出國報告(出國類別：會議)

出席澳洲 Gartner Symposium ITxpo 2010 亞太地區年會　會議報告

服務機關：行政院環境保護署
姓名職稱：朱雨其處長
派赴國家：澳洲．雪梨
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目次

一、背景說明及與會目的

Gartner Symposium ITxpo 會議是由國際知名資訊科技顧問及市調業者 Gartner 公司舉辦，每年定期在全球各地舉行年會，發表最新資訊科技應用趨勢，素有聲譽並具一定影響力。2010 年 Gartner Symposium ITxpo 亞太年會於 11 月 15 日至 18 日在澳洲雪梨舉行，Gartner 公司在台代表感於本署於推行電腦機房共構及綠色資訊科技等措施著有績效，邀請本署環境監測及資訊處朱雨其處長與會，案經簽奉　署長核可後與會（相關資料詳附錄）。

本次出國參加會議之主要目的係參加 Gartner Symposium ITxpo 各個不同 Session 所發表資訊科技最新應用趨勢，藉由 Gartner 公司對資訊產業發展趨勢的調查研究，期望擷取分享實務經驗，應用在環境保護資訊業務之推展。其次，由於行政院組織改造作業刻正推展中，未來「環境資源部」成立後，環境資源相關之資訊管理業務規模量能勢將倍增，著有必要掌握資訊科技發展及趨勢，將其運用在組織整併過程中之各項資訊改造工作。

二、會議過程：

12 月 15 日中午抵達雪梨，入住旅館後隨即赴會場（雪梨會議及展覽中心，Sydney Convention and Exhibition Centre）辦理報到手續。會議報到手續採完全電腦化方式辦理，由與會人員在電腦輸入原先註冊的帳號及密碼後，隨即自動列印出席證，並由服務人員依註冊類別給付會議資料，整體流程迅速有序。

本次會議總計約有 1,800 人來自世界各國資訊科技專業人士與會，共有 170 餘場次的講演及相關活動。想要參加每一場次活動是不可能的，大會也體認此一情況，所以在會後將所有講演的影音錄影放在網路上供與會者免費觀看一年（如要下載則需另行付費）。以下謹就會議三天半議程中，本人參與場次的講演和活動內容摘要說明：

第一天（11 月 15 日下午）：

完成註冊後，參加當天下午二項議程，主要係「與談討論」（Panel Discussion），由主持人邀請對該項主題或該領域素有經驗者與談。第一場為“Government 2.0 Taskforce”，主要談論公部門面對網路社群日益蓬勃的情境，如何利用這類新興科技與媒體，協助施政推展，特別是如何調整現行資訊作業模式，並重新定位業務單位與資訊單位的分工這項議題，引發熱烈討論。其次，與談人特別強調公部門利用網路發布資料，應以民眾需求為著眼點，亦即必須以「民眾想知道什麼資料」為思考主軸，而非公部門「想讓民眾知道」的資料。公部門也不能只是單純地將資料放上網路，必須要同時告知民眾這些資料所蘊涵的意義（meaning）。對於網路社群的應用，與談人舉了一個有趣的例子，澳洲有些地方政府的稅務部門利用 Facebook 和 Flickr 搜尋那些民眾近期曾整修房舍（有些人會利用網路與朋友分享新居環境的照片），進而勾稽該等房舍的賦稅情況，這種作法引發正反看法（主要是隱私權課題）。唯以公部門大方向而言，應該可以將網路社群視作一種輔助工具，公部門可以運用此項工具搜尋政府以外的資訊，提供民眾更好的服務。

第二場係由 Gartner 分析師訪談澳洲 Powercor 電力公司（主要提供大墨

爾本地區電力供應及輸配電工程）資訊部門主管，討論內容著重在資訊部門如何與組織內技術部門的合作溝通模式。由於 Powercor 電力公司的電力建設及營運設施多已充分電腦化，是以衍生業務單位與資訊單位如何分工的課題，也就是說，運用在業務單位的資訊設施（包括軟體與硬體）究竟該由何單位負責操作管理及維運工作。根據 Powercor 電力公司的經驗，主要困難在於「人」，這項議題似乎尚未得到解決，但其著力方向朝著由業務單位與資訊單位抽調人力，共組一個新單位的方式處理，但這種方式是否可行，尚待時間驗證。其實，這類問題近年來已成為困擾組織運作與發展的重要因素之一，後續幾天的議程亦出現類似課題的討論，綜合而言，現階段似乎尚未有完整的解決方案。

第二天（11 月 16 日）：

會議第二天上午早餐會由麻省理工學院 CISR 主席 Peter Weill 教授講演「軟體系統重用（Reuse）課題。Weill 教授認為軟體系統的重用，係提昇軟體發展與應用能力的關鍵課題，但這項工作並非想像中的容易，其中涉及的因素太多，包括技術能量的提昇、組織文化調適等不同面向的障礙。但組織不能因為這些障礙而卻步，必須積極地面對問題，尋求解決方案，因為軟體系統的重用是組織降低成本、維持彈性及提昇競爭力的重要手段之一。

Weill 教授在講演中提到 Reuse 的主要方法包括：共享服務（shared services）、虛擬化（virtualization）、集中治理平台（centralization governance platform）、模組化（modularizations）及雲端運算（cloud computing）等，但這些措施言之容易，實踐則難，最關鍵的因素當屬標準化的推行與落實，唯有在標準化的平台上，才有可能實現軟體重用的理想並得到其利益。

KEYNOTE SPEECH：由 Gartner 資深分析師 Peter Sondergarrd 主講，他指出未來一年所有 IT 部門必須注意以下四個主題：(1)雲端運算（cloud computing）(2)社群網路運算（social computing）(3)情境感知運算（context-awareness computing）(4)以樣態為基礎的策略（pattern-based strategy）。他同時指出，IT 部門必須從傳統的「控制（controlling）」功能轉型為「影響（influence）」功能，而且必著重業務面的成果（business outcomes）而非只是輸出（outputs）。

搭配 Sondergarrdd 的講演，另有六位 Gartner 分析師也分別闡述他們對於未來資訊科技發展趨勢的觀察，及 IT 部門和 IT 從業人員在組織轉型過程所面對的挑戰和定位問題。整體而言，Gartner 分析師群在 KEYNOTE SPEECH 中揭示了資訊產業及 IT 應用的主要趨勢與方向，值得關注。

Unified Communication, UC 論辯（debate: UC—the biggest scam since Ponzi?）：UC 是近年頗為風行的 IT 課題，其用意在統合現有多元的通訊聯絡方式（email, 簡訊、視訊、電話、即時通……）。但多數業者尚難提出具體的解決方案或實蹟，主要困難在於如何整併現有的軟硬體基礎設施的關鍵技術似乎尚未成熟，企業倘貿然投入，風險甚高，但實務上，又需要工具或解決方案以因應目前通訊管道過多，導致管理的困境，所以兩難。辯論過程雖然精彩，可惜未有定論，Gartner 對本項議題所提出的建言是：再觀察。這種透過正反雙方論辯方式以釐清技術趨勢的方式在其它場合尚不多見。

發表 2011 年 10 大策略性技術（Strategic Technology）：這是每年 Gartner 年會固定的活動，通常由其標定的策略性技術在次年的產業界及資訊應用領域都引發廣泛關注，今年發布的 10 大策略性技術如下：

1. Cloud Computing
2. Mobile Applications & Media Tablets
3. Next-Generation Analytics
4. Social Analytics
5. Social Communications & Collaboration
6. Video
7. Context -Aware Computing
8. Ubiquitous Computing
9. Storage Class Memory
10. Fabric-Based Infrastructure and Computers

其中特別值得關注的是雲端運算（Cloud Computing）已連續第三年被 Gartner 評定為策略性技術，Gartner 認為雲端運算已經是「技術成熟度模型」（hype cycle）的高峰期，將被寄予無限期待；調查資料也顯示，雲端運算有可能是企業新年度最有可能採行的創新措施。

第三天（11 月 17 日）：

基礎設施及操作面（Infrastructure & Operations）值得關注的 10 大趨勢：這是另一項重要的訊息發布，10 大趨勢如下：

1. Virtualization Is Just Beginning
2. Big Data — The Elephant in the Room
3. Energy Efficiency and Monitoring
4. Unified Communications — Extended
5. Staff Retention and Retraining
6. Social Networks — Ready or Not
7. Legacy Migrations — Your Users
8. Compute Density — Scale Vertically
9. Cloud Computing
10. Converged Fabrics

雲端運算同時出現在策略性技術與關注趨勢，顯見此議題在 2011 年勢將延續其熱度。其次，資訊設施節能相關課題亦將是 2011 年的重點，由於氣候變遷所衍生的減碳問題，各家資訊設備大廠將競以節能為硬體設施銷售的主要訴求，而搭配的機房共構、主機虛擬化等也都「水漲船高」。另一項趨勢將是對大量資料的管理與應用分析，這也呼應 IT 部門的角色必須從傳統的技術導向，轉化成業務支援或創新價值導向。當然，在 FACEBOOK 註冊人數突破 5 億之際，社群網路成為受關注的趨勢是毫不意外的。

身分辨識及存取管理（the identity and access management, IAM）：這是資通訊安全的基本問題，卻也最難處理。以最簡單的語句描述這項工作的目標："keep bad guys out, let good guys in", 以及 "right people get right information at right time"，但要達到這樣的目標並不容易。目前 IT 部門多仰賴業者所提供的軟硬體產品，多屬「水電工」（plumbering）式的作法。未來必須以風險管理（risk management）的方式來面對此項課題；也就是說，IT 部門必須結合業務部門從「管理制度」面向看待 IAM，不能期待完全以技術手段解決資通訊安全問題。其次，企業組織在設計 IAM 的管理制度時，通常過於複雜，拘泥太多的細節，反而忽略了 IAM 問題的本質。但是，實務上要在簡化與安全之間取得平衡需要大量的前置規劃作業，同時，業務部門及組織決策階層對安全的認知與期待也是簡化過程的關鍵因素之一。

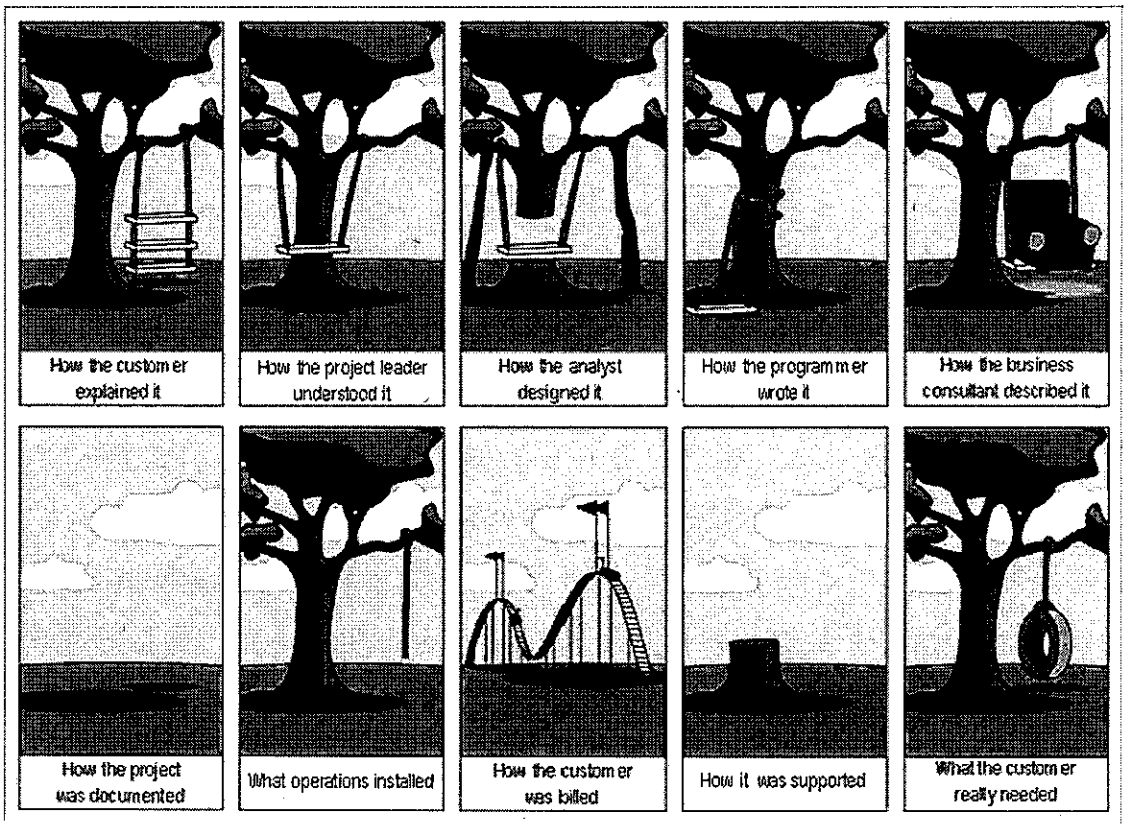
企業架構（enterprise architecture, EA）：EA 是一項工具，是協助人們規劃如何運用資訊科技的一項工具。相對於資訊科技基礎架構（information technology infrastructure, ITI）而言，ITI 是實體的架構，而 EA 則是邏輯的架構。以公共工程為例子，ITI 就好比是已建設好的高速公路，而 EA 則是規劃設計這條高速公路的藍圖。由此可見，EA 是任何企業組織在建設資訊基礎架構時所必須先完成一工作，但實務上，EA 被採用只是近幾年的事，是否果如其定義的功能還有待觀察。有 Gartner 分析師認為 EA 較適用於業務項目及組織目標較為齊一的企業組織，在公部門並不適用。

第四天（11 月 18 日）：

操作性設施是否應由 IT 部門統籌管理論辯（debate: technology should be centralized, owned and governed by IT—not the business）： 由於 IT 發展快速，其應用範圍越來越廣，現在幾乎所有設施都能與資訊與網路科技結合。例如機關組織中用來管制門禁的監視系統及刷卡進出系統等，以往可能是單純的閉路電視系統，由總務（庶務）部門建置管理，但現在幾乎所有的門禁管理都用到資訊及網路技術，包括錄影資料的存檔、調閱，網路遠端監控等功能，是以這類設施的操作設定需依賴 IT 專業人員，但是管理權責通常卻歸屬總務部門，造成組織內橫向溝通易生齟齬。這類問題近年逐漸浮上檯面，歸結可視為 IT 部門未來的定位課題。這場論辯結束後，主持人就現場約 150 位參與者作調查，結果贊成由 IT 部門統籌管理與反對者各半，顯示此議題目前似尚難有共識，是以 Gartner 對本項議題所提出的建言還是：再觀察。

資訊治理（information governance）：資訊治理較「資訊技術治理」（IT Governance）所探究的問題更為廣泛及上層，其影響層面是全組織性的，不單只是資訊部門的事，必須業務單位、資訊單位以及決策階層共同參與。以我國現行「個人資料保護法」而言，其對組織的資訊治理（該如何管理組織內所蒐集之個人資料），從政策面到作業面勢將產生重大衝擊，很遺憾，目前國內雖由法務部主導本法案之推動，但各部會似乎仍將類似課題看成是資訊技術課題，期待用技術手段解決制度及管理所必須面對處理的問題，令人憂心。

建構精實 IT（implement lean IT）：此項課題近年來逐受到重視，原因在於傳統資訊系統的建構方式難以掌握真實的需求，以下圖為例：左上角所示是使用者表達的需求，但是經過層層轉變，每一階段所陳現的結果與使用者所描述的功能皆不相符，而右下角所示則是使用者真正需要的系統功能。這突現二個問題：(1)使用者未能完整正確的描述其需求，(2)系統發展者未能掌握（發掘）使用者「真實」的需求。這些問題在軟體工程學域發展數十年後仍然未能得到有效的解決方案。



大量資料成長的管理策略（surviving unconstrained data growth）：當前數位化資料的增長速度遠超過人們的想像，有統計資料顯示，現在每天上傳到 Youtube 的影片資料遠大於過去 40 年裡美國三大新聞網的新聞影片。但是問題在於這些資料是「有用」的嗎？資料何時可以被刪除呢？是以組織必須設定一套「資訊生命週期管理」（information lifecycle management, ILM）的作法，針對何類資料該被歸檔儲存，何類資料在一定期間後應刪除，應該有上位管理政策（可形成資訊治理的一項課題），配合適當的管理工作，才能讓組織的資訊管理作業持續性經營，否則，先是一昧地擴充儲存設施無法解決問題。

三、心得及建議事項：

Gartner 公司對資訊產業之市場調查及趨勢分析在國際間享有盛名，其發表之產業分析報告在業界極受重視，每年在世界各地舉辦收費之研討會均吸引數千人與會（以此次澳洲會議為例，註冊費高達 3,900 澳幣，但與會人數高達 1,800 餘人）。在會議上發表的各項報告及講演內容，通常對資訊產業之發展及應用造成一定程度影響，是以與會成員，除了有來自產業界人士外，各個不同應用領域的資訊專業人員亦十分踴躍，除了銀行業、航運業等這類對資訊技術倚賴甚深的產業外，近年來，公部門參與的程度亦大幅增加。此次會議澳洲政府從聯邦到地方，參與的公務人員甚多，同時有政府部門資訊主管，主持或參與各場次討論，顯見國外公部門在導入資訊技術以加強為民服務的工作上，充分運用民間顧問業者能量，藉以精準掌握 IT 發展趨勢。反觀國內公部門目前利用類似第三方顧問服務之案例尚不多見，僅行政院研考會與 Gartner 有會員合約，是以在導入資訊專案時容易受到業者及廠商影響，甚而提高專案風險，未來當可思考一定規模以上之資訊專案可諮詢專案顧問或購買公正第三方的建議（advice），但目前政府採購法相關規定必須調整突破，否則不易施行。

Gartner 分析師多具有豐富實務經驗，是以其對技術發展趨勢之分析與學院派之「學者專家」極為不同，但更契合實作需求，不致淪為清談。其次，他們對專業知識的組織與表達方式，有一套制式的作法，通常 60 分鐘的講演所用到的投影片約 20 張左右，講演前段必先界定議題範疇，末段針對不同時程提出具體建議（會議結束後一週內、三個月內、一年內）。這種表達方式極具條理，同時讓參與者可以快速有效掌握工作方向，值得學習。

以下謹就本次與會心得重點與建議事項摘要說明：

1. 持續推行並落實「綠色 IT」環境

   綠色 IT 是近年廣受重視的資訊架構趨勢，就公部門而言，主要應用當屬機房共構（integrated data center, IDC）及主機整併（server consolidation）。本署配合組改前置作業，99 年度由研考會分經費，擇定 104 部主機整併 18 部主機（初估每月至少省電 12,000 度），惟目前主機總數仍達 190 部左右，有必要持續整併，根據本次會議研討重點，將來

需要從系統軟體及效益面著手，貫澈資訊系統生命週期（lifecycle）淘汰機制，建構集中管理的資訊服務架構。

2. 及早規劃環資部雲端運算服務

雲端運算概念雖已倡議多年，惟落實在公部門的具體項目尚不多見，根據與會專家分析建議，可先由「電子郵件」服務著手。未來環資部可考量建構單一電子郵件服務，勿須各機關重複建置電郵系統。

3. 研擬「資訊治理」相關策略與準則

政府網站已成為與民眾溝通的重要管道，但何者資料應上網？以何種方式陳現？（也就是「數位內容」的問題）本次會議有廣泛討論，顯示各國政府面臨類似問題。與會專家及分析師認為，應該從民眾角度思考上網的內容，而非由公部門決定將那些資料上網。其次，對於網路上的資料，必須能讓民眾清楚解讀其涵義（meaning），所以必須從組織整體資訊治理的上位角度著手。依此研析，本署網站的「內容管理」尚有改進空間，未來需研訂網站管理相關規範，納入資訊治理概念與作法。

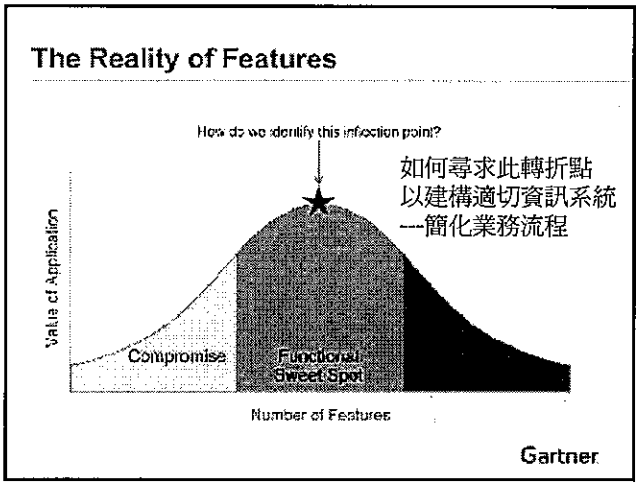
4. 提昇資料編譯能力，擴增對網路社群之運用能量

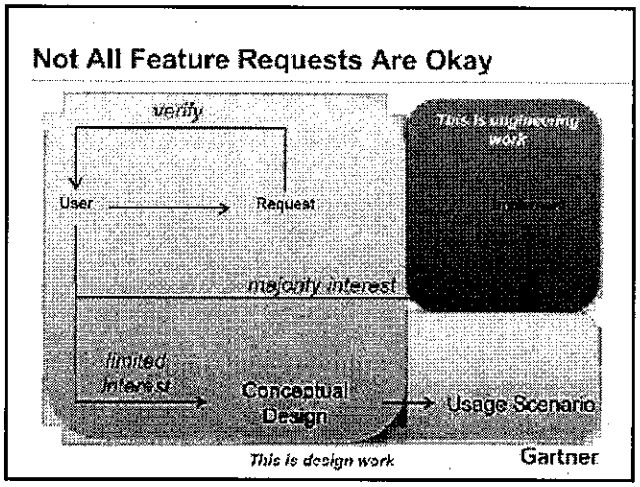
網路社群是資訊傳播的重要資源，公部門倘能善加利用此資源以宣導施政措施，則有助民意雙向溝通，惟網路社群因多屬匿名性質，亦有困窘之處。本署目前於 YouTube, Flicker 等影音社群網路已有連結，惟限於資料屬性（不夠豐富、不夠有趣），尚難引發共鳴。未來必須提昇本署各單位對業務資料的編譯（compile）及網頁編輯（webpage authoring）能力，以契合網路社群的資訊傳播特性。

5. 簡化業務流程，尋求適切的資訊系統功能

根據 Gartner 的調查統計，組織資訊系統的功能會隨者時間成為膨脹體（bloatware），但是功能多不代表系統合宜。觀察本署現行資訊系統（包括業務系統及行政系統）多有膨脹現象，初步探究其主要原因應係「業務流程太過複雜」。本次會議有專家倡議 “things simple do much” 概念，但首要需從業務流程簡化著手，主張資訊系統建構不應強調過多太複雜的功能，而要尋求下圖的最適切點。

並不是所有的「需求」都要反應在資訊系統





Gartner Symposium ITxpo 2010 – Sydney Australia, Nov. 15~18
Agenda Details

Monday 13:00-17:00

Industry Monday - Government REGISTER

Speaker: **Andrea Di Maio** ID: **11**
Session Type: **Industry Session**

Government Clouds Beyond the Hype: Public, Private, Both or None? Andrea Di Maio The landscape for cloud computing adoption in government remains confusing. This session aims at bringing clarity about the relationships between cloud and more traditional sourcing models, about the rationale for adopting public rather than private cloud services, and the multiple roles that government plays as user, provider, broker and regulator of cloud services. Panel: Government 2.0 Panel: Shared Services

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Monday 13:00-16:30

Industry Monday - Energy & Utilities REGISTER

Speakers: **Geoff Johnson, Kristian Steenstrup** Location: **Session Room D** ID: **11D**
Session Type: **Industry Session**

Using Pattern based Strategies for Reliability Kristian Steenstrup The optimised utilisation of assets needs a constant search for reliability techniques. One area of research and application is to seek patterns in wear rates and failure to pre-empt catastrophic failure. - What strategies are used to prevent equipment failure? - How can patterns be detected and monitored? - What technologies can be utilised to support the search for patterns? Communications: The Secret Ingredient to Optimize Operational with Information Technologies Geoff Johnson The most effective plans for optimizing OT and IT in any industry will have networking as a core tool in facilitating the most valuable business management transitions. - Why is the use and leverage of communications critical to any harmonization of OT and IT? - What are the best areas of opportunity for reviewing the roles of OT and IT? - How can Case Studies and Role Models for OT and IT synergy be applied in key industries? Case Study - TBA

Monday 13:00-17:30

Industry Monday - Higher Education REGISTER

Speakers: **Jan-Martin Lowendahl, Peter Nikoletatos, Neil Thelander** Location: **Session Room E** ID: **11E**
Session Type: **Industry Session**

Higher-Education CIOs' New Controls in the Cloud and Consumerization Era Jan-Martin Lowendahl The CIOs used to be in control. We used to argue our existance in terms of economy of scale on campus but cannot compete with Google. In this session CIOs will learn some actions that are taken by their peers to focus skills an resources plus a few new controls to use in the new era of the cloud and consumerization. - Is IT a threat to the CIO? - How are CIOs responding? - What can CIOs do to stay in control? Case Study: Thinking Above and Beyond the Campus Peter Nikoletatos In this session Peter will discuss Curtin's journey towards a life-long connection with its students. Workshop: Your University of The Future Jan-Martin Lowendahl and Neil Thelander Learn from the experiences of your peers and use scenario stories, strategy maps and the Hype Cycle to tell and sell your uni's business technology strategy of th5e future.

Monday 13:00-17:00

Industry Monday - Financial Services REGISTER

Speakers: **Randy Fennel, Alistair Newton** Location: **Session Room F** ID: **11F**
Session Type: **Industry Session**

Addressing the Challenges: Leading your Bank beyond 2010 Alistair Newton In 2010, the economic crisis forced CIOs to examine every aspect of their operations. Business leaders are still demanding improvements in productivity and additional capabilities that will reshape a bank's competitive position. Learn how to deliver on both fronts and create new strategies which will define the future of IT and, therefore, the bank. - How can CIOs position IT as an integral part of the business and demonstrate a "new" value proposition? - How can CIOs use the resources and capabilities of IT to make the bank more intelligent to enable better executive decisions? - How will CIOs use strategic and emerging technology to support higher productivity and be a catalyst for innovation? Case Study: Randy Fennel, Engineering & Sustainability General Manager, Technology, Westpac Panel: Hype or Fact - The Truths about Social Media in Banking Social Media-the biggest thing to hit the Financial Services industry since the invention of the ATM or an over-hyped and over-exposed fad which will fade and die in very short fashion ? Here the Gartner team will answer this question, debating the pros and cons of social media to expose its true impact on the FS industry. - What impact will social media have on the financial services industry? - What lessons can be learned from outside the financial services industry? - How to you prepare for investment decisions in the social media space?

Tuesday

Tuesday 08:00-09:30

CIO Breakfast: Reuse Is Much More Important and Harder than We Thought REGISTERED

Speaker: **Peter Weill**
Session Type: **CIO Program**
ID: **21CP**
Track: **CIO**

Firms that reuse technology, systems, business processes, and expertise have CIOs who better meet business expectations, generate higher business value from IT, and perform better than their competitors. Specifically firms that grow faster reuse more. Not bad, but all reuse doesn't pay off equally. In a study of reuse in over 1000 firms, we have identified what types of reuse work. Peter will present a framework for reuse, a self-assessment tool and examples of effective practices from several case studies. He will conclude with a discussion about how to increase reuse to help improve firm performance engaging participants to share their effective practices.

Tuesday 08:30-09:30

Enterprise Architecture Networking Breakfast ADD

Speakers: **Richard Buchanan, Bard Papegaaij**
Session Type: **Breakfast**
Location: **Session Room A**
ID: **21A**
Track: **EA**

Kick start your Symposium/ITxpo experience by attending the networking breakfast session. You will meet with Gartner Analysts and your peers to discuss your business and IT challenges, successes and plans.

Tuesday 08:30-09:30

Business Process Management Networking Breakfast ADD

Speaker: **Janelle B. Hill**
Session Type: **Breakfast**
Location: **Analyst/User Roundtable Session Room**
ID: **21AUR**
Track: **BPM**

Kick start your Symposium/ITxpo experience by attending the networking breakfast session. You will meet with Gartner Analysts and your peers to discuss your business and IT challenges, successes and plans.

Tuesday 08:30-09:30

Sourcing & Vendor Relationships Networking Breakfast ADD

Speakers: **Christopher Ambrose, Linda R. Cohen, Jim Longwood**
Session Type: **Breakfast**
Location: **Session Room B**
ID: **21B**
Track: **SVR**

Kick start your Symposium/ITxpo experience by attending the networking

breakfast session. You will meet with Gartner Analysts and your peers to discuss your business and IT challenges, successes and plans.

Tuesday 08:30-09:30

Program & Portfolio Management Networking Breakfast

ADD

Speakers: **Donna Fitzgerald, Matt Light**
Session Type: **Breakfast**
Location: **Session Room C**
ID: **21C**
Track: **PPM**

Kick start your Symposium/ITxpo experience by attending the networking breakfast session. You will meet with Gartner Analysts and your peers to discuss your business and IT challenges, successes and plans.

Tuesday 08:30-09:30

Business Intelligence & Information Management Networking Breakfast

ADD

Speakers: **Ian A. Bertram, Kenneth Chin, Ted Friedman, Eric Thoo**
Session Type: **Breakfast**
Location: **Session Room D**
ID: **21D**
Track: **BIIM**

Kick start your Symposium/ITxpo experience by attending the networking breakfast session. You will meet with Gartner Analysts and your peers to discuss your business and IT challenges, successes and plans.

Tuesday 08:30-09:30

Applications Networking Breakfast

ADD

Speakers: **Yvonne Genovese, Brian Prentice**
Session Type: **Breakfast**
Location: **Session Room E**
ID: **21E**
Track: **APP**

Kick start your Symposium/ITxpo experience by attending the networking breakfast session. You will meet with Gartner Analysts and your peers to discuss your business and IT challenges, successes and plans.

Tuesday 08:30-09:30

Infrastructure & Operations Networking Breakfast

ADD

Speakers: **Cameron Haight, Mark A. Margevicius, Bjarne Munch, Errol Rasit**
Session Type: **Breakfast**
Location: **Session Room F**
ID: **21F**
Tracks: **COM, IO**

Kick start your Symposium/ITxpo experience by attending the networking breakfast session. You will meet with Gartner Analysts and your peers to discuss your business and IT challenges, successes and plans.

Tuesday 08:30-09:30

Security & Risk Management Networking Breakfast

ADD

Speakers: **Rob McMillan, Andrew Walls, Roberta J. Witty**
Session Type: **Breakfast**
Location: **Workshop Room**
ID: **21WS**

Kick start your Symposium/ITxpo experience by attending the networking breakfast session. You will meet with Gartner Analysts and your peers to discuss your business and IT challenges, successes and plans.

Tuesday 09:45-10:00

Welcome Address with Gene Hall

ADD

Speaker: **Gene Hall**
Session Type: **Keynote Session**
Location: **Session Room G**
ID: **22K1**
Tracks: **APP, BIIM, BPM, CIO, EA, COM, IO, PPM, SRM, SVR**

A personal welcome and introduction to Gartner Symposium by Gartner's Chief Executive

Tuesday 10:00-10:15

Opening Address with Peter Sondergaard

ADD

Speaker: **Peter Sondergaard**
Session Type: **Keynote Session**
Location: **Session Room G**
ID: **22K2**
Tracks: **APP, BIIM, BPM, CIO, EA, COM, IO, PPM, SRM, SVR**

Gartner's worldwide Head of Research provides thought leading insights on

the IT industry.

Tuesday 10:15-11:15

Gartner Keynote

ADD

Session Type: **Keynote Session**

Location: **Session Room G**
ID: **22K3**
Tracks: **APP, BIIM, BPM, CIO, EA, COM, IO, PPM, SRM, SVR**

There is an unprecedented transition in all aspects of IT that is irreversibly changing the mission and work of IT executives and professionals, and reshaping technology's role in the business. Leading Gartner analysts will advance your thinking around innovation, how people are using technology, how it's delivered, its impact on business and society, and more. This opening keynote will help you anticipate the full array of transitions going on around us, and capitalize on opportunities through achievable actions to lead your organizations, teams, and yourselves through the transition.

Tuesday 11:25-12:25

Sell or Hold? Reviewing Major IT Initiatives

ADD

Speaker: **Matt Light**
Session Type: **Gartner Session**

Location: **Session Room A**
ID: **23A**
Track: **PPM**

Organizations have all increased their focus on investments and value-for-money. For many, this means increasing project reviews and health checks for performance, and conformance to plan and budget.

Tuesday 11:25-12:25

The Gartner 2011 Information Security Scenario

ADD

Speaker: **Andrew Walls**
Session Type: **Gartner Session**

Location: **Session Room B**
ID: **23B**
Track: **SRM**

Cybersecurity threats continue to morph and have severe impact. Trends like the cloud, consumerization and mobility are changing the way IT is delivered, enabling new threats and breaking old security processes. We'll provide a decision framework for optimizing the enterprise security strategy to deal with these rapid changes.

Tuesday 11:25-12:25

BI Initiatives and Competencies: Foundations and Trends

ADD

Speaker: **Ian A. Bertram**
Session Type: **Gartner Session**

Location: **Session Room C**
ID: **23C**
Track: **BIIM**

The value of Business Intelligence (BI) and Performance Management (PM) is more than information dissemination. The initiatives must be linked to achieve business goals. A broader BI and PM framework is needed to define and maximise the business value and avoid the most common 'fatal flaws' that undermine BI initiatives and their business value.

Tuesday 11:25-12:25

The Cloud Computing Scenario

ADD

Speaker: **Daryl C. Plummer**
Session Type: **Gartner Session**

Location: **Session Room D**
ID: **23D**
Tracks: **SI, CIO**

Cloud computing is moving from a new idea to the next big strategy for optimizing how IT is used. We'll establish the reality of cloud computing for enterprises and consumers, and examine the maturity of cloud computing, its direction and the markets it affects.

Tuesday 11:25-12:25

Building the Compelling Case For Application Overhaul

ADD

Speaker: **Andy Kyte**
Session Type: **Gartner Session**

Location: **Session Room E**
ID: **23E**
Track: **APP**

Without decisive action, the bloated application portfolio threatens to stifle business innovation and strangle business agility. As IT management teams

awake to the sacle of the task of Application Overhaul, they need to build a strong 'coalition of the willing' across the whole of IT and with all of the business stakeholders.

Tuesday 11:25-12:25

Management of Next Generation Virtualization and Cloud Infrastructures: A Review of Providers and Standards

ADD

Speaker: **Cameron Haight**
Session Type: **Gartner Session**
Location: **Session Room F**
ID: **23F**
Track: **IO**

Virtualization and cloud computing technologies have caused tremendous disruption in the management marketplace. Infrastructure and cloud providers now stand ready in many cases to challenge the traditional management powerhouses. But the major providers in this space are not standing still either. In this presentation, we look at the changes taking place both in terms of management technology (and service) providers as well as standards designed to facilitate the operations of these emerging environments.

Tuesday 11:25-12:25

CEO Concerns 2010 & The IT Implications

ADD

Speaker: **Dave Aron**
Session Type: **Gartner Session**
Location: **Session Room G**
ID: **23G**
Track: **CIO**

We'll present analysis from Gartner's own CEO survey and others that reveals the major concerns of business leaders in 2010. And we'll show how IT can alleviate each of those concerns.

Tuesday 11:25-12:25

Contract Negotiation Clinic: Infrastructure Outsourcing

REGISTER

Session Type: **Contract Negotiation Clinic**
ID: **23WS**
Tracks: **SVR, IO**

Contract Negotiation Clinics are small, hands-on workshops that deliver a powerful combination of Gartner insight and peer best practices that will position you well for you next contract negotiation – or renegotiation – with strategic vendors. This clinic is specifically focused on infrastructure outsourcing contracts.

Tuesday 12:40-13:00

Magic Quadrant: Data Integration Tools

ADD

Speaker: **Ted Friedman**
Session Type: **Magic Quadrant and ITxpo Theater Session**
Location: **ITxpo Theatre 1**
ID: **1MQ**
Track: **BIIM**

In this session we will review the current state of play and trends in the markets for data integration tools, using the related MQ as the basis for discussion. Attendees will learn how to make wise choices of providers in this market, and which providers are on the rise versus those on the decline.

Tuesday 12:40-13:00

Magic Quadrant: Enterprise Architecture Tools

ADD

Speaker: **Bard Papegaaij**
Session Type: **Magic Quadrant and ITxpo Theater Session**
Location: **ITxpo Theatre 2**
ID: **2MQ**
Track: **EA**

We'll review the Gartner Magic Quadrant for Enterprise Architecture tools.

Tuesday 12:40-13:00

Magic Quadrant: x86 Server Virtualization Infrastructure

ADD

Speaker: **Errol Rasit**
Session Type: **Magic Quadrant and ITxpo Theater Session**
Location: **ITxpo Theatre 3**
ID: **3MQ**
Track: **IO**

We'll review the Gartner Magic Quadrant for x86 Server Virtualization Infrastructure.

Tuesday
13:25-
14:25

Outsourcing Revolution: Building Better Outcomes

ADD

Speaker: **Linda R. Cohen**
Session Type: **Gartner Session**

Location: **Session Room A**
ID: **24A**
Track: **SVR**

Old fashioned outsourcing simply doesn't work today. Outsourcing now demands greater flexibility and agility. In turn, providers are responding with a broader portfolio of services and delivery models. But enterprises must focus on selecting the right blend of providers and services to enable growth and drive business value. We'll uncover the best methods for taking advantage of today's revolution in outsourcing and vendor management, and examine the new approaches it requires.

Tuesday
13:25-
14:25

The BPM Scenario: From Operational Excellence to Adaptive Processes

ADD

Speaker: **Janelle B. Hill**
Session Type: **Gartner Session**

Location: **Session Room B**
ID: **24B**
Track: **BPM**

BPM is a like a symphony. It harmonically coordinates the resource interactions that define how your business does what it does and distinguishes your company from others. This is our five year scenario for how BPM disciplines and technologies will evolve beyond the traditional focus on operational excellence and towards adaptive processes.

