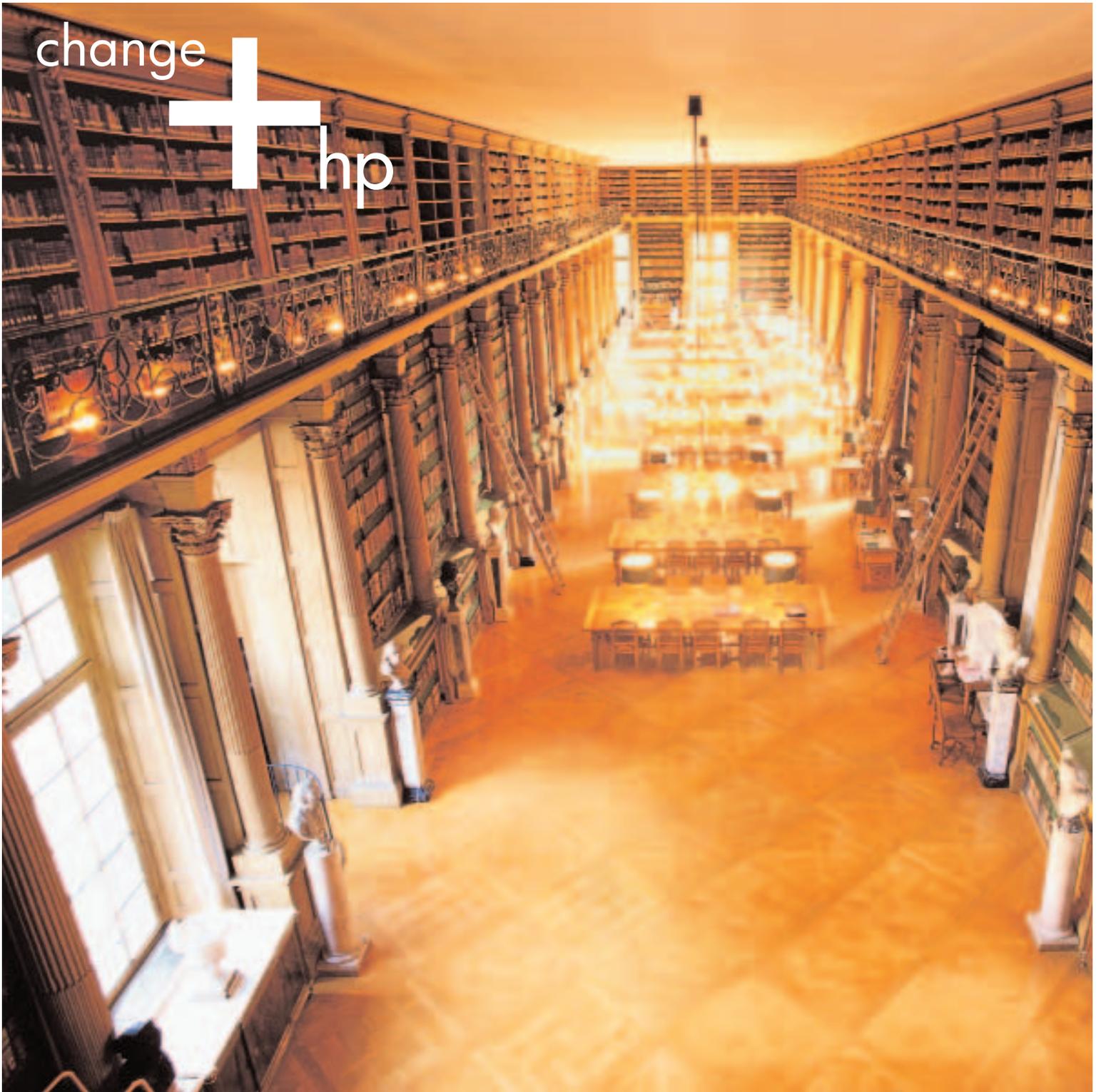


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HP Information Lifecycle Management

