

The New Enterprise Portal Economics

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Abstract

For many firms, the total cost of ownership of their enterprise portals is escalating. The drivers are contact strategies for customer channel-shift, employee efficiency and multi-brand leverage.

On one hand, such strategies can reduce cost. For example, channel shift strategies encourage users to exploit enterprise portals instead of telephoning expensive contact centres. On the other hand, they create an insatiable appetite for new portal functionality. Consequently, some firms face annual site operating costs of tens of millions of dollars. As such, they need to adopt a new set of operating principles to maximise the efficiency of their portals.

In this paper, we describe the re-application of engineering and economic principles to the management of major enterprise portals. We reveal some key ground rules for organising and building the technology platforms. By applying those principles, firms will be able to constrain portal costs whilst meeting burgeoning business demands on portal capability.

The electronic channels headache

Whilst portals are doorways to the World Wide Web, enterprise portals are the entry point for a firm's communities¹ to access its transaction, information and services². Whilst transactions through enterprise portals cost less than other more conventional means, their complexity and costs are increasing. Consequently, current business austerity has led firms to look to reduce the cost of their enterprise portal platforms. This leads to a fascinating paradox

¹ For example, customers employees and suppliers

² For a glossary of the terms used in this article, we recommend "Understanding Portals: A Business Person's Guide to Portal Terms and Business Impacts" from cio.com – available on <http://www.cio.com/sponsors/portalswhitepaper.pdf>

for the Head of Electronic Channels Provision³. The memo in box 1 provides a glimpse of a typical situation.

Box 1: Example memo - a typical challenge for Portal Managers

Memorandum

To: Martine Reseau, Head of Electronic Channels Provision
From: The Board

Enterprise portal cost reduction

We have recently reviewed costs our operational units. This has highlighted particularly high recharges from your unit.

In the light of this, we would like you to submit a new strategy for electronic channels provision. Your plans should:

- provide the platform functionality to deliver future business unit requirements;
- reduce total annual costs for electronic channel delivery.

We also note that the business units are dissatisfied with the provision of electronic channels. They point to low flexibility and poor responsiveness from your unit. Perhaps your plans could address these issues too.

We look forward to your response.

Contact strategy drivers

Demanding contact strategies cause portal cost increases. Common strategies include:

- channel-shift – encouraging users to adopt automated services;
- employee efficiency – allowing easier access to services and information; and
- multi-brand leverage – exploiting synergies across different brand in the portfolio.

By way of illustration, let us examine the implications for portals of channel shift strategies. Channel shift strategies are, of course, a key area in sectors with large customer bases. Such sectors include retailers, airlines, telecommunications service providers, retail financial services and utilities. Firms in these sectors know that it is expensive to answer the phone to

³ We refer to whoever holds responsibility for the management and delivery of the technology platform for the portal.

customers. They are hoping that a significant proportion of their customers will use self-service instead⁴.

Portals are not the only option for self-service. Indeed, some firms in mobile communications and retail banking claim to deal satisfactorily with over 90% of their customer's calls before they reach an agent. To achieve this, they use automated voice interactions deploying an Interactive Voice Response (IVR) system. Going forward, however, firms will replace their IVRs with voice portals. These portals combine all the convenience of voice with the flexibility of the web. Unlike IVRs, they do not have limited response options within strict hierarchies.

The other options for self-service include web browsers, kiosks, web services, SMS, mobile devices and iDTV. Currently, browsers are the most popular approach. In the future, firms will serve all these channels from the same enterprise portal platform.

Business requirements of the portal

Because of these strategic imperatives, the portal's internal business customers have an insatiable appetite for increasing the capability of the portal.

For example, look at typical business requirements in a B2C environment. The portal's internal customers want to:

- increase the number of services and transactions available through the portal;
- improve the customer's transaction experience so that, for example, users can reach the services they need with fewer clicks;
- enhance the customer's visual experience with a more attractive look and feel, dynamic content and personalised presentation;
- understand exactly how different customer segments use the site to guide further enhancement;
- automate the back office functions behind the portal.

Business units often want portals to reach users through mobile channels, interactive TV, kiosks, catalogues, e-mail and SMS. They want customers' experience across channels to be consistent⁴. They may even want contact centre agents to use the portal as an application on their desktops.

At a more basic level, they want the portal to work very well. The site should be available all the time. It should be secure and function properly. Page presentation should be fast.

