The Information Delivery Maturity Model

Computer Associates' business management strategy for the age of information overload

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SETTING THE SCENE

Industry pressures and information overload

There is no lack of information in the world. One analyst firm calculated that '…the amount of corporate data is doubling every 6 months. By 2002, enterprises will be consuming 1.4 million terabytes of storage annually, 12 times the amount consumed in 1998…' (IDC, 2000). IBM's internal research concurred, stating that by 1999 enterprise information storage reached one "exabyte," or 1 million terabytes (One terabyte is equivalent to 1 million 300-page books, or 400 hours of video.)

Initially, the sheer volume of information made available by internal information repositories, the Internet, and traditional media sources was deemed a great step forwards in the ability to access important information. Very quickly though, the initial benefits were surpassed by frustration as the sheer volume of information made finding and delivering exactly the *right information* harder and harder.

Some interesting statistics put the 'average' worker's problems into perspective:

- The average knowledge worker's time spent looking for information: **50%**
- The number of copies the average organization makes of each document: 19
- The number of hours spent recreating each lost document; 20%
- How often content is recreated rather than reused: **70% [1]**

Recent scandals in corporate America, whilst specific in nature, can essentially be classified in a relatively broad area concerning the following issues based around the nature of 'information and trust':

- Transparency and clarity;
- Availability and delivery;
- Compliance;
- Accountability;
- Audit;

The fall-out of these events is a renewed persual of all things stipulatory and regulatory, aimed at regaining the trust of those whose good faith was sorely tested.

Interestingly though, whilst this problem has indeed been acknowledged for some time, there has been a distinct lack of end-to-end solutions to deal with this issue. There is more to addressing and solving this problem than simply implementing a neatly categorized information repository within the organization.

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SOLUTION: AN INFORMATION MANAGEMENT AND DELIVERY STRATEGY

Given the points raised above, it is clear that the average enterprise has a need to address its own (*and potentially others in the future, given the rise of IT centric, collaborative relationships with partners and suppliers*) ability to deal with the sheer volume of information available, as well as its ability to organize, filter and deliver information to the right people when they need it, in a secure and reliable manner.

A secondary benefit of implementing such a strategy is that the enterprise can better control access to sensitive information, both in a viewing sense, as well as an 'ability to change' sense, which will provide additional benefits to enterprises that need to improve their internal processes regarding 'data trust'.

One of Datamonitor's primary viewpoints in the rapidly evolving eBusiness arena is that the incremental advantages of implementing eBusiness *applications* (such as ERP, CRM, SCM *et.al.*) in terms of creating differentiation and competitive advantage will be eroded once penetration reaches certain levels at the top end of the market (i.e., 'enterprise' – sized companies), and that forwards-thinking companies will therefore need to readdress their strategies to maintain the lead they have strived to develop over the last few years by investing in eBusiness / Internet related technology solutions.

Indeed, Datamonitor's viewpoint is that whilst application software can assist companies in *doing* business, the next level of competitive advantage will be increasingly derived from pursuing a **management-centric strategy**. By this, Datamonitor means that businesses will need to promote management of IT assets to the forefront of ongoing strategies in order to extract maximum ROA (return on assets) and be able to define and monitor IT performance through application of rules and expectations which are business, not IT led.

This management-centric approach has two primary advantages:

- Answers the '*how well?*' question in addition to simply *doing* business;
- Provides a sound basis for supporting the shift to service orientated business processes and IT consumption, which, by their nature, dictate a significant level of management capability.

Critically, in order to be able to gain visibility into one's business processes, or sub segments thereof, the primary support mechanism for this is the enterprise's ability to capture, store, manipulate, filter and deliver such information to the relevant consumer.

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Thus, our initial conclusion is that **an information management and delivery strategy** must be given high priority so that users can perform at an optimum level in their roles, whilst the underlying IT infrastructure provides the ability to access and utilize the inevitable increases in data volumes that are inherent in an all-encompassing, management-centric business strategy.

Thus, we have two compelling reasons for acknowledging the importance of an information management and delivery solution:

1. To allow users to securely access role-based, directly relevant information in order to make better business decisions and function more efficiently in their roles, and;

2. To afford the ability to capture, filter and deliver the increasing volumes of business and IT related data that will be produced as companies move ever closer to a services-orientated business model.

THE CA APPROACH: THE INFORMATION DELIVERY MATURITY MODEL (IDMM)

IDMM basics

The IDMM describes the level of ability that an organization has to store, deliver and utilize information. Underpinning this is the CA CleverPath family of solutions that in various combinations form the software infrastructure that the IDMM describes.

