

# Out of Darkness Cometh Light

How Mashup Applications are bringing Shadow IT  
into the open



Transforming applications into business advantage

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# Overview

Business and IT often inhabit different worlds with neither entity quite understanding what the other is doing. To the business, IT represents a myriad of acronyms and expense while, in the eyes of IT, business does not express its requirements clearly enough. The opaque nature of the relationship between business and traditional IT has led to the explosion of “shadow IT”; IT that is developed directly by the business, outside of the control of the IT department. Mashup technologies are often promoted as the latest technology gizmo at conferences and in IT journals, yet this omits the real point of any new technology; namely, how can a business utilize the technology to deliver an advantage. Mashups represent a way for shadow IT, and hence business operations, to be integrated into the overall IT structure and provide the impetus and approach for the broader transformation of the IT landscape from IT-centric cost towards the provision of business services and business value.

# Shadow IT is business IT

The phenomenon of shadow IT is one of the fastest growing sectors within IT<sup>1</sup> and consists of business-developed or commissioned applications that operate outside of the IT department's management and control. These applications are the Excel®, Access® and mini-applications that are developed for specific niche business purposes where the business feels that engaging with IT would either slow the process down, cost too much or result in more oversight than desired. The increasing trend towards Software as a Service (SaaS) is also being driven by these same business people as they seek to rapidly commission new applications rather than wait for a development programme.

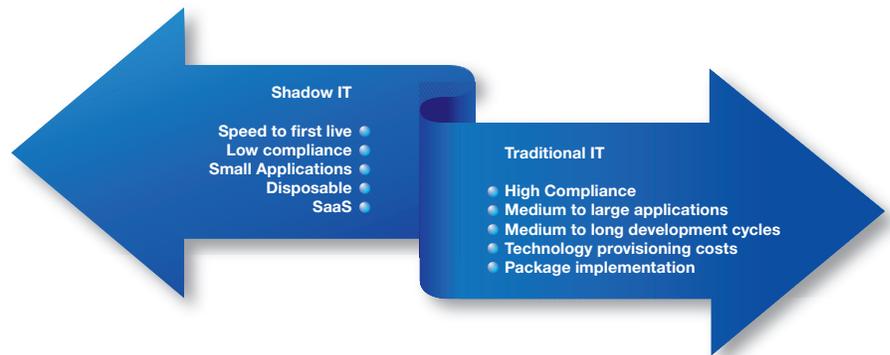


Figure 1. Shadow versus Traditional IT

A problem with shadow IT is that its costs are not always obvious, often being hidden in the time of extremely valuable employees who spend a disproportionate amount of time working on developing and supporting these applications. With issues surrounding compliance and tracking becoming increasingly important, this lack of control becomes a critical issue for businesses seeking to demonstrate their full compliance with oversight legislation.

# Shadow IT has a business reason

The key difference between shadow IT and traditional IT is that shadow IT is IT that is business-motivated and is created in order to resolve a specific business problem. This is in contrast to the traditional IT approach that seeks to balance immediate business needs and a set of related business problems, with the desire to create a sustainable solution. Often, shadow IT systems are created with a view that they are disposable and will be discarded within a short period of time. Unfortunately, this rarely proves to be the case.

