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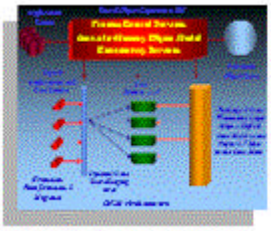

DKMS Briefs

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DKMS Brief No. Ten: Benefits of Enterprise Information Portals and Corporate Goals

Enterprise Innovation and Justification

We live in a time of wave-upon-wave of innovation in Information Technology: Client/server Systems, Distributed Object Technology, Data Warehousing, Work Flow Systems, Document Management, Groupware Systems, ERP and packaged applications, Enterprise Application Integration (EAI). The game of introducing each succeeding wave always follows a similar pattern. The new innovation first appeals to "innovators" –the technology enthusiasts. Next, it is adopted by visionaries -– the "early adopters"-- who believe it will produce substantial competitive advantages for them. But then it becomes necessary to persuade "pragmatists" to use the new technology. At that stage of the technology adoption process, the pressure is on information technology vendors to demonstrate the benefits of their new innovation, calculate its costs, and show that the ratio of benefits to costs is favorable enough to make the pragmatists want the innovation. "What will it do for our bottom line?" becomes the critical question in deciding whether to go ahead with an IT innovation.

In this respect, the introduction of the Enterprise Information Portal (EIP) is no different from other waves of IT innovation. The benefits of adopting EIPs are already being widely claimed, even though the EIP wave has hardly touched the pragmatist shore. How justifiable are these claims of EIP benefits? That is the question I try to answer in this paper.

EIP Benefits

Even though the EIP field is very young, many benefits are already being claimed for EIPs. As we review the main benefits, the relevant question about each claimed benefit is whether the arguments supporting it describe a tight coupling of EIP effects to corporate goals, or whether the connections drawn between EIPs and benefits are still largely speculative and hypothetical.

Competitive Advantage

The argument for competitive advantage begins with the idea that valuable information is currently still locked

away in disparate, mal-integrated corporate data stores. Corporations that can get at it will have a competitive advantage because they have access to timely and accurate information on marketing, performance, customer relationships and in other areas. In addition, having this information will allow them to develop better forecasts, to adapt faster to changes (be more agile), and to provide better support for decisions than their competition. The key to getting such information, and the attendant competitive advantages, is said to be EIP software. Why? Because EIP software combines and integrates internal and external information, and standardizes, indexes, analyzes, publishes, and distributes all the information needed in a user's job role. So, the user's job performance is affected, and specifically the efficiency, quality, effectiveness and net benefit and cost of the user's job performance is upgraded. Insofar as part of the user's job is to cooperate with others in the enterprise, the performance of the tasks the user participates in will be upgraded; and so on up the business process hierarchy, until business processes show an increase in efficiency, quality, effectiveness, and net benefit.

While this argument is very plausible, its plausibility comes from its abstractness and its generality. In many corporations information may no longer be locked away. It may be available through relatively new ERP or data warehousing applications. It may be managed and published and distributed by content management applications. It may be analyzed by business intelligence applications. That is, previous corporate investments in new IT systems, may already have enhanced the competitiveness of many corporations.

That doesn't mean that an EIP application may not further enhance competitiveness by providing improved access to data stores. But it is to recognize that arguments based on "locked-up" data stores may not carry as much weight now as they did a few years ago at the beginning of the data warehousing boom. It also doesn't mean that the new integration offered by EIPs does not enhance competitiveness. It almost certainly does. But it is important to begin to ask whether the amount of enhanced competitiveness expected is due to the EIP, or due to DW, content management, or BI components that can exist and be implemented without an EIP application. If the latter, an objective analysis of benefits and costs would need to take into account the competitive advantage available from such existing, or, at least separately implementable, applications. Then the marginal improvement from installing an EIP could be analyzed and forecasted, and a better basis would exist for any EIP build or buy decision.

In other words, to establish competitive advantage as a benefit in any concrete instance of corporate decision making about implementing an EIP, an analysis is needed that assesses specific EIP and other IT alternatives comparatively from a benefit/cost viewpoint. This kind of analysis of the benefits of EIPs is not currently being provided. Instead, more general claims about comparative advantage are made. They rely for their plausibility on the fact that an EIP is a composite of a number of applications, and that it therefore must bring to the EIP table previously established justifications for Data Warehouses, Content Managers, and ERP-based DSS applications. To go further though, and to provide an EIP justification based on competitive advantage, arguments are necessary that will compare software alternatives, trace both EIP and alternative capabilities through the impact they make on various business processes, goals, and objectives, and finally translate any differences in impact on goals and objectives into differences in benefits and costs produced by the alternatives.

