

WHITE PAPER

Comparing the Total Cost of Ownership of SME On-Premises Business Management Applications and SAP Business By Design

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David Bradshaw
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IDC OPINION

Many on-premises vendors claim that their cost of ownership over an extended period of ownership is lower than the cost of an equivalent cloud service. However, cloud services vendors say the contrary, that if all the costs are taken into account, the cloud service will be cheaper. In order to find out who is right and why, IDC has undertaken this study, in which we examine the cost of ownership of SAP Business ByDesign (ByD) over a seven-year lifetime and compare it with the cost of ownership of a range of comparable on-premises products.

We conclude that, based on a detailed analysis of costs and the assumptions we have made, ByD will normally have a lower total cost of ownership than the equivalent on-premises system over a seven-year period. The analysis shows that the annual subscription costs of ByD are substantially higher than the annual maintenance costs of the on-premises system, even when the maintenance costs of the supporting software and hardware systems for the on-premises system are taken into account. However, in every other aspect, the on-premises system is more expensive, and in some cases substantially so, leading to our conclusion that for most user organizations, ByD will offer the lower total cost of ownership.

One major cost factor that is often left out of comparative cost studies is the cost of performing a major update of the software for the on-premises system. In the seven-year period we have used here, this cost is unavoidable in practical terms.

IN THIS WHITE PAPER

In this document, we analyze the lifetime cost of ownership for a typical on-premises SME business management system and compare it to the cost of an equivalent SAP Business ByDesign implementation.

We have used a mixture of different vendors' on-premises systems rather than any single vendor's product. Although there are many different business management software products available, which all differ in overall functionality, they all compete closely on price.

METHODOLOGY

IDC has developed a model to analyze the acquisition, implementation and all other direct costs (plus certain indirect costs) of business management software based on a typical implementation size of 30 users, in a mid-sized business of between 100 and 500 people. The model has two parallel versions:

- ☒ An on-premises model based on the average of a range of different vendors' products
- ☒ SAP Business ByDesign (ByD)

To look at the full cost of a system, it is important to consider its life cycle, and the events that occur in that life cycle. These different events have a mixture of product costs and services costs, as discussed below.

Other than the initial implementation, the events we consider are scope enhancement, minor version updates and major version updates. Any system also incurs annual costs in the form of either support and software update charges ("software maintenance") or subscription charges for a cloud service like Business ByDesign.

Why did we choose a seven-year time-span? In seven years, all the milestones we have included are very likely to occur at least once and some of them several times.

In particular, the major version update is the least frequent milestone, but it is a very significant milestone. It typically triggers a major technical refresh; in other words, updating not just the business software but also the supporting systems potentially including hardware as well as software. For owners of on-premises systems, this is their responsibility, and lacking deep technical resources, almost all will pay an IT services company carry out these tasks on their behalf.

In contrast, for any cloud service — including ByD — the system is maintained and updated continuously at no additional charge, including any of the supporting systems required to run the service the customer is consuming. Even if a complete technical refresh is required, it is the vendor's responsibility and not the customer's. Indeed, the vendor's responsibility includes ensuring that customers face no or minimal disruption to their business even when a technical refresh is taking place.

As a result, the major version update and accompanying technical refresh potentially make a big difference in total cost of ownership, so any TCO case without these factors is incomplete.

FUTURE OUTLOOK

Key Events in the Model

To look at the total cost of ownership, there are four key events in the system life that need to be analyzed:

- Initial implementation
- Scope enhancement
- Minor version update
- Major version update

In addition, there are annual costs of ownership that must be taken into account.

Initial Implementation

Two of the largest costs in any initial implementation are the cost of the system, including hardware and software, and the cost of the implementation services needed to take these products and turn them into a system ready to do useful work with. For the purpose of this study we have assumed a user base of 30 for the system.

Table 1 shows the initial implementation costs for ByD and the average of on-premises systems. The main cost factors are discussed below.

TABLE 1

Initial Implementation Costs, \$000

Source: IDC

Initial implementation costs summary	ByD	On-premises
Main application licenses	0	59
Supporting software licenses	0	23
Hardware and server room	0	25
Implementation services	105	144
Total	105	251

Source: IDC

On-Premises Costs

For a new on-premises system, the product cost goes well beyond purchasing the licenses for the business application. Indeed, the user organization has to purchase a wide range of software and hardware, including, but not limited to: the main application and its supporting systems including middleware, operating system, and server hardware, and a data backup system also including supporting software and hardware.

Increasingly, organizations seem to understand the importance of data they collect in their business, will therefore use an analytical system to turn the raw data into business intelligence. The initial implementation systems cost include an allowance for this.

