

Enable Good Asset Management with Integrated Enterprise Information Software

Using Technology to Support PAS 55 Specifications



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Corporations spend billions to design, buy, operate, and decommission production equipment and other physical assets. Managing assets and optimally using and running these investments can be mission critical. As a result, the assets are under the constant and watchful eyes of top management, shareholders, and regulators. But how can you be confident that your asset management practices are maximizing return on assets?



The Mission-Critical Role of Asset Management

Uncertain markets are forcing companies to maximize return on assets. Meanwhile, globalized competition is challenging businesses to drive competitiveness by achieving operational and maintenance excellence. But most of all, increased awareness of sustainability issues is requiring companies to manage environment, health, and safety performance and asset-related risks with more precision than ever before.

As a result, traditional asset management activities, such as creating asset registries and orchestrating maintenance operations, are evolving into a comprehensive, standards-driven management approach that impacts all facets of an organization. Guidelines such as Publicly Available Specification (PAS) 55 are helping companies put structured, good-practice-based discipline around their asset management capabilities so they can optimize asset uptime, reliability, and overall performance. This discipline is being embedded into organizational strategies, corporate governance, and day-to-day activities, helping companies not only get more value from their assets but also increase the sustainability of their enterprise.

PAS 55: THE GUIDELINE FOR GOOD ASSET MANAGEMENT PRACTICES

PAS 55 as an asset management framework describes and defines essential key attributes and good practices for the management of physical assets. It was developed by the Institute of Asset Management in the United Kingdom, in collaboration with the British Standards Institution and along with the assistance and valuable input of many other organizations and individuals.

PAS 55 reflects a growing understanding of the importance of asset management as a driver of profitability. It also reveals an understanding of operational risks and safety issues when asset management is not handled in a holistic manner. The guidelines were first published in 2004 and then updated in September 2008. They consist of two parts:

- Part 1: Specification for the optimized management of physical assets
- Part 2: Guidelines for the application of PAS 55-1

PAS 55 can help your company gain competitive advantage by helping ensure that you are effectively managing your assets. In fact, many companies are seeking to get PAS 55 certified through specialized consulting organizations with deep asset management practice expertise. This certification is becoming a benchmark of publicly recognized good asset management practices. And compliance is even required in certain industry sectors and countries (such as the United Kingdom) in order to do business.

At the same time, meeting the guidelines can result in new cost savings and service improvements, as well as facilitate compliance with industry and other regulatory standards; in fact, PAS 55 coexists with other related management standards, such as ISO 9001 and ISO 14000. All of these requirements are inextricably linked because effective asset management demands an integrated, cross-enterprise approach. Addressing only parts of PAS 55 in isolation – even if these parts are handled optimally – means that companies miss out on the primary benefits of meeting PAS 55 guidelines. To further elevate the importance of good asset management practices, PAS 55 guidelines are now considered the basis for the upcoming ISO 55000 series of standards for asset management.

PAS 55 reflects a growing understanding of the importance of asset management as a driver of profitability.



According to Peter Kohler, chair of the technical development team of the Asset Management Council: "Asset management is an emerging discipline, and while the foundation elements have been around for some time, modern business needs now demand an integrated business-focused approach to how assets are managed. The intent of the ISO 55000 series of standards is to deliver a good practice asset management framework so that all societies can gain the full benefit from their investment in the management of their assets."

