

White Paper



CA Database Management for DB2 & IMS for z/OS

It is clear from our discussions with AXA, CECA and Telefónica that these companies believe that CA Technologies offers significantly more functionality than is available from alternate suppliers

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Introduction

In this paper we examine CA Technologies credentials as a supplier of database management tools for the mainframe databases IMS and DB2. CA Technologies is, of course, a leader (arguably the leader) in this space. What we have not done is to look in detail at individual tools but rather at CA Technologies tools suite as a whole. With such a large set of products (many of which are detailed in the Appendix) it would be tedious to go through each one separately and examine its benefits. Instead, we have attempted to gather an overall view as to the effectiveness of using CA Technologies tools by talking to a number of its users. In particular, we have surveyed and interviewed three significant users of CA Technologies tools. First, however, we will proceed with a general discussion of the requirements for mainframe database tools.

All database environments require administration tools of one sort or another. However, there are special requirements when these databases are implemented on mainframe systems. This is primarily because they tend to support mission-critical applications. This means that you cannot afford to have these applications not running: the business cannot allow routine administrative tasks to impede the applications that you are using to run your business. Further, as we move towards a 24 x 7 world, there are smaller and smaller batch windows available in which to perform these tasks. The problem is exacerbated by the architecture of mainframe systems, which are based around a single processor. Unlike clustered, grid-based or massively parallel environments, where you can take down an individual node for maintenance without significantly impacting performance, this is not true for mainframe.

As a result of these considerations, tools for mainframe database management tend to fall into two categories: they either run in background mode while mainstream applications are running or they run in batch mode while operational applications are offline. In either case there is a premium on performance: in the first case so that these tasks do not impinge on the performance of your mission-critical applications and in the second case because batch windows are shrinking and you want to get as much as possible done within the time windows that are available.

Database management tools can also be treated as falling into two classes with respect to their functionality. Some tools simply do what the database can do already but do it faster. For example, a rapid reorg tool might enable database re-organisation more quickly than the native capabilities of the database. Similar considerations would apply to faster loading and unloading, more rapid backup and recovery routines, quicker copying facilities and so on.

The other broad functional category of database management tools reflects those products that provide additional capabilities that are either not provided by the database vendor or which extend the capabilities of the native database facilities. An example here would be the ability to examine query plans where third party providers might offer easier to use and more extensive capabilities than the database itself.

We can therefore summarise the requirements for database management tools as follows:

1. They should provide significant functionality over and above that provided by the database vendor, supporting the automation of routine administration tasks.
2. Run-time tools should have minimal impact on operational applications. In practice this means being as efficient as possible with regard to the use of CPU resources.
3. Batch tools should be as efficient as possible, using minimum-length batch windows.
4. Tools should be as easy to use as possible. For example, if you have a tool that supports migration from one version of an application or database to the next, then this should make the process simpler than it would otherwise have been.
5. The implementation of relevant tools should be achieved with minimal, and preferably no, disruption to the existing environment.

There are, of course, other considerations. For example, how good is the training, documentation and support provided by the relevant supplier? Further, the availability of a whole suite of tools, with a common look and feel and consistent interfaces, may also be a determining factor.

The users

In this section we describe the three users we spoke with and, broadly, their IT environments. In the following section we will discuss the collated results of our interviews.

CECA

CECA is the Confederación Española de Cajas de Ahorros Benéficas (confederation of Spanish savings banks). In 1921, regulatory changes in Spain meant that the previously level playing field for banking was tilted against the savings banks and, in order to protect themselves, they started to create regional federations such as the Basque-Navarre federation, the Galician Federation, the Levante Federation, the Catalan-Aragonese-Balearic Federation, the Western Federation, the Castilian Federation, the Asturian Federation, and the Federation of Savings Banks in Andalusia. These subsequently merged to form CECA in 1928.

All CECA members, of which there are currently 34, remained legally and functionally independent. Although each savings bank has an independent treasury department, the risk-diversification of the system means that, as a group, the savings banks' cost of funds may actually be lower than that of commercial banks.