Tuesday
13:25-
14:25

Introducing Hybrid Thinking

ADD

Speaker: **Richard Buchanan**
Session Type: **Gartner Session**

Location: **Session Room C**
ID: **24C**
Tracks: **EA, SI**

Hybrid thinking is a new discipline for transformation, innovation and strategy (TIS). While many EA initiatives aspire to tackle TIS challenges with business leadership, few have realized their aspirations, despite decades of effort. Accordingly, a new discipline is needed — one that combines the analytical mastery of architects with the intuitive originality of design thinkers.

Tuesday
13:25-
14:25

CIO Roundtable: Improving and Maintaining Performance

REGISTER

Speaker: **Scott Stein**
Session Type: **CIO Program**

Location: **Room TBC**
ID: **24CP**
Track: **CIO**

Getting people to perform and sustain this performance is a constant challenge in today's competitive environment. This roundtable provides you with specific strategies that can be used to sustain performance, and gives you the chance to discuss what works and what doesn't with other C-Level executives.

Tuesday
13:25-
14:25

User Experience: It Takes a Tough Guy to Make a Tender User Interface

ADD

Speaker: **Brian Prentice**
Session Type: **Gartner Session**

Location: **Session Room D**
ID: **24D**
Track: **APP**

A high-quality user experience for Web sites and applications, is now within reach of most organizations. The principles and best practices are well-known among high-end consumer-facing Web sites. The challenge is how to apply this know-how within the enterprise setting, to gain strategic benefits and competitive advantage. There are different approaches, each with its risks and requirements.

Tuesday
13:25-
14:25

Unified Communications and Collaboration Scenario: Are We There Yet?

ADD

Speaker: **Geoff Johnson**

Location: **Session Room E**

Session Type: **Gartner Session** ID: **24E**
Track: **COM**

The dramatic and rapid convergence of communications, collaboration, and social media, accompanied by new cloud delivery models, poses a critical challenge for CIOs and planners. Significant opportunities and risks exist as Cisco, Microsoft, IBM, Google, and Avaya all compete and enterprises must re-think their strategic vendor relations, and business models.

Tuesday 13:25-14:25

The Gartner Sustainability Scenario ADD

Speaker: **Marcus Blosch** Location: **Session Room F**
Session Type: **Gartner Session** ID: **24F**
Track: **CIO**

The shift to a low-carbon and more sustainable economy will be transformatory, presenting public and private-sector organizations with substantial risks and opportunities. We'll look at IT's critical role in helping the organization to manage the transition.

Tuesday 13:25-14:25

The 2011 CIO Agenda: Leading in Times of Transitions ADD

Speaker: **Mark P. McDonald** Location: **Session Room G**
Session Type: **Gartner Session** ID: **24G**
Track: **CIO**

As Gartner Symposium/ITxpo turns 20, we'll concentrate this year's CIO Agenda review on IT's greatest accomplishments and future challenges.

Tuesday 14:35-15:20

Solution Provider Session ADD

Session Type: **Solution Provider Session** Location: **Session Room A**
ID: **25A**

Solution Provider Session

Tuesday 14:35-15:20

Solution Provider Session ADD

Session Type: **Solution Provider Session** Location: **Session Room B**
ID: **25B**

Tuesday 14:35-15:20

Solution Provider Session ADD

Session Type: **Solution Provider Session** Location: **Session Room C**
ID: **25C**

Tuesday 14:35-15:20

Solution Provider Session ADD

Session Type: **Solution Provider Session** Location: **Session Room D**
ID: **25D**

Tuesday 14:35-15:20

Solution Provider Session ADD

Session Type: **Solution Provider Session** Location: **Session Room E**
ID: **25E**

Tuesday 14:35-15:20

Solution Provider Session ADD

Session Type: **Solution Provider Session** Location: **Session Room F**
ID: **25F**

Tuesday 14:35-15:20

Solution Provider Session ADD

Session Type: **Solution Provider Session** Location: **Session Room G**
ID: **25G**

Tuesday 15:05-16:05

Top 10 Strategic Technology Trends for 2011 ADD

Speaker: **Nick Jones** Location: **Session Room D**
Session Type: **Gartner Session** ID: **26D**
Tracks: **SI, CIO**

Strategic technologies are ones that can significantly impact the enterprise during the next three years. That impact may be disruption to IT or the

---

business, the need for a major investment, or the risk of being late to adopt. We'll present Gartner's annual list of the Top 10 technology trends that companies should be factoring into their strategic planning for 2011.

Tuesday 15:25-16:50

Workshop: Get the most out of the Green IT/Sustainability Strategy

REGISTER

Speaker: **David J. Cappuccio**
Session Type: **Workshop**

Location: **Workshop Room**
ID: **25WS**
Track: **IO**

Outcome of the workshop are: 1. Tactical Green IT: How to implement an energy and carbon policy and determine key performance indicators and metrics to measure the business impact of the policies? 2. Strategic Sustainability: How to develop broader sustainability strategies including sustainable product management, energy management, carbon management and sustainability reporting?

Tuesday 15:50-16:50

The Computing and Communications Tools Your Employees Need

ADD

Speakers: **Bob Hafner, Mark A. Margevicius**
Session Type: **Gartner Session**

Location: **Session Room A**
ID: **26A**
Track: **COM**

Computing and communications tools are changing as a result of mobility, virtualization and unifed communications and collaboration (UCC). These new requirements, new devices (e.g., netbook, iPad) and traditional devices with expanding roles (e.g., PCs as phones, smartphones as PCs) suggests we need to revisit employee needs. We'll assess computing and communications work styles, and recommend the tools each will need.

Tuesday 15:50-16:50

Roundtable: Achieving Services Integration in a Multi-sourced World

ADD

Speaker: **Jim Longwood**
Session Type: **Roundtable**

Location: **Analyst/User Roundtable Session Room**
ID: **26AUR**
Track: **SVR**

This roundtable will cover the Multi Sourcing Integrator role and what its role is in ensuring seemless end to end service delivery; how it fits into the disciplined multi-sourcing; characteristics you should seek when selecting MSI's and what some of the providers capabilities are that results in effective vendor management .

Tuesday 15:50-16:50

Zen PPM: A New Approach to Driving Results in a Complex World

ADD

Speaker: **Donna Fitzgerald**
Session Type: **Gartner Session**

Location: **Session Room B**
ID: **26B**
Track: **PPM**

The science of complexity is evolving. While IT contributed to this rapid evolution in complexity knowledge, IT is now being affected by it. Many IT best practices, rooted in scientific management, are becoming worst practices. We'll explore the joint evolution of complexity and IT - past, present, and future.

Tuesday 15:50-16:50

Data Center Transformation - How to get started

ADD

Speaker: **Michele C. Caminos**
Session Type: **Gartner Session**

Location: **Session Room C**
ID: **26C**
Track: **IO**

Are you struggling to control the spiralling costs of running your data center? You need to modernize your environment but not sure where to start? Are you unsure how to align your current initiatives such as energy saving, virtualization and cloud? This session we will take a look at the data

center transformation journey; how it will impact your environment, IT staff and business effectiveness.

Tuesday 15:50-16:50	**CIO Roundtable: Six IT Decisions IT People Shouldn't Make ... Alone** Speaker: **Peter Weill** Session Type: **CIO Program** Location: **Room TBC** ID: **26CP** Track: **CIO** Many companies are disappointed in the weak returns – and some outright losses - generated by their IT investments. The problems stem mostly from poor governance. Specifically, IT executives should not be left to make, often by abdication, the choices that determine the impact of IT on a company's business strategy. Peter will describe the six decisions regarding business processes, IT spending, and IT strategy that are most crucial to IT success.	REGISTER
Tuesday 15:50-16:50	**The Grand Challenges of Information: Innovating to Make Your Infrastructure and Users Smarter** Speakers: **Ted Friedman, Eric Thoo** Session Type: **Gartner Session** Location: **Session Room E** ID: **26E** Tracks: **BIIM, CIO** With unprecedented growth in volume, complexity, and pace of the data landscape, CIOs and their teams need to identify break-through approaches to dramatically increase their information management competencies. By harnessing four key information infrastructure innovation forces, they can begin to manage information as a strategic asset, identify patterns, and support diverse information services.	ADD
Tuesday 15:50-16:50	**Executive Interview** Session Type: **Executive Interview** Location: **Session Room F** ID: **26F** Track: **CIO**	ADD
Tuesday 15:50-16:50	**The CIO's Role in Managing the Expanding Universe of Technology** Speaker: **John P. Roberts** Session Type: **Gartner Session** Location: **Session Room G** ID: **26G** Track: **CIO** Many technologies are increasingly being used outside traditional IT organizations, and many new stakeholders and roles are entering the picture. This presentation will identify best practices in managing the rapidly changing scope of technologies throughout the enterprise ecosystem.	ADD
Tuesday 17:00-18:00	**T+0 - The Most Critical Time of a Disaster - you Better Get It Right** Speaker: **Roberta J. Witty** Session Type: **Gartner Session** ID: **27A** Track: **SRM** The first four hours after a disaster are the most critical time in managing the event. We'll detail how organizations - a publishing firm, healthcare provider and public utiltiy - manage this "midnight hour" during crisis management.	ADD
Tuesday 17:00-18:00	**Roundtable: Getting Started with Application Overhaul** Speaker: **Andy Kyte** Session Type: **Analyst/User Roundtable** Location: **Analyst/User Roundtable Session Room** ID: **27AUR** Track: **APP** This analyst / user round table offers clients the opportunity to hear the challenges faced by peer organizaytions when considering how to get an Application Overhaul program up and running.	REGISTER

Tuesday 17:00-18:00	**Infrastructure Utility Services: Understanding the Opportunities and Risks** Speaker: **Jim Longwood** Session Type: **Gartner Session**	Location: **Session Room B** ID: **27B** Track: **SVR**	ADD
	Traditional Data Center outsourcing or dedicated hosting no longer fits the requirement of competing organizations. Clients are looking for - and providers are increasingly delivering - new industrialized services that aim to couple the positive aspects of both outsourcing and Cloud Computing. The success of infrastructure utility for SAP offerings and the emerging offerings for a virtual/utility Data Center are clearing the path for more choice and better services at a lower price.		
Tuesday 17:00-18:00	**Is your network the weak link in cloud computing?** Speaker: **Bjarne Munch** Session Type: **Gartner Session**	Location: **Session Room C** ID: **27C** Track: **COM**	ADD
	Promises of cloud computing offers rapid application deployment and dynamic scaling. However, cloud computing resources will be accessed via the public Internet and private networks both of which present challenges; public internet does not easily support business critical applications and typical private networks are rigid and static in nature. This session discuss existing and emerging options:		
Tuesday 17:00-18:00	**How to use Thought Leadership to Maintain a Competitive Edge** Speaker: **Scott Stein** Session Type: **Business Breakthrough Sessions**	Location: **Session Room D** ID: **27D** Tracks: **APP, BIIM, BPM, CIO, EA, COM, IO, PPM, SRM, SVR**	ADD
	This session will look at the 9 key competencies of a Thought Leader and what you can do to position yourself for a more competitive edge. Whether you're a Manager aiming to be the CIO, or a CIO aiming to be CEO – Scott will teach you how to position yourself to become a Thought Leader.		
Tuesday 17:00-18:00	**Achieving Cloud Computing at Scale: A review of Architecture and Methods** Speaker: **Cameron Haight** Session Type: **Gartner Session**	Location: **Session Room E** ID: **27E** Track: **IO**	ADD
	IT organizations are moving rapidly to leverage virtualization in order to become more "cloud-like" in terms of service delivery. But virtualization is only a small part of the battle. Delivery of the next generation data center will require enterprises to think and act like the major cloud services providers. This means potentially challenging the conventional wisdom upon which 40 years of IT has been built upon.		
Tuesday 17:00-18:00	**Google versus Microsoft – The Battle for Future Dominance (And Apple's Sneak Attack)** Speaker: **Tom Austin** Session Type: **Gartner Session**	Location: **Session Room F** ID: **27F** Tracks: **SI, APP**	ADD
	Google and Microsoft are investing billions of dollars every year, building out data centers to support their cloud offerings, and hoping to be No. 1 in a world where the cloud is central to computing. We'll focus on the differences between their strategies, and who is likely to succeed most at what.		
Tuesday 17:00-18:00	**IT as Business Peers: Building a Business-Capable IT Workforce** Speaker: **Diane Berry** Session Type: **Gartner Session**	Location: **Session Room G** ID: **27G** Track: **CIO**	ADD

As IT becomes more business-focused, the IT workforce acquires more business capabilities. We'll examine learning strategies that are helpful at each stage of this evolution.

Tuesday 17:00-18:00 — **Contract Negotiation Clinic: ECM** — REGISTER

Speaker: **Kenneth Chin**
Session Type: **Contract Negotiation Clinic**
Location: **Workshop Room**
ID: **27WS**
Tracks: **BIIM, SVR**

This workshop will focus on combining domain expertise with Gartner negotiation best practices to lower the TCO of the CIO's ECM Strategy.

Tuesday 18:00-19:30 — **Networking Reception** — ADD

Session Type: **Special Event**

Tuesday 18:10-18:30 — **Magic Quadrant: Enterprise Content Management** — ADD

Speaker: **Kenneth Chin**
Session Type: **Magic Quadrant and ITxpo Theater Session**
Location: **ITxpo Theatre 1**
ID: **4MQ**
Tracks: **APP, BIIM**

Enterprises consider enterprise content management (ECM) both a strategy to deal with all types of content and a set of software products that can manage the entire content life cycle. They want ECM solutions to help them run, grow and transform their businesses.

Tuesday 18:10-18:30 — **Magic Quadrant: Program & Portfolio Management** — ADD

Speaker: **Matt Light**
Session Type: **Magic Quadrant and ITxpo Theater Session**
Location: **ITxpo Theatre 2**
ID: **5MQ**
Track: **PPM**

The PPM software market continues to evolve and mature, heading inevitably into what Gartner calls the "Trough of Disillusionment".

Tuesday 18:10-18:30 — **Magic Quadrant: Unified Communications** — ADD

Speaker: **Geoff Johnson**
Session Type: **Magic Quadrant and ITxpo Theater Session**
Location: **ITxpo Theatre 3**
ID: **6MQ**
Track: **COM**

A look at the strengths and weaknesses of the vendors in the Unified Communications Magic Quadrant.

Wednesday

Wednesday 08:30-09:30 — **A Mastermind Interview with Shane Robison, Executive Vice President and Chief Strategy and Technology Officer, HP** — ADD

Speaker: **Shane Robison**
Session Type: **Keynote Session**
Location: **Session Room G**
ID: **31K4**
Tracks: **APP, BIIM, BPM, CIO, EA, COM, IO, PPM, SRM, SVR**

Gartner Symposium/ITxpo is known for its Mastermind Keynotes worldwide. These hard-hitting interviews with technology's leading CEOs reveal corporate strategy, product direction and other questions our audience want answered.

Wednesday 09:40-11:00 — **Workshop: Best Practices in Data Quality Improvement: What Works and What Doesn't** — REGISTER

Speakers: **Ted Friedman, Eric Thoo**
Session Type: **Workshop**
ID: **32WS**
Track: **BIIM**

Learn from the experiences of your peers focusing on various data quality challenges in their organizations. The discussion will range from business case and organizational structures to the role and proper usage of data quality tools.

Wednesday 10:00-11:00

The Identity and Access Management Scenario

ADD

Speaker: **Roberta J. Witty**
Session Type: **Gartner Session**

Location: **Session Room A**
ID: **32A**
Track: **SRM**

Enterprises need to ensure the right people can use the right resources at the right time. Identity and access management (IAM) optimizes your efficiency and effectiveness in meeting this need. IAM can improve service levels and facilitate regulatory compliance, but achieving its full value requires a governance approach that works from strategic principles to production operations.

Wednesday 10:00-11:00

Roundtable: Sustainability and the Supply Chain

REGISTER

Speaker: **Marcus Blosch**
Session Type: **Analyst/User Roundtable**

Location: **Analyst/User Roundtable Session Room**
ID: **32AUR**
Track: **BPM**

Sustainability is rocketing to the top of the business agenda. For industries with a significant supply chain, this adds a new dimension of complexity. A group of peers will discuss how they're applying technology to drive sustainability in their supply chains.

Wednesday 10:00-11:00

Enterprise Architecture and Portfolio Management: Future State as Risk Evaluation in Practice

ADD

Speaker: **Bard Papegaaij**
Session Type: **Gartner Session**

Location: **Session Room B**
ID: **32B**
Track: **EA**

Many enterprise architecture (EA) programs are less effective than they could be because they waste time creating deliverables their target consumers don't use. Marrying EA to portfolio management is an important step for making EA actionable, introducing future state risk as a daily consideration for all investment decisions.

Wednesday 10:00-11:00

The Mobile Scenario: A New Age of Mobile Services

ADD

Speaker: **Nick Jones**
Session Type: **Gartner Session**

Location: **Session Room C**
ID: **32C**
Track: **COM**

In 2010 the mobile market will enter a new phase of competition and evolution. Network technologies such as LTE will start to roll out, operator, handset vendor and ecosystem battles will become more intense, and new types of mobile device and application will emerge. This scenario discusses the trends that will define mobility through 2015 and their impact on individuals and corporations.

Wednesday 10:00-11:00

Enterprise Software Scenario

ADD

Speaker: **Valentin T. Sribar**
Session Type: **Gartner Session**

Location: **Session Room D**
ID: **32D**
Track: **APP**

Technologies in the enterprise software space are experiencing rapid innovation. Changes to business requirements, IT investment pressures, and new delivery models are impacting user decisions and therefore the enterprise software market. This session will provide a broad view of the enterprise software space and explain how they are evolving.

Wednesday 10:00-11:00

The Impact of Hosted Virtual Desktops on IT Infrastructure, Investments, and Implementations

ADD

Speaker: **Mark A. Margevicius**
Session Type: **Gartner Session**

Location: **Session Room E**
ID: **32E**
Track: **IO**

Centralizing the desktop in the data center is perhaps the hottest trend in client computing. We cut through the hype, discuss the technology, and share customer implementations and best practices to help identify if it is right for you.

Wednesday 10:00-11:00	**Communicating with the Board** Speaker: **Tina Nunno** Session Type: **Gartner Session**	Location: **Session Room G** ID: **32G**	ADD
Wednesday 11:10-11:55	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room A** ID: **33A**	ADD
Wednesday 11:10-11:55	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room B** ID: **33B**	ADD
Wednesday 11:10-11:55	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room C** ID: **33C**	ADD
Wednesday 11:10-11:55	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room D** ID: **33D**	ADD
Wednesday 11:10-11:55	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room E** ID: **33E**	ADD
Wednesday 11:10-11:55	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room F** ID: **33F**	ADD
Wednesday 11:10-11:55	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room G** ID: **33G**	ADD
Wednesday 12:10-12:30	**Magic Quadrant: Web Content Management** Speaker: **Kenneth Chin** Session Type: **Magic Quadrant and ITxpo Theater Session**	Location: **ITxpo Theatre 1** ID: **7MQ** Track: **BIIM**	ADD
	Organizations see Web content management as a pivotal solution component in driving new business value. Use this session reviewing the WCM Magic Quadrant to understand the fresh vitality in the WCM market and how Gartner rates the leading vendors and their packaged products.		
Wednesday 12:10-12:30	**Magic Quadrant: Storage Resource Management and SAN Management Software** Speaker: **Phillip R. Sargeant** Session Type: **Magic Quadrant and ITxpo Theater Session**	Location: **ITxpo Theatre 3** ID: **9MQ** Track: **IO**	ADD
Wednesday 12:55-13:55	**Roundtable: Put a Stake Through It's Heart - Killing Projects and Programs** Speaker: **Matt Light** Session Type: **Analyst/User Roundtable**	Location: **Analyst/User Roundtable Session Room** ID: **34AUR** Track: **PPM**	REGISTER
Wednesday 12:55-13:55	**Collaborative Decision-Making Platforms: A New Way to Make Decisions**		ADD

Speaker: **Ian A. Bertram**
Session Type: **Gartner Session**
Location: **Session Room B**
ID: **34B**
Tracks: **BIIM, CIO**

Decision making in any organization is essential to success, but decisions routinely fail and lack transparency. CDM platforms are emerging to address this challenge by bringing together the right information and decision makers, assisted by relevant decision tools and templates to discuss an issue, brainstorm and evaluate options, agree on a course of action, and then capture best practices.

Wednesday 12:55-13:55

Business Rules Are King

ADD

Speaker: **Janelle B. Hill**
Session Type: **Gartner Session**
Location: **Session Room C**
ID: **34C**
Track: **BPM**

Business scenarios, policies and rules will represent management direction and governance in managing the agility afforded by patterned based strategies. Business rules help seek, are the outcome of modeling and direct the adpation of key decisions

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Wednesday 12:55-13:55

CIO Roundtable: Innovation - The Ultimate Survival Tool

REGISTER

Speaker: **Craig Rispin**
Session Type: **CIO Program**
Location: **Room TBC**
ID: **34CP**
Track: **CIO**

You must innovate to survive today. CEOs agree - Craig surveyed 1,200 of them and 99% believe that innovation is critical to their future survival. But less than 1% have a structured innovation program in place! Learn how easy it is to create your own selffunding innovation program, and discuss your ideas with other C-Level attendees.

Wednesday 12:55-13:55

Cloud Computing: Changing the Vendor Landscape

ADD

Speaker: **Daryl C. Plummer**
Session Type: **Gartner Session**
Location: **Session Room D**
ID: **34D**
Track: **APP**

Cloud computing is part of virtually all IT vendor strategies today. Yet there is no clear leader in enterprise cloud computing. The result is that enterprises must balance new vendors with the gradual acceptance of the new technologies by established vendors.

Wednesday 12:55-13:55

Fabric Computing in the Next Generation Data Center: What, How and When

ADD

Speaker: **Errol Rasit**
Session Type: **Gartner Session**
Location: **Session Room E**
ID: **34E**
Track: **IO**

IT modernization is in full bloom and fabric computing is the new holy grail. IT decisions will be riskier with more to gain, but more to lose. Learn to plan and evaluate benefits and returns, assume initiatives, challenge vendors, manage processes, understand maturity and learn of early customer experiences.

Wednesday 12:55-13:55

Executive Interview

ADD

Session Type: **Executive Interview**
Location: **Session Room F**
ID: **34F**
Track: **CIO**

Wednesday 12:55-13:55

New Principles of IT Investment

ADD

Speaker: **Andy Rowsell-Jones**
Session Type: **Gartner Session**
Location: **Session Room G**
ID: **34G**
Track: **CIO**

In the wake of the global recession, the rules around IT investment have

changed. Today, organizations must balance the need to keep IT costs in check, manage risk, and drive innovation for the enterprise. This mandate will radically alter the way many organizations identify, prioritize and execute IT-driven initiatives.

Wednesday 12:55-13:55 **Contract Negotiation Clinic: Infrastructure Outsourcing** REGISTER

Speaker: **Christopher Ambrose**
Session Type: **Contract Negotiation Clinic**
Location: **Workshop Room**
ID: **34WS**
Tracks: **SVR, IO**

Contract Negotiation Clinics are small, hands-on workshops that deliver a powerful combination of Gartner insight and peer best practices that will position you well for you next contract negotiation – or renegotiation – with strategic vendors. This clinic is specifically focused on infrastructure outsourcing contracts.

Wednesday 13:20-14:20 **CIO Roundtable: A Board of Director's Perspective on IT** REGISTER

Speaker: **Dale Kutnick**
Session Type: **CIO Program**
Location: **Room TBC**
ID: **36CP**
Track: **CIO**

Most CIOs have only a few (at best) opportunities to engage their Boards of Directors (or the most senior agency/department leaders in government) annually; and the sessions are usually limited in scope and depth. While some Board members have a sincere interest in IT, most have only "headline knowledge," and more significantly, there are no "standardized" approaches for evaluating IT performance, strategy, or the capabilities of the CIO and the IT organization. Indeed, most Boards have difficulty formulating the right questions to ask their CIOs. Given most enterprises' significant IT investment, and IT's increasing importance to enterprise innovation and productivity, we believe this situation must change. Armed with information collected from interviewing a variety of Board members (as well as personal experiences), Mr. Kutnick will explore preliminary findings and best practices, seek input from participants, and propose a simple framework that Boards can utilize for evaluating IT economics and finance, risk management and mitigation and business enablement, as well as governance approaches that should be codified.

Wednesday 14:05-14:50 **Solution Provider Session** ADD

Session Type: **Solution Provider Session**
Location: **Session Room A**
ID: **35A**

Wednesday 14:05-14:50 **Solution Provider Session** ADD

Session Type: **Solution Provider Session**
Location: **Session Room B**
ID: **35B**

Wednesday 14:05-14:50 **Solution Provider Session** ADD

Session Type: **Solution Provider Session**
Location: **Session Room C**
ID: **35C**

Wednesday 14:05-14:50 **Solution Provider Session** ADD

Session Type: **Solution Provider Session**
Location: **Session Room D**
ID: **35D**

Wednesday 14:05-14:50 **Solution Provider Session** ADD

Session Type: **Solution Provider Session**
Location: **Session Room E**
ID: **35E**

Wednesday 14:05-14:50 **Solution Provider Session** ADD

Session Type: **Solution Provider Session**
Location: **Session Room F**
ID: **35F**

Wednesday **Solution Provider Session**

14:05- 14:50	Session Type: **Solution Provider Session**	Location: **Session Room G** ID: **35G**	
Wednesday 15:00- 16:20	**Workshop: Building a Strategy and Business Case for Unified Communications** Speakers: **Bob Hafner, Geoff Johnson** Session Type: **Workshop**	Location: **Workshop Room** ID: **36WS** Track: **COM**	REGISTER
	This workshop provides attendees with a framework, a high-level roadmap, and examples for building a strategy and business case		
Wednesday 15:20- 16:20	**SharePoint 2010 - Is it Enterprise Class?** Speaker: **Kenneth Chin** Session Type: **Gartner Session**	Location: **Session Room A** ID: **36A** Track: **BIIM**	ADD
	We'll address the questions about functionality, governance, deployment strategies, cost management and strengths and weaknesses that have accompanied SharePoint 2010's release.		
Wednesday 15:20- 16:20	**Roundtable: Key Roles and Responsibilities for BPM Success** Speaker: **Janelle B. Hill** Session Type: **Analyst/User Roundtable**	Location: **Analyst/User Roundtable Session Room** ID: **36AUR** Track: **BPM**	REGISTER
	Becoming a process-managed enterprise has far-reaching effects on organization roles, staffing and responsibilities. Here we explore the roles, responsibilities and alternative organizational structures that accelerate BPM maturity.		
Wednesday 15:20- 16:20	**Case Study: Curing EA Autism - How to be Realistic with Enterprise Architecture** Speaker: **Deborah Weiss** Session Type: **End-User Case Study Session**	Location: **Session Room B** ID: **36B** Tracks: **EA, CIO, APP, BIIM, BPM, COM, IO, PPM, SRM, SVR**	ADD
	Tom Graves States in his article The autism of Enterprise Architecture? "architecture is: an active expression of 'the human experiences of knowing, learning, communicating, formulating, recognising, adapting, mis-communicating, forgetting, noticing, ignoring, choosing, liking, disliking, remembering and misremembering'. All those myriad technical details are important, of course, but it's the human factors that make it work. Falling back into the 'autism' of conventional IT-centric EA is a guaranteed route to failure: we forget that fact at our peril". Solve EA Autism by putting the theory on the shelf (but not throwing it away), this case study shows that value is delivered from an EA program that is well integrated and understood. You need to have a lofty goal but define a pragmatic place to start and make sure the EA program is properly scoped and focused on real world execution.		
Wednesday 15:20- 16:20	**People and Projects: Managing Change, Expectations and Engagement** Speaker: **Donna Fitzgerald** Session Type: **Gartner Session**	Location: **Session Room C** ID: **36C** Track: **PPM**	ADD
	Are you delivering ontime and within budget, but still not getting "credit" for successful execution? Do your business sponsors disappear after the project kickoff? Does anyone read your status reports? What's going on here? We'll provide personal tools – frameworks, models and approaches for better		

expectation management and stakeholder engagement.

Wednesday 15:20-16:20	**Next Generation Data Center – Creating Scalable, Energy Efficient Environments** Speaker: **David J. Cappuccio** Session Type: **Gartner Session**	Location: **Session Room D** ID: **36D** Tracks: **IO, CIO**	ADD
	Is it possible to build the 60 year data center? This presentation will look at emerging trends in retrofitting existing data center space or building smaller, more energy efficient, and yet highly scalable data centers that can have lifecycles well beyond 60 years.		
Wednesday 15:20-16:20	**Top 10 Collaboration Failure Modes and How To Avoid Them** Speaker: **Tom Austin** Session Type: **Gartner Session**	Location: **Session Room E** ID: **36E** Tracks: **BIIM, SI**	ADD
	Despite (or perhaps because of) vendor-push for infrastructure rollouts, rogue users finding what they need "out there on the Internet" and user-pull demanding "better" tools, enterprise collaboration strategies are often wanting for coherent, positive results. We will review what we see as the top 10 governance, planning and implementation errors and provide successful alternative approaches.		
Wednesday 15:20-16:20	**CRM and ERP Scenario: Designing Business Processes from the Outside In** Speaker: **Yvonne Genovese** Session Type: **Gartner Session**	Location: **Session Room F** ID: **36F** Track: **APP**	ADD
	Increasing consumer demands, a chaotic economy, and a changing supplier base are driving enterprises to focus externally on customers and market dynamics. This presentation will explain how this transition will affect your business and your ERP, SCM, and CRM strategy, provide concrete action items, and summarize management strategies for dealing with megavendors like SAP, Oracle, and Microsoft.		
Wednesday 15:20-16:20	**Machiavellian CIO 3.0: Love and War** Speaker: **Tina Nunno** Session Type: **Gartner Session**	Location: **Session Room G** ID: **36G** Track: **CIO**	ADD
	We'll draw upon the wisdom of 15th-century political philosopher Niccolo Machiavelli to help CIOs with two critical challenges: Gaining love and waging war. Machiavelli felt those who fail at these or avoid them are ineffective leaders who will fail. In Machaivellian reality, nothing is fair in love or war.		
Wednesday 16:30-17:30	**Developing a Strategic Vendor Management Program** Speaker: **Christopher Ambrose** Session Type: **Gartner Session**	Location: **Session Room A** ID: **37A** Track: **SVR**	ADD
	Some vendors are more critical than others in your IT and business environment. The important vendors will be inclined to build a relationship, while others will seek opportunities for improved collaboration. But which vendors are which, and how can customers cut through the sales speak of product or service providers and move these relationships forward? This presentation helps you to identify those vendors who are truly strategic and shows how to develop a management program for them and how emerging Cloud and Saas providers might be positioned in your program.		

Wednesday 16:30-17:30 **Monoliths, Megaliths and Macadam: A Public-Sector Perspective on Three IAM Paradigms**

Speaker: **Jan-Martin Lowendahl**
Session Type: **Analyst/User Roundtable**
Location: **Analyst/User Roundtable Session Room**
ID: **37AUR**

REGISTER

IAM is now considered essential infrastructure. However, CIOs are not done when a central IAM solution is installed. There is a need to develop an IAM strategy involving the three essential parts: organization-centric, federated and user-centric IAM. Organizational agility in terms of sourcing strategy and organizational outreach, as well as citizen/student and staff intimacy, depend on it.

Wednesday 16:30-17:30 **Build a Key Risk Indicator Catalog to Link Risk and Security to Corporate Performance**

Speaker: **Roberta J. Witty**
Session Type: **Gartner Session**
Location: **Session Room B**
ID: **37B**
Track: **SRM**

ADD

Mapping key risk indicators (KRI) into business-centric key performance indicators (KPI) is an excellent, but very challenging, way to link risk and security to corporate performance. We've developed a foundation catalog of both KPIs and KRIs to help risk officers develop their own set.

Wednesday 16:30-17:30 **Enterprise Architecture for CIOs: Are You Sure You Know What EA Really Means to You and Your Organization?**

Speaker: **Richard Buchanan**
Session Type: **Gartner Session**
Location: **Session Room C**
ID: **37C**
Track: **EA**

ADD

The term "enterprise architecture" (EA) means different things to different people. Marketplace hype has muddied CIOs understanding of what EA is truly about. This session clears up common misperceptions and clarifies what EA really is, how it works, and what value it delivers to the IT organization and the business.

Wednesday 16:30-17:30 **Achieving the Right Balance Between Internal IT Staff, Temporary Contractors, and Outsourcing**

Speaker: **Steve Bittinger**
Session Type: **Gartner Session**
Location: **Session Room E**
ID: **37E**
Track: **CIO**

ADD

AusAustralia's Gershon review of federal government IT mandated reduction of contractor numbers by 50%. Many IT organizations similarly struggle to achieve the right resource balance between in-house staff, temporary contractors, and outsourcing. How can IT Leaders assess whether they are effectively balancing these alternative types of resources to optimize outcomes for their organization?

Wednesday 16:30-17:30 **How to Think Like a Futurist**

Speaker: **Craig Rispin**
Session Type: **Business Breakthrough Sessions**
Location: **Session Room F**
ID: **37F**
Tracks: **APP, BIIM, BPM, CIO, EA, COM, IO, PPM, SRM, SVR**

ADD

Futurists think differently from most people. They analyze trends, anticipate significant changes and help their clients create preferable futures using techniques developed over decades. You too can think like a futurist – Craig will teach you futurist systems and methods to help you see potential threats and opportunities that you couldn't see before.

Wednesday 16:30- **Executive Interview**

ADD

17:30	Session Type: **Executive Interview**	Location: **Session Room G** ID: **37G** Track: **CIO**	
Wednesday 17:40- 18:00	**Magic Quadrant: BI Platforms 2010** Speaker: **Ian A. Bertram** Session Type: **Magic Quadrant and ITxpo Theater Session**	Location: **ITxpo Theatre 1** ID: **10MQ** Track: **BIIM**	ADD
	In 2009, megavendors held almost two-thirds of business intelligence platform market share. But impatient business users increasingly turned to pure-play BI platforms, particularly those of small innovative vendors, to fill usability and time-to-value needs unmet by the larger vendors.		
Wednesday 17:40- 18:00	**Magic Quadrant: Application Performance Monitoring** Speaker: **Cameron Haight** Session Type: **Magic Quadrant and ITxpo Theater Session**	Location: **ITxpo Theatre 2** ID: **11MQ** Track: **IO**	ADD
	We'll review the Gartner Magic Quadrant for Application Performance Monitoring.		
Wednesday 17:40- 18:00	**Magic Quadrant: Wireless LAN Infrastructure (Global)** Speaker: **Bjarne Munch** Session Type: **Magic Quadrant and ITxpo Theater Session**	Location: **ITxpo Theatre 3** ID: **12MQ** Track: **COM**	ADD
	We'll review the Gartner Magic Quadrant for Wireless LAN Infrastructure (Global).		
Wednesday 18:30- 20:30	**20th Anniversary Celebration** Session Type: **Special Event**		ADD
	THURSDAY		
Thursday 08:30- 09:30	**Global Sourcing: A Market in Continuous Evolution** Speaker: **Jim Longwood** Session Type: **Gartner Session**	Location: **Session Room A** ID: **41A** Track: **SVR**	ADD
	Use of Global Delivery continues to grow, but the maturity of services and the presence/capabilities of providers across the globe is not uniform. This presentation analyzes the current landscape of providers and explores how to optimize their talents to deliver value to your organization for tradtional or emerging cloud service offerings.		
Thursday 08:30- 09:30	**Roundtable: Best Practices in Maturing the EA Program** Speaker: **Richard Buchanan** Session Type: **Analyst/User Roundtable**	Location: **Analyst/User Roundtable Session Room** ID: **41AUR** Track: **EA**	REGISTER
	Leveraging our Enterprise Architecture (EA) Maturity Model, we'll discuss the key components of EA maturity and how to leveage them for faster results.		
Thursday 08:30- 09:30	**The Lean Project Management Office: From Prioritization to Process Improvement** Speaker: **Matt Light** Session Type: **Gartner Session**	Location: **Session Room B** ID: **41B** Track: **PPM**	ADD
	Uncontrolled project and application portfolios result in excessive levels of unplanned IT "waste." But when program management offices (PMOs) become too much like "process police" and "paper pushers," they're		

perceived as part of the waste and disbanded.

Thursday 08:30-09:30

Enterprise Content Management: Best Practices and Benchmarks

ADD

Speaker: **Kenneth Chin**
Session Type: **Gartner Session**
Location: **Session Room C**
ID: **41C**
Tracks: **BIIM, BPM**

After years of fragmentation, frustration and consolidation, enterprise content management (ECM) best practices are emerging that showcase its potential for ROI. Business buyers want clear business cases for further investment, and we've gathered some of the best proof points. We'll also feature a new Magic Quadrant, case studies, and metrics for success.

Thursday 08:30-09:30

Get Tribal – Improving Your Workplace Culture

ADD

Speaker: **Michael Henderson**
Session Type: **Business Breakthrough Sessions**
Location: **Session Room D**
ID: **41D**
Tracks: **APP, BIIM, BPM, CIO, EA, COM, IO, PPM, SRM, SVR**

Learn the 10 mistakes organizations and teams typically make with their workplace culture and how to avoid them to increase performance in your organisation. By combining his experience as an anthropologist and entrepreneur Michael will help you unlock even the toughest cultures.

Thursday 08:30-09:30

Top 10 Strategies for Surviving Unconstrained Data Growth

ADD

Speaker: **Phillip R. Sargeant**
Session Type: **Gartner Session**
Location: **Session Room E**
ID: **41E**
Track: **IO**

Data is growing faster than our ability to manage it. We'll describe a top-down approach that can be incrementally deployed to manage data growth that adds business value using an understanding of applications, demand drivers, service-level agreements, real-world user behaviors, management policies, data classification techniques and storage technologies.

Thursday 08:30-09:30

Putting Customer Patterns Into Context

ADD

Speaker: **Yvonne Genovese**
Session Type: **Gartner Session**
Location: **Session Room F**
ID: **41F**
Track: **APP**

Understanding consumer patterns and driving new patterns can be a powerful way to deliver the right products and services and drive demand. Context aware computing can be the interface to the consumer for understanding and driving new patterns. Attend this session to understand how to gleen consumer patterns from actions and drive demand by being contextually aware through technology!

