The hunt for digital leaders:

**A talent perspective on navigating the Industrial Internet transformation**
Executive summary

The Industrial Internet is ready, but are you? There is still much to do in the way of preparation, and not all answers are clear, so it is no wonder that the Industrial Internet and the Internet of Things (IoT) keep executives and consultants awake at night. Our more than 40 interviews with top executives from industrial goods companies around the world, as well as our proprietary psychometric data on traditional and digital leaders, have shed light on what is arguably the most fundamental and most daunting transformation in today’s industrial world:

Recognizing the Industrial Internet is becoming a reality.

- No leader in the industry seriously questions its importance for survival and success. While some still stress the evolutionary dimension of digitally supported business, the majority of leaders clearly focus on its disruptive potential for their company’s business model.

Turning good intentions into concrete transformation initiatives can prove difficult.

- Some companies prefer a ring-fenced “incubator” approach or “digital testbed” to allow “digital natives” to operate at their own speed and culture. While this approach eases the cultural challenges at the beginning, reintegration with the legacy business inevitably becomes the key challenge this design option will face at a later stage.
- Other companies declare digital to be an all-encompassing cultural (and business) change program, assigning far-reaching responsibilities to their chief digital officer and digital teams to apply digital technology to the company’s core business while also being in charge of developing totally new digital solutions for their customers. While bolder in its design, this approach has to cope with the differences in culture, speed and focus from the very beginning, requiring even more senior executive oversight.
- Regardless of the internal organizational approach companies choose, they also have to rethink their partnering approach in order to achieve the organizational breadth and flexibility—within and outside their traditional ecosystem—that success in Industrial Internet requires.

Finding your digital leader is difficult—and one wouldn’t be enough anyway.

- Successful digital leaders need to be “productive disruptors,” who question the status quo, can envision a new world defined by software services and take the broader organization with them on this journey. Unsurprisingly, their leadership style differs significantly from that of the traditional industrial goods executive.
- With digital skill and resources being so scarce at the senior level, attracting and retaining talent in this area remain key challenges for all industrial goods companies. And while recruiting a professional who has led a digital transformation of scale from B2B or B2C may be a recommended first step, the real challenge will be to take an organization’s larger base of industrial leadership talent on the journey toward becoming the “digital migrants” who will, over time, transform the company culture.

This whitepaper provides intimate insights into industrial top executives reflecting on the current digital status of their organization, as well as their digital plans going forward.
(R)evolution of industrial manufacturing business

The Industrial Internet is bringing both evolutionary and potentially revolutionary changes to the manufacturing industry. On the evolutionary path, industrial companies are advancing their approach to the Industrial Internet by moving beyond the use of digital in manufacturing, supply chain and logistics—which they have done for a number of years now to remain profitable—and beginning to integrate it into the very fabric of their organization. Taking the full Industrial Internet approach into the core of operations can speed up the process of new product development. This is particularly true for companies that have the courage or incentive to jump into the “open innovation” ecosystem in order to leverage the best ideas and thinking, whether internal or external. The ability to go from design to prototype to product realization in much faster cycles means that companies can become efficient and modern research and development (R&D) partners to their large customers.

Digital has been central to the manufacturing, supply chain and logistics elements of industrial for a while, but now players are seeing its potential for operations.

The Industrial Internet is revolutionary in its impact on customer expectations. Customers are increasingly demanding outcomes rather than products. The Industrial Internet’s capacity to optimize asset performance, reduce downtime and collect data to better serve customers is game changing in that it presents companies with a significant “digital differentiation” opportunity in a market characterized by shrinking product margins, hardware commoditization and new entrants from the digital space.

Industrial companies sit in various stages along the development/disruption curve of the Industrial Internet. A few are ahead of the curve and are charting their own course. Others dedicate most of their efforts to defending their territory against Industrial Internet “movers and shakers.” Still others—unable or unwilling to see the writing on the wall—are far behind the (r)evolution, lagging those who have acknowledged the digital reality.

