



White Paper

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Author **Philip Howard**
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TCO for Business Intelligence

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Author **Philip Howard**

Introduction

This paper initially started as an investigation into comparative pricing for business intelligence solutions and then evolved into a consideration of total cost of ownership for such environments. Along the way, as we shall discuss, we discovered some other interesting facts as well.

In our experience far too many companies look only at the initial license costs of software or at the subscription costs of that software, without taking other factors into account. To an extent this is understandable, because it is often easier to get authorisation for operational expenditure as opposed to capital expenditure. However, in the view of Bloor Research this is a false economy. As an example, it is becoming well established that while it may be “cheap” from a hardware and software perspective to deploy a Hadoop cluster that is by no means the case when it comes to implementing that cluster. For example, Cabot Partners (www.cabotpartners.com/Downloads/TCO-Study-Pure-Data-versus-Hadoop-May-2015.pdf) estimates deployment costs for a Hadoop cluster at \$320,000 for a small (18TB) cluster, \$1,066,000 for a medium (192TB) cluster, \$2,167,000 for a large (780TB) cluster and \$4,605,000 for an enterprise (1.5PB) cluster. Those are not small numbers and they need to be taken into account: you might want to consider an appliance-based approach to Hadoop rather than incur these costs.

More generally, we wanted to get a handle on the total cost of ownership, over a three-year period, as opposed to up-front licence fees. As an exemplar of this we have selected a business intelligence project, though it could equally well have been any other major software implementation. Specifically, Bloor Research has researched the market for pricing information with respect to business intelligence and analytics solutions, particularly in regard to total cost of ownership (TCO) for such a solution and the different sorts of pricing models adopted by various vendors. To this end Bloor Research has surveyed a number of vendors and this report aggregates their results. Note that information was provided to us by vendors under non-disclosure terms and we are therefore not at liberty to

discuss individual product licensing models or prices, except where these are publicly available. We should further comment that not all responses were as complete as others or especially transparent. Also, some suppliers quoted list prices while others quoted prices after a “typical discount” was applied. Only one supplier quoted both. The results detailed here should therefore be treated as a rough guide rather than anything definitive. Nevertheless, the results are clear: TCO dwarfs initial licence fees and that is even before you bear in mind that licence fees are often heavily discounted, while maintenance and other charges are not.

The specification

We addressed three scenarios:

1. A small system comprising 100GB of data (50m rows) with 50+ users and daily or weekly updates.
2. A medium system comprising 1TB (250m rows) with 200+ users and daily updates.
3. Large system comprising 10TB (1bn rows) with 1,000+ users and daily or intra-day updates.

It is worth noting that some vendors have base systems that would encompass two or even all three of these in a single offering. We will discuss this further in the relevant sections that follow.

We included the data mart or warehousing storage that is required for each of these configurations, the business intelligence/analytics software needed, and the ETL (extract, transform and load) software required to populate the data mart/warehouse. We also surveyed data quality vendors with respect to their charges for ensuring high quality data. All ancillary costs such as ongoing maintenance, service charges, training, day-to-day administration and so forth have been included, in order to provide a complete picture. We had also hoped to get some indication of the hardware requirements need to run a solution in an on-premises environment, but with only two exceptions (one data warehousing vendor and one business intelligence vendor running on AWS) suppliers have not provided us with hardware costs. We have therefore excluded this element of the equation and we will focus on software.



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Data warehousing/mart

The highlights of our results are as follows:

- Two vendors offer free-to-use community editions (on-premises) that cover configuration 1. One of these also covers configuration 2.
- Pricing models are highly variable for on-premises implementations. For example, by storage capacity, by RAM capacity, by rack (this is an appliance) or using hybrid models based on combinations of numbers of users, servers and disk capacity.
- Cloud based pricing models are usually the same as their on-premises equivalent but one vendor uses two cloud pricing models depending on whether you want a “storage-centric” or “query-centric” solution, presumably meaning disk capacity versus performance.
- One of the vendors contacted has a specific in-cloud database offering that is not available on-premises. This starts at just 20GB for which the charge is \$50 per month.
- Maintenance charges (which typically include service) varied between 15% (from year 2) to 25% (for a premium service) and average 20%.
- Training was typically estimated at 3 days. Assuming \$1,500 per day that is \$4,500.
- Ongoing administration was typically estimated at around a half a day per month or \$9,000 per annum.
- Some of the vendors in this category do not sensibly scale down to the configurations suggested.