Increased ROI

Another frequently mentioned benefit of EIPs is that they increase Return on Investment (ROI). The argument here, is that packaged EIP applications should produce higher ROI than other IT applications for the following reasons. First, packaged applications are less expensive than customized systems. Second, packaged applications contain functionality specific to particular industry vertical markets. Third, packaged applications are easier to maintain. And fourth, they are faster to deploy.

While it is hard to argue the point that packaged applications may produce ROI benefits, they also may not necessarily be associated with EIP solutions. While EIPs may be focused on packaged vertical applications, they also may not. It depends on the particular EIP project being implemented. Secondly, the adoption of

packaged applications is a general trend in IT. There is no exclusivity for EIP applications in participating in this trend. Packaged DSS, or Content Management, or ERP applications may be offered and implemented outside of an EIP framework. So if a corporation is considering a packaged application implementation, it will need to choose between those within and external to an EIP framework, and it will need to face the question of the marginal improvement in ROI forecasted in case of EIP implementation.

Another problem with the ROI argument rests with claim that packaged applications are easier to maintain than custom applications. While certainly this is true for each individual packaged application, is a system of packaged applications easier to maintain if the goal is enterprise application integration? Not necessarily, as the history of attempts to integrate SAP and other ERP packaged applications in a broader enterprise framework seems to show. Packaged applications can too easily become stovepipes representing differing and incompatible definitions of the same critical concepts and differing business models.

One of the advantages of implementing packaged applications in an EIP framework may prove to be the tighter coupling of applications provided by an EIP solution. But tighter integration is problematic and depends on EIP architecture. Front-end integration involving mere placement of different packaged applications on the portal screen, and the portal's ability to aggregate content from different applications is unlikely to offer a great increase in ROI over stand-alone, non-portal packaged application implementations. So again, we come back to the central problem of demonstrating the marginal improvement in ROI in a specific EIP implementation compared to stand-alone packaged application alternatives.

Increased Employee Productivity

This argument refers to productivity in the very narrow sense of improving the cycle time involved in information gathering. One version of the argument is that if users now spend x amount of time surfing the web to gain information, they can be expected to spend x-y amount of time getting the same amount of information when they use a portal. If we multiply y times the number of employees in an organization, we have the gross amount of time saved by the portal, which, of course, can easily be converted to a benefit in dollars.

This sounds like the simplest and most straightforward argument for realizing a benefit from an EIP. However, even it is not so easy to demonstrate, and requires empirical studies to gauge the effects of portal introduction. The portal may speed up cycle time and therefore produce increased efficiency, but whether that really produces a benefit in dollars depends on whether the time freed up is used for a productive purpose in the broad sense of the term. If the portal saves 15 minutes of surf time per employee per person day that won't translate into actual savings unless the 15 minutes gained contributes to quality, effectiveness, and net benefit. And this requires more precise analysis to establish.

Increased Effectiveness

The claim of increased effectiveness is based on the idea that portals not only make available new information to users that was not available before, but also provide that information in an integrated and personalized way. Integration and personalization focus information on the job role of the user, and therefore lead to improved job performance, and eventually to a more knowledgeable and effective organization.

Here is another plausible argument requiring further analysis and demonstration. First, because we don't know yet whether portals provide enough of an increased focus to increase effectiveness. And second, because we don't know whether the increased actual exposure to information provided by portals may have the negative effect of further diffusing employee attention away from job roles. To explore these questions, once again, empirical analysis accompanied by explicit modeling is needed.

Decreased Cost of Information

The benefit of decreased cost of information is a consequence of both web-based publishing and the automated character of portals. For companies that still distribute information on paper, portals promise big savings. For companies already involved in web publishing, portals offer the possibility of saving on web administration personnel costs.

The savings inherent in delivering information over the web are not exclusive to the portal alternative. This benefit applies to any web-based publishing application. The savings from web administration are an unambiguous benefit of EIPs, but are clearly only a small part of any justification for EIP applications.

Increased Collaboration

One of the most important benefits of EIPs may be increased collaboration within the enterprise. In effect, increased collaboration translates to more sustained common effort to accomplish corporate goals and to greater social integration of corporate environments, especially across departmental and geographic barriers. Insofar as one of the major problems of modern decentralized enterprises is fragmentation and isolation of its components, collaboration through portal structures could provide a powerful antidote.

Having made the positive case however, it's important to note that collaboration across formal boundaries can also have the effect of lessening integration within an organization's formal structures. While this often is an effect to be welcomed, it is not always and everywhere advantageous. The truth is that increased opportunity for collaboration is not always an unmixed blessing, and careful analysis is also needed here in order to validate this prospective benefit for any concrete business contemplating an EIP.

