Westernacher
NONSTOP INNOVATION

THE FOUNDATION FOR INNOVATION

Higher value, faster at lower cost. S/4HANA as your platform for innovation.

A fundamental change affecting all business processes is happening. Exponential digitization of everything, combined with near real-time mass data processing, automation, artificial intelligence and robotics are fundamentally changing business processes.

Companies who can identify the opportunities in this change can turn it to their advantage.

SAP S/4HANA is the software platform enabling you to digitize all core corporate processes and information. This backbone of corporate information and core functions, available instantly, is a key enabler for innovation, automation and value creation.

How S/4HANA can unlock innovation throughout your business.

What is the value of implementing or migrating to SAP S/4HANA? Many companies overlook the most important opportunities by concentrating only on total cost of ownership, Enterprise Resource Planning (ERP) and finance functionality and the speed of in-memory computing. While there is significant value in the core ERP and finance processes (data reduction, simplification, faster processes, nice Fiori user apps, new functionality) there is much more value to be found taking a very different perspective.

When you build your digitization strategy, think of your ERP system as a hub in which all spokes come together. The "foundation for innovation" in all your business processes. This is the core of a platform which can enable your company to become:

Connected

All processes are fully integrated with each other and with internal and external information sources. From unstructured world events and social media to products, assets, people, suppliers and internal information, everything is connected. Context-rich "digital twins" of all relevant business processes, objects and events in the universe of the company are maintained.

Pro-active

Knowing exactly which events are happening, when, and how they impact the value chain allows you to take pro-active measures based on the information flow before the problems impact the physical flow of goods. Event- and exception-based management optimizes all operations, so problems can be resolved before they impact the value chain.

Automated

Systems automatically handle

transactions, whereas humans focus on exception handling, review and problem-solving. Robotics, machine learning, prescriptive analytics, process automation and artificial intelligence are used to fully automate processes.

Responsive

The company can respond fast to market signals, to individual customer preferences, to legal, financial and compliance changes and to environmental disruptions. This responsiveness from a business perspective is carried over to the way users work with S/4HANA applications – these are also responsive and adapt to the user's devices (smartphone, tablet, desktop).

Agile

At a macro level, meaning a fast adaptation of the total capacities and capabilities to significant changes in the market by, for example, selling spare capacity,

multi-sourcing, out- or in-sourcing.

At a micro level, meaning an ability to react in near real-time to events impacting operations.

The value of an S/4HANA system comes not just from the ERP and finance processes themselves. Robust and effective transaction processing is of course a critical necessity in business. In addition, your central ERP system will become your platform for innovation, driving much more value in areas where you might not expect it.

To define the value for your company of moving to SAP S/4HANA you should explore the following four dimensions:

1. **S/4HANA as a digital innovation foundation**

2. **S/4HANA as a real-time analytics platform**

3. **S/4HANA with its embedded supply chain innovation**

4. **S/4HANA with its innovations in core ERP and finance processes**

In the following we will briefly explain each of these areas.

1. S/4HANA as a digital innovation foundation

The premise of S/4HANA as an innovation platform is tied to the concept of the "digital twin":

- By creating a digital representation of every object and event relevant to the value chain of your company, so called "digital twins", you can apply new processes, functionality and gain new insights.

- Doing this requires a very powerful central system which can connect to vast amounts of data (millions of events relating to hundreds of thousands if not millions of objects), updated and retrievable in near real-time in a consistent and harmonized way.

- Since your ERP system is the golden source for most of the main objects representing your value chain (customers, vendors, products, materials, production plans such as routines and schedules, machines, finances, etc.), this central ERP system becomes the foundation of such a "powerful central system" on which innovation heavily relies.

Some examples to show the breadth and depth of this premise:

- Pattern recognition and data science can be used to predict machine breakdowns and initiate preventative maintenance. This requires that you have masses of sensor data (filtered by edge computing or stored in data lakes), combined with the equipment data and workflow systems to perform the analysis and efficiently act on it.

- Artificial intelligence functionality available through cloud services can interpret incoming documents. Which of the numbers stated on an invoice are a reference to a purchase order? Was a cash discount taken? What is the supplier number? This information can then be used to automatically clear open items and fully automate process. To do this all this data must be digitized at granular level and the algorithms must have very fast access to all the underlying detailed transactions and data.

- In advanced omni-channel retail scenarios, a customer can seamlessly be steered between an e-commerce transaction, an in-store purchase, pick-up in store, home-delivery and rerouting the customer to or the product from another store nearby. This requires complete real-time transparency of all

the stock in all the stores and warehouses, and knowledge of the location of the customer, for example through an online app or through the store system.

These are just some random examples of the many innovations in completely different processes and areas which are defining the business of the future. What they all have in common is that they require:

- high levels of digitization,

- near real-time access to large amounts of data,

- the ability to connect information in a reliable and consistent way.

