SAP BW/4HANA:
the top 10 considerations
This is the era of big data, and data warehouse technology continues to evolve to attempt to match the relentless march of end-user expectations. These are driven by consumer technology and software that is streets ahead of the corporate world. For the business warehousing space, this has led to a focus on innovation and advanced features around in-memory, compression, security, and tighter integration with SAP, non-SAP, on-premise and cloud technology. BW/4HANA is the manifestation of this innovation from SAP; it’s not just an upgrade from BW or BW on HANA.

Over the years, you will have invested significantly in your data warehouse platform and will be looking at how that investment can further support the needs of your business users with topics such as real-time, predictive analytics, self-service reporting and others at the forefront of your mind. BW/4HANA does this in spades and will continue to evolve and bring even more functionality as the product matures.

BW/4HANA brings with it fundamental changes in the architecture, modeling tools and end-user interfaces of your business warehouse. These differences demand that you make careful considerations when establishing BW/4HANA in your digital roadmap. From how you migrate, whether that be a greenfield or brownfield deployment, to planning the training requirements for your teams, the move to BW/4HANA requires changes in how, where and why you store your data and how you access it.

Executive summary

SAP BW/4HANA has been borne out of SAP’s desire to evolve and reimagine its data warehousing capabilities. Whether you are currently running SAP Business Warehouse (BW) or looking to move from other Enterprise Data Warehouses (EDW), you need to understand the key considerations you should be making. We’re going to introduce you to the matters that Bluefin consultants have faced whilst working on SAP BW/4HANA.
Our BW/4HANA experts have shared their key learnings from working not only on the development of the product with SAP, but also on the world’s first proof of concept (PoC), to provide you with their definitive top 10 considerations you need to be making when moving to BW/4HANA.

The most important thing to take away from this is that there are things you can, and must, start today to make your journey to BW/4HANA easier and less costly. They will set you up to reap the benefits brought by BW/4HANA from day one.

“We had to rethink how we were doing things today and how they will be tomorrow.”

Business Analytics Manager, Offshore Drilling Client
SAP BW/4HANA is an enabler for your business, providing you with a platform from which to create a connected and data-driven enterprise. It will be your single corporate memory of all SAP data, whilst linking it to all your other data sources.

Not only does it allow you to simplify your BW strategy, it also reduces modeling costs, and puts data into the hands of your end users, where it’s needed. It is the perfect complement to SAP S/4HANA (S/4): being fully optimized, it supports the automation of your processes, and provides you with access to structured and unstructured data, in real time, giving you the opportunity to make more informed business decisions.

Logical data warehousing reimagined by SAP

**SIMPLIFIED**
SAP has removed significant amounts of functionality that was only required to support the complexities of traditional RDBMS.

**OPEN**
Open from a data perspective: consumption from any source and data tiering to Hadoop. Open from an end-user perspective: models can be consumed from any major BI tool.

**AVAILABLE**
Developers and end users alike will notice a significant difference with a strong focus being placed on user experience. Modeling tools can be found in Eclipse and on the Web with SAP GUI no longer being used. This solution is all about what you do with the data, not how you access it.

**OPTIMIZED**
To move to fully automated processes you need immediate access to structured and unstructured data. BW/4HANA removes latency, allowing your data to feed your automated processes, in turn enabling you to become a truly digital enterprise.
SAP BW/4HANA: the top 10 considerations

1. The migration options

If you’re an existing BW consumer, you’ll very likely have invested heavily in making the product and platform work the right way for your business. The prospect of losing all, or part, of this investment is not something that the business would take lightly. For this reason, there are a number of options open to you today while building your road to BW/4HANA.

The current features and functions of BW/4HANA and SAP BW on HANA are similar. However, with SAP’s focus firmly on BW/4HANA, BW and BW on HANA customers will no longer experience new features and functionality. Now is the time to start thinking about your migration strategy to ensure you benefit from the innovations SAP is developing in this space.

Depending on where you are on your BW journey, there are three ways to migrate to BW/4HANA. The path that best fits your organization will determine your roadmap, the time it takes to deploy and the final costs of adding SAP BW/4HANA to your landscape.