⁴ Pumphrey, S.J., "The New Contact Centre Economics", International Journal of Customer Relationship Management, March/April 2003, pp 342 to 345

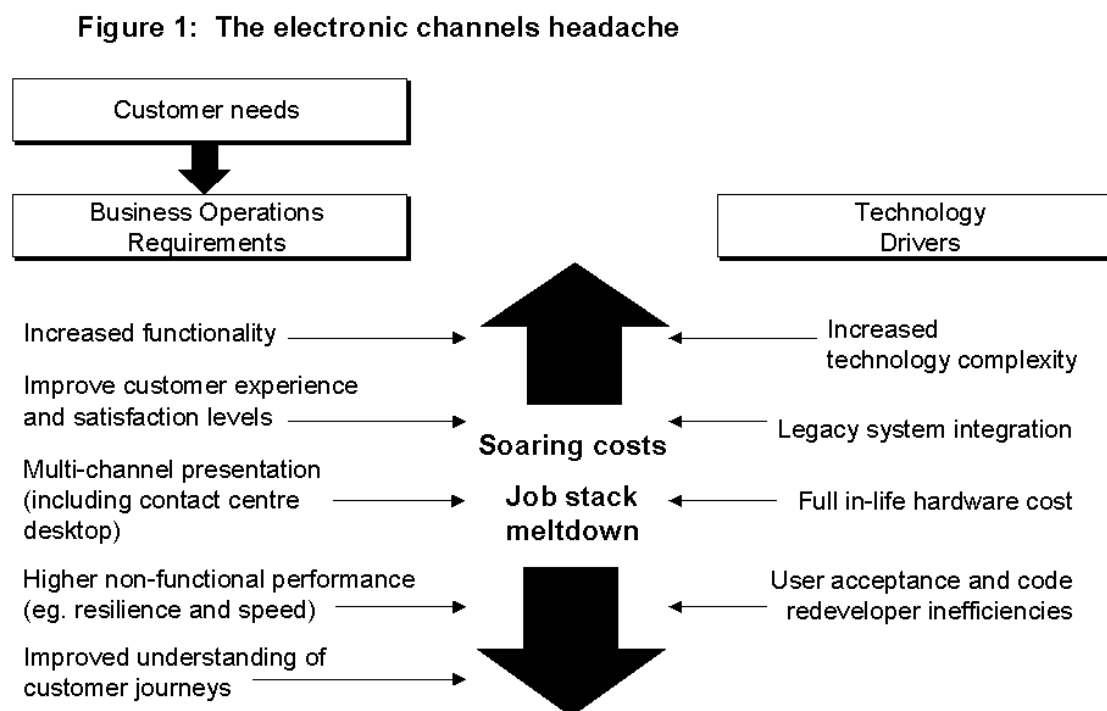
⁴ For example, Hood, R., "One for all", Sales & Marketing Professional, April 2003, pp 28-30

Technical delivery

These demands put pressure on technical delivery of business unit requirements.

- Development costs are soaring as site complexity increases.
- Integration to the firm's (often multiple) legacy systems is complex, expensive and has long lead times.
- The job list to make changes to the existing site as it stands is growing by the day whilst delays increase.
- For major blue-chip sites, hardware costs are no longer negligible. Web engineers used to "throw tin" at the high demand for page presentation. Recently, firms have come to realise that, although the unit costs for servers are relatively low compared to overall costs, lifetime costs for hardware are a significant cost component.

Figure 1 illustrates the conflicting forces on portal management.



Going back to engineering fundamentals

To help portal managers break free from these conflicting requirements, we set out four ground rules for portal management going forward.