Universal Access to Enterprise Resources

A particularly attractive appeal of EIPs is their promise to provide universal access to enterprise information and knowledge resources. The cost-effectiveness of the Internet as the foundation for such access is the key point. It is finally possible to use both "push" and "pull" technologies to ensure that users have the right information available to them at the right time and at the right price (for the enterprise).

The appeal of this argument rests on a few assumptions. The first is that the Internet requires a universal portal if it is to provide this advantage. Clearly this is not the case. A series of web applications not integrated into a portal could also provide such access. The question is the marginal benefit provided by the portal, not the benefit provided by universal access, which might be delivered without a portal.

The second is that it is also assumed that universal access to information is itself a benefit. But many argue that we currently have an information glut. And that mere access to information is not a benefit. Portals can organize this glut in such a way as to bring it under control, but this power of organization is clearly a function of individual portals, with specific architectures, implemented in specific situations, having an impact on specific business processes, tasks and job roles. It is not a general benefit of all portals. In particular, the best way to alleviate an information glut, is to synthesize information and to produce new knowledge. Knowledge production however, may or may not be effectively supported by a particular EIP implementation. If it is not, the universal access to information provided by an EIP can carry with it costs (side effects) as well as benefits.

A Unified, Dynamically Integrated and Maintained View of Enterprise Data and Information

Another attractive benefit claimed for EIPs is that they produce a common view of data and information in the enterprise. The common view is justified by pointing to a number of favorable assumed consequences First, the existence of such an enterprise view may have a positive impact on the education, socialization, and integration of new employees in a corporation. Second, widely distributed employees are presented with the same view of information wherever they work for a company in the world. This helps them to identify with the company and to feel a part of it. Third, the existence and availability of the common view helps employees share information,

and cuts down dependency on a few key employees for information. Fourth, since the common view contributes to the education of new employees, it also empowers them to more easily deal with and handle the increasing complexity of the products being produced by the most sophisticated companies. And fifth, since the common view is dynamically maintained and integrated, and also comprehensive, it is an aid to competitive intelligence in the business, and helps support more effective selling and customer service.

These consequences of the common view provide some strong benefit claims for proponents of EIPs. But there are still problems with the argument. First, the common view of an enterprise need not be created and maintained by an EIP. In fact at present, commercial EIPs would be hard-pressed to create a truly integrated common view of the enterprise, in contrast to a superficial common view represented by icons on a portal desktop. Other applications such as web-enabled distributed data warehouses, integrated ERP applications with a common ERP backbone, and document management applications with an object model of content running on an application server, may be much closer to providing a common view than many EIP solutions.

Second, all of the favorable consequences of the common view are plausible in theory, but they are vaguely stated and have not been subject to study and to confirmation. Intuitively, we believe a common view of the enterprise produced by an EIP will deliver the above benefits. But to what degree in absolute terms and in comparison to competing applications like DW, Content Management, and ERP?

Conclusion

How are the various claimed EIP benefits just discussed related to corporate goals, business processes, and to IT applications? Most discussions of EIP and, for that matter, of benefits of other software alternatives, are not tightly coupled to corporate goals and business processes. In the literature on EIPs, the discussion of benefits thus far has not approached a systematic analysis of corporate goals, objectives and benefits in the context of IT alternatives, including EIP.

Instead the tenor of the discussion is illustrated by the arguments I reviewed. There is a listing of envisioned outcomes or effects of the introduction of EIP software in an ad hoc manner. And an assertion that these outcomes are unequivocal benefits. The approach is basically intuitive rather than analytical, and it doesn't clarify the relationship of the claimed or envisioned outcomes to corporate goals or business processes. We can and should do better than that in providing justifications for EIP projects.

This DKMS Brief is an excerpt from a longer forthcoming report (available for purchase from EIS) entitled "Approaching Enterprise Information Portals."

Biography

Joseph M. Firestone is an independent Information Technology consultant working in the areas of Decision Support (especially Enterprise Knowledge Portals, Data Warehouses/Data Marts, and Data Mining), Knowledge Management, and Database Marketing. He is developing an integrated Knowledge Discovery in Databases (KDD)/data mining approach incorporating a fair comparison methodology for evaluating data mining results. In addition, he formulated the concept of Distributed Knowledge Management Systems (DKMS) as an organizing framework for software applications supporting Natural Knowledge Management Systems. Dr. Firestone is one of the founding members of the Knowledge Management Consortium, The Chairperson of the KMC's Artficial Knowledge Management Systems Committee, and a member of its Executive Committee. You can e-mail Joe at eisai@home.com.

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