Beyond product costs, user organizations need IT services to help with the initial implementation, in particular consulting, implementation, training, software and hardware deployment, and customization services. This is typically by far the largest acquisition cost of a typical business application. Depending on the complexity of the system, and the amount of customization, these typically range from 1.5 to three times the total list price software license cost, though systems that require a lot of integration work or customization can be significantly more costly than this.

ByD Costs

There are no license costs for ByD; since it is a subscription service all these costs appear in the annual subscription costs. Also, many of the features that user organizations have to pay extra for with on-premises software, in particular business analytics and data backup, are included as standard in Business ByDesign. This significantly reduces spend on ancillary systems and software.

Even with Business ByDesign, there are still substantial implementation costs, even though there are no costs for installing the business applications, server, backup, and other software and configuring them to work with other system elements and so on, and there is no server hardware to deal with.

SAP offers two choices to customers:

- SAP and its partners offer a fixed price for implementation services, where the price depends on the number of users and other factors but is determined after a thorough needs assessment. SAP ByD customers have told us that "fixed" really means fixed — provided the customer keeps to the scope, there is no conditionality or uncertainty on the price.
- Customers with sufficient internal expertise have the option of implementing the system largely themselves, but with assistance from SAP. ByD has the implementation methodology embedded in it and managed by ByD itself. Customers still do require limited assistance from SAP or a designated partner. However, this option significantly reduces the external cost of implementation, but of course places significant extra demands on internal resources. Because of the second factor, we have not included an estimate for this option, as the actual cost is very hard to ascertain.

Having the implementation process embedded in ByD means that ByD projects are far more likely to follow a standardized process, and this is one of the main elements in enabling SAP and partners to offer a fixed price.

To IDC's current knowledge, having the implementation process embedded in and managed by the product is unique. However, like any innovation that proves popular with users, it will in time be copied. Indeed, we expect that competitors will, in the long term, match SAP's overall offer on implementation services. Indeed, many competitors already offer fixed-price implementations. However, the embedded methodology is presently a differentiation between SAP and its competitors that can make a significant difference in the costs to end-user organizations.

Scope Enhancement

This is a planned enhancement to system functionality after the initial implementation. To reduce risk, many user organizations carry out implementations step-wise, rolling out only part of the planned final scope of the software in the initial implementation, and leaving the remaining business functions supported by their old systems. Later, they will carry out one or more enhancements to the scope of the system, increasing the portion of the functionality in the software being used. Each scope enhancement either increases the depth of support from the software for an existing business area or extends support to a related business area.

Scope enhancement will typically mean adding a small number of new users. For the purpose of this study, it has been assumed that the scope enhancement leads to an addition of 10% more users; i.e., in an organization with 30 users, three users will be added, making the total 33 users.

Tables 2 and 3 show the cost projections of two scope enhancements for ByD and the average of on-premises systems. The main cost factors are discussed below. Table 2 assumes that existing functionality is being brought into use, while Table 3 assumes a new type of functionality is added, for example adding CRM to an ERP/SCM implementation.

TABLE 2		
Scope Enhancement 1 Costs, \$000		
Scope enhancement 1	ByD	On-premises
Additional application licenses	0	3
Additional supporting software licenses	0	0
Additional hardware	0	0
Implementation services	13	16
Total	13	19

Source: IDC

TABLE 3

Scope Enhancement 2 Costs, \$000

Scope enhancement 2 costs, \$000	ByD	On-premises
Additional application licenses	0	6
Additional supporting software licenses	0	0
Additional hardware	0	3
Implementation services	18	22
Total	18	30

Source: IDC

On-Premises Costs

For the first scope enhancement, we have assumed that the server licenses were bought at the outset, since this is typically when the best pricing is available. The only software cost will be end-user licenses for desktop software and/or the incremental cost of giving users access to the server software.

For the second scope enhancement, the enhancement may involve functionality not covered in the core product. For example, many on-premises business management systems have no or comparatively weak CRM. We have therefore added a scenario where not just additional licenses for users, but also server licenses and a small implementation project is needed. Also, there will be some costs involved in integrating the CRM system with the existing business management system.

In most system enhancements, there will be some limited implementation work, and therefore there will be a cost for external consultants. However, the effort will be considerably less than in the initial implementation project, especially if the groundwork is laid in the initial implementation. However, one area that could require significant effort is the importing of business data to the new system, though users and not external consultants do most of the work in data importation.

ByD Costs

For ByD, some extra subscriptions need to be acquired, and this will be added to the subscription costs.

