



The SAS® Intelligence Value Chain

*Transform your existing IT infrastructure into
a framework for profit-generating enterprise intelligence*

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Executive Summary

In the economic downturn of the last few years, enterprise IT managers are under intense pressure to achieve more with less — to reduce costs and extend the value of existing investments while increasing strategic contributions to the organization. IT organizations in all industries have had to adapt to a new world in which budgets seem to shrink as fast as performance expectations grow.

In years of lean profits and market uncertainty, could the IT infrastructure be doing more to provide competitive advantage? Beyond just supporting operational/transactional systems and point solutions, could the IT organization be the focal point of a new strategic intelligence framework that drives shareholder value?

SAS says yes, and you can achieve this transformation with minimum implementation time and cost, and rapid payback — key considerations as upper management looks more critically than ever at projections of returns on IT investments.

SAS has developed a strategic framework for delivering high-value enterprise intelligence called the SAS Intelligence Value Chain. Based on the premise that true business insight requires more than making smart technology investments in individual applications, the SAS Intelligence Value Chain is an end-to-end framework of best practices and implementation steps supported by industry-leading technologies.

Each element of the SAS Intelligence Value Chain — from planning and data management to reporting and analyzing — adds incremental value to the IT organization. When all these elements are individually optimized and successfully integrated within the framework of an enterprise-wide strategy, you can consistently and efficiently create the intelligence required to reduce costs, manage risk and proactively respond to market changes.

Read on to find out how you can leverage your existing IT infrastructure to deliver substantially greater value to your organization.

Challenges on the path to contributing strategic value

The economic Ice Age of the last few years left a few organizations extinct and forced the evolution of many others. The stakes have changed. Forces such as deregulation, globalization, commoditization, the Internet and political uncertainty have redefined the risks and rewards in all marketplaces.

In this environment, with so little margin for error, IT management must be able to quickly align the IT infrastructure to support the dynamic needs of the organization. IT, after all, is counted on more than ever to provide the capabilities that enable their organizations to reduce costs, allocate resources optimally and attain revenue targets, all while maintaining acceptable risk and service levels.

Many IT organizations have had some success in addressing the cost side of the equation by automating processes and making operations run faster. But faster does not necessarily mean better. To be better, you need to go beyond automation. Your competitors have installed the same ERP systems. How does that give your organization a competitive edge? To be better, you need scalable, agile technology that enables your company to make smarter decisions and act more intelligently.

But if you are like most other IT managers, the technology framework you rely on to generate the intelligence that decision makers require is holding you back. If any of these challenges sounds familiar, you are not alone:

- **It's extremely difficult to derive sufficient intelligence from your existing infrastructure — or to get the funds to improve it.** With huge investments already sunk into massive, enterprise-wide operational applications, CFOs are in no mood to authorize additional investments to try to squeeze intelligence from those systems — intelligence that many thought would be available in the first place. Without a coherent intelligence strategy upon which to base justifications for new technology, IT is left in the uncomfortable position of trying to meet the rapidly increasing demand for strategic intelligence with an infrastructure that is simply not up to the task.
- **Your organization is supporting overlapping and redundant systems.** Individual business units often purchase non-standard and redundant applications and storage, independent of a corporate IT plan. Unstructured growth leaves the IT organization responsible for supporting multiple applications and platforms that may have overlapping functions. Workload escalates along with costs, complexity, niche training requirements and a growing list of third-party vendors to manage.
- **IT is not viewed as a strategic partner in achieving enterprise objectives.** In an environment where many IT departments are trying to break free from the label of “cost center,” too many of IT's resources are still spent on trying to ensure that stand-alone silos of technology work together — clearly a non-value-adding activity. Add to that a checkered history of cost over-runs, long implementation times and questionable ROI, and it's no wonder that in many organizations, IT faces an uphill battle in demonstrating strategic value.

These challenges call for a vastly improved framework for delivering enterprise-wide intelligence. A framework that provides a clear path for transforming disparate data and systems into an efficient flow of information that transcends organizational silos, diverse computing platforms and niche tools — and one that delivers access to the insights that drive shareholder value.