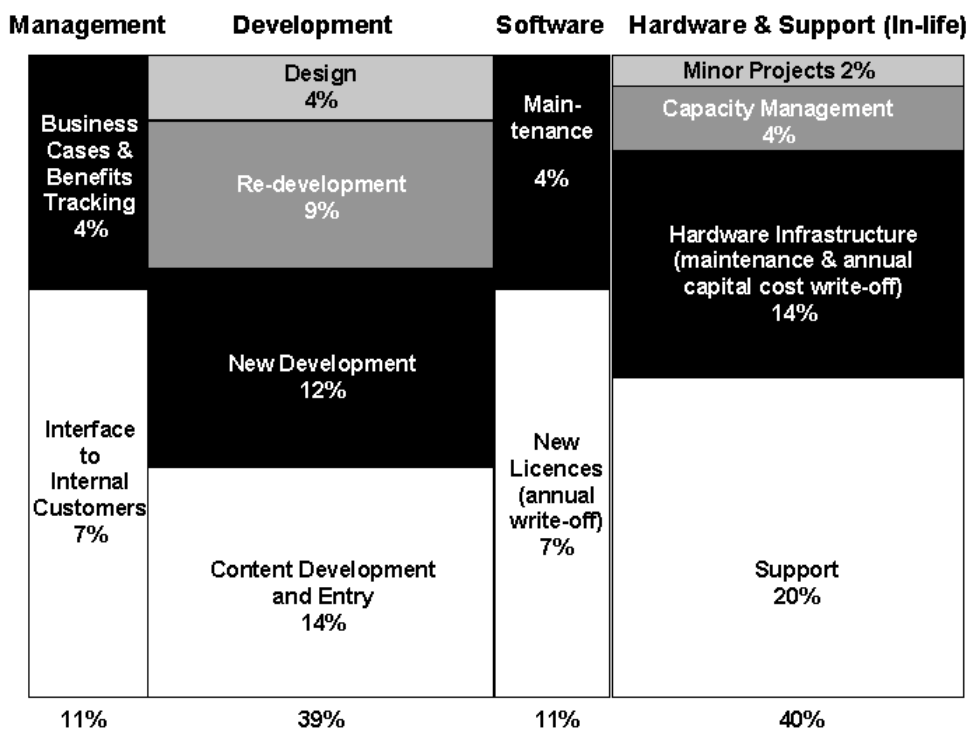
For clarity, we focus on commercial enterprises dealing with customer transactions and services (B2C). However, the reader can readily apply these principles to public sector and not-for-profit organisations. The principles also apply to portals intended for other communities such as employees or

suppliers in, for example, business intelligence, collaboration, and document management.

To help illustrate the issues, we introduce our test case firm. It pays £10m per year to run and develop its site. Figure 2 shows the breakdown of costs in a “Mondrian” graphic. The area of each segment depicts the cost for that activity. Therefore, for example, software maintenance costs the firm £0.7m or 7% of the total.

Figure 2: Test case company - cost profile

Total annual cost: £10m – chart area represents costs



Ground rule 0: Develop a detailed contact strategy

Before we tackle the four main ground rules, let us make sure we have the key customer contact strategy issues covered.

For enterprise portals, contact strategies must go far beyond wide-ranging statements about usage levels and customer satisfaction. They should begin by selecting the target communities for the portal. Then, contact strategies must state where the portal will sit on the spectrum between universal provision at one extreme and prescriptive strategies at the other. Universal provision offers an exhaustive set of transactions and services. It may be attractive to users but could be costly to operate. Prescriptive approaches say to the user; “this is how you must interact with us”. For example, they offer help services - but only on line.

Wherever the strategy sits on this spectrum, it must include detailed examples of the user journey within the portal. These should cover how user journeys in the portal connect with the inevitable transitions into other channels such as voice and stores. Box 2 shows an example of this.

The key strategic questions include the decisions as to whether the portal should:

- enable interactions with a wide range of communities;
- offer all the firm's products and services (including products and services that may not be available through other channels);
- provide a consistent experience across channels;
- look to service other channels including mobile, iDTV channels;
- provide a seamless transition to voice contact: both interactive and non-interactive;
- offer different types of experience to different types of customer;
- engage the customer in a range of activities per session as opposed to focussing on a single transaction.

The strategy must also look at a three-year timescale. For example, the firm's immediate requirements may not include integration to contact centre agent's desktop application or multi-device capability. However, if it is going to need them in the future, then the architecture needs to take account of these needs now.

Box 2: Key customer contact strategy questions – example: data latency

Consistency across channels presents a dilemma for building on-line self-service. Suppose a company decides to enable users to place orders and track them using the portal.

The question often posed is: what if a customer places an order on-line and then, realising straightaway that they have made a mistake in the order, the customer calls the firm's contact number?

The dilemma is: should the contact centre agent be able to see the order on his desktop application straightaway? To achieve this requires tight integration between the web application, the fulfilment system and the agents' desktop application. Such low data latency could be expensive to implement.

The strategic questions are: What is the likelihood that users will call within (say) 15 minutes of the order? In which case, what is the impact on the customer relationship if, on placing an on-line order, the application notifies them of a 15 minute delay before the firm's contact centre agents will be able to discuss the order over the phone?

Without this degree of clarity in the customer communication strategy, development costs rise. By way of illustration, picture the impact on business

analysts in formulating requirements and functional specification documents. If the strategy does not provide sufficient guidance on the mechanics of customer contact, they will need to iterate requirements through a myriad of internal agreements. Without the strategic reference point, development and sign-off becomes prolonged and costly.

Ground rule 1: separate style from substance from function from dialogue

Content and design work on industrial strength enterprise portals is expensive. Indeed, our test case firm spends 18% of its budget on these factors.