<table>
<thead>
<tr>
<th>Greenfield implementation</th>
<th>Brownfield implementation</th>
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<td>• If you are dealing with an existing BW system that clearly isn’t going to fulfill the future data needs of your organization, then you should consider moving directly to BW/4HANA with a greenfield implementation. In addition to new customers, this style of deployment will also be applicable to current ones using older versions of SAP BW on xDB with numerous 3.x objects.</td>
<td>• BW on xDB: If you are running on a recent version of SAP BW on a non-HANA database, firstly you need to migrate to SAP BW on HANA 7.5 Support Pack 4, and then do a functional conversion of the objects using the starter Add-On before you switch to BW/4HANA.</td>
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<td>• SAP BW on HANA: If you are already enjoying the fruits and functionalities of BW on HANA, then all you need to do is the functional conversion that prepares you to switch to BW/4HANA.</td>
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2. **Stay on-premise or go cloud?**

For the first time ever, SAP is offering you the flexibility of a data warehousing solution that can be deployed on premise or in the cloud. This provides you with the perfect opportunity to choose the option that best fits into your organization’s long-term digital roadmap:

<table>
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<th>On-premise</th>
<th>Cloud</th>
<th>Hybrid</th>
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<td>If you are a larger, more established enterprise where the majority of your systems are hosted internally, then on premise is likely to be your preference. It allows for greater control and increased customization, providing the crucial flexibility to meet the well-established and non-standard analytical and reporting needs of the business.</td>
<td>If you are a mid-size or cloud-embracing enterprise looking for greater agility, alongside the ability to scale as you grow, then you should consider this delivery model. The increased flexibility this offers, in addition to a faster innovation cycle, is perfectly suited to businesses that are changing or growing rapidly and want a platform that can match that change and growth.</td>
<td>If you are an enterprise-scale organization interested in rapid transformation with a reduced up-front cost and are looking for the best of both worlds, then a hybrid model – utilizing both on premise and cloud delivery – might be the way to go for you.</td>
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A great accelerator that Bluefin uses with a number of our clients is to utilize cloud-based hosting providers to evaluate and train teams on BW/4HANA. Spinning up a system using these cloud providers is incredibly quick and low cost.

One of the first BW/4HANA PoC implementations Bluefin performed involved a 2 TB HANA instance. The system was provisioned and ready for use in hours, allowing the teams to get productive in no time at all. Compare this to a typical on-premise setup and you can see immediately the value of utilizing this route.
3. Evaluate reporting requirements, one size does not fit all

You’re considering the move to BW/4HANA, so it is the perfect time to seriously evaluate which front-end tool(s) will best fit the needs of your business users.

To quote Abraham Maslow: “If you only have a hammer, you tend to see every problem as a nail”. Similarly, no single business intelligence tool is appropriate for every user’s requirements. This is especially true when multiple users are slicing, dicing and analyzing different types of datasets for different audiences. To ensure return on investment, organizations need to determine which tools are most suitable to meet the varied demands of their users.

The BEx front ends (BEx Analyzer, Report Designer, Web Templates, BEx Web, Broadcasting) will no longer be supported under BW/4HANA. BEx Query will continue to be supported and simply be called BW Query.

There’s no hard-and-fast rule as to what application is the right choice for your business users, therefore running a small PoC or demo project to see the capabilities of the various front-end tools is a sound way to get a feel of their suitability for your business and end-user needs. Based on the outcome, there is an array of front-end tools, which are tailored to different business requirements, such as SAP BusinessObjects Analytics and Fiori Web Apps built on OData services consuming HANA views or BW InfoProviders.

In a PoC Bluefin carried out for a large offshore drilling client, we observed that once the BW Queries were migrated and HANA optimized to be used with SAP BusinessObjects Lumira as the front-end tool, we were able to demonstrate dynamic analytic querying capabilities with a response time of around one second, over the previous times which stretched through minutes, across all of its rigs, with no filtering, which was a significant improvement over the existing BW system.
The dataset being processed consisted of 7.7 million records. In addition, it was not necessary to restrict the fields by using a BW Query, as filters, conditions, differences in aggregation, etc. can be specified at report time with negligible impact on performance. That said, you can also consume BW Queries directly with all SAP BusinessObjects Analytics front-ends, including SAP BusinessObjects Lumira, and therefore protect your previous investments in BW Query design.

The demonstration of this capability using a previously unused self-service reporting tool such as SAP BusinessObjects Lumira was a significant step forward in the capabilities brought to the business and far greater than the previously utilized tool sets. Other modern SAP BusinessObjects Analytics capabilities, e.g., SAP BusinessObjects Roambi and SAP BusinessObjects Cloud, will also address additional key business requirements such as mobility or agile analytics in the cloud that were far out of reach before.

