Value Creation in the Digital Paper and Packaging Business

Inspire And Shape

a digital world that reinvents quality and productivity
Dear Industry Professional,

The global paper and packaging industry is in a state of transition as it considers how to survive and thrive in this age of digital media and paperless technology.

As the world population approaches 10 billion people, the rising middle class in emerging economies consumes more and more sanitary products and demand for consumer goods accelerates at an incredible pace, requiring appropriate packaging. While this may sound like great news, paper consumption is expected by many analysts to grow below 1% annually.\(^1\) This kind of growth can’t really provide relief to current markets, which are characterized by overcapacity and price erosion.

But even this marginal growth is not distributed evenly across the globe, nor across sub-segments within the paper industry. The loss of business volume in segments like newsprint or advertising to digital media causes a severe decline in those areas. Additionally, mature markets, for example Europe and North America, show little to no growth, even for hygiene products, while global trends like increasing environmental regulation and rising energy and transportation cost are shaking the market.

The consequences for the industry are dramatic. Proven business models and business plans based on enormous capital investments in plants and assets are collapsing. New market entrants, such as Google, are disrupting the advertising market, and media publishers are following the trend and provide more and more electronic media content.

Big change always comes with big risk, but also offers opportunity for innovators. After all, even a digital economy needs affordable, and sustainable packaging. News, magazines, and books are still being read on paper. And paper products for personal care will continue to be a growing business in many regions.

With the changing paradigms, the industry is now challenged to operate cost-effectively within the existing infrastructure. Leading companies are reevaluating their assets and customer relationships to:

- **Reimagine business models** to find new revenue and profit sources
- **Reimagine business processes** and use digital technology to optimize business outcomes
- **Reimagine the role and structure of the workforce** to support the future business

This reimagining requires a transformation into a digital paper and packaging business for production and distribution of products made from paper. All participants – fiber suppliers, paper producers, and packaging converters – will use digital innovation to anticipate real-time demand and supply, control energy consumption, operate resilient supply chains, and innovate the customer experience. This continuously optimizes business outcomes for innovative and adaptive participants in the digital paper and packaging business. Based on analysis of the paper industry, we strongly believe the it will be entirely digital by 2030.\(^2\)

This document offers our perspective on where the industry will go and how SAP can help in the evolution of the digital paper and packaging business. Thank you for your interest. We look forward to your feedback.

Alfred Becker  
Global Lead for Paper and Packaging Business  
SAP SE
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The Digital Economy

Five technology trends have converged into the digital economy – hyperconnectivity, supercomputing, cloud computing, a smarter world based on outcomes, and cybersecurity. The resulting pace of change is staggering. In the next 10 years, 40% of the S&P 500 will no longer exist if they do not keep up with these technology trends.

Leaders are emerging quickly, and from unexpected places
The industry boundaries are already blurring. What was previously a relatively secure domain owned by paper producers is being challenged by new players. For example, advertising is shifting from print media to electronic media, and large players like Google are already market share leaders. While paper producers have been engaged in electricity generation for decades, both private consumers and utility companies are now engaging in generation of sustainable energy. However, expansion can also take place in the other direction, such as textile fibers being made from wood as an alternative to cotton or polyester in clothing or sheets. Paper and packaging companies are asking themselves how they can sustain and grow customer relationships and how to identify attractive market spaces.

It’s not about you – it’s about your customer
For many paper companies, creating high-quality products is the prime goal. But, of course, these products have to be bought by someone, and the selling process itself gains greater importance for delivering value to the customer beyond the products being sold. Customers expect a new type of experience: one that is frictionless, where commerce is seamless, and where technology is invisible – one that makes their lives easier.

Early adopters are winning
Research shows, companies that embrace the digital world and execute on their digital strategy outperform their average industry performance by 6-9%. The rules have changed.

- Digital will account for more than 25% of total ad expenditures in 2015 and is growing at 11% CAGR until 2019, at the expense of paper-bound advertising
- Digital mobile advertising in the United States is expected to reach $40 billion by 2016, with Google and Facebook owning over $12 billion of this market
- Only 19% of 2013 global energy consumption came from renewable resources

TODAY, EVERY BUSINESS IS A TECHNOLOGY BUSINESS

The road map to relevance is to reimagine business models and proactively evolve before new digital competitors emerge.
EXECUTIVE SUMMARY

The past and the future: The paper and packaging industry transitions

Transformation drivers

The pulp, paper, and packaging industry value chain is transforming, driven by various global trends.

- **Increasing regulation**: In addition to incurring fines, violations can impact brand, image, and social license to operate
- **Energy and resource constraints**: Create more output with fewer raw materials and lower environmental impact
- **Skilled workforce**: The paper industry competes with more attractive industries for talent
- **Smart equipment**: Machines provide much data that can deliver increased efficiencies
- **IoT and digitization**: New technologies allow for innovative business models and processes
- **Customer expectations**: Customers expect instant answers and easy-to-use channels
- **Globalization**: Unify platform, data, and processes to help manage global sourcing and complex supply chains

Each of these transformation drivers is forcing companies to reimagine how they do business and run their businesses. Multiple drivers can impact at the same time, increasing the urgency for transformation.