Early web architectures caused these high costs by hardwiring sites to provide fixed pages layouts and content with fixed navigation. This meant, for example, that internal customers needed to apply to the IT department to make even small changes to the text on a given page. It also led to the key functions “bleeding” into each other. For example, design agencies began to determine the information architecture of the portal.

Going forward, Portal Managers need to make clear organisational and business process distinctions between what web pages look like, the content within them, the transactions and services that users can perform and access, and the order of the pages they access. Table 1 shows the required formula to apply this ground rule.

Table 1: Making the key organisational and technological distinctions between style, substance, function and dialogue

<i>Distinct area (pseudonym)</i>	Meaning	Internal customer/ Owner	Example	Technology enabler
<i>Style (Graphic design)</i>	What the page looks like	Marketing/ Branding	Adherence to the brand book	e.g. XSLT
<i>Substance (content)</i>	The words, pictures and sounds	Business units/ Business units	Product picture and descriptive text	Content management systems
<i>Function</i>	What users can do	Business units/Platform architect	Place order	Integration to enterprise systems
<i>Dialogue -1 (Information architecture)</i>	Page sequences in the site map and navigation	Business units/ Business units	<i>Home to statements to view statement</i>	Emerging presentation layer applications
<i>Dialogue -2 (Personalisation)</i>	What you see depends on	Marketing	3G service offers to high value	Personalisation engine

	who you are and what you do on the site		customers	
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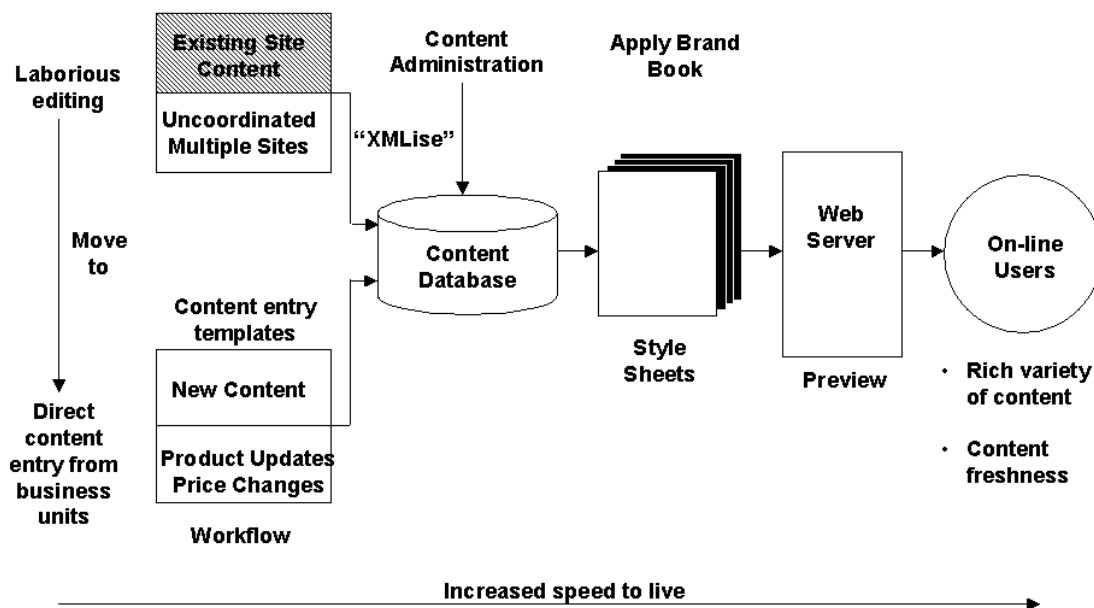
Front-end applications enable this transition as follows.

- Content management technologies allow control of all content to be independent of the platform; including all the workflow tools, the approval processes and previews (see figure 4⁵).
- Style sheet technology allows marketing to enforce adherence to the brand book independently of the content on the site. It also allows the brand application to change the entire site by changing the style sheets and nothing else.
- Modern applications at the presentation layer allow site designers to alter the dialogue sequence of certain pages on the live site.

The benefits of this approach are substantial. For example, content management deployment means that internal customers can control content directly and independently of platform management. Crucially, they can add, change and preview content and publish it to the live environment in a matter of minutes. This contrasts with traditional approaches in which such changes were expensive and took days to complete.

Figure 3: Content management tools

Schematic illustration of the transition to direct content entry



⁵ Adapted from Pumphrey, S.J., "Strategic implications of "get serious" online technologies", info, vol 3, No.6, December 2001, pp 499-519

The cultural change required to deploy this approach is significant. For example, once business units have full control over portal content, they need to agree new processes and organise themselves to deliver it. Roles will change. For example, copywriters will have more control over content but much less influence on how the site presents it.

