

People and Packaging.

The impact of the internet of things (IOT) on the packaging industry.



The impact of Internet of Things (IoT)/Industrial IoT (IIoT) on the packaging industry.

The world is undergoing a dramatic change, Internet of Things - Connectivity (IoT) is found everywhere, including in factories (IIoT) and households. It promises tremendous potential across the business landscape, from financial services to health care, consumer to industrial. We interviewed several leaders with expertise in different areas of packaging, and studied recent research on the subject to learn about and discuss the implications of IoT in industrial applications. We also discussed the opportunities and risks specifically related to packaging, with a focus on how IoT is changing this industry.

Our conclusions are that IoT offers the packaging industry an opportunity to reinforce their strategy for achieving business outcomes among them continuous internal business improvements, revenue growth, and cost reductions. When organizations know the outcomes, they want to achieve through IoT, they can more easily assess their capability needs, including identifying and developing internal talent and recruiting external talent. The approach needs to be holistic, encompassing core areas such as organizational design, top team effectiveness, change management, and culture transition.

A McKinsey analysis found that factories (operations management and predictive maintenance) will benefit most from IoT, with the potential to reap \$1.2 trillion to \$3.7 trillion a year in economic benefits within a decade (Manyika et al. 2016). According to a study conducted by research firm The MPI Group, today's manufacturers have only incorporated smart devices or embedded intelligence in 25% (median) of their production equipment

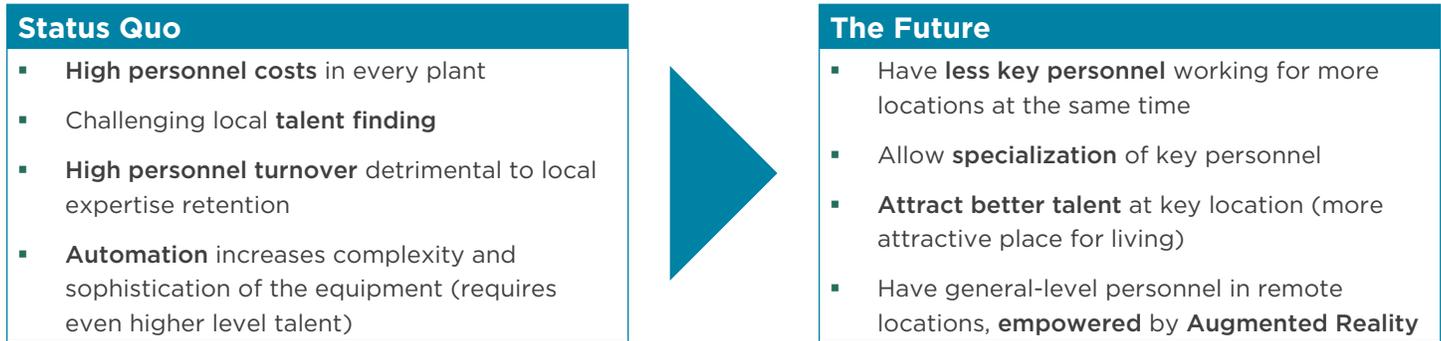
and processes. Despite the benefits, few manufacturers have the network infrastructure to accommodate IoT machine-to-machine (i.e., sensors in one machine trigger actions of another machine) or machine-to-enterprise communications (i.e., machine sensors send data to corporate business systems).

The study indicates that about 75% of manufacturers will increase IoT use in the next few years and that the top five objectives for incorporating this technology are:

- Improve product quality.
- Increase the speed of operations.
- Decrease manufacturing costs.
- Improve maintenance/uptime.
- Improve information for business analytics.

At the Austrian packaging company ALPLA, Jodok Schaeffler is responsible for meeting their needs of increased production efficiency. At the moment, he is managing a project at their US operations, Misson-J. The following figures demonstrate an overview of this IoT project.

Example Mission-J: A future packaging manufacturing plant reality.