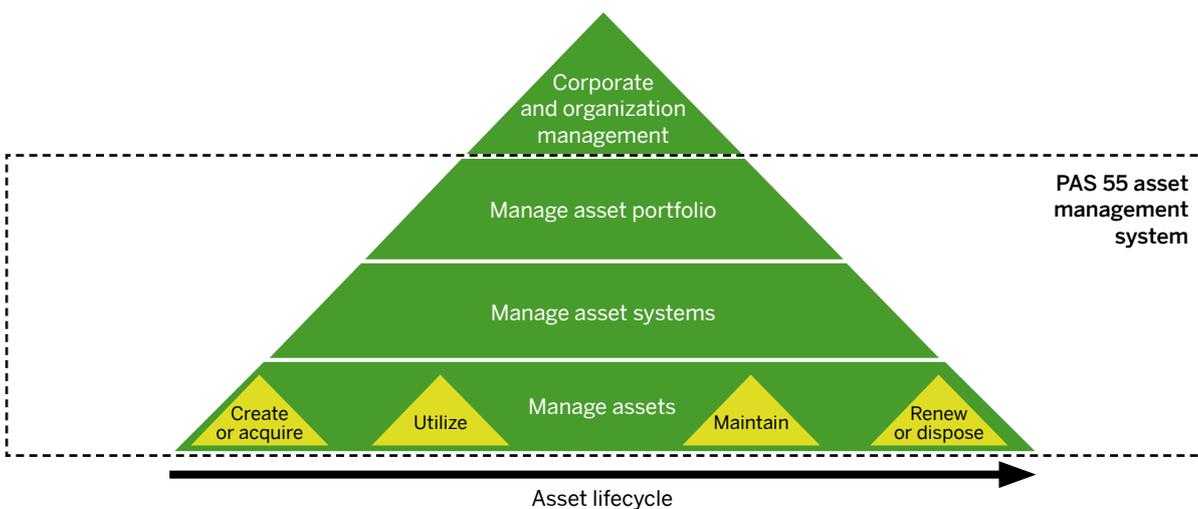
THE SCOPE AND KEY PRINCIPLES OF PAS 55

PAS 55 looks at asset management from an interdisciplinary and cross-departmental point of view. In the documents, asset management is defined as "systematic and coordinated activities and practices through which an organiza-

tion optimally and sustainably manages its assets and asset systems and their associated performance, risks, and expenditures over their lifecycles for the purpose of achieving its organizational strategic plan." As illustrated in Figure 1, this means properly managing the three levels of assets. These start at individual equipment and eventually include complex portfolios of asset systems (such as power grids) in an integrated way across:

- **Asset lifecycle activities** – Create or acquire the asset, use and maintain it, and then renew or dispose of it.
- **Asset systems** – Focus on sustained performance, cost, and risk optimization of asset systems (that is, groups of assets that make up a system, such as a transmission network).
- **The asset portfolio** – Manage many systems as a portfolio of assets. The focus is on capital investment optimization and sustainability planning.

Figure 1: Integrating Asset Management into the Organization



At the highest level, PAS 55 guidelines encourage companies to embrace the following principles to manage their asset systems:

- Take an integrated approach that embeds asset management into other enterprise processes
- Centralize and systematize asset management

Take an Integrated Approach

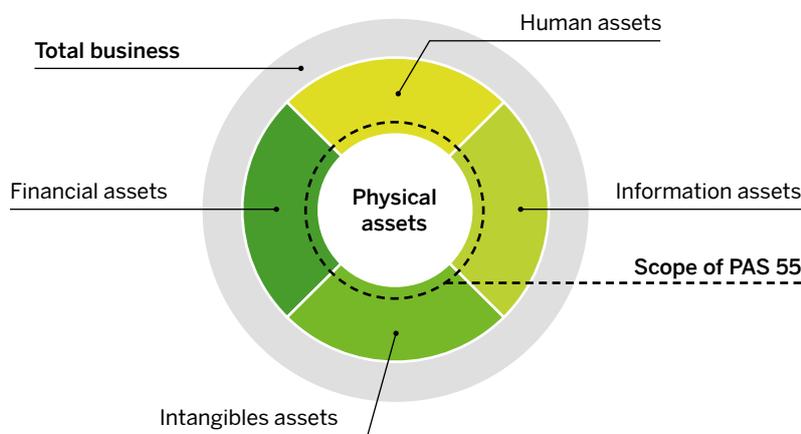
PAS 55 guidelines are based on the idea that companies must take an integrated approach to asset management, as this integration enables ever-higher levels of asset optimization. While PAS 55 focuses on physical assets, the recommendations must be embedded within the overall business context of running a corporation. As shown in Figure 2, other asset categories, such as financial assets, human assets, information assets, and intangible assets are essential parts of an enterprise and need to integrate with the

activities and practices being used to manage physical assets.