Thursday 08:30-09:30

Firestorm! Process and IT Lessons Learned From Victoria's Bushfires

ADD

Speaker: **Denise Ganly**
Session Type: **Gartner Session**
Location: **Session Room G**
ID: **41G**
Track: **CIO**

The Black Saturday bushfires in 2009 killed 173 people. The Royal Commission investigating the causes determined that process and IT failures contributed to the high death toll. This presentations will look at these failures, what could have been done to prevent them and how the outcomes can be applied to any organization.

Thursday 09:40-10:40

If You Want To Overhaul you'll have to Simplify

ADD

Speaker: **Brian Prentice**
Session Type: **Gartner Session**
Location: **Session Room A**
ID: **42A**
Track: **APP**

This session will explain why application simplification is central to the overhaul process and how, specifically, simplification processes can be implemented in the IT organization

Thursday 09:40-10:40

Three Styles of Securing Public and Private Cloud Computing ADD

Speaker: **Andrew Walls**
Session Type: **Gartner Session**
Location: **Session Room B**
ID: **42B**
Track: **SRM**

Security issues have already been a barrier to cloud adoption, and Gartner foresees enterprises adopting three major "styles" in securing cloud services for business benefit. Here's a methodology for matching the most effective and efficient approach to staying secure while taking advantage of consumer-grade technologies.

Thursday 09:40-10:40

Enterprise Business Architecture: Uniting Business and IT ADD

Speaker: **Bard Papegaaij**
Session Type: **Gartner Session**
Location: **Session Room C**
ID: **42C**
Track: **EA**

Leading organizations know "our business is IT and IT is our business." Enterprise architects are in a unique position to enable and lead this unification of business and IT. One crucial aspect is leveraging an enterprise business architecture (EBA) as a conduit for engaging business leaders, and understanding the ripple effect of business changes on people, process, information and technology.

Thursday 09:40-10:40

CIO Roundtable: Sustainable Business Systems REGISTER

Speaker: **Marcus Blosch**
Session Type: **CIO Program**
Location: **Room TBC**
ID: **42CP**
Track: **CIO**

Software applications and services to support sustainable business action are a major new issue for end users and a significant growth opportunity for vendors. Vendors are scrambling to be market makers and communicate value propositions and solutions. We'll lead a discussion of peers related to this important, emergent and rapidly growing new solution market.

Thursday 09:40-10:40

Case Study: CLP Power Hong Kong ADD

Speaker: **Andre Blumberg**
Session Type: **End-User Case Study Session**
Location: **Session Room D**
ID: **42D**
Tracks: **APP, BIIM, BPM, CIO, EA, COM, IO, PPM, SRM, SVR**

Thursday 09:40-10:40

The External Information Crisis: Will IT Step Up? ADD

Speaker: **Tom Austin**
Session Type: **Gartner Session**
Location: **Session Room E**
ID: **42E**
Tracks: **SI, BIIM, APP**

The application of IT is about to get turned upside down and inside out. External information is unstructured, ill-disciplined, imprecise, far more plentiful and extremely valuable. It is the essence of business, which is similarly imprecise and fast moving. It impacts all phases of an enterprise's business, from intelligence gathering, through innovation, marketing, distribution and support.

Thursday 09:40-10:40

The Next Frontier of Mobile Application Development: Consumer-Oriented, Context-Aware ADD

Speaker: **Nick Jones**
Session Type: **Gartner Session**
ID: **42F**
Track: **COM**

Fragmentation and consumerization will rule, and megavendors will try to position their offerings for both enterprise and consumer markets. Organizations can capitalize on new business opportunities by not just

viewing mobile applications as a bolt-on capability, but as strategic platforms to shape CRM, e-commerce and m-commerce initiatives into context aware experiences.

Thursday 11:05-11:50	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room A** ID: **43A**	ADD
Thursday 11:05-11:50	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room B** ID: **43B**	ADD
Thursday 11:05-11:50	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room C** ID: **43C**	ADD
Thursday 11:05-11:50	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room D** ID: **43D**	ADD
Thursday 11:05-11:50	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room E** ID: **43E**	ADD
Thursday 11:05-11:50	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room F** ID: **43F**	ADD
Thursday 11:05-11:50	**Solution Provider Session** Session Type: **Solution Provider Session**	Location: **Session Room G** ID: **43G**	ADD
Thursday 12:00-13:00	**A Mastermind Interview with Matt Goldberg, CEO, Lonely Planet and Chris Boden, Global Director Emerging Platforms, Lonely Planet** Speakers: **Chris Boden, Matt Goldberg** Session Type: **Keynote Session**	Location: **Session Room G** ID: **44K5** Tracks: **APP, BIIM, BPM, CIO, EA, COM, IO, PPM, SRM, SVR**	ADD
	Gartner Symposium/ITxpo is known for its Mastermind Keynotes worldwide. These hard-hitting interviews with technology's leading CEOs reveal corporate strategy, product direction and other questions our audience want answered.		
Thursday 13:05-13:25	**Magic Quadrant: Data Warehouse Database Management Systems** Speaker: **Eric Thoo** Session Type: **Magic Quadrant and ITxpo Theater Session**	Location: **ITxpo Theatre 1** ID: **13MQ** Track: **BIIM**	ADD
	We'll review the Gartner Magic Quadrant for Data Warehouse Database Management Systems.		
Thursday 13:05-13:25	**Magic Quadrant: The Enterprise Wireless Email** Speaker: **Robin Simpson** Session Type: **Magic Quadrant and ITxpo Theater Session**	Location: **ITxpo Theatre 3** ID: **15MQ** Track: **COM**	ADD
	We'll review the Gartner Magic Quadrant for Enterprise Wireless Email.		
Thursday 13:10-13:30	**Magic Quadrant: Asia Pacific Network Service Provider** Speaker: **Bjarne Munch**	Location: **ITxpo Theatre 2**	ADD

Session Type: **Magic Quadrant and ITxpo Theater Session**
ID: **18MQ**
Track: **COM**

In this session we'll review the Gartner Magic Quadrant for Asia Pacific Network Service Providers.

Thursday 13:35-13:55

Magic Quadrant: Business Process Management Suites ADD

Speaker: **Janelle B. Hill**
Session Type: **Magic Quadrant and ITxpo Theater Session**
Location: **ITxpo Theatre 2**
ID: **20MQ**
Track: **BPM**

Organizations launching Business Process Management initiatives encounter scores of BPMS vendors offering "BPM Solutions". This session discusses the current and future vendor landscape and provides vendor/product selection guidance for users.

Thursday 13:45-14:45

Roundtable: Measuring and Managing Application Maintenance Teams REGISTER

Speaker: **Yvonne Genovese**
Session Type: **Analyst/User Roundtable**
Location: **Analyst/User Roundtable Session Room**
ID: **45AUR**
Track: **APP**

This is an Analyst / User Round table that will allow interested clients to meet others who want to know how to get better value from application maintenance.

Thursday 13:45-14:45

Outsourcing & Cloud Services: a whole new competitive landscape in Australasia ADD

Speaker: **Rolf Jester**
Session Type: **Gartner Session**
Location: **Session Room B**
ID: **45B**
Track: **SVR**

Today's business-as-usual outsourcing is NOT the model for the future. Buyers are confronted today with an array of over-hyped alternatives, and as always, the providers are making the situation more confused. The potential savings and benefits from effective use of the newer models like Saas and other cloud services are great; the risks are high too. Buyers need a secure guide to this new landscape. We'll clearly depict today's competitive lanscape, naming names, but also show how this is rapidly changing as new types of services and new types of providers are offering new types of value

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Thursday 13:45-14:45

Best Practices for Selecting a Business Process Management Suite ADD

Speaker: **Janelle B. Hill**
Session Type: **Gartner Session**
Location: **Session Room C**
ID: **45C**
Track: **BPM**

A business process management suite (BPMS) is the best composition environment for BPM initiatives. But buyers are finding it impossible to distinguish among products because they are increasingly based on open standards (e.g., BPMN). We'll share best practices and decision frameworks for evaluating BPMS products.

Thursday 13:45-14:45

CIO Roundtable: Improving Workplace Culture

Speaker: **Michael Henderson**
Session Type: **CIO Program**
Location: **Room TBC**
ID: **45CP**
Track: **CIO**

REGISTER

Discuss your workplace culture with Michael and other C-Level attendees. Learn how to avoid the common mistakes that leaders make and how to increase performance in your organization.

Thursday **Reshaping Storage infrastructures for the Next Decade** ADD

13:45- 14:45	Speaker: **Phillip R. Sargeant** Session Type: **Gartner Session**	Location: **Session Room D** ID: **45D** Track: **IO**	
	The design point of storage infrastructures is moving past meeting service-level agreements and regulatory requirements to supporting an agile computing environment that is increasingly characterized by its use of server, storage and desktop virtualization.		
Thursday 13:45- 14:45	**Transforming the Enterprise: A Day in the Life of the Social Media Steering Committee** Speakers: **Tom Austin, Kenneth Chin, Dale Kutnick, Brian Prentice, Robin Simpson, Andrew Walls** Session Type: **Gartner Session**	Location: **Session Room F** ID: **45F** Tracks: **APP, BIIM, BPM, CIO, EA, COM, IO, PPM, SRM, SVR**	ADD
	In this panel presentation, Gartner analysts will take on the roles of CIO, CFO, CISO, Business Development Director and more to dissect the drivers and challenges of business innovation with social media.		
Thursday 13:45- 14:45	**Implementing Lean in IT** Speaker: **Andy Rowsell-Jones** Session Type: **Gartner Session**	Location: **Session Room G** ID: **45G** Track: **CIO**	ADD
	Lean, management discipline proven to reduce waste in IT is hard to implement. This presentation shares lessons learned by CIOs now lessons have leading CIOs now profiting from Lean in their IT organizations.		
Thursday 13:45- 14:45	**Contract Negotiation Clinic: Infrastructure Outsourcing** Speaker: **Christopher Ambrose** Session Type: **Contract Negotiation Clinic**	Location: **Workshop Room** ID: **45WS** Tracks: **SVR, IO**	REGISTER
	Contract Negotiation Clinics are small, hands-on workshops that deliver a powerful combination of Gartner insight and peer best practices that will position you well for you next contract negotiation – or renegotiation – with strategic vendors. This clinic is specifically focused on infrastructure outsourcing contracts.		
Thursday 14:55- 15:55	**Managing Social Media Security Risks** Speaker: **Andrew Walls** Session Type: **Gartner Session**	Location: **Session Room A** ID: **46A** Track: **SRM**	ADD
	Your staff are talking to the world on social media. IT organizations are under pressure to identify, monitor and control security in social media. Discuss the issues with your peers and discover new, effective management practices.		
Thursday 14:55- 15:55	**Roundtable: Using Service Providers to Make Cloud Happen** Speaker: **Rolf Jester** Session Type: **Analyst/User Roundtable**	Location: **Analyst/User Roundtable Session Room** ID: **46AUR** Track: **SVR**	REGISTER
	Traditional and offshore service providers are building cloud services capabilities to avoid falling behind. In this roundtable session you'll hear the differences between providers to help you choose the right partner to make your Cloud strategy, a reality.		
Thursday 14:55- 15:55	**Effective Enterprise Architecture Governance Plays Several Roles in IT Governance** Speaker: **Bard Papegaaij** Session Type: **Gartner Session**	Location: **Session Room B** ID: **46B** Track: **EA**	ADD

Enterprise architecture (EA) governance has important roles to play on the demand and supply sides of IT governance. We'll discuss the key characteristics of EA governance to improve the business/IT relationship, as well as important considerations for designing effective EA governance.

Thursday 14:55-15:55	**Information Governance: What Every CIO Should Know** Speaker: **Ted Friedman** Session Type: **Gartner Session**	Location: **Session Room C** ID: **46C** Tracks: **BIIM, CIO**	ADD

Governance is one of the most hyped and misused terms today's business lexicon. What does governance mean, how is it done and where should IT focus its efforts to ensure that information is governed correctly? Succeed by understanding the role of information governance in the business and working with business leaders to ensure the proper standards, processes, staffing and metrics.

Thursday 14:55-15:55	**The Real Value of Open Government** Speaker: **Andrea Di Maio** Session Type: **Gartner Session**	Location: **Session Room D** ID: **46D**	ADD

As most governments strive for transparency, participation and collaboration, there is limited understanding of the actual benefits, costs and risks of greater openness and engagement, which may lead to many initiatives not to be sustainable. This session describes how open government can be turned to an agency's advantage and become part of its normal course of business.

Thursday 14:55-15:55	**Rebooting Open-Source Software — It's Time to Start Again** Speaker: **Brian Prentice** Session Type: **Gartner Session**	Location: **Session Room E** ID: **46E** Track: **APP**	ADD

As a distinct and disruptive trend, open source software is on its deathbed. In its place will emerge a set of practices that will become standard operating procedure wherever software is created. Think just-in-time in manufacturing: Disruptive in the 1970s, standard practice today.

Thursday 14:55-15:55	**Networking and Mobility for the Next Decade** Speaker: **Bob Hafner** Session Type: **Gartner Session**	Location: **Session Room F** ID: **46F** Track: **COM**	ADD

New demands on enterprise communications require new stratgies. Video, mobility, unified communications, virtualization, and cloud computing will require us to rethink how networks are designed, how they are built, and how they are run. Meanwhile, the vendor landscape has transformed radically. Leading this change requires foresight; merely reacting is not enough.

Thursday 14:55-15:55	**How to Develop a Rational and Realistic Social Media Strategy** Speaker: **Anthony Bradley** Session Type: **Gartner Session**	Location: **Session Room G** ID: **46G** Tracks: **APP, CIO**	ADD

Some people tout social media and social networking as the greatest invention since the world wide web; others fear the loss of privacy or simply don't care what strangers had for lunch. This presentation will examine how to develop a social media strategy and explore how social media can be used most appropriately for business benefit.

Thursday 16:05-17:05	**The Emerging Enterprise PMO** Speaker: **Donna Fitzgerald** Session Type: **Gartner Session**	Location: **Session Room A** ID: **47A** Track: **PPM**	ADD

A continuing trend we see for 2010 is the increase in the formation of Enterprise Program Management Offices. While there are many factors pushing this trend forward, one of the most significant is the need to merge technology and business process projects under the same organization. In this presentation we'll explore the EPMO as a management unit.

Thursday 16:05-17:05	**Preparing For Data In The Cloud: What Matters To CIOs** Speaker: **Eric Thoo** Session Type: **Gartner Session**	Location: **Session Room B** ID: **47B** Tracks: **BIIM, CIO**	ADD

Evolving data management strategies and alternative ways to deploy tools are emerging through cloud computing and software-as-a-service (SaaS). CIOs and IT leaders focusing on information management initiatives will need to address opportunities and challenges with the business and within IT to fulfill the organization's information needs — including the management of enterprise data in the cloud.

Thursday 16:05-17:05	**Critical Factors for Effective Multisourcing Management** Speaker: **Linda R. Cohen** Session Type: **Gartner Session**	Location: **Session Room C** ID: **47C** Track: **SVR**	ADD

Managing multiple service providers requires new skills, processes and metrics. This session will uncover the most effective approaches being applied today in managing the complexity of multisourcing. These skills will become even more important as users engage an increasing numbers of cloud and Saas service providers.

Thursday 16:05-17:05	**The Big Migration - Windows 7 and Office 2010** Speaker: **Mark A. Margevicius** Session Type: **Gartner Session**	Location: **Session Room D** ID: **47D** Track: **IO**	ADD

With more than 80 percent of organizations skipping Vista, Windows 7 has become a critical project that will touch every PC in almost every organization. Deciding what office product to deploy is another multimillion-dollar decision. Deploying Windows 7 and Office 2010 correctly (or selecting an appropriate alternative) means saving money and being ready to support future business applications.

Thursday 16:05-17:05	**Debate** Session Type: **Debate**	Location: **Session Room E** ID: **47E**	ADD
Thursday 16:05-17:05	**How to Reduce the Total Cost of Ownership of Applications** Speaker: **Andy Kyte** Session Type: **Gartner Session**	Location: **Session Room F** ID: **47F** Track: **APP**	ADD

The project is finished and the application goes live. But the popping of champagne corks simply celebrates the end of the beginning – the hard work and the major expense is all yet to come. Applications are expensive to own – but they don't have to be so expensive – there are techniques that any application team can adopt that have a substantial effect on the total cost of ownership. Come along and find out what they are.

Thursday 16:05-17:05	**Combine Strategy and Leadership to Maximize IT's Contribution** Speaker: **Dave Aron** Session Type: **Gartner Session**	Location: **Session Room G** ID: **47G** Track: **CIO**	ADD

Strategy alone isn't effective as an analytical discipline. Leadership as an isolated capability is powerful, but not necessarily focused. Combining the two results in an effective focused organization, ultimately maximizing IT's

contribution to business results. We'll draw together Gartner's IT strategy and recent leadership work, and discuss how to combine them effectively.

Thursday 17:15-18:00	**Locknote**	
	Session Type: **Keynote Session**	Location: **Session Room G** ID: **48**

- 36A - SharePoint 2010 - Is it Enterprise Class? - PS18_36A ps18_36a.pdf
- 36C - People and Projects: Managing Change, Expectations and Engagement - PS18_36C ps18_36c.pdf
- 36D - Next Generation Data Center – Creating Scalable, Energy Efficient Environments - PS18_36D ps18_36d.pdf
- 36E - Top 10 Collaboration Failure Modes and How To Avoid Them - PS18_36E ps18_36e.pdf
- 36G - Machiavellian CIO 3.0: Love and War - PS18_36G ps18_36g.pdf
- 36WS - Workshop: Building a Strategy and Business Case for Unified Communications - PS18_36WS ps18_36ws.pdf
- 37A - Developing a Strategic Vendor Management Program - PS18_37A ps18_37a.pdf
- 37B - Build a Key Risk Indicator Catalog to Link Risk and Security to Corporate Performance - PS18_37B ps18_37b.pdf
- 37C - Enterprise Architecture for CIOs: What Does Enterprise Architecture Really Mean to You and Your Organization? - PS18
- 37E - Achieving the Right Balance Between Internal IT Staff, Temporary Contractors, and Outsourcing - PS18_37E ps18_37e.
- 37F - Get Out of ERP/CRM/SCM Jail With a Layered Application Strategy - PS18_37F ps18_37f.pdf
- 3MQ - Magic Quadrant: x86 Server Virtualization Infrastructure - PS18_3MQ ps18_3mq.pdf
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- 45D - The Real Value of Open Government - PS18_45D ps18_45d.pdf
- 45E - Rebooting Open-Source Software — It' s Time to Start Again - PS18_45E ps18_45e.pdf
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Symposium/ITxpo
16 November 2010 - 18 November 2010
Sydney, Australia
Gartner Symposium/ITxpo is the industry's largest and most strategic conference for senior IT and business professionals.

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- 26E - The Grand Challenges of Information: Innovating to Make Your Infrastructure and Users Smarter - PS18_26E ps18_26e.
- 26G - The CIO's Role in Managing the Expanding Universe of Technology - PS18_26G ps18_26g.pdf John Roh
- 27A - T+0 - The Most Critical Time of a Disaster - you Better Get It Right - PS18_27A ps18_27a.pdf
- 27B - Infrastructure Utility Services: Understanding the Opportunities and Risks - PS18_27B ps18_27b.pdf
- 27C - Is your Network the Weak Link in Cloud Computing? - PS18_27C ps18_27c.pdf
- 27E - Achieving Cloud Computing at Scale: A Review of Architecture and Methods - PS18_27E ps18_27e.pdf
- 27F - Google versus Microsoft – The Battle for Future Dominance (And Apple's Sneak Attack) - PS18_27F ps18_27f.pdf
- 27G - IT as Business Peers: Building a Business-Capable IT Workforce - PS18_27G ps18_27g.pdf
- 27WS - Contract Negotiation Clinic: ECM - PS18_27WS ps18_27ws.pdf
- 2MQ - Magic Quadrant: Enterprise Content Management - PS18_2MQ ps18_2mq.pdf
- 32A - The Identity and Access Management Scenario - PS18_32A ps18_32a.pdf
- 32B - Enterprise Architecture and Portfolio Management: Future State as Risk Evaluation in Practice - PS18_32B ps18_32b.p
- 32C - The Mobile Scenario: A New Age of Mobile Services - PS18_32C ps18_32c.pdf
- 32D - Enterprise Software Scenario: What Happens When Social, BI, Application Development and Business Applications Collic
- 32E - The Impact of Hosted Virtual Desktops on IT Infrastructure, Investments, and Implementations - PS18_32E ps18_32e.p
- 32G - Communicating with the Board - PS18_32G ps18_32g.pdf
- 32WS - Workshop: Best Practices in Data Quality Improvement: What Works and What Doesn't - PS18_32WS ps18_32ws.pdf
- 34A - Debate: Unified Communications — The Biggest Scam Since Ponzi? - PS18_34A ps18_34a.pdf
- 34B - Collaborative Decision-Making Platforms: A New Way to Make Decisions - PS18_34B ps18_34b.pdf
- 34C - Business Rules Are King - PS18_34C ps18_34c.pdf
- 34D - Cloud Computing: Changing the Vendor Landscape - PS18_34D ps18_34d.pdf
- 34E - Fabric Computing in the Next Generation Data Center: What, How and When - PS18_34E ps18_34e.pdf

The Cloud-Computing Scenario

Gartner Symposium/ITxpo 2010

Daryl Plummer

November 16-18, 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

Gartner.

Conclusion: Benefits perceived are not always benefits realized in the cloud.

Potential Cloud Benefits: Why Are People Doing This?

- A shift from "capacity" on demand to "capability" on demand
  - Decreased time to acquiring a capability due to "low barriers to entry"
  - More effective agility and use of resources
  - Increased operational efficiency/sharing through outsourcing (i.e., someone else does the work better)
  - More options through more service providers
- Reduced cost of computing resources
  - Clear line of sight to costs of computing resources
  - Reduced power, cooling and space requirements costs
  - Increased flexibility of expenditures through operating expenses, rather than capital expenses
  - More finely targeted use of resources by paying only for what is needed
- A shift from technology use to "value" consumption
  - Consumers pay for what they want to do, rather than for pieces of technology
  - Results evaluated based on outcomes

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Gartner is seeing an acceleration of adoption of cloud computing and cloud services among enterprises, and an explosion of supply-side activity as technology providers maneuver to exploit the growing commercial opportunity (see "Cool Vendors in Cloud Management, 2010," G00175098 and "Cool Vendors in Web Technologies, 2010," G00174929).

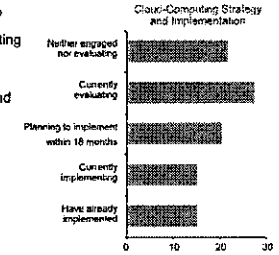
After many years of germination (most notably in the SaaS arena), the core ideas at the heart of cloud computing — pay for use, multitenancy, external services — appear to be resonating more and more strongly for more and more people (see "Predicts 2010: Cloud Computing Emerges From the Hype, Scope and Issues Demand Clarification," G00173044). An IT solution that can deliver functionality less expensively and with more agility — remembering that time is money — is hard to ignore against this background.

More fundamentally, cloud computing has become more material because the challenges inherent in managing technology based on the principles of previous eras — complex, custom, expensive solutions managed by large in-house IT teams — have become greater, and the (theoretical) benefits of cloud computing, in addressing these challenges, have matured to become more appropriate and attractive to all types of enterprises.

Strategic Planning Assumption: Before year-end 2013, cloud computing will reach its highest single-year rate of adoption for companies with over 1,000 employees.

Cloud Risks: 70% of Companies With Over 1,000 Employees Have Not Yet Started a Cloud Initiative — What Holds Them Back?

- Security: Can you trust it?
- Lack of compliance reporting and auditing
- Ensuring quality and predictability of service and service remediation
- Delivering and verifying reduced cost over on-premises computing (business case costs and benefits)
- Remediation of failures
- Align business need with actual cloud reality



Source: Gartner 2010 Cloud Survey

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Cloud computing carries specific risks that are slowing corporate adoption. For example, cloud providers that serve a large number of customers generally cannot tailor contracts to address the individual needs of a given customer. As a result, most public cloud services operate the same way for all customers, with only minor differences. This commoditization of service delivery introduces risks to service consumers, who may have little power if a provider fails to deliver what is promised.

If cloud services are commoditized, providers should offer stronger customer guarantees across areas such as ownership of data, service-level agreements (SLAs) and technical requirements. However, service providers vary greatly in the protections they currently offer, if protections are offered at all. In addition, both providers and consumers share responsibilities for the relationship, and each side must take action to achieve proper business outcomes.

Key Issues

1. How will cloud computing be defined and evolve?
2. How will cloud computing affect the strategy and direction of IT and business?
3. What vendors, markets and industries will be transformed by the cloud-computing phenomenon?

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Cloud computing is ***"a style of computing where scalable and elastic IT-related capabilities are provided 'as a service' to external customers using Internet technologies."*** It heralds an evolution of business — no less influential than the era of e-business — in positive *and* negative ways. It's become a hot industry term that's been used in many contradictory ways. Overall, there are very real trends toward cloud platforms, and also toward massively scalable processing. Virtualization, service orientation and the Internet have converged to sponsor a phenomenon that enables individuals and businesses to choose how they'll acquire or deliver IT services, with reduced emphasis on the constraints of traditional software and hardware licensing models. Services delivered through the cloud will foster an economy based on delivery and consumption of everything from storage to computation to video to finance deduction management. This presentation defines cloud computing, exposes potential risks and opportunities, and examines the next evolution of business.

Key Issue: How will cloud computing be defined and evolve?

Definition: Gartner defines cloud computing as "a style of computing where scalable and elastic IT-related capabilities are provided 'as a service' to external customers using Internet technologies."

Gartner's Definition of Cloud Computing and the Critical Attributes of Cloud Services

Gartner defines cloud computing as **"a style of computing where scalable and elastic IT-related capabilities are provided 'as a service' to customers using Internet technologies".**

	Five attributes that support outcomes
1 Service-Based	Consumer concerns are abstracted from provider concerns through service interfaces.
2 Scalable and Elastic	Services scale on-demand to add or remove resources as needed.
3 Shared	Services share a pool of resources to build economies of scale.
4 Metered by Use	Services are tracked with usage metrics to enable multiple payment models.
5 Internet Technologies	Services are delivered through use of Internet identifiers, formats and protocols.

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During the past 15 years, a continuing trend toward IT industrialization has grown in popularity. IT services delivered via hardware, software and people are becoming repeatable and usable by a wide range of customers and service providers. This is partly because of the commoditization and standardization of technologies, virtualization and the rise of service-oriented software architectures, and (most importantly) the dramatic growth in popularity/use of the Internet and the Web. These things, taken together, constitute the basis of a discontinuity that amounts to a new opportunity to shape the relationship between those who *use* IT services and those who *sell* them. The discontinuity implies that the ability to deliver specialized services in IT can now be paired with the ability to deliver those services in an industrialized and pervasive way. The reality of this implication is that users of IT-related services can focus on *what* the services provide them, rather than *how* the services are implemented or hosted. Just as utility companies sell power to subscribers, and telephone companies sell voice and data services, IT services (such as network security management, data center hosting or even departmental billing) can now be easily delivered as a contractual service. The buying decision then shifts from buying products that enable the delivery of some function (like billing) toward contracting, with someone else delivering those functions. This isn't new, but it *does* represent a different model from the license-based, on-premises models that have dominated the IT industry for so long. Names for this type of operation have come into vogue at different times. Utility computing, SaaS, application service providers — all have their places in the pantheon of industrialized delivery models. However, none has garnered widespread acceptance as the central theme for how any and all IT-related services can be delivered globally.

Market Forecast: By 2014, the market will be worth $148.8 billion.

Cloud Services Market Growth

- The worldwide market for cloud services was worth $58.6 billion in 2009.
- By 2014, the market will be worth $148.8 billion.
- Gartner has revised its five-year forecast growth rate from 26.5% to 20.5%. This downward revision, however, simply reflects the law of large numbers — that is, as the overall market grows, growth rates naturally diminish.
- Over the course of the next five years, enterprises will spend $112 billion cumulatively on software as a service, platform as a service and infrastructure as a service combined.
- North America is the largest country/regional market, representing 60% of the worldwide figure in 2009. During the next five years, North America will continue to be — by some distance — the largest market.
- There continues to be great diversity of activity, maturity and growth among the many different elements of the overall cloud services marketplace.

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Key Issue: How will cloud computing be defined and evolve?

Interest in cloud computing and cloud services has continued to grow since Gartner's initial analysis of the size and growth of the market was published in March 2009. Cloud computing and cloud services (in combination) was the No. 1 search term on gartner.com, and the No. 1 inquiry topic asked of Gartner in 2009.

The market size and forecast in our research is for cloud services for the period 2009 through 2014 and is segmented as follows (see "Forecast: Public Cloud Services, Worldwide and Regions, Industry Sectors, 2009-2014," G00200833):

- Worldwide level by major elements of Gartner's cloud services taxonomy
- Overall cloud services level by geography
- Overall worldwide cloud services level by industry sector

This forecast follows the taxonomy of cloud services provided in "Cloud Computing Services: A Model for Categorizing and Characterizing Capabilities Delivered From the Cloud," G00163913 , which was the basis for Gartner's original cloud-services forecast (see "Forecast: Sizing the Cloud: Understanding the Opportunities in Cloud Services," G00166525).

Strategic Planning Assumption: Through 2012, IT organizations will spend more money on private cloud-computing investments than on offerings from public cloud providers.

Cloud Computing: From Public to Private and Back

Through 2012, IT organizations will spend more money on private cloud-computing investments than on offerings from public cloud providers.

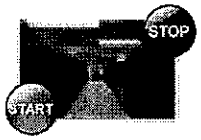
Choose public if ...

- There is a cost benefit.
- Service-level guarantees and security meet all requirements.
- All legal/data ownership and compliance requirements are met.
- Failure remediation/disaster recovery (including provider failure) is proven.

Leverage Communities in Between

Build private when ...

- Pubic cloud fails to meet needs.



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Key Issue: How will cloud computing be defined and evolve?

Private cloud services are not right for every enterprise, or every enterprise service. It's a question of return on investment.

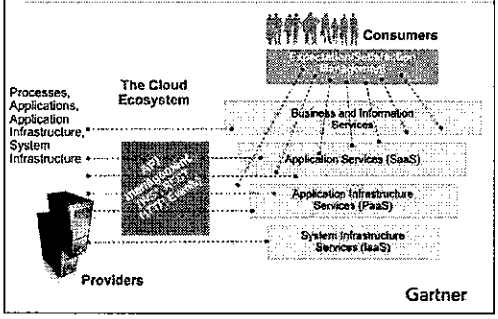
Understanding your current state is key: What services do you offer? What are the explicit or implied service-level requirements (and do you overprovision)? What does it cost you to deliver that service? Are you competitive?

Each service will have a different road map for the future — some should be focused on tighter integration, intimacy, customization and differentiation for the business. Others should be focused on independence, easy interfaces, standardization and eliminated customization. The latter services are potential cloud service candidates.

For each of those candidates, offerings in the cloud should be evaluated. If they don't exist or aren't ready, users should predict when those services might meet their needs. Based on that time window, the enterprise should build and evaluate a business case for investing in private cloud services, or simply wait for the public cloud service to mature.

Strategic Planning Assumption: By 2014, more than 50% of all requests for cloud services will arrive via programmatic service calls, exceeding the number of user interface access calls.

Layers of a Cloud Ecosystem: The Value Is in Delivery "as a service"



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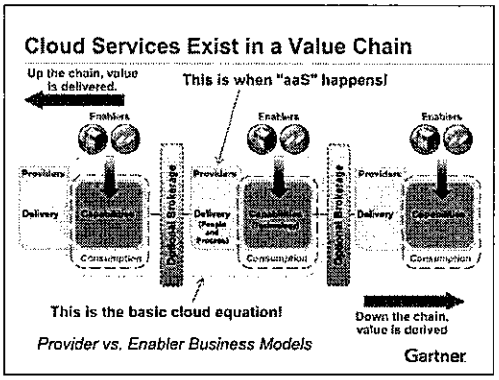
Key Issue: How will cloud computing be defined and evolve?

Cloud-based services, especially the software (applications) as a service (SaaS) are offered as complete solutions and, in most cases, are packaged with user interfaces. However, even in the case of SaaS, a large share of access to cloud services is not via the user interfaces, but is programmatic — meaning that software built outside of a particular cloud service (on-premises or in another cloud service) is using the cloud service as a component. This relationship of an application and a service is a service-oriented relationship, and is well-supported using the principles of service-oriented architecture (SOA). The connectivity into the cloud may be accomplished via Web services using SOAP protocol, via REST using plain HTTP protocol or via event-posting protocols, typically over an HTTP base as well. Contrary to some misguided positions, SOA is not equal to Web services and SOAP, but is an architectural model that is well-supported by multiple implementation protocols and patterns. The users who are best-equipped to use SOA principles in their IT projects are best-prepared for cloud computing. The users invested in advanced SOA principles, including federated SOA deployments and event-driven SOA — will find cloud computing a natural extension of their established application infrastructure environment. Application developers, considering offering their application as a cloud service (immediately or potentially in the future) must follow SOA principles to assure cloud-style access to application.

Conclusion: Failed attempts to shift to a service provider model will be a primary reason for technology provider decline through 2014.



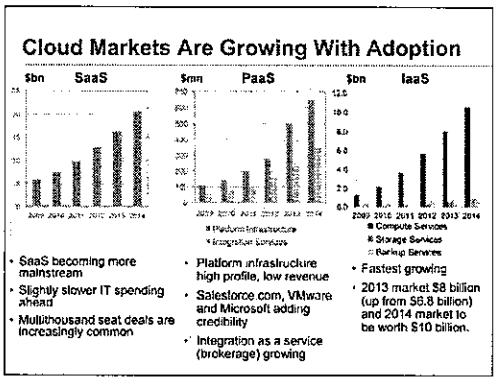
Key Issue: How will cloud computing be defined and evolve?

Service delivery is not a new concept. In cloud computing, it requires a provider not only to deliver technology, but also to deliver good service. This is the same as always — deep relationships with service providers make a chain of service possible. Cloud computing allows many capabilities to proliferate, but it also means you can't just have casual service relationships. Service management costs are 10 times those of technology management costs. And, when you add in the number and variety of services available to the chain, it can get very dicey.

In the old world, each technology provider delivered technologies to its customers. The difference between old and new is that the underlying premise of delivery is that customers must be satisfied with what the service does, instead of what the technology does.

In outsourcing and service businesses, these realities are clear. However, in the cloud world, there are more differences to contend with. Cloud services in the public cloud are commoditized in such a way that all customers get essentially the same service with little customization. This means that very little differentiation can come from each contract. As technology providers discover this truth, they are hard pressed to be able to generate revenues in the same ways of old.

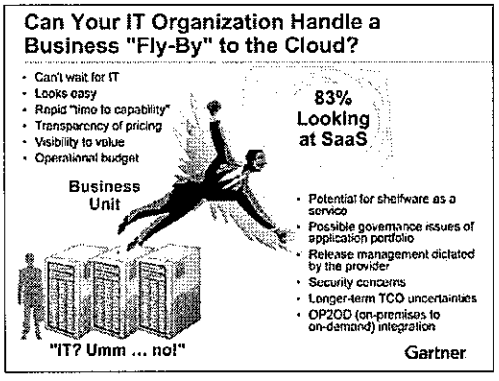
Strategic Planning Assumption: Through 2015, cloud compute services will rapidly replace dedicated servers for most Web hosting needs.



Key Issue: How will cloud computing be defined and evolve?

SaaS: The basic scenario represented in 2009's forecast remains in place — *application functionality delivered as a cloud service is establishing itself as the new norm for the software industry.* The forecast growth rate has been reduced marginally from last year's report to reflect slightly more sluggish spending on all aspects of IT during the next few years. The scale of application deployments is growing: multithousand-seat deals are increasingly common. One of the largest — if not the largest — SaaS sales was a 420,000 seat deal SucessFactors won with Siemens. IT managers are beginning to think strategically; this was highly unusual a year ago. **PaaS:** Application infrastructure consists of two types of offering — application platform as a service (APaaS) and integration as a service (IaaS). Platform infrastructure is an increasingly high-profile area, rapidly assuming a central role in the broader conversation about cloud computing. Salesforce.com, VMware and Microsoft are adding credibility and clout; however, it is still an early-stage market. IaaS is gaining traction — witness the IBM acquisition of Cast Iron. **IaaS:** Gartner has increased its sizing and forecast for cloud compute services, reflecting greater interest among our client base than had been expected. We expect the 2013 market to be worth $8 billion (up from the $6.8 billion forecast last year), and the 2014 market to be worth $10 billion. Starting in 2012, enterprises will see building new applications on cloud compute infrastructure as the de facto norm.

Key Issue: How will cloud computing affect the strategy and direction of IT and business?

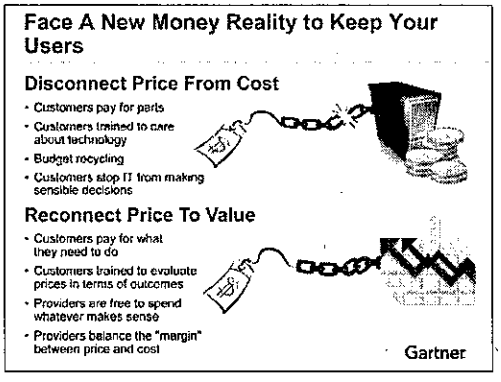


SaaS has emerged as an alternative to traditional IT models, as the dysfunctional nature of much current IT has become more widely understood. The benefits of SaaS, as an alternative, include less performance (because 80% of people don't need 80% of the functionality in software) for less money (because people like paying less), paid for as they use the software (because people realize they're paying for software they don't use; see above, plus 17% maintenance for what they don't use), delivered via the provider's servers (because people now know they use only 20% of their servers' capacity), which are managed by the provider's staff (because people have realized that the biggest component cost of software is people).

However, SaaS is not perfect, and has downsides and complications. Among these are that SaaS applications cannot be counted as assets on a balance sheet (many enterprise requirements will be too simplistic and crude). Furthermore, sourcing IT from a SaaS provider will never absolve IT management from its responsibility, but simply will change the nature of the responsibility. Finally, factors such as security and integration will continue to be major challenges for all involved.

Action Item: Users should set their expectations for today's SaaS benefits and costs realistically. SaaS is a new option that simply improves choice.

Strategic Guideline: Aggressively focus valuation initiatives of any technology-related project on how that project delivers on an outcome that is not solely technology-related.



Key Issue: How will cloud computing affect the strategy and direction of IT and business?