In order to take full advantage of what the Industrial Internet revolution might offer, companies will need to get over the fear of “creative destruction” and open themselves to innovation. Re-evaluation of the existing business model is a prerequisite, and this will, in some cases, result in cannibalizing the legacy business. In order to secure the funding to drive this new innovation, old mindsets around approaches to return on investment calculations need to be rethought. While the payback time on investments in the Industrial Internet may be longer than on traditional investments, the upside may be a lot bigger.
The peculiar profile of leaders of the Industrial Internet

The digital move toward the Industrial Internet requires traditional organizations to shift from long-held, comfortable ways of working to take creative leaps of faith and to make significant, longer-than-normal-term investments. It takes a certain type of leader to successfully shepherd an industrial organization along this journey. Russell Reynolds Associates examined the profiles of digital transformation leaders in the study, *Productive Disruptors* (2015). We found that successful digital leaders exhibit psychometric attributes different from those of other senior executives. In fact, they have less in common with C-suite colleagues than anyone else in executive management. They are more innovative, bolder and more determined to translate ideas into action. They are more likely to lead from the front, a trait essential to success in the Industrial Internet since digital transformation is often high profile, even when it is in the internal and formative stages. They are more socially adept than other executives, which is useful when broad buy-in on radically different approaches to business is key to success. Successful digital transformation leaders have the unique ability to design and implement bold strategies while also engaging colleagues to participate in the process. Specifically, four key dimensions mark the difference between productive disruptors and the average executive:

- **Thinking "outside the box."** Thinking creatively about new solutions and not feeling confined by existing ideas is the characteristic with the largest gap between the average executive and the typical productive disruptor.
- **Challenging traditional approaches.** The drive to shake up the status quo and propose new ways of doing things is significantly more pronounced among most productive disruptors when compared with average executives.
- **Cutting through bureaucracy.** Productive disruptors are, on average, better than other executives at getting through internal red tape and bringing their ideas forward to key stakeholders and decision makers, which enables them to be more successful change agents.
- **Going against the grain.** Their ability to challenge existing structures and their hunger to change them when necessary distinguishes productive disruptors from the majority of executives.

The productive disruptor profile is rare among industrial leaders. We compared the psychometric profiles of 178 industrial executives with the profile of productive disruptors and found that the average industrial leader lacks several of the productive disruptor’s attributes. Not only are industrial leaders less likely to approach the business in unconventional ways and really push the envelope, they are also less open to taking risks and driving change (Exhibit 1).

However, there are industrial executives who are more inclined to exhibit some of these traits. Therefore, it is important to find ways to identify these individuals (via psychometric assessments) in order to benefit from their competencies related to successfully leading through transformation. In many cases, though, industrial companies may need to look outside their own sector to identify their productive disruptors to help lead them into the next era.
Finally, bringing digital transformation leaders into industrial companies means that these individuals are different and behave differently from the rest of the organization. It is important, therefore, to ensure that the company culture embraces diversity of thinking and is inclusive.

**EXHIBIT 1.**

**PSYCHOMETRIC PROFILE OF A DIGITAL TRANSFORMATION LEADER VS. AN INDUSTRIAL EXECUTIVE**

**Innovative**
Inquisitive, open to new things, abstract thinking style

- **Thinks “outside the box”** 6.7 8.7 10
- **Generates innovative solutions** 4.8 7.3 10
- **Challenges traditional approaches** 8.8 8.5 10

**Disruptive**
Independently minded, willing to take calculated risks

- **Has entrepreneurial spirit** 4.8 6.6 10
- **Cuts through bureaucracy** 5.8 8.7 10
- **Goes against the grain** 6.0 7.3 10

**Socially adept**
Relates to different audiences

- **Seeks to understand people** 5.4 6.7 10
- **Adapts to different audiences** 5.0 6.5 10
- **Is socially confident** 5.4 6.5 10
Five key challenges and how leaders might overcome them

Our discussions with CEOs, chief technology officers (CTO) and digital leaders driving change across major industrial businesses revealed five key leadership challenges (Exhibit 2). Addressing these potential roadblocks will be key for the digital transformation leaders who are committed to embarking on the transformation journey, moving from traditional manufacturing businesses toward more technologically advanced and service-led businesses. Throughout our interviews, we developed an understanding of how different businesses are overcoming these challenges, as well as where they have failed.