Optimize your existing infrastructure with the SAS® Intelligence Value Chain

For more than 26 years, SAS has been helping customers realize the full potential of intelligence. Through listening to our 40,000 customers across every industry — including 90% of the Fortune 500 — SAS has developed a synergistic framework for delivering high-value enterprise intelligence. This framework, which we call the SAS Intelligence Value Chain, optimally integrates individual technology components within your existing infrastructure.

Whether you think of it this way or not, your organization already has the elements of an intelligence value chain in place: ETL (extraction, transformation and loading) tools to capture data from multiple businesses processes, data storage and manipulation capabilities, and various reporting and analysis tools. The SAS Intelligence Value Chain optimizes and extends the value of these elements while setting the stage for new levels of enterprise-wide intelligence not previously possible.

The SAS Intelligence Value Chain includes the following five components:

- **Plan:** A set of proven, best-practice roadmaps supported by analytic data models, project methodologies, and consulting expertise.
- **ETL^o:** Pre-built, high-performance capabilities for data manipulations, analysis, data quality and integration that together raise extraction, transformation and loading processes to the power of Quality.
- **Intelligent Storage:** A data storage platform specifically tuned for enterprise intelligence creation and dissemination.
- **Business Intelligence:** A set of enterprise-wide query and reporting tools and interfaces that enable different types of users to surface meaningful intelligence from consistent, company-wide data.
- **Analytic Intelligence:** A versatile, integrated platform for a wide range of in-depth analysis, including predictive and descriptive modeling, forecasting, optimization, simulation, experimental design and more.



SAS Intelligence Value Chain

With SAS' detailed understanding of the business of IT, which spans mainframes to client-server, from legacy applications to secure Web-based information delivery to unmatched analytic depth, the SAS Intelligence Value Chain empowers your IT organization to:

- Deliver a rational enterprise-wide intelligence strategy, providing actionable intelligence that supports the changing needs of the enterprise, business unit and department.
- Optimize your current infrastructure while extending the value of previous investments with applications that are written once and run anywhere.
- Maintain flexibility for future IT evolution, with an open, modular, platform-independent, standards-compliant architecture.
- Reduce costs for system implementation, maintenance and training through consistent intelligence creation processes across business units and functions.

This new model of enterprise intelligence creation and delivery cost-effectively brings order to muddled infrastructures and better aligns IT with the strategic objectives of the enterprise — all while leveraging existing legacy systems and processes.

A closer look at the components of the SAS® Intelligence Value Chain

Whatever your existing IT infrastructure, SAS can unify it into a framework for enterprise-wide intelligence and sustainable profitability in an increasingly uncertain world.

SAS is the only vendor that offers both a comprehensive vision of an end-to-end intelligence framework and the technology to optimize the performance of each component. Because SAS technologies are standards-based and platform independent, it doesn't matter what kind of hardware you are using now. SAS technology is transportable and adaptable as your organization's needs change and grow.

Let's take a closer look at the five components of the SAS Intelligence Value Chain and the benefits of each:

Plan



The Plan component of the SAS Intelligence Value Chain delivers proven, best-practice roadmaps, supported by integrated, industry-specific analytic models, project methodologies and consulting expertise to reliably create and deploy custom solutions. These processes and services embody SAS experience from hundreds of business cases in areas such as finance, telecommunications, retail, pharmaceutical and manufacturing.

SAS' customized models and services offered within the Plan component enable you to structure project deployment for maximum efficiency and consistency, reduce implementation time and risk and quickly deliver solutions that show bottom-line results.

A key benefit of a successful Plan phase is that subsequent technology implementations can deliver much faster ROI. Proven implementation roadmaps have solutions up and running quickly. Costs are minimized by leveraging legacy data sources, technologies and internal staff expertise. You gain rapid value by delivering high-value intelligence in short timeframes.

The pre-built analytic data models that SAS offers within the Plan phase are easy to maintain and understand, because they are built using industry-leading modeling and metadata management tools. By leveraging SAS' integrated intelligence architecture, these applications share the same base data, which ensures consistent results for decision support and a single version of the truth.

ETL^o



In most organizations, data is captured in a wide variety of sources and formats, such as ERP and legacy systems, RDBMS, flat files, Web logs and more. It can be difficult to locate, identify and select the data that needs to be extracted, transformed and moved from all these silos of information. Data may be inconsistently represented among platforms, making it difficult to produce accurate and reliable results. Expensive, high-maintenance, customized interfaces may be required just to get reports from legacy and ERP systems. This process might even call for shuttling data onto new platforms to be digestible for analytical and business intelligence systems.