The model provides a basis for addressing the challenges and opportunities surrounding knowledge delivery within an organization, and for identifying key requirements and tools to improve the levels of information access, relevancy, and analysis.

Figure 1 illustrates a top-level view of the IDMM. Note that it is easy to recognize one's own departmental or company-wide abilities regarding information delivery. At this level, the IDMM's simplicity and accessibility is a key feature.

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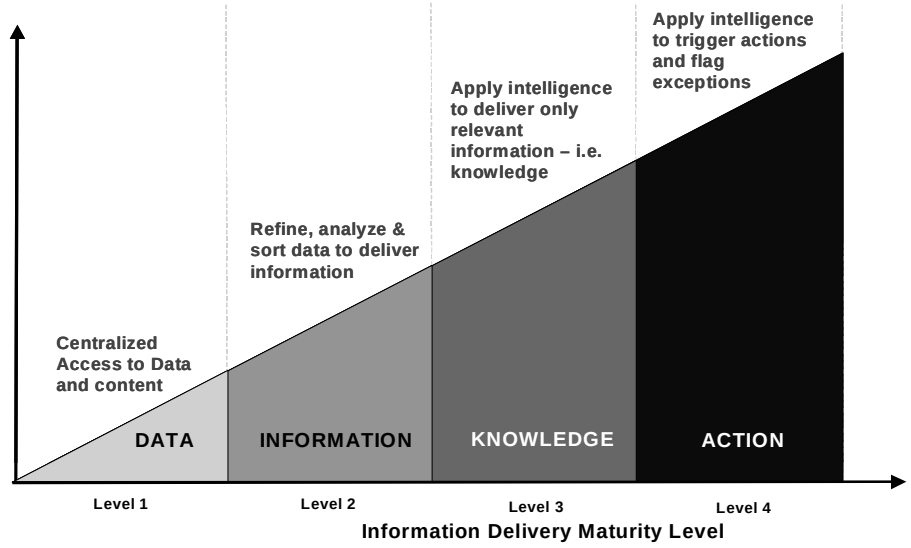
Figure 1: The information delivery maturity model



Source: CA

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Level 1: Centralized Access to Data

Level 1 concerns centralizing access to data, or raw material. This can include both structured and unstructured data, database output/access, documents, spreadsheets, slide shows, text files, PDFs, digital content, graphics, bitmaps, etc.

Prior to reaching Level 1, organizations and people can be:

- 'drowning' in data;
- wasting time accessing data;
- feeling they 'don't know what's going on with their business';
- unable to access business data without relying on IT or volumes of hard copy.

It is fair to state that many companies across all size bands are either at or below this level of information management and delivery capability. This will not be much of a surprise to the reader, as information management has historically been handled at a departmental level at best. Evolving business practices, multidisciplinary teams and extended business processes dictate that this mantra be changed.

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Level 2: Trustworthy Information

Once organizations attain centralized access to data, they have a need for more: access to, and use of objective, trustworthy and usable information.

Prior to Level 2, organizations and people:

- Have access to a glut of data, but need to make it useful and relevant.
- Have multiple versions, but don't know which is the 'right 'one
- Don't know who, or from which systems, data has come from
- Don't know when was it created

Level 3: Relevant Information As Knowledge

Once the organization has trustworthy information from known sources the next challenge is to apply rules and predictive analysis to make data relevant to individual needs. Each executive needs *intelligence*.

Level 3 addresses the issues of:

- Delivering only knowledge that is relevant to an individual's area of responsibility
- Applying patterns of personal experience to information
- Explaining why patterns exist in the data

Level 4: Intelligent Action

An organization that is able to deliver relevant information has empowered its decision-makers with the right information. But decisions are still made on a case-by-case basis, no matter how routine or how often the same conditions result in the same decision.

The decision-maker spends time making similar decisions repetitively and spending time taking the same actions. Level 4 applies predictive and rules technologies to automate routine decisions, enabling executives to spend time handling exceptions and non-routine issues.

Level 4 provides answers to the questions:

- How can knowledge be interpreted?
- How can I make changes to my business to take advantage of what I know?
- How can I automate these changes?

