

# BEYOND THE CHASM

## PROFITING FROM THE NEXT TECHNOLOGY WAVE

The Condensed Version

BY JOHN SOPER

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**Will this post-boom period of technology consolidation mean declining creativity, profit and growth?**

**Not at all. The combined effects of a commodity infrastructure and application integration will bring dramatic growth and sustainable value – *if we can muster the imagination and business creativity it will require.***

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### THE NUTSHELL

In this post boom-and-bust period, many forecast a slow growth era, characterized largely by industry reorganization. In fact, we are entering an important new period in computing technology -- but certainly not one of slow growth. It will be an exciting and prosperous time. However, the dynamics of this decade will look much different than its predecessors – for reasons that go far beyond cyclical economics.

Over the last two decades we climbed a very steep learning curve. We went past the point of no return in the commoditization of the infrastructure. And, we learned that we could link systems and people together and make them communicate in useful ways. Now it's time to get to work!

*The Reason:* These two key trends have come together – infrastructure commoditization and application integration – to create significant new market dynamics. Together they will produce a market force significantly more powerful than either trend alone. This will produce huge opportunities for market growth and sustainable profit. *However, it will require imaginative new business strategies to make this a reality.*

### PUTTING IT INTO PRACTICE

The dynamics of these trends are discussed along with their impact on four areas of market development. Practical guidelines to exploit these trends are presented:

- **Mining the Infrastructure:** The New Cost Value Gap
- **Escaping the Alliance Trap:** The New Flexible Alliance Model
- **Creating New Markets:** The Democratization of Technology
- **Leveraging Business Processes:** The New Fusion of Process and Technology

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### *The Condensed Version*

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NEW PARADIGMS MARKETING GROUP

The enterprise technology industry is entering its Next Wave. This period will be characterized by the joint impact of two key industry drivers: Commoditization and Integration.

Many assume that the industry is coming out of its recent boom and bust period only to enter a period of slow growth, maturation and consolidation. We, however, believe that the industry now has the unique opportunity to harness these twin drivers, formed in the boom-bust period, to achieve significant growth and newfound, sustainable profit. This will be an exciting time.

**The Key Drivers.** There key drivers of system commoditization and application integration are critical to understanding the dynamics of this market, and to profit form it.

- **Commoditization of the Infrastructure**

No one doubts that commoditization is a significant new reality. The change was so dramatic that it gave Harvard Business Review authors pause to challenge the industry with the provocative question: "Does IT Matter?" What is also remarkable beyond the continuing standardization and downward price drive in hardware components, but the expansion of commoditization to systems into the mid-range of the enterprise, and to software (e.g., Linux).

- **Integration of Applications**

The upper layers of the technology value chain are now in play, from middleware to point solution application and add-on software. It is here that developments are in progress which will deliver on the promise of the initial, pre-bust, phases of the Internet. Through standards

based protocols -- what have come to be collectively called Web Services -- the ability to integrate systems in a modular, *loosely coupled* fashion is now possible. What was once rigid, expensive and risky, now has the real promise of becoming flexible, affordable and manageable. As importantly, the reach of application integration will extend far beyond the enterprise -- a business phenomenon which we are just now getting glimpses of.

**The Interaction Effect.** More importantly, these twin drivers are *highly interactive*. The commodity infrastructure provides the platform for application integration to develop and thrive on; and, application integration provides the impetus for a continued build-out of infrastructure.

**The New Imperatives of Value Extraction.** The result is a dramatic new opportunity to develop markets in response to these forces. To make this a reality requires new and creative ways of thinking about market development. Although there are enormous technological issues to be resolved, this period is marked more by its *business challenge*. This article will discuss four key dynamics which we

This joint effect of commoditization and integration is a powerful new market force. Managing technology businesses to extract new value from this trend defines the Next Wave.

think are imperatives for extracting value from this Next Wave:

1. **Mining the Infrastructure:** The New Cost Value Gap
2. **Escaping the Alliance Trap:** The New Flexible Alliance Model
3. **Creating New Markets:** The Democratization of Technology
4. **Leveraging Business Processes:** The New Fusion of Process and Technology