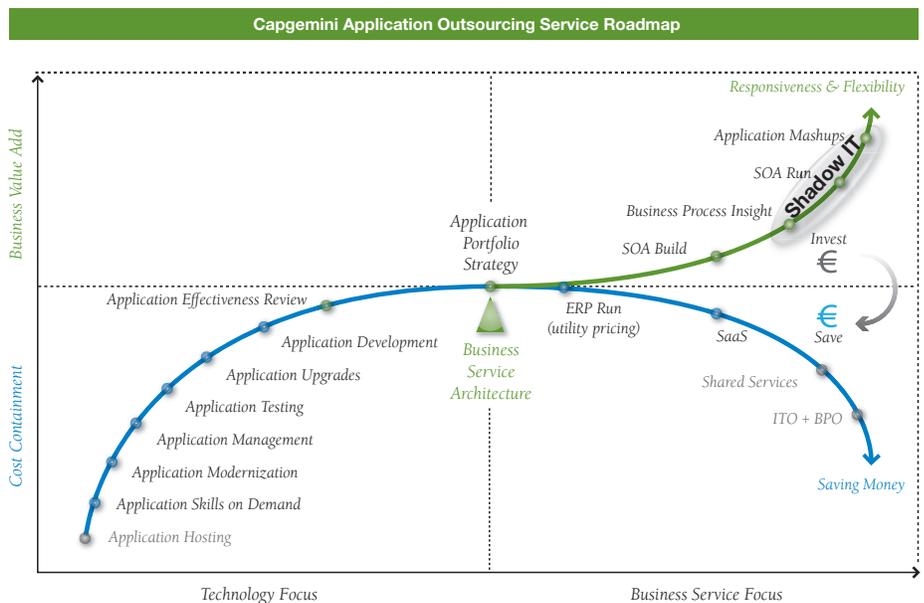


Figure 2. The scope of Shadow IT

The contention between shadow IT and traditional IT pitches speed and short term flexibility against sustainability and control. Previous generations of IT solutions have shown that traditional IT must adapt to cope with these new requirements and approaches or face being replaced by a new generation of IT solutions.

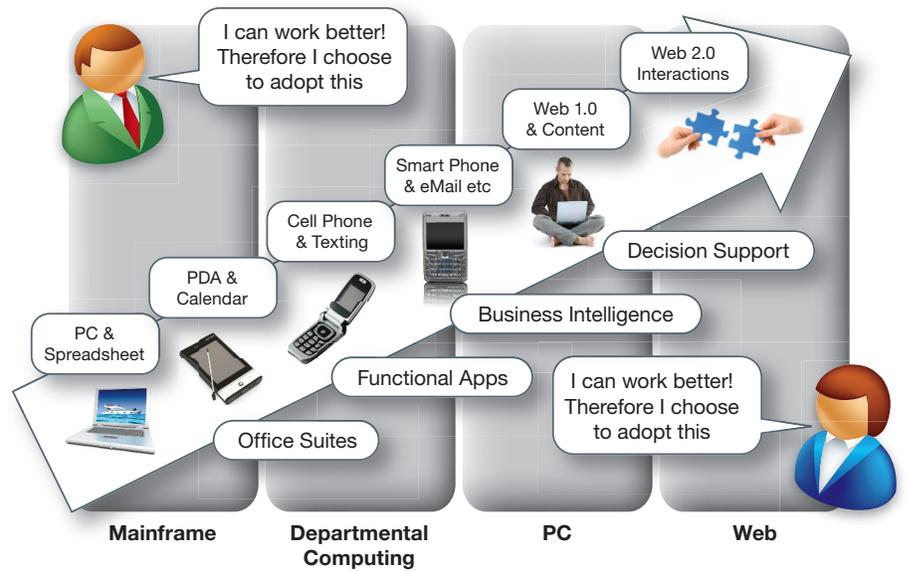


Figure 3. Technology Generations

The Web presents a new approach to working and the opportunity for shadow IT applications to be provided successfully within an overall managed IT estate. Traditional IT organizations need to adapt to meet this challenge and to assume a more business-focused approach to the provision of new facilities. Importantly, the business must be provided with a means of controlling the way it handles and interacts with information.

# Making IT visible to the business

In most IT estates today, either business learns the intricacies of naming conventions and technologies in order to discuss change or, alternatively, views IT as a series of black boxes with black labels. In the same way that shadow IT is hidden from traditional IT, so traditional IT is concealed from the business through obfuscation. In order to ensure the success of the next generation of IT applications, the traditional IT estate must be opened up in a more business-centric way and focused more towards Business Level Agreements than IT-centric service level agreements.

To truly bring shadow IT into the light also requires traditional IT to be working with a business-centric focus, which is the task of a Business SOA<sup>2</sup> and a transformational approach to IT that is focused on delivering this business-centric approach.