Logically, this kind of cross-departmental integration requires IT enablers. While PAS 55 isn't a certification of software applications, it does identify the need to include cross-departmental and integrated approaches to information management, decision making, performance monitoring, risk management, and communications. Specifically:

- PAS 55 principles encourage companies to evaluate, improve, and potentially restructure their current business processes so they can realize the benefits experienced by today's PAS 55-certified organizations.
- PAS 55 highlights the need for process integration for everything from day-to-day maintenance activities for single equipment all the way up to managing complex asset networks from an integrated point of view.

Figure 2: PAS 55 Scope and Enterprise Business Context



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Whatever approach you take to enable this cross-departmental integration, PAS 55 guidelines specify that the approach encompass systematic and coordinated activities and practices for sustainably managing assets and asset systems. Equally important, the approach must share the key principles and attributes summarized in Figure 3.

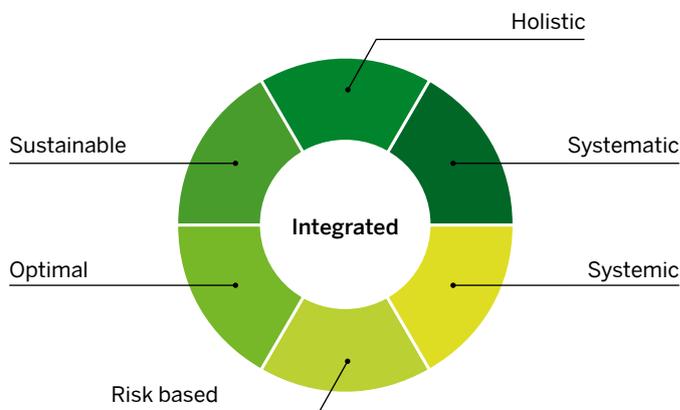
The value of this IT-enabled integration is illustrated by Power Systems Business Group (PSBG) of CLP Power Hong Kong. The company used PAS 55 as the basis for developing its asset management practices that – over the past 10 years – have enabled PSBG to achieve more than a 90% reduction in customer minutes lost, or CMLs. The company simultaneously responded to a 20% load growth, an increase in the number of assets and overall network size, and pressures to stay competitive.¹ What helped PSBG realize these impressive results were greater alignment and collaboration across the whole organization, as well as

“changes in standards, procedures, technical skills, business processes, IT systems, and organizational structures”² for asset management. In 2007 CLP Power became the first Asian electric utility company to receive the PAS 55 compliance certificate, per an audit by The Woodhouse Partnership Ltd.³

Centralize and Systematize Asset Management

PAS 55 does not mandate that you deploy certain software products. But it does set goals for IT governance and control that are best achieved by deploying an enterprise application that centralizes information and systematizes and automates processes supporting the entire asset life-cycle. An enterprise application can do this by providing an integrated information system to support planning, building, and commissioning of assets; asset visibility and performance; optimized asset operations and maintenance; and operational risk management.

Figure 3: Key Principles and Attributes of Asset Management



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IMPLICATIONS OF PAS 55 FOR ASSET MANAGEMENT SOFTWARE

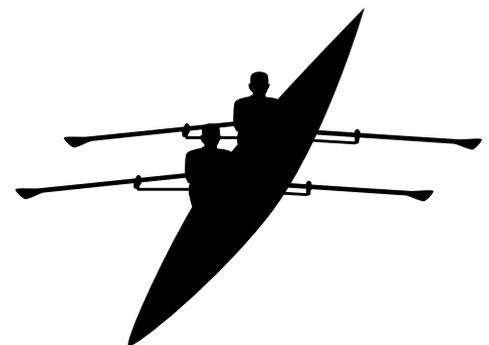
Given the integrated, holistic approach to asset management demanded by PAS 55, companies will succeed best by taking a systematic, IT-enabled approach to asset management. Businesses can certainly choose to run an asset management organization using paper-based records, spreadsheets, and disparate systems and still be in compliance with PAS 55. But in practice, they can realize greater efficiency and effectiveness if they use a single, centralized asset registry and automated system that updates and disseminates information in real time and enables departments to work from a single source of truth. These departments may include finance, inventory management, production, procurement, customer service management, and risk management.

