

Harnessing the genius of digital in manufacturing

How you can work with S/4HANA and LEONARDO to deliver digital transformation and achieve the smart factory



Introduction

Leonardo da Vinci's genius was both visionary and practical, and that's just the combination that manufacturers need in the 21st century: the ability to combine end-to-end efficiency with imaginative new ways to serve customers by making the right product at the right time for the right cost.

It's safe to say that, were Da Vinci alive now, he would be eager to make the most of IoT, Big Data, Artificial Intelligence (AI) and machine learning. He would be a pioneer of Industry 4.0.

Manufacturers have always been at the forefront of technological change. Making things is the core element in any industrial revolution. It's how productivity and innovation are generated. That, in turn, generates wealth which can then be invested into even further innovation and productivity gains. Steam, electricity, mass production and robotics, were pioneered in the factories of the past. In today's factories it's digital technologies like AI, machine learning, advanced robotics and IoT which are forging new methods and business models.

The opportunities are immense, but the challenges are just as great. Manufacturers can't stand still. The era of mass production is coming to end (some say it's already over!), and customers are expecting new ways of working with manufacturers. The rise of 'servitization' seems inexorable. The need to adapt business models so that IoT enabled products can be not only serviced

proactively by the manufacturer, but also licensed so that, for instance, revenues flow from the usage of the product not from its sale outright to the end user. It's like manufacturing an advanced coffee machine for a chain of cafes or restaurants, and instead of selling them outright, they generate revenue per cup. The manufacturer now has a stake in the excellent functioning of the machine – day by day, cup by cup – and generates revenue from each serving. That means ensuring the machines are always in perfect condition, and always productive. That helps the restaurant chain reduce capital costs, whilst manufacturers achieve a longer-term revenue stream.

Another imperative is the ability to achieve Lot Size 1 at the same - or close to - the cost of mass production. That's a key element in a manufacturer's ability to react nimbly to the changing needs of the customer, and the marketplace.

The ability to achieve those business models depends on emerging technologies. Not just IoT sensors, but data analytics, machine learning and AI.



They can boost the efficiency of a factory, ensuring that it operates in smart ways, and brings technology and humans together as teams which can produce high levels of craftsmanship as well as improved productivity.

So, what are the roles of S/4HANA and LEONARDO? One sounds very technical and the other creative. The first helps you deliver Robust IT in a simple and highly manageable and transparent way. The other delivers Fast IT to deliver agile innovation and creativity.

As one of our contributors, Michael Straub puts it, 'It's a very simple equation; S/4HANA can run your business. LEONARDO enables it to innovate.' The point of this Guide is to help you understand how they work together. And enabling them to work together is key to delivering a successful digital transformation for your entire business.

We asked our experts to stay away from the technical aspects of both solutions and to focus on how you, as someone keen to enable digital across your organization to achieve specific business outcomes, should approach the deployment of both solutions with optimism. Are they mutually exclusive, or can they complement each other? How must you deploy them? Can you do it on your own? If you need help, what kind of help do you need?

Our resident optimists are:



Benedikt Wenzel
Head of SAP Commerce & Analytics,
Fujitsu Germany



Michael Straub
SAP Propositions Manager,
Fujitsu EMEA



Thomas Baus
Manager of Business Unit Architectures,
Fujitsu Germany



Javier Fernandez
SAP Business Development Director,
Fujitsu Spain



Hardworking machines enable dynamic and smart manufacturers

Ultimately, the smart manufacturer needs to achieve high levels of planning across supply chains and production lines – from raw materials to finished product and far beyond as the product is used by customers and feeds back vital data. Quality management is key. S/4HANA, for instance, can help monitor and ensure quality at every stage of the process, saving human time and freeing people to focus on innovation as well as delivering the right product at the right time. And it's not just about mass production.



Hardworking machines enable dynamic and smart manufacturers

“All businesses need to be innovative,” says Michael Straub. “That’s obvious. But, creativity can only thrive in a well-run enterprise which gets the basics right, and that’s what SAP has traditionally been able to deliver.”