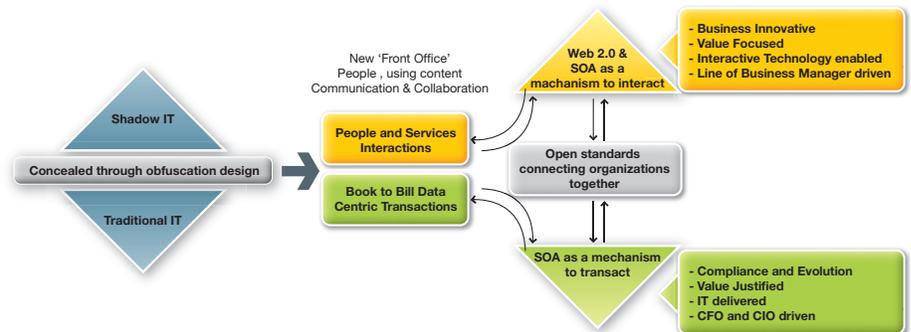


Figure 4. Using SOA to link Business and IT

# Bringing shadow IT and traditional IT together

In order for shadow IT to be incorporated within a single IT management framework, an IT environment, capable of offering different facilities and approaches depending on the type of work being undertaken, must exist. The current challenges of shadow IT arise in no small part because the traditional IT approaches are not able to adapt and change quickly enough and struggle to cope with “disposable” or point solutions. In order to succeed in delivering this next generation of applications<sup>3</sup>, capable of leveraging IT assets into more dynamic business applications, changes to both the business and IT approaches are required.

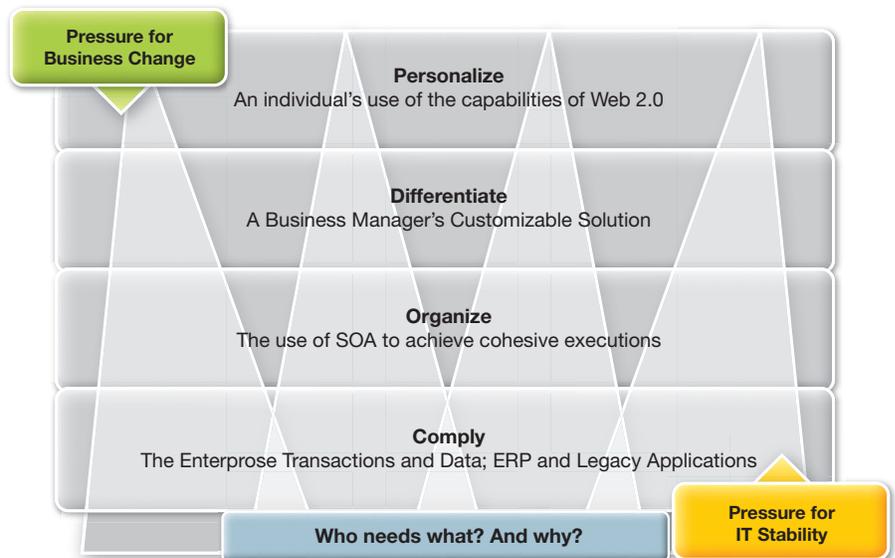


Figure 5. The "Crown" of IT<sup>3</sup>

The crown illustrates how the next generation of collaborative applications needs to span all of IT in an integrated fashion and how the contending challenges of traditional and shadow IT must both be managed in order to deliver a successful IT estate.

Shadow IT's current position is at the “personalize” and “differentiate” levels. These are the points of the crown, the elements which tailor solutions to an individual's way of working and which provide an organization with its business-centric differentiation. Traditional IT also operates at the “differentiate” layer by providing business-centric technologies such as rules engines, process engines and business activity management. The challenge, therefore, is to leverage the best of the existing IT approaches and combine them with a new way of working that enables existing shadow IT applications to work in conjunction with the rest of the IT estate.

## Business capabilities as a business service

The final element for a successful business mashup environment is the understanding of the business capabilities and business services to be consumed. This is the business-SOA view of the enterprise and demonstrates the ability of mashups to move beyond simple information into true business applications. It is required for both “differentiate” and for “personalize” and is provided by the “organize” solutions. The goal of IT is to deliver this business-centric view to enable the next generation of IT applications to work as an integrated part of the whole, not simply as second class citizens feeding off the scraps available to them.

# My IT isn't just your IT

This next generation of IT solutions offers up another complexity. The rise of Web 2.0 and applications such as Google Apps has delivered new ways of working that span organizational, and even company, boundaries. These “you”-centric applications shift the emphasis away from interacting within a single IT domain and towards interaction with multiple people and systems across the internet<sup>4</sup>. This means that the IT of an individual does not consist solely of a single organization but can include external applications which they can use to make themselves more productive. This might include a Facebook or LinkedIn to manage their contacts, a Salesforce.com to help improve their sales effectiveness or a partner’s website to manage their supply chain. Regardless of the application, the theme is the same: The IT of an individual cannot be provided just by the internal IT of that individual’s employer.