Putting information to work

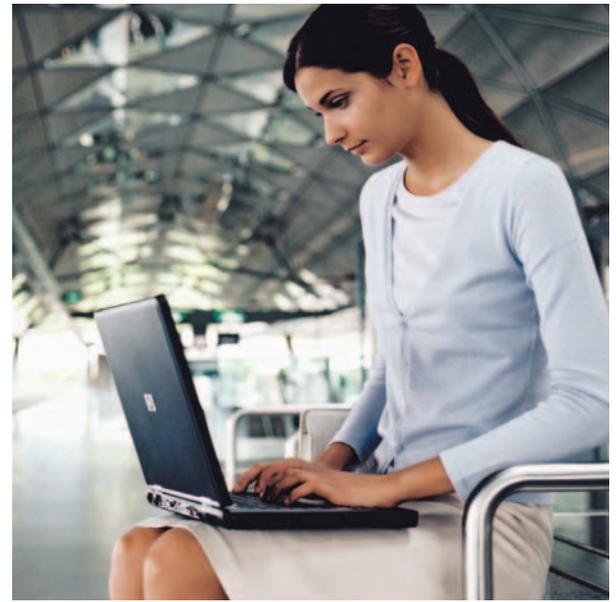
Solutions for the adaptive enterprise.



ILM solutions from HP solve the key management challenges that your company may be facing including cost of storage; scalability of storage; interoperability between different products, tools and utilities; data replication; data management; addressing organizational changes and growth; and adherence to various regulations.



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Introduction

Today, IT must empower CIOs and IT managers, giving them the capabilities to tackle seemingly unachievable mandates. Companies struggle with growing data stores and the challenges in managing these large pools of data. The volume of data is increasing at almost 80 percent per year and to keep up, IT must show a significant improvement in efficiency to maintain service levels. With this volume of data, you need to ensure that you can exploit and mine this data for information necessary in your business planning and decision making. Many organizations blindly add more storage to satisfy a storage challenge—this only adds more complexity to their IT infrastructure, resulting in increased management costs.

To prevail over these challenges requires a logical and proactive data management strategy. From data creation to removal, businesses must turn data into an asset—information. Data must be aligned with organizational needs, then placed and managed in the infrastructure based on its business relevance—this allows information to be accessible and easily located and retrieved when it is needed without loading and restoring tapes and other backup media that is not instantly available. As businesses struggle with expanding data stores, the need for Information Lifecycle Management (ILM) journey and enablers mark the next phase in storage evolution.

What is critical to your business is the ability to understand your data and turn it into valuable information so that you can make intelligent business decisions regarding quality of service (QoS) levels, placement and availability of that data.

The challenges

ILM solutions from HP solve the key management challenges that your company may be facing including cost of storage and storage management; scalability; interoperability between different applications, products, tools and utilities; data replication; data management; addressing organizational changes and growth; and adherence to various regulations. HP ILM solutions also help you align your applications, storage and policies—information is the common component across all of these aspects of your infrastructure, and this alignment will help turn your data into information.

Businesses today are presented with numerous challenges and are looking for new ways to solve key issues including:

- **Continuity in maintaining long-term access to data**
Business and regulatory requirements are making it necessary for many companies to provide access to data over potentially long periods of time. To accomplish this effectively, you need to find ways to implement efficient, cost-effective solutions for data protection, archiving and records retention as well as business continuity. One of the biggest challenges here is retrieving archived data that has outlived the application that created it or the storage media that it ran on.
- **Changing storage needs**
Effective data management is more than just establishing a policy for how your data is used and stored today. At regular intervals, you must reevaluate your data storage policies to ensure that different data types and their associated applications are used and stored in

accordance with your changing business needs. As your data ages, it will require different levels of storage. When data is first created it falls within the operational phase and is accessed regularly. It then moves into the transitional phase when the data is not accessed as frequently as it was upon creation. Finally, your data reaches the records retention phase where the data is accessed rarely. The user requirements for information change during these phases and, thus, the way the information is managed must change as well.

“Our HP storage solution is a key element in our evolution toward true information lifecycle management.”

– Jørgen Kjærlund, IT Manager, Atkins Danmark

For example, HP ILM solutions help those in the healthcare industry through the long-term archiving of medical images and documents to accelerate patient care, enabling collaboration across medical facilities, promoting knowledge-driven wellness solutions and helping healthcare institutions comply with regulations.