New business models

Consider new business models to extend or reinvent your business. This could include:

- **Innovative products**: Greener products
- **Small lot sizes and individualization**: Tailored solutions
- **Customer collaboration for products**: Strengthen relationships
- **Value-added services**: Drive new revenue opportunities
- **Disintermediation**: Open additional markets

New processes

Examples of reimagining business processes include:

- **Operational efficiency**: More accurate predictions and faster decisions
- **Organizational innovation**: Impactful R&D for patentable ideas and products
- **Real-world sensing of demand**: Real-time demand data increases planning accuracy and improves decision support
- **Energy efficiency**: Less energy used to achieve the targeted quality level
- **Customer service**: Access to detailed product data during order processing
- **Manage talent and recruiting**: Simplification across the entire talent acquisition, training, and retention spectrum

THE DIGITAL PAPER AND PACKAGING ENTERPRISE

Paper and packaging companies have been largely driven by output volume. However, this is no longer sufficient, and new business models and processes can illustrate a successful path into the future. Many organizations are aiming to design a system that better balances demand with production, focuses on profitability, and can also yield a more efficient operations and control system. This transformation requires real-time digital information and control in a digital paper and packaging enterprise.
**EXECUTIVE SUMMARY**

Road map to Run Simple: Steps to digitize your business

**REIMAGINING**

Do you have the right strategy? Start by reimagining your paper and packaging company with business outcomes and customers at the center.

**REIMAGINE BUSINESS MODELS**

Digitization, regulations, and globalization destroy established business models and make the road ahead less clear. Alternative business models, like production of carbon fiber or dissolving pulp, will see increased popularity, but some innovative models can become even more profitable through digitization:

- Creating innovative goods like intelligent packaging
- Manufacturing individual products at small lot sizes
- Enhancing customer collaboration
- Value-added services
- Disintermediation

**REIMAGINE BUSINESS PROCESSES**

Changing business models and digital technology drive business process efficiency and innovation that inspire new business approaches and accelerate breakthrough technology in production, storage, services, transportation, and distribution.

**REIMAGINE WORK**

The fundamental transformation to digital paper and packaging profoundly changes what people do, how they learn, interact, engage, and grow. Many tasks will become automated, but people will be an even greater asset in shaping the customer experience as their roles change.

**PLATFORM**

Do you have the right platform?

Leaders are investing in digital capabilities that are congruent with their strategy. The shift to digital business will provide all participants the right platform to drive efficiency, accelerate energy innovation, and develop new business models.

We ensure solutions align to desired outcomes. SAP’s digital business framework is based on the five key pillars of a digital strategy:

1. **Customer experience** across all channels
2. **Supplier collaboration** across all spend categories (maintenance, repair, services, and expenses)
3. **Core business processes** (finance, procurement, supply chain, and work management)
4. **Workforce engagement**, including employees and contractors
5. **Assets, Big Data and the Internet of Things** to drive real-time insights and new business models

**ROI drives this significant phase** of the transition to digital. It’s not about any one of the above five pillars, but rather how they all interconnect to achieve business outcomes.

We apply Design Thinking as our key approach during the reimagining phase. Design Thinking can be described as a discipline that uses the designer’s sensibility and methods to match business needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity.
EXECUTIVE SUMMARY

Fundamental impact: Five technology trends changing everything

We are witnessing an unmatched era of true business innovation. Breakthrough technologies have matured and hit scale together, enabling five defining technology trends:

1. HYPERCONNECTIVITY
   Every person and every asset is connected, disrupting all the established rules around business operations. Connectivity drives the digitization of paper and packaging with collaboration among consumers, suppliers, and an organization’s own workforce.

2. SUPER COMPUTING
   The limits of 20th century computing power are gone. The digital paper and packaging business, powered by real-time in-memory computing, creates infinite business opportunities.

3. CLOUD COMPUTING
   Technology adoption and business innovation move at lightning speed. Technology infrastructure is now rented to eliminate barriers to entry. B2B transactions are moving to new cloud-based collaboration platforms, where millions of businesses and users connect every day.

4. SMARTER WORLD
   Sensors, robotics, 3D printing, and artificial intelligence are the new normal. The rise of the outcome-based economy shifts the focus from products and services to outcomes.

5. CYBER SECURITY
   Cyber criminals have expansive new capabilities to attack, undermine, and disrupt businesses. Trust remains the ultimate currency, giving security-focused businesses a significant advantage in brand reputation.
REIMAGINING

THE DIGITAL ECONOMY OFFERS INFINITE NEW OPPORTUNITIES
Industry trends and new technologies are driving change, and these changing conditions are forcing companies to reimagine how they do business and how they run their businesses. Based on our collaboration with thousands of businesses worldwide, we are seeing that winning companies are moving quickly in three strategic areas:

### REIMAGINE BUSINESS MODELS
Digital paper and packaging enables the flexible allocation of activities and motivates new outcome-focused business models.

- **Innovative products:** Constant innovation is demanded by customers, such as paper made from renewable sources or smart packaging materials.
- **Small lot sizes and individualization:** Quick order completion and delivery of tailor-made solutions create additional value for customers.
- **Customer collaboration:** Critical customer relationships need to be strengthened for sustaining high customer satisfaction and retention rates.
- **Value-added services:** The digitization and interconnection of products and services creates additional value. An example is to advise on the best usage of a complex product.
- **Disintermediation:** Companies will increasingly look up, down, and across their value chains to expand into additional markets.