Today's value proposition is dominated by TCO justifications, instead of total value of opportunity reviews. The difference lies in where "value" is assumed to exist. In TCO calculations, the cost of purchased goods takes center stage. Those goods (such as servers and software) are billed back to the users of the technology based on the cost of the goods. However, the true value of the use of those goods is often locked away in some other larger business function. Cloud computing opens the door to disconnecting the price that users pay for using technology, and reconnecting that price to the value of the outcome. For example, a business unit that pays for five servers to run a billing application is paying not for billing, but for the servers and applications designed to help do billing. While this is okay, it leaves the user at a disadvantage, in that they have no idea of whether the cost of those servers and applications is justifiable for the goal of doing billing. With a cloud-computing billing service, users (now the consumers) begin to pay for how much billing they might do, and can evaluate the price paid directly against the result of doing more or less billing at a given level of quality.

Recommendation: Never tie the price businesses pay for business functions directly to the cost of the technologies used to deliver them.

Tactical Imperative: Ensure that cloud computing does not negatively affect corporate accounting.

The Evolution of Infrastructure and Private Cloud Computing Can Affect Your Books

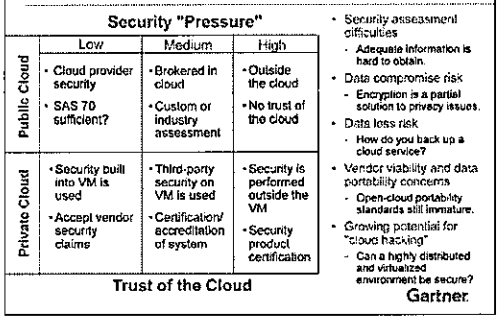
Key Issue: How will cloud computing affect the strategy and direction of IT and business?

Infrastructure is on an inevitable shift from components that are physically integrated by vendors (for example, monolithic servers) or manually integrated by users, to logically composed "fabrics" of computing, I/O and storage components. However, virtualization is only an enabler to very important future trends. Virtualization creates a pool of manageable, flexible capacity. Automation and service centricity will take that pool of resources and do useful work based on business policies and service-level requirements. Also, the decoupling created by virtualization, combined with defined service offerings and automation, is a great enabler of cloud computing. Essentially, real-time infrastructure (RTI) is a private cloud-computing engine. The infrastructure engine in cloud service providers will be RTIs. Yet, more than that, the service-oriented interfaces created between an RTI and its customers enable an IT organization to leverage external cloud services, where appropriate. Cloud computing is the inevitable result of a service provider evolving to RTI, and the best customers of cloud computing will be startups, or IT organizations that are evolving toward RTI.

One problem with this shift is the EBITDA-based company. As fewer elements are capitalized, the ability to gain write-offs for depreciation declines. This has a negative impact on the books if a company wishes to capitalize on capital.

Through 2013, 80% of cloud security incidents will be due to administrative error by cloud service providers or user management of cloud services.

And ... Three Styles of Security for Public/Private Cloud Can Affect Your Safety



Key Issue: How will cloud computing affect the strategy and direction of IT and business?

For low-security environments, or for workloads that have simple security requirements, relying on the security built into the private cloud infrastructure or into the public cloud service will be good enough — just as it was in more-traditional insourcing and outsourcing. This will represent roughly 20% of the overall market.

At the high end, security will be kept separate from private or public cloud infrastructure — just as we did when internal networks were virtualized. The VMsafe API is an example of a mechanism that requires all security-relevant flows to be externalized so that existing and separate security processes can examine them and enforce security policies. This will represent approximately 20% of the market.

The vast middle will compromise and run security workloads in the private cloud and public cloud environments, as long as sufficient separation of duties and audit/visibility can be provided.

Tactical Imperative: All service consumers should have some basic rights to protect their interests.

What Are the Rights and Responsibilities of Cloud Service Consumers? Assess Your Rights and Responsibilities in the Cloud

1. The right to retain ownership, use and control of one's own data
2. The right to service-level agreements that address liabilities, remediation and business outcomes
3. The right to notification and choice about changes that affect the service consumer's business processes
4. The right to understand the technical limitations or requirements of the service upfront
5. The right to understand the legal requirements of jurisdictions in which the provider operates
6. The right to know what security processes the provider follows
7. The responsibility to understand and adhere to software license requirements

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Key Issue: How will cloud computing affect the strategy and direction of IT and business?

Over four months during the first half of 2010, Gartner convened an IT council comprising CIOs of large enterprises that consume cloud services. The Gartner Global IT Council for Cloud Services defined six rights and one responsibility of service consumers that will help both providers and consumers establish and maintain successful business relationships. This slide describes some of the most-pressing rights and responsibilities.

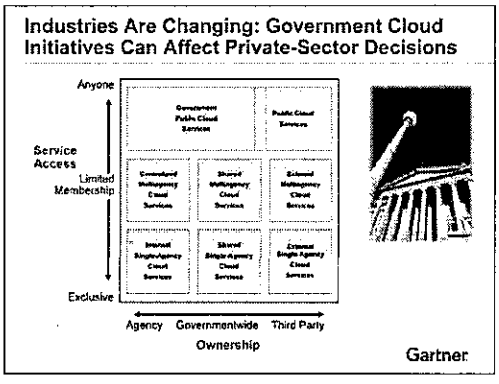
Cloud computing carries specific risks that are slowing corporate adoption. For example, cloud providers that serve a large number of customers generally cannot tailor contracts to address the individual needs of a given customer. As a result, most public cloud services operate the same way for all customers, with only minor differences. This commoditization of service delivery introduces risks to service consumers, who may have little power if a provider fails to deliver what is promised. To minimize these risks, service providers and service consumers must agree on a set of shared objectives and expectations.

If cloud services are commoditized, providers should offer stronger customer guarantees across areas such as ownership of data, SLAs and technical requirements. However, service providers vary greatly in the protections they currently offer, if protections are offered at all.

Key Issue: What vendors, markets and industries will be transformed by the cloud-computing phenomenon?

Conclusion: There is still some level of confusion about the actual roles and responsibilities of government organizations vis-a-vis the cloud.

Industries Are Changing: Government Cloud Initiatives Can Affect Private-Sector Decisions



As a consequence of tightening budgets and increasing uncertainties, government organizations are looking with interest at how to leverage cloud computing as a model to ensure greater flexibility, lower costs, more-rapid provisioning and greater focus on areas that are more domain-specific. Their attitude often depends on the organizational culture, the level of maturity in dealing with vendors, and the presence of one (or more) government shared-service organization that acts as a preferred supplier of services. Some organizations are interested in purely using cloud-based services as a complement or an alternative to services they currently source in-house or through other, more-traditional sourcing options. Other organizations, more mature or more confident about their internal delivery capabilities, look at cloud-based services as an opportunity to restructure and modernize the IT services they already provide. Others look at a hybrid approach, where internal and external cloud-based services coexist to manage different workloads, and to face rapidly changing capacity requirements.

The private sector has much to learn from government, in that government is forging ahead with cloud initiatives and, in some cases, defining the landscape for cloud computing. Community cloud concepts are germinating in government, while business enterprises are just beginning to take note. For once, government has as strong a viewpoint of a technology-inspired change as anyone else.

Strategic Imperative: Challenge your vendors to articulate a credible story for their transition of revenue to the cloud.

The New Vendor Reality: A Risky Transition

- Manage the shift from product to service
- Risky proposition – giving away your customers
- Discover new pricing models
- Cannibalizing on-premises products
- New powerhouse vendors
- Will the business models work?

Select vendors that demonstrate a grasp of the new reality.

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Key Issue: What vendors, markets and industries will be transformed by the cloud-computing phenomenon?

The delivery of service is not something that a company just wakes up to on Monday morning and rolls out on Tuesday. It is hard work and requires skills and management that most ISVs I have met, simply do not have. So, ask yourself this question: When was the last time you met a software vendor, that was also a great (or even good) service provider? If your answer is "yesterday" or "frequently," then take the day off and go to the beach, because you would be one of a rare breed who deserves to be pampered. But you will be lonely.

Think about some of the things service providers have to do that software vendors often avoid:

Selling subscriptions instead of licenses: This nut is being hammered on every day , but it is still a risky proposition to switch from selling software seats or licenses based on number of users to selling subscriptions based on usage. In fact, creating an equivalent measure of usage that will allow an ISV to generate the same revenue can be tricky. Do it wrong, and you will leave money on the table, or scare customers over to the competition. Gartner is helping clients every day to figure out how to do this in their environments.

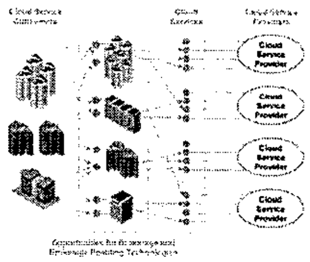
Managing service delivery: You gotta know who your customers are, understand and help set their expectations, manage dependencies on related services, manage multiple service versions, etc., etc. (Imagine Yul Brynner reading that out loud.)

Meeting SLAs: Software vendors? Meet SLAs? Even *have* SLAs? Yeah, right. "It's not you, honey. It's me!"

Tactical Imperative: Use a cloud services brokerage to make it less expensive, easier, faster, or safer to navigate, integrate, consume or extend services.

Cloud Services Brokerages: A Multiplicative Growth Effect

- Potentially every service, every consumer, and every combination of services may need brokerage
- Enabling technologies as arms dealers
- Game changes for system integrators as they move to cloud services to get
  - Greater degree of leverage
  - Economies of scale
  - Size of market opportunity
  - Distinguish between one-off value-add from leveraged multiple customer engagements



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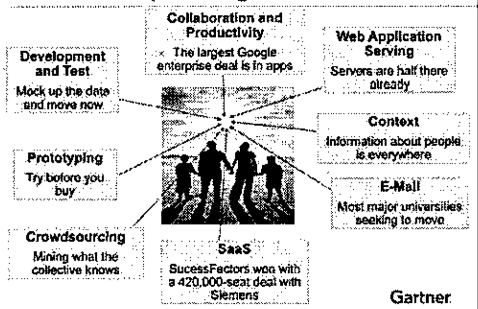
Key Issue: What vendors, markets and industries will be transformed by the cloud-computing phenomenon?

Cloud services brokerages must add value to the services being consumed. That value can take many forms or be delivered in combinations of services, and for this reason, the market opportunity for CSB is a multiplicative one. In the case of cloud computing, any cloud service has the potential for needing a cloud brokerage to add value to it. Further, any cloud service consumer has the potential need for a broker to act on its behalf to gain added value. And, any combination of cloud services or consumption scenarios potentially needs brokerage to ensure a level of satisfactory outcome. Because of these three basic areas of potential need, a cloud services brokerage acts much like an add-on or accessory market for cloud computing. As is well-known, many markets (e.g., audio equipment, mobile phones, computers, MP3 players, automobiles, etc.) have shown that more money is to be made selling the accessories for a given device or service than that which was made in the original device sale. CSB markets benefit from this same equation of opportunity. As brokerages deliver their solutions, they create market demand for the original cloud services and add demand for the customized capabilities.

Strategic Planning Assumption: By 2012, 20% of enterprise e-mail seats will be delivered via a cloud/SaaS-based model.

What Are People Doing in the Cloud?



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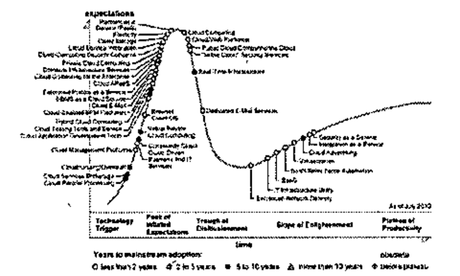
Key Issue: What vendors, markets and industries will be transformed by the cloud-computing phenomenon?

The migration to cloud computing will begin with capabilities that have low value to building a company's competitive edge. Infrastructure services will be rapidly adopted through the cloud as cloud platform providers take advantage of the paradigm. At the same time, information services are already growing on the Internet, and they will migrate to cloud services. Next, entertainment-oriented services such as video on demand, simple business services such as customer authentication or identity management (for example, Windows Live ID and emerging standards like OpenID are efforts to federate identity to service providers), and contextual services such as location or mapping services are well-positioned to become cloud-delivered. Services with higher competitive value, such as core corporate processes and transactional services, will take longer to reach the cloud and the mainstream. The reason for a longer uptake into the cloud for pointed business-oriented services is that these will require a high degree of trust between the providers of these services and their potential business customers. These services will also require a certain degree of security and robustness that is just now becoming viable for Internet-based computing.

Conclusion: Most cloud-computing technologies and concepts are more than two years from mainstream adoption.

Hype Cycle for Cloud Computing, 2010



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Key Issue: What vendors, markets and industries will be transformed by the cloud-computing phenomenon?

This Hype Cycle for Cloud Computing identifies which aspects of cloud computing are still primarily in the hype stage, which applications/technologies are approaching significant adoption and which ones are reasonably mature. There are an overwhelming number of technologies that are pre-Peak of Inflated Expectations, and are attempting to "piggy back" onto the cloud hype. There are many aspects of cloud (including cloud computing itself) clustered around the Peak. Cloud computing itself has just passed the Peak, although it is nowhere near the Trough as of yet. And while the term "cloud computing" is relatively new, it incorporates derivations of ideas that have been in use for some time. Hosting, SaaS and virtualization are well-established and are being used in many ways. The prevalence of inexpensive computing power, inexpensive bandwidth and companies that have developed extensive capabilities in managing large data centers are all relatively new, and are all required for the cloud to come to fruition. Newer concepts, such as private cloud computing, elasticity, cloudbursting and APaaS, are taking these ideas and innovating the myriad ways that cloud can be used. As awareness of cloud computing continues to increase, so does the subsequent confusion and a gradual understanding of the inevitability of many of the concepts. As cloud computing continues to move beyond the pure hype stage and into mainstream adoption, it is important to dig beyond the main cloud term to the actual ideas and technologies, to dodge the hype and take advantage of the benefits that exist. As always, once the hype dies down, the true value will arrive.

Recommendations

- ✓ Establish a set of value propositions for adopting cloud computing.
- ✓ Ensure that the public cloud can't meet your needs before building a private cloud.
- ✓ Work with your users to understand their needs for SaaS.
- ✓ Verify that bookkeeping practices will not be affected adversely by cloud adoption.
- ✓ Establish and demand rights as consumers of cloud services.
- ✓ Seek cloud brokerages to enhance performance and cloud service capabilities.

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Recommended Reading

- → **Key Issues for Cloud Computing, 2010**
  David Mitchell Smith, David Cearley, Daryl Plummer (G00175264)
- → **Key Issues for Web and Cloud Application Development, 2010**
  Eric Knipp (G00174971)
- → **Key Issues for Software as a Service, 2010**
  Robert DeSisto, Ben Pring, Brian Prentice (G00174548)
- → **Application Infrastructure for Cloud Computing: A Growing Market, 2010**
  Yefim Natis (G00175138)
- → **CFO Advisory: Cloud Computing; Business Enablement**
  David Mitchell Smith (G00175913)
- → **Know Your Rights in IT Maintenance and Cloud Computing**
  David Cappuccio, Daryl Plummer (G00201001)

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CIO's Guide to Successful Sourcing

Gartner Symposium/ITxpo 2010

Linda Cohen

November 16-18, 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

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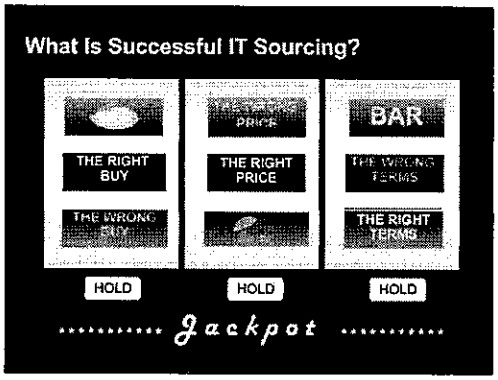

Tactical, ad hoc approaches to sourcing and procurement can seem like a game of chance. Instead, they should be executing strategic decisions to achieve the desired outcome by design. Many organizations obtain the right product, the right price or even the right contract terms, but it is much rarer to achieve all three, or any value realized happens at a much later date — in most cases, long after the "buy."

The CIO has a pivotal role to play in guiding and coordinating this strategy across the many stakeholders involved in successfully executing this strategy. It is unlikely to happen by chance without the guidance of the CIO's office.

Key Issues

1. What roles and responsibilities must be applied internally to make IT sourcing successful?
2. What techniques and processes effectively support IT sourcing performance?
3. How should IT sourcing operations be monitored and measured?

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Key Issue: What roles and responsibilities must be applied internally to make IT sourcing successful?

IT Sourcing Is a Critical Business Discipline, and ...

"IT **Sourcing**" Is *Not* Just Another Name for **Procurement** ...

and ...

IT Procurement Is *Not* Just a **"Sourcing Action"**

If left unchanged, tactical IT procurement, as opposed to IT strategic sourcing, will undermine agility, cost efficiencies, and business operations. Strategy must drive IT sourcing, and sourcing is an essential discipline.

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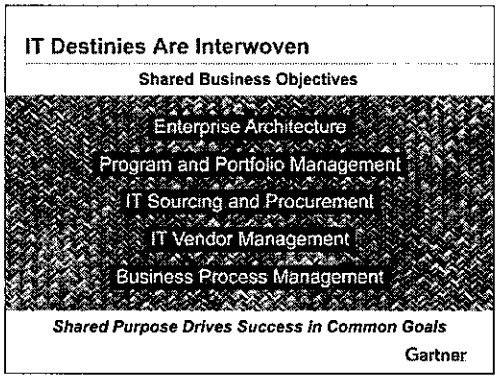
We need a new approach for IT strategic sourcing: the difference between IT procurement as an *exercise* in acquiring products and services vs. IT sourcing as a holistic *approach* to developing and governing sourcing strategies, actions and vendors to achieve business outcomes.

Companies that master IT sourcing as a competency now will be positioned to lead their industries and drive competitive advantage, to focus their resources and capital on the core functions that differentiate. Those companies that refuse to change and adopt IT sourcing as a critical competency will operate at a disadvantage and fail to realize all the benefits of a holistic, well-integrated approach to sourcing decisions and management.

Successful IT sourcing starts with developing, implementing and governing sourcing strategies that are directly linked to the business strategy and operations strategy. An IT *sourcing strategy* is the set or portfolio of plans, directives, and decisions (what we call sourcing action plans) that define and integrate internally and externally provided services to fulfill an enterprise's business strategy. The challenge of an IT sourcing strategy is to continuously deliver to the organization the exact combination of internal and external resources and services necessary to support business objectives. One of the primary reasons for sourcing dissatisfaction is the misalignment of IT sourcing decisions with business and operations strategies.

Tactical Guideline: An uncoordinated approach leads to unwanted surprises and unrealized expectations. A collaborative and well-synchronized approach delivers the desired balance between architectural and commercial objectives.



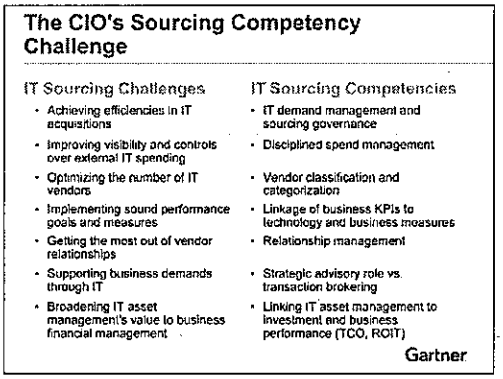
Many organizations follow a serial process where each decision is made in isolation. Choices made earlier in the process often result in later outcomes that were not intended. However, these decisions and their unintended outcomes can never be revisited, so unsatisfactory results stand.

Increasingly common ways to break out of this constrained situation involve running these key processes in parallel, while considering and planning the dependencies and impacts that can occur between them. Gartner has observed an increasing number of enterprise architects contacting its procurement analysts to get more information about cost impacts, for example.

These core disciplines interact in ways that require teamwork between them to achieve the best possible outcome, one where shared business objectives can be achieved. Only by ensuring a full consideration of these adjacent disciplines through collaboration can IT organizations ensure that the overall outcome remains successful. Otherwise, the vested interests of separate stakeholders or roles can skew the results by distorting the emphasis at different stages. Less scrupulous account managers may even be counting on this distortion to drive the procurement through, to retain margin or to reduce vendor accountability for the value of what is being delivered.

Action Item: Define a sourcing, procurement and vendor management process that represents the interests of all parties to balance out any individual self-interests, such as professional, operational or financial incentives.

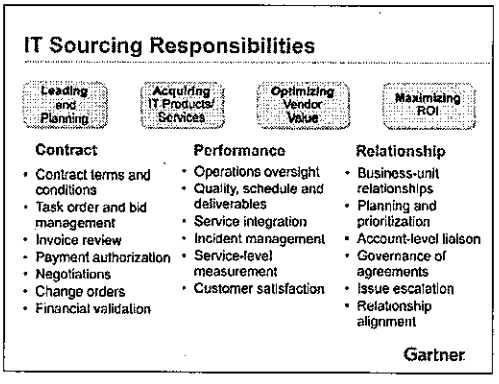
Strategic Imperative: IT procurement must evolve from providing acquisition competencies to developing broader, more strategic IT sourcing competencies.



IT organizations must evolve from solely providing IT procurement competencies to developing broader, more strategic IT sourcing competencies. IT organizations face demanding new challenges that can be met only by this competency evolution. To achieve deeper efficiencies and leverage IT acquisitions, new demand management competencies are required, along with discipline in sourcing governance.

To gain better control over IT spending, organizations must invest in disciplined management of spending. Reducing the number of vendors and creating meaningful measurements will require vendor categorization and stronger, more effective vendor management skills and competencies than exist in today's IT organizations.

To ensure that IT assets and investments meet the demands of business, new relationship management skills will have to be developed within sourcing management organizations. These new investments require budget and time. These skills will not typically be found within today's procurement teams or IT organizations. They will more likely be groomed from the business or from external suppliers. Either way, the time to act is *now*!



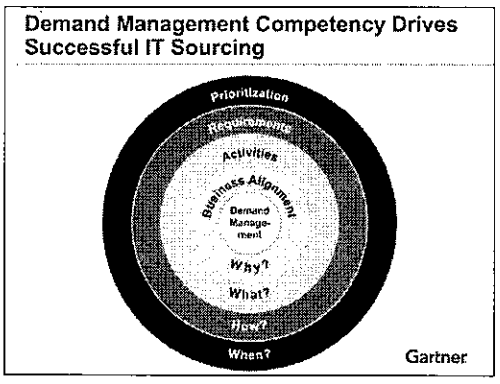
Three key functions are necessary to manage both sourcing and vendors. Although it may seem adequate to simply assign a vendor manager to oversee vendor performance, a number of other crucial responsibilities must also be assigned.

Performance management deals with the day-to-day management of recipients of products or services. Key focus areas include service-level monitoring, deliverable and schedule performance and customer satisfaction, where customers are defined as the recipients of services. Often, these customers are internal users.

Relationship management is focused on getting value from the relationship with the vendor and, as such, one of the most important areas is business unit satisfaction. Relationship management also aims to ensure that the buying organization is living up to its side of the relationship.

Contract management deals with the formalized relationship between the buying organization and vendor. Key areas include administration of processes and procedures that ensure that performance requirements are fulfilled in accordance with contractual terms and conditions. Contract management is focused on ensuring finance and administration satisfaction, so this view is almost exclusively inwardly focused.

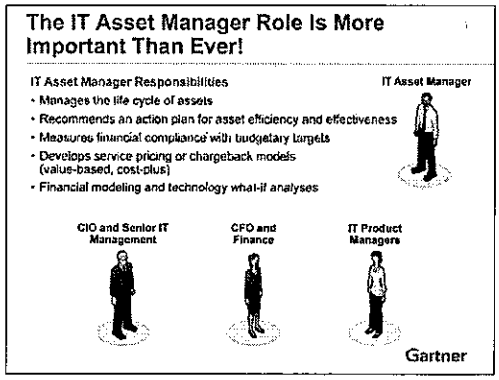
Tactical Guideline: Optimize the role of IT in the business supply chain by developing demand management as the strategic driver for all IT, sourcing and procurement activity.



To establish the right supply chain that can deliver business requirements, IT and sourcing leaders need reliable information about how business requirements translate into demand for IT services. CIOs and sourcing managers need to work with business stakeholders to align business expectations and strategies with sourcing decisions and performance.

When IT departments are continually reacting (and often *overreacting*) to the dynamic business needs and the demands of enterprise users and business units for IT services, they cannot effectively govern their sourcing supply chains. The client organization can better consume IT services from the supply chain, and the service providers in the supply chain can more reliably deliver services, when CIOs and sourcing managers proactively evaluate and forecast the IT services they need. Effective demand management enables service providers to plan more effectively for the delivery of services, in appropriate volumes and time frames, and using the appropriate numbers and type of staff and technology resources in suitable geographies. If they can proactively anticipate demand, client organizations can most effectively use and optimize their suppliers to manage cost and performance.

Strategic Imperative: Unless your organization can become asset-less, a dedicated IT asset manager is essential to ensure that day-to-day corporate asset efficiency and effectiveness are being maintained.

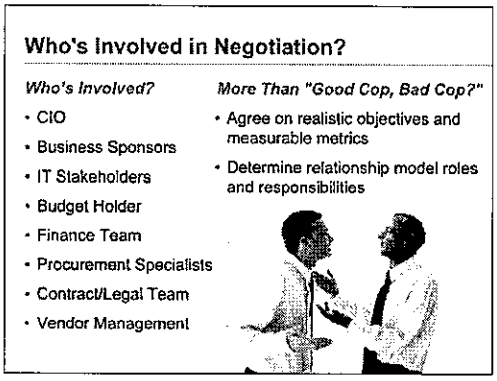


The IT asset manager's role is not just counting and tracking the location of assets. ITAM often gets short shrift in IT operations departments, which are more focused on technical and infrastructure issues, and thus have limited skills in the asset and financial management category. However, financial information and analysis are critical to running IT operations like a business and are required to assist in making trade-off decisions about cost, quality and risk. The growing breadth of IT financial management capabilities is essential to improving the overall credibility of IT in the organization. This skill set is used to ensure that the corporate environment is effectively and efficiently using all the hardware and software assets.

Gartner estimates that approximately 40% to 45% of the companies that place inquiries have implemented ITAM and standardized on a toolset to provide financial and contract management capabilities, but we believe that the market penetration will grow rapidly in the next five years. The IT organization must demonstrate that it has control over its finances and is anticipating the financial impact of its decisions. Without an IT asset manager, this is extremely difficult to maintain.

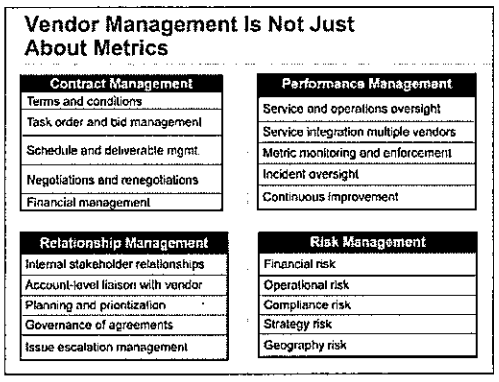
Action Item: Make cost trade-offs more visible, reduce hidden costs and increase financial transparency to build trust with business unit customers.

Strategic Imperative: Define and manage clear roles and responsibilities within your sourcing, procurement and vendor management teams to avoid conflict or duplication of effort and ensure successful teamwork toward a shared objective.



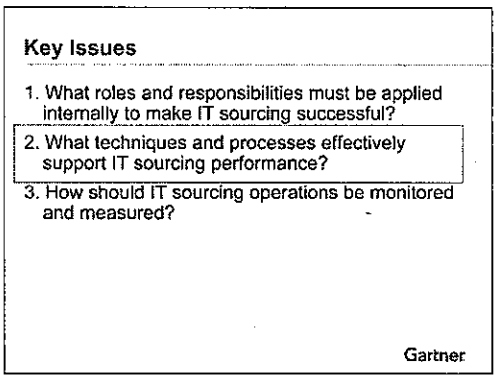
The vendor relationship does not end with contract negotiation — it starts for real at this stage. Build teamwork by ensuring that all the key stakeholders are involved to the extent that makes financial sense for the value contribution of the contract. Involve them as early as possible and continue to involve them throughout the contract life cycle.

- **Initiate role-reversal sessions.** Periodically and methodically switch roles, and get someone else to play the "bad cop" by taking the assertive actions described in this presentation. The individual might be an IT or business manager who has a vested interest in managing his or her budget. Sourcing, procurement and vendor managers can then start to play the deal broker, the peacemaker and referee. Realize that contracts and vendor relationships resulting from tough, aggressive negotiation tactics are likely to result in later imbalance or relationship challenges postnegotiation.
- **Rotate staff.** Periodically change the people who deal with each vendor to stop the relationship from becoming too cozy or stale. Staff will often learn more from working with different vendors and a change of roles can reinvigorate the relationship. However, be wary of vendors who switch account teams all the time and if this prevents you from building a relationship, escalate to their management team.
- **Sell the "big picture."** Identify and communicate future potential opportunities while asking potential suppliers how they plan to "buy" your business. Build a reputation for being a valuable customer.



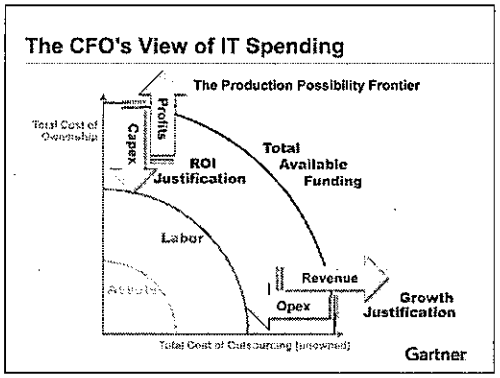
Vendor management is an emerging discipline that is necessary to invest in to ensure that your organization is working effectively with vendors and that you are indeed generating the business and service outcomes you require from the deal. The relationship manager builds and governs the partnership and relationship with one or more key providers and is the owner of one or more relationships. The lead relationship manager ensures that relationships are working effectively across all service providers and with the overall organization with a focus on achieving the tactical business outcomes required. The performance manager ensures the agreed services are delivered and service levels are met with each vendor and from an end-to-end perspective.

Specifically, the focus here is on ensuring the operational service outcomes are achieved and that the provider is also undertaking appropriate tactical activities to ensure service delivery management beyond the day-to-day delivery of services. The contract manager ensures the effective deployment of sourcing initiatives through the establishment and management of coherent practices (people, governance, schedules, and terms and conditions) across all sourcing relationships. This is typically an ad hoc role, being strongly involved during contract negotiations, contract performance review and when the contract baseline changes as the business outcomes required change over the life of the deal.



Key Issues: What techniques and processes effectively support IT sourcing performance?

Tactical Guideline: How IT costs are structured and funded over time can also be an important business requirement. Understand the options to improve business alignment

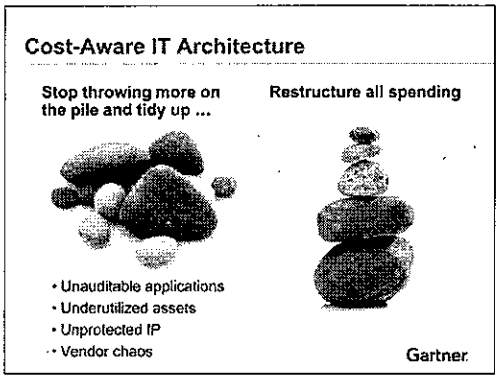


An organization's internal decision making is illustrated with this IT production possibility frontier. These lines represent the maximum available spending on services and projects. Whether operating or capital expenditure, enterprises have a finite supply of cash that can be spent only once. Each investment opportunity has an associated cost, so we need to assess the total cost of each opportunity to determine which projects to pursue. Capital constraints have recently driven new projects toward external development and hosted solutions, SaaS and cloud. Now that capital reinvestments are needed in infrastructure and applications, we are starting to see a re-evaluation of the entire IT portfolio.

It was traditionally considered less expensive or risky to acquire and own IT resources, but perceptions are changing. Building a custom "killer app" is more expensive and riskier than buying one ready-made but can generate greater competitive advantage. Conversely, the law of diminishing returns indicates that the greatest long-term benefits come from base functionality, whereas additional investments result in short-term advantage but a more marginal advantage in the long term, without sustained reinvestment. As this diagram shows, combinations between internal and external are also possible — it is no longer an either/or choice — but to sustain reinvestment and operating expenditure (opex), we need to show greater revenue contribution.

Action Item: Improve IT funding by combining multisourcing with projects that can better align spending with revenue to demonstrate sustainability.

Strategic Imperative: Develop a more cost-aware architecture by taking a portfolio management approach to all IT services, freeing up capital to improve the business alignment between demand and supply.

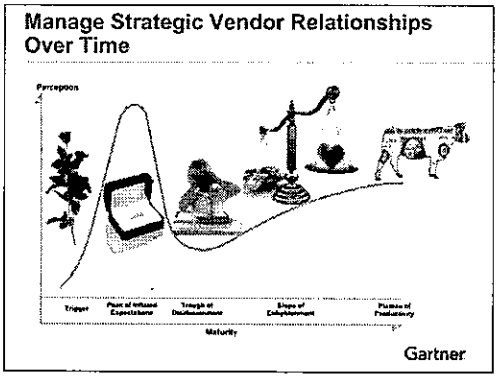


"IT Portfolio Management: Waste Reduction in Three Dimensions" (G00168938) identifies three opportunities for waste reduction: infrastructure, applications and projects. The ROI on waste reduction is often stated as cost reduction in business cases, but the greatest driver is to reduce commercial risk. As organizations struggle to return to growth and place excessive emphasis on financial returns in the form of cash receivables, we forget the lessons of recent history. The credit crunch is widely accepted to have been caused by failure to manage investment risk. As we state in our report, IT projects have historically had relatively poor records of predictability in scheduling, costs and pay off relative to other forms of investment. Investment risk is the most important criterion (see "Toolkit: How to Assess Project Risk" [G00145436]), so evaluate complexity, external, operational, organizational, schedule and technology risks.

The CIO's mission is to manage change in support of organizational objectives, not to continually create new projects and IT services that risk depriving important new initiatives of funding. CIOs must take the initiative to clean up after their organization, to detect and clear up potentially toxic assets in the infrastructure layer, for example. They may no longer be fit for purpose simply because they were not acquired for that purpose. Portfolio optimization may be the only opportunity your IT organization has to make change happen (see "Flying on Instruments: The IT Planning and Control Panel" [G00161603]).

Action Item: Organizational spending on operations and new projects is limited, so evaluate opportunity costs to ensure funds are allocated wisely and appropriately. Overcome those limits through portfolio optimization.

Strategic Imperative: Expect the value of your vendor relationship to change over time and manage that change to reach a more successful outcome with strategic vendors.

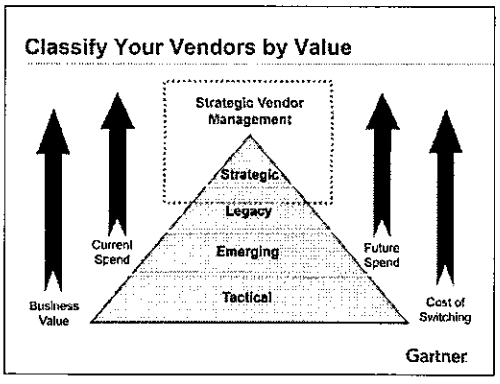


Are you ready for a relationship, and what do you expect?

When dating, there are behaviors that you see and come to expect, especially from potential partners who are not always serious about your affections. That might be your approach too, but it can be difficult to have a series of casual relationships with IT vendors when your organization has to live with their consequences every day. Even relatively commoditized IT markets are likely to experience some consolidation and reduction in competition. A relentlessly commoditized approach to IT procurement is therefore inappropriate and unlikely to prove satisfactory. If this is where you've been going wrong all these years, then perhaps now it is time to rethink your lifestyle.

Successful vendor relationships take work, and both parties have to be ready to make that commitment through good times and bad. Customers looking for a long-term commitment should be suspicious of exaggerated behaviors such as excessive discounts. If it looks too good to be true, then it probably is. Sometimes, even the most promising relationships just don't work out, but you should never expect things to carry on as they started. After the initial attraction and passion of the negotiations are over, you sign the deal and tie the knot only to find out that reality kicks in. You may experience something known as "buyer's remorse" where you start to regret the decision simply because you have had to make a commitment. Things may not always go according to plan. It may not always match the romantic notion or sales and marketing version, but that does not make it a bad relationship, as long as both parties are prepared to invest in working through it. The real work starts after the negotiation has been completed. A successful relationship cannot become a "cash cow" for only one party; it needs to be in the best financial interest of both parties. Only then can you be sure that you made the right choices.

Decision Framework: Vary the level of management attention to ongoing vendor relationships by assessing the strategic value of vendors based on a simple set of criteria.



IT organizations must be careful to distinguish between various vendor relationships. The selection process begins with asking the IT organization the following questions: **Dependence** (switching cost) — How dependent on the supplier is the organization? Is the vendor readily replaceable? **Investment** (sunk cost) — How much does the company have invested in the vendor's services, such that walking away is not an option? **Potential** (future investment) — Is there a desire and propensity to spend more with a vendor? **Breadth of service capability** — Can the vendor span markets and provide a multitude of services? Relationships vary from tactical to strategic, but management attention should not be equal in all cases. IT organizations must be careful to distinguish between various vendor relationships. There are four general supplier categories that help separate responsibilities: **Strategic** — High-dependence, high-cost exposure vendors as well as vendors that the IT organization wishes to increase business with over time. **Emerging** — Vendors with a small initial presence, but one that is expected to build. **Legacy** — Vendors that have been in place for a sustained period but are not considered strategic. **Tactical** — Vendors that are small in cost and exposure, or that are in a commodity environment. Once successfully categorized, most strategic vendor management programs begin with a handful of top suppliers and expand over time.

