Connected Manufacturing
Powering efficiencies, innovation and growth
Connected Manufacturing
The changing world of manufacturing

The manufacturing industry is changing at a fast pace, driven by increased globalisation, fierce competition and increasing customer demand. It signals a deep transformation, which is putting immense pressure on manufacturers, of all sizes, to simplify operations, reduce costs, and increase speed to market.

Having the ability to convert concepts to value faster will determine those who survive and thrive. At Hewlett Packard Enterprise we define this as the idea economy. Manufacturing is no longer simply about making and selling products. It’s about integrating end-to-end operations across the entire enterprise ecosystem to anticipate what customers want, quicker and more cost-efficiently than the competition.

At HPE, we call this digital revolution ‘Connected Manufacturing’ where everything is integrated – operational technology, information technology, communications technology and consumer technology. A world where digital technology is integrated with business strategy and demand is created as well as anticipated.

“If you went to bed last night as an industrial company, you’re going to wake up today as a software and analytics company.”

Jeff Immelt, CEO, GE
Connected Manufacturing

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On average, companies are losing 7%-10% in profit (EBITDA) as a result of value destructive complexity.
- PwC

34% of manufacturing CEOs have led their companies into a new industry, while 19% have considered doing so.
- PwC

The projected value of global trade in counterfeit and pirated goods in 2015 is $1.77 trillion.
- IACC

As well as reinventing traditional business drivers, ‘disruptive’ new technologies are also generating totally new trends in manufacturing. According to the analyst firm IDC, seven key drivers are shaping today’s manufacturing landscape.

**Seven key drivers reshaping manufacturing**

The first is complex, dynamic value chains where manufacturers search for new and improved business opportunities. Secondly, emerging market growth is challenging businesses to rethink supply chains and product strategies. Then there is the growing pressure for product quality, traceability and transparency as well as demands for increasing levels of customer service – forcing manufacturers to compress product cycles to meet growing expectations.

Technology itself is converging too, creating opportunities to simplify the way products are designed, manufactured and delivered to market. In addition, the ubiquitous connectivity of devices, interfaces, processes, plant and people calls for the seamless integration of the entire manufacturing ecosystem to drive insight and innovation.

Finally, there’s the truth in data where manufacturers want more valuable insight from greater volumes and varieties of data. The ability to harness data is driving better decision making and creating new levels of operational and service innovation.
“By working with HPE we were able to protect IP and work towards improving customer retention and sales.”

The KION Group

By 2020, 70% of all customer touchpoints will be digital, leading to new customer experience metrics.
– Gartner

88% of CEOs believe that digital technologies create high value in operational efficiencies.
– PwC

By some estimates, 30 billion devices will be ‘talking to each other’ via the internet and other connectivity options by 2020.
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Globally, manufacturers discard 99% of data before decision makers have a chance to use it.
– McKinsey & Co

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Pressure to reduce costs, increase innovation and meet increasing customer expectations requires a fully integrated manufacturing ecosystem. It’s what we call Connected Manufacturing.

Connected Manufacturing describes the new era of manufacturing where everything – operational technology, information technology, communications technology and consumer technology – is connected. Connected Manufacturing powered by HPE’s four transformation areas connects plants, processes, products and people across the entire ecosystem of partners including suppliers, customers and consumers.

By converging technologies across all functions and the entire ecosystem, OEMs can streamline and simplify operations by connecting easily across global, and often complex, value chains.

**Better insight to stay ahead**

Connected Manufacturing creates an end-to-end value chain, regardless of its complexity, from the shop floor to the consumer where data and insight becomes the key differentiator. It’s giving OEMs the power to better understand what customers want, the power to sell into new and emerging markets and the power to bring innovative products and services to market faster. And with greater productivity and flexibility comes the ability to meet market demands and boost profitability.
Connected Manufacturing accelerates:

**Performance**
Standardising global processes across the workplace and complex supply chains reduces costs, improves back-office efficiencies, increases cash flow and reduces overhead costs.

**Production**
Simplifying operations increases productivity, decreases downtime and reduces costs whilst improving end-to-end quality.

**Collaboration**
Equipping engineers with cost-efficient digital tools and compute performance on demand speeds up product development cycles and improves quality.

**Customer experience**
Gaining insights drives product innovation as well as new revenue streams, decreases aftersales costs and improves customer satisfaction.

**Innovation**
Connecting suppliers, engineers, production teams and customers increases collaboration, reduces engineering costs and time to market.

**Compliance**
Securing assets protects the company’s IP, while meeting regulatory demands.

**Connected ecosystem**

![Diagram of Connected Ecosystem](Image)
Connected Manufacturing – powered by transformational technologies

Staying ahead in manufacturing today is about adapting to succeed. Instead of being the maker you become the master of innovation.