“SAP is seen as the enabler of an enterprise’s digital core,” says Benedikt Wenzel “But we need to see their solutions as part of a much broader objective. That is, digital transformation. Not the transformation of just one element of the business – for instance ERP – but the entire business. SAP understand that. That’s why they brought in S/4HANA and it’s why they then launched LEONARDO.”

Javier Fernandez agrees, but sees problems in selling that vision to some organizations: “I guess, we have to remember that the change to S/4HANA has been seen, by many, as disruptive. It’s something that SAP customers feel that they are going to have to do, eventually. I try and steer the conversation to speeding up the thinking process to a more holistic view. Many are considering their options, but not very deeply or fast as yet. And some aren’t even considering it at all!”

“That holistic view you mentioned is the point,” says Michael. “You could argue that S/4HANA, if it’s thought about as an individual solution, forces people to take a narrow view of what it can do.

It’s an element in digital transformation, but isn’t the entire solution. The launch of LEONARDO changes all that. Suddenly, the picture is complete.” Michael smiles, then adds, “It’s as if the Mona Lisa finally got her enigmatic smile.”

“Good image,” says Benedikt, “LEONARDO adds all the exciting things to the SAP portfolio. The kind of things that customers expect from digital transformation. AI, machine learning, the Internet of Things, Big Data Analytics. The kind of things that can not only transform a business internally, but make a big difference to ways of working, business models, new product development, customer engagement and so on. The things that drive revenue and brand growth.”

Thomas Baus argues for a pragmatic approach to the subject, he is suspicious of the hype around digital transformation: “We’ve heard a lot about its potential and less about how you actually – as an organization – get the knowledge and insights you need out of all the databases. And how you ensure that business processes and workflows can be digitalized so that they’re totally responsive and

agile. The customers I talk to transform the efficiency of their back office processes, and they also want to improve the usability of their SAP applications. Now that’s a big responsibility for SAP.”

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Michael Straub





All four experts agree that we're on the threshold of a new era. In fact, it's the kind of threshold that leading thinkers, Erik Brynjolfsson and Andrew McAfee, believe is taking us into what they call, 'The Second Machine Age.' Computers and other digital advances are [boosting] our ability to use our brains to understand and shape our environments¹.

They argue that digital tools are augmenting our mental powers in the same way that steam power multiplied the power of human muscle back at the dawn of the First Industrial Revolution.

"Mental power is as important for progress and development– for mastering our physical and intellectual environment to get things done – as physical power. So, a vast and unprecedented boost to mental power should be a great boost to humanity, just as the earlier boosts to physical power so clearly was."² Steam was replaced by electricity which is now yielding to intelligence.

"That's exactly the point," says Michael, "Digital transformation is about supporting the mental power of the people in your organization to innovate and then have access to the tools to do it fast. LEONARDO enables you to do that – especially with its 'accelerators' which can get an idea out there very quickly to see if it works and has traction within a marketplace."

Benedikt agrees; "The new functionality of both S/4HANA and LEONARDO is impressive. The fact that you can have real-time control and analysis as well

as forging the framework for harnessing the latest digital techniques and create design thinking methodologies is very valuable."

Javier adds; "But, we have to remember that adopting both S/4HANA and LEONARDO can seem like a big, disruptive change. The experience we've all had out there proves that very clearly. Change is always disruptive and that makes people nervous – when you transform the way they work. But it's a great opportunity. That's how we need to see it – as a business opportunity.

The goal for any 21st century manufacturer is to be able to produce 'Lot Size One' at a price that's close to mass production levels. That ensures closer relationships with customers and the ability to match real-time demand to production. Ultimate agility.

That's why it's so important for manufacturers to stay ahead of the digital curve. S/4HANA and LEONARDO are key elements in achieving that goal. The guidance in this Insight Guide will help you understand how you can apply their digital benefits to your operations, and ensure that you can achieve truly connected retail by accelerating your digital transformation.

¹ Erik Brynjolfsson & Andrew McAfee: The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies 2014 – Norton.