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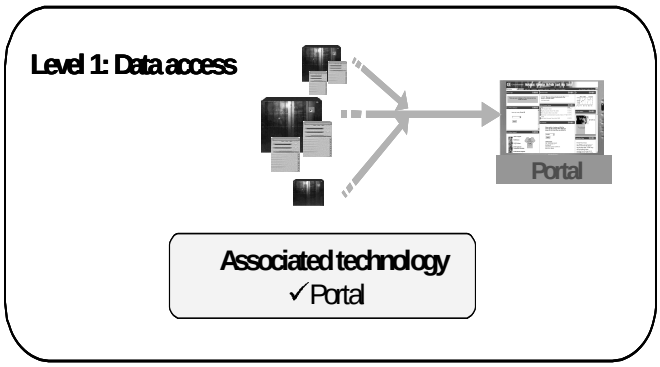

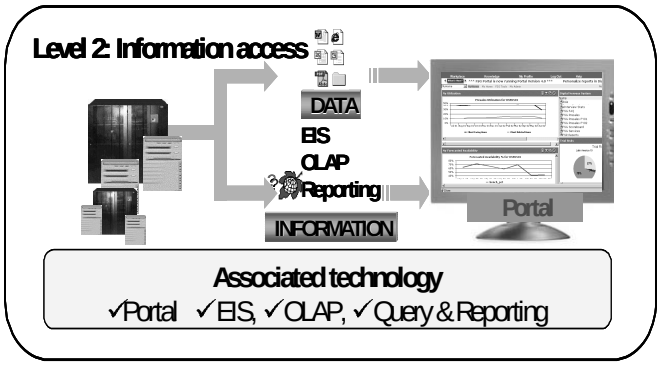

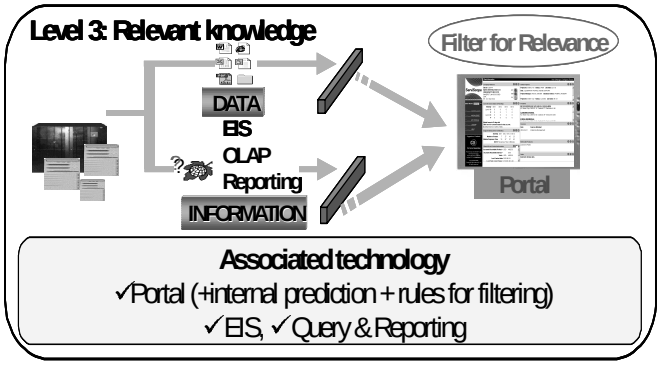

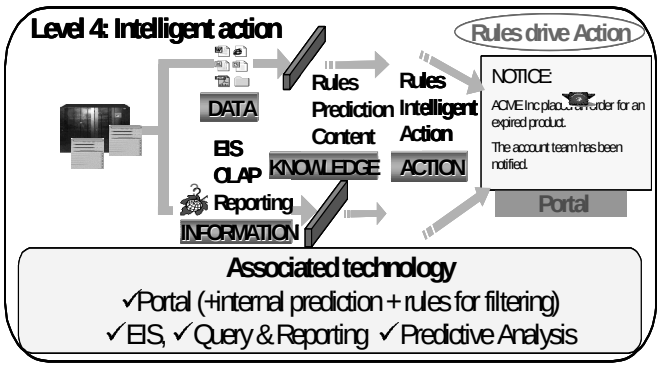

Associated technology strategy

At Level 1, portal and related content management and collaboration technologies centralize delivery and access to a broad range of data, content, and applications through a web or wireless interface that can be personalized to each user's requirements and preferences.

At Level 2, reporting, OLAP and digital dashboards are added to portal and content management technologies to provide the ability to refine, analyze and sort data, to deliver trustworthy information and support critical decision-making.

At Level 3, rules-engines and predictive analysis capabilities are added to drive the delivery of relevant knowledge to the user.

At Level 4, rules-engines and predictive analysis capabilities automate repetitive actions and flag exceptions.

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Looking forwards

Datamonitor expects to see CA develop the IDMM strategy further in several areas:

- To increase exposure and understanding of the IDMM though educational activities,
- To provide further depth and solidity to the IDMM by introducing strategy and implementation roadmaps which provide a clear and fast pathway to subsequent levels within the IDMM

Why the IDMM now?

Datamonitor's view is that a good measure of the likely success of a concept, product or solution lies within the original reason for creating it in the first place. In the wider eBusiness arena, the number of failed start-ups is incredibly high. A primary reason for this is not to do with the validity of an idea or product, but simply that the market at large didn't need it *at the time*. Given the relative immaturity of eBusiness in general (by this we mean number of SW licenses sold versus the total number of companies in the world and *not* the amount of time we have all been discussing it, or trying to sell it), there is only so much 'vendor push' that a market will take, particularly when attempts at large scale implementations of ERP, CRM, SCM *et.al.* have proven problematic for many hopeful enterprises over the last few years.

Indeed, we maintain that a strong factor in the likely success of any new solution is a direct factor of the effort that has been applied *up front* by the vendor to ascertain that there is indeed a market demand for it.