## Mining the Infrastructure: The New Cost-Value Gap

Enterprises at the top of the market pyramid are now saturated with enterprise automation technology. However, while introducing significant operating efficiencies, *this technology is not yet close to yielding the business value of which it is capable.*

The commoditizing infrastructure is *leveragable* for those operating at the middle and higher ends of the technology value change. *There is gold to be mined.*

Very simply, the growing gap between cost and value, account for this highly leveragable opportunity to extract unprecedented value (See Figure 1):

- **Decreasing Infrastructure Costs.** Adding new business functions places a relatively small cost burden on the customer. Much of the infrastructure is in place and a sunk cost, with much of the additional required infrastructure purchases available at low commodity prices.
- **High Business Value.** The value that can be derived from incremental functionality added to current infrastructure has a non-linear multiplier (interaction) effect. The old, pre-network, model of layering software on isolated hardware systems had a relatively simple, and compara-

tively small, additive effect on a system's value. The current network model, however, allows new software components which leverage the network to increase business value exponentially.

The loose coupling model of Web Services architectures will increase this effect enormously.

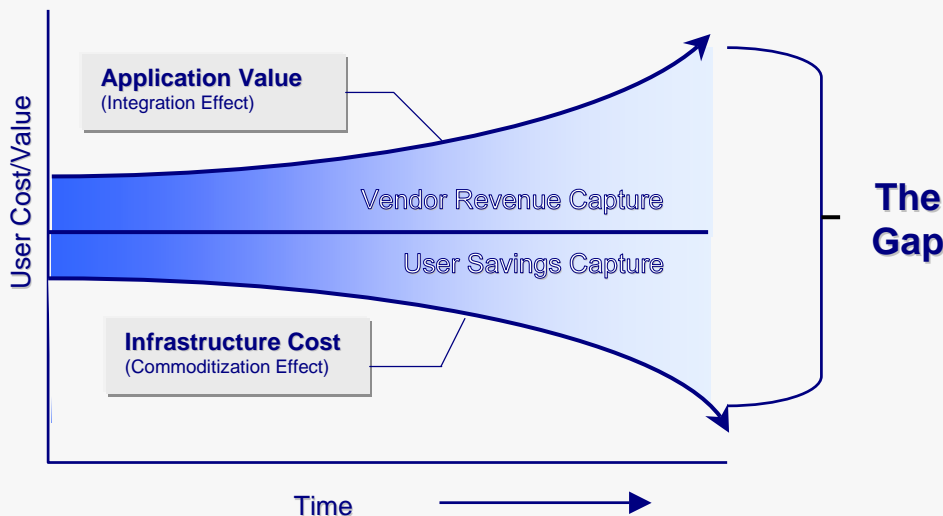
The growing gap between cost and value accounts for this opportunity to extract unprecedented value.

Loose coupling allows easier linking of distributed data sets – as this architecture becomes more widely adopted the linkage of data assets intra and inter-enterprise, will increase by orders of magnitude, with a commensurate increase in value.

**The Interaction Effect Widens the Gap.** Commoditization and integration feed on each other. The lowering cost of infrastructure components will drive enterprise systems deeper into current markets and more broadly into new markets. The effect will be an increase in value of intra- and inter-enterprise networks, driving further acquisition, generating a further volume effect on downward prices. It becomes a *virtuous cycle*. (See Figure 1.) The result will be an ever widening Cost-Value Gap.

The principle of scale of economy is not new here. Nor is the principle of a network effect. What is significant is the unprecedented scale of this phenomenon in the technology world -- in a standards based global communications environment. This is what accounted for the explosive technology growth in the last two decades. With huge value yet untapped, it is set to drive continued growth.

Figure 1 – The New Cost-Value Gap



**The New Cost-Value Gap – Who Wins.** Both the users and the vendors are winners. The majority of the savings from commoditization is captured by the users. However, there is significant value to be captured by technology vendors who can provide the integrative glue and application functions to the infrastructure. (See Figure 1.)