### REIMAGINE BUSINESS PROCESSES
Innovative business processes run across the entire value chain and deliver the outcomes promised by the reimagined business models.

- **Operational efficiency:** Capturing and analyzing data allows for better predictions, simulations, and decisions.
- **Organizational innovation:** New firm structure, management methods, or information exchange systems give R&D opportunities to explore new patentable ideas and products.
- **Real-world demand sensing:** Increase planning accuracy and access to real time information supports managers in making the right decisions at the right time.
- **Energy efficiency:** Measure, control, and reduce energy using sensor data.
- **Customer service:** New services can provide full transparency during order processing and allow access to detailed product data.
- **Talent and recruiting management:** Simplify new employee onboarding processes and training and increase the likelihood of user acceptance of new processes.

### REIMAGINE WORK
Reimagined business models and processes need an adaptive workforce with new skills and competencies.

- **Automated business processes:** Eliminate manual transaction steps and require “exception handling.”
- **The right information at the right time:** on the right device improves decision quality, profitability, and productivity.
- **Predictive and self-learning technology:** improves machine-to-machine collaboration and needs people who orchestrate complex systems.
- **Unified platform for talent:** Shared HR and professional education services — even in the most fragmented organizational structure.
Increasing regulation, decarbonization, globalization, and digitization destroy established business models of the paper and packaging industries. We expect that companies will explore six major areas of new business models.

**Innovative products**
Customers demand constant innovation, such as products made from renewable sources or smart packaging goods, and they’re willing to pay higher prices for green products, which were made from renewable sources – especially if the quality of recycled material can match that of goods made from virgin fiber. Many innovations are coming from making products “smarter,” such as packaging material that can indicate storage conditions and indicate whether the product is genuine and can be tracked, or provide additional information through embedded electronics.

**Value-added services**
The digitization and interconnection of products and services can be of additional value to a customer, for example, additional information on how to handle and use a product or how to best use it as input material for further production steps. As quality variation of pulp and paper is common even in established processes, quality data is of special interest for the entire industry. A producer of pulp can communicate production process parameters and quality data to its customers, who are then advised how to best plan the usage of that pulp for paper production. Later, during production, the paper company can send its own process data to the pulp supplier and will receive guidance on how to maximize process efficiency and product yield.

**Small lot sizes and individualization**
Paper and packaging goods come in endless variations, and, historically, one method of maintaining profitability was standardization of products. But this doesn’t always provide the best fit to customers’ needs, so firms are beginning to question this paradigm. Organizations now need to deal with large volumes of individual transactions, digitize and automate order intake, proof requirements, and adjust production planning to allow quick order completion of tailor-made solutions.

**Disintermediation**
Companies will increasingly look up, down, and across their value chains to expand into additional markets. UPM, for example, expanded from a forest products company into a “biofore” (bio + forest products) company manufacturing higher growth products like biofuels, biochemical, and other new materials. Additionally, this company generates hydroelectricity and runs conventional power plants and a nuclear power plant. Understanding when it makes sense to consume energy – at lowest possible tariff – or when to sell energy, for example, during times when a lack of wind and sun causes low levels of energy generation, makes a huge difference in profitability.

**Customer collaboration**
Using digitized information, paper and packaging companies can provide additional services based on customers’ individualized needs, such as co-development of new packaging materials or detailed tracking information for shipped goods. And although today’s paper and packaging business is mainly of a B2B nature, in the future, interactions with customers will need to reflect the kind of comfortable experience already provided in B2C relationships. An omnichannel experience is expected, for example, an individualized Web shop, which helps close transactions quickly and successfully.
The traditional paper value chain is transforming at breakneck speed as a result of massive profitability shifts within business segments. Highly interactive processes executed in real time help yield a positive profit margin while keeping customers happy.

Operational efficiency
Capturing and analyzing data from machines, vehicles, or products allow better predictions, simulations, and decisions to be made. Automation and connectivity across the plant floor reduce error rates, add speed, and cut operating costs. Analyzing sensor data from machines helps predict possible failures early and reduce unplanned downtimes. Augmented reality may allow workers to safely maintain devices without the need to call skilled technicians. Integrated planning of demand, production capacity, and transportation capacity helps maximize throughput and asset utilization while lowering stocks.

Energy efficiency
Using less energy to produce the same product of the necessary quality has been a for the paper industry for some time. With sensor data being collected and correlated with business data in near real time, new ways of running a mill are now possible. Monitoring of process parameters to yield exact desired quality levels helps in fulfilling customers’ requirements for products made at the lowest possible level of energy consumption.

Organizational innovation
The paper and packaging industry has tended to focus innovation efforts on reducing capital and operational costs to improve efficiency. There is less emphasis on innovation opportunities in other areas such as R&D and the development of intellectual property in the form of patents, trademarks, copyrights, or trade secrets. Companies can introduce or expand the role of R&D by collaborating with sales, marketing, production, technology, and legal.

Customer service
Innovative service offerings and processes can have a game-changing impact on customer relationships and the top and bottom line. All service processes will be digitally connected to the workforce, suppliers, customers, and assets for more efficiency and customer value. New services could provide full transparency during order processing and allow access to detailed product data. Joint product planning can help ensure in-time availability to the customer and better planning for the supplier.

