SAP Performance Management

A Trend Study by Compuware and PAC

December 2010
Management Summary

- Many companies run critical business processes on SAP. Therefore, the high availability and acceptable performance of the business software environment are essential requirements. Despite this, almost half (43%) of the organizations surveyed in this study say they are not satisfied with the performance of their SAP environment.

- In the event of any performance problems experienced by end users, companies need to be able to quickly identify the causes to make efficient recovery possible. However, approximately 1 in 2 businesses are not satisfied with the key performance insights needed to understand an end user’s experience of SAP:
  1. 40% of enterprises feel that they are not prepared to detect real-time performance problems.
  2. Only 51% believe they are capable of effectively performing rapid root cause diagnoses of SAP-related issues.
  3. 49% of IT directors say it is difficult for them to predict future performance and capacity issues related to SAP.

- Almost every company using SAP recognizes that performance problems result in financial risk exposure, with 96% of those questioned stating there is a ‘financial risk or even high financial risk exposure due to SAP performance problems’.

- Professional solutions for SAP performance management can help to control and deliver SAP application performance. 50% of the companies surveyed in this study plan to invest into such solutions.
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1. PREFACE

Companies can only be successful if their business processes are efficient. A disruption of a critical process can result in a financial loss due to, for example, unproductive working hours, lost sales, or delays in production, order fulfillment or logistics.

Many companies worldwide have been making major investments in SAP software to improve their business-critical processes. These include financial accounting, order management, warehouse operations, sales, distribution, and logistics. Consequently, the SAP software is a vital asset for these companies. Any problem with the application, such as unavailability or delayed completion of tasks, poses a significant financial risk.

SAP software can only do the job it is designed for if the overall IT infrastructure is stable and reliable. In order to ensure that SAP technology runs effectively, everything from the computing platforms to database and network connections must be running with maximum efficiency.

An SAP environment is made up of the IT infrastructure, SAP software and integrated systems. Only if all these components work correctly, SAP-driven business processes will be successful. A key requirement for companies running SAP is to guarantee that the whole environment is stable, highly available and able to quickly respond to users’ requests.

Unfortunately, SAP users generally do not always complain when performance is poor but instead fall back on using traditional manual processes that existed before the application was implemented. This can, in turn, impact any expected return on investment (ROI) from implementing SAP. For this reason, it is vital that SAP customers keep a close eye on their SAP environment’s performance.

‘Performance’ consists of two elements, the efficiency of processes and the speed/response time of the transactions. Effective SAP performance management offers an instant, in-depth insight into the performance of an SAP environment. Without such a solution, it is very difficult to quickly detect the root
cause of performance problems as they occur and to resolve the issues with minimum disruption to SAP end users.

In an international trend study, Compuware and Pierre Audoin Consultants (PAC) have analyzed the current state of SAP performance management across Europe and the United States. The study sample included IT decision makers from a range of industries and company sizes. It looked closely at issues around business processes, the level of system complexity and the different delivery models used by these business leaders, such as outsourced and in-house operations or virtualization.

The study provides trends around four key areas of SAP performance management:

1. An indicator of how satisfied SAP users are with the quality and availability of SAP-driven business processes;
2. Analysis of how companies rate their ability to manage the performance of SAP environments;
3. Insight into the financial risk exposure and the financial loss due to performance problems;
4. Outline of the deployment plans for a dedicated SAP performance management solution.
2. SAP PERFORMANCE MANAGEMENT

Companies invest huge sums into their SAP environments. Therefore, it is imperative that they see a return on that considerable investment. This requires good SAP performance, which will then enable improved end user productivity on the system, resulting in efficient business processes.

If a company relies on SAP software for business-critical applications, any performance problems could have a disastrous effect on its overall business performance. Such issues, particularly slow response times, can lead not just to frustration among end users; the subsequent impact on employee productivity can result in financial loss for a company.