- **Controlling storage costs**

By keeping in mind the different storage needs of different types of data and having the flexibility to modify your storage management policies you will be able to help ensure that quality of service (QoS) levels are met, content is adequately archived and available to the appropriate users, and that storage resources are being used efficiently—thus controlling your total storage costs. This means that the storage being used for a particular data set are in line with the value that information brings to your organization—you do not want your most important legal documents archived on a server that does not have stringent security access levels, nor do you want information that must be accessed on a back-up tape in an off-site vault.

- **Compliance with legal requirements**

Your business needs to comply with changing regulatory requirements impacting electronic record keeping, and also needs to be able to produce documents and proof of process in the event of legal discovery. If your company is part of the heavily regulated industries such as financial services, insurance, healthcare, pharmaceuticals and government agencies, you must adhere to increasingly specific rules and regulations regarding the preservation of all records and communications, including e-mails and instant messaging.

HP ILM solutions help financial institutions address the records retention requirements such as SEC 17a-4, Basel II and other emerging regulations.

- **Controlling and managing increased data volume**

The reality is that data volumes are increasing more rapidly than your budget and resources can keep up with. This creates significant challenges for IT managers who need to maintain service level objectives such as performance, availability and recovery time—all while maintaining or even reducing management costs.

ILM solutions from HP can help you meet these challenges, as your business reaps the real-world benefits of Information Lifecycle Management.

What is ILM

ILM is a set of solutions and services to capture, manage, retain and deliver data and information according to its business relevance. ILM is more than just the technology that your data resides on; it is also the IT resources that establish data management and handling policies, from creation to deletion.

In our information-based economy, properly implemented ILM processes give you a competitive advantage. This means managing operational (changing) data differently than reference (static) data. HP ILM leverages existing data and IT assets, giving your organization's number one asset (its people) full access to your organization's number two asset (its information). ILM goes well beyond the traditional data storage needs of data backup, replication and the like. ILM begins to understand the value of the information and stores it based on policies—so, individual data files are stored and accessed based on their information value and business requirements.

Benefits of ILM

With Information Lifecycle Management, your users do not have to be concerned about where their data resides—it is transparent to them, they know that it is available when and where they need it.

ILM allows you to implement application-aware and policy-based solutions so that your application can access the data where it resides to ensure information is available to users as needed. This means that the data is stored appropriately based on your performance, availability, and cost objectives with the appropriate management policies associated with the data. This helps you ensure that your data is most effectively managed.



ILM provides benefits in the following areas of concern:

- **Data Management**—The growth of data has been well documented over the past few years. E-mail users are major consumers of storage capacity—it is estimated that by 2006 there will be more than 600 million corporate mailboxes in use worldwide, each generating an average of 8.6 MB of new data per day. Management of this increased volume of data is key for IT managers.

Storage management technologies, such as HP ILM solutions, help you make better decisions and maintain service level objects such as performance, availability and recovery time, while reducing management costs. The majority of the content that is managed at this level is your operational data that is used on a daily basis by various types of users.

- **Retention Management**—Many regulatory requirements impact electronic record keeping. Any company may be required to produce documentary evidence of e-mail communications in connection with a lawsuit. Companies need to efficiently manage their e-mail environment to ensure that e-mails are retained in alignment with appropriate legislation and that expired records are destroyed at the end of the required retention period.

One of the key compliance points is the ability to demonstrate that your data's integrity has not been compromised by storing it on non-tamperable media and being able to prove that it has not been tampered with. ILM solutions from HP can help you in this effort.

- **Information Leverage**—Your business relies on information as an asset to leverage for the most accurate decision making and business planning. Information stored in e-mails and its attachments can be seen as an extension of your company's knowledge and data assets.

In the future, it is predicted that companies will seek to extract maximum value from e-mail and other information assets by mining archives for valuable market intelligence and Customer Relationship Management (CRM). This need drives the requirement for powerful archive search tools and online accessibility. HP ILM solutions help you create a competitive advantage through transforming your data into information.

HP ILM solutions— putting information to work

The leap from data storage to information management might seem insurmountable. The reality is that it is a journey from where you are today to where you would ideally like to be. This journey is a series of logical steps—from wherever you are in this flow, you can map out the steps needed for you to reach the point of complete data control and business agility. HP's unique ILM approach means that for each data type you have to manage, you can design specific policies and procedures. Not all data requires that each step of the journey be completed, or that the steps be followed in a specific order. For example, if you have an issue with e-mail archiving, HP can help with an application-aware solution that will help address these unique needs without having to address all of the other data that you manage.