EXHIBIT 2.
FIVE KEY LEADERSHIP CHALLENGES IN THE INDUSTRIAL INTERNET

1. Business models need to be reimagined
2. Traditional battlefields are being redrawn by new competitors
3. Digital transformation requires a modern organizational culture that cultivates innovation
4. New talent won’t respond to the old ways of leading people
5. Software and services will dictate the required speed and agility

The Industrial Internet is presenting significant business model, organization, and talent management challenges.
Business models need to be reimagined

Successfully changing a multinational organization’s value chain is easier said than done. Unsurprisingly, we heard that management consultancies are in high demand for helping industrial clients succeed with digital transformation.

Prith Banerjee, Executive Vice President and CTO at Schneider Electric, told us, “We are moving from a product economy to a service economy all the way to an outcome economy.” Similarly, Bill Ruh, Chief Digital Officer, GE and CEO, GE Digital, said that rather than selling an isolated product, or a service along with it, the outcome-driven economy will increasingly demand that “you focus on customers and their desired outcomes.”

Part of the shift toward services and outcomes is embodied by an inclination toward selling “power by the hour,” rather than the physical product itself. To succeed in business model innovation and capture new revenue streams, it is crucial that the leaders critically evaluate the existing business model.

Taking a step back and revaluating the business model is key as the industrial landscape grows ever more software defined. New revenue streams are created by harnessing data and applying advanced analytics to generate value for clients and third parties, for instance, by offering new automated services. However, innovation does not necessarily require overturning the existing business model. Rather, innovation can take place by adapting the existing business model to take into account new value drivers. A CEO of a multi-national industrial company pointed out that while the company is looking at completely new business models, the business is “planning to build on something we are already good at.”

Effective leadership and appropriate talent. For companies that successfully define a business model strategy for how to transform into their new digital selves, the most important prerequisite is ensuring that they have the right leadership and talent to execute the change. At present, many traditional hardware manufacturing organizations struggle to bring adequate software expertise to the top of the organization.

For the few exceptions who are making a significant leap in this space, there is usually a chief technology officer or chief digital officer in place who acts as a strategic partner and reports directly to the CEO. What unites the successful leaders in these positions is a highly commercial mindset that sets them apart from the stereotypical R&D-focused type of CTO. They are natural leaders who unite and win people over in the organization.

Bill Ruh from GE told us that he “had to build a ‘coalition of the willing’” in order to rally the troops and drive change. Prith Banerjee from Schneider Electric said that upon taking his new position, he “focused on a collaborative approach, gathering ideas from the team below and visiting all R&D sites where he organized town hall meetings with highly interactive sessions without any formal type of presentation.”

As role models, CEOs must be prepared to question the legacy business model, previous assumptions taken and, at best, themselves.”

Niko Mohr, Partner and Co-leader of McKinsey Digital
Traditional battlefields are being redrawn by new competitors

In most of our interviews, we heard different degrees of recognition that the new opportunities created by the Industrial Internet pose a disruptive threat to legacy industrial manufacturing businesses. If incumbent leaders do not leverage the Industrial Internet to their advantage, their business will be under threat since products are at great risk of getting commoditized as margins on hardware become slimmer.

Sanjeev Addala, Chief Digital Officer at GE Digital, confirmed that in his former role managing Internet of Things for a heavy equipment manufacturer, a lot of “surprise competitors” appeared. He explained to us that it was not traditional competitors keeping him up at night, as they were way behind rather, it was new software and analytics entrants that were redefining the landscape.

But who exactly are these organizations threatening to grab a bigger slice of market share if the legacy businesses do not manage to protect their share? Based on our interviews, there are two distinct groups:

**INCUMBENTS WITH NEW SOFTWARE CAPABILITIES**

Incumbents that manage to create significantly more compelling software and service capabilities than their counterparts pose a threat of potentially becoming much more powerful and all-encompassing competitors who offer full solutions.