2.1. The SAP Environment

Technical complexity

An SAP environment is not only a database server with an application on top. It consists of hardware equipment, network connectivity, the software stack (including application servers), databases, client PCs, terminal servers and enterprise portals. With so many technologies playing a role in the running of an SAP system, it makes management much more difficult. In larger enterprises, an SAP system will be used by thousands of users globally. Whenever there is a problem, such as a transaction running slowly, it is vital for the management team to be able to identify the root cause of the problem. No matter how big the business, and how complex the IT system, efficient performance management is critical.

In addition, there is often more than one SAP instance and more than one location where SAP solutions are deployed. Components of an SAP environment can also be deployed in-house or in an outsourced environment. The technical infrastructure can, for example, be outsourced to one IT services provider, while another third party is responsible for the operation of the SAP base and/or the customization of SAP business logic.
Application complexity

Given the variety of technical components, there is a high degree of complexity involved when ensuring a strong SAP performance. However, the technical architecture is only one part; complexity can also be found on the application level.

SAP transactions can be used for different processes, depending on the combination of SAP modules. Transactions can also span different SAP systems/instances. This means transaction performance can be affected by many different third parties. To make things worse, not only SAP systems are involved. Non-SAP business applications, databases or middleware can also influence the transaction performance.

2.2. Business-critical Processes and SAP Performance

Since SAP systems typically run the most business-critical processes within a company, high availability and short response times for transaction processing are mandatory. However, due to the technical complexity described above, there are a number of challenges that have to be addressed. These include:

- Understand how many users are experiencing performance problems;
- Ensure that all the teams responsible for identifying performance issues have a complete picture of application performance;
- Detect performance problems early and proactively avoid future problems.

A comprehensive SAP application performance management solution provides companies with a very powerful approach to meet the challenges outlined above. In addition, they gain much better insight into their return on investment while mitigating the risk of financial loss due to SAP performance issues.
2.3. Definition of SAP Performance Management

In the SAP context, performance management includes the methods and techniques that measure if business processes and associated transactions are being executed effectively. With the right solution, companies can detect performance problems within their SAP environments and drill down to the cause of the problem.

Monitoring performance from the end user perspective

It is not enough to just monitor SAP performance at the technical level by checking, for example, the CPU performance of the servers. To effectively manage the performance of SAP transactions, a holistic view of the overall SAP environment is required, starting with the end user experience. This end-to-end view should consider runtime parameters of the infrastructure (network, servers, storage systems, operating systems, web servers, application servers, databases, etc.) and performance parameters of SAP transactions alongside end user experience. The latter is important because network connections, web servers, terminal servers etc. can lead to latency between end users’ PCs and the SAP backend.

A holistic approach to SAP transaction performance management is needed to:

- Spot SAP transaction performance issues early and identify affected services, users, SAP instances and locations;
- Determine the impact of incidents on SAP transactions to prioritize troubleshooting;
- Correlate events with specific incidents;
- Track which components are responsible for poor SAP transaction performance to allow efficient troubleshooting.
Trends and performance predictions

In addition to ongoing performance monitoring, it is important to understand changes in performance characteristics. Over time, a lot of SAP transaction performance data is collected that can be used to explore performance trends and to create baselines and correlations that help to predict the future performance of SAP transactions.

Despite often very substantial investment in SAP, many businesses find that the system is either not being used correctly or not even used at all. The reasons are – among other things – the complexity of the system and the interface, as well as insufficient training, but also performance problems. Often, the latter are not spotted early enough, leading to end users ‘giving up’ on using the application and reverting to older processes. This of course defeats the purpose of investing in the new technology. In order to maximize ROI, businesses need to ensure that their employees use the technology effectively.
3. METHODOLOGY

In August 2010, Compuware and PAC conducted an international trend study among 588 companies using SAP in Belgium, France, Germany, Italy, the Netherlands, Spain, the United Kingdom, and the United States.

