectives highlighted in blue in this chart are directly influenced by process optimization controls and continuing process lifecycle development programs.
years ago are not necessarily the same as today. In the list of top five priorities, there are a number of items where automation performance, advanced process controls and vendor-customer relationships can have a major impact.

Life-cycle programs, therefore, do have a high profile in the mill staff’s view. Environmental impact, quality management and cost reductions are influenced by the proper application of advanced controls.

“In this regard, getting help from supplier partners is very important, as it is a win-win situation,” says Pelander.

Tolonen explains how the business relationship with Metso has changed with the times. “Previous Performance Agreements were structured performance-based contracts, which included local engineering support plus a remote link support by specialists located in Tampere. Today, a new model is in place. The annual renewable contract is performance oriented, but it relies less on remote support and more on day-to-day assistance from two local support engineers. Now, all unit operation optimization functions are folded into a single contract that is easy to administer.”

The experienced engineers are part of the mill team as process control specialists, listening to and interacting with operators, and permitting better communications and working relationships. Performance-related objectives are reviewed every three months. Reports are available through the Metso Internet Portal, and a one-year diary of activities and accomplishments is maintained.

In past contracts, Metso was responsible for maintaining and improving the performance of the APC portion of the automation infrastructure only, not the field instrumentation or individual loop controls. However, the performance of any advanced optimization control can be degraded by faulty process measurements or poorly tuned loop controls. As a major and important shift in responsibility, Metso has taken over the maintenance of valves and partly loop tuning, thus ensuring better overall process performance. The service center which stocks DCS parts, Neles valves and some Endress+Hauser field instruments is located 8 km away. The Veitsiluoto mill has been a pioneer in the implementation of field instrument and valve service contracts, now in effect for over 11 years with Metso Endress+Hauser. By maintaining a stock of valves and spare parts locally, both parties have shown a commitment to performance and have seen positive savings.

FLEXIBILITY, LONG-TERM VIEW

Pelander sums up the important relationship between a supplier and customer and the needs for a flexible working arrangement.

“Priorities have changed with the times and so too have our automation systems and controls. We feel it is very important to look at process optimization over a long period to adapt to changes and make long-lasting improvements. So our relationships with Metso should have a wide horizon,” says Pelander.

“Since pulp mill organizations are now much smaller, we rely on our suppliers as partners who can help us develop our processes and product quality and be part of the mill team. Many benefits have been documented and the optimization work continues today. In a cooperative agreement with an automation supplier, the optimization of the process and product quality has many steps and successes, and continues on a daily basis.”

Mark Williamson is a Journalist Engineer in Thornhill, Ontario, Canada. He can be reached by email at: mark_williamson@sympatico.ca.
What is a succession plan? Simply put, it’s an ongoing process to prepare people to meet an organization’s requirements for talent.

“Succession planning is perhaps best understood as any effort designed to ensure the continued effective performance of an organization, division, department, or work group by making provision for the development, replacement, and strategic application of key people over time,” according to William J. Rothwell, Ph. D. in his book *Effective Succession Planning*.

As organizations undertake strategic planning exercises to expand market share, develop new products, anticipate economic changes, or consider mergers/acquisitions, it is paramount that they also include succession planning to ensure that the organization has sufficient talent or bench strength to reach their goals.

Succession planning should be part of an overall “talent management program” that seeks to attract, retain, and develop employees. Regardless of company size — small, medium, or large — it is incumbent upon senior management to champion succession planning. Without the support of the company executives, a succession plan will become just another “program-of-the-moment” and fail to achieve its objectives.
According to a survey by the American Management Association, 20% of organizations are unprepared to deal with the sudden loss of a key executive. From the survey, only 14% were “well prepared,” while 61% considered themselves “somewhat prepared.”

Your average CEO may confuse succession planning with replacement planning, cautions Dr. Rothwell. Replacement planning is more of a snapshot or annual exercise that identifies back-ups to selected key positions. A replacement chart lists as many as three back-ups and indicates if or when certain employees may be ready to assume the role of the incumbent. In contrast, succession planning focuses on developing people to fill roles, not just identifying them. Succession plans are vehicles for long-term sustainability of the organization.