How much of that value can be captured by vendors as a group depends on how the issues of open system standards and proprietary barriers play out

Much of the value lies in the context of the infrastructure. It is incumbent on the seller to explain how their new products leverage that context.

in the quest for application integration. How much of that value can be monetized by any given vendor depends on the leverage its functionality provides, its strategic value chain positioning and its pricing. (These are the subjects of forthcoming papers.) Here we focus on the first imperative: Adjusting the messaging strategy.

**Mining the Gap with a New Message.** In order to take advantage of this new Cost-Value Gap, industry vendors need to create new messages, based on a new way of thinking about the context of the infrastructure they are selling into.

That context did not exist a decade ago, became only slowly understood in the subsequent years, and finally eroded due to unsustainable business models, and the boom and crash that ensued.

Exacerbating the situation is the fact that following the crash, technology vendors largely went into reactive mode, *and seemed to have lost their imagination*, if not their voice.

Now buyers are listening and are able to comprehend this new world of value. They are asking that it be well defined with a provable business cases.

The challenge for the seller is to not only to develop a well-articulated message of functionality and value, but also to link it clearly to the context of the evolving technology environment.

This is not easy, but failing to sell the full value of your product in its context, is to undersell your product, its value and your profit.

**Example:** RFIDs (radio frequency identification devices) are being marketed largely as asset management devices. Descriptions center around features (e.g., frequency range, storage capacity) and functions (e.g., inventory management, asset flow control). Less than compelling references are made to database integration. This may suffice for initial sales to an asset control manager. But it misses the context of the infrastructure it can leverage, and vastly undervalues the product.

### Escaping the Alliance Trap: The New Best of Breed Model

Business alliance development is also undergoing a game changing transformation. This is particularly true in the upper rungs of the technology value chain – the area of technology that is now in play.

**The High Cost of Doing Business.** Previous alliance formation was constrained by the technology requirements of tight coupling between layers. Most significant technology relationships required development and maintenance engineering at least at the interface of their products. In addition to this expense, came the overhead required to manage the relationships. The age of Open Systems had not yet delivered on its promise.

The result was a system of interconnected vendors paying a high price for technical and business relations – and passing the cost on to their customers. The age of Open Systems had not yet delivered on its promise.

There were also indirect costs. The system was rigid. With a high cost of entry, the customer was denied broader, fuller featured and robust products. (See Figure 2.)

## Beyond the Chasm

The result was a system of interconnected vendors paying a high price for development and maintenance of technical and business relations – and passing the cost on to their customers. This was a rigid, cumbersome and costly Alliance Trap, which benefited few and over burdened many.

**The New Alliance Environment.** The drivers of commoditization and integration that mark this pe-

often will, strike deals with the core vendors competitors.)

- **Increased Customer ROI.** With the cost savings passed on to customers, and the increase in value, the customer's ROI is increased.

- **New Industry Development Incentives.** There is an indirect effect of this alliance model:

There are additional new incentives to the development of new application technologies, with the knowledge that the pathway to the market has fewer barriers.

Vendors of add-on products will clearly find new advantage in this alliance model and should strive to leverage its value. Core vendors will find that they have more to gain by wider, more flexible offerings than they have to lose from any diminution of control