The three key areas of questioning covered by the survey included:

- How do companies rate SAP performance;
- Financial risk related to SAP performance problems;
- Business demand for SAP performance management solutions.

All the companies surveyed run their business-critical processes on SAP software in different industries and have at least 500 employees. The respondents were from senior IT management, heads of SAP application support, as well as IT team leaders. Demographics about the companies surveyed can be found in the section “Demographics about companies surveyed”.

3.1. SAP Performance Insights

In the survey, all the companies were asked how good their insights into SAP performance were. They could select a rating between 1 and 5 (with 1 being “very good” and 5 “very bad”). Also, people were allowed to choose “no answer”. Since SAP solutions are critical for these organizations as they run the most critical business processes, it is important for the performance insight to be at least “good”. In the following graphs, “good” is the sum of the possible answers 1 and 2, while “bad” is the sum of the rest, excluding “no answer”.

The same applies to the graphs regarding satisfaction with SAP performance. Here, respondents could select a rating between 1 (“very satisfied”) and 5 (“not at
all satisfied”). In the graphs, “satisfied” is the sum of the possible answers 1 and 2, while “not satisfied” is the sum of the rest, excluding “no answer”.

**SAP Performance Satisfaction:**

**Global View**

![Graph showing satisfaction levels for SAP performance](image)

**Comment:** Among the positive answers concerning overall SAP service availability, 28% said they were very satisfied and 43% said they were at least satisfied. On the negative side, 2% were not satisfied at all.

Although the figures look positive, about 30% of the companies are not satisfied with the performance. Unplanned outages and unacceptable availability and/or performance issues are a common occurrence for companies using SAP. Problems can be caused by any of the components within the SAP environment, even if the business logic itself operates properly.
SAP Performance Insight:

Global View

Figure 2: Global View: Companies Using SAP Rate Performance Insights (n=588).

Comment: Only with proactive performance monitoring can problems be detected early enough to provide companies with the chance to take action before issues disrupt business processes.

Without effective and rapid root-cause-analysis approaches it is difficult and time-consuming to pinpoint performance issues within the system landscape.
SAP Performance Satisfaction:

Correlation with SAP Deployment Size

Figure 3: Companies with Large SAP Deployments Rate Performance Satisfaction (SAP Environments with More than 2,000 Named Users, n=52)
Figure 4: Companies with Small SAP Deployments Rate Performance Satisfaction (SAP Environments with Up to 100 Named Users, n=323)

**Comment:** Companies with smaller IT environments tend to have fewer resources and capabilities to manage SAP performance than those with larger environments.
SAP Performance Insight:

Correlation with SAP Deployment Size

Figure 5: Companies with Large SAP Deployments Rate Performance Insight (SAP Environments with More than 2,000 Named Users, n=52)

Figure 6: Companies with Small SAP Deployments Rate Performance Insight (SAP Environments with Up to 100 Named Users, n=323)
Comment: Irrespective of size, companies struggle to gain SAP performance insights.

3.2. Financial Risk/Loss Due to SAP Performance Problems

Financial Risk Exposure

![Financial Risk Exposure Chart]

Figure 7: Financial Risk Exposure Due to SAP Performance Problems (n=588)

Comment: 96% recognize that performance problems result in financial risk exposure.
If there is a financial risk exposure, it is extremely likely that SAP performance problems will result in financial loss. In the survey, companies were asked if they were able to measure the financial impact of performance issues.

![Figure 8: Ability to Measure the Financial Loss Caused by SAP Performance Problems (n=588)](image)

**Comment:** Although nearly all the companies recognize that SAP performance problems result in financial risk exposure, only 30% of the organizations using SAP are able to measure the financial loss.
3.3. IT Challenges of Organizations Using SAP

Companies face tremendous IT challenges related to changes in business requirements, budget constraints and the IT strategy. In the survey, companies using SAP had the choice of 12 different challenges (multiple answers were allowed).