At the “personalize” and “differentiate” layers, therefore, the next generation of IT must look to provide facilities that can collaborate outside of the firewalls and across organizations, thus enabling the business to build collaborative applications across their entire value network<sup>5</sup>.

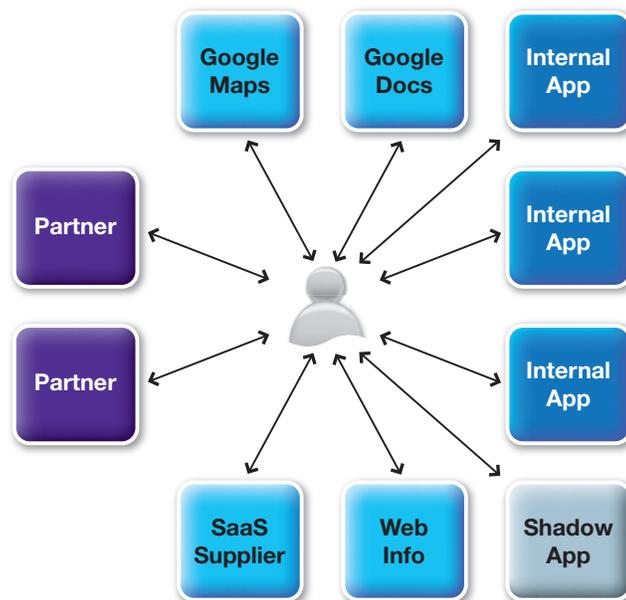


Figure 6. Scope of Personal IT

This presents the next generation of IT professionals and organizations with an increase in complexity and management that must be addressed. Should a company fail to address this change in circumstances, little doubt should remain that, sooner or later, its competition will find an appropriate resolution.

# Business Mashups aren't about maps

Mashup applications are often demonstrated by taking a set of information and displaying it on a Google Map.

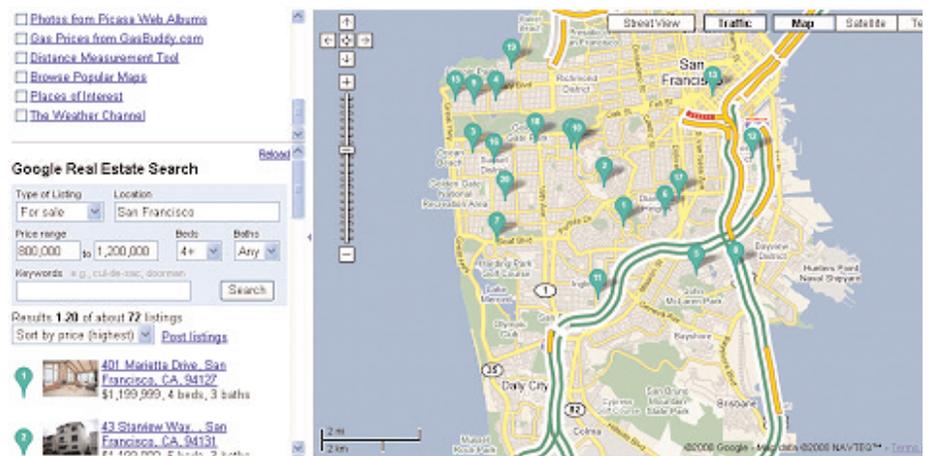


Figure 7. Google Map Mashup

Because these are the most visual representations of mashup technology they are often mistakenly assumed to be the best representations of what mashups provide. The reality for business mashups is that these showcase only a small part of the potential<sup>6</sup> for using mashups within a business context.

The first important task is to split mashups into the two distinct groups.

1. Differentiate – Mashups which are designed to work at an operational level and provide new business capabilities.
2. Personalize – Mashups which are designed to present pre-existing information and capabilities in a user-specific manner. These mashups are about the presentation and not the function.

Most mashups today fall into the latter category; they provide new business utility and optimization, not because they develop new capabilities for a business, but because they combine existing capabilities in a more optimal or innovative way. This is the domain in which Google Maps is most often used, as, by adding geographical presentation into existing information, e.g. house sales, it becomes easier to navigate the information set. Much of shadow IT also resides in the category where Excel<sup>®</sup> spreadsheets are used to combine information from multiple sources so as to enable business people to better interrogate it.