**CURRENT PURE-PLAY SOFTWARE BUSINESSES AND STARTUPS**

As the value chain gets upended, scale in hardware is no longer a prerequisite, which means that opportunities arise for new entrants that can capitalize on the demand for value-added software and service capabilities without necessarily producing the hardware.

However, the threat from outsiders depends on the particular part of the value chain. Sanjeev Addala from GE Digital pointed out that whereas in aftermarket parts and solutions, there was a lot of disruptive opportunity for third parties to steal the business, they lack the domain knowledge of legacy industrial goods businesses. This point was echoed also by a professional from a blue chip consultancy who agreed that classic manufacturers have access to more data, and if they can harness this, they can easily catch up. Newcomers have the data accumulation capacity but lack volume to evolve fast enough. It is a race, and resources will be the central issue for all.

One way to avoid being overtaken in the fast lane is to see current competitors as future partners, said the Vice President of IoT for a cloud computing platform. He observes that many companies are building “bigger or better products” but should go one step further and “open up and work across industries to ensure their survival.”
In order to make sure that legacy industrial goods companies do not get left behind, it is crucial that they address the following questions (Exhibit 3). What is my company's current digital IQ? Is my organization culturally prepared for digital transformation? Who are the change agents who are able to lead the transformation? Who has the required digital DNA to take the company forward? Answers that reveal that internal capacity is insufficient and that some resources lie outside the organization may mean forging alliances with those once seen as pure threats.

EXHIBIT 3.
CRUCIAL QUESTIONS TO ASK TO ENSURE DIGITAL READINESS FROM TALENT PERSPECTIVE

**What is my company’s current digital IQ?**
Evaluate your company’s digital IQ and ensure that software and digital capabilities at the top of the organization match the company’s ambitions for the future.

**Is my organization culturally prepared for digital transformation?**
Assess cultural readiness for digitization of the organization and the overall openness for change so you can plan for cultural dimensions that will enable or derail your efforts.

**Who are the change agents who are able to lead the transformation?**
Identify those executives who can drive digital change forward, execute on the change agenda and secure buy-in from key stakeholders, and adapt strategy to protect market share.

**Who has the required digital DNA to take the company forward?**
Define your company’s digital DNA and ensure that those who understand the opportunities and risks created by technology convergence are defining the new core of the company.
Digital transformation requires a modern organizational culture that cultivates innovation

“The biggest difference between an established business and a new joiner is that the former is afraid of losing his or her position, whereas new joiners want to win and have nothing to lose,” said the Vice President of IoT for a cloud computing platform. How should established industrial goods players move from the mindset that says “preserve the existing business” and “fear losses” to “hunger for winning” and “nothing to lose?”

**Incremental, isolated change vs. all-at-once transformation.** Instead of starting with an overhaul of the legacy company culture, some companies have tried experimenting with change by creating a separate incubator, where digital talent can be digital. The reasoning goes that if they are kept separate from the traditionalists who often stifle change, they will be more successful in innovating.

Gisbert Rühl, CEO of Klöckner, explained how at the German steel trader, the separate digital entity “has a unique setup: a very fast, lean startup approach. Yet [the innovation] is also brought back into the ‘old’ company, and it’s very integrative.”

A senior industrial executive we spoke with raised the point that keeping the digital entity separate can be beneficial where innovation might otherwise “be drowned in the classic organization” but warns of using only “digital natives” “who are missing the long years of business experience and lack domain knowledge.”

At the other end of this change spectrum, Niko Mohr of McKinsey & Company was very much in favor of the company-wide transformation, as opposed to the incubator approach. He argued that the latter “often leads to new business models that do not connect with the existing technologies, market, governance and culture – and reintegrating these ideas back into the legacy business is a huge challenge.” According to this view, the most successful transformations are those that connect the existing business and intellectual property with new thinking and approaches. In the same vein, Aaron Darcy, Chief Marketing Officer of GE Digital said companies “need to view it as an organizational transformation,” but that in order to succeed, it requires “a strong message from the top and organizational change.”