A digital transformation for success

Prospering in today’s digital economy requires an IT infrastructure that creates new outcomes, manages risk, and gives you the flexibility to predict and meet future demands. At Hewlett Packard Enterprise, our Connected Manufacturing solutions work across the entire ecosystem, connecting value chains end-to-end. Uniquely powered by our four transformation areas – hybrid infrastructure, security, data and workplace productivity – they integrate all functions and create huge efficiencies and opportunities along the way.

HPE’s four transformation areas

Transform

Transform to a hybrid infrastructure
A hybrid infrastructure helps you to become much more flexible and agile, allowing you to adapt quickly while integrating more and more applications and participants in your processes. It also supports product innovation and growth through cloud-based digital prototyping – thereby reducing engineering costs, and reducing time to market. And in a world where it’s increasingly more about operating a smart connected product, a cloud-based stack supports that too.

Protect

Protect your digital enterprise
It’s no longer a question of if you get hacked but when and how long it will take to detect a breach. According to Mandiant, a FireEye Company, it takes a median 205 days to identify that a breach has taken place. Our approach is to help transform your security posture from reactive to proactive across all functions and devices. Protection is also as much about corporate risk management as it is about cyber security. A business needs to have a clear understanding of the critical nature of its information so the right level of investment can be made in the right way. Also, a data-centric security model both safeguards intellectual property and ensures regulatory compliance through greater product traceability and transparency.
Enable workplace productivity

Enabling a very productive workplace is key for the growth of any business. Integrating complex global supply chains, production, people and processes creates a truly collaborative environment that increases product innovation, product quality and engineering process efficiency, while reducing time to market. A secure mobile work environment also gives users the flexibility to work ideally on any device, anytime and anywhere in the world. Having the ability to get product and customer data from a mobile device greatly reduces labour costs, resolves problems quicker, increases productivity and ultimately helps improve customer satisfaction by delivering a better service.

“Hewlett Packard Enterprise understood the massive transformation; the hybrid environment that we were going to be living in for years to come.”

Stephen R. Olive, Philips Group Chief Information Officer, Corporate IT, Business Transformation
HPE Connected Manufacturing solutions

The future belongs to the fast and brave. And to those who embrace digitisation.

Our Connected Manufacturing approach is helping clients unlock a host of differentiating benefits. It’s our job to guide you through your digital transformation and deal with the technical complexities – so you can focus on running your business.

The value of a well-oiled machine

Just like cogs in a wheel, our individual Connected Manufacturing solutions work in harmony with each other, connecting your suppliers, engineers, production teams, customers and consumers seamlessly – allowing you to stay ahead of the competition.

HPE’s four transformation areas power all our manufacturing solutions. That way they realise the full benefit of working across the full value chain and help advance innovation. Production is more efficient too through managed automation, multiple plant data insight and a truly responsive manufacturing environment. Our solutions also standardise global processes to improve resource efficiencies. Better customer relationship management creates better insights and defines new levels of customer service. Our solutions also give you the ability to know in real-time what’s happening across the supply chain and the ability to respond quickly when required.

HPE Supporting Clients

~70

Business applications reduced from ~400 to ~70 supporting a greatly simplified ERP environment.

Del Monte Foods

HPE Connected Manufacturing solutions

Our Product Lifecycle Management (PLM) solutions accelerate innovation and touch every aspect of your entire ecosystem. Our solutions connect your suppliers, engineers, production teams and customers easily so you can increase collaboration, reduce engineering costs, speed up product development cycles, increase quality, reduce costs, and shorten time to market.

Our Manufacturing Execution System (MES) solutions accelerate production and support the very lifeblood of any manufacturer – the shop floor. Our solutions draw on half a century of experience to increase productivity, reduce downtime, improve end-to-end quality and reduce manufacturing costs.
Our Enterprise Resource Planning (ERP) solutions accelerate performance and are vital to effective manufacturing operations. Our solutions standardize and integrate global processes across the workplace and complex supply chains to reduce costs, improve back-office efficiencies, increase cash flow and reduce overhead costs.

Converged Plant Infrastructure (CPI) is the state-of-the-art digital platform for Smart Factories, which enables advanced manufacturing companies to accelerate their digital transformation plans. CPI delivers industry-proven and secure plant IT, industrial machine and service connectivity, integrated plant OT and IT operations automation, and predictive analytics for plant performance improvements.

Our unique Supply Chain Management (SCM) solutions accelerate collaboration to ensure operations are integrated across the entire ecosystem. Our solutions are designed to create better insight, production efficiencies and supply chain visibility.