The role of the enterprise portal unit changes too. It no longer owns content and look & feel but, rather, delivers the capability for its internal business customers to take control of these distinct elements.

Ground rule 2: Adopt the horizontal framework approach

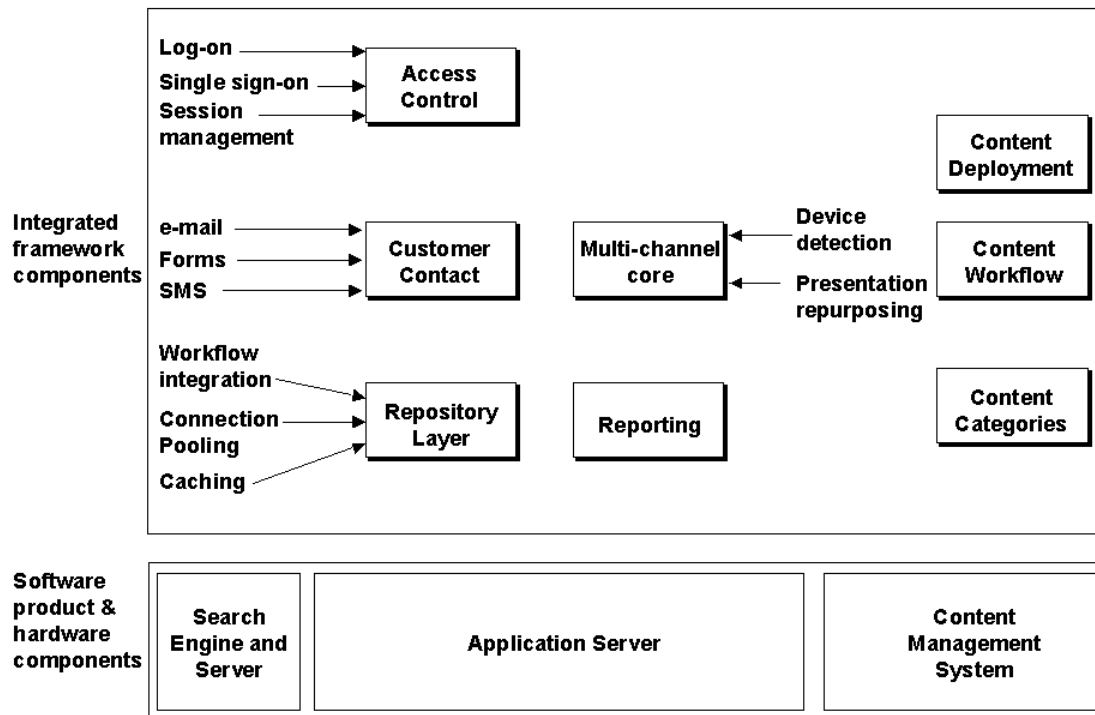
Most major B2C enterprise portals are complex engineering entities. Indeed, our test case company pays £4m per year (40% of costs) on platform support, hardware infrastructure, capacity management and minor projects that arise to ensure the platform continues to run properly.

Starting from small beginnings, the firm extended and evolved its portal into architectural behemoth with attendant inefficiencies. The code base became a patchwork of functionally stove-piped (but, nevertheless, interdependent) functions with repetition, inconsistencies and moribund sections. Frequently, in the haste to meet business deadlines, developers “made do” with makeshift code that they had not tested properly. Indeed, this code did not offer exhaustive documentation and it held no reference in the code library. This explains why the test-case firm incurs significant platform costs (£0.9m) from fixing the existing code base rather than creating new functionality. Rather than working harder and faster with a fundamentally flawed architecture, portal managers must begin the transition to a horizontal framework. Its aim is to meet the non-functional requirements (such as resilience) and provide the core functions that the site needs to deliver full functionality.

The framework comprises the physical hardware, server applications and content management system. It also incorporates a core set of software services (see Figure 4). These include access control, the repository layer⁶, reporting and communications services for e-mail and SMS. If there is ever likely to be a requirement for publishing to multiple channels, then the framework needs a multi-channel core that detects the customer’s device/browser of choice and repurposes content to fit that device’s display characteristics.

⁶ Provides the common data structure and interface with other enterprise systems such as customer account databases and order placement.

Figure 4: Example services in the horizontal framework



Moving to a service-based framework architecture is a non-trivial exercise. However, the result is a substantial reduction in the total cost of ownership for the site. The benefits are:

- more efficient use of code resulting in lower hardware costs;
- faster speed to market for new functions that can draw on an efficient, fully robust and documented menu of service blocks to construct new portal capability;
- less rework of the code base;
- lower support costs through more-reliable operations and fewer incoming support calls;
- lower development costs through better exploitation of open standards.