While individual innovations can be achievable without an in-memory, highly robust back-end ERP system like S/4HANA, deploying multiple digitization innovations in parallel is not possible on older ERP technology without prohibitive investments. This does not mean that S/4HANA and the HANA database below it will necessarily house all information gathered. There will be a need for data lakes and edge computing. What is important is that the hub of the large wheel of mass digitization is strong enough to hold everything around it together. That is why you need an S/4HANA system at the core of our architecture to drive the value from multiple digitization innovations

2. S/4HANA as a real-time analytics platform

Most classical ERP systems are not able to provide "OLAP" online analytical processing capabilities. This is the "slice and dice" ability to summarize, filter, drill down and correlate large amounts of information from multiple areas of the business with the ease of, say, a pivot table in MS Excel. This is because when you try to perform such analysis on large relational databases, the database cannot be optimized in advance for the endless ways in which the slicing and dicing will request the data which typically needs to summarize large amounts of data in different ways. This leads to heavy sequential read activity on the database and very long response times and impact on the transactional processing.

To get around this, data warehouses are used, which regularly, or even on demand, extract and replicate the ERP data into a separate database which is optimized for slicing and dicing (through star and snowflake data models and pre-built aggregates). However, this approach has very large drawbacks:

- Separate data warehouse systems have to be designed, built, maintained and constantly monitored.

- The representation of the data in the data warehouse is always somewhat different from the representation in the ERP system, so the end users have to be extensively trained on how to interpret the data. This starts with simple things like "which data is included in the report I am looking at, what was the cut-off data for replication to the data warehouse".

- Any analysis which was not pre-conceived when the data extraction and data warehouse was designed will require a change to the extraction and data warehouse including test cycles, etc. Typically, such requests take weeks if not months to deliver.

Data warehouses are still relevant for some scenarios, but in many use cases replacing them with embedded analytics improves capabilities, performance and cost dramatically.

3. S/4HANA & embedded supply chain innovation

Based on an S/4HANA ERP system you can innovate the following key areas of your supply chain:

- Manufacturing
- Warehousing
- Yard Management
- Transportation Management
- Service Parts Planning
- Asset Management

In manufacturing, S/4HANA offers many new opportunities to improve. For example, detailed production planning can be done using PPDS (Production Planning and Detailed Scheduling) functionality directly in SAP S/4HANA. Up to now, we had to implement a separate solution (SAP APO-PP/DS) and set a full blown integration process. For production control, S/4HANA can be directly integrated with the Manufacturing Execution System (MES) available in on-premise or enabled to exchange shop floor data directly with Digital Manufacturing Cloud. This approach creates opportunity for seamless integration of the whole manufacturing process, supported by planning and management systems cooperating with specific industrial solutions for execution. Manufacturing companies thus benefit from greater transparency, higher productivity, accelerated decision-making processes and better product quality.

To optimize warehousing, Extended Warehouse Management (SAP EWM) is available as embedded or decentralized S/4HANA functionality, with a complete state- of-the-art warehousing solution. Integration to automated warehouses, KANBAN, and real-time KPI reporting are no longer considered innovation but the new 'normal'. These are just a few examples of the many areas t can be improved in the warehouse to reduce warehouse operation cost, increase throughput and delivery speed and reduce inventory.

The next area is the yard, which can be optimized with S/4HANA Yard Logistics (SAP YL). All the trucks, rail cars or vessels moving within the perimeter of the plant's facilities can be monitored and optimized through this functionality available embedded in S/4HANA. With dock appointment scheduling ahead of arrival, self-registration of the carriers at the gate and optimized planning of the movements on the yard, the throughput and labor efficiency on the yard can be increased and loading / unloading activities can be optimally coordinated with the warehouse operations on the one hand and the transportation activities on the other.

That brings us to Transportation Management (SAP TM), the next large area of innovation which you can unlock through functionality newly available embedded in

S/4HANA. Transportation is one of the areas which in many companies is still managed very manually. Using embedded SAP TM on S/4HANA, you can automate and optimize the strategic planning and purchasing of transportation services, the operational planning and transport execution including seamless track and trace and the settlement of freight cost with detailed and highly automated invoice verification.

Using Extended Service Parts Planning (eSPP), companies can achieve centralized and network-oriented spare parts planning processes, making sure the right parts are at the right place at the right time.

eSPP meets the specific logistics needs of the spare parts business (aftermarket) – for example, sporadic demand, complex multi-level supply chain structures, product substitution chains or returns processing – supporting the goal to reach the required service levels at minimal cost.

Across all domains of the supply chain, assets such as machinery, forklifts, trucks, etc. are key to the overall performance. SAP S/4HANA Asset Management is the solution for the analysis, planning and execution of maintenance. It provides tools to simplify the maintenance process, increases transparency in the plant operation and planning, optimizes

the scheduling of maintenance work and ensures a safe and compliant operation.

