

This paper is one of a four-part series of COLT and IDG Global Solutions white papers addressing the most pressing issues facing CIOs of major European organisations. For more information www.cio.co.uk

The need to play a more strategic role in business without increasing capital expenditure has led many CIOs to embrace selective out-tasking solutions, in a bid to **optimise IT resources** (www.colt.net/resourceoptimisation).

Burgeoning European regulations and compliance requirements have also led C-level decision makers to seek **risk mitigation** (www.colt.net/riskmitigation) strategies.

Meanwhile, the need to address demand for **flexible working** (www.colt.net/flexibleworking) from customers, employees and dynamic market requirements has persuaded many large organisations to consider managed services from a third party IT and telecoms partner.

The fourth and final paper addresses the perennial need to achieve **business efficiency** (www.colt.net/businessesfficiency) brought sharply into focus by recent economic conditions.

BUSINESS EFFICIENCY

TRANSLATING TECHNOLOGY INTO PRODUCTIVITY

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EXECUTIVE SUMMARY

The more stringent economic climate has put a keener than ever emphasis on the need to increase business efficiency. This brings more pressure to bear on the CIO who is expected to provide imaginative new ways of enabling the business to generate revenue while also driving efficiency through higher knowledge-worker productivity.

There are a number of strategic technologies vying for the CIO's attention and budget which all claim to improve efficiency. But return on investment is not guaranteed and the CIO must evaluate their impacts on the business carefully.

SETTING THE SCENE

Rising energy prices, the threat of economic downturn and hardening markets mean the focus of many businesses is turning to efficiency. But business efficiency is about more than the old-fashioned view of cutting costs. Efficiency – doing more with less – also includes generating new streams of revenue, improving customer experience to generate more revenue from existing sources and making employees more productive.

However, white-collar or knowledge-worker productivity is notoriously hard to measure and therefore difficult to prove whether any given technology improves it or not.

Numerous technologies have claimed they will raise white-collar productivity, from the 1980s PC revolution to today's cloud computing. But any given technology is productivity-neutral until it is deployed, at which point its affect on the productivity continuum can range from negative to highly positive.

It is not the technologies per se but the way in which they are implemented which has the affect on productivity. Even technologies which promise big efficiency gains, if poorly executed can distract staff resources from concentrating on core issues and have the reverse effect on productivity.

There is also a time-lag between the emergence of a new technology and a rise in productivity. For example, academics estimate that

manufacturing productivity took 40 years to rise after the invention of the electric motor (1). So we shouldn't expect analyst figures to show huge gains in productivity for the very newest technologies.

A number of existing technologies are already proving their worth in helping organisations become more efficient, for example, network convergence and virtualisation. Emerging and near-horizon technologies which show similar promise are software as a service (SaaS) and utility computing achieved through grid architecture.

It is vital to establish how these can be applied to improve an organisation's key performance indicators. Together these technologies can have an effect on productivity that is more than the sum of the parts. Their benefits often overlap and augment one another (see pages 5–7).

For example, while efficiency gains can be derived from implementing utility computing and grid computing, these technologies can also be used as the underlying architecture for SaaS which brings even greater efficiency gains.

When considering an infrastructure for exploiting these technologies it is essential to choose a partner who can help you drive productivity by deploying and optimally integrating both existing and leading-edge technologies. Failure to do so will lose the CIO credibility at board level.

CIO CHALLENGES

The CIO is at the cutting edge of business efficiency in any organisation. The board looks to IT to provide a day-to-day data and communications infrastructure which ensures employees can put their talents to the most profitable use for the company.

Standing still is not enough: the board expects constant improvement. It expects IT to provide solutions to business issues and to imaginatively think up new ways to cut costs, generate revenue and satisfy customers.

The CIO's internal customers may not be technical experts, but they will be aware of the efficiency- and productivity-enhancing claims made for the new technologies. They will be asking the CIO how these can be applied to their part of the organisation, what the costs or savings are and what the pay-back time will be.

Here are some of the simultaneous pressures on CIOs brought by the drive for business efficiency:

- Constantly prove the business case for new equipment purchases, increases in IT department headcount, the use of new technologies, and new and existing IT deployments. And

the CIO will have to do this in the face of a board that has grown sceptical of IT buzz words and vendors' unfulfilled promises. The CIO is expected to demonstrate rapid return on investment (ROI) for IT capital and operating expenditures. The rate of return will depend on the nature of the investment. A company might be willing to wait three years for payback on infrastructure, such as a converged network, but will expect some vertical applications, for example salesforce automation, to earn their keep in a matter of months.