Ground rule 3: Operate a development factory

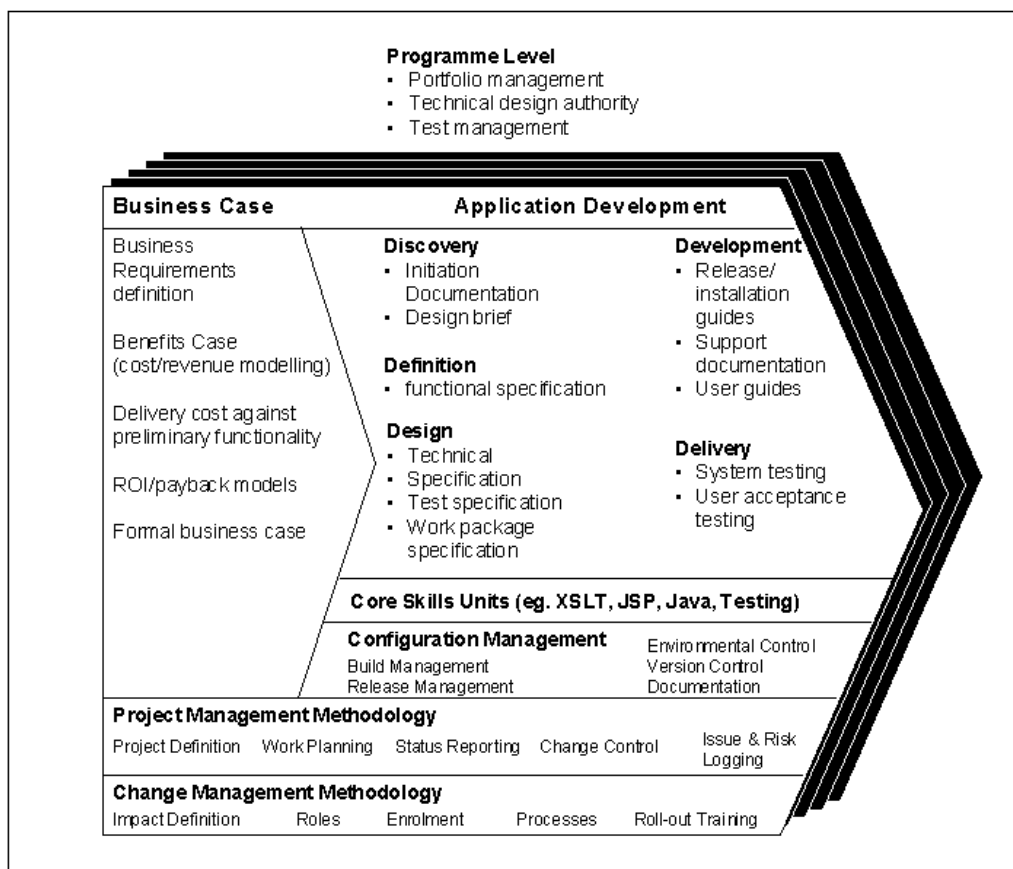
Our test case firm spends £3.9m on the development and redevelopment of new site capability. Like most firms, it deploys a central development capability that operates the development environment. It takes a traditional development approach that deploys a single development team on each project. The team takes the project all the way from initiation to code release and “go-live”.

The advantage of this traditional approach is that a focused project manager can take ownership for delivery. Ground rule 3 maintains this part of the approach. However, the disadvantage of the one-development-team approach is that not all its members can be sufficiently expert in all the techniques required to deliver the project. This means that they learn as they

go. They might make mistakes in code development on the way. Unfortunately, it also means that they may not be aware of existing code services that they could deploy or adapt to meet their needs.

Ground rule 3 establishes a development factory with specialist technology teams that, in series, serve a range of projects as they move through the factory "line". For example, these distinct disciplines could include formal business analysis methods, XSLT skills, JSP development, Java development, testing, and release management (see figure 5).

Figure 5: Example components of the development factory



Deployment of the development factory concept reduces cost and time to market for new development work. It does this by applying deep expertise to the key stages of work. Time taken to learn new applications in depth does not appear on the critical path. Instead, new function members shadow the existing expert base.

Application of ground rule 3 also helps increase code re-use. Exhaustive code re-use is a holy grail for most development units. However, no matter how sophisticated code libraries and indexing can become, re-use increases if the people involved remember that code modules already exist and hold

some sense of ownership over them. This is much more likely to happen if specialist units are in place.