The real opportunity for business, however, is in the former category. Here, this new generation of technology solutions is used to deliver new business capabilities in a more rapid and business-centric way than has previously been possible.

# Bringing implicit business into the open

Business mashups at the “differentiate” level have the opportunity to make visible and manageable those elements that, due to the cost of IT automation, must currently be managed via exception or manual processes. These are the decisions such as “*get Bob to authorize this as well*” and the subsequent follow up question “*Has Bob authorized this?*” These have a real business reason to exist but do not represent a continual process that requires automation. What is required, therefore, is the ability to create “adhoc” business applications in a simple way to enable the question of “who authorized this” to be accurately recorded.

This is the level at which people will have to access multiple internal and external systems and will be simply able to construct these “adhoc” processes. The critical success factor here is that the systems be exposed in a business-centric way and in a manner that does not require mediation or data transformation to be useful to the business user. This requires co-ordination between IT and the business that produces results in a matter of hours or days, not months and years.

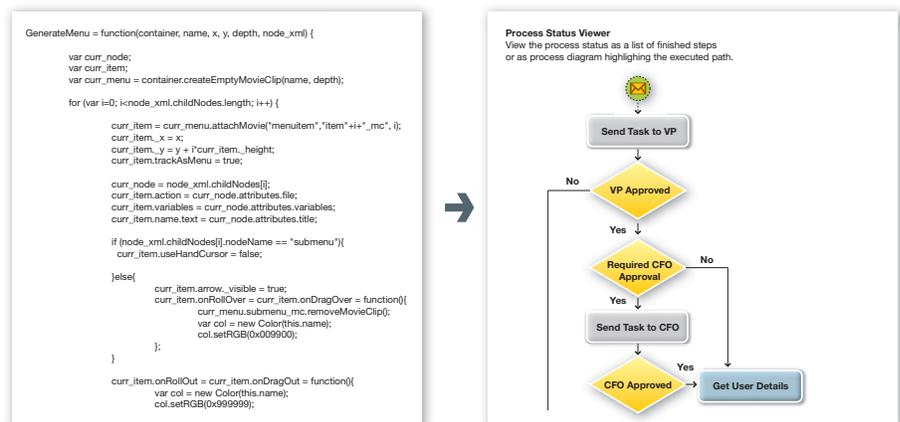


Figure 8. Business change needs new IT approaches

The key to success is simplicity. If the amount of effort required is too great, the business will not be able to effectively use these new approaches and will continue to operate unsupported and independent of IT.

Success, therefore, is reliant on IT industrializing around the presentation of information and the access to the capabilities of these differentiating applications. It must be possible for a business person to request, in a standard, simple and business-centric way, the information and capability access that they want and for the delivery of this to be available via a low-cost and high-speed delivery model. Investment in the IT estate will be necessary to enable this change and, in addition, IT will need

to revisit the decisions of previous IT generations in order to better support the moving of shadow IT into the open.

Business-centric support is also necessary to ensure this transition is successful. While many shadow IT applications demonstrate a high degree of sophistication in their handling of data, the ability of business users to write effective process and rules applications should not be expected to match that of trained IT professionals. To make this “differentiate” area really deliver competitive advantage necessitates that IT provides the operational platform and support to make the business successful. This requires, at the very minimum, for the provision of the base platform to be in a Software-as-a-Service manner which can be instantly provisioned and accessed throughout, and potentially beyond, the enterprise. At its most powerful, IT and the business must work closely together to deliver an integrated approach that includes both the business and IT in a single seamless delivery process.

# Enabling business change at business pace

The other side of the “differentiate” layer is that it better enables the previous generations of technologies to be placed into the hands of the business users. There exists an ongoing myth in IT that a new generation of technologies will enable business users to completely build applications. This will remain a myth in the same way that giving business users control over applications is to provide them with the ability to change the levers. This is because the perceived business process is not always the same as the actual executed business process<sup>7</sup> and also because the skills of IT delivery, testing, structure, coding, etc are not the skills of business. What a unified approach to the “differentiate” solutions can provide is not absolute control of everything, but the ability for the business to better adapt what has been designed to be adaptable.

Some current generations of technologies, for instance business rules engines, have been successful in enabling business tools, such as spreadsheets, to be used to change the applications. Others however, although claiming to be business centric, have offered an “all or nothing” approach to change which operates on the basis that, unless the user is a proficient developer, they will be able to change nothing.