“Comprehensive datasets were collected last fall as part of the record test drive – ‘Cape to Cape Challenge’. Their analysis indicates the direction that should be taken in the synthesis of vehicle and IT.”

Jürgen Dettling, Chief Technologist, HPE Germany and Christoph Kielmann, Department Director of the specialty department Chassis Development, IAV GmbH
HPE Connected Manufacturing solutions – meeting new requirements

We live in a demanding world where customer expectations are intensifying and where compliance is increasingly more stringent. Hewlett Packard Enterprise understands these complexities, which is why our traditional manufacturing solutions are supported by complementary and new technologies.

The future today with advances in technology

We have solutions that enable greater visibility on product composition at every stage of production – helping to ensure traceability, sustainability as well as protect IP. Other solutions boost power to innovate at scale and guide you on how to implement and operate additive manufacturing. Then there is the whole emerging world of the Internet of Things where there are bountiful opportunities to generate new levels of customer service and untapped revenue streams.

Our purpose-built and application-ready High Performance Computing (HPC) solutions accelerate all aspects of manufacturing, particularly overall performance. They deliver the increased power as a service, beyond standard computing, to innovate at any scale, and improve data analysis and productivity, particularly when there are peaks in demand.

Our Additive Manufacturing (AM) offerings are opening up big opportunities for the efficient production of products by making 3D solid products from a digital file – accelerating innovation. Additive Manufacturing is seen as a game changer because of its ability to enable mass production, personalisation and serialisation. And as part of a progressive engineering environment, it reduces costs by cutting re-engineering and licensing costs, saves time, creates infrastructure efficiencies and improves the consistency of product quality.

These solutions accelerate compliance and help manufacturers to meet the stringent and increasing demands of regulatory requirements such as REACH, RoHS and Conflict Minerals as well as protect IP. Our solutions connect supply chains so there is greater visibility on product composition at each stage of production from material sourcing through to product manufacture – helping you to ensure traceability, sustainability and protect IP.

In its first season, the Fan and Media Engagement Center captured more than 18 million NASCAR mentions and has now captured more than 44 million.

NASCAR
Our solutions around the Internet of Things (IoT) make use of this key emerging technology. IoT is set to increase the levels of automated processes, product innovation and customer experience driven by the value derived from the instantaneous connection of sensors, machines, mobile devices and people.

“Implementing ongoing efficiencies whilst enhancing security are critical to maintaining our competitive edge. By working with HPE we were able to do both with the support of a new High Performance Computing system.”

Airbus Group

Our Customer Relationship Management (CRM) solutions accelerate customer experience – a critical issue for manufacturers to focus on with the increasing demands of customer expectations. Our solutions are perfect for increasing revenue, decreasing after sales costs, improving customer satisfaction and increasing compliance.

www.bvex.com/manufacturing
At Hewlett Packard Enterprise, our ethos is ‘further together’. We combine collaborative people, empowering technology and transformative ideas so manufacturing businesses can thrive in the modern world. Also as a manufacturer ourselves, we know what it takes to become an agile and progressive business.

**A safe pair of hands**

There are lots of reasons why Hewlett Packard Enterprise is the perfect partner to help your business transform in today’s digital economy. But probably the most relevant and compelling relate to the experience we have, the independent ratings we’ve received, the commitment we show and the awards we’ve won. All in all, when you take all factors into account, it’s fair to say as a manufacturer looking to embrace digitisation you’re in safe hands with Hewlett Packard Enterprise.

**Experience, highly-rated, committed and award-winning**

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<th>Industry 4.0</th>
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<td>HPE is actively involved in Industry 4.0 as a member of the Steering Committee, Governing Board and Scientific Advisory Committee.</td>
<td>75 years experience in the manufacturing industry.</td>
<td>Over 300 manufacturing clients.</td>
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<td>Winner in the Supply Chain Leadership category of the Frost and Sullivan 2015 Manufacturing Leadership Awards.</td>
<td>HP invested around $3.6bn in Research and Development in 2014.</td>
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HP Outsourcing has the highest Net Promoter (NPS) score among IT service providers, according to a 2015 Temkin Group analysis of NPS scores among corporate technology vendors – it’s a critical measurement of customer loyalty.

Winner of the SAP ‘Best Customer Center of the Year Award’, 2014.

More than a third of the HPC market is leveraging HPE compute platforms to process, analyse and manage data securely across HPC workloads. (IDC)

Winner of the Advanced Customer Center of Expertise Certification, 2014.

HPE is a member of the UK-based Manufacturing Technology Center – the largest public-private sector investment set up to test and validate client innovation.

“HPE gets things done. When you get into the wheelhouse, HPE is committed to make it work.”

Pieter Schoehuijs, Group CIO, Akzo Nobel

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