SAS is the only vendor that exponentially enhances the power of extraction, transformation and loading functions with integrated data quality. The ETL^o data integration platform can read and extract all data formats from disparate, heterogeneous platforms. In addition to SQL (Structured Query Language), it offers pre-built, high-performance SAS capabilities for data manipulations, analysis, quality and integration. Desktop cleansing tools provide the ability to quickly and effectively analyze and resolve data quality problems and integrate the transformations into the ETL environment, which translates into reliable information and quick ROI.

SAS ETL^o is platform-independent and offers a range of access engines, a multi-threaded transformation engine, integrated data quality transformations, end-to-end metadata and an easy-to-navigate graphical interface. The benefits touch all facets of your ETL strategy, allowing data managers to:

- **Develop ETL processes faster**, at lower cost with easy-to-use metadata management tools, full support for SQL capabilities, a wide range of pre-defined transformations and out-of-the-box access engines to industry-leading RDBMS and ERP systems.
- **Reduce cost of ownership** by taking advantage of standard and customized data cleansing capabilities that resolve quality and consistency problems and reduce the ongoing costs of data stewardship.
- **Ensure robust data delivery** in multi-vendor environments, with a single-platform approach and powerful transformation language. Extract, transform and load processes can take place on the platform where the data resides, thereby reducing network traffic, data duplication and hardware requirements.
- **Extend the value of legacy systems**, hardware and ERP investments. There's no need to prematurely retire legacy systems or invest in customized interfaces just to get reports from legacy data sources.

Intelligent Storage



The typical enterprise faces several data storage challenges that inhibit enterprise-wide intelligence. Information typically resides in isolated islands serving separate business units, even on different platforms, such as UNIX and mainframe systems. In this scenario, how do you offer users a unified view of all information held throughout the organization?

The emergence of analytic and business intelligence applications for this purpose strains traditional relational database management systems (RDBMS), which were not designed to search large tables of information for small amounts of user-requested data. They also were not designed to produce the summarized reports demanded by modern business intelligence applications, or the intensive simulation and modeling requirements of advanced analytic intelligence applications.

SAS Intelligent Storage is a dedicated platform designed from the outset to efficiently disseminate information for business intelligence and analytic intelligence applications — from SAS or third parties. SAS offers relational, OLAP and parallel storage options to suit all types of application profiles. This includes everything from simple reporting and OLAP dissemination to advanced forecasting and data mining. An open, integrated metadata framework enables these storage and dissemination options to be provided transparently to a wide range of applications and environments.

SAS minimizes overhead and maximizes input/output (I/O) performance by using fixed record lengths, advanced indexing, large block sizes and by eliminating two-phase commit processing. Together with multi-threading and physical partitioning, SAS Intelligent Storage typically improves loading and query performance by an order of magnitude, compared to orthodox RDBMS configurations.

Business Intelligence



Distributed teams, managers and executives need accurate, up-to-date information for decision-making, and they need it faster than ever. Having IT process all their queries creates expensive and time-consuming bottlenecks. Using multiple point solutions creates confusing and unreliable results, because intelligence is not based on a common model of corporate data or corporate-wide standards for surfacing information to business users.

Self-service tools that attempt to provide a full range of business intelligence capabilities (managed reporting, ad-hoc query and OLAP) are generally too complex for most users yet still not robust enough for power users. Consequently, the IT group ends up spending a great amount of time training users and replicating data to provide information access in a variety of toolsets.

SAS Business Intelligence empowers users by giving them access to information in the format they need, when they need it, delivered to diverse client platforms. SAS provides appropriate interfaces for various user skill levels and needs, enabling users to generate their own answers while IT retains control over the quality and consistency of the data they are using.

Fully integrated with SAS ETL^o, SAS Business Intelligence can incorporate all data required for analysis, regardless of data source or format. This integration also ensures that data used in analysis is complete, sequenced and properly cleansed — without excessive proliferation of metadata, a common problem in legacy business intelligence architectures.

SAS Business Intelligence clients can transparently re-use SAS analytical procedures without the users needing advanced skills in statistics or support from IT. Analysts and business managers can seamlessly integrate analyses of the past into accurate models and forecasts of the future.