'Designing for the market, not marketing a design'

It is with this point of view in mind that CA created its IDMM strategy and product set. Partially in response to customer feedback and demand, and partially to differentiate itself from an apparent lack of impetus from other vendors circling this area of the wider eBusiness software market.

Additionally, the IDMM lends itself very well to step-wise, incremental investment over a period of time. It is not a 'big bang' approach, and thus suits the nature of current market trends regarding IT investment. The modular nature of the concept, and the ease of integration between the products that combine to provide the functionality that corresponds to the higher IDMM levels means that it is possible to start off 'small' and follow an incremental pathway when the user grows accustomed to enhanced information functionality and is ready to move to the next level.

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The modular nature of the IDMM also dictates an evolutionary, rather than a revolutionary, approach to information delivery growth. The open architecture, support for new and emerging standards ensures that the IDMM can fit in with existing infrastructure and applications, whether packaged, developed in-house, or a combination of both.

Parallels between the IDMM and the CMM-SW

In Datamonitor's view, parallels between the IDMM and the long standing Capability Maturity Model for Software (CMM-SW) developed by Carnegie Mellon University Software Engineering Institute**[2]** can be drawn, in that each forms the basis of:

- A quantitative and qualitative framework for benchmarking specific levels of capability;
- Activities and investment required to reach the next level of capability. [3]

CASE STUDY: CA TAKES ITS OWN MEDICINE

This section focuses on CA's internal implementation of the IDMM. The author felt that illustrating CA's own experience would provide the best possible endorsement of the concept.

The management and staff of CA's CleverPath brand unit needed to improve and streamline information access from data and applications residing in at least 15 different data sources on platforms ranging from mainframe to UNIX to Windows.

The CleverPath team used CleverPath solutions to develop and deliver the Brand Unit's **Insight** system providing:

- Centralized access to data, content and applications
- A customizable interface accessible through a standard Web browser or any wireless device.
- Reporting, OLAP and digital dashboard technologies to refine, analyze, and sort data.
- Delivery of accurate and relevant knowledge at both user and group levels.

Solution implementation time was **one month**, and constituted an **IDMM level 3** implementation.

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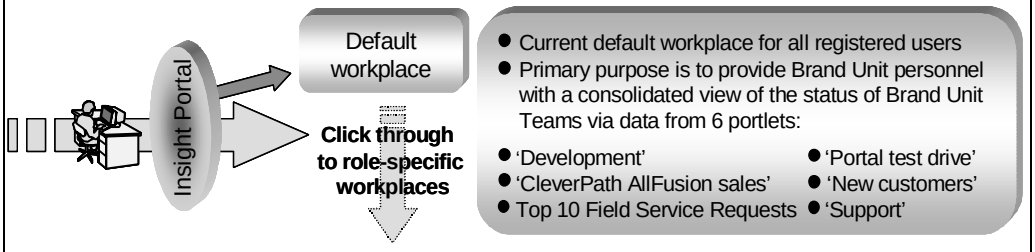
Insight project deliverables

The "Main" workplace is the current default workplace for all registered users of the system. It serves two purposes. Primarily, it provides Brand Unit personnel with a consolidated view of the status of the Brand Unit teams. Each teams' activities are represented in one of the workplace's portlets. The 'Main' workplace is also used by senior Brand Unit Executives in order to communicate the Brand Unit's status to other senior corporate executives.

Figure 2: Insight Portal Workplaces



Development workplace: used to track the status of CleverPath and AllFusion development activities

Marketing workplace: used by the Brand Unit Marketing Team to supply critical marketing information to members of the Brand Unit

Support workplace: contains information used by the Brand Unit Level 2 Support Team in order to provide top quality support to clients of the Brand Unit

SWAT workplace: The 'SWAT' workplace displays information regarding the Brand Unit's Research and Development SWAT Team. This workplace was a new development at time of writing

Finance workplace: contains information related to the Brand Unit's finances. It contains budget and expense information as well as information regarding sales forecasts and new product licenses.

Field workplace: contains information related to Computer Associates' Field Services Group (FSG). Future applications will be developed to enable Brand Unit personnel to evaluate activities

Source: CA / Datamonitor

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Role-based access allows specific team members access to the wider information and functionality captured within the subsequent workplaces as illustrated in figure 2.

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Clarification – why does Insight constitute a level 3 implementaiton of the IDMM?

- Insight uses the portal as the user interface
- It uses business intelligence and reporting functionality to deliver relevant knowledge to individual users based on the default workploace, and which other workplaces they choose to display.
- Prediction and rules funcitonality is utilized to make judgements about which projects are behind, which deals are likely to close, which financial projections are 'on-target' and which are falling behind, etc.