**FIGURE 2 ESCAPING THE ALLIANCE TRAP**

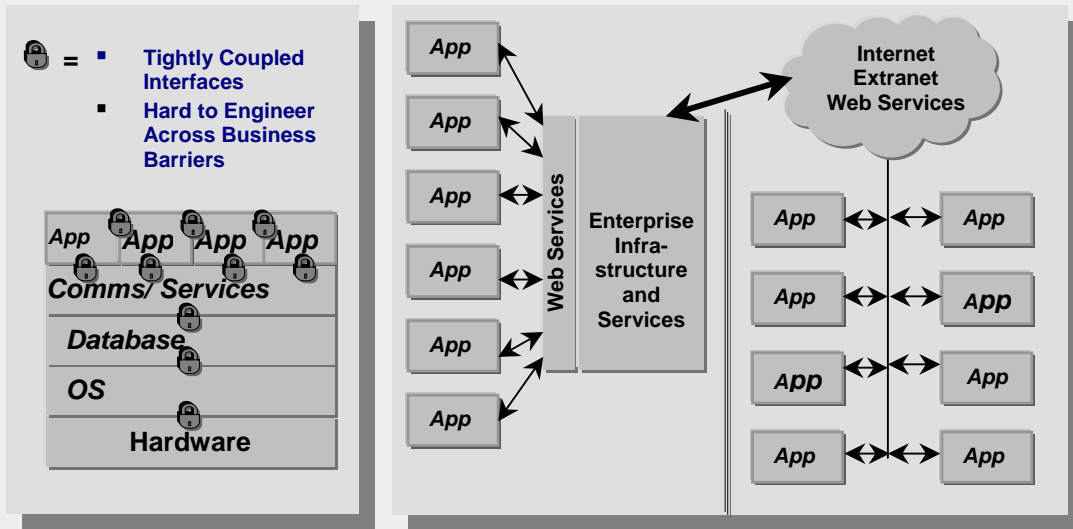
### Tightly Coupled Model

- Inflexible
- Restrictive
- Expensive

### Loosely Coupled Model

Interface Engineering Easier

Broader Alliance Application Reach



riod are also significantly changing the model of business alliance development – both between vendors and with customers.

- **Lower Cost of Entry.** A new entrant with an auxiliary add-on product in a market where customers are adopting loosely coupled architectures (usually around Web Services protocols) will find a lower cost to entering an alliance with the core (e.g., a CRM or ERP vendor) application vendors driving the market.
- **More Flexible Product Development.** The converse is also true: The core application vendor will have lower cost and more flexibility in adding auxiliary products, though they will find their control lessened (their alliances can, and

**Example:** There are two key competitors in the higher education market for ERP and CRM type software: SCT and Datatel. Both have lived through this alliance model restructuring. Previously, a great deal of their efforts were focused on integration with their platforms (hardware, OS and database) partners, and a few peripheral value-add partners. *This approach has now been stood on its head.* Most of the focus is on their core value, with little mention of platform, and a great deal of attention to added value vendors' products and services, loosely integrated on campus intranets, or over the Internet.

## Creating New Markets: The Democratization of Technology

The new market dynamics also facilitate down market moves to small-to-medium enterprise market (SME) sectors, as well as new market development in under-developed geographies. This new room for growth is a very exciting dimension of the Next Wave.

### Commoditization and Downscale Market Entry.

A key characteristic of these sectors is their low capital and operating expense base. A low capital base in the past has foreclosed many opportunities to procure the necessary infrastructure equipment. But as, or more, significant is the low operating margin base. This significantly limits a small company's ability march up the learning curve which enterprise automation requires, much less to maintain, service and support in-house systems – the intangible, but critically inhibiting, factors that go into a TCO analysis.

The commoditization of the infrastructure has solved much of the initial investment problem. However, this does not solve the more formidable problem – designing, installing, managing and servicing an enterprise system. There are only two ways to get around this time drain -- make the systems less complex and more robust, or pay someone with the expertise to do it.

**The Appliance Model.** One method of doing this is to physically limit the functionality of a system, turning them into appliances, such as Internet hosting, storage systems, and the like. This approach has gained some currency. There are limits to this approach however. It does not optimize the use of computing resources. Further the appliances themselves become subsystems which require management.

The other alternative – pay someone else to do it – has two solutions: The first involves sourcing the problem out to resellers (VARs) and/or integrators (SIs). The second approach is to hide the application management all together. That is, to offer it as a thin client Internet service – a *virtual* appliance. This is the ASP (Application Service Provider) model which enjoyed some success, and

a great deal of hype, in the last decade, and is now finding a revival.