² IBID

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Michael Straub



The strategic opportunity

Smart manufacturing is based on the intelligent use of real-time information. The key difference between Industry 4.0 – the fourth industrial revolution – and the past is the ability to match production lines and processes to the evolving needs of customers... as they change. SAP S/4HANA provides is the source of that live information. It enables you to plan and execute processes across all areas of your operations and all aspects of your manufacturing cycle. It connects planning, the shop floor, and the customer in one seamless flow of data.



The strategic opportunity

"This is a step-change that frees up the time and space to create the digital world you need and want. S/4HANA is not just an upgrade, it's a new opportunity to get your core functions right, with LEONARDO enabling you to fast-forward innovation," says Thomas.

"We're not here to praise or critique S/4HANA," says Thomas, "It's a reality. As a business, you can either embrace it or resist it. I believe it should be embraced because it does make the potential of Big Data and digital transformation more real, and more urgent."

"It's a very simple equation," says Michael, "S/4HANA can run your business. LEONARDO enables it to innovate."

"I guess it's all about looking at what your enterprise is for," says Benedikt. "It does not exist just to carry out functions, it exists to move forward, create new opportunities, and respond to what customers want and need. You have to be able to do both in parallel. But the best enterprises are able to link the two, so they support each other. SAP has created the means by which you can do it. It's a strategic opportunity in my opinion."

"The fact that you can take what were separate databases and make them talk to each other, means that you can be in a better position to unlock the knowledge that's in the data," says Michael. "But S/4HANA means you have to change the way you work. The most important change is that you have to involve the users from the very beginning. You can't just deploy and then tell them, 'Here you go, get on with it.' It has to be a cross-functional process that involves everyone."

"And the same is true with LEONARDO," adds Benedikt, "But it's important to trust the machines; to trust that they will deliver more efficiency as well as high quality – not just in process functions, but in real world decision making. I think there is a lack of trust, and that is slowing down adoption of S/4HANA mostly... and maybe the release of LEONARDO is just too much for some people to understand all at once."



“We see customers hesitating to update to S/4HANA, that’s true,” says Michael. “But, I tell them that LEONARDO changes the picture. It completes the picture, like I said before. So, this is an opportunity to create a more rounded, detailed roadmap. You have both robust and fast IT catered for.”

“They worry about the need for developers to create the API’s,” interjects Javier, “That makes them wary about moving forward.”

“We can bring in the developers,” says Michael. “I don’t think many enterprises will be doing all of this alone. We are in an era where the ecosystem is what supports the enterprise, and Fujitsu has the people and the systems to support not only the creation of a sound roadmap, but to implement it step-by-step too.”

“Perhaps we’re still focusing on the benefits of S/4HANA and LEONARDO too much,” cautions Javier, “We’re not SAP salesmen!” Everyone laughs. “Definitely not,” says Thomas, “But we have to enable our customers to unlock the strategic benefits that they represent.”

“Benefits that won’t be unlocked if the solutions are siloed,” cautions Benedikt. “Siloes slow you down. If you see the entire SAP offering as one thing – a combined solution that can enable you to achieve ALL your objectives, then you will be in good shape to deliver digital transformation.”



Trust your machines and they will enable your people

Digital in manufacturing is focused on enhancing the human element. The trend toward robotization used to be viewed as a way to get people out of the way of highly productive machines, but emerging technologies are changing that mindset. The smart factory is going to be a more human factory: a more human-centric one. That's Fujitsu's approach, and it's supported by S/4 HANA's capabilities. The data and support it provides empowers humans to do more, and work more closely with machines and systems.



Trust your machines and they will enable your people

“So, let’s be clear about what the risks and challenges are,” says Thomas. “Start with the challenge every organization has to face: the migration to S/4HANA. Migration always comes with risk. But you can’t reduce risk by doing nothing. Our PAC research showed that there’s a lot of thinking going on, a lot of weighing of objectives against one another, and not a lot of action.”