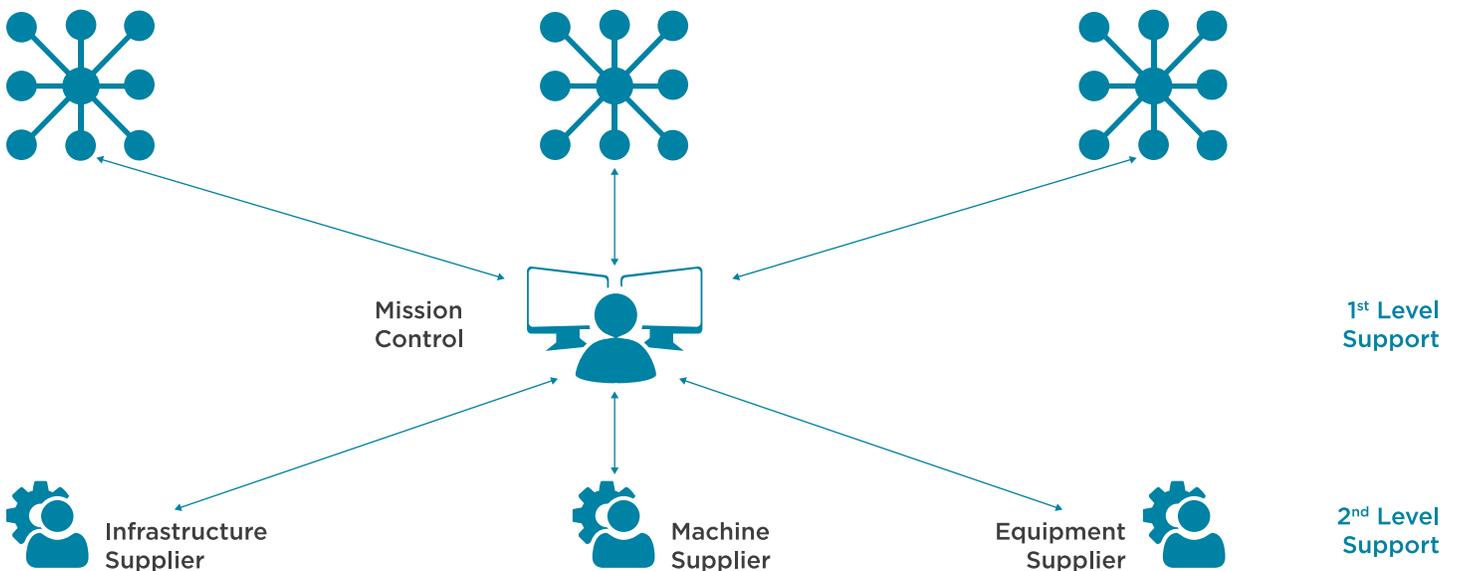
Data-driven manufacturing: new enabling technologies.



By utilizing new technologies based on advanced databases such as CrateDB, and systems for machine learning and artificial intelligence combined with distant reality communication with the plant operators through tablets and augmented reality, today they are in the initial phase of creating opportunities to improve the efficiency of running their packaging operation on the shop-floor.

A central mission control based manufacturing setup.

By connecting all the essential stakeholders in the operation in real-time, ALPLA intends to increase the plant efficiency by utilizing real-time information sharing in order to act quickly on changes required in their operation.



In accessing the power of industrial IoT, connectivity is only part of the equation. It also requires sophisticated data analytics to track efficiencies and detect potential problems. The result is a body of predictive analytics that can generate large-scale improvements from factories to fleets. For packaging manufacturers, data collection and analytics

empower improvements in both manufacturing processes and the products delivered to consumers and end users. The former CEO of Graham Packaging, David Scheible, gives another good example from the paper packaging industry: Modern paper machines, for example, have intelligent devices that use technology to sense and respond to changes in their production and environment. At the same time, the data collected can help improve both the product and the process of manufacturing the paper. The result is an intelligence embedded, data-driven continuous improvement loop. Feedback loops also gather experiences from customers and end users of industrial products and other services.