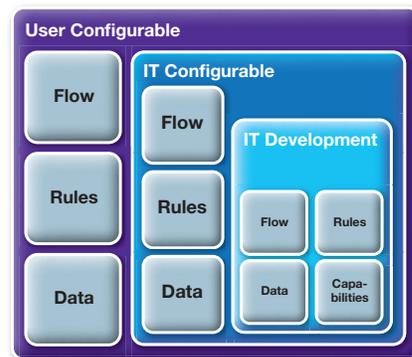


Figure 9. Types of change

The next generation IT estate must, therefore, look at how the levers from existing applications can be exposed in a better way to business users. This will not normally be possible in the current generations of technologies but should not be viewed as a massive implementation programme. In effect, this is the editing of a business-centric configuration file. It might include the ordering that some process elements take, the people who should be involved or the thresholds at which certain actions should be completed. The point is that these are predetermined boundaries within which change can happen.

This requires an approach to IT development that starts from a business view and has the purpose of enabling business change to be achieved in a business, rather than technology-oriented, way.

# Show me what I want

Above the “differentiate” layer comes the ability of users to configure and display information in the most effective way for their own personal role and way of working. The shift away from corporate-provided portals towards web-centric portals such as NetVibes and iGoogle means that users are assembling their own views of information today. The challenge encountered is that the corporate IT applications are rarely set-up in a way that enables them to be consumed by these solutions.

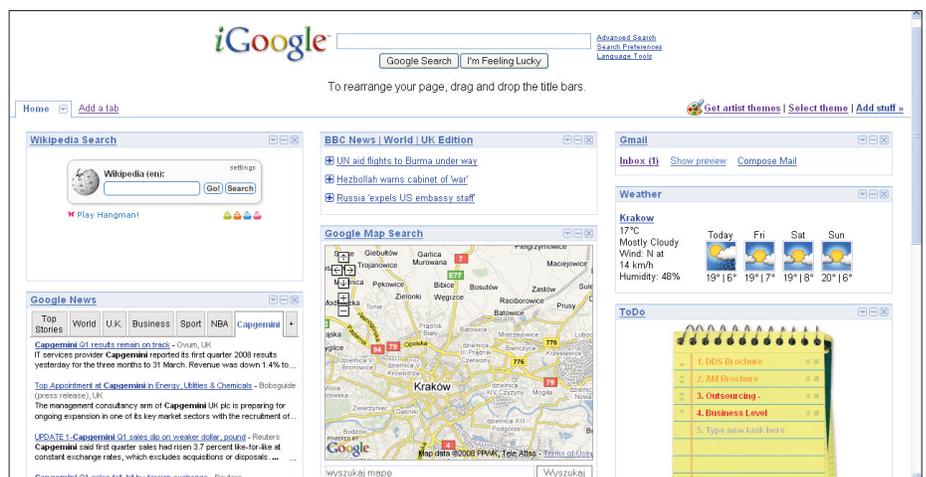
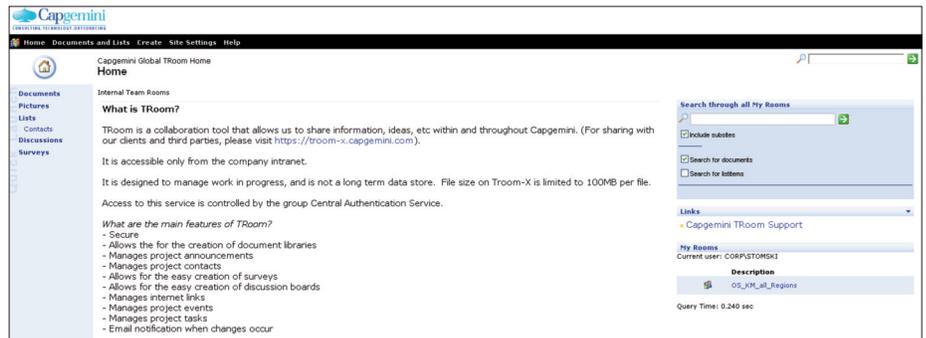


Figure 10. Integration of internal and external in a single view

This section addresses replacing those shadow applications that were developed to combine different information sources and enabling them to be displayed in a more active manner. The first, and simplest, solution is to simply move the spreadsheets away from the desktop and onto the internet using a technology such as Google Apps<sup>4</sup>. This enables the information to be more actively fed from, and to, existing systems and the integration of that information into the differentiating solutions. This also has the advantage of being a process that end business users can, for the large part, do themselves.