IT Vendor Management Framework

Develop and Operate Program	Acquire and Divest Vendors	Monitor and Improve Vendor Value	Mitigate Vendor Risks
Establish Vendor Management Goals and Structure	Evaluate and Select Vendors	Classify and Optimize Vendor Portfolio	Assess and Manage Financial Risk
Develop an Organizational Model	Negotiate and Contract Vendors	Manage Contracts	Assess and Manage Operational Risk
Establish Competencies and Roles	Onboard Vendors	Manage Performance	Assess and Manage Compliance Risk
Measure and Report VM Value	Manage Vendor Transitions	Manage Relationships	Assess and Manage Strategy Risk
Enterprise Vendor Governance & Communications	Vendor Disposition	Link Demand Management	Assess and Manage Geography Risk

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Good vendor management should follow a framework that clearly identifies the set of activities, tasks, functions and expected outcomes. Vendor management is responsible for managing the external spending of an organization and includes negotiating contracts, analyzing and improving supplier performance, driving greater value from supplier relationships, and mitigating vendor risks. Vendor risks exist during good and bad economic times and are not just limited to the financial stability and well-being of a particular supplier. Organizations should adopt a framework model for managing all vendors, with specific emphasis on managing those vendors that are critical to overall business performance and success.

Key Issue: What techniques and processes effectively support IT sourcing performance?

Sourcing Governance Defined

Sourcing governance is the assignment of rights and responsibilities for decisions regarding internally and externally provided resources and services, with the objective of ensuring service coordination and achieving business results, according to the organization's sourcing principles.

The sourcing governance building blocks are:

- Maxims
- Sourcing Processes
- Relationships
- Decisions

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Almost every contract or vendor relationship has a service component. This requires a service management framework to manage the relationships between the service provider, IT management organization and end users. Our research indicates that these are generally appropriate from an operations perspective, but deficient in important areas involving the effective business relationships between the two sides.

The first reason frameworks are deficient is simply because the parties consider formal controls and the exchange of formal documents as sufficient to manage services. That is far from enough. They must be supplemented by other means of interaction and communication, characterized by collaborative relationships that thrive on mutual action and mutual success. The second reason is that the parties fail to appreciate the difference between demand and supply perspectives over services, and appropriately apply those different perspectives to critical governance processes and decisions in the service life cycle. Finally, many key decisions in service management processes do not have the involvement of the appropriate players.

The only answer to these deficiencies is to implement an appropriate governance framework — in addition to all service management activities. The objective of a governance framework is to dynamically steer services toward business objectives.

Key Issues

1. What roles and responsibilities must be applied internally to make IT sourcing successful?
2. What techniques and processes effectively support IT sourcing performance?
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Key Issue: How should IT sourcing operations be monitored and measured?

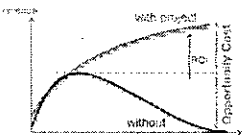
What Is the Business Contribution?

Accountability

- Specific, Measurable, Agreed, Realistic and Timely Results-Driven

Business Outcomes

- Payoff
- Net Value
- Responding to Market Change



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Sourcing is successful when the IT services and the business processes they support are successful.

Business success is not always as easy to measure. Many organizations change because they have to change in response to changing market conditions. IT projects do not necessarily increase business revenue or profitability; they may only prevent the loss of revenue and profitability as a result of market change. IT managers are not responsible for the profit and loss of the enterprise, but they must still operate within this business context to manage change. It is all too easy to become embroiled in the detail of managing the project through to a successful outcome and to lose sight of this changing business context. Program and portfolio management disciplines can put back this much needed context and feedback into IT.

In the chart above, the dark blue line shows how the financial performance of a line of business is about to tail off and how it would fall without a new IT project being implemented. The light blue line shows how financial performance is increased and sustained by the project. It is common for organizations to recognize only the improvement shown above the dotted line in a benefits assessment. The total opportunity cost of not proceeding with this project is the entire gap between the two curves, representing lost revenue. Nothing stands still, neither costs nor revenue. Some lines of business may even have to "run to stand still" while keeping up with the pace of change. Organizations that can track and manage value contributions in this way are best placed to validate the success of sourcing, procurement and vendor management.

Action Item: Use relative measurements to track the differences a vendor can make to measure opportunity cost.

Tactical Guideline: Use financial metrics that reflect the total cost of ownership, not only the initial cost of acquisition but the ongoing costs of contract and asset life cycles.

Use Opportunity Cost Metrics for Buy/Lease/Rent/Subscribe Decisions

Cost	Risk	Value	Metric
Access to Assets	Cost Increase	Predictability	Budget Variance
Return on Capital	Missed Opportunity	Return on Total Spent	Time Value of Money
TCO (Life Cycle Cost)	Financial Overcommitment	Predictability "Future Proofing"	Cash Flow Variance
Change	Inflexibility	Ability to Execute	Switching Cost
Time	Delay	Agility	Execution Time

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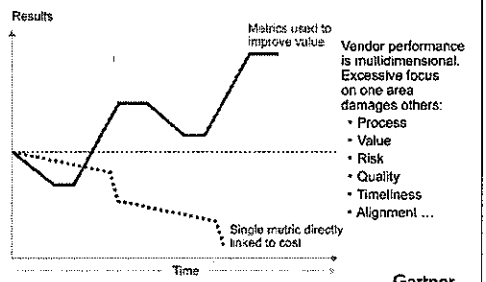
IT spending often represents a long-term financial commitment, an implied liability in financial terms. By committing the organization to a course of action, the organization is committing funding that can no longer be used to pursue alternative courses of action. This is true regardless of whether spending commitments represent capital or operating expenditure. CIOs have, therefore, found that they cannot limit themselves to new capital projects and must look beyond capex budgets to find funding for change.

When committing to the costs resulting from a project, the project management team commits its organization to costs that can be far more significant than the startup costs or capex of project initiation. Opportunity cost lies at the heart of effective program and portfolio management. It is no longer safe to assume that all project costs will be capitalized. There are many non-capital-funding options available. It is not simply a question of the total amount — when costs are due plays an equally important part in ensuring they are sustainable. Enterprises do not need a return on their investment as much as they need a return on all their spending. Models and frameworks are great to practice with. However, opportunity costs must be scheduled in real time and matched with business benefits to maximize returns and drive growth.

Action Item: Evaluate all project financing and sourcing options to better align benefits with costs for more easily identifiable and sustainable returns.

Tactical Guideline: Examine the relationship between cost and value metrics, such as service levels, to ensure that cost is not the sole criterion behind all decision making.

Use Value Metrics to Measure Vendor Performance



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The right metrics can do a lot to improve a vendor relationship but they have to measure value. Many talk about the need to closely link metrics to performance evaluation to influence vendor behavior. Metrics can have harmful effects when linked to performance evaluation in too direct a manner. The chart illustrates how a vendor relationship progresses through a number of enterprise change cycles. Overaggressive financial metrics and penalties can result in a deteriorating vendor relationship, where the viability and profitability of the customer is called into question and the vendor does not feel that the relationship is recoverable.

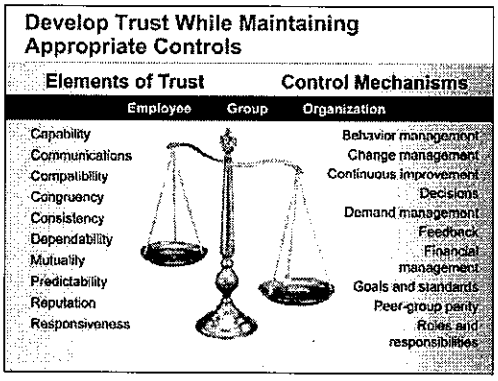
Alternatively, vendors find ways of circumventing a limited number of metrics and merely give the impression of performance, while end users remain dissatisfied. Counter metrics are needed to ensure that no-one finds a way of "gaming the system." For example, a storage vendor using a price per terabyte metric might vary configuration of systems to optimize capacity and will perform too slowly as a result, causing application and end-user delays.

The right balance of metrics is important, although it should be coupled with the ability to renegotiate metrics and how they are measured. Positive rewards are often more effective than punitive penalties, although most enterprises will try to limit them to nonmonetary benefits.

Action Item: Continually review and refine metrics and put additional counter-metrics in place to counter any negative behaviors driven by the primary metrics.

Tactical Guideline: Work toward a balance of trust and control between parties to manage relationships effectively in a multisourced ecosystem.

Develop Trust While Maintaining Appropriate Controls



Every day, thousands of small, seemingly innocuous failures of confidence occur in business relationships. These failures often go undetected and uncorrected, resulting in wasted management time and missed opportunities. Although it is often seen as critical, corporate policy and codes of conduct do not specifically address trust and control. Faced with no reliable means of inspecting or tracking trust and control, enterprises have no means of managing it.

Gartner research has identified 10 key components that enterprises considered essential to measuring and balancing the level of trust and control between a service provider and a service recipient or between vendors in a multisourced ecosystem. Trust components are: *capability, responsiveness, communications, congruency, predictability, dependability, compatibility, mutuality, consistency* and *reputation.* Control components are: *behavior management, change management, continuous improvement, decision processes, demand management, feedback, financial management, clear goals and standards, peer group parity, and clearly established roles and responsibilities.*

Periodically assessing the level of trust and control between all parties will allow for the opportunity to proactively monitor and amend imbalance before problems escalate into relationship management issues.

Recommendations

- ✓ Analyze and manage business demand as the first priority, before supply
- ✓ Understand risk, cost and value sensitivities all the way along the IT supply chain
- ✓ Develop the discipline of strategic IT asset life cycle management
- ✓ Stop micromanaging IT inputs. Develop market-driven controls focused on business outcomes
- ✓ Formalize strategic vendor management
- ✓ Measure IT and sourcing success in terms of business success

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Related Gartner Research

- **Create a Culture of Financial Accountability to Fund IT Through Chargeback**
  Stewart Buchanan, Nigel Rayner (G00174732)
- **Cost-Aware Architecture: Teamwork Across Architects, Project Planners, IT Procurement and Asset Management Pays Back**
  Stewart Buchanan, Bruce Robertson (G00173882)
- **Outsourcing Lessons Learned: Establish Demand Management Discipline to Optimizing Sourcing Performance**
  Linda Cohen, Christopher Ambrose (G00171477)
- **Developing the Culture of Multisourcing Collaboration**
  Cassio Dreyfuss, Linda Cohen (G00175331)

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The CIO's Role in Managing the Expanding Universe of Technology

Gartner Symposium/ITxpo 2010

John Roberts

November 16-18, 2010
Sydney Convention & Exhibition Centre
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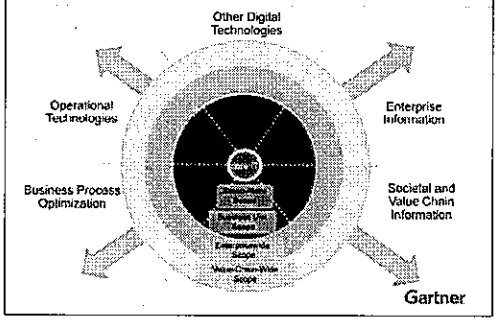
The Expanding Universe of Digital Technologies and Information



The adoption of diverse digital technologies is increasing, making it a pressing issue for CIOs.

Many of these diverse technologies are being implemented as a result of developments that are occurring outside traditional IT organizations, with many new stakeholders and IT roles entering the picture. This trend is creating serious business risks from disconnected information and processes and from inconsistent standards for technology integration.

CIOs must prepare for the expanding universe of digital technologies and associated information by identifying the biggest opportunities for integration and exactly where in the enterprise they lie.

Are the opportunities at the business unit level, are they enterprisewide, or do they extend across the entire value chain? Should the focus be on further automation and integration of business processes, on managing the convergence of operational or other digital technologies, on securing an integrated view of enterprise information, or on tapping into external information from customers and suppliers (i.e., societal and value chain information)? Value chain is the piece outside the enterprise, from suppliers to end consumers.

Key Issues

1. How will the IT organization evolve to manage technologies outside traditional IT?
2. How will CIOs benefit from changing the management and operations of IT and non-IT technologies?
3. What are the critical success factors for changing the IT organization's role?

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Many technologies are increasingly used outside traditional IT organizations, and many new stakeholders and roles are entering the picture. This presentation will identify best practices in managing the rapidly changing scope of technologies throughout the enterprise ecosystem.

CIOs Must Take Action to Manage the Convergence of Digital Technologies

By 2015, more than 70% of CIOs will oversee connected performance of all digital technologies.

Factors driving this prediction

- Enterprise performance and services increasingly demand accurate, coherent and timely information.
- The supporting technologies must therefore be connected and coherent.
- The characteristics of digital technologies are converging.
- Credible, high-performing CIOs and IT organizations are the natural choice for this role.

Factors against this prediction

- Estimated fewer than 30% of IT organizations did this in 2010.
- Poor IT organization performance and excessive technology focus mean lack of trust for the CIO to take on business-critical issues.
- Poor governance and internal politics impede progress toward integrated oversight of information and processes.

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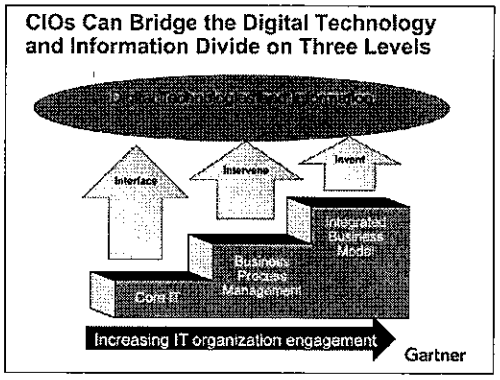
In many industries, the role of CIOs needs to change in response to the combination of IT and other digital technologies. These changes affect the relative importance of IT management disciplines in the IT organization and how it creates and delivers business value. In particular, the importance of leadership, strategy, enterprise architecture and governance needs additional and refocused attention from the CIO. The CIO's role can move from primarily leading the IT delivery organization to leading the systematic, coordinated exploitation of the business assets of processes, information and relationships across all technologies in the enterprise — and whether owned and managed by the formal IT organization or elsewhere. Key trends include:

- Technologies are converging in several important industries, such as healthcare, transportation, defense, energy, aviation, manufacturing, engineering, natural resources, telecommunications and utilities.
- CIOs and other IT leaders must evaluate and realign their roles and relationships to maximize the value of converging technologies and to avoid value-reducing consequences.
- CIOs who fail to act on technology convergence risk damaging the value of IT and downgrading the CIO's role.

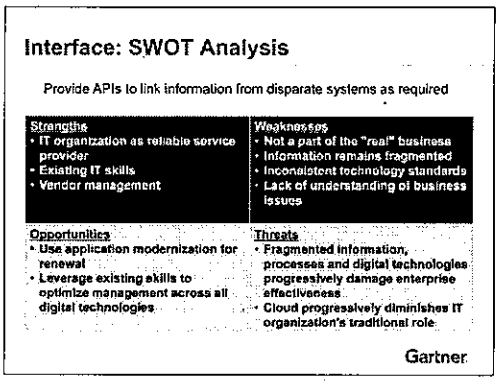


Three approaches for CIOs:

• **Interface:** Stay within the traditional boundaries of IT — i.e., applications and infrastructure — and build application programming interfaces (APIs) to link to operational and other digital technologies, allowing various enterprise departments to continue designing and operating these technologies with limited architectural engagement.

• **Intervene:** Lead the integration of business processes and information — ensuring that all digital technologies and associated information integrate with these processes from their design phase onward. Other departments will continue to operate diverse technologies but with increased convergence (e.g., IT may provide the servers and network, but the departments will run the software).

• **Innovate:** Lead the adoption and use of all digital technologies so that they fit seamlessly into business processes. To support critical decisions, an enterprisewide drive for convergence, common standards and integration of associated information needs to exist.

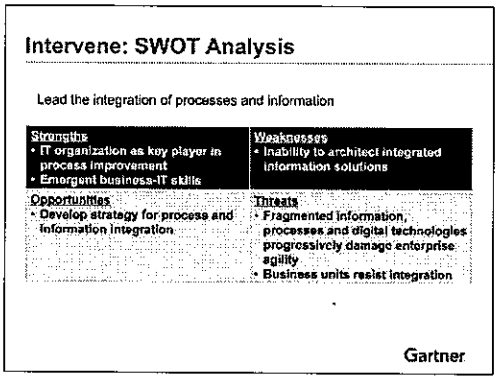


Interface: Provide APIs to Link Information From Disparate Systems

Stay within the traditional boundaries of IT — i.e., applications and infrastructure — and build interfaces for operational and other digital technologies, allowing enterprise departments to continue operating these technologies with limited architectural engagement.

This is the starting point for most IT organizations and will be the foundation of the expanding model. For example, in many manufacturing organizations, engineering operations will continue to run plant automation systems, with interfaces built to link with ERP and other IT systems as required. However, there may be opportunities for IT to provide the networks, data stores and servers; deliver cost savings; and integrate critical information to improve cross-functional decision making.

Building credibility as an efficient provider of core IT services (applications and infrastructure) is a prerequisite for greater technology and information integration.

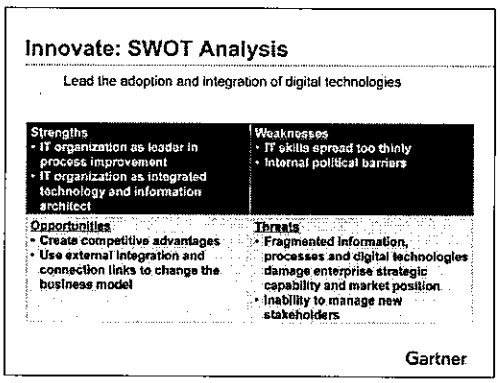


Intervene: Lead the Integration of Processes and Information

By seizing the opportunity to lead development of improved business processes, CIOs can ensure that all digital technologies and associated information integrate with these processes from their design phase onward. As reported in the January 2010 Gartner Executive Programs report —"Leading in Times of Transition: The 2010 CIO Agenda," G00173967 —improving business processes has been the No. 1 CIO business priority for five years. Successful CIOs are entrusted with leading business process improvements for the enterprise because they have developed the necessary credibility, competencies, processes and relationships (see the May 2009 Gartner Executive Programs report, "Improving Business Processes," G00168002).

A coordinated approach to business process improvement is difficult, however, in organizations with fragmented, cross-silo process ownership and disconnected digital technology implementations.

CIOs who adopt a cross-enterprise business perspective and impart it to their IT organizations will find the road to process and information integration much less bumpy.



Innovate: Lead the adoption and integration of digital technologies

CIOs have an opportunity to lead their enterprises in connecting digital technologies and exploiting the rapidly expanding associated information. Ultimately, this optimizes business processes and delivers better business outcomes.

An enterprisewide drive toward convergence, common standards and the integration of associated information needed for critical decisions must support leadership in this area. This can also lead to integration of information up and down the value chain from outside the enterprise.

Key Issues

1. How will the IT organization evolve to manage technologies outside traditional IT?
2. How will CIOs benefit from changing the management and operations of IT and non-IT technologies?
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Gartner

Many technologies are increasingly used outside traditional IT organizations, and many new stakeholders and roles are entering the picture. This presentation will identify best practices in managing the rapidly changing scope of technologies throughout the enterprise ecosystem.

Diverse Digital Technologies Lead to Disconnects in the Value Chain

- Different technology architectures, and separate budgets, support structures and data stores can result in resource duplication, data quality and security issues, as well as suboptimal resource allocations
- ... driving major changes in healthcare, transportation, defense, energy, aviation, manufacturing, engineering, natural resources, utilities, telecommunications and others
- ... means that CIOs must act now to avoid damaging the value of IT and downgrading the CIO's role

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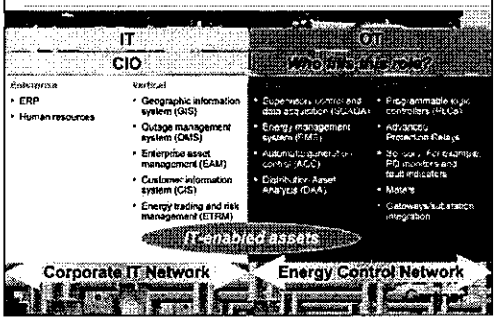
Digital technologies are converging in several important industries, such as healthcare, transportation, defense, energy, aviation, manufacturing, engineering, natural resources, telecommunications and utilities.

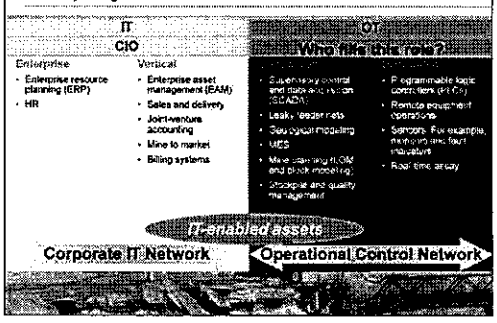
Increasingly, diverse technologies are embedded in business processes, personal devices, and products and services — permeating the enterprise and its ecosystem. Many of these technologies result from developments occurring outside traditional IT organizations, with many new stakeholders and, hence, new IT roles entering the picture. This trend creates serious business risks, as disconnected information and processes, and inconsistent standards for technology integration, become more likely.

Case Example: An Energy Utility Business

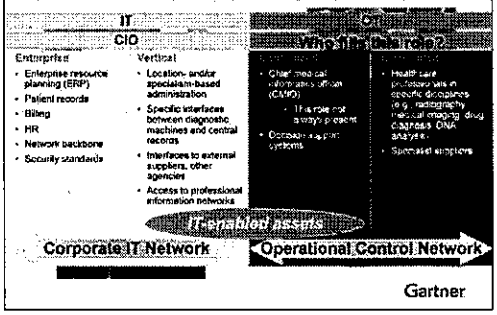


We have seen governance managed clearly in the "traditional" realms of IT (see "Frequently Asked Questions About IT Governance," G00136716, and "CIOs Reveal Their Issues With IT Governance," G00131820), but the OTs have not had a singular authority in the organization to ensure the use of standards and the adherence to an architecture plan, nor the mechanism to report up to a body or person for authorization of new developments. During the past 10 years, as a result of addressing the need for better resource use and increased efficiency by integrating disparate applications, integrated enterprise applications (such as ERP) have emerged in IT. As a result, CIOs have emerged who have catalyzed the maturation of IT environments by seizing control of the acquisition, deployment and support of IT. The requirement for integrated systems has necessitated standards and architecture plans to maintain consistency and interoperability.

Case Example: A Natural Resources Company



Case Example: A Healthcare Organization



In most hospitals in developed economies, there's a large and growing amount of technology in patient-facing diagnosis and treatment, and even in implanted devices to sustain and improve life. Most of that technology was traditionally selected, developed and managed outside the formal IT organization. Some of it has very high-performance specifications, whereby it directly supports life-critical applications. Most of the medical device data that these technologies create or use has been isolated and disconnected from shared use, or from correlation, central monitoring and patient record systems maintained by the formal IT organization. There has often been very limited cooperation concerning the systems that create and use the data. Today, particularly with the advent of computer-based patient record (CPR) and decision support systems, the disconnected style of organizing IT and clinical engineering in these situations creates more organizational problems than it solves:

- The first problem comes from the need for joint planning and project oversight, because medical devices require access to the IT network and servers, and they must meet appropriate compliance with security/privacy regulations for electronic patient data.
- Next is the need for medical devices to automatically feed the CPR for data integration and decision support, and to improve clinician productivity.
- There's a further need for coordinated, end-to-end support for clinicians using both sets of technology.

Summarizing the Benefits of IT/OT Integration

Costs	Risks	Speed	Strategic Advantage
Lower project costs	Improved cyber security	Faster project implementation	Enhanced business model
Reduced costs of software procurement	Downtime avoidance through integrated upgrade testing	Coherent standards simplify design and build	Enhanced information for better decisions
Reduced software licensing costs	Integrated technical support	Unified project teams with right skills	New products and services
Reduce software support costs	Failures due to OT software mismanagement		Integrated life cycle management

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Five Critical Success Factors to Bridge the Digital Technology Divide

1. Focus on business outcomes, not technology
2. Build excellent IT foundation performance
3. Establish wide-reaching and robust governance
4. IT staff have credible business knowledge
5. Think big, start small: Find quick wins to demonstrate value

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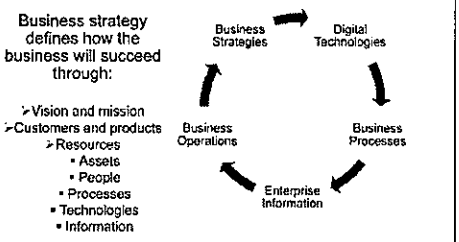
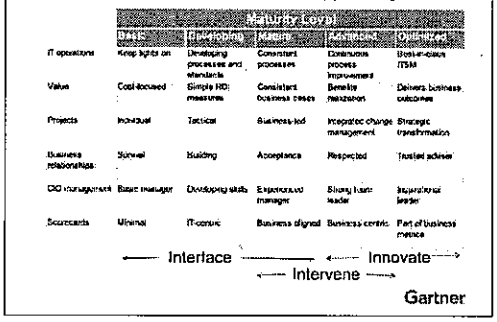
Focus on Business Outcomes: Leading CIOs Contribute to Business Strategies



Clearly, IT is uniquely positioned to provide a cross-enterprise view of processes and information. This capability can be developed through leadership of business process improvements and creation of an integrated information architecture that shows the interrelationships of data captured from inside and outside the enterprise. For IT to build credibility in project delivery, a strong program management office must support the linkage of integration with business strategies.

With almost every enterprise interaction involving digital technologies — whether process automation, asset control, etc.— CIOs and their IT organizations play an important role in harnessing and exploiting the technologies for competitive advantage. Rapidly expanding associated information only increases enterprise dependence on the CIO and IT.

Build IT Capabilities to Enable Information, Process and Digital Technology Integration

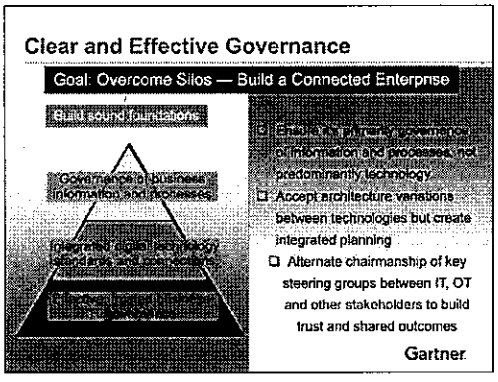


CIOs must build on the core of IT to develop the expertise, understanding and trust needed to cultivate strong business relationships and ultimately earn a place on the business team. An increased level of IT maturity across a range of areas brings these objectives within reach.

As the IT organization increasingly engages with enterprise information, processes and digital technologies, a CIO's personal attributes in each of the three approaches to an integrated strategy must develop as follows:

- **Interface:** The CIO builds business relationships and identifies IT's contributions to business outcomes from a technology service perspective.
- **Intervene:** The CIO has strong business relationships and is accepted as a member of the business team.
- **Innovate:** Widely recognized as an outstanding leader, the CIO is a key member of the business leadership team, working beyond the traditional CIO role to merge business and technology issues.

Clear and Effective Governance



Whatever the positioning of IT in the enterprise, if change is required, then robust governance is key. This means there must be clear governance processes from the top down that engage stakeholders and communicate the opportunities for integration of information, processes and digital technologies.

If strong IT governance already exists, it is the logical starting point for an expansion of scope to include information management enterprisewide, as well as process and operational technology optimization. In doing so, avoid excessive focus on technology governance. Better business outcomes emerge from governance relating to improved efficiency and effectiveness of business processes, and delivery of the information needed to facilitate effective decisions.

Enhanced governance is key to increasing IT's contributions.

Critical Success Factors Evolve as the IT Organization's Engagement Increases

Critical Success Factors	Interface	Intervene and All the Interface CSFs	Innovate and All the Interface and Intervene CSFs
Focus on business outcomes, not technology	Business efficiency improvement	Business process development	Business model innovation
Build excellent IT foundation performance	First or second quartile for efficiency and reliability of IT	First quartile for business growth contribution of IT	First quartile for business innovation contribution of IT
Establish wide-reaching and robust governance	Technology-centric	Business integration	Enterprise innovation
IT staff have credible business knowledge	<20% of IT staff have business background	~30% of IT staff have business background	>50% of IT staff have business background
Think big, start small; Find quick wins to demonstrate value	Quick wins achieved in stand-alone and/or business unit connections	Quick wins achieved in enterprisewide connections	Quick wins achieved in value-chain-wide connections

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Conclusion

CIOs play a major role in managing the expanding universe of digital technologies. This role is not merely about managing the technologies; it is about delivering integrated information and exploiting opportunities for process optimization, to drive innovative business outcomes. CIOs must spend considerable time with business heads and their direct reports to develop an understanding of business drivers and associated opportunities.

Action Plan

1. Identify IT's current level of engagement with all digital technologies, business processes and information
2. Establish the value of greater information, process and technology integration
3. Select one or more of the three complementary approaches to an integration strategy: interface, intervene and innovate
4. Draw on the critical success factors to create an IT organization development plan

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Related Gartner Research

→ **Operational Technology Engineers Plus IT Professionals Equals Big Supply Chain Efficiency Gains at Kodak**
Derek Prior (G00200797)

→ **IT Operations Management Enables IT/OT Convergence**
Will Cappelli (G00174172)

→ **The Management Implications of IT/OT Convergence**
John P. Roberts, Kristian Steenstrup (G00174016)

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The Identity and Access Management Scenario

Gartner Symposium/ITxpo 2010 Roberta Witty

November 16-18, 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

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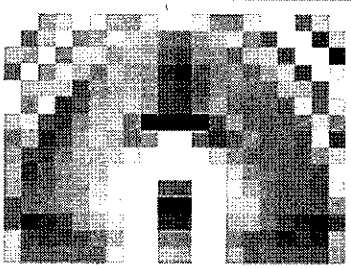
Identity and Access Are at the Heart of Every Business



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The IAM Scenario: Access and Identity Refined

We have spoken many times about identity and access management, but often in the context of IT. What of the business? As is the most case with IT "inventions," without due consideration it is often a solution in search of a problem. But identity and access management (IAM) does lie at the heart of the business, because it represents the "who" dimension to business. Enterprises need to know what is being accessed in terms of business-critical or private information so it can be protected. Enterprises must be aware of the "patterns" of access to verify they are in compliance with specific guidelines provided by others, whether an outside agency, and internal auditor, or another source. IAM also lies at the heart of the management of different risk types in the enterprise by providing a means to view that risk in the context of those that can most impact it.

Key Issues

1. Where are we going?
2. Are we there yet?
3. How do we get there?

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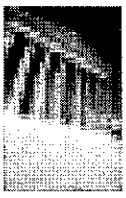
IAM Helps Manage Risk ...

... through ...



Accountability and **Transparency**

"A compromise is an agreement whereby both parties get what neither of them wanted" — Author unknown

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Key Issue: Where are we going?

Why does the business care about IAM anyway — isn't it just the "plumbing" for managing access?

Well, yes, that's part of it. But it minimizes IAM's role to that of an IT construct rather than unveiling its true purpose for the enterprise.

The management of risk (in many of its forms) has been a decidedly business-specific issue since businesses existed. We have become more formal over the years in our ways to measure, to structure responses, and to mitigate risk, but it remains one of the key concerns of business today.

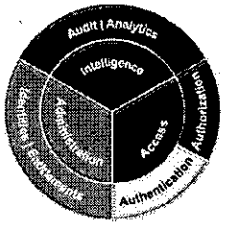
IAM plays a critical role in risk management. How?

IAM provides a means for an enterprise to establish accountability for actions by employees, partners, customers and others when it comes to the access of critical business information and resources. It also establishes a means to verify and validate that accountability by establishing a system that allows transparency into identity-based actions. Accountability and transparency are the hallmarks of why IAM is important to a business, because it not only helps in the management of risk if such intelligence and such control is available but is also available to the business itself to prove accountability via compliance to regulation and policy.

Understand the Capabilities of IAM

IAM provides a practical, structured and coherent approach to the management of users' identities and their access to systems and data.

IAM ensures the right people get access to the right resources at the right times for the right reasons



"You can't have everything ... where would you put it?"
— Steven Wright

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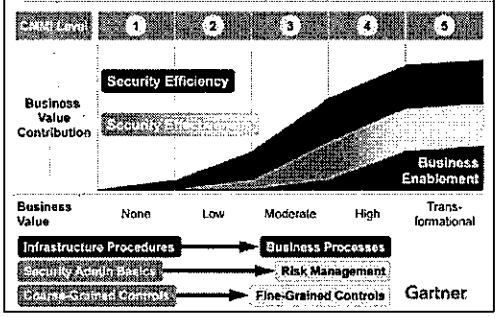
Key Issue: Where are we going?

As IAM requirements and markets have evolved, three significant categories have arisen around capability: access, administration, and intelligence. Access serves as a foundational platform to facilitate authentication, authorization, and the capabilities within them, from single sign-on to the enforcement of certificates. Access is the "engine" of IAM, that takes identities and their information and uses them to effect. Administration is the construction phase of identity and providing it with a "personality" by assigning attributes, entitlements, credentials — it is the create/maintain/retire capabilities of IAM. Administration is also focused on providing the platform for the intelligence — a means to make sense of the identity and access events. Intelligence generates the reports for auditors, provides any real-time monitors for operations, and delivers the analytics necessary for analysts and business stakeholders to make intelligent, actionable decisions in both the business and in IT.

The Value of IAM Changes With Maturity



Gartner

Key Issue: Where are we going?

But why do we even care about IAM? What is its true purpose in the enterprise? How do those drivers evolve over time? We have noted a consistency to the drivers of IAM. They remain (1) efficiency, which is primarily an IT advantage, in streamlining those IT operations that usually require labor, time, or cost-intensive procedures regarding the establishment and modification of access for people and systems. There are some business efficiencies, but not as much as IT. (2) Where the business does get more involved is in the effectiveness driver, where the enterprise leads in an effort to leverage IAM in pursuit of specific business requirements, commonly around compliance and risk. (3) Finally, there is business enablement, where a transformational experience is possible in situations of mergers, acquisitions, or larger reorganizations. These can be more effectively enabled by specific IAM efforts. The aim is to move from IT to the enterprise — from merely an IT experience to a business experience using IAM.

Key Issues

1. Where are we going?
2. Are we there yet?
3. How do we get there?

Gartner

Strategic Planning Assumption: By 2012, at least 25% of the virtual machine installed base in enterprises will be Microsoft Hyper-V.

Focus of IAM Will Shift to Intelligence

Through 2013, notable IAM project failures will cause 50% of all companies to shift efforts to intelligence rather than administration.

Analysis supporting the SPA:

- Intelligence projects focus on auditing, monitoring and manual remediation, and analytics
- Implementing identity and access intelligence (IAI) tools is (relatively) quick and easy
- IAI tools deliver business value more quickly
- IAI tools span all users and systems more easily

Analyzing the alternative view:

- Administration projects — such as user provisioning — perform "real work" (not just analysis)
- Administration projects are increasingly well-understood and vendors are supporting more "out of the box" solutions
- Implementing IAI tools provide insight — but they do not remove the long-term need for efficient and effective identity administration

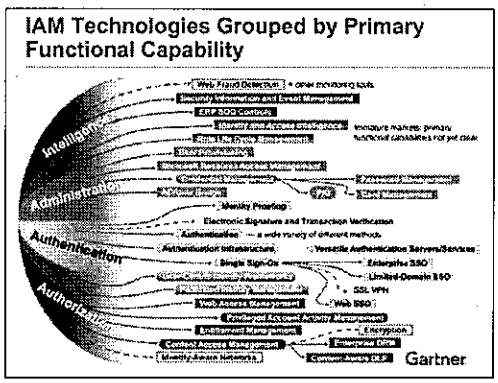
Gartner

Key Issue: Are we there yet?

Without a more formal and more effective approach to delivering IAM solutions, enterprises will continue to experience challenges in delivery. More importantly, the shift is taking place away from IT needs for efficiency of operations to enterprise needs for accountability and reliability. The business is taking a much more active role in the use of identity management for critical business process. With that participation comes demands that are decidedly different — identity and access intelligence will be increasingly required by business for auditing and general compliance needs, forensics investigations, and risk assessments and evaluations. Administration concerns that require elements of monitoring and control do not go away, but attention will now be shared with new analytics results for the business.

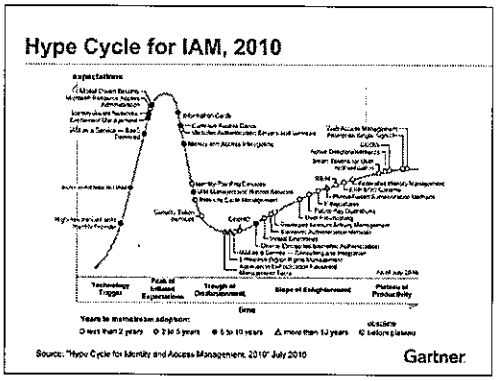
Key Issue: What is the range of IAM technologies: Which are core and which fringe, which tactical and which strategic?

Market: IAM tools



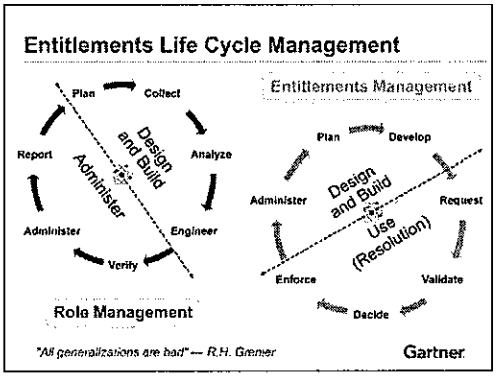
Key Issue: Are we there yet?

Despite our best efforts, IAM is still looked upon as a loose aggregation of technologies used to address access and its life cycle management. IAM does involve a wide spectrum of technologies and processes, and enterprises should be aware of what they are. In previous discussions, we pointed out the three slices of IAM: access (shown as authentication and authorization above), administration, and intelligence. Each functional category consists of a wide range of technologies, some old and some new, to address them. There are also varying levels of maturity throughout this spectrum. By keeping such categories in mind when planning, building, or operating systems, customers can have focused conversations with vendors, consultants, integrators, and service providers alike over time, depending upon their need. As a customer, it is important to remember that you don't have to do all of these at once to "do" or "have" IAM — enterprises evolve need over time.



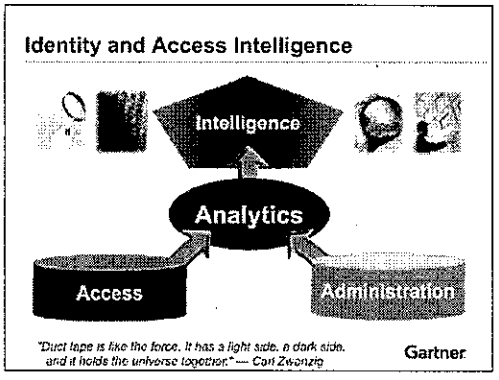
Key Issue: Are we there yet?