The solutions that will be developed to attack these markets will likely be hybrids of all these models: simpler appliance-like computing, with assistance of VARs and SIs, and the use of ASPs for at least many non-core functions.

A key imperative for vendors seeking to build on this trend is to look for ways to repurpose their products in a service model, work with business partners that provide complementary services, and develop a *service business model* to support it (perhaps the greatest part of the challenge.)

**Example.** Salesforce.com entered the market as a pure ASP play. Positioned as a sales automation tool with functions such as lead database management, sales campaign implementation, forecasting and other analytics, this is based on a thin client Internet hosted service. Its key differentiator is financial: Since the customer does not have to bear the overheads of installation, service and maintenance, and replaces a software license fee with a monthly service charge, they claim to have significantly lower startup and ongoing costs.

## Leveraging Business Processes: The New Fusion of Process and Technology

In the Next Wave, technology will not be merely an adjunct to business management, augmenting efficiency in islands of automation; but rather it will become increasingly fused with the business processes itself. It is not just a tool for business processes, but a part of the process itself.

Technology will not be merely an adjunct to business management, augmenting efficiency in islands of automation; but rather it will become increasingly fused with the business process itself.

The fact that this fusion of human and technological processes is beginning to take place represents an opportunity; that its dynamics are not well understood or engineered represents a challenge.

**Monolithic Systems Too Limiting.** This technology architecture has largely been built on monolithic, tightly coupled systems, which could not sustain the next phase -- inter-enterprise (a.k.a., B2B and Extranets) business process automation. The technology that would enable this phase required a qualitative, if not a quantum, leap forward. Early attempts which used proprietary systems such as electronic data interchange (EDI) were highly useful within their domains; but they were limited by their nature. Two issues arose:

- **Limited Market Reach.** Inter-enterprise business systems are limited by the number of enterprises that can participate. A supply chain management system that could only communicate with upper tier channel partners, for example, would similarly limit the vendor's market reach down-market. Any inhibitor of the network effect of linked data assets will decrease value and dampen growth.
- **Unmanageable Networks.** However, the sheer number of business enterprises that will become available due to the economics of commoditization complicates the problem in other ways. The number of connection points is difficult to manage, and the fact that they are often based on heterogeneous systems would make the problem unsolvable under a monolithic, proprietary and tightly coupled architecture. Web Services, with its open standards and loosely coupled design focus, holds the promise for the answer to this problem. Many proofs of concept, and numerous running production systems, bear this out.

**Challenges of the New Model.** The commoditization and integration drivers, in addition to enabling a platform for automation build-out, present vendors with critical new challenges and opportunities. The rigidity of monolithic, cookie cutter systems tends to force processes to adapt to the system. Like assembly lines in an earlier age, the focus was on efficiency of the system with less focus of the people in it. Flexible systems offer more opportunity to take a broader systems view of the fusion of the human and technological systems. For example:

- As automated systems become more complex, the most effective role for human interaction will become more passive -- i.e., more management-by-exception based -- and more difficult to develop.
- Further, as systems become more intelligent over time, the role of human intervention becomes more dynamic -- requiring more sophisticated human factors design to leverage the human side of automation.
- Finally, as systems become more interlinked across enterprises, issues with collaborative cross-enterprise human processes need to be developed to be resolved with minimal efficiency impact.

Each of these challenges however, holds the promise for significant opportunity, yielding human interfaces that are both more efficient and effective. The increasing symbiosis of human and technological systems has now taken center stage. The vendors with the holistic system design capabilities and professional services abilities -- through their own offers or those of partners -- will give them an advantage,

**Example:** Dell has developed a core competency in management of its supply chain, from end-customers back through several layers of suppliers. With time-to-ship and inventory reduction being two of the critical success factors in Dell's business model, highly distributed, Web Services based systems became a critical component of that success. The rapidity with which an order could generate shipments, modify inventory requirements in real time, develop success metrics and highlight problems for management intervention, became a showcase for the industry. *What has made this model a success however, is not the pure application of technology, but the fusion of that technology with a complex and expanded network of people.*

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