# Information as a Resource

The next element is where effective cooperation between business and IT is imperative. Information sources need to be combined to display information in more complex ways and, in order for this integration to be possible, the information sources need to be configurable. Examples of this process could include product access by SKU ID, shipping information by invoice ID and other business information resources that need to be accessed and combined at varying degrees of granularity.

This is dependent on IT moving away from a database-centric perspective for information and towards a more resource-centric view of information. The key challenges to this are to understand the types of resources required and, secondly, to understand how they need to be accessed. Once this has been established, it is then possible to start using the information to present new views and solutions that can be easily traversed by the business user.

This is not a trivial exercise and represents a significant change to existing reporting approaches. As such, business and IT must cooperate to determine which of the company's resources need to be tracked and manipulated in this way and plan for an evolutionary growth in the resource-centric view of the organization's data. The challenge for IT then, is to understand how this information can be accessed securely, performantly and in a way that enables a validation on the quality of the comparisons being made.

## One Customer, many sources

A useful example of how a resource-centric approach can be used to add significant value to an organization can be found in those cases where multiple customer systems exist. In order to obtain a single view of the customer across these systems, there are multiple different options.

1. A data warehousing solution. This is moderately expensive in terms of development and support costs and carries the disadvantage of being only “after the fact” in terms of data accuracy,
2. The replacement of the existing systems with a single CRM solution. This is often very expensive and requires a large lead time.
3. An EAI solution that creates a new “virtual” customer service and integrates back into the existing systems. This can be costly and does not guarantee delivery of the right information.
4. A “mashup” solution which relies on either automatic or manual (people) matching of customers and then treats the source systems as resources, using hyperlinks to associate customers between systems

This latter solution builds the view of the customer without requiring it to be standardized and relies upon collaboration between end users to build up the single view itself.

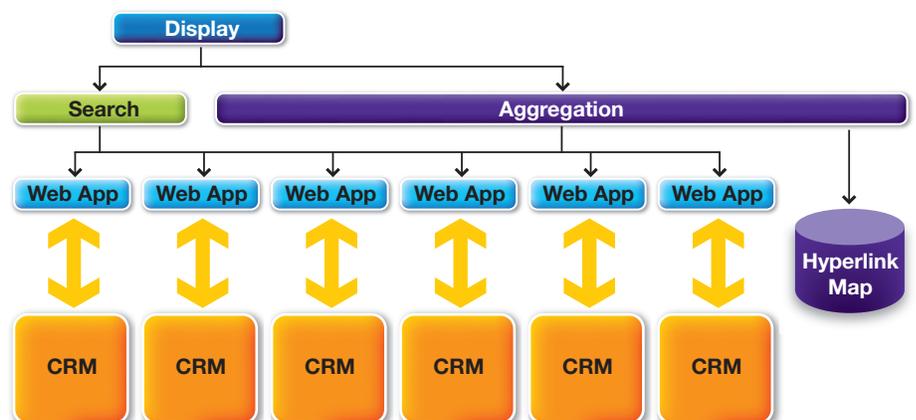


Figure 11. Mashup Single view of a customer

By using a web-focused search tool, it becomes possible to find customers across multiple systems. Associating these search results with each other, it is possible to build a unified view of the customer by traversing the hyperlinks, (via technology using an aggregator). The final single view can then be presented to the user without the costly mappings that most solutions require. This is not a solution that seeks to provide 100% information accuracy “out of the box” but will use the ability of people to match information sets to build a coherent picture.

## Using Business Services to deliver an active business Mashup

The final stage is to use the business service approach to move mashups beyond simply consuming and displaying information, to the point where they can actually act as interaction points for the business services themselves. This moves mashups from being a business-centric way of presenting information and into the domain of being the preferred method of creating all user interfaces in the enterprise.

With the single-customer-view approach, the solution is for the customer business services and capabilities, for instance creating a new customer support request, to be available via a gadget in a way that links back to the specific source system for that customer. Having a standardized business service for customer support and a simple mechanism for identifying the correct source system facilitates the creation of a unified customer solution that not only provides real-time information, but also enables operational activities to be harmonized.