Apart from lobbying, and similar activities on behalf of its members, CECA provides five main types of service:

- It analyses, compiles and publishes information on the Savings Banks and the financial system as a whole, and provides advice and consultancy services in associated areas.
- It provides technological support and services in terms of payment methods, channels, management support services and technological and service infrastructure.
- It provides training through the Higher School of Savings Banks (ESCA), which offers its services both to Savings Banks and to the general public interested in studying the financial system.
- It offers a wide range of services, such as a discount centre, securities department, fund depository department, cash department, centralised account administration and a trading room, among others.
- It provides risk consultancy and advice services, covering all needs that customers may have regarding their organisation, measurement and management.

CECA deploys instances of IMS, DB2 and Oracle. From the organisation's perspective these are listed in their order of criticality. IMS is used to support applications for payment systems and electronic data interchange, with CECA acting as a gateway/distributor for its members and with other banks, both in Spain and worldwide. Historical information for these applications is supported through IMS and DB2. Both IMS and DB2 also support applications for securities, clearance and settlement and international payments. Needless to say, there are very high availability requirements (at least five nines) for both IMS and DB2 in order to meet service level agreements.

CECA's general approach to mainframe database tools is that it uses what IBM provides by default and only goes looking for alternative products when it deems those provided by IBM to be inadequate. Some four years ago it had come to exactly that conclusion particularly with respect to IMS/FASTPATH definitions. When it needed to modify these definitions the database was locked for some two to three hours and, with its high availability requirements, CECA simply could not afford this delay. After investigating the market CECA selected CA Technologies CA Database Organizer for IMS for z/OS to resolve this issue and now the database is locked for an hour or less when definitions are changed. At the same time, CECA also licensed CA Database Analyzer for IMS for z/OS as well as CA RC/Query for DB2 for z/OS, CA RC/Update for DB2 for z/OS, CA Plan Analyzer for DB2 for z/OS and CA Log Analyzer for DB2 for z/OS.

The users

AXA Technology Services Germany

AXA Technology Services Germany is an operating division of AXA Technology Services providing IT services to AXA group companies in Northern Europe. AXA (AXA S.A.) itself is a French global insurance group headquartered in Paris. The company was originally founded in 1816 as Mutuelle de L'assurance contre L'incendie, which later became known as Ancienne Mutuelle. It acquired Compagnie Parisienne de Garantie in 1978 and became Mutuelles Unies. It then acquired Drouot Group in 1982, at which time it adopted the AXA name. The takeover of The Equitable, a well-known American insurer, came in 1991. It bought Union des Assurances De Paris (UAP), France's largest insurer, in 1996, becoming AXA-UAP for a while before reverting to the name AXA in 1999. Since then the company has continued to acquire other insurance companies, both large and small, most notably Guardian Royal Exchange in 1996 and Winterthur Group from Credit Suisse in 2006.

The AXA Group encompasses five operating business segments: Life & Savings, Property & Casualty, International Insurance (including reinsurance), Asset Management and Other Financial Services. It ranks as the 9th largest company in the world (based on revenue) on the 2010 Fortune Global 500 list.

AXA is a conglomerate of independently run businesses, operated according to the laws and regulations of the various countries it operates in. The group operates primarily in Western Europe, North America, the Asia Pacific region and the Middle East. AXA Technology Services' mission statement is "to ensure that all AXA stakeholders have access and can process information efficiently and cost effectively." Created in 2002, AXA Technology Services is a fully-owned AXA Group subsidiary. Its objective is to provide AXA Group companies with high-quality IT and telecommunications infrastructure management services.

As an in-house service provider, the company's aim, in its own words, is to:

1. Improve operational effectiveness and assist our Clients in achieving the most efficient use of their IT infrastructure
2. Standardize and consolidate all infrastructure platforms and establish best practices for Service Delivery processes

3. Provide financial models that support our customers' business decision making and IT governance processes
4. Be proactive in proposing new workstation technologies and mobile solutions
5. Leverage the R&D strength of our partners to provide innovative services to support the differentiation strategies of our Clients
6. Be the first line of defense in terms of IT, security and risk management
7. Harness our size and global scale, with our vendors and suppliers, to create a competitive advantage
8. Contribute to position IT within the AXA Group as a key player for reducing our carbon footprint
9. Reduce ongoing operational costs while delivering consistent, high quality service

AXA Technology Services Germany uses both IMS and DB2 as core platforms for the services it provides. In our discussions with the company we focused on IMS. Historically, up until 2004, the company had used BMC to support its IMS installation but in that year it went out to tender, evaluating IBM, CA Technologies and BMC products to determine which would best suit its needs, in terms of functionality, performance and cost of ownership. IBM was quickly eliminated as AXA felt that it could not provide all the functionality that AXA required. The company's general policy is always to look for the best value for money and it therefore selected CA Technologies as its supplier, licensing CA Database Analyzer for IMS for z/OS, CA Database Organizer for IMS for z/OS, and CA Database Copier for IMS for z/OS, as well as a number of CA Technologies DB2 management tools. These are used to support both production and test environments.