Real-world sensing of demand
In businesses like packaging, prediction of precise demand will still be impossible. But it is possible to increase planning accuracy and give managers access to real-time demand information that supports them in making the right decisions at the right time. Big Data allows for the analysis of end consumer behavior, thereby helping companies calculate demand for packaging materials. For example, the consumption of goods like paper towels can be measured and kept at expected levels by deploying sensors which count people entering various bathroom areas of a sporting arena.

Energy efficiency
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Talent and recruiting
As with other industries, the paper industry is facing fierce competing for talent. But the paper industry is not necessarily perceived as the most innovative, and the environmental impact of paper production is still of concern to some, though much has improved already. Use of innovations and technology can help make the industry more attractive, but it can also help in finding and retaining employees. Streamlined new employee onboarding, interactive training, and change management can increase the likelihood of user acceptance for new processes and get new employees comfortable in their roles faster.

Breakthroughs
“The solutions from SAP are enabling breakthrough business processes in the area of predictive quality at Koehler Paper.”

+60-70% improved overall equipment effectiveness and +1% increased manufacturing throughput through reduction of scrap at Klabin

SAP Digital Paper and Packaging Whitepaper (02/16) © 2016 SAP SE. All rights reserved
The fundamental transformation from historical structures to a digital paper and packaging business profoundly changes what people do, and how they learn, interact, and grow.

Paper and packaging companies are transforming the whole notion of work as the expectations towards employees are changing rapidly. Work that had been done by blue collar workers is now done by highly qualified IT and operations specialists. Management by exception and automation is the new way, and processes, tools, and roles need to be adapted.

**Automated business processes**
There are many opportunities to automatize processes, for example in procurement of standard goods, production data collection, invoicing, or design of new packaging products. Digital processes have access to real-time analytics to support rule-based decision making.

**Right information at the right time**
People who need the knowledge have digital access on demand, in real time, and on all devices. Established processes that have been used for decades, like creation of sales orders, can now be enriched in real time with contextual data about the customer, joint business history, or details for a complex configurable product – thereby leading to better business decisions.

**Predictive and self-learning technology**
Software solutions can accelerate the delegation of business processes and decisions from people to machines. Shop floor processes are supported or controlled by predictive systems that interact with machines and business processes to ensure the highest level of uniformity in a constantly fluctuating paper process, at lowest energy consumption.

People continue to be key assets in the digital paper and packaging. Their roles will change, but each one’s contribution to business value will grow.

**Unified platform for talent**
Paper companies are often a mix of various other companies combined from past mergers and acquisitions, which often results in some fragmentation within the business structure. But even the most fragmented company can offer shared HR and professional educational services and timely onboarding for new employees. It can ensure all employees are treated the same across the company so they can deliver their best results.

**Ahlsstrom Paper – Performance dashboard**
“We now have a performance dashboard, which delivers aggregated data from our different business areas, showing us where we are seeing the most growth, where successors are needed, and where we need to bring additional external talent into the organization. [SAP] SuccessFactors is enabling us to make strategic decisions that drive the business and ensures alignment across the organization to help us manage and meet our corporate objectives.”

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In order to reimagine everything in the digital economy, agility and flexibility are required to adjust course at any time. This involves two key concepts: simplification and innovation.

**Simplification** is all about doing what we are already doing but better, faster, and cheaper.

**Innovation** is all about reimagining business models and customer value by leveraging the five technology trends. The diagram below is at the heart of the digital business transformation. The idea is very simple, but it took years to make it a reality: Bringing together transactions and analytics on the same platform. Uniting structured data (e.g., finance) and unstructured data (text, video, voice) will change the way businesses plan, scale, and innovate.

In-memory computing is a concept brought to life by the breakthrough SAP HANA platform. While relatively young by commercial standards, SAP HANA’s rapid adoption across multiple industries validates its massive potential for digital businesses.

With in-memory computing, we can now finally:

- **Leverage Big Data** from machine sensors and correlate with business data in real time. Bringing all data signals together leads to the perfect recommendation which can be instantly acted upon, for example for the use of pulp or paper.
- **Extend the business process** to interoperate with business partners in near real time via advanced cloud-based business networks. For example, late order changes can be easily realized while a customer is waiting on the phone. The supplier can confirm timely replenishment and the company’s own production staff can provide detailed order status—all based on specific product configurations.
- **Modernize business processes** from finance to supply chain, running them in real time with no data replication and no batch programs. This, for example, allows for access to a customer’s contextual data, like payment history or perfect order rate, while interacting with them.

SAP constructed an innovation road map designed to bring in-memory computing together with cloud computing and mobility. This strategy has been embraced by early adopters who are leading the transition to digital.

**SMARTER DECISIONS + SMARTER TRANSACTIONS = SMARTER BUSINESS**
DIGITAL BUSINESS FRAMEWORK

A SIMPLE AND PROVEN APPROACH TO VALUE CREATION THROUGH DIGITIZATION
SAP understands the five technology trends, and we also understand that these ever-changing requirements are big challenges for businesses. The reimagining process helps crystalize the future business model.

We have built a structured framework to help develop and execute on your digital business strategy: the digital business framework. With this framework, the entire value chain will be digitized, including the core, which serves as the platform for innovation and business process optimization.