**WHY DEVELOP A SUCCESSION PLAN?**

There are many reasons to develop a succession plan, including turnover and replacement costs, unplanned loss of key employees, unfilled openings, or analysis findings, employee feedback, lack of career advancement opportunities, failure rates of promoted employees, retirements of top leaders, illness of key employees, and lack of internal talent to fill openings. Two major areas of concern to many employers today are: (1) aging of the workforce, and (2) lack of availability of work-related skills in the general population. According to labor economist Douglas Braddock, “Between the period of 1998 to 2008, more job openings (34.7 million) were expected to result from replacement needs than from employment growth (20.3 million) in the economy.”

Consider the following: at least 20% of Fortune 500 senior executives are eligible for retirement; approximately 50% of the federal government workforce can currently retire; and 55% of today’s registered nurses are expected to retire between 2011 and 2020. A Manpower Survey indicated that 44% of employers are experiencing difficulty finding employees with the right skills.

Lack of succession planning can be both embarrassing and financially devastating to a company. Bill Conaty, former VP of Human Resources at General Electric and board member at consulting firm Aon Hewitt, explained that Hewlett-Packard had to replace its CEO three times in 18 months.

“You would think they would have had robust options — insiders they thought were ready,” noted Conaty.

Instead, it took board members about four months from the discovery of allegations against former CEO Mark Hurd to hire his replacement insider Leo Apotheker. It cost the company financially and tarnished its standing with analysts and the public. During the four months of uncertainty, HP’s market value fell 18%.

Key employees are subject to leaving an employer for many planned or unplanned reasons, including retirement, resignation, legal problems and accidents. Having an active succession plan program in place — not just going through the motions — was a requirement at General Electric (GE) under former CEO Jack Welch.

“Our (GE) ultimate goal was same-day succession,” Conaty explained. “GE had candidates with two or three backups for all key positions. The board of directors was familiar with the potential replacements due to updated record keeping and six month reviews.”

**SUCCESSION PLANNING WORKS**

Ben Thorp of the Bioenergy Deployment Consortium, formerly Director of Pulp & Paper Engineering at Georgia-Pacific, and VP of Engineering at James River, has had experience with succession planning programs. His background with succession plans included linking performance improvement plans to the replacement planning exercise of identifying successors for key positions.

“It was a lot of work and it was a great system because it tied performance improvement plans to the process,” Thorp said.

Regarding the incorporation of succession planning into the overall planning process, Thorp offered, “Management development could be done systematically and requires a lot of hard work. In the short run this work can detract from routine business activities like making money. However, in the long run it creates a powerful team.”

The following are key steps to effective succession planning: (1) focus on current and future business needs, (2) identify key jobs using competency models, (3) assess current talent, determine talent gaps, and create flexible development processes, (4) implement individual employee development plans to make sure internal talent is being prepared, (5) encourage active participation in the process from top executives, (6) establish accountability for all involved in the process, mentors and talented employees, (7) constantly be aware of the external environment. Do a market scan to identify top talent among competitors.
Succession planning focuses on developing people to fill roles, not just identifying them. Succession plans are vehicles for long-term sustainability of the organization.

DO’S
The following best practices for succession planning are recommended by Sandra Pipitone, Assistant VP of Executive Development at TJX Companies; and Bob Edwards, Senior Consultant, Packard Consulting:

• Early identification of talent: Identify “star employees” early in their career and closely monitor their development. Include challenging assignments and exposure to senior executives.
• Aggressive management of development assignments, such as: P&L responsibility, new products, cross-functional teams, acquisitions.
• Management investment of time and effort: formal and informal feedback, demonstration of interest in career goals, incorporate stretch assignments in development plans.
• Competency models/assessments: core, functional, executive competencies identified, competency-based performance assessments.
• High-potential employees identified early in career: determine high-potential candidates, create diverse talent pool.
• External talent benchmarking: review and interview external candidates, establish external hiring objectives.

DON’T’S
Common mistakes to avoid during the succession planning process according to Dr. Rothwell:

• Assuming that everyone wants a promotion: Determine individual career objectives before making assumptions. Many employees want more work/life balance.
• Giving no thought what to call a “Succession Plan”: Examples of names such as “Leadership Development Program,” or “Talent Program.”
• Assuming a promotion is a reward: Promotions must be based on who will do the best job, and should not be based on tenure in an organization.

CONCLUSION
Today in an uncertain economy, coupled with an increasingly more dynamic work environment where talented employees are highly valued, it is mandatory to develop and maintain an effective succession plan. As the workforce ages and the skills gap increases, a systematic succession planning program is becoming more important. It’s all about “…having the right people in the right places, at the right times, to do the right things, to achieve the right results,” Rockwell advises.