The users

Telefónica

Created in 1924, as Compañía Telefónica Nacional de España (CTNE), until the liberalisation of the telecom market in 1997, Telefónica was the only telephone operator in Spain where it still holds a dominant position. Privatised in 1997, Telefónica has grown to become the world's 5th largest telecommunications provider, making acquisitions across Europe and South America in particular. Perhaps most notable of these acquisitions was the purchase of O2.

The company uses a regional management model with its operations in 25 countries organised by region with Telefónica España active in Spain; Telefónica Europe active in the UK, Ireland, Germany, the Czech Republic and Slovakia operating under the O2 brand; and Telefónica Latinoamérica, which is active across Central and South America. There is also a Corporate Centre that is responsible for the company's global and organisational strategies, its corporate policies, management of common activities, and coordination of the activity of business units. Telefónica also has a strategic partnership with China Unicom as well as a number of subsidiary companies including Telefónica International Wholesale Services; Telefónica R+D; and Atento and tgestiona, which provide a variety of IT-based services.

Telefónica is heavily dependent on DB2 and it has been using CA Technologies supplied tools to support this installation for many years. Products in use include CA Database Analyzer for DB2 for z/OS, CA SQL-Ease for DB2 for z/OS, CA Fast Check for DB2 for z/OS, CA Fast Load for DB2 for z/OS, CA Fast Recover for DB2 for z/OS, CA Fast Unload for DB2 for z/OS, CA Insight for DB2 for z/OS, CA Merge/Modify for DB2 for z/OS, CA Plan Analyzer for DB2 for z/OS, CA Quick Copy for DB2 for z/OS, CA Rapid Reorg for DB2 for z/OS, CA RC/Compare for DB2 for z/OS, CA RC/Migrator for DB2 for z/OS, CA RC/Query for DB2 for z/OS, CA Detector for DB2 for z/OS and CA RC/Secure for DB2 for z/OS.

Collated results

As will be seen in this section, the customer feedback revealed both pros and cons (as one would expect: no product is perfect) but, taken in the round, these customers were happy with their choice of tool provider and were pleased with the products' ease of use, the company's support and responsiveness, and the performance obtained when compared to previous use of competitive products. The completeness of CA Technologies product suite also met with approval.

While completeness, speed and ease of use are qualitative measures that are easy to ask opinions about, cost of ownership and return on investment are difficult to pin down and we were unable to come up with the hard and fast figures for which we had hoped. In particular, each of the three companies had either selected CA Technologies as a provider because it could find no-one else with comparable functionality and/or they had replaced rival products sufficiently long ago that any financial figures done at the time would now be obsolete, if they were done at all. Nevertheless, there are clear inferences we can take with respect to these measures; as one of the companies said to us, *"company policy is always to look for best value—the fact that we chose CA Technologies as our provider should speak for itself."*

We asked the users a number of questions about the sort of tool requirements outlined in the introduction. The opinions of the users are illustrated in the following table.

Claim	Responses
"Issues can be resolved quickly without reducing performance or productivity"	For two of the companies this was not an important issue and they couldn't comment, but the third agreed with this statement.
"Data can be retrieved more quickly"	As above
"Routine administrative tasks can be automated with reduced completion time"	One company said that it hadn't done a formal comparison but hadn't noticed a difference. A second company generally agreed with the statement. For the third company this was a really important issue and a major advantage for CA Technologies.
"Back-up and recovery times are minimised"	Only one company uses CA Technologies for backup purposes but it agrees with this statement.
"It is easier to migrate to new versions of applications and databases"	Two companies felt that this wasn't a major issue. The third agreed with this statement on balance.
"Data is more available (thanks to efficient batch processing)"	One company had no comment to make and one generally agreed. For the third this was a major benefit of using CA Technologies because of decreasing batch windows.
"CPU resources are conserved"	This was quite important or very important for all three users and all agreed with this statement though some more strongly than others. One stated that CA Technologies was <i>"very quick"</i> .
"There was minimal disruption during the implementation process"	Everybody agreed with this, both when replacing competitive tools and also when CA Technologies upgrades its own products. One user also commented that it was very easy and simple to change procedures when migrating from previous systems.