Every company needs to think about digitization across five key pillars:

1. Outcome-based **customer** experience
2. Re-platform **core business** processes that bring together transactions and analytics in real time to be smarter, faster, and simpler
3. Smarter and engaged **workforce** across all employees and contractors
4. **Customer collaboration** to accelerate growth innovation
5. Big Data and **Internet of Things** to drive real-time insights and new business models
THE DIGITAL CORE
A new generation of ERP solution running in real-time, integrating predictive, Big Data, and mobile, will change how we work, how we run our business, and how information is consumed: The future is here.

With advanced in-memory computing, you can finally free yourself from running the business in batch mode and building complex procedures to get around technology limitation. You can run simply and unleash the full power of the digital business.

**Real time**
Real-time optimization of business-based changes will have massive implications for how we work, do business, and organize.

**Power of prediction and simulation**
Every employee can leverage real business insights with the help of simulation and predictive tools to drive perfect decisions, improve productivity, and increase profitability.

**Agility**
The ability to rapidly enter new markets, acquire and onboard new companies, or reflect an organizational change in one-tenth of the time it takes with today’s systems is now possible and will enable the agility required in the digital economy.

**Deployment choice and lower TCO**
The consuming solution to run the core of the business has to be simple. Companies now have the choice to deploy in-house or in the cloud. In-memory computing will also have a significant impact on TCO, and it will free up more budget for innovation.

**Consumer-grade user experience**
User experience is key to success; it drives adoption, user engagement, and ultimately productivity.

87% of finance executives agree that meeting growth targets requires faster data analysis, but only 12% are able to respond to information requests in real time16

400%
Suzano Papel e Celulose S.A.: “With SAP HANA, we accelerated the display time of our customer line items by 400%. A faster system response enables us to make even faster business and technical decisions”17

**Simplify with SAP**
Currently SAP S/4HANA is the only end-to-end solution that covers all business processes and runs in-memory. It helps paper and packaging companies to run in real time for fundamentally better performance. For instance:
- Single, real-time view of plant and business performance with real-time analysis of asset performance
- Optimized energy consumption through blending IT/OT data to optimize operational performance
- 360-degree view of the customer to improve the overall customer experience

In addition, the SAP HANA platform can be the single enterprise data source leveraged by SAP S/4HANA and the rest of your solution landscape.
SAP customer engagement and commerce solutions powered by the SAP HANA platform provide a single platform that brings together marketing, sales, services, and commerce to ensure seamless digitization of the entire customer experience. The platform enables a 360-degree view of your customer, real-time interactions, and sophisticated predictive analytics, fully integrated to the core transactional system. The platform supports:

- Orchestration of business processes across marketing, commerce, sales, and service
- Delivery of personalized experiences in context with each interaction
- Creation of a single, harmonized experience for your customer, while reducing the burden on employees
- Ability to engage your customers on the channels they choose at any moment in their journey
- Full integration of the platform with your core business processes
WORKFORCE ENGAGEMENT

The world is getting smarter in the digital economy, but complexity is overwhelming the workforce in this pursuit.

Complexity is the enemy of workforce engagement. People are working harder than ever but are not necessarily accomplishing more. Employees do not have access to smart, consumer-grade technology to work faster, better, and more efficiently. Organizational complexity is driving cost up and slowing down progress. Four forces need to be addressed:

Changing of the guard
Over 50% of the workforce will be millennial by 2020. Paper and packaging companies have to devise a workforce strategy to make work in this industry attractive for the digital generation.

Rise of contingent labor
Companies are turning more and more to contractors and services providers to drive agility and lower fixed cost. Firms can outsource work, but not the responsibility for safe and compliant operations. The contingent workforce must be digitally integrated in all business processes.

Constant reorganization
Reorganizing to adjust to the new reality is becoming a constant, but it can’t be allowed to disrupt efficient operations.

Persistent complexity
Regulations are constantly changing. Layer upon layer of management is hindering speed and agility.

83% of executives indicate they’re increasingly using contingent workers

34% of executives feel that they’ve made progress in building a workforce that can meet future business goals

30% of executives say their companies give special attention to the particular wants and needs of millennials

Improve your total workforce productivity: Simplify with SAP

Digitize your workforce with SAP: S/4HANA + SAP SuccessFactors + SAP Fieldglass + SAP Fiori provide the tools for total workforce engagement and advanced analytics.

• Recruit and onboard the best workforce, simplify their work, and ensure that regulatory and compliance requirements are met
• Manage the total workforce lifecycle, from recruiting and onboarding, to performance, compensation, and learning – all in one place
• Utilize smarter apps to enable the workforce to easily access the right information across any device and through a dramatically simplified user experience
BUSINESS NETWORKS AND SUPPLIER COLLABORATION

Trillions of dollars of commerce moving in silos + millions of companies attempting to innovate on their own = lost opportunity to improve the lives of billions of end users.

Companies have to reimagine business processes to remain competitive and best serve customers in the digital economy. From securely sharing data in real time, to providing personalized and contextual insights, to changing how companies exchange and offer products and services, collaboration across entire vertical markets is key to value creation. Several trends are redefining the game:

**Consumer buying experience**
Business applications must be effortless to learn and use, such as with iTunes, Amazon, or Google. Solution complexity drives lower adoption rates, increased maverick spend, and lost opportunities from not taking advantage of negotiated contract rates.