HP's ILM approach utilizes current, proven, reliable, extensible solutions and architectures. We take a solution approach rather than disjointedly combining management software and hardware components.



ILM is not just technology, cheap storage, “archive and forget” or another task for end users. ILM is about turning your data into information that can be put to work to reduce cost and generate new revenue streams. Only HP has the completeness of vision and the ability to deliver ILM solutions that fit your unique needs.

HP ILM solutions are enabled by innovative technology for all stages of the data lifecycle—capture, manage, retain, and deliver. This goes beyond storage and storage management to include business and application requirements such as electronic document management—for example a paper document is scanned on an HP Multi-Function Printer (MFP) and converted into a digital PDF file that is retained in accordance with the policies you have implemented in a searchable digital archive.

ILM is not a generic solution that is implemented across all companies in all industries. HP understands that your organization is unique and you have different needs and regulatory issues that you must adhere to. HP ILM solutions are aligned with the needs of your industry, and then tailored to your specific organization’s requirements.

HP’s approach to ILM encompasses:

- Actively manage data from creation to deletion.
- Treat data differently based on its business relevance in terms of availability, performance, recovery objectives and retention policies.
- Automate and enforce application-specific policies in alignment with business and application needs.

The ILM journey—a guide to implementation and investment protection

There are five main phases in the ILM journey—data discovery and classification, storage tiers, data movement by policy, continuous information availability and application-aware ILM. You could find yourself in any one of these phases or with some processes spread

across different phases. You may have challenges of database application costs and scalability or backup windows shrinking with data stores increasing, no matter what your starting point in the ILM journey you can be assured of investment protection with what you are implementing now fits into the overall ILM solution.

As you assess your ILM needs, you will most likely find that different parts of your organization and infrastructure are in different phases—and as you prepare your ILM plan, you will address different areas and needs of your business at different times. ILM is a journey, not a one-time major investment of capital and resources. HP has identified the following five phases of the ILM journey:

Phase 1—data discovery and classification

The data discovery and classification phase is where you understand what data you have (i.e., office documents, legal documents), what level of importance different data sets carry (i.e., MP3 music files should be deleted nightly, medical records should be properly archived, e-mails from the board of directors should be retained), you have an inventory of your data assets and you know how this data is classified. These pieces of information are critical in order to effectively manage your data. Then you will be able to identify whether you have any unnecessary duplication of data or if you have information that is out of date. This knowledge helps you make intelligent decisions about your data, thus empowering the IT group to fully understand what they have and what they need to do with it. By putting this knowledge into the hands of your IT department, they will be able to create effective policies to handle the data and efficiently manage your organization’s storage and information needs (i.e., financial spreadsheets should be stored on a particular tamperproof storage device, e-mail should be archived on a specific storage device and backed up nightly).



Phase 2—placing data into storage tiers

Placing your data into storage tiers is the next phase in the ILM journey. When you have completed this work you are on your way to creating policies for how to handle your data. Examples of different storage tiers are such things as online storage devices such as disk arrays or NAS devices containing operational data, low-cost disk systems utilizing Serial Advanced Technology Attachment (SATA) or HP's innovative hybrid Fibre Attached Technology Adapted (FATA) drives, active archive storage and tape backup storage. Each of these tiers will require a different policy around data handling, backup, recovery, retention periods and retrieval. Another benefit of tiered storage is the ability to take advantage of cost-effective storage. This means that you can place data that is rarely accessed on lower-end storage device than information that is accessed constantly and is critical to the daily workings of your business—that information is better suited to a more high-powered storage device.

Phase 3—policy-based data movement

Policy-based data movement is the next critical ILM phase. By fully understanding the data you have and how it needs to be managed, you can improve your QoS and reduce data management costs through automatic data migration—from use to archive—based on your policies and replicate data based on the needs you have determined. The higher the QoS, or usage needs, the more availability, performance and resources required from the infrastructure. As your data nears the end of its active lifecycle, these needs will decrease and your data will be handled differently.