One interesting claim that CA Technologies makes in its product collateral is that the use of CA Technologies tools can help to uncover manual tasks that could be automated. This would certainly appear to be true. For example, Telefónica told us that: *"we found many manual tasks that we wanted to have automated"* and they requested appropriate software modifications to support this. Unfortunately, *"some of them were done, but not all and many of them were not done as quickly as we would have wished."* A similar comment was made by CECA. To be fair we have never yet met a user of any vendor who has got every single modification that he wanted, when he wanted it. Moreover, on the other side of the coin AXA stated that: *"there is nothing that we want to do (with CA Technologies tools) that we can't do."*

We also wanted to know not only how good CA Technologies was at supporting its user base, but also how good it was at supporting knowledge transfer. AXA and CECA, in particular, were impressed. The latter stated that *"we have had exceptional support during our participation with*

Collated results

DB2 and IMS tools” while the former explained how a support person had stayed on-site for three days explaining how to use the tools and supporting the conversion to the CA Technologies products.

Finally, we wanted to know just how beneficial the products were, how good they were at maintaining optimal performance and whether they had improved DBA efficiency. Telefónica stated that *“efficiency as well as the help for daily administrator tasks has improved, but it is very difficult for us to quantify it. Regarding the backup and recovery we are covering service expectations.”* AXA concurred with this opinion. CECA felt that *“from a performance and availability perspective IMS DBO (Database Organizer) is a great tool that allows us to face most of our database modifications in less than 30–60 minutes (compared to a previous 2–3 hours) and only twice a year.”*

Apart from the comments about upgrades and modifications the only other negative comments about CA Technologies were a) with respect to pricing and b) with regard to CA World. In the first case there was a plea (from Spain) for having different country-based pricing rather than one that is common for all countries using the Euro. Given current financial conditions in Spain this is perhaps not surprising. CA World is CA Technologies user conference, held every eighteen months, in Las Vegas. Here, there was a request that CA Technologies run a comparable European event—travelling to the United States is expensive and time consuming and many people cannot or do not attend for precisely these reasons. Moreover, the view was expressed that if you do attend then all the presentations tend to be US-centric and that it would be good to see a more European focus, especially as US-based spokespeople do not typically understand the differences between the US and European markets. We have to say that this is a common complaint across all US-based vendors that do not run European events and it does not solely apply to CA Technologies. We would also agree, from our own perspective as analysts, that US-based marketing does not typically understand the European market well. However, again, this is not a complaint that only applies to CA Technologies. Indeed, all of the (relatively minor) issues that our users had are ones that you would, unfortunately, expect from most large IT organisations.

On the other side of the coin, all of our users were positive about their experiences with CA Technologies. When asked what would happen if he had to replace his CA Technologies tools, one of our respondents replied in a very worried voice that *“I don’t like to imagine it”*.

Conclusion

It is clear from our discussions with AXA, CECA and Telefónica that these companies believe that CA Technologies offers significantly more functionality than is available from alternate suppliers and that, in their opinion, CA Technologies provides a more cost-effective solution than those that can be provided by other competitive vendors. More especially, CA Technologies tools meet the requirements laid out in this paper with none of our interviewees disagreeing with that suggestion and at least one interviewee agreeing that these needs were met, in every case. Clearly, these users had different priorities, as one would expect, so it is no surprise that some were more effusive than others but the fact that there was consistency across the users is telling.

We were disappointed that we could not derive specific return on investment figures but the benefits confirmed by the various users we spoke to suggest that ROI returns are real. If tools are easier to use, faster and provide more automation then clearly this will provide cost benefits.

Perhaps the best summary we can provide is actually a quote from CECA: *"the tools are really good and useful and are needed."*

Further Information

Further information about this subject is available from
<http://www.BloorResearch.com/update/2093>

Appendix

The following is a list of the tools discussed with the various users' companies, together with a brief outline of what each does. It should be noted that there are other tools in CA Technologies suite that are not used by any of these three companies.