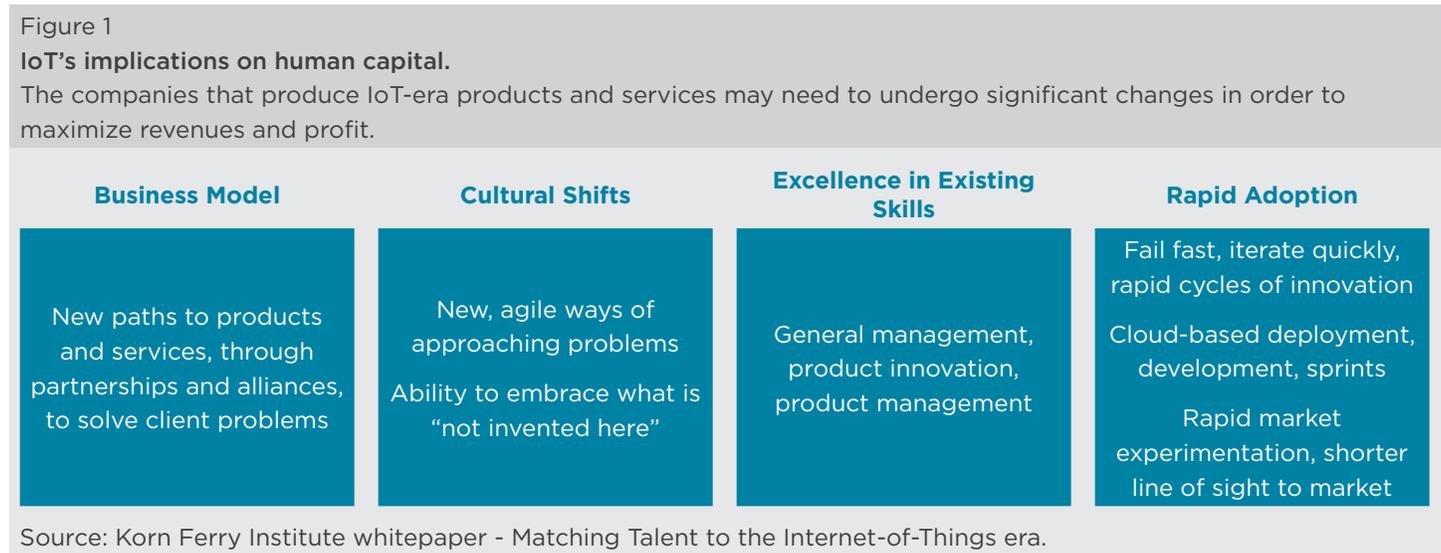
According to a report by Smithers Pira, the global smart-packaging industry is predicted to grow during the five-year period to 2021 at an annual rate of 8%, to \$7.8 billion. The term “smart packaging” is a combination of both active packaging and Internet of Things packaging. Active packaging will grow at a rate of 4.9%, to \$5.6 billion and IoT packaging will grow at an astounding 18% per year, to almost \$2.2 billion.

Far more than mere business intelligence, IoT yields predictive analytics and actionable data, such as examining supply and demand in real-time to better manage inventory levels, and receiving alerts as soon as a part or component is operating at less than optimal efficiency. Such intelligent data can power a continuous improvement loop. Among packaging companies, we see an accelerating interest in reaping the benefits of the new technology opportunities. We’ve met global packaging companies that have developed and are implementing new advanced IoT service and maintenance concepts, such as advanced logistics concepts, for their business, increasing productivity and service quality and gaining strong interest from the industry and customers.

Having the right go-to-market framework to roll out an industrial IoT strategy means having the optimal organizational design.