Benedikt is clear about why that’s happening; “I don’t think that’s because of a fear of change – I think it’s about trust. People don’t trust the machines yet. And that lack of trust comes because there’s not enough know-how within organizations. That’s what exactly half of the respondents to the PAC survey said. The risk is falling behind because you don’t know what to do. You need to face the fact that this is about challenging the existing state of your IT infrastructure, and it’s about having to go through a migration process, in which systems have to be consolidated so that good integration is achieved. But you’re doing it on a proven platform.”

Javier is eager to add a point: “Cost is an issue. Let’s not forget that. The research shows that big majorities want to reduce the complexities and costs associated with SAP’s systems, but less than 20% think that S/4HANA will deliver that. For me, that result is based on the fact that they don’t really see the benefits that it’ll bring yet. This is

where we can help them to build their vision.”

“The survey was conducted before LEONARDO was launched,” points out Michael. “And its announcement changed the game. Now, there’s a more rounded offering. What needs to happen is more communication about what LEONARDO offers. It might seem a little abstract at first, but it’s actually very down-to-earth. Like I’ve said, it adds the ‘fast’ to the ‘robust.’

So, what is it? SAP itself has called it ‘the biggest move since HANA’. That means it’s a very significant addition to the portfolio. It is, in fact, a collection of SAP technologies which are built on top of its open Platform-as-a-Service offering, SAP Cloud Platform. At SAP’s 2017 Sapphire event in Orlando, Florida, Dr. Hasso Plattner, the chairman of the company’s supervisory board, called LEONARDO a ‘bounding box’ which sits around ‘a set of objects... a set of tools to build a system which then, with machine learning algorithms, finds insights which we can attach to transactions with an SAP environment.’





“So, it’s important to think about innovation with LEONARDO, and robust core functions that underpin that innovation with S/4HANA”

Javier Fernandez

“What that means is that the HANA offering is broadened,” says Michael. “Now, you can add all kinds of possibilities to your business, from AI and machine learning to IoT. Perhaps the idea of a ‘box of tools’ is a little too abstract. I prefer to look at it as an ordered tool-set that delivers a full-innovation product.”

“So, it’s important to think about innovation with LEONARDO, and robust core functions that underpin that innovation with S/4HANA,” says Javier.

“That’s exactly right,” agrees Michael. “That means you should not worry about siloes within the organization. See it as ONE solution.”

“And trust the machines.” Benedikt warms to his theme: “By that I mean, look at the old way you do something, and investigate how you can do it better and also free your people to be more skilled and more engaged with customers. A financial sector company I worked with was hesitant to use AI to make decisions on loans. But, when they tested the new AI system, and saw that machines could learn to make even better decisions than humans, they changed the way they worked. That enabled the people to deal with more complex cases and take their time to make good decisions, whilst the algorithms catered for the routine loan decisions. Everyone benefited: the

bank, the employees and the customers who got quicker decisions.”

“OK, we can address both those things. I think, the risks associated with migration projects are well known, they need to be explicitly dealt with. Security is, of course, one of those risks,” says Michael. “The risk of not migrating is the point for me,” says Javier. “The fact that you can consolidate your data means that you can implement a range of projects, for instance in The Internet of Things arena. That’s fast becoming a huge deal. That can be run through S/4HANA, so the risk is not implementation itself but poor, or non-existent implementation.”



Smart manufacturing: Industry 4.0 is driven by intelligent manufacturing processes

A key focus is reducing operational costs. To do that you need to leverage the power of enormous amounts of data much more easily, you can use the insights you gain to simplify operations and processes, and reduce bottlenecks or delays. Optimized user-interfaces speed decision making and ensure operational transparency across the organization, especially on the production line.

Planning is being transformed. Because the data is live, so decisions can be made faster. Planning can be both long term and, when needed, instantaneous. MRP processing time is faster which means that the responsiveness of your production facilities can be greatly improved. Ultimately, that ensures customer satisfaction: they get what they want when they need it.



Smart manufacturing: Industry 4.0 is driven by intelligent manufacturing processes

“The big picture is, this is a change process, so we need to talk about what we really need to change,” says Benedikt, “This isn’t like moving from Office to Office 365, this is much more fundamental than that. You need to differentiate your enterprise from the core outward.”