**IT Challenges:**

**Global View**

![Figure 9: IT Challenges of Organizations Using SAP (n=588)](image)

**Comment:** Performance by definition is the combination of responsiveness (service quality) at a reasonable, cost-effective level (efficiency). The two core performance fundamentals (highlighted in red) rank as the two most frequently stated IT challenges faced in the delivery of SAP-driven processes.
IT Challenges:

By Country

Figure 10: Top 2 IT Challenges of Organizations Using SAP in Different Countries

Comment: Organizations using SAP have the same two top priorities in all the countries.
3.4. Deployment Plans for SAP Performance Management

Given the importance of high availability and service quality, companies acknowledge the need to invest in tools and solutions to ensure both. Many of the companies we surveyed plan to deploy a SAP performance management solution.

Deployment Plans:

Global View

![Deployment Plans Chart]

Figure 11: Global View: Deployment Plans of Organizations Using SAP (n=588)

Comment: Approximately 50% of the organizations surveyed plan the short-term deployment of a performance management solution. These are in particular companies with a focus on and demand for high availability and optimum service quality.
Deployment Plans:

Correlated with Financial Risk

Figure 12: Planned Deployments Over the Next 6-12 Months Correlated to Financial Risk Exposure due to SAP Performance (n=588)

Comment: The higher the expected financial risk exposure, the more urgent it is for companies to deploy a solution for SAP performance management.
Deployment Plans:

By Country

Figure 13: Planned Deployments Over the Next 6-12 Months by Country
3.5. Demographics of Companies Surveyed

Figure 14: Demographics on the Companies Using SAP to Run Critical Business Processes
Operational Responsibility for SAP

Figure 15: Operation of SAP Environments per Country

Comment: The majority of the companies using SAP operate their environments in-house.
Company Size Demographics per Country

- Belgium: 67% (501-5,000 employees), 18% (5,001-10,000 employees), 15% (More than 10,000 employees)
- Spain: 66% (501-5,000 employees), 15% (5,001-10,000 employees), 19% (More than 10,000 employees)
- USA: 63% (501-5,000 employees), 13% (5,001-10,000 employees), 24% (More than 10,000 employees)
- France: 62% (501-5,000 employees), 21% (5,001-10,000 employees), 16% (More than 10,000 employees)
- UK: 60% (501-5,000 employees), 20% (5,001-10,000 employees), 20% (More than 10,000 employees)
- Netherlands: 60% (501-5,000 employees), 25% (5,001-10,000 employees), 15% (More than 10,000 employees)
- Italy: 49% (501-5,000 employees), 26% (5,001-10,000 employees), 25% (More than 10,000 employees)
- Germany: 47% (501-5,000 employees), 36% (5,001-10,000 employees), 17% (More than 10,000 employees)

*Figure 16: Company Size Demographics per Country*
4. **COMPUWARE VANTAGE**

With Vantage, Compuware offers a solution that provides comprehensive performance measurement ranging from the SAP front-end to the data center, including SAP servers, portal servers and databases.

Vantage provides a unique combination of transaction monitoring from the end user perspective with real-user monitoring across all the components of the SAP environment.

4.1. **Active Monitoring of SAP Transactions**

The end-to-end monitoring of individual SAP transactions is done through a synthetic Active Agent (robot) that behaves like an end user by executing transactions from an SAP GUI, SAP GUI over thin client delivery (e.g. Citrix) and SAP HTTP portal clients. This mechanism provides a baseline of SAP performance and has the potential to proactively discover performance problems before the real end users are affected.

4.2. **Passive Monitoring of Real Users**

In addition to the synthetic (robot) monitoring method, Vantage provides seamless monitoring of the entire SAP environment, starting from the end users’ perspective. A passive probe is connected into the data center network to monitor all user interactions with SAP. User activity can then be correlated with runtime data on each component of the SAP environment.