The jury is currently out on which of these two approaches works better, and the best time to embed the alternative business model in your core business will be highly dependent on the alternative business model(s) being pursued. But as the CEO of an incubator at a multinational industrial company said, “It is challenging when you combine 100+ years of company culture, a strong hardware legacy and the belief that all change to products must be backward-compatible to earlier-generation products.”

If industrial companies commit to revitalizing entrepreneurship and risk taking, this also means adapting leadership style, speed, compensation structure and culture to compete successfully. Certain companies have already started to make these changes. General Electric, for example, announced in early 2016 that it was moving its global headquarters from Connecticut to Boston in order to, in CEO Jeff Immelt’s words, “be at the center of an ecosystem that shares our aspirations.”

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New talent won’t respond to the old ways of leading people

“Big outcomes require big effort that require changing the vision,” said Pete Karns, Vice President of IoT at IBM. This type of commitment, he explained, is very different from making incremental changes to existing products, which is also reflected in the leader profile required.

Paul Stein, Chief Scientific Officer of Rolls-Royce, asserted, “Leaders need to be at least ‘digital migrants,’ if not ‘digital natives.’” In other words, while those leading the ranks do not necessarily need to be from a software background, they need firsthand change management experience coupled with (at least) a solid understanding of how to harness the power of digital to create new service offerings and alternative business models.

In order to make transformation happen, “Top down support and interest demonstrated by the C-suite married with bottom-up skills and work are crucial,” according to a senior industrial executive. Whereas the talent leading the transformation need not necessarily be “digital natives,” hiring from software and the technology sector will accelerate as there are many new verticals that require deep expertise of applications. The “industrial natives” with experience running multimillion dollar assets are no less important—but they will soon, if not already, be in a situation where they will need to work alongside younger colleagues who likely think and work differently from them. Integrating employees on teams from two such different cultures can be a huge challenge, and this, according to Daniel O’Neill, a Consulting Associate Professor at Stanford University, is why it is crucial that leaders have the ability to manage two very different types of people.

Based on the experience of a senior manager at a management consultancy, new entrants often have leaders who are a mix of strong drive, charisma and a strong vision, almost evangelical. Classic organizations that are revolutionizing have leaders who just realized that something was happening; Their humility and intuition are leading them to make changes.

The industrial leaders who are successfully leading digital transformations today possess several key qualities. Perhaps these qualities already exist among leaders within the organization; perhaps the leader embodying these traits is somewhere else and can be recruited to the organization’s executive leadership. It is important to extend an organization’s digital capacity beyond the C-suite and onto the board of directors. The digital director has become a much sought-after and scarce talent in the industrial world. Digital board directors are often key advocates for change but notably also instrumental in setting and establishing the prerequisites for executing upon a new, more digitally focused strategy. If the board does not have digital representation, the risk is creating a board that is disconnected from the direction in which the company will inevitably have to move.
Software and services will dictate the required speed and agility

It is challenging to integrate cutting-edge digital expertise into legacy industrial companies. The fundamental change is that the emphasis is increasingly on data and value-added services such as preventive or predictive maintenance rather than on hardware, and product life cycles are getting shorter as software companies are constantly updating products, which is not the case with hardware. At present, time cycles for decision making in traditional industrial companies are too long for the new age of the Internet of Things.

Uncluttering the organization. Pete Karns from IBM argued that getting organizational structure right is key in order to be able to speed up. Some industrial companies still have “IT vs. line business” organizational structures, which is “very 1995.” For many businesses, uncluttering the IT landscape is the necessary, albeit daunting, starting point to ensure that the organization is agile enough to be successful in its digital transformation. This will often require external technology talent, as many business leaders’ information technology employees are trained in “Mode 1” (enterprise resource planning technology), when actually it is “Mode 2” (cloud, big data and analytics) people that are needed. This is cited as one of the reasons why “startups win against big companies” by Bill Ruh from GE.
Pointing to the notion that organizational clutter can be as much mindset and behavior as it is organizational structure and IT processes, Pete Karns from IBM said that businesses need to have “shared goals, a shared mission and a ‘tribal’ approach to moving the team toward the same goal.” Greater agility will be absolutely necessary if traditional industrial companies want to be competitive in the age of the Internet of Things. But cautioning against an extreme approach, Aaron Darcy from GE Digital highlighted that “while you need the energy, speed and agility brought in by the software types, moving a little slower is better than moving too fast—you will fail if you don’t understand how different the industrial environment is.”