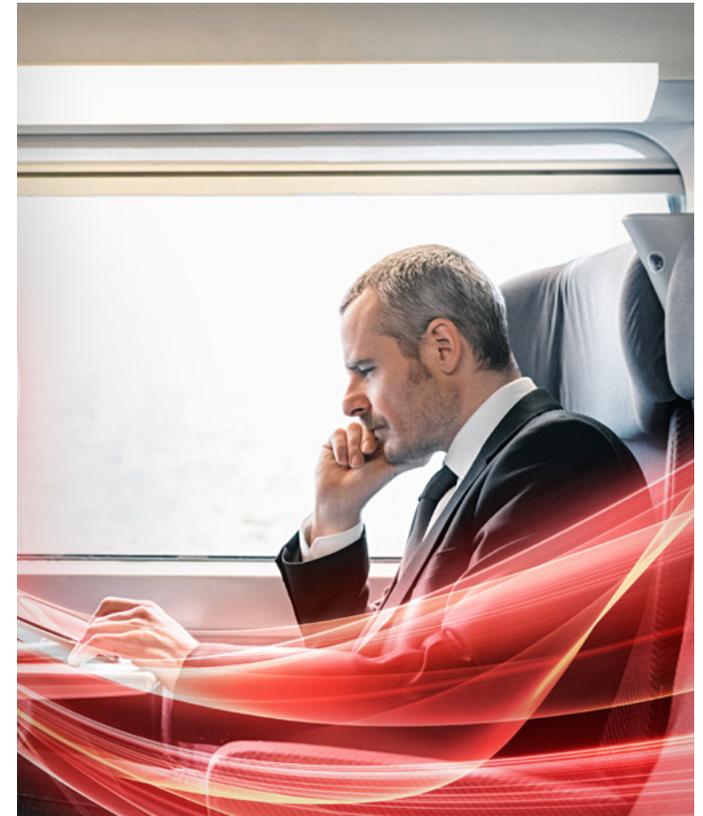
“OK, what we’re saying is: This is a complete digital transformation project,” says Michael, “This isn’t just about S/4HANA and LEONARDO. This is about really thinking about how you can make the most of digitalization.”

“Yes, now you say it that way, you’re right,” says Thomas. Javier adds, “Some customers have been skeptical about S/4HANA since it was announced. They think it’s just another thing they’re going to have to pay for. But what I try to do with customers is to talk about how it’s a big opportunity to power their digital transformation. LEONARDO helps that argument because now you have a broader set of tools to innovate. The board is already asking for new tools and new ways of working; IT must be able to respond with greater agility. To do that they need to greatly reduce complexity, and integrate everything from data to transactions to workflows. S/4HANA together with LEONARDO are the engines and the platforms that can do that.”

“It’s a journey,” says Benedikt. “One of the basic success factors in any change process is the fact that a customer has a vision – a clear goal for the future of their processes and their entire IT landscape over the next five years or so. By aligning projects with that big idea – the big picture – then everyone can go in the same direction and know why they’re heading that way.”

“But this is a collection of projects, not a single assignment, right?” asks Michael.

“That’s right, it’s a broad vision that needs to be communicated with everyone involved so they understand how S/4HANA can help them and how LEONARDO can enrich their work,” says Benedikt. “Again, it comes down to trust in the machines. The point is, don’t sell SAP, sell the idea that you can deploy S/4HANA and LEONARDO to take digitalization beyond the technology to changing how you work and generating new ideas about products and services and everything else. That’s the big picture: the vibrant future of your organization.”



An opportunity for 'organizational inspiration'?

Better inspiration leads to faster decision making. The digital arena delivers the ability to predict and simulate in much easier and more user-friendly ways, which then means you can work with suppliers and customers to ensure that every production line is being optimally utilized, shift by shift.

And, of course, that leads into the 'market of one' approach. 'Lot Size One' at a price that's close to mass production is the goal of every 21st century manufacturer. Individual products or products that are specifically customized are the future of manufacturing. You need to the data and agility to achieve it. S/4HANA delivers that ability.



An opportunity for 'organizational inspiration'?