Phase 4—ensure data availability

The next phase in the ILM journey is to ensure continuous data availability. The data is indexed and content can be searched. Your data is protected and secure within your system. In this way, your users can easily access information through fast search and retrieval. After this phase of the ILM journey, your data is optimized and archives are easily restored from the virtual tape. You only have a single reference store of your data that can be accessed independent of the application that created it. You can even search and retrieve related data created by different applications.

Phase 5—using application-aware ILM solutions

The final phase is having application-aware ILM solutions. This data created by specific applications is, for example, archived and can be accessed by the right people and is being managed within the policies that you create regarding your different types of data. These solutions address messaging, databases, ERP, CRM and medical images and more.

Integrated for optimized performance

ILM improves the speed of managing and retrieving data. Currently, numerous ILM technologies, tools and services are available. And, in the near future, HP will offer a complete and totally integrated ILM capability. One example of today's technologies is the HP StorageWorks Reference Information Storage System (RISS). This active-archive solution turns unstructured reference data into exploitable information and offers a tamper-proof architecture. It provides a single solution for managing growing corporate e-mails and attachments. And with the latest release, RISS v1.1, a new Software Developer's Kit (SDK's) allows other ILM applications to utilize RISS information platform through an open, standards-based

interface. RISS combines advanced indexing with a grid computing storage architecture. HP Reference Information Storage System delivers the most powerful search and retrieval capability in the industry using a “divide and conquer” approach. It scales in parallel, so by definition when you add capacity you also add processors, indexing and fault tolerance. These capabilities allow response times to remain the same whether searching through a thousand or a billion records.

“Because of the cost prior to [HP] RISS for restoring the data and searching the data in a much more manual approach using tapes, we only had to have one investigation a year for the product to pay for itself.”

– Steve Randich, Executive Vice President and CIO NASDAQ Stock Market

HP StorageWorks Reference Information Storage System solution uses storage smart cell technology based on HP StorageWorks Grid. Smart cells are responsible for storing, indexing and protecting your data and as additional smart cells are added, the system’s capacity as well as its processing power and content indexing capabilities increase. This means that as your archive grows, new storage smart cells can be added without interrupting your users.

HP Services

HP ILM solutions are supported by a full range of services. HP Services personnel are available to help you with many different aspects of your ILM journey. HP Services can help you with data and policy analysis, information policy design, compliance services, cost reduction services for your information environment, data reloading, scalability changes and help you gain control of and understand your data.

HP Services and its partners collaborate with you to provide industry-leading services that include business consulting and adaptive infrastructure integration. From analysis, design, integration, migration, support and education, HP Services offers you proven strategies to manage and evolve your entire IT infrastructure. HP Services is known for its industry-leading infrastructure solutions, mission critical and multi-vendor environment support built on a consulting methodology that recognizes there is no “one size fits all” solution.

HP Services is uniquely qualified to play a key role in the planning, implementation and support of an ILM solution that’s right for your business.

ILM for an Adaptive Enterprise

The HP ILM strategy delivers significant elements to the HP Adaptive Enterprise vision, building on key architectural elements. HP technology developments over the next several years will deliver the HP Adaptive Enterprise vision. The HP Adaptive Enterprise vision helps ensure that business and IT are synchronized to capitalize on change. HP ILM uses and refines intelligent infrastructure resources to produce real-time solutions to change. Amplified business agility is the object and ILM processes enhance, extend and link business processes and applications across the infrastructure.

HP simplifies IT change enabling business agility, lowering costs and providing the ability to take advantage of market opportunities. To reach this level of integration, we ensure the right data is in the right place at the right time. The purpose



of IT after all is to serve information to the business. IT must effectively place, move, protect and process information throughout its lifecycle to meet the needs of the business. As the value and relevance of information to business changes, ILM solutions help ensure that data is placed based on where it will deliver the most value to the business.