Ground rule 4: Operate from a single platform

Our test case firm spends £1.4m on hardware infrastructure each year. However, that does not include the hardware and hosting costs of other disparate portals that the firm deploys on other platforms.

Indeed, most major corporates operate several enterprise portals from more than one physical platform. We recognise that it may not be feasible to “federate” all portals onto a single platform and recognise the value of URL-level integration. On the other hand, the proliferation of portal platforms has gone too far. Firms now operate different platforms for their range of brands in the marketplace, the different countries they serve, and the different channels they use such as web and mobile channels.

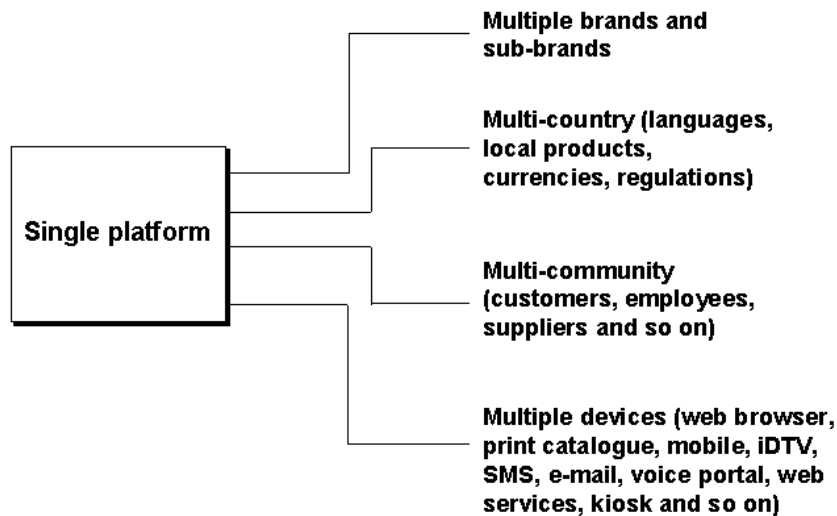
This approach is a legacy of the way in which firms first created their web sites (and of their subsequent brand acquisitions). Whatever its cause, it is unnecessary and expensive. Examples of leading practice include:

- Sony PlayStation operates all its sites across Europe (in 17 different languages with local content and product offers) from a single platform;
- a European cable company will soon go live with a site to provide customer self-service. Its architecture allows it to readily deliver to mobile and iDTV channels going forward;
- a leading European consumer electronics retailer that provides portals for all its brands in brown goods, white goods, mobile telephones, and PCs from a single platform.

Application of the ground rules 1 to 3 (above) is the key enabler of this approach. Consolidating onto a single platform (including hosting consolidation) brings significant benefits in lower platform costs and reductions in the associated support and development.

Platform consolidation and the common services framework also change the dynamics of business cases. For example, companies often find that strategic portal initiatives stall because the business cases do not stack up. This is especially the case for B2E projects. However, when the firm can reuse services across a horizontal framework in a single platform then the amortised costs make the business cases more compelling. This creates a virtuous circle because the resultant implementations further increase economies of scale.

Figure 6: Conceptual illustration of platform consolidation



Applying the new enterprise portal economics

Let us return to Martine Reseau, the fictional head of electronic channels that we introduced at the beginning of this paper. How did she respond to the memo from the Board? See box 3.

Box 3: Reducing the cost of the enterprise portal platform

Memorandum

To: The Board

From: Martine Reseau, Head of Electronic Channels Provision

Re: Enterprise portal cost reduction

In anticipation of your request, I have already formulated a detailed plan to reduce the costs we incur through operation of our portal. The headlines are:

- create and migrate to a service-based horizontal framework for our portal platform;
- include within this framework an integral content management system that hands over control of content to our colleagues in the operating business;
- consolidate all our portal activities onto a single platform.

In implementing these, I will be restructuring my software development unit to provide more-effective delivery. In the meantime, I seek your permission to postpone our current job list except for mission-critical items. We will deliver the remaining items much more efficiently once we have the new technological and organisational structure in place.

Application of the ground rules we have described above reduces enterprise portal operating costs.

Applying ground rule 1 (separate style from substance from function from dialogue) reduces the cost of creating “newness” in the portal and accelerates speed to market. This is especially the case for content and design-based changes. It also reduces operating cost by removing the expense of editing site content on flat HTML based systems. That is laborious, time-consuming and expensive.

Adopting the horizontal framework approach (ground rule 2) reduces all platform costs. The service-based framework reduces the effort required to develop new functionality. Deploying the framework uses code that is more efficient and reduces the need to invest in physical infrastructure (and the other attendant in-life costs) for the site to perform to required service levels.