The Hype Cycle for IAM technologies reveals some interesting trends, particularly in the areas of access, administration, intelligence — and services for them. The ability to have alternate forms of delivery for IAM is evolving, although it is still in an early stage. More-evolved technologies are approaching the commoditization often seen for simple and repeatable feature sets — Web access management and enterprise single sign-on represent two common systems with those characteristics. The important thing to note about Hype Cycles is that they represent the availability of production best practices, a sense of an enterprise's ability to deploy such technologies effectively. If those technologies have not passed at least the Trough of Disillusionment, there isn't enough historical experience with them to provide a basis for best practice. This can be an issue for most enterprises. Note also, that there are equal numbers of technologies for access, administration, and intelligence as well — key areas of privileged user management, identity proofing, and various authentication technologies dominate many Hype Cycle discussions.



Key Issue: Are we there yet?

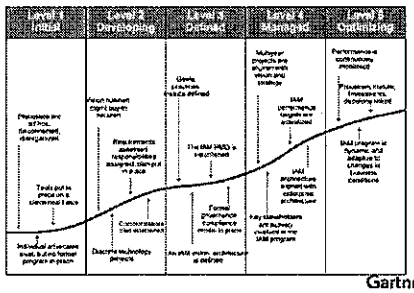
Some IAM technologies transcend all functional categories. For example, role management (or role life cycle management) is not only an administration technology for IAM to provide general administration of entitlements. It is also an intelligence technology, providing an initial database of critical data for analysis, as well as ongoing logs for entitlement assignments. Entitlements management provides key access functionality around resolving the level of access requested by an identity, but it also has a rich set of logs recording such events that can then be mined via analytics to provide important authorizations history. One deals with what people say the access is, the other with what access they really have. Adaptive access control, an early architectural trend, will bring together aspects of entitlements management with authentication to provide a richer access management experience.



Key Issue: Are we there yet?

Access and administration functions within IAM generate copious information about what is happening in those functions. From access, for example, the authentication event generates information about the user, the application are resource access requested, date, time, and other information coupled with the existing information about the identity itself. For authorization, the entitlements, whether they are resolved or challenged for level of access, and perhaps role of identity being authorized are also captured. From administration, the identity creation event, the assignment events, the retiring of identities or specific entitlements– all captured. When combined with other information from other sources (e.g., SIEM, DLP) and interesting portrait arising around accountability and transparency. If properly correlated and analyzed, a wealth of knowledge becomes available. When knowledge is evaluated, it can become intelligence. With intelligence, a business user can make an informed and actionable business decision.

Assessing the Maturity of Your IAM Program



In IAM program maturity, there is actually a Level 0. In this level, little or no process and capability maturity exists. Tasks are performed informally and are not coordinated. Processes are undefined, and staff changes cause failures. As the enterprise evolves, however, Level 1 brings a sense of the fact that processes at least exist, though they are ad hoc. An effort gets under way to assess requirements and responsibilities for the first time, and create some sort of plan that leads to communications and even technology selection. Level 3 evolves goals, practices and metrics, allows a formal program office to take over distinctive initiatives, and introduces IT architecture to the effort. At this point, compliance requirements are being addressed. In a managed environment, architecture graduates to overall enterprise architecture, and there is linkage between the business and IT to realize specific business-driven targets. In the final phase of IAM maturity, continuous controls and performance monitoring is possible due to mature processes, and the IAM infrastructure and service has given the enterprise the ability to make transformational decisions (e.g., mergers, acquisitions, reorganizations) without sustaining undue effort.

Key Issues

1. Where are we going?
2. Are we there yet?
3. How do we get there?

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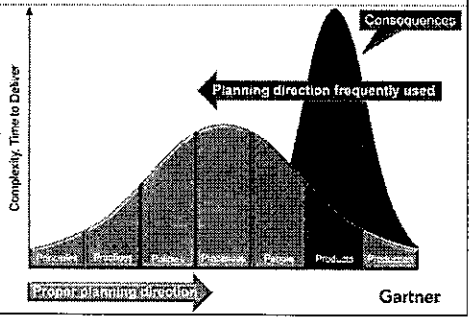
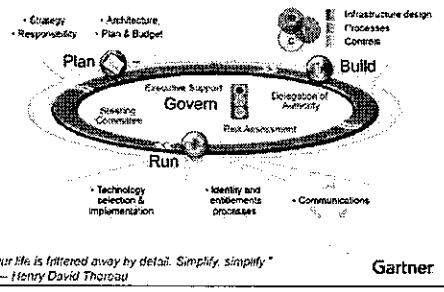
Why IAM Projects Fail



Key Issue: Are we there yet?

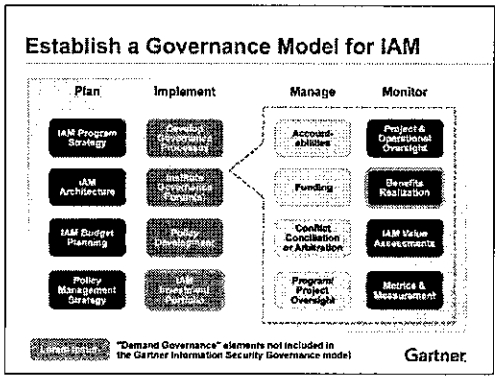
The IAM program experience has traditionally not been a good one. Although some things have improved, major efforts to formally implement such systems overlook a key lesson — planning for them starts from the wrong direction with the wrong people, or at least not everyone affected. In defense of IT, the IAM experience started out as a "fix the plumbing" concern. But with the advent of compliance concerns, this has changed, and changed dramatically. Now, the basis of good IAM involves an active role by the enterprise — only they can truly say what and how that plumbing should be used, and what aspect of the "water" delivered by it is most important. In an era in which accountability and transparency are required (and must be formalized), this means a more focused and structured approach for all parties affected, not just IT. IAM should not be planned with operations in mind, rather it should be based on the foundations of the enterprise relative to policy, process, and people. Products are actually a relatively small part of the decision process in an IAM program.

Develop an IAM Program



Key Issue: How do we get there?

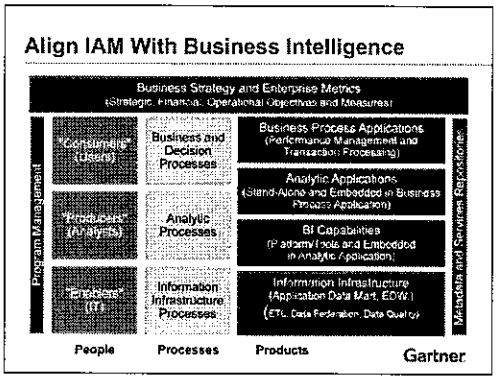
Developing an IAM program means looking at the complete life of IAM within an enterprise — from inception, through planning and deployment, to operations, then overlaying that cycle with a rich set of technologies, processes, and organization for the long term. IAM should become, over time, part of the IT governance system within an enterprise. We can speak of IAM governance, but it truly is but a subset of the broader issues in IT to deliver business-centric solutions. Traditional ways of thinking about an IAM program were dominated by IT — IT planning, IT architecture, and the like. Future implementations must accommodate a broader set of decision-makers to be effective. Customers should look at an IAM program in a broader sense, with more inputs than they are accustomed to. This is part of the maturation of IAM.



Key Issue: How do we get there?

Governance tends to be an overused term in IT, mainly because those involved with IAM to date have traditionally been closer to the operational side of things, focused on the day-to-day activities of creating, maintaining, and requiring identities. However, there is a "plan, build, and run" aspect to IAM, and includes revisiting initial plans, recurring budgets, and of course evolving and even dynamic policy changes. IAM governance is part of the Information Security Governance model and includes aspects of privacy and compliance. After all, we are ultimately looking for accountability and transparency.

IT governance oversees such implementation areas as process, organization, and policy; a life cycle system to manage and monitor IAM resources, processes, and organization is necessary if a true governance model is to succeed. You won't know if you've succeeded without a metrics baseline and a way to measure progress. It's the only way benefits can be documented, budgets can be justified, and project management maintained for the long term.

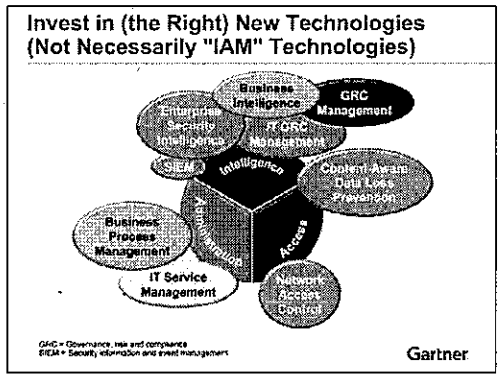


Key Issue: How do we get there?

An evolving aspect of IAM for business is its participation in business intelligence. After all, IAM does have both a control and reporting aspect to it, and it is that reporting aspect that holds some valuable input to analytic applications first, then business process applications.

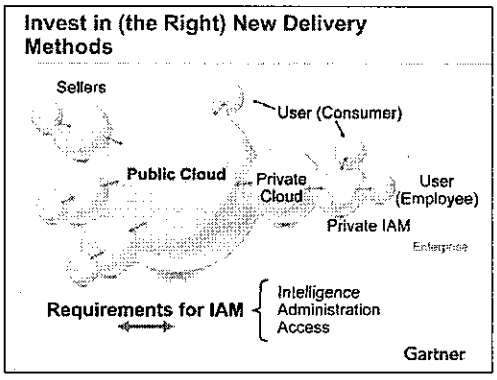
IAM generates larges volumes of activity and event information as the creation, maintenance, retirement and use of identities for access occurs. Critical identity and attribute information from directory and database repositories, covering entitlements, roles, location and other descriptive HR-style data is created and changed over time. Applications use the entitlements to allow or disallow access, and that event is also logged. Almost everything an enterprise might need to provide the "who view" of its business process steps is available — if it can be mined, analyzed, correlated and delivered to the right viewers, the appropriate decision-makers.

Identity and access intelligence (IAI) enables the fundamental steps of turning data into information, information into knowledge, and knowledge into actionable intelligence for business. That part of business intelligence IAM plays will benefit both the decision-makers and those in IT responsible for more-traditional, operational activities using IAM.



Key Issue: How do we get there?

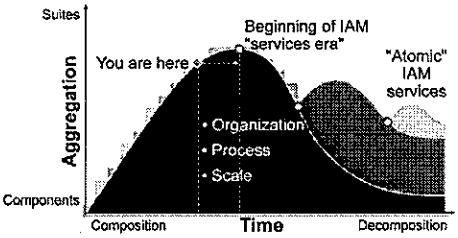
IAM needs help. To be an effective solution, IAM actually draws upon a number of "adjacent" technologies and systems to make IAM a richer experience. In some respects, these adjacent technologies play a vital role in the next generation of IAM — in others, they merely contribute to the access, administration, or intelligence experience. Many solutions may ultimately evolve wholly or predominantly into the IAM functional categories (as of this writing, July 2010) they still represent independent security markets. The intelligence-related technologies serve as a direct bridge from IAM into the enterprise, directly addressing specific concerns for the business itself rather than IT— compliance to regulatory concerns, risk management and others.



Key Issue: How do we get there?

IAM is evolving, using new methods of delivery to the enterprise. There is actually something to all of the hype associated with cloud computing — IAM will be needed by the different cloud enabler and provider platforms. IAM will also be available as a service on those platforms for clients. Different types of clouds (e.g., private, public) will serve as early models for what is possible. Enterprises will be provided first with a number of access options, the first functional category of IAM that has evolved already to the point at which simple services can be provided. This will include Web-enabled single sign-on, enterprise single sign-on, federated identity management, and specific elements of authentication. Later offerings will include administration (e.g., user provisioning, role management) and IAM will be of particular interest to many enterprises because of the relatively simple structure of such services.

The Messy Deconstruction of IAM and the Birth of IAM Services



"Change is the constant, the signal for rebirth, the egg of the phoenix."
— Christina Baldwin

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Key Issue: How do we get there?

We have seen an era of IAM composition, whereby vendors have constructed functional aggregations of IAM components through acquisition, merger or organic growth. The current era of "suites" is mainly for offering an IAM "relationship" more so than IAM technologies — many of the component technologies from different vendors are roughly equivalent in capability. What suites have done, however, is point out the idea of "atomic" functions within IAM, those common functions that are found in most IT infrastructure — whether it is user experience functions, workflow, reporting, logging, analysis or integration. As these functions become available as component services, the era of monolithic suites with monolithic, costly implementations begin to change. Some of these atomic functions may be done as well or better by existing IT infrastructure systems or services; others become specialized component offerings. These offerings may go through several iterations of aggregation themselves as IAM vendors and service providers seek to find the most likely combination of those functions that sell well and can provide profitably. This requires time. It involves supporting older, legacy applications and systems as well as newly architected systems. It needs improvements in organizations to support them, processes to define them, and scale to provide the services to millions of people instead of just enterprises. In any event, IAM slowly becomes part of the known IT infrastructure and services that are subject to best practices, standards and program maturity principles — without requiring specialized forms of those just for a particular discipline.

IAM as a service will play a role in the evolution of IAM, but more as a catalyst for needed architectural change. Getting to IAM as a service means getting first to service-architected IAM.

Recommendations

- ✓ Review your IAM program strategy in the light of changes in technology, process, and delivery.
- ✓ Assess adjacent security technologies to IAM to determine contribution to IAM program.
- ✓ Invite more-direct enterprise participation from IT governance to align IAM life cycle for contribution to it.

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Action Plan for IAM Leaders

Monday Morning

- *Stop thinking* of IAM as IT technology to be deployed. *Establish* a new planning session to review current state.
- *Rethink* IAM's role in the context of business intelligence and business process.

Next 90 Days

- *Revise* IAM program design and operations as part of IT governance function, incorporating lessons learned here
- *Deliver* 1 year plan for management review and approval to streamline IAM based on revised plan.

Next 12 Months

- *Evaluate* optional forms of IAM delivery based upon your need and availability.

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Related Gartner Research

→ **"IT Score for Identity and Access Management"**
Ant Allan, Ray Wagner (G00201672)

→ **"Identity and Access Management Defined in 100 Tweets (and Change)"**
Ant Allan (G00205349)

→ **"Hype Cycle for Identity and Access Management, 2010"**
Gregg Kreizman (G00201318)

→ **"IAM in a World of Services"**
Earl Perkins (G00200965)

→ **Roundup of Identity and Access Management, 1Q10: Topics and Technologies**
Ray Wagner (G00175372)

Gartner

Debate: Unified Communications — The Biggest Scam Since Ponzi?

Gartner Symposium/ITxpo 2010

November 16-18, 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

Nick Jones
Geoff Johnson
Robin Simpson

Gartner

How This Debate Will Proceed



I will keep time | Chairman Robin Simpson | I will keep order

- Affirmative: Nick Jones (10 mins.)
- Negative: Geoff Johnson (10 mins.)
- Right of Reply: Nick Jones (8 mins.)
- Right of Reply: Geoff Johnson (8 mins.)
- Finally, I will quiz both sides — for that I want **your questions and observations.**
- Then we'll vote again to see who "wins," and I'll sum up.

- Through the debate, note your questions and observations.
- Raise your hand to pass a note to me via the debate room assistants.

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Is Unified Communications the Greatest Scam Since Ponzi?

1. Agree
2. Disagree
3. Undecided

If you agree, raise your hand now.

Gartner

Is Unified Communications the Greatest Scam Since Ponzi?

1. Agree
2. Disagree
3. Undecided

If you disagree, raise your hand now.

Gartner

Is Unified Communications the Greatest Scam Since Ponzi?

1. Agree
2. Disagree
3. Undecided

If undecided, raise your hand now.

Gartner

Debate: Unified Communications — The Biggest Scam Since Ponzi?

Unified Communications Is Indeed the Biggest Scam Since Ponzi

- UC is an ill-defined label for an arbitrary bundle of technologies that vendors want to impose on you.
- UC is a fragmented mess. There's no single source.
- UC is missing key pieces. Consumerization rules, and consumer technologies are already way ahead.
- Consumer products are already better and more affordable than "enterprise" UC; "enterprise" vendors can't keep up.
- There is no business case for UC (or any other communications technology for that matter).
- Users want choice — UC is a straitjacket.
- UC is a battleground — why pay to *suffer*?
- UC is technically unachievable. The only point where everything comes together is the mobile handset.
- No vendor has (or ever will have) a complete solution.
- There is already a better solution than UC ...

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Debate: Unified Communications — The Biggest Scam Since Ponzi?

No: Unified Communications Is a Valuable and Productive Set of Technologies

- Real-time collaboration is expanding. There are more devices, workplaces, networks and costs. A common UC approach helps manage the budget.
- Productivity efficiencies accrue from moving among the modalities: IM, voice, video and desktop sharing.
- Users want choices; IT groups want management and control. Businesses select reliability and security above affordability.
- The integration approach enables organizations to take advantage of best-of-breed technologies, while retaining a consistent user experience.
- The expanding UC community is focused on deriving business value from the technologies, such as responding faster to market events and resolving process disconnects.

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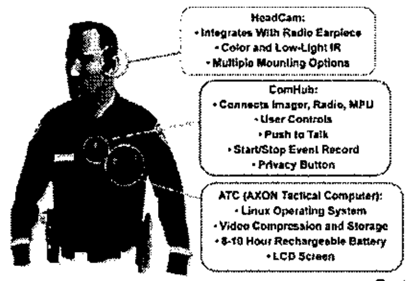
Debate: Unified Communications — The Biggest Scam Since Ponzi?

Taser-as-a-Service



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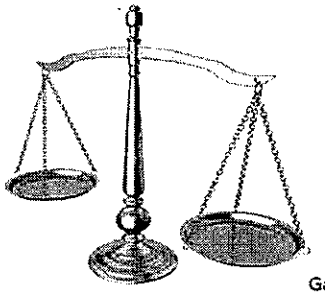
The Chairman's Examination Time



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Is Unified Communications the Greatest Scam Since Ponzi?

Final Vote:

1. Agree
2. Disagree
3. Undecided

If you agree, raise your hand now.

Gartner

Is Unified Communications the Greatest Scam Since Ponzi?

Final Vote:

1. Agree
2. Disagree
3. Undecided

If you disagree, raise your hand now.

Gartner

Is Unified Communications the Greatest Scam Since Ponzi?

Final Vote:

1. Agree
2. Disagree
3. Undecided

If undecided, raise your hand now.

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Gartner's Official Position on UC

- UC represents the convergence of a broad range of technologies. UC products deliver synergy and value by unifying or integrating these into suites and portfolios.
- Although vendor consolidation is likely, enterprises should not give up needed functionality simply to reduce the number of vendors.
- "One size does not fit all" — organizations should develop user profiles and segments.
- The business case for UC is complex. Some value is tangible with a clear ROI, while other benefits are less tangible.
- Organizations need to develop cross-business teams to address changing requirements and technologies.

Gartner

UC represents the convergence of a broad range of technologies. UC products deliver synergy and value by unifying or integrating these into suites and portfolios. The technology areas include voice, conferencing, messaging, IM/presence and a range of clients. Mobility is part of each of these areas.

Although vendor consolidation is likely, enterprises should not give up needed functionality simply to reduce the number of vendors. Best-of-breed is the better approach. Users want functionality over vendor consolidation.

"One size does not fit all" — organizations should develop user profiles and segments. Profiling will help with managing cost of ownership.

The business case for UC is complex. Some value is tangible with a clear ROI, while other benefits are less tangible. Planners need to combine hard and soft justifications in their business cases. This will often mean building in the use of consumer technologies.

Organizations need to develop cross-business teams to address changing requirements and technologies. Areas include collaboration, mobility and, increasingly, capabilities offered in consumer products.

Related Gartner Research

- → **"Magic Quadrant for Unified Communications"**
  Bern Elliot, Steve Blood (G00201349)
- → **"A Technology Framework for Enterprise Unified Communications"**
  Bern Elliot (G00173410)
- → **"Using Roles to Facilitate Unified Communications Planning"**
  Bern Elliot, Steve Blood (G00175397)
- → **"Gartner's Four Levels of Cost Optimization Can Help Support the Business Case for Unified Communications"**
  Steve Blood, Bern Elliot (G00173145)

Gartner

Machiavellian CIO 3.0: Love and War

Gartner Symposium/ITxpo 2010

Tina Nunno

November 16-18, 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

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"Soldiers on the darkest nights in the dead of winter go through the mud, exposed to rain and wind, to carry out some undertaking that will bring them victory;
lovers attempt in similar ways and with similar and greater sufferings to gain those they love.

Equally in war and in love, secrecy is needed, and fidelity and courage.

The dangers are alike, and most of the time the results are alike."

Machiavelli, *Clizia*, Act 1

Gartner

Machiavelli on Love and War

Machiavelli drew numerous parallels between relationships based on love, and the conflict of war. While some of his best-known works are his political treatises, his comedic plays and personal letters provide the greatest insight into his views on love and relationships.

His three recorded comedies include, "The Women of Andros," "The Mandrake" and "Clizia."

Key Issues

1. Why must CIOs be able to manage both love and war, and what are the critical elements?
2. How prepared are you as a CIO to lead and manage a "campaign"?
3. Which tactics work best in specific love and war situations? How can CIOs choose among tactics?

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Why must CIOs be able to manage both love and war?

According to Machiavelli, great leaders must focus not only on running the "state" but on waging "warfare." He considered leaders half civic statesmen who ruled during times of peace, and half generals who of necessity, needed to master war.

A critical aspect of warfare is developing the leadership skills and array of tactics necessary to run an organized, sustained and successful campaign to defeat an enemy, arguably similar to the skills required to win a love.

Machiavelli's insights and advice can help CIOs run campaigns critical to the execution of large, complex and controversial IT initiatives. CIOs must be able to effectively deal with organized resistance, and potential enemy targets.

Warfare Was a Central Focus of Machiavelli's Life and Writings

- Served as a diplomat for 14 years where he studied foreign militaries
- Raised an army that fought in 1512.
- Published the "Art of War" in 1521; his only political work that published in his lifetime.
- Wrote plays, "The Mandrake" (1518) and "Clizia" (1525) regarding love and relationships.

"A Prince must not have any other objective nor any thought, nor take up any art, other than the art of war and its ordering and discipline, because it is the only art that pertains to him who commands."
— Machiavelli, The Prince

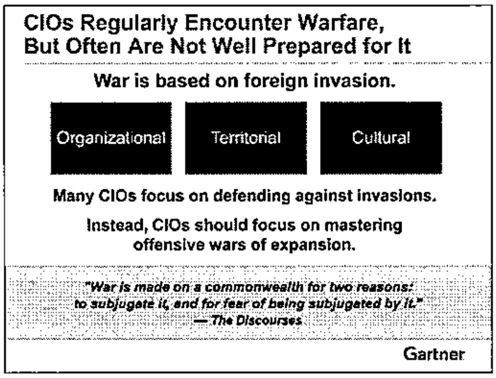
Gartner

A politician from the 15th century still has much to offer PM leaders and senior executives.

Niccolò di Bernardo dei Machiavelli (3 May 1469-21 June 1527) was an Italian diplomat, political philosopher, musician, poet and playwright. Machiavelli was a figure of the Italian Renaissance, and a central figure of its political scene. In June of 1498, following the ouster and execution of Savonarola, the Great Council elected Machiavelli as the secretary to the second Chancery of the Republic of Florence.

He is best known for his treatises on realist political theory ("The Prince," which he considered his magnum opus) on the one hand, and republicanism ("Discourses on Livy") on the other. These two written works, in addition to his "History of Florence" (which was commissioned by the Medici family), were published posthumously in 1531. His philosophical views on politics were such that his surname has since passed into common dialect, referring to any political move that is devious or cunning in nature.

When you face political challenges, Machiavelli will nearly always have some gem of wisdom to offer you.

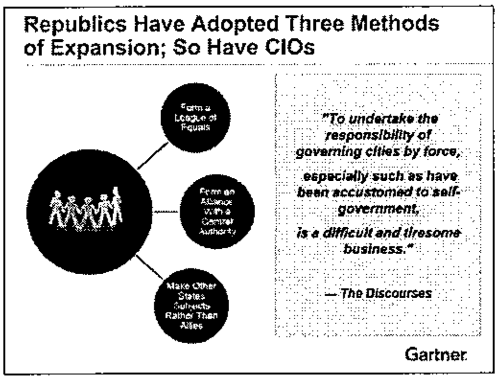


CIOs regularly encounter warfare, but often are not well-prepared for it.

There are numerous IT-related situations that are the Machiavellian equivalent of warfare. CIOs are often asked to launch or initiate centralization initiatives, standardization, cultural change, and business process re-engineering.

To an organization accustomed to a particular way of operating, such changes are the Machiavellian equivalent of "establishing a new order of things." Niccolo notes, that there is nothing more difficult than establishing a new order. A CIO engaged in such initiatives has often engaged in the equivalent of declaring war on the enterprise and its way of life.

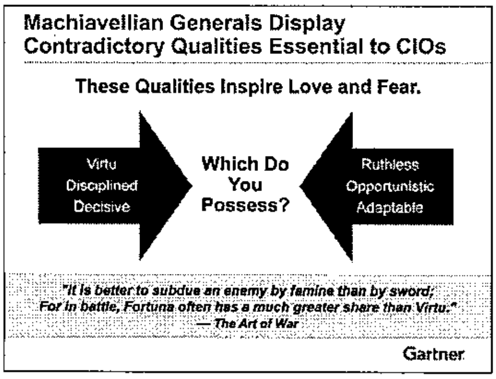
Successful CIOs must be aware of the implications of such actions and develop strategies for implementing a new order that ensures the success of the initiatives, and the CIO. Machiavelli can help.



Republics have adopted three methods of expansion, and so have CIOs.

CIOs often initiate or are asked to launch expansion initiatives by leadership in pursuit of benefits such as cost savings, operational improvements, growth opportunities and other benefits. While the benefits of such initiatives may be obvious to the CIO, they are still almost always guaranteed to encounter resistance from a wide variety of stakeholders.

To deal with resistance and the possible aggression they may face in return, CIOs must have a variety of strategies available to suit the situation. No single expansion strategy works in all situations. If Machiavelli were a CIO, he would encourage CIOs to explore all three expansion strategies and apply them as appropriate.



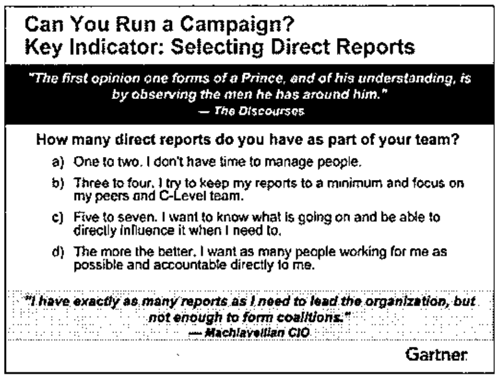
Machiavellian Generals display contradictory qualities essential to CIOs.

One of the questions that most fascinated Machiavelli was what the qualities of a leader were. He devoted significant time in his writings to exploring the qualities and personality of the ideal leader and general. He noted the importance of having a broad array of qualities and skills, each for a different purpose.

The qualities most critical in warfare included:

• Virtu — while virtu shares elements of virtue, the word it most closely translates to, scholars contend that the word is more expansive. Machiavellian virtu summarizes some of the traits most likely to inspire others to follow, and inspire love and loyalty. These traits include charisma, honesty, caring, and the ability to communicate effectively.

• Adaptable — one of the traits most highly valued in his writings, Machiavelli observed that "fortuna," often translated as fortune, luck, and opportunity, played a tremendous role in the general's ability to succeed. Therefore, generals must be able to take advantage of fortuna when it falls in their favor, and adapt to obstacles when fortuna places them in the way. Great CIOs do the same.



Can you run a campaign? Key indicator: Selecting direct reports.

Just as a general cannot lead an army without good officers, neither can a CIO lead an IT organization without a great leadership team. How many is enough?

Can You Run a Campaign? Key Indicator: Establishing Your Position

"It is sometimes of great service in battle to circulate a report that the enemy's general is killed, or that one part of the army is giving way."
— The Art of War

As a CIO hired to centralize IT in an organization, you expect to be resistant; how do you establish your position?

a) I identify potential quick wins and deliver them immediately.

b) I consult with all the key stakeholders, then socialize a plan.

c) I take 100 days to assess the situation, run an external study, then create a plan.

d) I make it clear that I'm not sure the centralization is a good idea and will study the situation for a while.

"I gave everyone the impression that I am completely benign, so that no one would think that I was a threat."
— Machiavellian CIO

Gartner

Can you run a campaign? Key indicator: Establishing your position.

What is the best way to introduce yourself to an enterprise? CIOs in transformational or warlike situations may be surprised at the counterintuitive advice that Machiavelli provides.

Can You Run a Campaign? Key Indicator: Inspiring Followership

"After you have consulted with many about what you ought to do, confer with very few regarding what you are actually resolved to do."
— The Art of War

How do you introduce a major architecture and standardization initiative to a decentralized organization?

a) We engage everyone in creating the plan and constantly communicate as things evolve.

b) We work out the business case, then announce. The data will win everyone over.

c) We engage executive leadership first and then announce to the enterprise so everyone will comply.

d) We only announce the plan when each and every stakeholder has agreed to the details of it individually.

"I don't have any group meetings about a controversial issue, until I know exactly how everyone is going to vote."
— Machiavellian CIO

Gartner

Can you run a campaign? Key indicator: Inspiring followership.

The more stakeholders a CIO has, the more likely that there will be controversy and resistance on enterprise initiatives. The CIO has many options to gain cooperation — none of them simple or easy. Which method do you use most often? How effective is it?

Can You Run a Campaign? Key Indicator: Leveraging Resources

"War will not maintain mercenaries in times of peace, so they must endeavor to prevent peace or provide for themselves in war."
— The Prince

Which statement below best describes how you use consultants and outside resources vs. internal IT resources?

a) We avoid using consultants and prefer to do things in-house.

b) We use consultants only on a short-term basis for specific transactional work.

c) We have long-term consultants engaged in highly complex strategic initiatives.

d) Our consultants have been here so long, I no longer remember who on the staff is a consultant and who is not.

"I was an external consultant hired to assist the IT shop. Now I am the CIO."
— Machiavellian CIO

Gartner

Can you run a campaign? Key indicator: Leveraging resources.

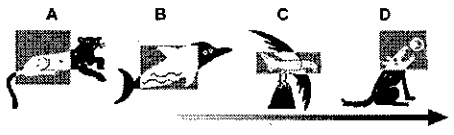
A general must be able to amass and leverage resources to provision an army and succeed against a strong enemy. Should a general or a CIO make use of any and all resources available? Machiavelli thought not.

Machiavelli argued caution in the use of those who make "war their only profession." He advised that, while external relationships may become so close that they cannot be distinguished from internal resources, this "intimacy" is not always a good thing.

Can You Run a Campaign?

How did you answer the indicator questions?

Were your responses primarily:



The Machiavellian General can inspire people to love and follow them, and has mastered diverse methods.

Gartner

Can you run a campaign?

How did you answer the indicator questions? Machiavelli said that leaders need to think like animals. Which animal are you?

A. **Leopard.** These fearsome creatures are effective hunters. However, they tend to be solitary and hunt alone, rather than in groups.

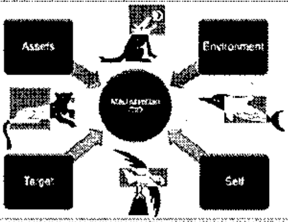
B. **Dolphin.** These social creatures gain cooperation predominantly through relationships. Such tactics tend to ensure a healthy peace, but may be limiting in the face of more-aggressive enemies.

C. **Falcon.** Exceptionally effective and deadly birds, these creatures target their prey carefully and kill quickly. These dangerous creatures can work in groups, but cannot muster significantly large followings.

D. **Wolf.** These creatures can lead a pack, operate stealthily, and organize attacks in a disciplined manner. In times of peace, rather than hunting, wolves live in large social groups with clear roles.

CIOs should assess if their leadership styles tend to be solitary, inclusive or aggressive. To what degree can you inspire followership and cooperation and achieve your mission?

Machiavellian Love and War Campaigns Require Multidimensional Strategies



"Nature creates few men brave, industry and training make many. Discipline in war counts more than fury."
— The Art of War

Gartner

Machiavellian Love and War campaigns require multidimensional strategies.

There is nothing simple about love or war. Few strategies work every time, and a leader must consider a wide variety of variables before selecting their strategies. Rigidly sticking to a small number of strategies despite the situation is a recipe for failure. CIOs must be able to think multidimensionally and adapt to rapidly changing dynamics to manage the complexities of love and war.

Machiavelli advised that discipline was one of the most-critical qualities for leaders and their troops. Discipline required knowledge, skills, training and experience. With these, he felt that virtually any target was attainable. The same is true in IT, where knowledge, skills, training and experience can make the difference between success and failure.

Warfare Situation 1: Choosing Your Battles Wisely

"If a Prince's counselors are too fond of either peace or war, they will lead him into errors and inconveniences."
— The Art of War

Example 1: A new enterprise CIO is advised by business unit CIOs to focus his time and energy into creating a shared service center to lower costs and administration.

Example 2: A CIO discovers that no one in the enterprise is really in charge of business process improvement, and no one is assigned ownership of specific business processes.

Machiavellian Tactic:
Do not be fooled by diversionary tactics that may bog you down. Maneuver for the most-strategic assets.

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Warfare Situation 1: Choosing your battles wisely

CIOs have many options and choices to make regarding which responsibilities and projects to take on. In essence, they have a great deal of choice over the battles they fight.

CIOs often have many counselors who will advise them in one direction or another. They must pay close attention to this advice, but ensure the advice does not inadvertently send them astray.

Warfare Situation 2: Staging a Coup

"If any of the enemy's troops desert him and come over to you, it is a great acquisition — provided they prove faithful."
— The Art of War

Example 1: The enterprise CIO has control over only half the IT staff and budget. Budgets are high and processes are sometimes inefficient due to the decentralization.

Example 2: The business case for a data center integration is clear, but stakeholders are resisting it for political reasons and insisting on a study as a delay tactic.

Machiavellian Tactic:
Make the auditors your friends. A "well-informed" auditor is the CIO's most-effective "assassin."

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Warfare Situation 2: Staging a coup

Sometimes the quickest way to wage a war is to stage a coup. A coup is quick, targeted and often with minimal collateral damage. CIOs who stage coups often avoid long-term open warfare.

CIOs have a variety of tools at their disposal to ensure a speedy coup. One of these is the auditor. The auditor is often the CIOs best friend in a war of expansion.

Warfare Situation 3: Gaining Cooperation From Outliers

"When persuasion and exhortation have no effect, it is best to let some part of them be roughly handled by the enemy."
— The Art of War

Example 1: The entire enterprise is following centralized practices, except one stakeholder who has launched a large IT-related initiative the stakeholder clearly does not have the skills to handle.

Example 2: A government political leader announces a massive IT-related integration project will be completed in 12 months. The CIO finds out about the project at the press conference.

Machiavellian Tactic:
Wait before you agree to take on the IT initiative for the outlier. The best time is often after the initiative has begun to fail.

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Warfare Situation 3: Gaining cooperation from outliers

One of the most complex challenges for any leader is gaining cooperation from a wide variety of stakeholders. Stakeholders have their own agendas, and their own legitimate priorities. When the CIO's priorities or initiatives interfere with the stakeholder's, resistance is highly likely to occur.

Machiavelli counsels leaders to bide their time and wait for the appropriate opportunities to bring outliers into larger initiatives. While positive incentives are effective for the majority of stakeholders, some stakeholders are more responsive to negative incentives. CIOs must pay attention to the style of stakeholders and specific situation, and consider experimenting with a variety of tactics to gain cooperation.

Warfare Situation 4: Winning the War, and Planning for Peace

"To frustrate your enemy's designs, it is best to do of your own volition what he endeavors to force you to do."
— The Art of War

Example 1: The CEO is insisting on cost reductions through IT centralization, but in the enterprise, it is culturally unacceptable to gain cooperation through a mandate.

Example 2: The board has recommended that the enterprise consider additional outsourcing, even though the CIO does not consider losing local staff a good idea for the business.

Machiavellian Tactic:
Give up ground in the short term in order to strengthen your ability to create a better ultimate outcome for everyone involved.

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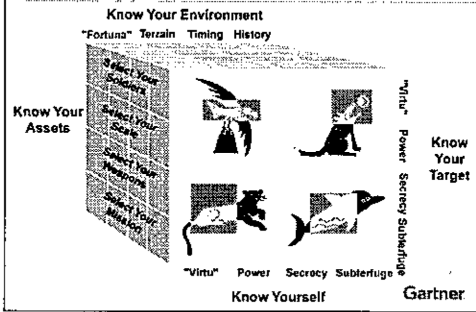
Warfare Situation 4: Winning the war and planning for peace

War and peace are parts of an enduring cycle. When CIOs wage war, they must always plan ahead for the peace. In situations when the CIO is likely to lose a battle or be disadvantaged, sometimes the best strategy is to retreat now to create a better outcome later.

CIOs must use caution in not sustaining so much collateral damage during battles, that there is no reasonable way to recover. Alternately, they must ensure that, even when they have succeeded in progressing controversial IT initiatives, standardization, or cultural changes, they have done so in a manner which ensures a long-term peace.

Winning battles at all costs usually results in destroying that which we were fighting for to begin with; so, CIOs must pay close attention to setting up the conditions for a successful peace.

Love and War: The Machiavellian Cube



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Love and War: The Machiavellian Cube

Love and war are multidimensional. CIOs must first assess a wide variety of variables to gain an understanding of the situation at hand, before deciding the most-appropriate strategies and tactics.

The dimensions CIOs must seek to understand are their assets, environment, the target and themselves. Each of these dimensions is complex in and of themselves, but warrant careful study. Without this knowledge, any battle or pursuit is certainly lost.

Then CIOs can select their tactics. At times, the CIO will want to be the Leopard, Dolphin, Falcon or Wolf as the situation requires it. The greater the agility a CIO can muster, the greater their chances at success.

And finally, the final element in running a successful campaign is Machiavellian discipline. With training, experience and careful planning, a CIO can attain virtually any target.