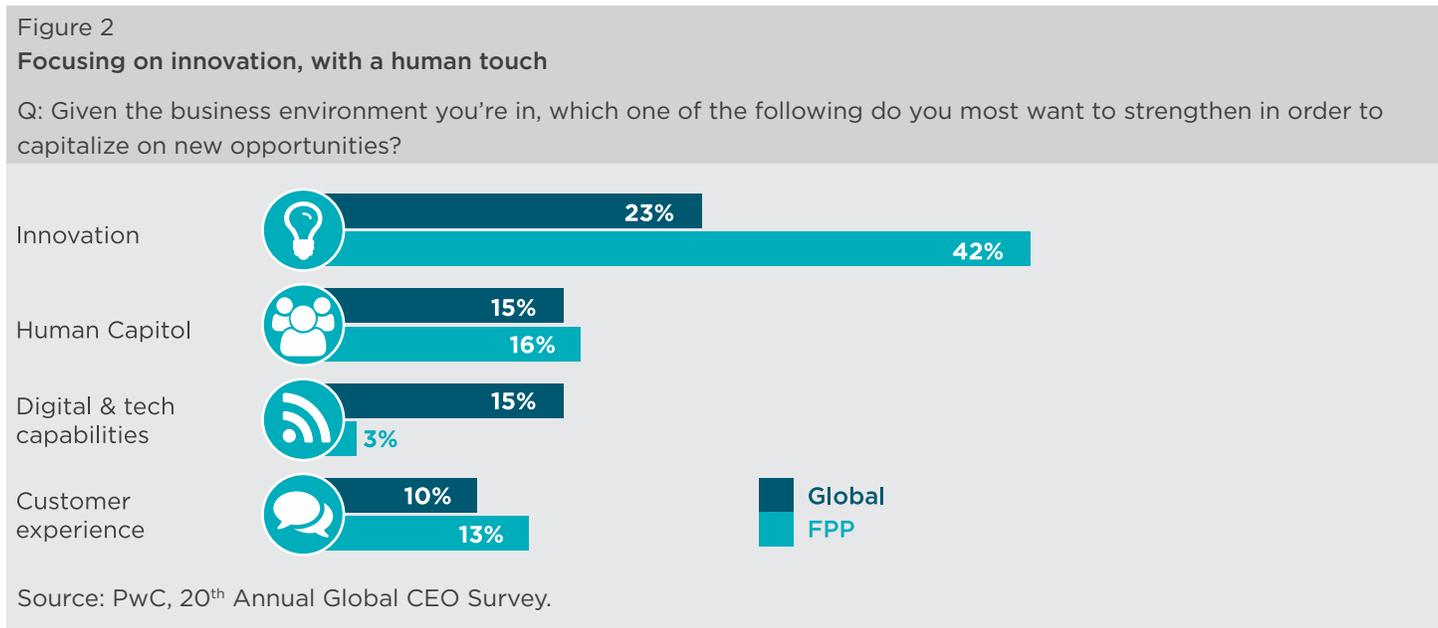
A key consideration is whether to execute and manage an industrial IoT strategy within the existing company, or to adopt a “newco” approach with a separate entity. We’re seeing both models in the industry today. Many large organizations opt for a newco approach to become more flexible and adaptable, with the support of the C-suite leaders. Senior leaders’ buy-in speaks to the need to address top team effectiveness, with C-level executives who view IoT as a technology that enables business outcomes.

Top leaders must also address the change management and culture transitions required to engage in IoT enabled transformations. Without these measures, it will be difficult to focus on any number of key performance indicators (KPIs), from process improvements to providing better market intelligence to customers. Furthermore, IoT strategies cannot be built in isolation. Organizations must rely on an ecosystem of partners, such as strategic alliances with software and hardware companies.



IoT is sparking a human capital transformation, particularly among industrial firms that suddenly find themselves in need of a broad base of talent across a variety of roles and responsibilities.