Similar implementation work will also be required for ByD as for on-premises, with the exception of the implementation of the updated software version. Since this is post the initial implementation, the cost is not included in the fixed-price implementation deal.

Minor Version Update

Vendors periodically update their software with a combination of "fixes" to different issues and typically small enhancements to the functionality. For the purpose of the model, we have assumed that these occur every year in the seven-year period, except the year of the major update (see below), both for the on-premises software and for ByD.

Table 4 shows the costs for each minor update for ByD and the average of on-premises systems. The main cost factors are discussed below.

TABLE 4

Minor Update Costs (Each), \$000

Minor update	ByD	On-premises
Additional application licenses	0	0
Additional supporting software licenses	0	0
Additional hardware	0	0
Implementation services	5	6
Total	5	6

Source: IDC

On-Premises Costs

Any current business application software will receive a wide range of patches and updates, and increasingly these happen in the background with little burden from the system manager.

However, there are incremental updates to the software that require a more formal process because they offer additional functionality. These types of release are often called enhancement packs or as a "dot" release (for example, Version 3.0 to Version 3.1, Version 3.2, etc.).

The amount of work can vary greatly. Some minor version updates will require nothing more than testing to ensure that they do not affect the system in unintended ways, for example "breaking" customizations, and then implementation on the live system. Other updates will require some additional work, for example where the enhancements duplicate customizations, it is usually better from a technical standpoint to drop the customization, since the software vendor will then support the functionality involved. Finally, some "minor" updates can actually be as large as major updates, and should be treated as such — see below.

For the on-premises software cost model, our assumption is that the minor updates are provided free by the software vendor as part of the maintenance contract, so there is no software cost either for the business application itself or for any supporting software. There is also no hardware cost since the changes are small. However, in a 30-user deployment some involvement of IT specialists is going to be necessary, though the work is limited to a few days.

ByD Costs

For ByD, costs will be minimal. All the version upgrades (or "Feature Packs") are propagated automatically. Upgrades to ByD core processes are not optional; these are the updates that SAP believes are essential to all users and many are related to regulatory requirements. Non-core updates which add to the core functionality are made available and users have the choice of whether or not to enable them via configuring options. User organizations therefore have to make decisions on which new non-core functionality they want to use and which they do not want to have shown to users.

SAP advises its users on all new features in advance. It can also offer elearning courses to users who find their work affected, for example, by a new layout of the screens they use.

Major Version Update

A major update is when there is a significant change to the software being used, typically but not always signified by a change in version number, for example version 2.4 is updated to version 3.0. As discussed above, sometimes a 'dot' update (for example, version 2.4 to 2.5) can be a significant update.

Table 5 shows the projected costs for a major update for ByD and the average of on-premise systems. The main cost factors are discussed below.

TABLE 5		
Major Update Costs, \$000		
Major update	ByD	On-premise
Additional application licenses	0	0
Additional supporting software licenses	0	9
Additional hardware	0	5
Implementation services	9	98
Total	9	112

Source: IDC

On-Premises Costs

All on-premises business applications software vendors provide major updates to their software products, but the time between major updates varies significantly. With new products in particular, major updates can occur in two years or less, while for more mature products, major updates can stretch out to seven years.

User organizations have some choice over whether or not to make the upgrades at any particular time. However, at some point their software will pass out of the standard maintenance period and after this the cost of maintaining and supporting the system steadily increases. Indeed, eventually the vendor may cease offering any support or updates for a very old product version.

A major version update shares many but not quite all the main characteristics of a new implementation for an on-premises product, including the near certain need to renew supporting systems and system hardware.

However, some aspects of the implementation will be considerably less than with a first implementation, specifically:

- No need to import data since it is already in the format used by the vendors' software
- Lightweight needs assessment to assess what new features to use and how
- Limited solution redesign to ensure that the solution still meets business objectives
- Business flow redesign to take advantage of new functionality
- Limited changes to user role design.

ByD Costs

Even for large updates, the technical costs caused by changes to ByD will be minimal, since all changes are incremental and delivered as "Feature Packs" and propagated automatically and at frequent intervals. As with minor updates, the upgrades to ByD core processes are not optional; these are the updates that SAP believes are essential to all users and many are related to regulatory requirements.

Non-core updates which add to the core functionality are made available and users have the choice of whether or not to enable them via configuring options. As a result, some planning, configuration, testing, and training may be needed, but this is the same as with on-premises. One difference is that ByD provides a test environment as part of the package.

Annual Costs

Both on-premises software and cloud services have annual costs, and for both subscriptions are large elements.