Regardless of the size of your organization, succession planning and succession management must command your attention. If you have the resources, then you can purchase state-of-the-art software, hire consultants, and utilize internal tools. If you have limited resources, you can still implement a viable succession plan by communicating with key employees and tracking the process. W. Lance Wright, senior vice president of human resources at USEC Inc. in Bethesda, Maryland (a global energy company with 3,000 employees) said, “It’s whether you have the conversations about key people and whether you keep track of what you have decided.”

Finally, although succession planning requires a substantial amount of effort and time on behalf of senior executives, managers, supervisors, and human resources, it is well worth it. As competition increases in our global economy, organizations continue to focus on a variety of methods to maintain an edge, including cost efficiency measures like off-shoring and outsourcing. Although it is important to control costs, investing in organizational talent through a viable succession plan can distinguish one company from another. Successful companies are able to find and keep employees, and the best companies are also able to develop and maximize the talent of their employees.

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Innovation as a Competitive Advantage

Innovation is high on the agenda for 2011 in virtually all industries. The accelerating pace of change is a major reason why many CEOs believe innovation is now as important to growing their businesses as expanding in existing markets.

Innovation — in the form of developing new products and services — has become as important to growth for CEOs as raising their share of existing markets. A survey by PwC of 1200 CEOs from around the world found that innovation, along with increasing their existing business, now outstrips all other means of potential expansion, including moving into new markets, mergers and acquisitions, and joint ventures and other alliances.

PwC’s 14th annual Global CEO survey found that innovation is high on the executive agenda in virtually every industry. In all, 78% of CEOs surveyed believe innovation will generate ‘significant’ new revenue and cost reduction opportunities over the next three years. But it is highest for those where technology is changing customer expectations.

“Innovation is a matter of survival for companies in sectors facing rapid changes in technology and high customer expectations,” said John Sviokla, partner and Business Leader for Innovation and Strategy at PwC US. “Forward-looking companies strive for innovations that will give them competitive advantage and create growth. In today’s fast-moving environment companies must constantly improve and re-invent their products, services and even brands.

“The next decade will be the ‘most innovative time’ since the industrial revolution due to the dynamics of over a billion new customers, global connectivity, and radical new technologies and science,” Sviokla said. “In mature markets companies must innovate to differentiate themselves; in emerging markets, they need innovation to lessen their dependence on lower costs.”

According to a new PwC study, “Demystifying Innovation: take down the barriers to new growth,” the drive for innovation must arise from the CEO and other executive leadership by creating a culture that is open to new ideas and systematic in its approach to their development. The innovation process generally has four phases:

1. **Discovery:** Identifying and sourcing ideas and problems that are the basis for future innovation. Sources may include employees as well as customers, suppliers, partners and other external organizations.

2. **Incubation:** Refining, developing and testing good ideas to see if they are technically feasible and make business sense.

3. **Acceleration:** Establishing pilot programs to test commercial feasibility.

4. **Scale:** Integrating the innovation into the company; commercialization and mass marketing.

**MISCONCEPTIONS**

The study also identifies seven misconceptions about the innovation process:

- **Innovation can be delegated.** Not so. The drive to innovate begins at the top. If the CEO doesn’t protect and reward the process, it will fail.

- **Middle Management is the ally of innovation.** Managers are not natural champions of innovation. They too reject new ideas in favor of efficiency.

- **Innovative people work for the money.** Establishing a culture that embeds innovation in the organization will attract and retain creative talent.

- **Innovation is a lucky accident.** Successful innovation most often results from a disciplined process that sorts through many ideas.

- **The more open the innovation process, the less disciplined.** Advances in collaborative tools, like social networking, are accelerating open innovation.

- **Businesses know how much innovation they need.** Leaders must calculate their potential for inorganic growth to determine their need to innovate.

- **Innovation can’t be measured.** Leadership needs to identify its ROI — Return on Innovation Investment.

In the end, the best talent will migrate to those firms that have inspiring goals, along with process, culture, incentives and investment that seeks out exciting innovation-driven growth opportunities. Those firms that attract that talent into a superior innovation culture will win in the global marketplace.

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The preceding information was excerpted from the new PwC study: “Demystifying Innovation: Take down the barriers to new growth.” For further information, please visit www.pwc.com.
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