Having up-to-date data at employee fingertips (rather than in a file drawer at another site) results in significant financial savings, among other benefits. This data

can include the most recent asset management strategies, latest figures for key performance indicators, unit costs, and historical maintenance or performance information. Consider how PSBG realized the benefits of a technology-driven approach to applying PAS 55 guidelines:

“PSBG utilizes an integrated information system, the Enterprise Work Management System (EWMS) based on SAP [software], to support its construction, operation, and maintenance activities. EWMS serves as our master asset register. It also captures and holds our cost and maintenance data, and provides various management reports for performance monitoring. EWMS has evolved to become a rich source of O&M [operations and maintenance] cost and activity data. It was [recognized] in the PAS 55 assessments as having been particularly well implemented and exploited. Utilizing its historical cost data, we have built a set of O&M unit cost reports, which allow the users to review cost information from various perspectives and at different granularities.”⁴

Businesses can realize greater efficiency and effectiveness if they use a single, centralized asset registry and automated system that updates and disseminates information in real time and enables departments to work from a single source of truth.



SAP® Software: Supporting an Integrated Approach to Meeting PAS 55 Guidelines

The goal of the PAS 55 guidelines is to create, sustain, and improve an integrated management system to optimally manage physical assets within stated policies and constraints. Integrated SAP® solutions act as the information technology platform on which an organization can implement an asset management system. They support the integrated enterprise process requirements essential to having a systematic, IT-enabled approach to asset management.

ENTERPRISE ASSET MANAGEMENT SOFTWARE

The SAP Enterprise Asset Management (SAP EAM) solution can provide the core of any PAS 55 initiative. It supports preventive and predictive maintenance, maintenance cost budgeting, maintenance execution, and work-clearance management. This lets you:

- Manage physical assets from purchase to end of life
- Experience real-time visibility of asset performance and maintenance
- Improve efficiency with integrated project management and centralized information management

- Maximize investment by controlling specifications procurement
- Improve financial reporting and analysis by capturing all maintenance-related expenditures
- Increase production through improved procurement practices and better maintenance management