Table 6 shows the annual cost for ByD and the average of on-premises systems in the first year, before any scope enhancements have taken place. The main cost factors are discussed after the tables.

TABLE 6

Annual Costs — Year 1, \$000

Annual costs — year 1	ByD	On-premises
Main application (subscription or maintenance)	54	15
Supporting software (maintenance)	0	6
Hardware and server room maintenance	0	4
Internal costs	31	83
Total	85	109

Source: IDC

Table 7 shows the annual cost for ByD and the average of on-premises systems in the second year, after the first scope enhancement has taken place, so both subscription and maintenance costs have risen in line with the number of users.

TABLE 7

Annual Costs — Year 2, \$000

Annual costs — year 2	ByD	On-premises
Main application (subscription or maintenance)	59	17
Supporting software (maintenance)	0	6
Hardware and server room maintenance	0	4
Internal costs	31	83
Total	90	110

Source: IDC

Table 8 shows the annual cost for ByD and the average of on-premises systems for the third to the seventh year, after the second scope enhancement has taken place, so both subscription and maintenance costs have risen again in line with the number of users.

TABLE 8

Annual Costs - Years 3-7, \$000

Annual costs — year 3-7	ByD	On-premises
Main application (subscription or maintenance)	64	18
Supporting software (maintenance)	0	6
Hardware and server room maintenance	0	4
Internal costs	31	83
Total	96	112

Source: IDC

On-Premises Costs

Almost all on-premises business software requires the user to pay an annual maintenance charge, for which the user gains access to updates both major and minor and access to support from their applications vendor. When user organizations are dependent on their software to keep their business running, and when the software is recent, there is every reason to pay the maintenance charges.

Server hardware can also have an annual maintenance charge, which is generally lower as a proportion of acquisition cost. In effect, this is like an extended warranty, so it ensures that the system keeps running. However, it does not entitle the owner to any enhancements to the system.

The on-premises system will require some support, either from an internal IT person or from an external provider, which can often be the company that implemented the system. We have assumed the former in our cost model, though the latter may be cheaper but it lacks the immediacy of having someone always on hand for a system that the business depends on. That said, there will be times when an in-house person will require additional help, either from the vendors of the software or from third parties. We estimate that for a system of this size supporting 30 users a half share of an IT person will be needed. We also assume that the system will also require a 30% share of a business administrator who will administer users and ensure business processes are followed. This person might be an accounts administrator in the finance department or sales administrator in a CRM system. However, this is very situation-dependent, and driven by factors like the degree of business change — whether in staff, business partners, suppliers, or customers, and changes to product or business lines.

One cost we have left out is the extra rental cost of a server room. Since the company is running its core business on the system, it has to be housed in a separate, secure data room to prevent accidental or malicious interruption of the system. As a result, there is a rental cost to be paid for the floor-space. However, office situations (there may be an area that can be easily converted) and floor rentals are so variable that we have not been able to include a number for this.

ByD Costs

For cloud services, the costs come from the subscription charges that give the user organization access to the service.

However, there are some other costs too, in particular the assumed cost of a part-time administrator. On the basis of SaaS products in general, we believe that a technical specialist is not needed, though people in this kind of role tend to pick up some technical knowledge along the way.

However, like the on-premises system, there will still be the need for a business administrator. The typical type of person doing this role will be an experienced business administrator who would naturally spend a good deal of their day working on the system even if they were not the administrator. As with the on-premises system, we estimate that the administrator role would take up 30% of their time on system work. Also, like the on-premises system, the actual amount of time used would be highly variable.

Costs We Have Not Taken Into Account

The direct costs of acquiring a new business system can be only the tip of the iceberg. There are many other costs that need to be considered. However, these costs are difficult for us to include in the model, since they are so situation-dependent. However, they are real for every organization that goes through an implementation, and organizations need to make their own estimates.

Some of the costs that we have not quantified here are:

- Temporary facilities, extra staff to cover internal resources (people or space) being used by the implementation project:** These types of costs may be incurred with BYD or the on-premises software. One of the largest of these is going to be that of having experienced and often senior staff involved in the process of implementation. They will have two important roles:
 - Assisting the consultants to configure the business processes in the software: any but the most simple business software products offer a lot of choice over how business processes are carried out. Industry templates or best practices help with standardized processes by industry, but in the areas where the organization is differentiating itself, the processes will be different from the standards. This takes the senior team away from the day job for some of the time, and arrangements to cope with this will need to be made, either by the more junior staff deputizing or some other route.
 - Importing data into the new system: Invariably, this is the largest part of effort from the prospective users from the new system. There are tools that can be used to automate the process of data transfer, but they largely depend on data being consistent and accurate — though in the real world, large numbers of records will be neither. Cleaning (or deciding to discard) these records is unfortunately a manual and time-consuming process. Managers have to kick start, setting up the rules, but after that almost anyone who inputs or uses data will have to lend a hand. Needless to say, this can lead to overtime payments and/or the hiring of temporary staff to take the strain.