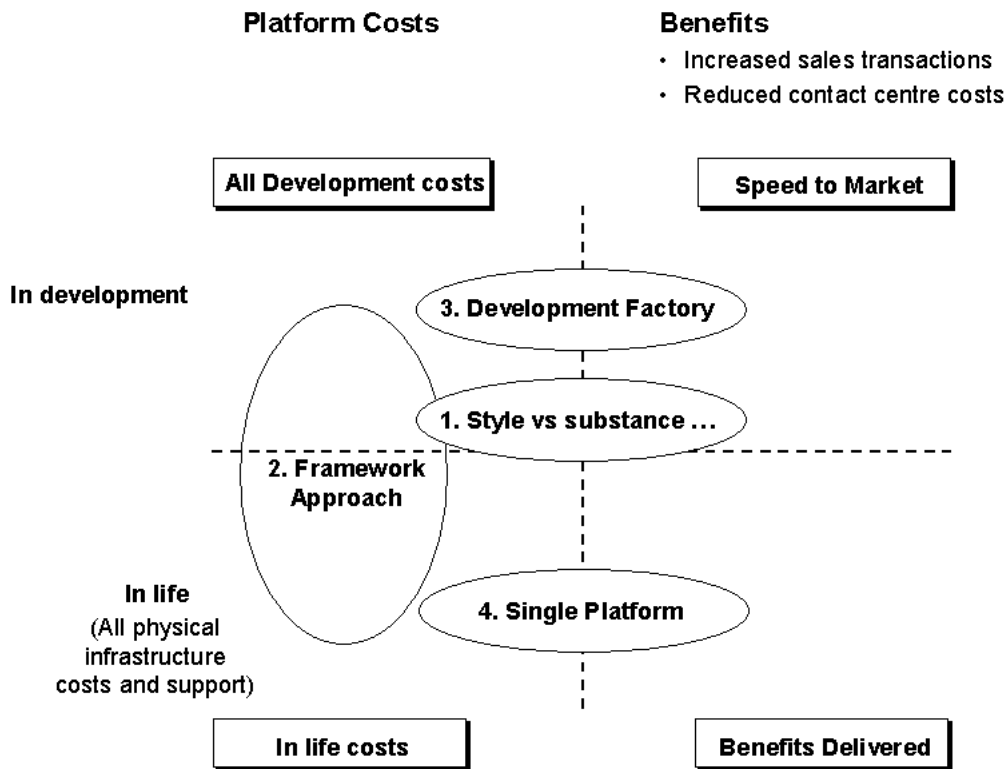
Operating a development factory (ground rule 3) reduces development costs and increases the speed of development. Operating from a single platform (ground rule 4) eliminates unnecessary expenditure on proliferating hardware platforms and so reduces in-life costs.

As such, the ground rules map onto the quadrants in Figure 7. The y-axis relates to platform development and ongoing operation. The x-axis charts the impact of initiatives in terms of platform costs and benefits. The lower right-hand quadrant depicts the success of the site as a commercial entity in terms of either increased revenue or cost saved (through, for example, channel shift).

We have adapted these from Don Reinertsen⁷. He intended the schema to help engineers improve their methods for designing highly engineered products such as automobiles. The same principles apply in portal engineering.

⁷ Reinertsen, D., “Managing the Design Factory – A product developer’s toolkit”, 1997, Simon & Schuster

Figure 7: Mapping the ground rules onto costs and benefits



In conclusion, current business imperatives drive, not only increases in enterprise portal capability, but also reductions in the total cost of ownership. To achieve these, we have set out ground rules that determine how firms should change the way they organise portal delivery and exploit portal technologies.

Looking further forward, the corporate debate will move to the next level in which single enterprise portals connect to customers, employees and other firms such as suppliers. This will realise, not only economies of scale, but also phenomenal business enablement. After all, B2E, B2C and B2B portals all present the same types of information and connect to the same systems, albeit with different levels of security. The key will be to align and connect the disparate communication strategies with these communities.

Acknowledgement

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Biography

Stephen Pumphrey is a member of Business Transformation Group at Fujitsu Services in London. The group leverages Fujitsu's global capabilities to enable sustainable value creation and business change in client organisations

Previously, Stephen was Client Partner and Head of Management Consultancy at European Technology Consultants (etc): a specialised multi-channel systems integrator.

Stephen trained as a semiconductor engineer for GEC before working on a range of high-technology ventures at BP. Prior to joining etc, Stephen was an economics consultant at Segal Quince Wicksteed and, latterly, an Executive Consultant in the Strategic Advisory Services group at Ernst & Young. He holds a degree in Physics from Imperial College, London and an MBA from Henley.

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