**Network of networks**
An open network serving a single market (such as travel, suppliers, labor) is valuable to its ecosystem. But a vertical network that connects to other vertical networks in real time is revolutionary and can only be accomplished through a shared set of cloud-based services built on top of the SAP HANA Cloud Platform.

**Business connectivity at scale**
The greatest challenge/opportunity in connecting vast ecosystems is the exponential data growth generated and consumed by the network. Connecting millions of partners and processing petabytes of data in real time is the core requirement to becoming the de facto standard business network. Only SAP offers the platform to meet this challenge.

Connect businesses to the world and the world to your business

SAP S/4HANA gives you incredible capacity to digitize business processes across your internal business operations, but it is the connection to a global partner ecosystem that enables you to extend those processes externally beyond the four walls of your business, with:

- A solution already at scale and covering all spend categories (direct and indirect material, labor and services, travel and expenses)
- Business networks operating on a global basis, with near zero downtime, and compliant with data security standards
- An extensive offering leveraging services from many partners in areas such as supply chain, finance, payment, supplier certification, etc.

$1 billion global spend routed through SAP Ariba solutions at Albea Packaging leads to a more efficient tendering process and safer negotiations.

50–75% faster transaction cycles are being achieved through networked business.

74% of pulp and paper CEOs think that digital technologies create value to external collaboration.

Manage expenses

Direct and indirect material

Labor and services
BIG DATA AND THE INTERNET OF THINGS

The most dramatic change in the digital economy will be driven by hyperconnectivity and Big Data science, which will transform nearly every business model.

Companies are finally starting to understand the full potential of Big Data and the Internet of Things. We are witnessing new use cases across all industries with breathtaking initial results. Key trends in this space include:

**Smart products driving new business models**
Companies are embedding sensors in their products and processes. As a result they are becoming technology companies that rethink the value delivered by their products and that hire hardware and software engineers to implement their ideas.

**Data-driven business models**
The transformation in the industry is enabled by Big Data technology and the computing power to process massive amounts of data in real time.

**Technology-driven customer engagement and engineering**
Customer sales and services and engineering functions are spending more and more on Big Data and sensor technologies as they are the most transformed by these new technologies.

**New alliances**
A seamless collaboration around new business models is building partnerships that may not have made sense few years back. Examples include partnerships between agriculture companies and satellite/weather companies, between Google and automotive makers, and many others.

74% of pulp and paper CEOs think that it is important to have a clear vision how digital technologies can help achieve competitive advantage.

10x Faster reporting at Swiss Krono Group AG. In-depth analysis is now available to executives at any time for fact-based business planning.

Connect, transform, and reimagine with SAP

With SAP HANA, Internet of Things (IoT) edition, organizations can now take embedded device data, transform this data into useful information in real time, and apply this information across the value chain to drive business insights and create new business models. The Internet of Things platform provides the connectivity to OT systems either directly or via partners like OSIsoft. The data is stored and processed in the platform, which provides basic functions like data services (such as operations on time series), predictive analytics, and others. Based on this platform, applications are developed by SAP, partners, and customers to enable the relevant use cases.
Dream, develop, and deliver with SAP HANA Cloud Platform

SAP HANA Cloud Platform gives you the mobile, collaboration, integration, and analytic capabilities you need to dream big, develop fast, and deliver everywhere with the following capabilities:

**Application extensions**
Extend your current cloud and on-premise solutions for additional customization, enhanced business flows, and more.

**Real-time analytics**
Engage customers, optimize business processes, and unleash new revenues with real-time analytic apps, powered by SAP HANA.

**New cloud apps**
Quickly build innovative consumer-grade and industry apps for today’s always-on, mobile, social, and data-driven world.

**Extended storage capabilities**
Holistically manage all structured, unstructured, and infinite data streams with flexible combinations of data stream processing, in-memory technology, disk-based columnar storage, and Hadoop-based storage solutions.

**Data footprint reduction**
Significantly reduce memory footprint and TCO. In ERP systems, we have seen ~6x reduction by SAP HANA’s dictionary compression. Removing aggregates and actual and historical data separation further reduces the footprint to ~10x.

The SAP HANA platform is...
Real-time, in-memory platform • 10x data footprint reduction for ERP • Extended storage, including Hadoop • Open architecture • Developer-friendly • Embeds mobile and analytics • Secure • Cloud-ready

<table>
<thead>
<tr>
<th>New apps and services</th>
<th>NEW APPS</th>
<th>EXTENSION</th>
<th>INTEGRATION</th>
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<tbody>
<tr>
<td>Platform</td>
<td>UX (Mobile/SAP Fiori)</td>
<td>Analytics (SAP Lumira)</td>
<td>Integration (SAP HANA Cloud Integration)</td>
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<td></td>
<td>Open programming containers (Java, XS2)</td>
<td>Security (SSO, Identify)</td>
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<tr>
<td>Infrastructure</td>
<td>Data platform (SAP HANA DB, SAP ASE)</td>
<td>Libraries (graph, predictive)</td>
<td>Big Data (Hadoop, Spark)</td>
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<td></td>
<td>SAP data centers</td>
<td>Partner data centers</td>
<td>Customer data centers</td>
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Constantia Flexibles
"The switch to SAP BW powered by SAP HANA delivered a performance and efficiency boost to our reporting process. The business can now deliver to tight schedules while supporting business growth across the group.”