This provides correlated insight into the performance of each SAP transaction as well as the contribution of each infrastructure tier (application servers, database systems and third-party systems).
4.3. SAP Solution Manager and Compuware Vantage

Compuware does not position Vantage as an alternative to SAP’s Solution Manager. Instead, it should be seen as a complementary solution, providing performance management functionality that goes beyond the scope of SAP Solution Manager.

SAP’s Solution Manager can track system usage within an SAP environment, whereas Vantage’s monitoring approach described above non-intrusively correlates SAP transaction performance to business services and users with the added possibility to extend to non-SAP applications and integrated systems. Therefore, SAP Solution Manager can coexist with Compuware Vantage.
4.4. Six-step Approach to SAP Performance Management

The methodology recommended by Compuware to achieve efficient and holistic performance management consists of the following six steps:

1. Visibility of the quality of services that is being delivered to the SAP end users.
2. Prioritization of problems to determine which issues to tackle first, enabling teams to fix and resolve problems faster.
3. Isolation of individual faults, which allows the team to quickly identify the specific issue and determine where the problem resides: application server, database, network or system resources.
4. Proactive prediction of problems by automatically correlating real-time performance and usage demands to adaptive business baselines.
5. Communication at all levels of the organization by providing the right information to the right people in a language they can understand.
6. Improvement and evolution of SAP business services through proactive tuning and process optimization initiatives underpinned by built-in methodology (e.g. Six Sigma and ITIL).
4.5. Visualizing and Reporting SAP Performance

Since an SAP solution runs core business processes within a company, IT managers are not the only parties interested in SAP performance metrics relating to process quality. Consequently, there is a need for line-of-business dashboards for different stakeholders within a company.

Stakeholders are:

• Head of SAP application support
• Head of IT operations
• Business unit managers
• Service managers

Compuware Vantage provides dashboards consisting of SAP performance and availability metrics appropriate for key stakeholders. On the executive level, service quality and service availability can be viewed with an abstraction from the technical details. These dashboards also communicate business priority through the reporting of the number of users affected by performance problems.

Experts responsible for SAP operations need to know in detail the root cause of a performance problem. Vantage facilitates a further drill-down in order to isolate a fault within the SAP infrastructure.
Figure 18: This Dashboard Displays Service Quality and Service Availability from a High-level Perspective

Figure 19: A Deeper Technical Dashboard Displays SAP Transactions by Name, Usage Pattern and Performance Metrics
Depending on the structure of the SAP environment, it is often important to report the performance status of different locations where SAP is in use. It is much easier and more efficient to troubleshoot and communicate to lines of business if it is known which sites or locations are affected.
5. COMPUWARE AND PAC COMPANY PROFILES

Compuware Corporation

Compuware Corporation, the technology performance company, provides software, experts and best practices to ensure technology works well and delivers value.

Compuware solutions make the world’s most important technologies perform at their best for leading organizations worldwide, including 46 of the top 50 Fortune 500 companies and 12 of the top 20 most visited U.S. web sites.


About Pierre Audoin Consultants

PAC is a global market research and strategic consulting firm for the Software and IT Services Industry (SITSI). PAC helps IT vendors, CIOs, consultancies and investment firms by delivering analysis and advice to address a range of growth, technology, financial and operational issues.

Our 30+-year heritage in Europe – combined with our US presence and worldwide resources – forms the foundation of our ability to deliver in-depth knowledge of local IT markets, anywhere. We employ structured methodologies – undertaking thousands of annual face-to-face interviews on both the buy and sell side of the market, as well as a bottom-up, top-down approach – to leverage our research effectively.

PAC publishes a wide range of off-the-shelf and customized market reports – including our best-selling SITSI® program – in addition to our suite of strategic consulting and market planning services. 16 offices across all continents deliver the insight that can make a difference to your business.

For more information, please visit our website at http://www.pac-online.com.

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