Like the multidimensional cube illustrated, circumstances will twist, combine, and reconfigure in myriad ways. Successful CIOs respond to the turning of the cube and influence its direction to help attain their goals.

Recommendations

- ✓ CIOs can lead wars of expansion by developing a multidimensional array of strategies and tactics
- ✓ Remember that Virtu inspires love, loyalty and followership
- ✓ Pay attention to Fortuna and adapt your approaches to your environment and opponents.
- ✓ Be the Leopard, Dolphin, Falcon and Wolf, based on the situation at hand.

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Related Gartner Research

→ *"Decisive Leadership: Making and Surviving Tough CIO Decisions"* Tina Nunno, Dave Aron (G00168757)

→ *"CIO Political Land Mines and How to Avoid Them"* Tina Nunno (G00164043)

→ *"Toolkit: Make an Impact at Board Meetings With Persuasive CIO Messages"* Tina Nunno (G00161345)

→ *"The CIO Challenge: Transforming Adversity Into Advantage"* Heather Colella, Diane Berry (G00169511)

Gartner

Strategies for Surviving Unconstrained Data Growth

Gartner Symposium/ITxpo 2010

Phil Sargeant

November 16-18, 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

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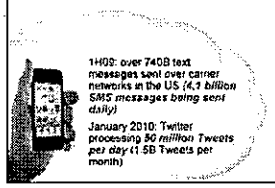
Data Will Not Stop Growing

In 9 of the past 10 years the storage industry has sold more than 60% more disk capacity than the previous year

Data grows
You **CAN'T** stop it
You *shouldn't* stop it
The best strategy:
delete what you don't need
Manage the rest



1H09: over 740B text messages sent over carrier networks in the US *(4.1 billion SMS messages being sent daily)*

January 2010: Twitter processing *50 million Tweets per day* (1.5B Tweets per month)

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Data is growing incredibly quickly, fueled by everything from retention of business data "forever" for compliance and e-discovery purposes to unprecedented increases in data associated with new social networking sites. Corporations are struggling with numerous questions in parallel – for example, how to manage certain data types when policies for the use and retention of this data haven't been defined or even considered.

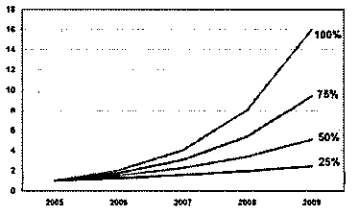
Various reports have been published citing worldwide data volumes of more than a zettabyte in 2010. This is certainly not only possible, but probable. For example, Twitter reports that the # number of tweets created per day has grown from 5,000 per day in 2007 to 300,000 per day in 2008 to 50 million per day in January 2010. The growth in Tweets hit 1,400%+ last year – to an average of 600 tweets per second (excluding spam). All of this data needs somewhere to live.

While social networking content represents an interesting use case for data growth, more traditional content types including simple unstructured user data are seeing growth rates of up to 60-80%+ year over year. New enterprise infrastructure configurations associated with virtual servers are adding to the data management challenge as well.

As part of our attempt to keep up with data growth, we are buying more and more storage capacity. Note the statistic – and while data didn't grow 60%+ in 2009 it still grew more than 40%+. Adding storage is an "easy fix" to a complex problem: storage is relatively inexpensive and getting cheaper. And adding more of a known entity to an existing infrastructure is, in some ways, exponentially easier than pulling together the right people to develop the right policies for data management. And while enterprises are responsible for managing up to 85%+ of the worlds data, 70%+ of this data is created by individuals – which makes developing policies for management even more difficult.

Is all this data growth bad news? Absolutely not! Data provides organizations the information they need to make the right decisions, to build the right products, to solve the next pathetic healthcare challenge. It offers the ability to collaborate and share knowledge, and to protect peoples and nations. As such, it is not the job of IT to arrest the creation or proliferation of data – data growth should be encouraged. That said that, however, unmitigated, unmanaged data growth is not acceptable. All data has value, and all data has a useful life. Strategies for *deleting* data that has outlived it's usefulness must be put into practice if we are to use data effectively. Technologies for *reduction* of redundant data are critical to keeping data sets manageable. Without these types of strategies, "finding what you need" becomes virtually impossible. Too much data becomes a distraction – something users have to wade through in order to get to what they're looking for. Unfortunately, strategies for slowing data growth via deletion and other solid data management policies are rare.

Data Growth



The compound annual growth rate for storage capacity in Australia between 2005 and 2009 was 74% — a nine-times growth in capacity in five years.

In five years, at a growth rate of just 50%, you will have five times the amount of storage you have now

Gartner

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Key Issues

1. What is driving IT to update its data management policies?
2. What are the appropriate methods and technologies for managing data growth?
3. What are innovative companies doing today to manage growth?

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Data Growth Factors Are Numerous

- Compliance
  - Numerous industry and government regulations*
- Availability
  - Testing, performance, backup/recovery disaster readiness, etc.
- Historical preservation
  - Digitization of the world's information
- Knowledge Management
  - Analytics, data warehouse, extended unstructured data archives
- Unified Communications
  - E-mail, social collaboration, web 2.0, SharePoint, etc.
- Comingling of personal and corporate data
  - Protecting and retaining personal data as part of the corporations charter

Reduce Cost and Complexity

Compliance

Improve Service Levels

*FRCP (e-discovery), Sarbanes-Oxley, FINRA, Gramm-Leach-Bliley, HFTA, FRC 17a-4, HIPAA, NERC, 21 CFR Part 11, numerous others

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This slide lists the top factors contributing to data growth.

Compliance to industry, government and internal regulations is perhaps one of the most significant factors causing organizations to experience double-digit data growth. Many regulations specify that information must be retained for a particular period of time – sometimes as little as 3-5 years, sometimes as long as the lifetime of a human being "plus". Regulatory requirements aren't always clear – more frequently they are left open to interpretation. This is particularly true for the Federal Rules of Civil Procedure – a U.S. Government rule that applies to civil litigation and governs how electronically stored information is managed in a legal case. When retention rules aren't hard-and-fast, many organizations tend to err on the side of saving more than they need to – "just in case".

Availability of data for all purposes often requires that multiple, redundant copies of data exist (often in separate locations). Historical preservation can take many forms. In some cases, historical preservation means preserving a record of a corporations business – via records management systems, or via historical archives. We are also seeing numerous government organizations, libraries, and other bodies with large amounts of paper data digitizing their collections.

Other growth factors exist as well, as detailed in the slide. As organizations try to get their arms around the management of data growth, they are looking to reduce cost and complexity, as well as improve service levels for their users. This often translates to better information management and good information governance.

How Much Data?

- In 2013, Gartner forecasts that 51 exabytes of storage will be sold
  - Nearly nine times the amount sold in 2008
- From 2009 through 2013, 122 exabytes of storage capacity will be sold
  - Users will purchase more than 20 times the additional capacity during that period than was purchased in 2008
- By 2012, users will install 6.5 times the amount of terabytes that they installed in 2008.

Source: *Controlling the Cost of Storage Growth Requires Storage Modernization*, Gartner

Gartner

How much data are we talking about? According to Gartner research ("Controlling the Cost of Storage Growth Requires Storage Modernization"), nearly 52 exabytes of storage will be sold in 2013 to accommodate the worldwide growth of data. Much of this storage, up to 80%, will be utilized for emergent data types including unstructured content such as file system data, e-mail and communications data. In addition, the increased use of rich media in all industries (video, audio) means growth in the deployment of storage systems tuned specifically for these content types.

In 2008, the total storage capacity purchased with enterprise storage arrays was 5.829 exabytes. Note that users don't purchase, install and then get rid of storage after a year or so, which means that purchases compound capacity increases over three to five years. The total capacity forecast for the five-year period 2009 through 2013 is 121.669 exabytes, which means that, on average, users will purchase more than 20 times the additional capacity during that period than was purchased in 2008.

Applications Present Different Data Management Challenges

Makeup of data growth varies by application and industry

Unstructured Data in Distinct Verticals

Industries	Type of Processing	Amount of Unstructured Data
Banking, finance	Heavy transaction (Tx) processing	Light, scattered
Construction	Light Tx processing	Light, scattered
Government	Tx processing	Heavy concentrations
Healthcare	Tx processing	In the fabric
Information Processing	Heavy Tx processing	Heavy concentrations
Insurance	Heavy Tx processing	Heavy concentrations
Manufacturing	Tx processing	Heavy concentrations
Medicine	Light Tx processing	In the fabric
Media	Light Tx processing	Heavy concentrations
Pharmaceutical	Tx processing	Heavy concentrations
Real estate	Light Tx processing	Light, scattered
Retailing	Heavy Tx processing	Some pockets

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Determining which applications are growing the fastest requires careful measurement. While most IT departments have a handle on how many terabytes their Oracle database is consuming, for example, fewer can describe why the application is experiencing the level of growth it is, how much data is redundant, and how much data is being retained that is not core to the business. Patterns do emerge that indicate that various industries have a higher concentration of unstructured versus structured data, and this information can be used to develop best practices for procurement of certain infrastructure components (hardware and software). But true data management requires a partnership with the business leaders in these respective industries, to prioritize data management activities, understand characteristics of data and ultimately to apply data management practices to continue to encourage managed data growth.

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First — It's all About The Data

- An organization's single most critical asset in the data center is the *data*
  - Supported by the infrastructure
  - Accessed via users and applications

- Storage infrastructure (the containers for the data) and applications must be available *according to the requirements for data access*

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As noted earlier, because it's somewhat easier to procure, deploy and manage storage than it is to build polices associated with managing the data residing on that storage, storage tend to be in the forefront of a data management strategy. However, it is the *data* that drives capacity. Data is an organizations single most critical asset, perhaps after the people it employs and in fact some might argue the other way. Data – ERP applications, intellectual property, collaboration applications, engineering drawings, patient healthcare records, research – needs to be housed in an infrastructure that can support it. The infrastructure must provide appropriate availability, performance and access. In addition to the storage infrastructure, servers, networks and applications must deliver data to the users as required.

So while cost optimization and data center modernization products and technologies are critically important to ensuring a well run data center, consideration must always be given to ensuring integrity and availability of data. Looking at infrastructure characteristics only makes sense as they apply to data access.

Strategies to Manage Data Growth

Modernizing your data center:

- Data deletion
- Information life cycle management
- Tiered storage
- Archiving and application retirement
- Improve data protection
- Data reduction
- Intelligence in the platform: increasing utilization rates; unified storage, thin provisioning
- Alternative delivery methods: Cloud and SaaS

Gartner

Significant improvements in cost reduction/containment associated with managing data growth are required — and possible.

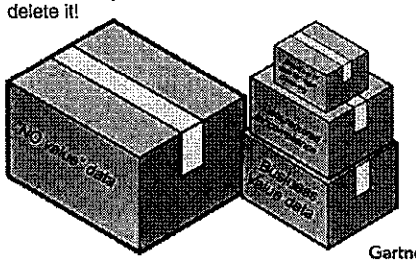
In a perfect world, there would be no scarcity. However, the reality is that even before the current macroeconomic downturn, IT organizations have had to make trade-offs regarding what was funded, which requests for service would be honored and what the implementation for an accepted request would be. Although recent Gartner research suggests that storage budgets are holding relatively steady in light of recent economic challenges, many IT departments are still being challenged to reduce or defer costs where possible.

Nearly all organizations are protecting their data with backup, business continuity and disaster recovery technology and plans. In many cases, these plans and solutions have been in place for years, and they are no longer adequate or cost-effective. According to the challenges stated previously, new approaches may be necessary — essentially, modernization.

Each one of these technologies will be discussed on the following pages.

Data Deletion Works

- The best way to reduce the amount of data – delete it!



Gartner

Unequivocally, deletion of data is the best way to reduce the amount of data being managed and consequently slow the growth of storage capacity. In most organizations, the amount of data that has "no value" is significant. "No value" data does not bring value to the business, or did at one point but has outlived it's usefulness.

Business value data may or may not be current (it's age is irrelevant), but it is critical to the success of the organization. Data required for compliance enables an organization to meet regulatory requirements, and should be stored accordingly. One of the more interesting data sets to identify and manage is that which is required for legal discovery. This data may have business value, it may be required for compliance, or it may fall into *neither* category. Data required for legal discovery can consist of e-mail messages, customer records, even web chats. One of the characteristics associated with this data set is that it should be kept as small as possible (while still ensuring e-discovery readiness) via policy, including deletion policies.

"No value" data can consist of transient communications data, personal data that's unrelated to the business, or historical data that no longer provides any value. The trick of course is in identifying this data. Various classification technologies have evolved over the years to help organizations identify and categorize data in an automated way – these type of tools have met with marginal success due to the complexity of organizational classification schemes and the need for human interaction (policy development, review of results).

Strategic Planning Assumption: By 2012, at least 25% of the virtual machine installed base in enterprises will be Microsoft Hyper-V.

Managing Data Growth By Deletion

By 2013, 50% of organizations will have a documented "deletion policy" that will be used as the first line of defense against unconstrained data growth, up from 10% today

Deletion Policies are Commonplace:

- Top-down information governance initiatives establish parameters for non-critical data
- E-discovery costs and penalties associated with bad e-discovery practices drive new deletion policies
- Classification and categorization products emerge that enable trusted automated deletion of non-business data
- Data reduction technologies do not go far enough

Data is Not Managed Via Deletion Policies:

- Information management does not become an important initiative
- Policies are too hard to define
- Data reduction and other technologies do an adequate job of arresting data growth
- E-discovery software becomes more sophisticated – automatically identifying and discarding irrelevant data

Gartner

You cannot and should not stop users from creating new data, especially data that drives business growth. Deletion policies are the best defense against cost and risk associated with unmanaged growth.

Information Lifecycle Management is a Best Practice

- Evolved as way to align data with infrastructure
  - Manage information according to its value over time: creation to disposition
    - Implies an understanding of the data: data with context
  - Tightly tied to cost
    - Cost to access, store, secure (all interrelated)
    - Objectives: lower costs (infrastructure, staff) while enhancing and improving information management
  - Often tied to storage tiering, but broader than this.

The key: ILM is the bridge between business value of data and IT's management of data

Gartner

Information Lifecycle Management is not a new term, nor a new concept. It has been "defined" many times over, but comes down to the basic premise of managing data according to it's value from the time it's created to the time it's deleted. And note that an integral part of this definition is "delete". ILM is difficult, if not impossible to implement without at least a rudimentary understanding of the data in question and how it's used. In order to gain this understanding, IT must work with legal and compliance officers, and the line of business in order to develop processes, select technologies and map data to infrastructure components.

Benefits that can be realized when ILM principles are adhered to include: fewer staff to manage a storage infrastructure, lower risk of exposure from data misbandling, whether from loss or poor service delivery, improved storage infrastructure effectiveness, which avoids unnecessary capacity or performance expansion, and the ability to delay or eliminate new storage infrastructure purchases that would be wasted on storing unnecessary data.

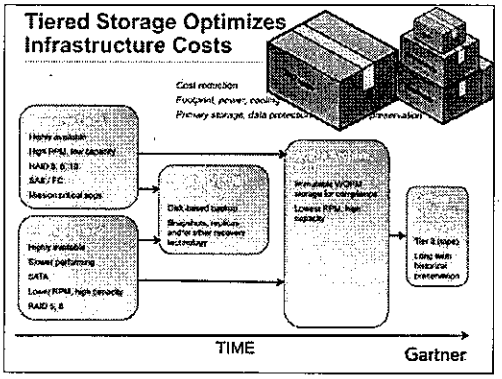
Business units create and operate on information; IT stores data. In ILM terms, data is information "with context".

Example: ILM Ties to Service Levels

Application	Access (data security)	Performance (latency, throughput)	Data Protection	Compliance requirements (retention)
E-mail	User, legal reviewer (restricted)	High	High	Archive according to regulatory requirements Transient user email – delete after 180 days
User data (files)	User, via access controls	Low	Medium	Retain according to regulatory; business retention rules. Delete non-business content after 90 days
SharePoint	User, group	Medium – move data to file system	Medium	Dependent on team collaboration – retain according to regulatory. Consolidate team sites
Financial data	Restricted	High	High	Retain seven years - confidential
Web Content	Public	High	Low	Marketing documents – retain three years. All other content – retain as needed using 6 month retention as baseline
Payroll	Restricted	Medium	Medium	Retain for the life of the employee plus three years after termination
Research	User, via access controls; restricted	High	High	Life of project plus industry-specific best practices for retention

Establish SLAs

Tiered Storage Optimizes Infrastructure Costs



Gartner

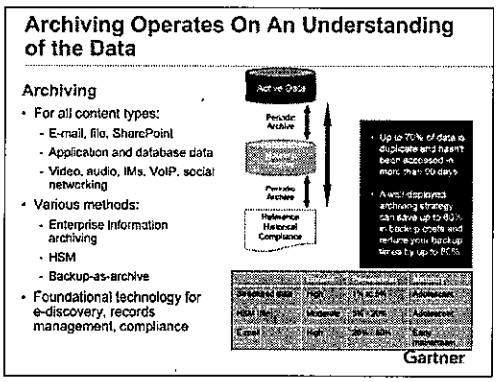
The storage industry has loosely standardized on the definition of a "tier." Tier 1 or primary tiers are typically high performance disks. Higher tiers (tier 2) are reserved for applications that can tolerate slower performing storage. And ultimately archive or backup equipment is identified as a third, fourth, or "tertiary" tier.

By leveraging a tiered storage infrastructure based on requirements for data over it's life (ILM), the capacity associated with each tier can be cost effectively managed. How data is distributed across tiered storage has an effect on the success of a tiered storage implementation. Business can reside on primary storage, secondary or tertiary storage. All business data can reside on archival storage, and all business data should participate in a recovery plan.

Data stored for compliance and e-discovery should not reside on primary storage (tier 1 or tier 2). Data required for e-discovery and compliance should also not be stored as part of a backup scheme. Archiving is the most appropriate technology for this data. Having said that, an archival tier of storage is not always required – Gartner sees many clients who leverage their tier 2 storage to store this data.

"No value" data should be deleted when possible.

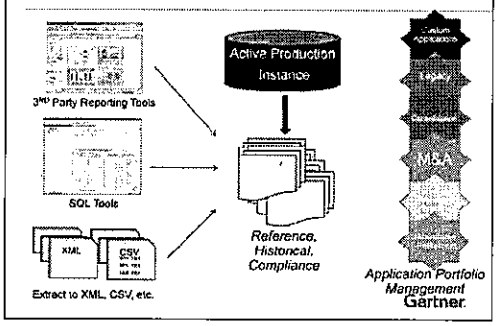
Archiving Operates On An Understanding of the Data



Significant improvements in cost reduction/containment are required — and possible.

Archiving solutions provide the mechanisms to enable end users to preserve the way they create and store data. They align with the concept of information life cycle management. Archiving solutions enable better risk management and e-discovery preparedness. And all of this is accomplished while significantly lowering costs associated with IT infrastructure. As noted on the slide, up to 70% of data (more or less) is duplicate and/or hasn't been accessed in more than 90 days. By deduplicating and archiving data, tier 1 storage can be reclaimed for more-active data. And a well-implemented archiving strategy can dramatically reduce backup times and costs associated with media and administration.

Application Retirement Delivers Excellent ROI



Archiving products let administrators move data out of the production database based on business policies, saving the data and metadata on lower-cost storage while providing a way for users to access this archived data on demand. Referential integrity of the data is maintained, regardless of where the data is stored. Data can be brought back into the operational database in bulk or selectively if required. Database archiving products are used to extract data from various database columns, rows and tables, potentially across multiple table spaces on multiple physical disks. The extraction must be done at the application level so that associated business logic can be referenced to perform the extraction. This extraction leverages the purge facility provided by the database management system (DBMS) or application, or uses the vendor's own optimized routines that leverage the same business rules as used by the DBMS vendor. Extracted data is often stored in archive database tables but can also be stored into a file-based structure, either the vendor's own proprietary format or XML. The benefits of implementing database archiving for application retirement include:

• Retirement of IT infrastructure associated with legacy applications, including not only hardware but software licenses as well.

• Opportunity to move historical data, or data from retired applications, to another format for longer-term retention and access (for compliance, discovery, etc)

ILM — There is Good and There is Bad

- ILM is great
  - Reduce costs by aligning value of information with supporting infrastructure
  - Reduce risk by reducing data mishandling
  - Improve infrastructure effectiveness (avoid unnecessary storage capacity or performance)
- ILM is challenging
  - No ILM-in-a-box solutions
  - Understanding and classifying data
  - Time consuming, "cleanup" projects that may not be perceived as providing value to the business

Gartner

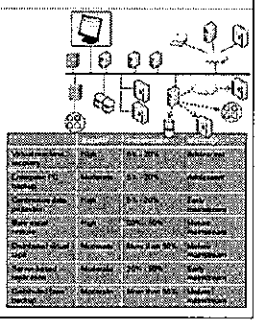
In summary, ILM presents significant benefits along with some challenges. First and foremost, ILM requires enterprise-wide stakeholder participation. The business process owners—not IT—identify and classify information. IT departments function in a partnership role with business units and give advice on a variety of technological subjects. Implementing an ILM methodology requires agreement and alignment across organizations, business processes, data identification, tools, and storage infrastructure. C-level executives must buy into the process as a means to improve business effectiveness and add the successful implementation of an ILM methodology into their performance and bonus plans.

ILM is a good choice for maximizing the effectiveness of a storage infrastructure especially when dealing with rapid data growth, ensuring IT service levels by rationally mapping information assets to storage infrastructure, fostering business process definition and cross-organizational cooperation and meeting compliance dictates and e-discovery demands

ILM is a poor choice for IT environments and organizations for which the effort and cost of implementing ILM are not justified by the storage-infrastructure cost savings or data-mishandling risk mitigation, or organizations for which buy-in to the benefits of ILM from C-level executives is low.

Improvements to Data Protection Can Help

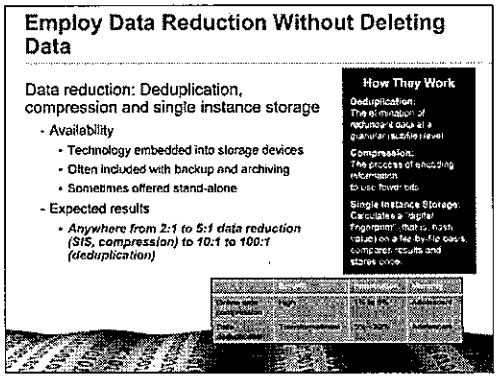
- Unified Recovery Management
  - One pane of glass for control
  - In-house and cloud
- Tiered Recovery
- Disaster Recovery
  - Tape — replication for off-site vaulting
  - Cloud, SaaS
- Backup Beyond the Data Center
  - Laptop and desktop backup
  - Remote office and branch office backup
- Encryption Comes of Age
  - Key management better integrated



Significant improvements in cost reduction/containment are required — and possible.

By 2014, new techniques will lead to an expanded menu of choices. One current or emerging recovery technology will not win out over another. Rather, administrators will have more flexibility, including differentiated levels of service, when it comes to providing recovery solutions. Just as there is tiered storage that provides a variety of cost and performance levels for storage capacity, there will be tiered recovery to provide differentiated levels of backup and recovery services. Unlike tiered storage, this tiered recovery model may be additive, with an organization using many of these techniques together to achieve the overall level of data protection and recovery characteristics needed, and to ensure that business risk and continuity requirements are also met.

Expect traditional backup products to transform into recovery management solutions that may not necessarily own all the data capture and data transfer techniques used. This means that, in addition to traditional backup and recovery (application, file and image), there will be stronger support for server-based replication, storage array-based replication, and intelligent switch- and network-based replication solutions. We will have unified recovery management solutions, a sort of "manager of managers," a common and established concept in the network management world, whereby a hierarchy of federated management tools feed into each other, percolating up to an overall manager.



Significant improvements in cost reduction/containment are required — and possible.

Data reduction technologies can provide cost savings simply by reducing the amount of storage to manage and the amount of data to backup. Examples of data reduction technologies include single instance storage (SIS), compression and deduplication. Generally speaking, all three of these are available as features within many backup, archiving, replication and other data management products, and often available as part of a storage platform as well.

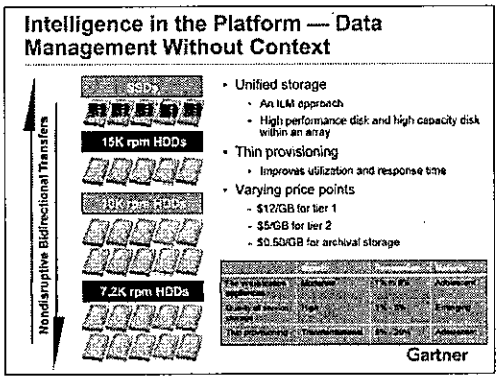
Single instance storage is characterized by its focus on the "file" as the managed object: a file on a file share, an attachment in an e-mail, a blob within SharePoint. Solutions calculate a "digital fingerprint" for each object (using hash algorithms such as SHA-1 or MD5) and compare these values against those for other objects. If a match is found, the object is stored only once and all other instances point to that single object.

Data compression is the process of encoding information using fewer bits (or other information-bearing units) than an unencoded representation would use, through use of specific encoding schemes.

Data deduplication refers to the elimination of redundant data, similar to single instance storage, but at a much more granular level.

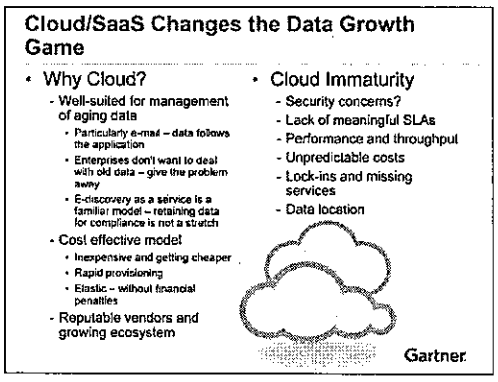
Most vendors of data management products offer compression within their product, and many offer single instance storage where appropriate. Some offer deduplication as an add-on to their suite of backup and archiving products (Symantec, CommVault). Other vendors offer deduplication as a stand-alone complement to their data management portfolio (EMC Avamar, EMC Data Domain). In addition, many storage vendors offering storage platforms for backup and archival data include deduplication as a feature (FalconStor, Permabit, NEC).

You can expect significant reduction in storage with these technologies. Gartner talks to organizations who have been able to see up to *20x or higher reduction* in storage capacity for their backup and archive data.



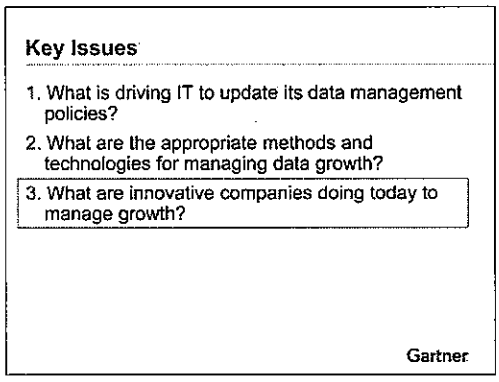
Significant improvements in cost reduction/containment are required — and possible.

Most vendors of external controller-based storage support multiple drive technologies within their disk arrays today. The process of evaluating the data availability requirements for each type of data in order to ensure proper placement on the correct tier of storage is sometimes too big a task to deal with and, thus, leaving it all on tier 1 storage until decisions can be made is sometimes easiest, though costly. Compellent, Pillar and 3PAR have led the way in delivering quality of storage service (QoS) features that are lowering storage costs by automating the migration of data from high-performance disk to high-capacity disk within an array. These features take virtualization to the next level by allowing a virtual volume to move between different storage pools. A more-flexible implementation of this feature allows a virtual volume to span different storage pools and nondisruptively move chunks of the virtual volume as performance, protection and cost needs dictate. This approach does not rely on host-based tools to monitor file accesses across complex I/O paths; and it does not rely on tools that analyze database accesses to identify stale records. Instead it relies on metadata that the storage system maintains to identify candidate volumes or chunks of volumes to be migrated, which makes it entirely server- and application-neutral; conceptually, it is optimization at the storage system level.



Data management can be handled as part of a SaaS or cloud deployment. Cloud computing is a paradigm shift that will redefine the relationship between buyers and sellers of IT-related products and services. It is an alternative delivery and acquisition model for IT-related services. A definition of the cloud is an abstract statement of the fact that IT services (or capabilities) are being made accessible through the Internet to anyone that has the wherewithal to buy and use them.

IT services delivered through hardware, software and people are becoming repeatable and usable by a wide range of customers and service providers. Backup has been offered by service providers for years, and archiving as a service has grown rapidly during the past two years. Some corporations may choose to build out their own private cloud infrastructures to enable greater scaling and access to data, but they should allow for all resources to be owned and managed internally.



Example Prioritizations

- **Compliance and support for e-discovery are a problem**
  - Consider E-mail archiving
  - Followed by other content archiving
  - Search, collection, reporting requirements
- **Need to re-architect backup and recovery**
  - Deploy data reduction
  - Deploy new backup methodologies
  - Deploy archiving (start where the pain is)
- **Need to curtail storage spending**
  - Develop an ILM strategy
  - Upgrade existing storage to take advantage of new features
  - Deploy tiered storage and/or intelligent storage platforms
  - Consider cloud storage
- **Want to improve service levels:**
  - Consider SRM, reporting tools
  - Do cost modeling: better service versus cost versus outsourcing
  - Application archiving for Exchange, SharePoint

Compliance

Reduce Cost and Complexity

Improve Service Levels

Gartner

There are several starting points for prioritizing data management activities within your organization. Gartner recommends that you start with a containable pilot project. This initial project ideally will align with a data issue that is of a high priority in your organization.

Gartner identified data lifecycle pilot candidates include (but are not limited to):

- Compliance and support for e-discovery
- The need to re-architect backup and recovery
- The need to curtail storage spending
- The desire to improve service levels

Action Plan for Storage and Data Management Professionals — Year 1

Monday Morning

- ✓ *Reach out* to business leaders, legal and compliance – managing corporate data needs to be a top-down initiative

Next 90 Days

- ✓ *Define and prioritize* requirements
- ✓ *Audit* current data management state
- ✓ *Define* information retention and deletion policy
- ✓ *Plan* for alignment of storage infrastructure with data management requirements
- ✓ *Review* backup/recovery, BC and DR plans

Next 12 Months

- ✓ *Take control of volume creation and quota management*
- ✓ *Consider* e-mail archiving
- ✓ *Upgrade* current storage infrastructure: deploy SSD and thin provisioning
- ✓ *Implement* deduplication for backup

Gartner

Monday morning:

Recognize that now is a good time to start. Managing corporate data and costs needs to be a company initiative. Try to determine what your organization's motivator is. You should make sure to reach out to your organization's business leaders, legal and compliance people — managing corporate data for cost and compliance needs to be a company initiative.

During the next 90 days:

Try to gain executive support for an ILM project if required, and assemble the team. At a minimum, the team should consist of IT, records managers, legal/compliance and business units as necessary. Start by gaining an understanding of your current data management state. Focus on how the business uses data, and begin to document how information needs to be retained for compliance and governance purposes. As you gain perspective on the requirements for data retention, look at service levels you've established with the users, and look for alignment of the storage infrastructure (where the data resides) to those service levels.

During the next 12 to 18 months:

During this time there should be a number of opportunities for "quick wins": focus on one area where you can implement policy for data management or reduce costs associated with data management. Don't forget to measure results. The goal should be to target better data management, better compliance and e-discovery, as well as operational efficiencies.

Action Plan for Storage and Data Management Professionals — Years 2 - 5

Years 2 - 5

- ✓ *Implement* deletion (and retention) policies
- ✓ *Begin retiring* older applications
- ✓ *Replace* storage infrastructure
- ✓ *Re-architect* backup and recovery
- ✓ *Head to* the cloud

Strategic Wins:

- ✓ *Information governance through better data management (retention and deletion)*
- ✓ *Modernized, consolidated storage infrastructure to support data requirements*
- ✓ *Unified recovery*
- ✓ *Cost and SLA optimization via the cloud*

Gartner

Beyond year one, there are a number of directions organizations can take. These should again be focused on understanding your data, looking for efficiencies with respect to how the data is managed, and meeting the requirements of the business. Information Governance is an additional step that can should be considered beyond simple data management – information governance employs multiple processes associated with the use of information well beyond management of its growth. Modernization projects such as the replacement of the storage infrastructure or the re-architecting of backup and recovery are multi-phase, and should evolve from a base plan as more options become available. Managing data growth isn't stagnant! It requires constant vigilance to monitor new and evolving trends and technologies (such as a move to the cloud) as well as changing regulatory requirements.

Related Gartner Research

- → **Best Practices: Use Pain Points to Start Your Data Life Cycle Management Modernization Plan**
  Sheila Childs, Dave Russell (G00174416)
- → **New Storage Solutions Can Modernize Data Life Cycle Management**
  Sheila Childs, Dave Russell (G00174390)
- → **Modernize Your Storage Strategy: Plan Now or Suffer Later**
  Robert E. Passmore (G00174586)
- → **Controlling the Cost of Storage Growth Requires Storage Modernization**
  Robert E. Passmore (G00173027)
- → **Repository Strategies for Archived Data: The Blurred Line Between Hardware and Software**
  Sheila Childs, Stan Zaffos (G00201453)

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Enterprise Business Architecture: Uniting Business and IT

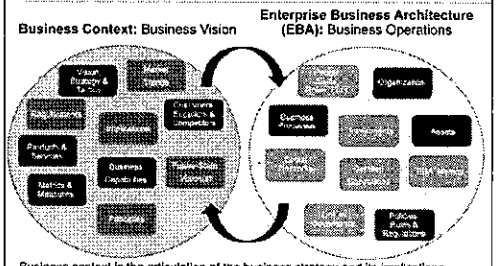
Gartner Symposium/ITxpo 2010

Bard Papegaaij

November 16-18, 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

Gartner

Don't Confuse and Combine Vision and Operations



Gartner defines the process of articulating the business strategy and requirements and ensuring that the enterprise architecture (EA) effort is business-driven as the "business context." The business context of the enterprise architecture is the articulation of the business strategy and its implications, of external "environmental" trends, and of a high-level future-state vision. The business context overlays and informs all of the EA work and viewpoints — that is, ETA, enterprise information architecture (EIA), enterprise solution architecture (ESA) and EBA — to ensure an effective strategic alignment with the business and a focused direction of effort. To support this effort, EA teams should collaborate with diverse business leaders, IT, subject matter experts and end users.

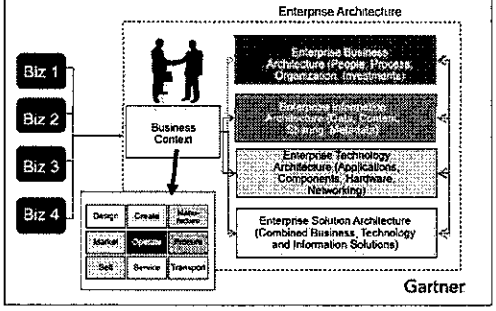
Key Issues

1. **Business context: How can organizations leverage business capabilities to engage the business?**
2. **EBA: What is the value of supporting enterprise business architecture?**
3. **EBA: How should organizations approach supporting EBA?**

Gartner

Leading organizations know "our business is IT, and IT is our business." Enterprise architects are in a unique position to enable and lead this unification of business and IT. One crucial aspect is leveraging an enterprise business architecture as a conduit for engaging business leaders, and understanding the ripple effect of business changes on people, process, information and technology.

Business Context Informs *All* EA work



Key Issue: Business context: How can organizations leverage business capabilities to engage the business?

Business capability models should become a toolkit for representing your organization's root anchor model. This means it should be part of your business context and used to communicate and collaborate with business and IT. It also should be used to inform the rest of EA. Deeper detailed business capability models may be used to illustrate specific decisions within information, business, solution and technology architecture viewpoints.

What Is a Business Capability?

"A business capability is similar to the notion of a value discipline, which Treacy and Wiersema (Treacy and Wiersema, 1995) define as the way in which companies combine systems, processes and their environment to deliver value to their customers." P. Balasubramanian, N. Kulatilaka, J. Storck, School of Management, Boston University

A business capability model:

- Is a representation of an organization's business model and the capabilities that make up that model
- Consists of a collection of people, information, processes and assets (for example, service customers, transport goods and develop products)
- Is representative; any single capability is not completely encapsulated
- Example representations:
  - Value chain and network value model
  - Hierarchy
  - Supply/demand governance model
  - Mind map
- Uses business language to illustrate business context, as well as EA viewpoints

Gartner

Key Issue: Business context: How can organizations leverage business capabilities to engage the business?

We found several different definitions of business capabilities, including:

- "An ability or capacity for a company to deliver value, either to customers or shareholders." "Business Capability Modeling" by Leonard Greski, Architecture and Governance Magazine, 2009 (Volume 5, Issue 7)
- "A capability models *what* a business function does — its externally visible behavior (versus *how* it does it, its internal behavior) — and the expected level of performance." http://msdn.microsoft.com/en-us/library/aa479368.aspx
- "The business capability is 'what' the organization does; the business processes are 'how' the organization executes its capabilities." Wikipedia.org

Regardless of the specific definition, each speaks to a common trait or purpose, to illustrate what a business does to deliver value. The benefit of this model is that it enables business and IT people to evaluate and explore business impacts and scenarios without slipping into organizational, functional ownership or domain issues.

Why Do Business Capabilities Matter?

For business leaders, business capabilities:

- Represent "the business" in the language of business people
- Shift strategy discussions away from organizational empires, ownership, domains, systems or applications, and political land mines

For IT and EA, business capabilities:

- Help EA and IT people focus on the business value and impact of EA
- Uncover and illustrate relationships, friction points, overlaps and intersections between EA viewpoints

Focus on "what we do" and "value we provide customers."

Save "how we do it" for detailed analysis and EA models.

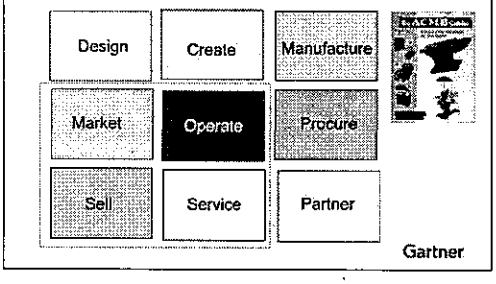
Gartner

Key Issue: Business context: How can organizations leverage business capabilities to engage the business?