"A new age or era... are we in danger of sounding too esoteric, and confusing customers?" Javier says.



"No, I think they need to understand that they are entering a new age whether they like it or not," replies Michael.

"What we have to talk about are 'great ideas' rather than technology," says Benedikt, "That's what inspires people. It also enables the IT people to be more involved in the business imperatives and the outcomes, not just in provisioning technology."

"OK, then let me be inspirational," says Javier, "I believe that this is the first time in history that technology actually frees people to do more. It's no longer a constraint. What SAP have done is to free up their platform so that it opens up possibilities without the need for technological complexity."

"Now, that does sound inspirational!" says Michael.

"What I hear a lot within organizations is the need for the business to truly focus on what it needs to do to compete and innovate," continues Javier, "But what actually happens is that they get bogged down by technological complexity. Things never run as smoothly as the hype suggests it will. But with S/4HANA and LEONARDO we can free up those functions and desires and achieve economies of scale and levels of automation that help those at

the cutting edge... do more, and be inspired to create. Perhaps 'freedom' is a better word than 'inspiration.'"

"Let's not get carried away with words – but your point is a good one," Michael says. "What I think we're saying is that customers should not be anxious about these new SAP offerings, they should be excited. They need to have the confidence to approach the transformation – and they can get that by working with us – but they need to just embrace S/4HANA and LEONARDO. Don't see the problems, see the opportunities."

"And you can do it your way," says Benedikt. "You don't have to be pushed into the cloud if you don't want to go there. What I'm saying is that, when I discuss the future with customers I point out that they can choose where to run their functions and innovations. We work with them to work out what new innovations they really need. We don't innovate for the sake of it, we have to identify the features that will make a difference – yield value quickly – and then decide if they should develop it themselves or buy it in, and when to customize a product and when not to. That takes us back to planning that roadmap, its fundamental."



SAP encourages customers to move to the cloud, but there is no one-size-fits-all solution. Benedikt's point is that an enterprise might prefer to run some functions on premise rather than in the cloud. Special, core functions that need to be ring-fenced and protected. That's perfectly possible and Fujitsu can recommend which areas to keep in-house and which to migrate. It's part of the co-creation approach.

"The point is to be agile. That's a cliché but it's true," says Michael. Javier adds, "We have the expertise to help you configure S/4HANA and LEONARDO the way you want and need it. We can create specific adjustments to suit your individual needs. We can adapt the code, even the way the user-interface looks and works. The point is to make it a perfect fit for your business."

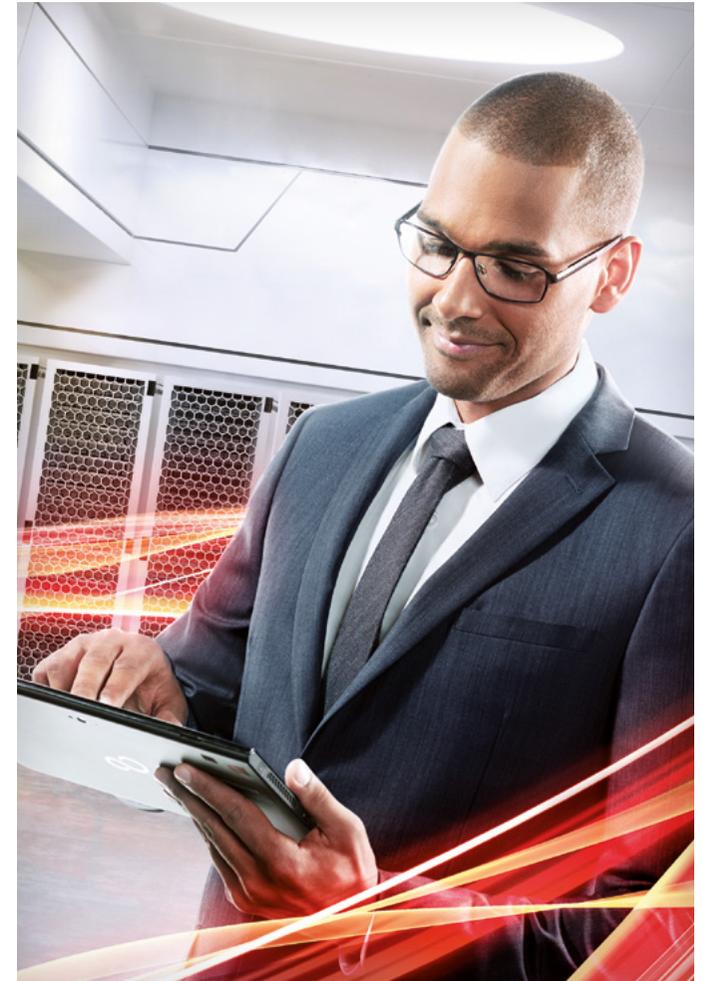
"Your business has to run... and keep running," says Thomas, "And it has to innovate. Our job, at Fujitsu, is to help do that. Each and every day."