- Cut and/or control costs. Efficiency-by-cost-cutting is most prevalent for businesses in established or commodity markets with tight margins and for businesses where the CFO is the most influential board member. The expectation on the CIO, like all departments, is to be increasingly leaner, to cut headcount or other annual expenditure and reduce total cost of ownership year on year. Cost control is all about predictability.
- Raise productivity by freeing knowledge workers to get on with what they do best, such as sell, plan, design, think up new business ideas etc.

BUSINESS RESILIENCE

An important part of the efficiency equation is business resilience. The aim is to make the organisation agile not fragile. A resilient business is an efficient one, because resilience is about more than business continuity, which tends to be a compliance issue.

Resilience means 'business as usual' even in under difficult operating conditions. It leads to improved customer service and knowledge-worker productivity through improved uptime.

Ref (2) Source, IDC: The Real Costs to Power and Cool all the World's External Storage

- Ensure business continuity and business resilience. Everyone in the organisation knows that the business couldn't exist without the IT infrastructure and that downtime has direct financial consequences, so the pressure is on the CIO to ensure the business can still operate whatever the circumstances. In some sectors business continuity is a regulatory necessity too. But even in sectors with less stringent regulations, there is still pressure on the CIO to provide wider business resilience, ie to ensure that 'business as usual' can be conducted even under quite adverse conditions.
- Improve responsiveness to customers through ease of contact, self-service, scalable contact centres etc.
- Improve the quality of customer experience when interacting with the organisation, and that of all stakeholders, including, suppliers and other business partners.
- Accommodate and enable new ways of working such as supporting virtual teams, improving location-independent collaboration and enabling the capture and dissemination of knowledge, experience and other forms of unstructured content.
- Support the development of flexible and mobile working patterns.
- Shorten production cycles and help bring new products and services to market more quickly.
- Reduce carbon footprint. In many businesses IT is one of the largest consumers of energy. To power and cool the world's hard discs cost an estimated \$1bn in 2007 (2). The CIO is expected to make IT greener.
- Protect intellectual property (IP). IP is arguably the last remaining tool of competitive advantage which can't be replicated quickly and cheaply by rivals. Hence the value of IP relative to traditional assets has grown in the balance sheet over the last 20 years, making protecting it a major facet of the security issue.
- Generate new streams of revenue: support the business departments in finding new classes of customer by providing systems and technologies for innovative routes to market.

Six technologies for the CIO to consider:

1. Network convergence
2. Managed services
3. Virtualisation
4. Utility computing
5. Grid computing
6. Software as a service

RESPONSES AND BUSINESS CASES

There are a number of technologies vying for the CIO's attention which claim to enhance productivity. Let's look at six of these and the role they play in increasing efficiency.

1. Network convergence

Converging data and voice onto a single network is one method for increasing efficiency.

Efficiency gains include:

- One network to support, which cuts maintenance and support costs and leads to supplier rationalisation
- Voice, data and video integrated with collaborative applications for knowledge workers raises productivity. Ease of collaboration is a key enabler for team work and increased efficiency
- Ease of contact for customers and business partners
- Increased flexibility of working through support for remote voice, data, video and collaborative applications and data access

2. Managed services

By leveraging managed services your organisation can concentrate its in-house resources on whatever core parameter drives business performance without being distracted by non-core activities.

Examples of managed services could be anything from out-tasking email and voice to migrating to a grid computing architecture.

Companies can implement in house new technologies which improve efficiency, such as virtualisation. However, the CIO needs to be confident that the right people are available to implement these technologies so as to allow the organisation to maximise their benefits. According to the European Commission (3) by 2010, there will be a shortfall of 300,000 qualified IT staff throughout Europe.

Moreover a virtualised environment deployed in-house has inherent boundaries in terms of scalability, flexibility and efficiency. Therefore a sourcing model is required that is not bound to physical limits such as local IT capacities. Managed services, such as utility computing, help release companies from these boundaries and ease the alignment of IT infrastructure with business needs.

Typically managed service provision will be hosted in a highly secure environment, minimising downtime, avoiding data loss and ensuring regulatory compliance.

Efficiency gains include:

- Rapid scalability
- Increased resilience (although that depends on the solution design)
- Improved service quality and therefore customer service
- Reduced capital expenditure: the necessity to invest in new platforms and technologies is moved to the service provider

Ref (3) Source, http://ec.europa.eu/information_society/newsroom/cf/itemdetail.cfm?item_id=3260

- Lower costs because the service provider uses economies of scale to provide non-core/non-revenue-generating activities
- Access to new, highly efficient technologies
- Access to expert knowledge ensures that your organisation can extract maximum benefit from new technologies
- Transparent, predictable costs
- High security through the provisioning of the services in purpose-built datacentres
- Improve business resilience because failure in one virtual machine (VM) does not affect the others running on the same machine. It is also easy to move a VM and restart it on new hardware
- Simplify the test and development of new applications under different operating systems

3. Virtualisation

Virtualisation is the abstraction of computer resources from applications. This gives the ability to reclaim existing excess resources, such as under-utilised servers, storage and network assets. It reduces the need for excess power and cooling, the need for additional IT equipment and the strain on capital resources.