Lifecycle phases	Capture	Manage	Retain	Deliver
Information management actions	Input Create Convert	Process Backup Recover Protect Convert	Store Index Retrieve Archive Migrate Comply Protect	Share Distribute Format Present Print
Products in the HP ILM solution	Scanners Handhelds/PCs RFID Applications Workstations Digital cameras Sensors Digital ink	Software Servers Workstations	Arrays and NAS solutions Reference store Tape drives Optical drives Media	Printers FAX Ink Handhelds/PCs Web
Optional services as part of the HP ILM solution	HP ILM Services	HP ILM Services	HP ILM Services	HP ILM Services

Creating an ILM perspective

There is a mind-set that needs to be reset before the journey to Information Lifecycle Management can continue. It is a common misconception that data backup is the solution to information management. Data backups made to tape are typically stored off-site and are essentially obsolete when the next backup tape is created; and when archived data is needed, it is a labor intensive project to recover needed files from a backup tape. Records retention is the key to ILM. Records retention is the long-term retention of information, allowing users to access information and records quickly and efficiently as the system will know where to locate the files independent of the application that created them.

Many organizations attempt to solve their data storage problems by just adding more storage capacity to the applications servers—this only complicates the situation. You now have more infrastructure that needs to be managed, and still no processes in place with which to manage the data. You need to be able to get the data you need, understand what this information means and be able to put this information to use—immediately. When investigating an ILM solution, consider the following:

- It's not just a technology issue, it's about the business process.
- It's not simply a question of managing storage, it's about managing billions of unique records.
- Archiving is not about putting data away, it's about finding and retrieving the records needed in the shortest possible time.
- It's not about relying on users to file the "right" data, it's about enterprise-wide archive policies to store the records.
- It's not just about paying to store all of your data, it's about using the most cost effective storage option for each tier of your data.

Effective information management helps enable you to put your hands on the data you need within minutes, not weeks or months of going through years of backup tapes. HP ILM solutions make it easy to find data and turn it into information.

Steve Randich, Executive Vice President and CIO of NASDAQ Stock Market noted that, "The thing we liked about RISS is that it was a one-stop shop for us. The hardware, the software and everything comes as one package and is highly automated."

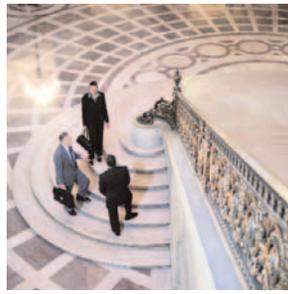
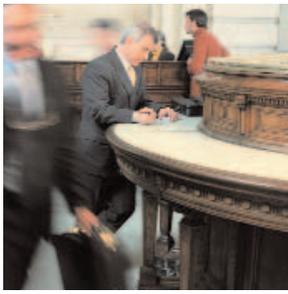
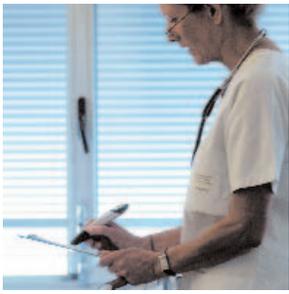
HP's end-to-end solutions

HP's innovative approach to ILM covers every phase of the lifecycle of information—so you can capture, manage, retain and deliver information according to its business relevance. HP's approach to ILM and our broad portfolio allow you to integrate end-to-end solutions helping you gain control and lower the cost of managing data through all the phases of the information lifecycle.

Addressing industry-specific needs

HP ILM solutions support industry standards and collaborations to produce best of breed, customized solutions. HP creates these solutions around standards-based technologies and leverages existing investments to provide the best ROI available.

Retention management, data management and reference information challenges are found in all industries and markets. HP ILM solutions are universal and can be developed and individualized to meet specific needs. Below are examples of HP ILM solutions in the financial services, healthcare, government/public sector, life sciences and other industries.



Financial services

Within the financial services arena, HP ILM solutions serve a wide variety of needs. HP-based Application Service Providers provide complete, single service for SEC/NASD compliance of e-mail retention regulations. This helps you eliminate infrastructure and staff investment costs for brokers and dealers.

HP can also assist you in addressing SEC/NASD, Basel II, and other financial services industry regulations with customer-managed systems. The HP StorageWorks Reference Information Storage System provides non-alterable e-mail archiving through a single appliance. You can also use HP hardware and services in combination with leading e-mail archiving partners to manage, store and retrieve e-mails.