Defining success for pivotal roles in today’s packaging world isn’t easy. Constant uncertainty and rapid change make it difficult to forecast and identify exactly which skills and attributes will be most useful in the future. According to our interviews and a related PwC study from 2017, on forest, paper & packaging, packaging CEOs rely heavily on the human element in the balance of man and machine in driving the future. However, the human factor presents a challenge: those same skills as adaptability, problem solving, creativity, leadership and collaboration that drive innovation also lead the list as the hardest traits for which to recruit.



By understanding the desired business outcomes, packaging companies can more effectively identify the talent solutions that will support business success. The path won’t be without challenges but organizations that take a whole systems approach typically fare better than others in achieving the desired results. Organizations facing disruptive technological change must innovate swiftly and reinvent themselves; this evolution requires leaders who can drive both innovation and change, while building a collaborative, performance-oriented culture (Crandell 2015). Understanding the positive impact of making organizational changes to embrace an IoT strategy can help foster a shared approach to innovation. This will influence the overall culture, the organization’s design and structure, and its leaders.

Korn Ferry has pinpointed six components for driving superior performance, encompassing both organizational enablers and people drivers:

Figure 3
Six components driving superior performance for organizations.

ORGANIZATIONAL ENABLERS	Purpose and Vision	An organization’s aspirations or core enduring aim, the reason it exists, and what it stands for.
	Choice and Focus	The strategy to achieve the vision, including how resources are allocated, efforts marshaled, and activities directed.
	Accountability and Fairness	Practices that establish a performance-driven work environment in which people own their responsibilities and are rewarded equitably for their contributions.
PEOPLE DRIVERS	Clarity	Employees’ understanding of what is expected of them in their jobs and the connection between their personal performance and the organization’s objectives.
	Capability	The supply and stock of talent who have the knowledge, competencies, and other attributes to meet the organization’s current and future success.
	Commitment	The extent to which individuals are motivated to—and given the opportunity to—contribute fully to the organization’s current and future success.

Source: Korn Ferry Institute whitepaper - Matching Talent to the Internet-of-Things era.

Among these six components, three of the most crucial for building and implementing an IoT strategy in the packaging industry are:

- *Purpose and vision* — the desired business outcomes to be achieved through IoT.
- *Choice and focus* — a comprehensive strategy to pursue the desired outcomes.
- *Capability* — the right mix of internal and external talent to take on the challenge and the transformative capabilities of IoT.

Whether within the existing organization or a “newco” entity, an IoT strategy can encompass some or all the following parts:

- Organizational design.
- Change management and culture transition.
- Talent assessment.
- Recruitment.
- Retention.
- Top team effectiveness.

The process will also likely involve assessing existing talent who can be part of the IoT strategy. According to The Association for Packaging and Processing Technologies dedicated to operational excellence (PMMI’s) Vision 2020 Report, attracting and retaining quality talent in manufacturing is far and away the greatest challenge facing manufacturing today. With the advent of IoT, the skill set for manufacturing facilities is changing. Manufacturers will need more technology-based degrees, a different skill set than they are employing today, according to Laura Bix, professor at the School of Packaging at Michigan State University. IoT is really about people, process, and technology, people being the critical part of that equation,” according to several of the people we interviewed.

Simply stated, companies need to know the depth of the talent they have. Once internal talent capabilities are identified, external talent can be recruited to fill specific roles or gaps. For most packaging companies, this will involve a mix of internal candidates who welcome the opportunity to be part of an IoT launch and external talent to be recruited. Not to be missed are the nuances of newly formed teams as existing leaders address the potential impact on team dynamics given the redistribution of work because of a new IoT.

Introducing Korn Ferry's People and Packaging Radio.

Over the last few weeks, it was our pleasure to interview four Packaging executives to gain their insights and perspectives into industry trends.

- **David Scheible**, Operating Advisor at Clayton, Dubilier and Rice and former Chairman and CEO of Graphic Packaging International speaking on “Lessons on leadership”.
- **Roger Prevot**, Operating Partner at Kohlberg & Company speaking on “Hire A+ players that lift your industry”.
- **Laura Bix**, Associate Director at the School of Packaging at Michigan State University speaking on “Packing to improve health outcomes”.
- **Jodok Schaeffler**, General Manager at ALPLA speaking on “Technology and digitization”.