Koehler Paper Group
"We can now analyze 7 million data records in next to no time. We can select data based on all possible criteria – from the purchase of raw materials to the invoicing of the end product.”
HOW DOES IT ALL COME TOGETHER? – EXAMPLE

Building and operating large mills and producing a commodity product at the desired quality at lowest possible cost has been the model for paper and packaging companies for decades. But this will change soon. While each of the five digital business pillars delivers significant value as a stand-alone capability, the ultimate goal is to design the next generation of business processes that will span across all the digital pillars.

USE SENSOR DATA TO PROACTIVELY MAINTAIN ASSETS, PREDICT PRODUCT QUALITY, AND LOWER ENERGY CONSUMPTION

Imagine that sensor data are continuously collected and analyzed in real time to determine and monitor asset status and health. This information is also fed into advanced analytic models that can predict impending failures early enough to avoid damages. This capability supports the decision for the best actions, including ordering the right spare parts, allocating the right experts, and devising a cost-effective schedule.

The same capability can also predict production yield and product quality. With optimized energy consumption and real-time analysis of process data, plant managers can be confident that mills are producing the necessary level of quality for each individual customer order. Any rework due to quality flaws or other delay in production can influence the expected product availability date – and reliability is crucial in a commodity business like paper production, where dissatisfied customers can easily find alternative suppliers.

A resilient production based on timely communication of issues is not the only way to strengthen customer relationships; additional services like detailed product information, collaborative product planning and development, or proactive resolution of claims also play a major role. Customers must have access to real-time information about products and orders across all channels.

This integrated scenario yields tangible business benefits:
\- Higher return on assets
\- Safer work environment
\- Less product rework
\- Products are produced at the right quality with least possible energy consumption
\- Higher customer satisfaction

Digital paper and packaging enables even more innovative asset management scenarios in which equipment monitors its own health and reaches out to manufacturer experts for timely solutions.
HOW TO START

THE JOURNEY BEGINS WITH A CAPABILITY ANALYSIS THAT RESULTS IN THE TRANSFORMATION AGENDA
HOW TO START

THE JOURNEY TO DIGITAL PAPER AND PACKAGING
The journey to define future business models involves all disciplines of a modern company and requires a systematic approach to identify and capture business opportunities.

THE COLLABORATIVE VALUE AND INNOVATION FRAMEWORK
Companies embarking on the transformation journey to the digital business typically start to reimagine their business with a focus on business outcomes and customers. Answering the key questions, “What role will we play in the value chain?” and, “How will we make money?” will provide direction for reimagining your business processes and operational model.

For innovation today, a new level of collaboration is required. As a result, we have developed a framework that will be a continuous and holistic partnership model designed to drive true collaboration and engagement. Outlined below are the five steps of SAP’s Collaborative Value and Innovation Framework:

1. **Strategy alignment**: Understand company and SAP strategic direction and identify initiatives
2. **Opportunity assessment**: Opportunity deep-dive based on strategic initiatives and prioritization based on value
3. **Solution road map and ROI**: Document end-state solution, and business case including benefits, TCO, ROI, and strategic road map
4. **Value realization**: Deliver transformation on time, on budget, and on value
5. **Governance**: Maximize investments and accelerate value creation with governance based on executive engagement, value delivery, and continuous innovation
WHY SAP?

BUSINESS DIGITIZATION IS A NATURAL NEXT STEP FOR THE #1 BUSINESS APPLICATION COMPANY
SAP IS COMMITTED TO INNOVATION

**Vision**
Help the world run better and improve people’s lives

**Mission**
Help our customers run at their best

**Strategy**
Become the cloud company powered by SAP HANA

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### GLOBAL PRESENCE AND RELEVANCE
- 77K employees representing 120 nationalities
- 300K customers
- SAP operates in 190 countries

### INDUSTRY AND LOB FOCUS
- Solutions for 25 industries and 11 lines of business
- 98% of top valued brands are our customers
- 74% of the world’s transactions managed on SAP

### DIGITAL ECONOMY - READY
- 95 million business cloud users
- 2.0 million connected businesses
- $740 billion+ in B2B commerce
- 99%+ of mobile devices connected with SAP messaging

### INNOVATION LEADER
- 2011 SAP HANA launched
- 2012 SAP Cloud launched
- 2014 SAP business networks are the largest marketplace in the world
- 2015 SAP HANA Cloud Platform
- 2015 SAP S/4HANA: Most modern ERP system

### DIGITAL PAPER AND PACKAGING ENABLED BY SAP
- 1998 SAP for Mill Products launched
- 13 of the top 15 pulp and paper producers rely on SAP
- Over 1,200 SAP customers in 70 countries in the forest, pulp, and paper industry

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**REDUCE DATA CONSOLIDATION TIME FROM SEVEN TO TWO DAYS**
With SAP Sales and Operations Planning running on SAP HANA, Chilean forestry, wood, and pulp company Arauco reduced the time for company-wide data consolidation while increasing data quality and user acceptance.27

**25% LESS VENDOR SPEND**
Establishment of a company-wide data governance framework and processes allowed U.S.-based company Graphic Packaging International to reduce vendor spend by 25% with better procurement analysis.28
CREATE COMPETITIVE ADVANTAGE THROUGH INNOVATION

SAP will bring simplification, innovation, and acceleration required to support the development of your digital business strategy. These capabilities will be leveraged throughout the SAP’s collaborative value and innovation framework.