For IMS:

- CA Database Analyzer for IMS for z/OS: designed to ensure database integrity through discovery of database pointer errors.
- CA Database Copier for IMS for z/OS: to create online, offline and incremental image copies as a part of a backup and recovery strategy.
- CA Database Organizer for IMS for z/OS: used for loading, unloading, re-organisation and associated functions.

For DB2:

- CA Database Analyzer for DB2 for z/OS: collects DB2 statistics and suggests trigger-based actions for object maintenance.
- CA Detector for DB2 for z/OS: is a database performance management product that evaluates application performance and collects static and dynamic SQL statements for both real-time and historical performance analysis.
- CA Fast Check for DB2 for z/OS: helps to monitor and control the consistency of your database. It is also able to check the integrity of data relationships that are not defined to DB2.
- CA Fast Load for DB2 for z/OS: reduces data load time by loading multiple tables or partitions concurrently. This utility can also create up to eight image copies and reorganise data as part of the load process.
- CA Fast Recover for DB2 for z/OS: helps with recovery for DB2 tablespaces and indexes. It provides advanced facilities that go beyond basic recovery capabilities.
- CA Fast Unload for DB2 for z/OS: does what its name suggests.
- CA Insight Performance Monitor for DB2 for z/OS: monitors DB2 subsystems and DB2 applications, including network-connected applications outside of the z/OS environment. You can customise monitoring functions and set up automated alerts.
- CA Log Analyzer for DB2 for z/OS: analyses DB2 log and SMF records to aid in auditing data changes, recovering data, backing-out errant updates without impacting application availability and migrating changes to other subsystems or databases. It can generate required UNDO SQL statements without losing access to DB2 and can focus on specific data ranges.
- CA Merge/Modify for DB2 for z/OS: speeds up image copy and recovery processes while conserving CPU resources, and streamlines backup and recovery procedures without impacting DB2 systems, applications, or data availability. It merges full and incremental copies with information from the DB2 active and archive log datasets, creating a fully consistent image copy.

Appendix

- CA Plan Analyzer for DB2 for z/OS: allows you to improve DB2 performance by efficiently analysing SQL and utilising expert rules to offer SQL performance improvement recommendations.
- CA Quick Copy for DB2 for z/OS: creates consistent and accurate DB2 image copies without impacting data availability. It is compatible with the IBM COPY and RECOVER utilities.
- CA Rapid Reorg for DB2 for z/OS: reorganises your tablespaces and indexes to alleviate problems caused by disorganised data, enabling the reclamation of space used by dropped tables, the re-clustering of data, removal of overflow pointers, re-establishment of free space and the rebalancing of index trees.
- CA RC/Query for DB2 for z/OS: this provides catalogue management capabilities and is intended to simplify the task of manually developing and testing specialised queries.
- CA RC/Update for DB2 for z/OS: automates tasks related to changing DB2 objects and data. It provides a development environment for the application developer, an editor and data copy feature for the end user, and object management facilities for the DBA.
- CA RC/Compare for DB2 for z/OS: compares and synchronises database schemas to ensure consistency across DB2 subsystems.
- CA RC/Migrator for DB2 for z/OS: automates the migration of DB2 objects from one environment to another, such as from test to production.
- CA RC/Secure for DB2 for z/OS: an online security administration tool used to manage DB2 objects, privileges and users without the need for hand coding.
- CA SQL-Ease for DB2 for z/OS: provides SQL generation, testing and analysis capabilities from within an ISPF edit session.

Bloor Research overview

Bloor Research is one of Europe's leading IT research, analysis and consultancy organisations. 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.
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Founded in 1989, we have spent over two decades 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.

About the author

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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 what is now P3ST (Wordsmiths) Ltd 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. His practice area encompasses anything to do with data and content and he has five further analysts working with him in this area. While maintaining an overview of the whole space Philip himself specialises in databases, data management, data integration, data quality, data federation, master data management, data governance and data warehousing. He also has an interest in event stream/complex event processing.

In addition to the numerous reports Philip has written on behalf of Bloor Research, Philip also contributes regularly to www.IT-Director.com and www.IT-Analysis.com and was previously the 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 published a number of reports published by companies such as CMI and The Financial Times.

Away from work, Philip's primary leisure activities are canal boats, skiing, playing Bridge (at which he is a Life Master) and walking the dog.

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