Efficiency gains include:

- Reduce power consumption and therefore reduce carbon footprint
- Reduce data centre real estate.
- Utilisation of hardware increased from 5–15 percent to 60–80 percent, according to studies by virtualisation vendors (4)
- Lower administrative effort which accounts for 70 percent of the TCO of traditional IT infrastructures, according to various IT industry analysts

4. Utility computing

Utility computing (also known as on demand computing) is the packaging of computing resources, such as computation and storage, as a metered service similar to a physical public utility (such as electricity, water, or the telephone network). This has the advantage of near-zero initial acquisition cost. Instead, computational resources are rented.

Customers with very large computations or unpredictable peaks in demand can avoid the delays that would result from physically acquiring and assembling a larger processing suite.

Efficiency gains include:

- The same as with virtualisation plus:
- Pay-as-you-go use of IT resources
- Reduced capital expenditure
- Capital is not locked up with resources that are not used continuously
- Rapid scalability – IT can be aligned easily with business needs

SECURITY

All six technologies discussed here require robust, pervasive security and security failure detection to protect a company's physical and intellectual assets. Fewer security incidents mean less disruption for knowledge workers; continuously available systems make them more productive.

- Scalable operations through production of IT resources in shared 'factories'
- Therefore reduced operational expenditure
- Accelerated deployment of new applications that are required to support new business models and bring new products and services to market more quickly

5. Grid computing

Grid computing enables the pooling of storage, data, and processing resources. The resources can be deployed from dispersed datacentres and will be made accessible to many users over a (closed) network. Managing distributed resources in a heterogeneous environment, significantly improves utilisation.

Grid technology effectively separates the software application from its underlying hardware infrastructure enabling significant flexibility and scalability in running applications. Users will have the ability to choose between different service level agreements (SLAs) to get the optimal performance for each of their applications. A grid engine will ensure that each application is allocated the resources required to achieve the SLA metrics.

Efficiency gains include:

- The same as with utility computing plus application-level SLAs, providing predictable application performance graded according to business need

- Optimal application response times mean higher employee efficiency

6. Software as a service (SaaS)

While the number of SaaS providers is increasing the next step will be to improve the customer experience by using grid computing infrastructure with application level SLAs and closed community of interest networks (COINs) rather than the open internet to access applications.

Providers offering a data centre infrastructure to securely host the application and the network to allow secure and reliable access to the application are in the best position to offer a superior customer experience that allows companies to use the SaaS model even for mission-critical and performance-sensitive applications.

Efficiency gains include:

- Predictable transparent costs through pay-as-you-go software usage
- Improved customer service experience
- Access to corporate applications and data any where at anytime
- Managed software upgrades and patches
- Accelerated access to new applications
- Solutions that can be easily adapted to changing business requirements

QUESTIONS FOR SUPPLIERS

1. Does the supplier have sufficient scope to integrate the technologies required to the benefit of the business?
2. Does the supplier offer a comprehensive portfolio of network and IT services and can they therefore provide you with a one-stop shop to ensure an efficient buying process for your enterprise?
3. Does the supplier offer project management and service management capabilities to ensure that the new solutions are efficiently implemented and integrated into your existing infrastructure and afterwards efficiently managed?
4. How does the supplier intend to improve ease of use without raising the risk of data loss or theft?
5. Does the supplier operate the services in a highly secure environment (eg an ISO27001-certified datacentre) to ensure maximum uptime?
6. Does the supplier understand and cater for the different performance requirements of your applications?
7. Can the supplier demonstrate with case studies how they have deployed technology to favourably and quantifiably impact business efficiency?
8. Can the supplier help you implement a solution which is flexible enough to grow with your business with controlled and predictable costs?

For further information on finding the right partner to help you drive business efficiency: www.colt.net

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Resource optimisation

[www.colt.net/
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Risk mitigation

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CONCLUSION

Efficiency is derived from improving cost structures to increase margins, taking advantage of scale and improving the productivity of the people who generate revenue for the organisation.

Knowledge workers operate at their best when immersed in the flow of data, applications and collaboration with customers, colleagues and business partners. The technologies which can help to achieve this need careful planning to ensure they are deployed in a way which benefits the organisation the most.

For any organisation, the next steps are to look for where

efficiency gains can be achieved quickest. While this will depend on the relative technological sophistication of the organisation, rapid deployment and ROI can often be achieved by out-tasking to a trusted partner, obviating the need to acquire new skills and freeing up internal resources to concentrate on core performance issues.

It is worth repeating that it is not the technologies per se, but the way in which they are implemented, which has the greatest impact on business efficiency.

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