To listen to the interviews with these industry experts, just go to <https://soundcloud.com/mesadd>



Acknowledgements

Korn Ferry would like to specially thank these executives for their time and insights:

Jodok Schaeffler

Mr. Schaeffler is the founder and owner of Mission-J, a startup that develops technologies and processes for the future of manufacturing. Jodok's leadership vision is to create the best possible environment for people to work in manufacturing environments and achieving the highest efficiencies by utilizing technologies starting from automation and IIoT to machine learning and augmented reality, but also building the processes in the operations to support this approach. At the same time, he leads Project Apollo, which is the implementation of these technologies at ALPLA, a global company in plastics packaging, with 160 plants and 17,000 employees globally. In his previous job, he was General Manager for ALPLA in North America and helped to start up 12 factories with over 1,200 employees for customers like Procter and Gamble, Unilever, Clorox and other CGP companies. Before working in manufacturing, Jodok worked in Asset Management in financial and systems companies in Switzerland, Austria and the USA. Jodok holds a PhD in Computer Science.

Laura Bix

Dr. Bix is a professor at the School of Packaging at Michigan State University and an adjunct associate at Clemson University. She was appointed, and currently serves as the US delegate to ISO TC122 WG 9, a group which is developing a standard for measuring the accessibility of packages. Bix served as the Vice-Chair of Committee D10.32, the Committee on Consumer, Pharmaceutical and Medical Packaging, from 2004-2007, and as a member of Committee F-02, the flexible barrier material committee, since 2002. In 2008 she was named one of the 100 most notable people in the medical device industry by Medical Devices and Diagnostics Industry.

Roger Prevot

Mr. Prevot has been affiliated with Kohlberg since 2008 and was named an Operating Partner in 2013. He is currently Chairman of Spectrum Plastic Group and a member of the board of directors of Osmose Utilities Services, Inc. and previously was the Chief Executive Officer of Packaging Dynamics, Inc., a Kohlberg portfolio company. He is responsible for investment thesis development, company diligence and portfolio company operations management in the Industrial and Consumer sectors. Prior to his affiliation with Kohlberg, Mr. Prevot held various senior level management positions at Graham Packaging Company, The Gillette Company, Procter & Gamble and American Can Company. Mr. Prevot received an M.B.A. from the Tuck School of Business at Dartmouth College and a B.A. from Williams College.

David Scheible

Mr. Scheible is the former Chairman and CEO of Graphic Packaging International, the world's largest manufacturer of paper-based folding cartons for the consumer food and beverage markets. Mr. Scheible served as CEO of Graphic Packaging from January 2007 to January 2016 and Chairman of the Board from May 2013 to May 2016. From 1999 to 2007, he held various senior leadership positions, including Chief Operating Officer and Executive Vice President of Commercial Operations. Before joining Graphic Packaging, Mr. Scheible held senior leadership positions at Avery Dennison Corporation after starting his career at B.F. Goodrich Corporation. RISI, an information provider for the global forest products industry, named Mr. Scheible the 2015 North American CEO of the Year. He was also named PaperAge magazine's Executive Papermaker of the Year and the E&Y 2013 Entrepreneur of the Year in the Southeast for industrials. Mr. Scheible currently serves as Chairman of the Board of Benchmark Electronics Inc. and on the boards of Flint Group, Cancer Treatment Centers of America, Inc. and Georgia Partners in Education. He holds a B.S. in Biochemistry and an M.B.A. in Finance from Purdue University.

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ABOUT KORN FERRY

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ABOUT THE KORN FERRY INSTITUTE

The Korn Ferry Institute, our research and analytics arm, was established to share intelligence and expert points of view on talent and leadership. Through studies, books, and a quarterly magazine, *Briefings*, we aim to increase understanding of how strategic talent decisions contribute to competitive advantage, growth, and success.

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