- ☒ **Business costs in other parts of the project:** There will be times when the old and new business processes are run in parallel to ensure that the new system behaves as intended. There may also be times when both systems are unavailable, usually for a short time unless something goes wrong. Disruption like this does carry a cost, though it can be difficult to quantify.

A cloud-based service like ByD offers some advantages over an on-premises solution: because it is hosted by someone else, users only need an Internet connection to access it. Dealing with the physical element of the systems (beyond the client computers or the network) can be a reason for the kind of disruption described above.

Having to have two systems physically present for some of the time can lead to the need for temporary facilities while the project is in progress. However, another cause of this is the need to accommodate the consultants while they work on-premises. Depending on how work is required on-site, the latter requirement may be modest, but it should not be overlooked.

Total Cost Summary

Using the above quantifiable factors in our cost model, we have built a model that compares the cost of SAP ByD with a generic model for an on-premises system with the same number of users (initially 30, expanding to 33 in the second year and 36 in the third year of use). With our central assumptions, the output from the model is shown in Table 9.

TABLE 9			
<i>Total Cost of Ownership Over 7 Years, \$000</i>			
Project stage	ByD	On-premises	Difference
Initial Implementation	105	251	-58%
Scope enhancements (2)	13	24	-48%
Minor updates (6)	27	38	-29%
Major update	9	112	-92%
Annual costs (total for 7 years)	653	777	-16%
TCO over 7 years	824	1227	-33%

Source: IDC

CONCLUSION

Under the assumptions that we have made and explained above, the seven-year cost of ownership of ByD is 33% lower than the on-premises model with similar scope and functionality.

The main areas of difference are:

- ☒ The initial implementation costs, where ByD is significantly cheaper. The main difference here is that there are no software licenses to buy, either for the applications software, the client software, the supporting systems, or ancillary systems such as business analytics. Also, with ByD there is no need to buy server hardware or set up a server room if one does not already exist. We have not assumed the purchase of new client computers in either case, and this may or may not be necessary in either case, or the upgrading of the existing corporate network, which again might or might not be required in either case. Another factor is that ByD will be cheaper to implement because there is no work to perform on the installation of systems. Finally, SAP, through its partners, is offering a fixed-price implementation package for up to 30 users, which is defined and managed within ByD itself. So far as we are aware, this is currently unique, but if it proves successful for SAP, we have no doubt that competitors will emulate this.
- ☒ Scope enhancements, where ByD is cheaper, mainly because there are no technical implementation tasks to perform, and no integration work either. This does assume that the subject of the enhancement is an existing element of ByD, which seems a reasonable assumption, as this would be a reason for selecting ByD in the first place. We have assumed two scope enhancements.
- ☒ Minor update, where ByD is cheaper. Even so, our costing may grossly overstate the cost of minor updates to ByD, since there is no physical implementation work to do, though there may be knock-on effects on customizations and configurations from minor version updates. We have assumed seven minor updates.
- ☒ Major update, where ByD is very much cheaper. Major updates are a defining characteristic of on-premises software, and almost invariably lead to a major cost to the users since they are almost like a brand new implementation project, though typically there is no need to re-import data. Major updates are caused when the application software version in use becomes obsolete because it is no longer supported. By contrast, ByD major updates are propagated to customer in the same way as minor updates, minimizing the cost. Some planning, configuration, testing, and training may be needed in both cases. ByD provides a test environment as part of the package.

- ☒ Annual costs, where ByD is 16% cheaper. By far the largest cost of ByD is the annual subscription fee over the period of ownership of seven years. Though the cost of maintenance of the software and hardware required for the on-premises solution is also substantial, it is still smaller than ByD's subscription cost. However, on-premises has a significantly higher annual staff cost (or support from a services vendor) as it requires technical expertise to keep working and carry out routine tasks like applying updates to the applications software and all the supporting systems. ByD still requires some support, but only at the business administrator level, and little if any technical support.

Overall, our model suggests that there is a substantial saving in using ByD over an equivalent on-premises solution. However, we do caution that we have made a broad set of assumptions that will not cover every possible usage and ownership scenario.

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