"My big message is stay in control," says Benedikt. "SAP will roll out new features, but you don't have to accept them all. They won't achieve innovation on their own – it's how you use them that counts, or whether you use them at all. No matter how great a release is, it's how you make it work for you that makes the difference. Which is why we believe customers need to work with us, of course."

"Which is what XpressWay is all about," says Javier. "We developed our own methodology so that customers get a clear roadmap of what needs to be done, what needs to change, and how and when they'll get the best from SAP's solutions."

"XpressWay, together with MetaARC, are key to activating the potential of the new platform," says Thomas, "It helps to analyze processes and generate the intelligence needed to get the new processes right and ensure the migration goes smoothly. You know, what reassures customers is that they're working with someone who knows how to get everything right... from the servers to the business processes. Someone who can translate from the business functions to the IT functions to ensure that the best outcome is achieved for that specific organization."

"It's also about making the most of the technology's potential," says Javier. "It's like most people only use around five percent of the functions of Excel, Ok? I know that sounds trivial, but it's true. We will ensure that you get the most out of SAP, and ensure that everyone can understand what it can do – from the IT people to the financial people to creatives and sales people."



Digital power for Industry 4.0

AI and machine learning are at the heart of Industry 4.0. They're the elements that make a smart factory, smart. But they are not an end in themselves: they exist to augment the ability of humans to drive innovation as well as productivity. They help people focus on new ideas and new ways to serve the fast-changing needs of customers and, ultimately, consumers.

LEONARDO enables those digital tools to be used across all operations and process. It leverages the power of AI and machine learning and delivers the ability to achieve data analytics at scale. That enables better, more uniform performance, governance and benchmarking because well-defined and comparable KPI's can be achieved across plants and within them. LEONARDO delivers global transparency across multiple diverse systems and speeds decision making. They are important benefits: they're what manufacturers have been striving to achieve for years.



Digital power for Industry 4.0

“This is the first time in history that a technology is not a constraint,” says Javier.

“Not just one technology but many technologies,” says Michael. “The point is to make them mutual, so they complement each other and work to achieve the business outcomes you’ve identified.”

“It is not about the technology but what you can realize with it, which makes it really unique. I stick by my claim - there are few examples in history where that’s happened!” says Javier.

“It’s a strategic opportunity and it needs to be approached as one,” says Thomas.

“The point is to make the most of it,” says Benedikt, “Now.”

Based in the cloud, LEONARDO is a centralized, data-driven manufacturing performance management solution that helps you leverage the power of digital to not only make better decisions, but have new and innovative ideas. The insights you get from the data, augmented by the power of AI and machine learning, for instance, mean you can overcome obstacles, free up human thinking time, and turn insights into innovative products and

business models in a faster and more agile way.

The smart factory can’t build itself. You must make it happen. LEONARDO supports your thinking and actions to deliver the promise and benefits of Industry 4.0.

At Fujitsu we have been working with SAP from the beginning. We have the experience and knowledge you need to make the most of the opportunity that S/4HANA and LEONARDO represent. We can do that technically and strategically. We help you migrate, deploy and exploit. We also help you see the big picture from the point of view of desired business outcomes.



Talk to us about how we can help you

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