“It is the perfect time to seriously evaluate which front-end tool(s) will best fit the needs of your business users.”
4. Revisit your legacy BW objects

When it comes to BW objects on BW/4HANA, it’s all change and it is vital to spend the time to evaluate what work will be involved in converting these objects for the move to BW/4HANA. Whilst this doesn’t apply for a greenfield implementation, it is a significant factor when considering brownfield as your route. Even customers currently running BW on HANA are highly likely to be using these legacy objects, so thinking about how to simplify your implementation by modernizing these objects will pay dividends later.

Do not underestimate the amount of work involved in the conversion and deletion of old objects. When migrating to BW/4HANA, this can account for up to 90% of the work.

In the classic setup, BW offers about 10 different object types (building blocks like InfoCubes, InfoSets, VirtualProviders, HybridProviders and MultiProviders) to build a data model in BW. Fast-forward to BW/4HANA, and there are now only four objects: CompositeProvider, Open ODS View, InfoObjects and Advanced DataStoreObject, which are as expressive and powerful as the previous 10.

While InfoObjects themselves are BW/4HANA compatible, there are two things to look out for:

1. Any 3.x dataflows populating master data or text.
2. InfoObject Catalogs are no longer supported. It is a very simple process to migrate them from catalogs to InfoAreas by executing RSDG_IOBJ_IOBC_MIGRATE_TO_AREA.

Execution message in SAP BW/4HANA when running ‘RSDG_IOBJ_IOBC_MIGRATE_TO_AREA’ to migrate info objects from catalogs to info areas.
To convert older versions of DSOs and InfoCubes, run Transaction RSMIGRHANADB to make sure InfoCubes and DSOs are HANA-Optimized. Use Transaction RSB4HTRF to convert entire dataflows. Start at the top-level object where applicable.

For DataSources and SourceSystems, the only supported source systems are HANA, FileSystem and ODP. This means all SourceSystems, DataSources and InfoPackages that linked to ECC or other SAP systems must be deleted. In the migrated system, they will need to be replaced with HANA-type source systems. This will affect almost every dataflow. In addition, the BW native SourceSystem is also not accepted.

BW/4 HANA’s building blocks are more versatile. Data models can now be built with fewer buildings blocks without compromising expressiveness and technical functionality. These will, therefore, be easier to maintain, making them more flexible and less error-prone. Existing models can be enhanced, adjusted and given longevity beyond an initial scope.

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5. Upskilling the development team

SAP BW/4HANA is a game changer for development teams, from the tool sets used right through to the overall development paradigm. The best thing you can do, starting today, is to take this shift seriously. This means getting your teams to embrace some of the newer and future-proof (BW/4HANA compatible) development workflows.

It is vital to ensure your data warehouse and business intelligence teams understand and receive adequate training to fully leverage the unique capabilities of BW/4HANA and crucially minimize the rework you’ll need to undertake when your migration kicks off.

Development objects

Developers need to reimagine the way they utilize the solution and approach solving business models differently. As detailed above, the selection of development objects is smaller and leaner – there are certain things you would have done in the old BW that are no longer required. There is new business content, new data modeling objects, and differences in how to approach modeling itself, along with the opportunities for landscape simplification it affords.

SAP GUI out, HANA Studio in

SAP developed the HANA platform to be used with eclipse-based HANA Studio. With SAP BW/4HANA, the development teams will not be able to carry out data modeling activities using the SAP GUI. The BW components of the SAP GUI are now present in the BW Modeling Tools add-in for HANA Studio, so there’s no excuse not to use it.

Invest in training your development and support teams early on, and don’t underestimate the importance of change management.
6. The value of data

You likely already recognize the value to your organization of the data you are storing and accessing, but there is almost certainly far more value to be realized. Questions such as “what data do we need to utilize?” and “what will the commercial benefits be as a result of business users easily accessing this data?” can be the primary drivers to modernize your BW world and build the crucial business case.

Over the last decade, SAP BW has been seen as a data warehouse rather than an EDW. BW/4HANA now has an increasingly agnostic focus across the enterprise and is more open to receiving and processing non-SAP and unstructured social media data, therefore finally putting the ‘E’ in the EDW.

Bluefin has worked with a large-scale manufacturer in the USA whose retail arm didn’t run on SAP, however all its stock and inventory was held in an SAP BW system. The work involved in getting a common view for the retail sales managers was substantial, with data being replicated and attached to an existing SAP data model.

Now, in the new world of BW/4HANA, you can keep the richness of your existing SAP data, but have easy access to external data sources, removing the need for duplications and subsequently simplifying reporting.