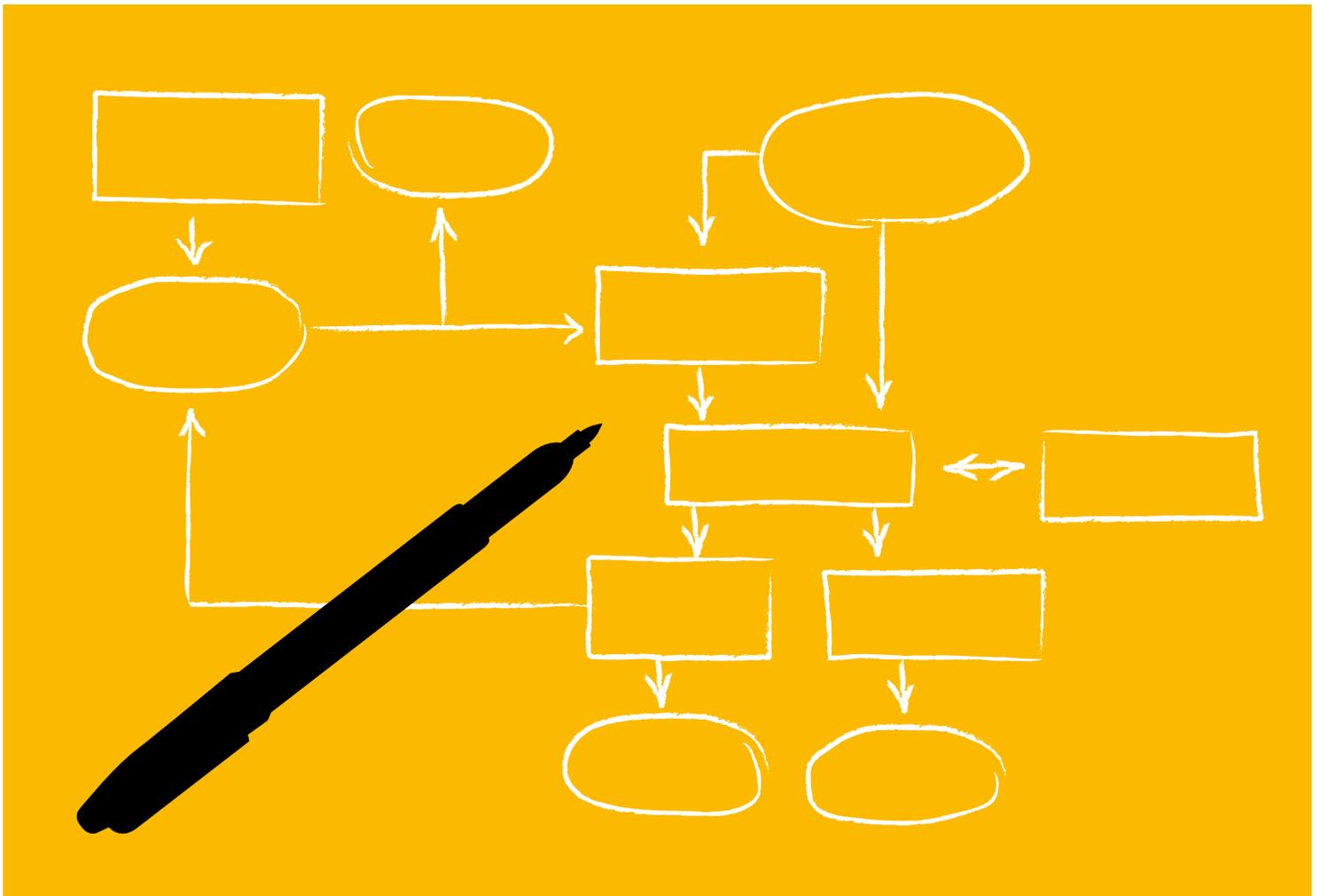
The solution provides software features and functions to support key enterprise asset management processes that help you:

- **Reduce the risk of failure, delays, and overruns** – Set the right priorities, effectively plan and monitor projects, collaborate with contractors more closely, and react to issues earlier
- **Optimize project portfolio performance** – Manage projects more effectively and enforce project governance enterprise-wide
- **Lower overall project costs** – Make better use of critical resources and monitor budgets versus actuals throughout project execution
- **Lay the foundation for successful operations** – Collect and maintain the best possible information for operations, maintenance, and purchasing

“Our endeavors toward implementing and realizing the value of the recognized good practices of PAS 55 would not have been possible without the visibility and transparency to our business information that the SAP Enterprise Asset Management solution has given us.”

Kim McArthur, Manager, Asset Stewardship, Hydro One Networks Inc.

Integrated SAP solutions support the integrated enterprise process requirements essential to having a systematic, IT-enabled approach to asset management.



Once the solution is deployed, your company can:

- Maximize return on physical assets by supporting integrated asset management processes to collaborate across all related activities, such as finance, HR, risk, and compliance
- Improve overall equipment effectiveness by providing asset intelligence and a holistic view of performance, risks, and expenditures throughout an asset's lifecycle – helping ensure efficient utilization of assets
- Manage asset-related risks by delivering continuous and proactive operational risk management to support instant decisions and minimize disruption

COMPLEMENTARY, INTEGRATED SAP SOLUTIONS

PAS 55 is asking for more than a stand-alone asset management application since the scope of the standard is enterprise-wide and touches many other processes within any corporation. Other asset categories, such as financial assets, human assets, information assets, and intangible assets, must be integrated with the activities and practices being used to manage physical assets.

The broader set of SAP solutions supports these other business areas in an integrated manner. And the solutions integrate with SAP EAM to enable an asset management software system that meets requirements 4.1 through 4.7 of the PAS 55-1:2008 specification. The table summarizes how SAP software relates to the various specifications.