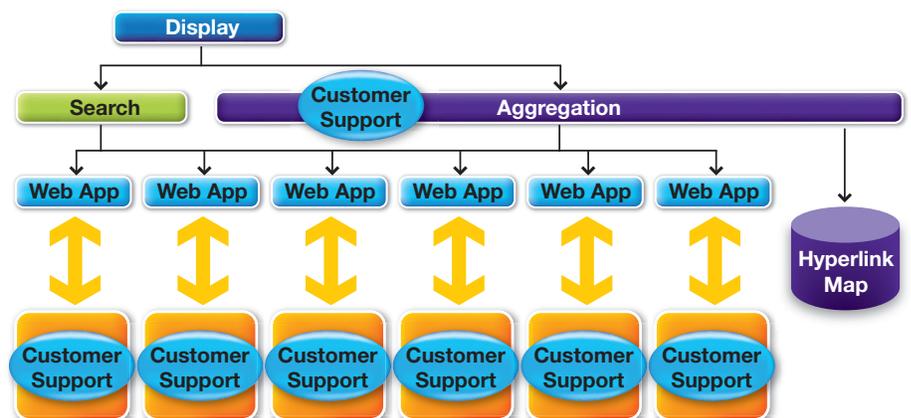


Figure 12. Customer Support Mashup Solution

It is the task of the IT department to provide these business-centric interfaces and to provide the mechanism that links from the global service back to the correct source system. The advantage of this for the business is that not only can they create mashup applications at a local level, but that these applications can be rolled up to a global level. The other advantage is that the user interface can be separated from its source transactional applications, thereby enabling the consolidation of CRM solutions without impacting normal business operations.

# Shining the light – letting business drive IT

Mashup applications, whether centered on differentiation or personalization, deliver to the business the ability to rapidly consume and combine the business capabilities that IT can offer. By providing the rapidity of development and change that mashup applications can deliver and by doing so on a solid and managed base, the next generation IT department provides full visibility across all IT operations, thus bringing shadow IT into the overall IT organization.

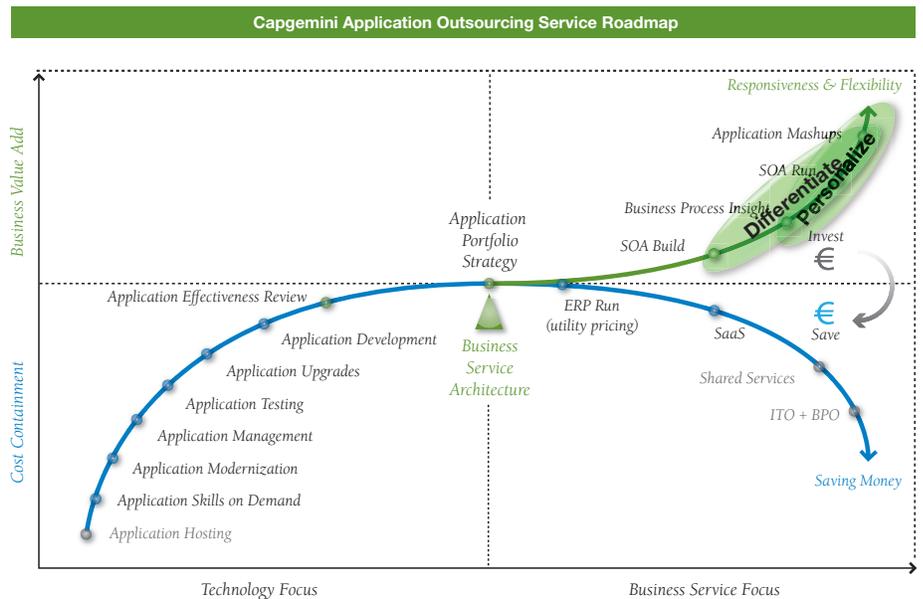


Figure 13. The scope of Differentiate and Personalize

Bringing shadow IT into the light represents the business gaining more control over how IT works and enabling it to shape the future of the IT estate. This means letting the business control IT in a business-centric way and providing a view of the IT estate which is consistent with the business operation. Therefore, rather than as simply a technology extension to the IT estate or the next generation of shadow IT operations, mashups should be viewed as the catalyst to improve the business efficiency of IT and to provide IT with a business-centric view of what is to be achieved.

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