For the three configurations in on-premises implementations the licenses are as follows:

1. Many solutions would be too expensive to consider. Of the remainder we have an average of just \$4,000 (because two provide this size free) for the licence fee. Support costs average \$2,400 per annum making a total TCO (excluding hardware costs), over three years, of \$42,700. Note that administration costs make up more than half of this total.

2. An average license fee is slightly under \$70,000. Over three years TCO (excluding hardware) will be around \$140,000.
3. One of the vendors surveyed have a smallest configuration of 26.4TB. Another is an appliance-based solution which will include hardware costs. Ignoring these facts, the average license fee is approximately \$234,000. TCO will be something less than \$400,000.

For Cloud/subscription pricing the figures are as follows. We can assume that there are no administration costs and that maintenance is included. The only on-cost would be initial training (and that would be reduced).

1. License fees range from zero to \$999 per month with an average of \$525. Over three years that equates to \$18,900.
2. The range is from \$1,140 per month to \$6,185 giving an average of slightly over \$3,000. However, the top figure given appears to be something of an outlier and a more reasonable range appears to top out at \$2,700, giving an average of approximately \$1,950. This would give a three-year cost of \$70,200. Even the high figure rates to be less expensive than an on-premises solution.
3. Here the range is from \$7,160 to \$24,750 and averages \$14,975 given a three year TCO of nearly \$540,000. This is significantly more expensive than the equivalent on-premises solution, which suggests that some vendors have not yet understood the competitive landscape. However, if we exclude the two most expensive offerings then we get an amended average of \$8,580, which equates to a TCO of \$340,380.



Cloud based pricing models are usually the same as their on-premises equivalent.



BI/Analytics

Business intelligence and analytics vendors are more homogeneous than data warehouse providers when it comes to pricing models. All suppliers contacted by us employ user-based pricing, though some vendors also charge by server. Training requirements are generally regarded as minimal (a day perhaps). Administration is likely to be limited to things like defining access privileges and we would expect this to be a more or less a constant cost across providers. Maintenance and service is typically 20%.

Many vendors in this market have different editions. For example, Qlik offers an Enterprise Edition and an SMB Edition for QlikView, while Qlik Sense is a separate product. There are also vendors such as Pentaho and Jaspersoft (TIBCO) that employ open source models, whereby the software is available at no cost.

Of the vendors that replied to our survey, with one exception the charge per user ranges between \$1,000 and \$2,000 with an average of \$1,462.50.

The exception is one company that undertakes analytics on a project basis. This company charges roughly \$400 per user but there are typically 8 to 15 days consulting associated with each engagement. We should also comment that the company charging \$2,000 per user also has server pricing, which means that the price per user falls as the number of users grows, so that the cost will reduce to approximately \$1,000 for “lots” of users. A further complication arises with respect to charges based around “named users”. Some vendors allow users to, in effect, share a name, if they are infrequent users. This seems a reasonable approach and one could expect to negotiate a similar arrangement even with those suppliers that do not formally offer this. Appropriate deductions from the following figures should take this into account.

- The average license fee is for \$1,370 per user plus 16% maintenance. However, we found one vendor that charged \$1,000 per user including maintenance and support. With training and administration added this amounts to TCO figures of \$117,500, \$335,000 and \$1,464,000.
- For the average licence fee TCO figures calculations work out to be \$168,880, \$540,520 and \$2,365,360.



Business intelligence and analytics vendors are more homogeneous than data warehouse providers when it comes to pricing models.



ETL



ETL is dependent on performance – the amount of data that needs to be loaded in a particular timeframe – and the complexity of the environment, which is typified (at least in part) by the number of sources and targets that are involved.