HP ILM solutions help build strategies for managing long-term records, databases and documents. HP Consulting Services work with you to create an information lifecycle strategy to help ensure the proper balance between availability and cost and to help ensure you retain the right records for the right period of time. HP solutions offer a variety of options based on the service level requirements at each stage in your data's lifecycle.

Healthcare

HP ILM solutions address a number of concerns within the healthcare community. With the large number of healthcare organizations that now use digital imaging systems, the concern over long-term data storage and management is top of mind for many IT managers in this industry. Stringent regulatory guidelines govern much of this work, and some data files must be stored and accessible for decades. To this end, the HP Medical Archiving solution has been created to provide a cost-effective, scalable storage solution for diagnostic images.

Cost of data storage is a concern for records management executives in the healthcare industry. HP ILM and HP Medical Archiving solutions assist you in supplying affordable healthcare through the use of HP SAN solutions which deliver superior total cost of ownership (TCO). These products also help increase storage utilization and efficiencies. Hierarchical Storage Management (HSM) solutions allow for policy-based storage management decisions, lowering overall total costs by moving data to the appropriate storage device.

HP data protection software and services aid in ensuring medical record data is secure and yet available when it is needed. HIPAA and other governmental regulations strictly govern how records are kept and managed. With HP solutions, archived tape and optical storage help enable compliance with these regulations, where permanence is a factor. You can also be assured of reliable access to these medical records through the HSM solutions as these capabilities enable priorities to be set and data to be placed according to age relevance and other criteria that you set. HP collaborates with key healthcare application providers in helping to assure that configurations and products work together seamlessly within your environment.

HP ILM and HP Medical Archiving solutions facilitate better patient care. HP's online storage portfolio enables faster access and higher availability to patient data for quicker, more accurate diagnoses.

Government/public service agencies

Some of the challenges and objectives within government and public service agencies are different than those in other industries. While issues such as data security and efficient infrastructure are common across all industries, government and public sector must additionally manage shared collective memory and ensure transparency in their processes. Once again, HP ILM solutions are here to help.

How government and public sector agencies manage data is a detailed and complex activity. You must build, access and manage a central collective memory for a variety of future uses. You must comply with detailed records retention requirements, applicable to both paper and electronic archives. HP ILM solutions help you ensure efficient management of your data and adherence to regulations. These solutions assist you in preparing for future maintenance on documents with archives and eliminating risks associated with conversion and migration of documents.



HP ILM solutions facilitate use of your central archive to increase effectiveness and the quality of your decision making process. They assist in complying with privacy and security requirements and execute necessary procedures. These solutions help you offer transparency where required, both now and in the future.

Life sciences

Organizations within the life sciences industry are concerned about market timing, effective data management, cost structures, and knowledge management. HP ILM solutions assist in addressing these issues.

HP's reliable and highly available solutions minimize risk and keep projects running smoothly and on schedule. This helps you manage the speed and efficiency of taking your discovery to market.

HP ILM solutions aid in the effective management of explosive data demands. Managing your data effectively contributes to accelerated drug research cycles and development productivity. Streamlining the discovery process reverses past trends and can enable steady progress across your virtual research teams. HP ILM solutions also help you to adapt to change, allowing for better management of your growing data volume.

By implementing HP ILM solutions, you will be better able to contain your costs and manage your budgets. HP ILM solutions promote increased disk utilization across your storage infrastructure, resulting in lowered maintenance costs and allowing your IT resources to focus on more urgent issues. HP SAN storage devices ease management's burden, helping staff manage more data per project and support more project teams in a workday.

Efficient knowledge management is also key to those in the life science fields. HP ILM solutions assist in taking critical data and produce useful information, adding more value to your research efforts. You can remove redundant, sluggish tasks using high performing knowledge management systems. You will be able to document, extract and analyze your data more effectively. HP products power more Top 500 supercomputers than any other company, demonstrating confidence in HP solutions.

Other industries

HP also has solutions that meet the needs of manufacturing and telecommunications industries. Details on these solutions are available from your HP representative.

For more information

To read more about NASDAQ's ILM success story, go to <http://h18006.www1.hp.com/storage/casestudies>.

To learn more about how HP Information Lifecycle Management solutions can help you turn data into valuable information, please contact your HP representative or visit: www.hp.com/go/ilm.

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For more information go to www.hp.com/go/ilm

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