Business Benefits

Internal working practices have been transformed. Instead of spending time searching for information or manually updating and summarizing paper lists and timelines, staff and management now sign in to Insight to automatically access current, accurate, relevant, and personalized information.

Since Insight went live in 2002 the Brand Unit estimate the following benefits have been realized;

- Reduced time to service internal stakeholders;
- Reduced time to respond to field sales team enquires;
- Better prediction of high-demand pre-sales areas results in more training and preparation for staff in these areas
- Faster report generation for internal business unit performance reviews in the areas of sales, licensing, marketing initiatives;

The unit, having achieved a **level 3** implementation of CA's IDMM, can confidently use this information to run its businesses, supporting decisive decision-making and productive and practical business action.

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CONCLUSION AND ACTION POINTS

Summary

Datamonitor believes that the IDMM is unique in the industry, and represents a step forward in an area that has been somewhat overshadowed by other, higher profile developments in the eBusiness arena over the last few years.

The difficulties inherent in organizing, filtering and delivering business information have become increasingly apparent over the last few years. Computer Associates has differentiated itself from the market by creating a logical, stepwise pathway for users to follow.

The creation of the IDMM makes sense at a number of different levels:

- **Provides an incremental pathway to the goal** – being the enterprise and individual's ability to function at a higher level of efficiency by optimizing and utilizing information assets to the highest degree;
- **Acknowledges that there are several different 'states'** that an enterprise's information capabilities lie within, and provides appropriate starting points regardless of a company's relative advancement or current status;
- **Provides a benchmarking framework** for companies to measure themselves against in term of information intelligence delivery, and ultimately, return on assets;
- **Acknowledges that IT spending patterns have changed** and companies are looking for faster, incremental gains rather than 'big bang' solutions from IT vendors

Action points for users

Actionable points that arise due to the existence of the IDMM are simple, now that a coherent and logical way to approach the 'information overload' problem has been created.

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A learning process:

Internal assessment of information delivery capabilities: Utilize IDMM levels and associated abilities to create internal understanding of both current abilities and desired abilities

Relevant elements include:

Data integration – Can I actually get information from one place to another, in context?

Delivery – Can I deliver information to the right people based on their role-profile?

Filtering – Can I deliver the **right** information to the **right** people at the **right** time?

Intelligence – Does my underlying IT department 'understand' what constitutes the difference between 'must have', 'need to know' and 'nice to know' information?

Next steps:

The next step is to approach the vendor community for advice from a technical and product point of view. An important reason for the failure of many eBusiness projects over the last few years has been the lack of 'pre-deployment' knowledge held by the user – it is vital that the user has as much knowledge as possible about current abilities – taking time to assess internal metrics means that there is a clear starting point from which improvements can be measured post implementation to assess the benefits of the investment over a given time scale.

There are many vendors to choose from. Datamonitor does not give product or vendor recommendations, but its independent positioning allows it to comment on the validity of vendor positioning and strategy.

Datamonitor believes that the IDMM concept and associated product array addresses an important area of enterprise IT investment and one which can provide significant returns once a company has thoroughly assessed its capabilities and its future requirements.

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References

[1] *Capture Images, Capture Savings*. Integrated Solutions Magazine, December 2002

[2] The Capability Maturity Model for Software describes the principles and practices underlying software process maturity and is intended to help software organizations improve the maturity of their software processes in terms of an evolutionary path from ad hoc, chaotic processes to mature, disciplined software processes. The CMM is organized into five maturity levels:

1) Initial. The software process is characterized as ad hoc, and occasionally even chaotic. Few processes are defined, and success depends on individual effort and heroics.

2) Repeatable. Basic project management processes are established to track cost, schedule, and functionality. The necessary process discipline is in place to repeat earlier successes on projects with similar applications.

3) Defined. The software process for both management and engineering activities is documented, standardized, and integrated into a standard software process for the organization. All projects use an approved, tailored version of the organization's standard software process for developing and maintaining software.

4) Managed. Detailed measures of the software process and product quality are collected. Both the software process and products are quantitatively understood and controlled.

5) Optimizing. Continuous process improvement is enabled by quantitative feedback from the process and from piloting innovative ideas and technologies.

[Source: http://www.sei.cmu.edu/cmm/cmm.sum.html]

[3] We acknowledge that CA's IDMM and the CMM-SW differ significantly in terms of the underlying quantitative methodology contained within the CMM-SW, which the IDMM does not contain at this time. However, both models assess current and future status.

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