ETL (extract, transform and load) differs from the previous two considerations in that it is independent of the amount of data and the number of people and processes that may query the data. Users, in an ETL context, are the people who develop data integration processes and there will be significantly fewer of these. In addition, ETL is dependent on performance – the amount of data that needs to be loaded in a particular timeframe – and the complexity of the environment, which is typified (at least in part) by the number of sources and targets that are involved. For these reasons, the figures that follow are, at best, guesstimates. For example, the small configuration we are examining could have a single source and target or it could have half a dozen targets, and this will affect the licence fees involved and what the TCO is. A further factor is that ETL tools are frequently used across multiple projects: not just for Business Intelligence but to support data archival perhaps, or B2B integration. In other words, you potentially get significant reuse from an ETL tool, so comparing costs for a single use case is difficult.

In practice, we received relatively few responses in this category but, fortunately, we have other research to draw upon. For example, we have data, based on previous research, that provides three year TCO per project per source/target. This gives an average value for a single project with just one source and one target of something over \$10,000. However, data integration tools are typically used across multiple projects and multiple endpoints. On average, probably 10 projects and 5 sources/targets. This would bring TCO up to around \$500,000 over three years but there are wide variations between tools.

Typical pricing models in this sector are by connector for cloud-based offerings and otherwise by user, server and connector for on-premises products. Unfortunately, this creates a problem as we did not provide any details on the number of connectors required, which means that vendors have had to guess in their responses: quoting average fees. Maintenance for on-premises environments ranges between 18% and 25%. Around 4 or 5 days is the typical training requirement.

- One vendor quoted \$13,100 as annual licence fees for a small, single user system. This would equate to just \$28,925 over three years.
- Dell Boomi publishes its figures (see www.boomi.com/products/editions/pricing) for SaaS-based integration. For a simple single source/target environment licence fees are \$550 per month with an additional charge of \$60 per month for each additional connector. This is an SMB solution that would perhaps be suitable for configuration 1, but more likely you would need the standard edition at \$2,000 per month. For configurations 2 and 3 you would most likely need the Professional Plus and Enterprise Editions at \$4,000 and \$8,000 per month. These figures include maintenance, administration and support, though training would still be needed. Assuming these editions then TCO would be \$78,000, \$152,000 and \$296,000. Note that we regard Dell Boomi as competitively priced within the SaaS data integration market so this represents a good guideline.
- Leaving aside the single user system quoted above, on-premises solutions from the major vendors start at around \$100,000. Reasonable (discounted) figures for small, medium and large configurations would be in the region of \$160,000, \$220,200 and \$426,900.

Data Quality

We had limited success in getting responses from vendors in this space but is clear that pricing is typically per seat. A minimum starting system would be in the region of \$150,000 for the licence fee, and somewhere between \$180,000 and \$300,000 for a larger solution. Plus, of course, maintenance, administration and training.

TCO Estimates for small, medium and large systems are \$295,000, \$535,000 and \$835,000 respectively. Note, however, that data quality is, like ETL, often reused across multiple projects.

Summary



According to research, one in three executives does not trust the information they have to make decisions on.



Putting all of these figures together, and leaving aside the various caveats we have pointed out, we can reach a number of conclusions. Firstly, assuming that we omit the outlying cloud-based warehousing vendors for large configurations, then cloud-based solutions have a typical TCO that is better than that of on-premises solutions. On a relative basis this decreases as configurations get larger. For example, a small configuration, excluding data quality, has a Cloud-based average TCO of \$265,780 and an on-premises average TCO of \$328,880. This represents approaching a 20% saving. For a medium sized configuration, the figures are \$762,720 and \$900,720 respectively and the saving here is nearer 15%. For the large configuration the total cost of ownership is well into seven figures and, as one might expect, differences are much smaller: approaching 5%.

Note that if you include data quality in the above figures then costs escalate significantly, especially for small configurations where our figures suggest that costs would double. According to research, one in three executives does not trust the information they have to make decisions on. Therefore, we cannot recommend ignoring data quality. However, what it does suggest is that in smaller environments then either organisations (departments) should seek to reuse data quality tools that are already in use in other parts of the company, or they should adopt open source tools where at least there is no license fee.