LEARN MORE

Implementing good asset management practices is a journey and enables a management process that can lead to exceptional results with real business benefits, such as those realized by Power Systems Business Group (PSBG) of CLP Power Hong Kong. According to The Woodhouse Partnership Ltd., "PSBG is a shining example of outstandingly good asset management practices and processes – we are always impressed with the way they set themselves tough challenges and consistently achieve their goals."*

To learn more about how SAP can help your organization meet PAS 55 specifications, call your SAP representative today or visit us online at www.sap.com/eam.

* Chris Cheung and Chi-Pui Ng, *A Decade of Fruitful Network Asset Management in CLP Power*, CLP Power Hong Kong, published by The Woodhouse Partnership Ltd., 2010, p. 7.

“In recent years, Ausgrid has implemented new processes to improve the way in which we manage our assets and produce a better outcome. Ausgrid realized the importance of understanding the condition of its aging assets and the need to use this information to make future investment decisions. The implementation of the SAP Enterprise Asset Management solution was a cornerstone of our success. It became critical for Ausgrid to make a change within the organization to become a leader in asset management to solve many of the associated issues.”

John Hardwick, Executive Manager, Maintenance and Replacement Planning, Ausgrid

FOOTNOTES

1. Chris Cheung and Chi-Pui Ng, *A Decade of Fruitful Network Asset Management in CLP Power*, CLP Power Hong Kong, published by The Woodhouse Partnership Ltd., 2010.
2. Ibid, p. 4.
3. The Woodhouse Partnership Ltd. is an international authority on the management of industrial risk, asset performance, and lifecycle costs. www.twpl.com.
4. Chris Cheung and Chi-Pui Ng, *A Decade of Fruitful Network Asset Management in CLP Power*, CLP Power Hong Kong, published by The Woodhouse Partnership Ltd., 2010., p. 5.

Asset Management System Requirements (PAS 55 Chapter 4)

Applicability of SAP® solutions to PAS 55 requirements (may vary based on the PAS 55 maturity level of an organization and priority of asset management implementation topics)	4.1 General requirements	4.2 Asset management policy	4.3 Asset management strategy, objectives, and plans	4.4. Asset management enablers and controls	4.5 Implementation of asset management plans	4.6 Performance assessment and improvement	4.7 Management review
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Business processes and scenarios

Enterprise asset management solution	X	X	X	X	X	X	X
– Planning, building, and commissioning assets							
– Asset visibility and performance							
– Optimized asset operations and maintenance							
– Operational risk management							

Customer relationship management			X	X	X		X
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Financial management			X	X	X	X	X
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Human capital management			X	X	X		X
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Supplier relationship management			X	X	X	X	
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Supply chain management			X	X	X	X	
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Collaboration	X	X	X	X	X	X	X
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Business analytics

Business intelligence					X	X	X
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Data warehousing					X	X	
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Enterprise information management	X	X	X	X	X	X	X
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Enterprise performance management		X	X	X	X	X	X
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Governance, risk, and compliance		X	X	X	X	X	X
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Sustainability		X	X	X	X	X	X
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Technology

Application foundation and integration	X	X	X	X	X	X	X
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In-memory computing					X	X	X
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Mobility platform		X	X	X	X	X	X
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the 1990s, the number of people who have been employed in the public sector has increased in all countries. The increase has been particularly large in the United States, where the public sector has grown from 10.5% of the total workforce in 1970 to 17.5% in 1995. In the United Kingdom, the public sector has grown from 12.5% of the total workforce in 1970 to 20.5% in 1995.

The increase in the public sector has been driven by a number of factors. One of the most important is the growth of the welfare state. In many countries, the welfare state has expanded significantly since the 1970s, leading to a large increase in the number of public employees. Another factor is the growth of the public sector in the service economy. As the service economy has grown, the public sector has also grown, particularly in the areas of education, health care, and social services.

The increase in the public sector has also been driven by the growth of the public sector in the manufacturing sector. In many countries, the public sector has grown significantly in the manufacturing sector, particularly in the areas of defense, infrastructure, and transportation. This growth has been driven by a number of factors, including the growth of the public sector in the defense industry, the growth of the public sector in the infrastructure industry, and the growth of the public sector in the transportation industry.

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