By extending beyond classical ERP, using these functionalities embedded in S/4HANA, you can optimize each of these areas, driving large cost savings. At the same time, you establish a fully integrated responsive, agile, scalable, and highly automated supply chain. This allows you to quickly establish all kinds of new business processes and innovations such as lot size 1, demand driven supply chain, advanced slotting, cross docking, robotics, dock appointment scheduling, and connected fleet, to name just a few.

4. S/4HANA & innovations in core ERP and finance processes

All the new possibilities mentioned so far are often ignored. They can typically be the basis for a completely different business case than one which is based only on the ERP and finance functionality.

The following benefits are directly tied to the core functionality:

- New or significantly improved functionality:

  Innovations are introduced in many lines of business – for example, predictive accounting, central finance and real-time reconciliation, or predictive analysis in Inventory Management to investigate non-

or slow-moving materials, or advanced variant configuration with higher flexibility and improvements "under the hood", or real-time analytics with prebuilt KPIs and cockpits.

In addition to S/4HANA, the SAP Cloud Platform can be used to integrate intelligent automation processes with Intelligent Robotic Process Automation (IRPA) or machine learning and artificial intelligence.

- Fiori based applications:

  S/4HANA introduces a new user experience with SAP Fiori. Fiori applications follow a paradigm which centers around the combination of people, business and technology by following the "Design Thinking" principle where innovation is created by a thoughtful combination of desirability, viability, and feasibility.

  Fiori apps change the way users work by representing a clear shift from monolithic solutions to activity-based, interconnected apps. Users work with the Fiori Launchpad as their personal central entry point to interact with the S/4HANA system. This entry point is tailored individually to the business user's requirements by offering exactly the right business applications based on the user's responsibilities.

Fiori apps are role-based and tailored to the needs of a business user. They adapt to different devices (a mobile device or a tablet) and are simple to use. They can include machine learning capabilities and artificial intelligence to enable the users rather than taking away control and are coherently designed to create an intuitive experience.

- Instant response times:

S/4HANA as your digital enterprise system is powered by the SAP HANA platform. This platform increases the performance of your system by leveraging innovations like in-memory computing, column and row store, data compression and massive parallelization. This way, huge amounts of data can be processed very fast which in turn reduces the necessity for data aggregations and aggregation tables. Due to the data being in-memory, calculations can be performed on the fly which on one hand increases the overall performance and on the other increases the value of the results, as they reflect the real-time status of your business.

S/4HANA is built to utilize those capabilities. By introducing new concepts like Core Data Services (CDS), many applications and therefore the business itself benefit from the increased performance and standardized data access and usage. Those new concepts are used throughout all the business areas like Sales & Distribution, Manufacturing, Procurement, etc.

- Database and system simplification:

As seen above, S/4HANA is powered by the SAP HANA platform to increase business performance. But the HANA platform is more than just a high-performance database. It features a lot of additional functionality your business can utilize to drive value. Examples of those additional capabilities are "Extended Application Services (XSA)" as a fully integrated development environment directly on the SAP HANA platform or "Spatial Services" to enrich your data by geographical information, for instance, which can then be used by applications to improve processes.

S/4HANA itself also contains a lot of simplifications regarding business processes and the underlying data models. Those simplifications and enhancements span the system and often come with streamlined data models (by redesigning the business application structures). As an example, the new available-to-promise

functionality for availability checks (Advanced ATP) no longer relies on aggregated sales order requirements, therefore the table VBBS is now obsolete. There are over 600 simplifications available with S/4HANA, but as a rule of thumb, only 50 to 150 are relevant for a customer, as almost no company utilizes all lines of business and processes. A comprehensive collection of all simplifications can be found either in the simplification list or the simplification catalog.

The S/4HANA simplifications provide an opportunity to cut old ties, rethink business processes, potentially drop custom logic and move closer to SAP standard again which in turn can lower the overall TCO.

Core innovation platform to create value and stay connected

SAP S/4HANA is much more than a somewhat better ERP system! S/4HANA does provide a much

faster, more user friendly, really "real-time" and more cost-effective ERP backbone.

By taking a much broader view, moving to SAP S/4HANA gives medium-sized and large enterprises a platform to innovate the most cost intensive areas of their value chain. By deploying advanced functionality in manufacturing, warehousing, yard, transportation management, parts planning and asset management, high cost savings and innovative new business processes are possible in these important sections of the value chain.

Companies can eliminate a high-cost and high-latency data warehousing layer in their IT architectures and provide business users with real-time online analytical capabilities directly on the transactional data, allowing a completely new level of agility and responsiveness. By using these capabilities, processes can become fully automated and "managed by exception".

By providing a core innovation platform and a home for all the "digital twins", S/4HANA enables companies to connect and relate to vast amounts of information, from Internet of Things, Industry 4.0, social media and from its own intensified information gathering on its value chain, to disrupt the market with completely new offerings and business processes

and enable value creation which plays in orders of magnitude larger than what is currently considered in most ERP to S/4HANA business cases.