“BW/4HANA now has an increasingly agnostic focus across the enterprise and is more open to receiving and processing non-SAP and unstructured social media data, therefore finally putting the ‘E’ in the EDW.”
7. Data temperature management and dynamic tiering strategy

It is vital to have a clear strategy around your multi-temperature data storage and understand how the different table partitions work. The amount of data you keep ‘in-memory’ directly affects the cost of HANA, both from a licensing and hardware perspective, so it’s crucial to put the time into considering what is the right strategy for your business needs and budget.

With BW/4HANA, dynamic data tiering/temperature management strategically off-loads your low-demand data to warm storage (in-memory, but not always loaded) and cold storage (hard disk archive). It is easy to set up and significantly reduces administration efforts. It supports dynamic data distribution based on the age of the data and key values. If you have an NLS solution like SAP IQ installed in your current environment, it can easily be leveraged to relocate infrequently accessed data to SAP IQ as NLS data resides in a highly compressed state in cost-efficient storage with fewer backups to reduce operational costs.

A great advantage of data temperature management is that BW/4HANA knows what type of data sits in which table. From that information, it can automatically derive which data needs to sit in the hot store (memory) and which data can be put into the warm store (disk or non-volatile RAM) to yield a more economic usage of the underlying hardware. This is unique to BW/4HANA compared to handcrafted data warehouses that require a specifically implemented data life-cycle management strategy.

Taking data temperature management seriously can be the difference between spending significant amounts on unrequired HANA hardware and not. The business case for making data temperature management a priority will often speak for itself. This was a very obvious priority for a Bluefin customer in the high-tech sector recently as it was faced with planning its HANA and analytics implementation with existing dataset volumes at the petabyte level.
8. How to manage your add-on components

As one of the goals of BW/4HANA is to simplify processes, not all SAP NetWeaver based add-ons are supported in BW/4HANA. In addition, BW/4HANA does not yet support planning functionality, which is included in SAP BW as part of SAP NetWeaver. Obviously SAP plans to add this functionality at a later date, but for now that needs to be taken into consideration.

If you have an add-on installed on your system that is no longer supported by BW/4HANA, then prior to system conversion the add-on must be uninstalled. Our recommendation here would be to spend some time checking out SAP Note 2011192, which contains a detailed list of add-ons that you should be looking to retire – by doing this, you’re going to end up approaching your planning and road-mapping sessions with eyes wide open.

SAP Business Planning and Consolidation (BPC) is a unique case: SAP BPC 10.1 Planning standard model is not supported with BW/4HANA Starter Add-On, however SAP BPC embedded model is supported¹.

If you are using the embedded model, this will allow making the overall system HANA ready, but it currently does not support the final conversion from BW 7.5 to BW/4HANA. To summarize, SAP currently does not support conversion of either the standard or embedded version of BPC on BW/4HANA.

¹ Only after applying SAP Note 2373204
9. **Standard extractors and business content**

New planned standard content extraction from S/4HANA to BW/4HANA will be based on CDS delta extraction technology. While traditional extractors can be leveraged as well if they are ODP enabled, non-ODP-compatible extractors will not be supported anymore. New business content in BW/4HANA and SAP BW, powered by SAP HANA will be aligned with S/4HANA embedded analytics virtual data model structures. If you have custom-developed objects for extraction, they will have to be verified and adapted to the new S/4HANA relevant structures.

10. **Business case**

When building your business case for BW/4HANA, it’s vital to rethink how you view this technology and quantify the value it will bring to the business.

SAP has moved BW/4HANA beyond purely being a data warehouse. No longer is this a system to be used for operational reporting. Now, as a true EDW, it can consolidate and merge your unstructured Internet of Things data with your SAP data, providing you with real-time insights as to how your operations are affecting your P&L. It will enable you to deliver unsurpassed service to your customers, both internal and external, through a truly single view of the business and provide a platform from which to feed the automation of your business processes. Finally, it will reduce the total cost of ownership through landscape simplification and user efficiencies, together with driving proactive decision-making.

BW/4HANA is designed to enable the data-driven enterprise and remove the paralysis brought about by islands of truth, tribal knowledge and inflexible tool sets. SAP, with its release of BW/4HANA, has finally taken the first step on the road to fulfilling the promise that Hasso Plattner made in 2010 at the launch of SAP HANA – a single source of truth with real-time capabilities bringing all data in our world to where and when we need it most!
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