Returning to the first paragraph, cloud versus on-premises pricing was not, of course, what we set out to discover, though it is a useful aside. What we

wanted to establish was TCO versus initial licensing, and to demonstrate how important it is to consider lifetime costs not just up-front costs. In practice, we have demonstrated is that non-licence costs clearly represent a major factor, though their proportionate impact decreases as more users are added. For the small configuration we evaluated, indirect costs significantly overshadow license costs and represent the bulk of the total, for the medium-sized configuration the licence and non-licence costs are approximately equal, and for the large configuration the licence fees are greater than other costs, even though these are substantial. Bear in mind, however, that we have used a three-year cost of ownership model rather than, say, a five-year model. Had we used the latter, non-licence fee costs would have exceeded license fees, or subscriptions, in all cases.

It should be clear from the results provided here that maintenance, support, implementation and other costs that are ongoing form a major part of any major software project. It would be inadvisable for potential users to focus on licence fees, or subscription rates, alone. The key point is that if you look at TCO across products you are evaluating then you may (will) find that there are significant differences between vendors in the maintenance charges, implementation requirements and other costs associated with the project and these can make a significant difference to TCO. We are not, of course, suggesting that you licence software simply on the basis of cost but, other things (features, capability, performance and so forth) being equal then cost is likely to be a major determinant. And it should be TCO rather than licence fees or subscription rates.

FURTHER INFORMATION

Further information is available from www.BloorResearch.com/update/2273



About the author

PHILIP HOWARD

Research Director / Information Management

Philip started in the computer industry way back in 1973 and has variously worked as a systems analyst, programmer and salesperson, as well as in marketing and product management, for a variety of companies including GEC Marconi, GPT, Philips Data Systems, Raytheon and NCR.

After a quarter of a century of not being his own boss Philip set up his own company in 1992 and his first client was Bloor Research (then ButlerBloor), with Philip working for the company as an associate analyst. His relationship with Bloor Research has continued since that time and he is now Research Director focused on Data Management.

Data management refers to the management, movement, governance and storage of data and involves diverse technologies that include (but are not limited to) databases and data warehousing, data integration (including ETL, data migration and data federation), data quality, master data management, metadata management and log and event management. Philip also tracks spreadsheet management and complex event processing.

In addition to the numerous reports Philip has written on behalf of Bloor Research, Philip also contributes regularly to *IT-Director.com* and *IT-Analysis.com* and was previously editor of both *Application Development News* and *Operating System News* on behalf of Cambridge Market Intelligence (CMI). He has also contributed to various magazines and written a number of reports published by companies such as CMI and The Financial Times. Philip speaks regularly at conferences and other events throughout Europe and North America.

Away from work, Philip's primary leisure activities are canal boats, skiing, playing Bridge (at which he is a Life Master), dining out and foreign travel.

Bloor overview

Bloor Research is one of Europe's leading IT research, analysis and consultancy organisations, and in 2014 celebrated its 25th anniversary. We explain how to bring greater Agility to corporate IT systems through the effective governance, management and leverage of Information. We have built a reputation for 'telling the right story' with independent, intelligent, well-articulated communications content and publications on all aspects of the ICT industry. We believe the objective of telling the right story is to:

- Describe the technology in context to its business value and the other systems and processes it interacts with.
- Understand how new and innovative technologies fit in with existing ICT investments.
- Look at the whole market and explain all the solutions available and how they can be more effectively evaluated.
- Filter 'noise' and make it easier to find the additional information or news that supports both investment and implementation.
- Ensure all our content is available through the most appropriate channels.

Founded in 1989, we have spent 25 years distributing research and analysis to IT user and vendor organisations throughout the world via online subscriptions, tailored research services, events and consultancy projects. We are committed to turning our knowledge into business value for you.



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2nd Floor
145-157 St John Street
LONDON EC1V 4PY
United Kingdom

Tel: +44 (0)207 043 9750
Web: www.BloorResearch.com
email: info@BloorResearch.com