SAS Business Intelligence creates a collaborative domain that links previously isolated specialists in statistics, finance, marketing and logistics. The whole user community has access to company-standard analytical routines and reporting templates. This framework not only produces consistent, trustworthy results; it fosters greater cooperation and partnership among disparate teams.

Analytic Intelligence



Business Intelligence is about understanding the past. Analytic Intelligence is about predicting the future. Predictive and descriptive modeling, forecasting, optimization, simulation and more tell analysts how decisions made today are likely to affect the organization tomorrow.

Organizations face numerous challenges in generating these forward-looking insights. How do you design architectures and process flows to tightly integrate modeling with operational information, without affecting the performance of operational systems? Can one solution meet the diverse requirements of all types of users, share modeling results among them and be open to third-party business intelligence tools? What is the best way to model scenarios in complex contexts such as customer relationship management, revenue forecasting, quality improvement and process optimization — contexts in which most business intelligence applications fall short?

SAS Analytic Intelligence provides best-in-class modeling capabilities to support these types of complex analyses, while sharing the results with business users through open integration with business intelligence applications.

SAS delivers the industry's widest portfolio of analytics, algorithms, mathematical data manipulation and modeling capabilities. These capabilities can be applied to a large number of business problems, enabling you to choose a targeted capability rather than compromising by force-fitting lesser, poorly coordinated tools.

A range of client interfaces and visualization techniques enable non-technical users, analysts and statisticians alike to easily interact with their data and model business scenarios. Because you don't need custom interfaces among analytic intelligence modules or between analytic and business intelligence modules, SAS minimizes cost of ownership, provides consistent performance to end users, reduces IT overhead for maintenance and minimizes training requirements.

As the final component in the SAS Intelligence Value Chain, SAS Analytic Intelligence builds on all of the previous components to deliver unmatched business insights:

- SAS Analytic Intelligence is integrated with powerful SAS ETL° capabilities, which accesses and reads all relevant source data formats and pre-processes them to be analysis-ready.
- SAS Analytic Intelligence leverages the SAS Intelligent Storage architecture, which ensures premium performance and seamless exchange of data and metadata between SAS Business Intelligence and SAS Analytic Intelligence applications.

- SAS Analytic Intelligence supports the emerging PMML standard for exchange of intelligence models, for users who want to retain existing business intelligence investments. Third-party applications and languages can invoke SAS analytic services, so you can leverage existing applications, developer skills and familiar user interfaces.

Calculating the cost

Does this end-to-end strategic vision sound like a budget-burdening overhaul? Actually, it's not. For one, SAS extends the value of systems and data you already have. Each component of the SAS Intelligence Value Chain adds incremental value to the IT organization. Even if you focus on only a single element, SAS can help you derive significantly greater value from your existing intelligence value chain.

A much greater cost to consider is the price of inactivity. Incomplete, inefficiently generated intelligence costs the enterprise far more — not only in missed revenue opportunities, but in cash outlays wasted on niche software products and incompatible applications that are hugely expensive to integrate and maintain yet still can't provide one consistent version of the truth.

Summary

The SAS Intelligence Value Chain represents a synergistic framework for delivering high-value enterprise intelligence that extends the value of your existing IT infrastructure. With our detailed understanding of the business of IT and integrated, industry-leading technologies across the entire intelligence creation process, SAS can help you optimize your corporate IT strategy and better align IT with the strategic objectives of the enterprise.

From SAS, the first name in enterprise intelligence

SAS is the market leader in providing a new generation of software and services that create true enterprise intelligence. SAS solutions are used at more than 40,000 sites around the world — including 90 percent of Fortune 500 companies overall. SAS is the only vendor that completely integrates leading data warehousing, analytics and traditional BI applications to create intelligence from massive amounts of data. For more than 26 years, SAS has been giving customers around the world The Power to Know®.

Let us show you how the SAS Intelligence Value Chain can deliver immediate and sustainable rewards for your organization. Whatever your existing infrastructure, SAS can develop a solution that unifies it into a framework for enterprise-wide intelligence and sustainable profitability in an increasingly uncertain world. For more information about the SAS Intelligence Value Chain and the specific SAS technologies that support it, visit us at www.sas.com.



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