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Technological innovations, combined with globalisation, are shifting the balance of power in organisations.

Today, advancing a company's goals depends on CIO leadership.

Here are five top challenges.



1) Conquering enterprise amnesia



Is your company losing its memory?

A retailer discovers that of its 40,000 employees, some 200 are convicted shoplifters. A casino unwittingly hosts 24 active players who are known cheaters. A social services agency places a foster child in the home of a violent criminal.

In each case, the organisation had the relevant information. They just couldn't find it in their memory.

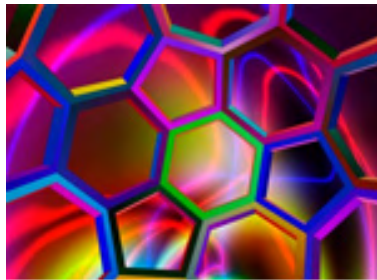
Today, businesses have more data than they know what to do with.

As data grows exponentially, it is stored in separate databases, with no connection or context. CIOs are turning to IBM Entity Analytics, the next generation in information management, to help cure enterprise "amnesia."

Here's how it works. A real time context engine receives and assembles new data into a profile. It compares newly received data to existing information to determine if there is any relevance and then publishes its findings to the user. As new data is added, context accumulates in the profile.

So now a CIO can help a bank or store or business know when a new customer walks in the door whether she is the daughter of its biggest client—or the wife of a known forger.

2) Enhancing agility with SOA



How fast can you change the way you do business?

It can take years for a CIO to implement a new business model, depending on how long it takes to apply changes to the underlying IT infrastructure. Today, with **service-oriented architecture (SOA)***, it can take just months.

Companies can change their business models on demand, to jump on market opportunities and fend off competitors.

Royal Caribbean, the second largest cruise company in the world, found SOA critical to its transformation from a cruise line to a company offering land-and-sea and land-only packages. They brought together five global brands, itineraries to 200 destinations and an application portfolio of 210 systems. SOA enabled integration among the companies and with external partners, helped to reduce costs through reuse of assets and accelerate turnaround.

As SOA adoption becomes more widespread, CIOs can anticipate:

- Their relationships with ISVs will change dramatically as monolithic legacy applications are replaced by composite services.
- A fundamental change in roles as complex business modeling moves from the hands of IT experts to managers using spread sheets, databases, etc.
- A demand for new hybrid business and technical SOA skills.

* **Service-oriented architecture (SOA)** is an architectural style where existing or new functionalities are grouped into atomic services. These services communicate with each other by passing data from one service to another, or by coordinating an activity between one or more services both inside and outside the company.

3) Energising your green plan



Save energy. Strengthen loyalty. Do the right thing.

Thinking green is one of the top technology trends for CIOs today. Yet, 77% of CIOs do not know what their energy bill is.¹ When you consider data centres can take up 6% of a company's floor space and use up 30% of the energy,² it becomes clear why it's up to the CIO to figure out their company's green strategy.

AISO.net, a Web hosting company, exemplifies what it means to be green. They use solar power to run their data centre and networks. Their office building, lighting and cooling were built with green technology. They are even designing a green roof—four inches of dirt seeded with drought-resistant plants, which is anticipated to reduce heating requirements by 50%.

So where does the average CIO start? The first step is to know your own infrastructure. IBM is helping businesses measure the energy usage of their data centres and identify hot spots. Then helping them to evaluate options such as server consolidation, virtualisation, power management software and liquid cooling solutions.

Going green is part of your company's social responsibility. It's about ethics. Strengthening employee and customer loyalty. Gaining credibility in new markets. Safeguarding your brand. It's about staying in the black.

1. InformationWeek, "The Cold Green Facts," September 2007

2. Based on IBM experience

4) Web 2.0: widgets, mashups and more



Mash up the information. Grab the opportunity.

To an average person, **Web 2.0*** is all about the socializing. To a CIO, Web 2.0 is all about the business.

One of the most exciting Web 2.0-based applications, **'mashups,'**** combine existing Web services and data from any source to create entirely new applications in minutes.

Mashups don't require a lot of technical expertise, changing the rules of the game. A non-technical user can pull information from the Web, and combine it—or "mash" it up—with data from her company, allowing for insights, scenarios and business models never before possible. All in a short time, at low cost. As a CIO, how do you manage these new and innumerable opportunities to the best advantage of your business?

AccuWeather® is using IBM mashup technology to deliver real time weather-related insights to its commercial clients. Weather data is delivered by

widgets,*** which companies can then mash with their own internal data to determine if they have the right inventory in the right location.

IBM and AccuWeather are also teaming with the Environmental Protection Agency to track potential bird flu outbreaks. Available knowledge on the transmission of the disease could be mashed together with climate data and wind and bird patterns to help predict where the Avian Flu could travel, allowing organisations to warn people early, activate preventive measures or transport vaccines to an area.

* **The next generation of the Web, or Web 2.0**, refers to the technologies that facilitate sharing of information and collaboration, such as social networking sites, bookmarking and RSS feeds.

** The term "**mashup**" comes from the hip-hop practice of mixing song samples.

*** A **widget** is third-party data that can be embedded in a Web page, often used for distribution of 'live' content.

5) Recasting the role of security and privacy



From reducing crime to increasing market power.

CIOs are rethinking their approach to the security and privacy challenge, evolving from a defensive, reactive mode [a breach occurs, the company reacts] into a proactive stance for improving efficiency and growth.

Several trends are reshaping the approach to this critical issue:

Convergence of physical and logical security

Today, physical and IT security data can be merged, analysed and acted upon in real time to help banks and other organisations reduce theft and fraud. Looked at from another angle, these same capabilities can be used to improve performance. For example, a retailer using digital video surveillance to reduce theft can use the data to optimise store layouts based on customer shopping patterns.

Managing the explosion of data

Doing business globally means enterprises are faced with the continuing explosion of business data and increasingly stringent regulations. Data resides on PDAs, laptops and servers all over the planet. Understanding where data is and who is accessing it is critical to any company that wants to expand its relationships and market reach. Regulatory compliance and data management, then, become enablers of global growth.

Identity as a key to growth

The same identity analytics that can help insulate companies from security threats can be used to highlight new customer opportunities, as well as manage increasingly complex databases.



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IBM Corporation

New Orchard Road, Armonk, New York 10504, USA