Cultivating digital success by supporting talent

Success in the era of the Industrial Internet depends on people as much as it does on systems, models and processes. Here are three ways that industrial goods leaders can inspire and support innovation among their talent:

**Encourage “fail-fast” attitude.** Being encouraged, even incentivized, to experiment with concept innovation is traditionally thought of as a “startup approach,” but a leading Chief Digital Officer, a Chief Marketing Officer and top digital executives at a leading German corporate told us that it is crucial in traditional companies as well. "Industrial goods companies make big things; they tend to focus on technical perfection," said Aaron Darcy from GE. However, inaction due to wanting to do something perfectly is riskier than embracing the unknown and trying. This also requires selecting and developing executives who are comfortable in taking risks, “breaking rules” and thinking innovatively.

**Re-evaluate compensation and incentives.** Legacy organizations will inevitably be competing with and getting talent from some of the biggest software and digital pure-play companies in Silicon Valley and other sectors. Technology companies typically have more variable compensation schemes, including stock options. "In order to get the caliber of talent required, legacy industrial goods organizations will need to re-evaluate their compensation structures," said Daniel O’Neill from Stanford University, who also consults for industrial goods clients on IoT. Other emerging “hotspots” for digital talent could become more dispersed; e.g., the Boston and Munich area according to a senior executive at a global engineering company. In any case, it is important to develop a culture where people are rewarded for generating ideas even if they are ultimately unsuccessful.

**Modernize communication.** Leading with a non-hierarchical, collaborative style and encouraging two-way communication are key skills that are highlighted by a prominent CEO, CTO and an advisor in this field. In order to leverage the next-generation digital team members and successfully bring together diverse teams, flattening communication is a key prerequisite.
The way forward

The Industrial Internet is here. In order for traditional industrial goods businesses to succeed in this new digital era, it is absolutely paramount that the following elements are implemented:

Ensure buy-in from the top. The board and CEO need to be in charge of important decisions and changes pertaining to the company’s digital strategy, and they need to communicate their support for these changes throughout the organization.

Identify digital directors. Non-executive leadership is equally important for digital success. Traditional industrial goods businesses should ensure the participation of at least one board member who has a digital background to help build a bridge for the rest of the board.

Transform your company culture. Even with all necessary systems and processes in place, a digital strategy can be thwarted by old attitudes or conflicts between what the organization was and what it aspires to be. Company culture regarding creativity, risk taking and innovation will need to adapt to meet the demands of new types of employees and working styles.

Find your digital leaders. Skilled leaders with digital know-how and vision are the ambassadors of transformation. Identify and assess—through the psychometric measures and benchmarking interviews—who in the organization is best suited to lead and champion change and who is best suited to execute. Empower digital leaders to build new teams and lead change across the entire organization.

Offer competitive packages to the right talent. Digital talent is critical, and their options are plenty. Benchmark compensation structures and opportunities for progression against sectors you are competing with to optimize your chances of recruiting and retaining the best talent.
Russell Reynolds Associates is a global leader in assessment, recruitment and succession planning for boards of directors, chief executive officers and key roles within the C-suite. With more than 370 consultants in 46 offices around the world, we work closely with public, private and nonprofit organizations across all industries and regions. We help our clients build teams of transformational leaders who can meet today's challenges and anticipate the digital, economic, environmental and political trends that are reshaping the global business environment. Find out more at www.russellreynolds.com. Follow us on Twitter: @RRAonLeadership.

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