**World-class user experience**

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<th>People-to-people collaboration</th>
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<td>- Industry capabilities</td>
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<td>Customer-centricity</td>
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<td>Core operations</td>
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<td>Risk and finance management</td>
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<td>Partner collaboration</td>
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<td>- Line-of-business solutions</td>
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<td>Finance</td>
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<td>IT</td>
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<td>- Business-to-business collaboration</td>
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<td>Create and build</td>
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<td>Store and aggregate</td>
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<tr>
<td>Orchestrate and govern</td>
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<tr>
<td>Analyze and predict</td>
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<tr>
<td>Go mobile and secure</td>
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<td>Powered by SAP HANA</td>
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**SIMPLIFY**

Simplify transaction processing, account management, and customer service while enhancing operations.
- Deliver superior customer service and connect to customers via a single view enabled by the SAP HANA platform
- Give customers a smooth omnichannel experience across channels such as storefront, Internet, telephone, e-mail, Web chat, and social media
- Provide agility with SAP HANA Enterprise Cloud. Get fast access to the latest SAP innovations, allowing for faster response to business needs

**INNOVATE**

Use SAP HANA Cloud Platform to enable producers, suppliers, and customers to connect and collaborate.
- Connect mobile users to enterprise data on customers, accounts, and services, giving access to the information they need
- Process and optimize data on customers and assets across all plants and legal entities with SAP HANA in the cloud
- Adopt and apply analytics solutions through the cloud to enhance visibility into product demand

**ACCELERATE**

Predict and respond to opportunities and risks with predictive analytics solutions powered by SAP HANA.
- Address unplanned maintenance shutdown more quickly
- Take new products and services to market more quickly and respond to customers on the platforms they prefer
- Balance demand and supply with predictive modeling and accurate and timely analytics using SAP HANA
- Accelerate initial deployment of your SAP HANA and SAP S/4HANA projects with SAP HANA Enterprise Cloud
In the digital economy, simplification and business innovation matter more than ever. SAP has a broad range of services to cover the end-to-end digital transformation journey, ranging from advising on a digital innovation road map and plan, to implementing with proven best practices, to the ability to run across all deployment models, and ultimately optimize for continuous innovation across your digital journey. SAP provides both choice and value within our services, allowing you to tailor the proper approach based on your needs.

Turn to the 30,000 consultants and support professionals who can bring your digital strategy to life. SAP’s Global Service & Support (GSS) organization provides a consistent experience – on premise, cloud, or hybrid. GSS has the expertise, assets, and the proven methodologies required to accelerate business innovation, reduce TCO, and run a stable platform (on premise or in the cloud).

SAP Activate is a new, simplified consumption experience introduced for SAP S/4HANA and cloud adoption. It provides a combination of SAP Best Practices, methodology, and guided configuration. In addition, we have the leadership in learning to drive quick time to value realization and a solid engagement foundation with SAP MaxAttention, SAP ActiveEmbedded, and SAP Value Partnership across the end-to-end customer lifecycle.

SAP HANA Enterprise Cloud is the optimal springboard to the cloud for customers. It offers an attractive option for organizations that are eager to leverage SAP’s latest innovations such as SAP S/4HANA, with the peace of mind that SAP is in the driver’s seat.
Our comprehensive ecosystem offers:
• A wide range of business services (banking, travel, etc.)
• Open architecture: choice of hardware and software
• Complementary and innovative third-party solutions like trim optimization or production scheduling
• Reach – partners to serve your business of any size anywhere in the world
• Forum for influence and knowledge
• A large pool of industry experts with broad and deep skill sets

Our partner ecosystem includes, among others:

**Influence Forums & Education**
- 32 user groups across all regions
- 40+ industry councils
- SAP community >24 million unique visitors per year
- 2,400 SAP University Alliances

**Implementation Services**
- 13,300 partner companies
- 3,200 service partners
- Delivering 1,300+ industry specific solutions

**Business Network**
- 2.0M suppliers
- 200 major travel partners (air, hotel, car)
- 50K service and contingent labor providers

**Innovation**
- 1,900+ OEM solution partners to extend SAP solutions
- 2,700 startups developing SAP HANA apps

**Platform & Infrastructure**
- 1,400 cloud partners
- 1,500+ platform partners

**Channel & SME**
- 4,800 channel partners
Outlined below is additional external research that was used as supporting material for this white paper.


12. UPM website, www.upm.com


23. Explore the survey data: Interactive charting tool, FWC, CEO Survey 2015 (online tool) http://www.pwc.com/gx/en/ceo-agenda/ceo-survey/explore-the-data.html


25. “Constantia Flexibles – Boosting Reporting Performance and Efficiency with SAP BW powered by SAP HANA”, Bruno Sticht, IT Manager, Constantia Flexibles International GmbH 2015. Source: SAP Customer Success Story https://dam.sap.com/mac/preview/a/67/HASJA SPxOHm6yEgU2AXIS.k5HOxElUSXUmOuUExEWW XmgUp-36028_Constantia%20Flexibles_BTS.hm


Note: All sources cited as “SAP” or “SAP benchmarking” are based on our research with customers through our benchmarking program and/or other direct interactions with customers.

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