The key benefit of starting with this higher-level approach and view is that it provides a layer of abstraction from specific details of services (that is, people, business process, organization, investments and reporting structure) and allows EA efforts to focus on evolving toward supporting a future state without getting bogged down in the potentially political and detailed issues. Once business capabilities and the future state are defined and agreed to, further analysis within the scope of EA viewpoints can lead to gap analysis and a migration road map.

High-Level Business Capability Model

Acme Systems Manufacturing: Midsize Industrial Component Manufacturer



Gartner

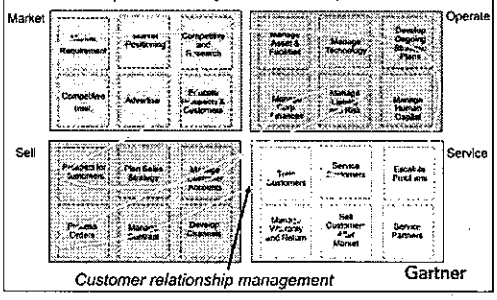
Key Issue: Business context: How can organizations leverage business capabilities to engage the business?

Here, we illustrate a business capability model as a very high level view of the business. These capabilities do not map directly to any organizational model or business area. To further help business and IT leaders view business capabilities differently, we illustrate them by using verbs rather than nouns. The key is to illustrate what the business is doing.

In the next slide, we will drill down into the market, operate, sell and service parts of this model.

Business Capability Model: Details

Acme Systems Manufacturing: Midsize Industrial Component Manufacturer



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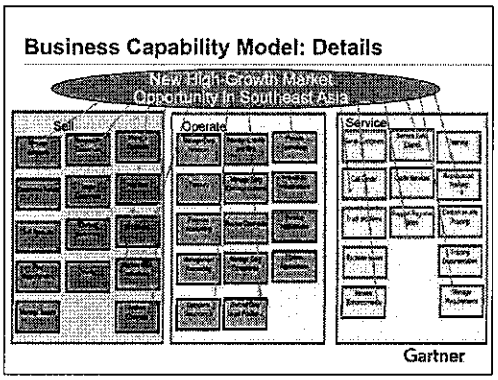
Key Issue: Business context: How can organizations leverage business capabilities to engage the business?

Here, we illustrate the next level of detail for Acme Component Manufacturing's business capabilities. The benefit of this model is that it starts to show some of the more detailed business capabilities. The way that this could be used is to illustrate the impact of business and IT change on different capabilities.

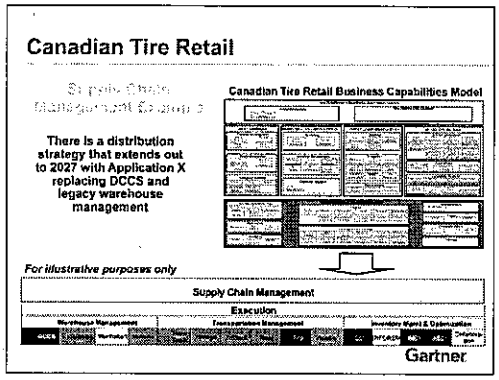
Say Acme Manufacturing is going to embark on a new CRM program. Some might wrongly think this is a matter of deploying a CRM application. By illustrating the diverse capabilities of the business at this level, the EA team can work with the business and IT to explore, uncover and discuss how a CRM program (not just application) might impact and affect current business capabilities.



Key Issue: Business context: How can organizations leverage business capabilities to engage the business?

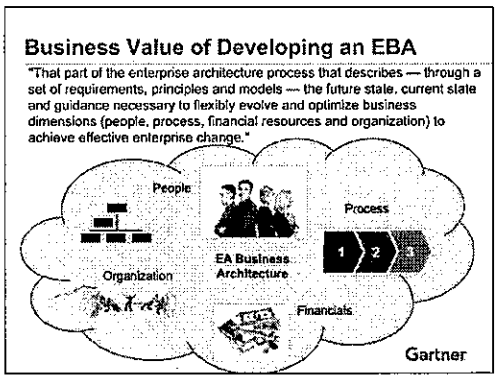
Here, we take the sell, operate and service business capabilities and drill down a level deeper. At this level, managers (business and IT) can start to see the detailed capabilities. This type of model could be used to explore and understand the impact of a new business strategy (new opportunity in Southeast Asia) on Acme Manufacturing.

This exploration can be used as part of the business context to communicate and collaborate with the business and IT. Other EA viewpoints also can use it to understand what EA artifacts might be created (requirements, principles and models) to help the business achieve its operational and strategic goals.



Key Issue: Business context: How can organizations leverage business capabilities to engage the business?

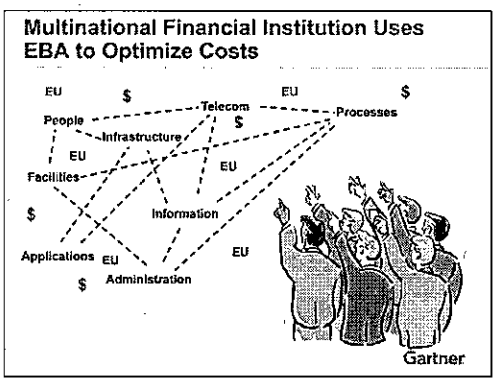
Here, Canadian Tire uses business capability models to illustrate the link between a business vision and view, and applications.



Key Issue: EBA: What is the value of supporting enterprise business architecture?

EBA describes the aspects of the business ("how") and how these aspects must change or evolve to reach the overall EA future state. EBA process empowers the business and IT people with a toolkit and information to evolve their business in the context of interrelationships toward a future state. The business value and impact of supporting EBA are to ensure that changes and enhancements to business process and organization are optimized with the information and technology direction to support the business strategy. Increasingly, organizations will focus on the organization and people aspects and on their impact on EBA. When advancing the EBA, the EA team must articulate the value proposition in business terms aligned with the strategic direction. Evolving EBA requires developing the value proposition, as well as building demonstrable proof that value is being created by the EBA and your EA effort. EBA must be an integral part of EA; otherwise, organizations risk investing in automation, augmentation, enhancement and innovation without a link to and from technology, information and solution architecture. This can result in highly ineffective investment in business change and transformation, fragmented and disconnected information, wasted investments in technology and solutions without a clear business driver or focus.

Tactical Planning Guideline: To effectively manage business change and transformation, organizations must consider expanding their enterprise architecture to include enterprise business architecture.



Key Issue: EBA: What is the value of supporting enterprise business architecture?

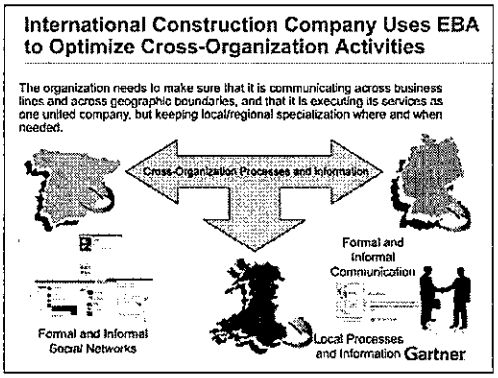
Due to economic and budget issues, a large multinational financial institution was asked to cut more than 10% of its workforce jobs. The big challenge it faced was making these business decisions and understanding how these decisions would affect the entire organization. Traditionally, without EA and EBA, the management would go to each department and, based on perceived or actual business impact, ask each department to reduce head count by a certain amount. These tough decisions are often made without:

- An understanding of what their impact is on the business's ability to reach a future-state vision
- An understanding of what impact these decisions will have on being able to support business functions and processes
- An understanding of the ripple effects on information access, creation or flow
- An understanding of how these cuts affect current technologies and services

By leveraging EBA artifacts, such as conceptual process patterns, conceptual models of the roles and competencies, and investment option models, in conjunction with overall EA efforts (such as CRV, viewpoints, organization and governance), the business and IT can make these business decisions in a much more informed way. To really achieve cost optimization, organizations must drive these decisions as an integral part of EA based on their future-state vision, as well as understanding the people, processes and investments that are needed to reach this future state, and respond to the ripple effects of these business decisions on the rest of the organization (for example, information, technology and organization).

Action: When making cost optimization and cost-cutting business decisions, organizations should take advantage of the models, guidelines and principles in EA. In addition, they should leverage an integrated view of EA, including EBA, EIA, ESA and ETA, to understand and manage the ripple effects of these decisions.

Tactical Guideline: EBA represents business models and assumptions, people and their work, the organizational structure and governance, and the way business processes and finances are applied — all in the scope of the business context.

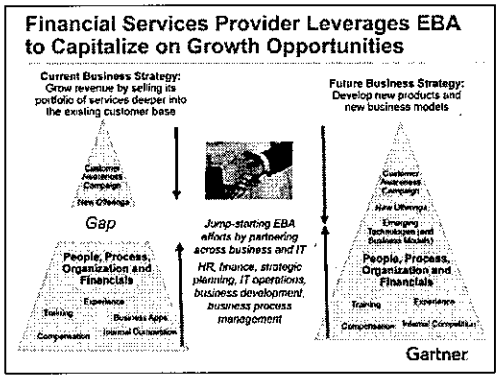


Key Issue: EBA: What is the value of supporting enterprise business architecture?

We recently spoke with a Europe-based construction company with offices in multiple regions that was operating in different markets and sectors (such as commercial buildings and infrastructure). The organization needs to make sure that it is communicating across business lines and across geographic boundaries and that it is executing its services as one united company, but keeping local/regional specialization where and when needed. The company was supporting very large construction projects that included multiple governments, regulatory requirements, cultures, languages and regional preferences. The major business challenges that it faced were: (1) determining what processes needed to be streamlined and optimized, (2) determining where there were inefficiencies, and (3) determining where it needed to support specific local processes.

As part of this challenge, the company also needed to determine what formal and social networks exist and how information was flowing across the teams, in order to bolster communication. But this analysis could not be done in isolation; the company needed to understand the ripple effects of the changes (such as processes, people and organization) on the use of information, applications and technologies. Within EBA, it focused on overlaying its key process models on its business anchor model. With this, the company was able to determine where and how to optimize its processes and where it needed to enable local processes to flourish. In addition, by understanding the relationship between the organizational structures (formal and social networks) and the information architecture viewpoint, the company could work toward determining and addressing the communication and collaboration gaps between regions. Finally, by integrating these efforts as part of the overall EA, it can continually work to optimize processes, people, organization, information and technologies, and determine what needs to be changed to evolve toward a future state.

Action: Optimize how cross-organization teams work, communicate and collaborate, by leveraging EBA artifacts (people, organization, financial and process models) to determine the gaps between defined business processes and between how teams need to work together and how they naturally work together. In addition, by integrating these efforts into the overall EA, organizations can more effectively determine the right applications and technologies to increase this collaboration.

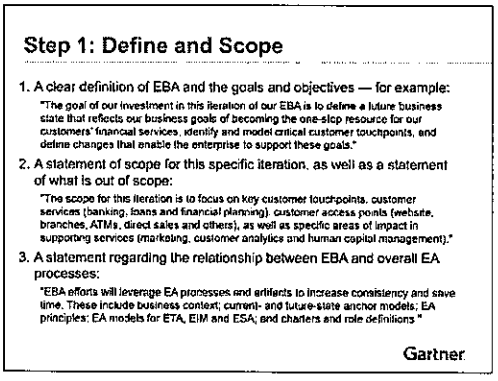


Key Issue: EBA: What is the value of supporting enterprise business architecture?

A financial services organization was trying to grow revenue by selling its portfolio of products deeper into the existing customer base. The company developed a series of new offerings and created a customer awareness campaign. However, when it came time to actually support the programs, the company found that there was a gap between the compensation, experience and training of its sales and customer service people. In addition, the organizational structure that had been created to encourage healthy competition between business areas was derailing the efforts to create a single customer experience. As part of the EBA effort, the company is working on models of its employees' skills, compensation and core processes. To accomplish this goal, it is working with the HR teams to uncover the information and models that already exist. Once the company gets these models defined at a high level, it is planning to integrate this information into the overall EA efforts to understand what parts of the organization might need to change to support new business processes. It also wants to understand how these new processes might affect how information is managed, accessed and used. Finally, given that the company is focusing on new products and new business models, it eventually wants to take this work and use it to determine what new and emerging technologies (and business models) should be leveraged — and when.

Action Item: Try jump-starting EBA efforts by determining what foundation business information you already have within business process management, human capital management and financial planning systems.

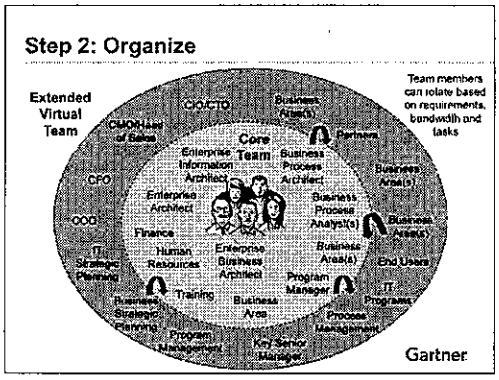
Tactical Guideline: Senior management and relevant business managers, as well as their staff and relevant IT management, should agree on high-level statements and goals.



Key Issue: EBA: How should organizations approach supporting EBA?

The first step is to ensure that there is a common agreement and understanding of EBA, the potential value of supporting the process, and the value of leveraging the outcomes (physical artifacts and soft impacts). It's also key to define the scope of the initial iterative efforts. Although the ultimate long-term goal of EBA may be to understand and articulate the entire business as a whole, the only way to accomplish this is through an integrative process of progressing from scope area to scope area. These scope areas should be driven based on your long-term future-state vision and your evolving business strategy. Take, for example, Bank XYZ (we use this example throughout the presentation as a prototype organization created by Gartner for illustrative purposes) and that the business strategy is to develop deeper, more-profitable relationships with customers by offering a one-stop resource for all their personal and business financial services and to potentially make international acquisitions to help increase customer service internationally. In this case, the initial scope of EBA efforts might focus across a domain of organizational key customer touchpoints, such as customer service (banking, loans and financial planning), customer analytics reporting, marketing, customer access points (website, branches, ATMS, direct sales and so on), and human capital (talent) management and development.

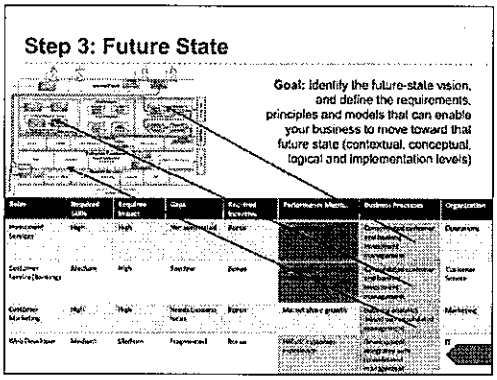
Tactical Planning Guideline: Organize the team and any needed supporting information, models, artifacts and skills. The role of the business architect is different from the role of a business analyst — although these roles should be complementary and collaborative.



Key Issue: EBA: How should organizations approach supporting EBA?

The first effort is to identify who will lead the EBA. Ideally, the person to lead EBA efforts should be from the business. This can help ensure that the EBA efforts focus on the business, bring clear business knowledge and ensure that the EBA efforts have credibility in the business. Depending on the size of your organization, there may be the opportunity to define two EBA teams. The first is a small, core team of people from diverse businesses and experiences (including business process analysts, HR/training and finance) within the scope areas. Regardless of formal reporting structures, the members of the core EBA should have a large percentage of their time allocated to this effort, and the team would meet on a regular basis. The second team is a larger virtual team that helps provide support, advice and reviews of the EBA efforts. In addition, members of this broader team will take on specific tasks in their domain expertise for a short period of time. This virtual team would meet on a less frequent basis (once a month) and would consist of people from diverse businesses with diverse skills.

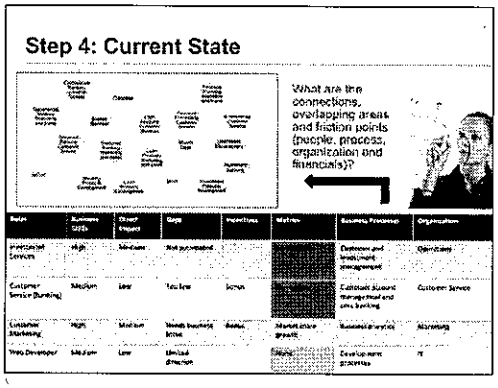
Tactical Guideline: Identify the future-state vision, and define the requirements, principles and models that can enable your business to move toward this future state (contextual, conceptual, logical and implementation levels).



Key Issue: EBA: How should organizations approach supporting EBA?

EBA efforts should be an integral part of an overall EA effort, which means that EBA should augment and leverage the common processes, artifacts and skills to support EA. If this is not the case, then the EBA team may lead some EA processes and create some artifact to support EBA goals. The first task is to assess the business and technology trends that may affect your business and extended business ecosystem. The EBA team also must identify at a high level the business architecture dimensions (people, organization, process and financials) that are required for the future state of the business domain (such as organizational key customer touchpoints in the example) that is being defined. This means understanding the: (1) cross-organizational processes — no more than three to five; (2) critical roles and competences of the people in these roles; (3) organizations — actual and loosely coupled social networks; and (4) major financial factors — budgets, investments and so on. Whereas your overall EA future state should represent a vision of where the enterprise wants to be, the EBA future state should represent where your business (processes, people, organization and financials) must be in the future to support the overall EA future state. The EBA team should identify the future-state vision for EBA in the context of your EA future state by leveraging common requirements, principles and models. If an overall EA future state is not defined, then the EBA team must lead an effort to define the future state for EBA.

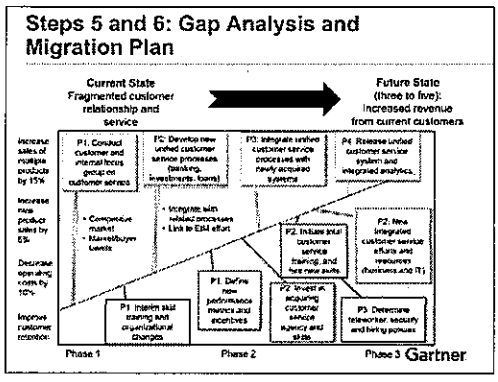
Tactical Guideline: Understand the state of your business dimensions in the scope of your EA and EBA effort.



Key Issue: EBA: How should organizations approach supporting EBA?

The fourth step in this process is to define the current state. Many organizations run into issues if they focus most of their time and effort on documenting the current state, which means that they never get to the development of a plan to the future state. The key is to leverage the domain leads to help provide current-state information (process models, organization structures, competency assessments, training plans, financial budgets and so on), which the EBA team would help guide and facilitate (such as "make the current-state architecture 'business as usual'"). Primary current-state efforts should include a current-state anchor model, current-state principles and current-state models. As with the future state, EBA team should start to model at high-level critical business dimensions (people, organization, financials and process) based on current-state requirements and principles. As with defining future-state models, a key goal of the modeling process is to identify critical intersections and friction points among processes, organizational issues, people requirements and financials. If we consider a conceptual process model of customer service in Bank XYZ, and a conceptual model of the people/roles that support customer service by understanding the links between these business capabilities and the people resources, then the EBA teams can begin to understand and address the gaps and opportunities.

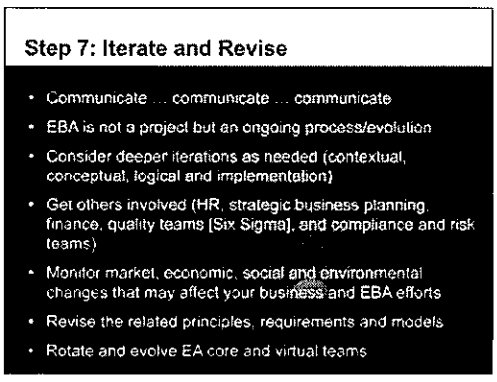
Strategic Initiative: The goal of defining a migration plan is to outline the specific project-oriented initiatives to be undertaken to close the gaps between the current- and future-state architectures.



Key Issue: EBA: How should organizations approach supporting EBA?

EA road maps can serve as valuable planning tools to help your organization define a clear process for moving from the current state to the future state. EBA road maps focus on business impacts and business dimensions, as well as on the relationship to other EA efforts. If we consider the Bank XYZ example, then a road map would include process changes (blue), people changes (red), financial changes (green) and organizational changes (orange). Although this example is simplistic and high-level, we have identified the following key issues in this chart: (1) the current-state to future-state goals and time frames; (2) the high-level performance metrics (far left) and a series of specific projects in each EBA dimension; and (3) links to other ETA and EIM efforts.

Out of this effort, EBA teams should clearly document and recommend changes to EBA dimensions (people, process, organization and financials); determine changes to related ETA, EIM and ESA architectures; identify adjustment decisions (organization changes, redefining projects and starting others); identify investment decisions (skills, people and technology); and identify the EBA dimensions that could be affected by changing internal and external factors (compliance, culture and politics, industry and region) — and develop scenarios for critical areas.



Key Issue: EBA: How should organizations approach supporting EBA?

Although it is important to define a scope and focus for a specific iteration, supporting EBA is not a project but an ongoing process. As the organization continues to evolve toward a future state, the EBA team should consider deeper iterations, as needed. In addition, business, market, economic, social and environmental changes may affect your EBA efforts. Therefore, principles, requirements and models should be revisited and revised regularly, based on the current-state and future-state visions.

Recommendations

- Don't confuse or combine business vision (business context) and operations (enterprise business architecture).
- Build collaboration across the business and IT by focusing on business value and outcomes (business capabilities).
- To unite the business and IT, leverage EBA to understand the ripple effect of people, process, organizational and financial changes on EIA, ETA and ESA — and vice versa.
- Drive, scope and evolve EBA efforts with a focus on the business vision and strategy (business context).

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- Separate and distinguish business context work from business architecture work.
- Engage people across EA, IT and the business in business context work. Consider leveraging partners, customers and suppliers.
- Apply the same business context to EBA as to other EA viewpoints — information, technology and solutions — to increase consistency and integration.
- Employ business capability modeling to explore scenarios, changes and events based on a business-driven view, rather than IT-focused.
- Leverage a broad EBA approach so that architects can go deeper into subfunctions, roles, processes, financial details and organizational structures with further iterations.
- Try different approaches, models, techniques and communication vehicles to engage the business.

Related Gartner Research

- → **Business Capabilities: Focusing EA on Business Outcomes** Betsy Burton, Brian Burke, Anne Lapkin (G00175660)
- → **Eight Business Capability Modeling Best Practices** Betsy Burton (G00175782)
- → **Case Study: Allstate Uses Enterprise Business Architecture to Connect Business and IT** Betsy Burton (G00169372)
- → **Avoid Damaging Key Business Capabilities When Cost Cutting** Dave Aron (G00166552)
- → **Six Best Practices for Enterprise Business Architecture** Betsy Burton (G00164812)
- → **'Business Context' and 'Business Architecture' Are Not the Same** Betsy Burton, Philip Allega, Anne Lapkin (G00170922)

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References

- "Conceptual Framework for Modeling Business Capabilities," by J. Brits, G. H. K. Botha and M. E. Herselman, proceedings of the 2007 Informing Science and IT Education Joint Conference
- "Reengineering: Business Change of Mythic Proportions?" by Donna Stoddard and Thomas Davenport, published in MIS Quarterly, June 1994
- "Managing Information Technology Investments Using a Real-Options Approach," by P. Balasubramanian, N. Kulatilaka and J. Storck, published in The Journal of Strategic Information Systems, March 2000
- Achieving and Sustaining Business-IT Alignment," by J. Luftman and T. Brier, published in California Management Review, 1999
- "Business Capability Modeling," by Leonard Greski, published in Architecture and Governance Magazine, 2009 (Volume 5, Issue 7)
- SAP Business Maps

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Infrastructure & Operations: Top 10 Trends to Watch

Gartner Symposium/ITxpo 2010

David Cappuccio

November 16-18, 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

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Gartner delivers the technology-related insight necessary for our clients to make the right decisions, every day.

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Did You Know?

1) 50% of 21 year olds have created content on the Web.
2) 70% of four year olds have used a computer.
3) Over 31 billion Google searches were performed last month vs. 2.6 billion three years ago.

Content access and management are the key enablers for IT.

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Trends You Need to Watch

1. Virtualization Is Just Beginning
2. Big Data — The Elephant in the Room
3. Energy Efficiency and Monitoring
4. Unified Communications — Extended
5. Staff Retention and Retraining
6. Social Networks — Ready or Not
7. Legacy Migrations — Your Users
8. Compute Density — Scale Vertically
9. Cloud Computing
10. Converged Fabrics

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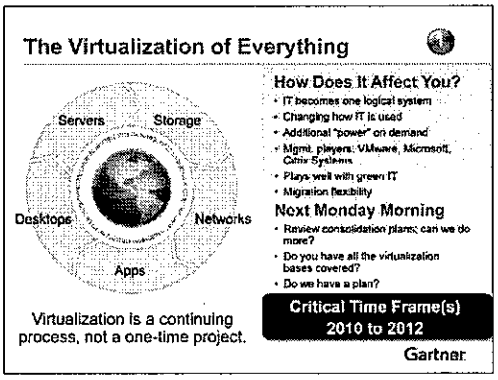
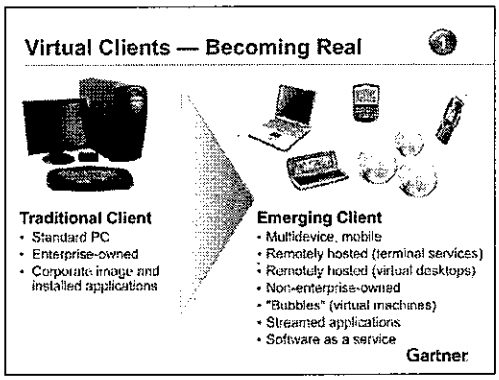


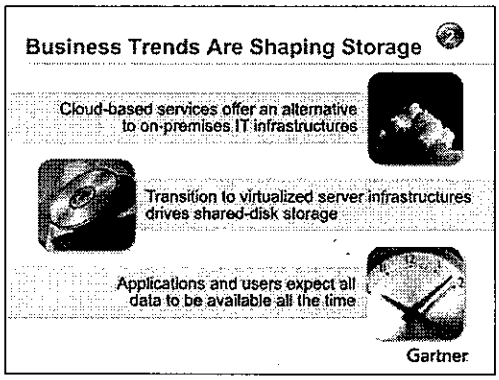
Strategic Planning Assumption: The number of virtualized PCs will grow from less than 5 million in 2007 to 660 million by 2011.



Key Issue: How will virtualization change technology?

The key technology for defining new rules for device "footprints" is virtualization — a decoupling technology that breaks the close ties between hardware and software. A standard PC installation consists of a stack of multiple layers, the most important being hardware, the OS and applications. Because of the way these layers interact, the configuration of each is tightly coupled with the configuration of the layer below. This is the cause of much of the management complexity of today's PCs, because hardware changes regularly, which has a geometric impact on everything above. Virtualization breaks these dependencies, so the installation of each layer is independent of the configuration of the layer below. On the PC, it occurs at two levels: between hardware and the OS (machine virtualization), and between the OS and applications (application virtualization). On the PC, the impact of virtualization is to decouple the main functional layers. Application virtualization is gaining considerable interest, because key market changes are taking place. This type of virtualization is highly valuable for dealing with current PC management challenges, but it cannot help in the personal vs. computing argument. And although more immediately accessible to you, its long-term impact will be far less significant than that of machine virtualization, which is the focus of this presentation. This is the technology that will really make personal computing more manageable, flexible and secure, by enabling users to define multiple isolated footprints on the same device.

There is a massive amount of content everywhere we look — and it all needs to be managed and stored (and archived). The default today is to keep everything, for fear of deleting the wrong thing.



Storage continues to grow at an incredible rate, averaging a CAGR of 50% to 60% in most enterprises, but the fundamental changes happening now are more about storage access than storage growth. The advent of cloud-based alternatives has forced companies to look again at where storage is located, and how storage should be viewed from the business perspective. Is data a critical asset that needs complete 24-hours-per-day, 7-days-per-week availability, with robust security and auditability? If so, traditional methods of maintaining storage infrastructures remain in place. If, however, some data is deemed not so critical, or not required for immediate access, then storing it on a less costly cloud platform might be a good solution, assuming service levels can be agreed. Virtualization is also driving changes in storage with the realization that a virtualized server has very few benefit if its workload is tied to a direct-attached storage device. But with network-attached or SAN storage, the number of possibilities for workload management, business continuity and disaster recovery planning become much greater. Also, the rapid growth of storage is causing a new look at energy consumption, or the amount of kilowatts per access (or gigabyte) consumed. This is opening up new conversations about the types of storage used, and how a multitiered approach might give greater capacities overall, while reducing energy consumption and floor space. And, lastly, with the proliferation of smartphones and the subsequent extension of work hours to "whenever needed," employees, partners and consumers have adopted an expectation of "always available" for any information (data) they need, wherever they are. These three factors are changing how we design, install, manage, configure and extend our storage infrastructures.

Big Data

- Five-year 800% growth
- 80% unstructured data
- Tiering critical to reduce costs
- Deduplication becoming standard
- Audit, archive and recovery increasingly complex
- Solid-state drives

How Does It Affect You?

- Growth continues — regardless of budget constraints
- Pattern-Based Strategy — how will you manage?
- Demand-driven — more access creates more data — this will get worse
- Compliance, backup, audit, security
- Flash and SSDs will shift the landscape

Next Monday Morning

- Virtualize storage, deduplication now
- Evaluate all data inputs, keep only what you need
- Segment and prioritize

Critical Time Frame(s)
2010 to 2013

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Did You Know?

1) Data centers can **consume 40x** more energy than the offices they support.

2) Energy Star Data Center standards were **announced** in June 2010.

3) Monitoring and reporting on energy consumption **will be expected** by 2012.

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A little FUD from the EPA. Energy Star was announced in June 2010 for data centers. NetApp was the first vendor (public company) to be certified, with a 99 out of 100 rating. Most public companies with CSR programs will likely begin to follow — with continued escalation as peer pressure mounts.

As the trend toward consolidation and higher densities continues, companies are beginning to take a closer look at energy consumption relative to compute capacities. Historically, this didn't happen because the energy costs were usually buried in the facilities budget, combined with all other building systems, whether IT-related or not. However, with the increased attention given to power consumption, it has become apparent that many systems are highly underutilized. At low utilization levels, they use a high percentage of their total energy draw.

An average x86 server that is turned on, but idle, will draw upward of 65% of its name plate wattage, so if an IT organization doesn't have a clear inventory of what compute resources are doing what workloads, there is the potential for significant waste of energy. If that idle server were to have a 50% workload applied to it (via virtualization as an example), the incremental energy draw to move from 1% to 50% would be 10% or less, netting a significant improvement in compute power per watt than before. While this may seem inconsequential at the single device level, if applied across hundreds or thousands of servers, the savings can be dramatic.

Energy and Green IT

- EPA and EU are getting involved
- Forced review of IT efficiency
- Intersection between facilities and IT
- The power issue is moving up the food chain
- Corporate social responsibility tightly linked
- Consumption becoming as critical as performance
- New construction and retrofits focus on efficiency and reuse

How Does It Affect You?

- Increased awareness/focus on power
- Compute-to-consumption ratios critical
- EU or EPA metrics are coming
- New KPIs based on efficiency

Next Monday Morning

- Begin evaluation of PUE and/or PPE
- Begin continuous improvement planning
- Begin evaluating DCIM vendors
- Focus on consumption, rather than technologies

Critical Time Frame(s)
2011 to 2012

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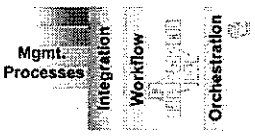
Automation and Monitoring

ITIL and Process Improvement



How Does It Affect You?

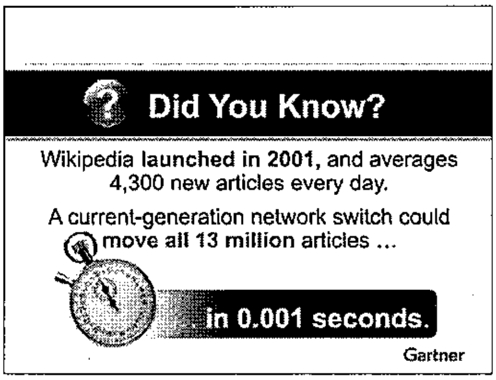
- Critical key success factor!
- Reduce amount of effort expended by IT professionals on the day-to-day routine aspects of I&O
- Principally an "O" issue; "The Human Use of Human Beings"

Next Monday Morning

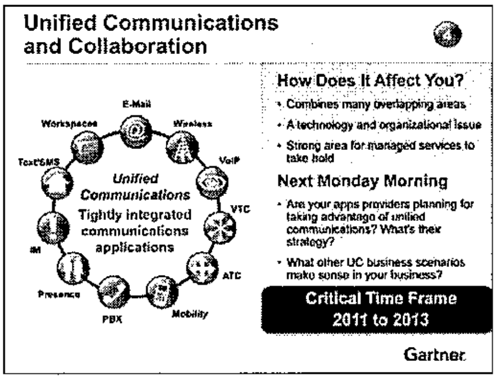
- Where are you with ITIL? CMDB?
- Review Gartner's automation framework

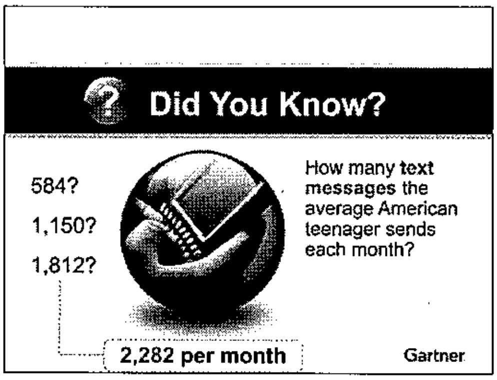
Critical Time Frame(s)
ITIL and CMDB: Now
RBA: 2012

Gartner



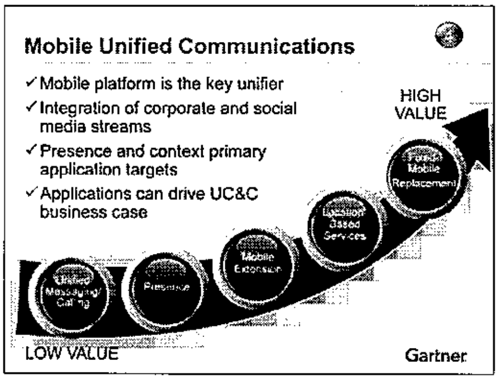
IT is reacting to the massive growth, and technology continues to keep pace. But will organizations and process do the same? The stat above is based on throughput of a Cisco Nexus 7000 switch.





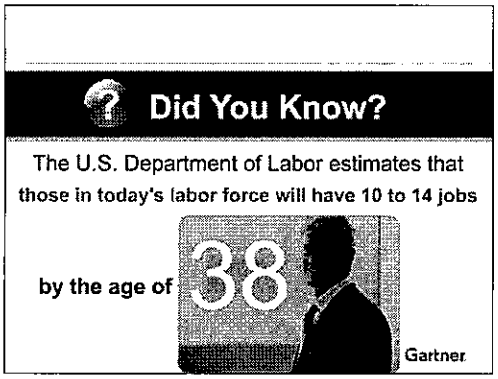
Ninety-five percent of communications for 18 to 25 year olds is via text. What are they saying? And what will IT do about it?

Strategic Imperative: Create a business plan that promotes the adoption and use of MUC technology aligned with the benefits of IT and support of corporate initiatives.

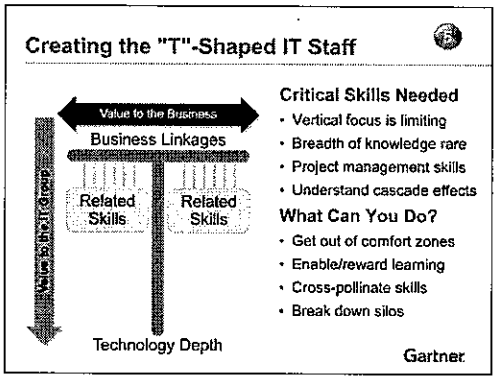


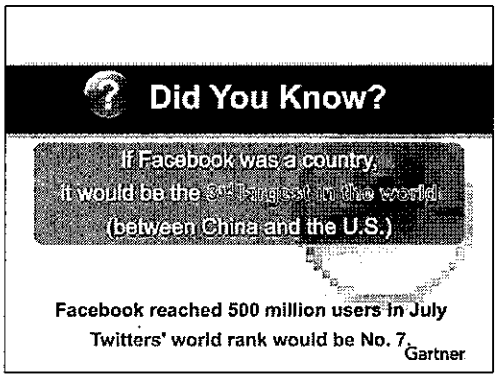
Mobility has always been a tough business case to make. It has a lot in common with UC. Most companies believe both are "a nice to have," and realize there is value to adopting them, but have a hard time quantifying the benefits or making a business case. By combining mobility and UC under mobile UC (MUC), there is a greater opportunity to define a business case and measure demand. Mobility can drive the business case for UC in the enterprise by providing clear benefits, namely incorporating mobile devices into the enterprise. Financial benefits will vary depending on the type of implementation, the type of mobility and the calling used. Adding capabilities such as presence can start to add value. Extending desktop phone capabilities to mobile phones increases that value, and advanced features such as location-based and context-aware services continue to move it up the scale. These capabilities can help save money, as well as increase productivity. In the end, the greatest impact will come from full fixed-mobile replacement, which will help consolidate devices and services, as well as offer least-cost routing and connection to private networks to help reduce cellular calling costs.

Action Item: Identify which mobile requirements can help drive your business case. Identify key mobility constituents and develop a strategy for MUC support based on critical mobile communications needs.

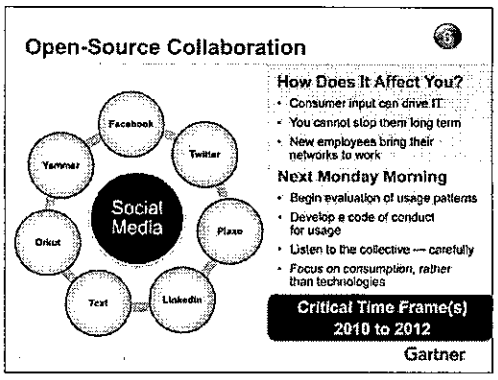


How do we motivate new employees? How to create loyalty to the company (or just to the job).

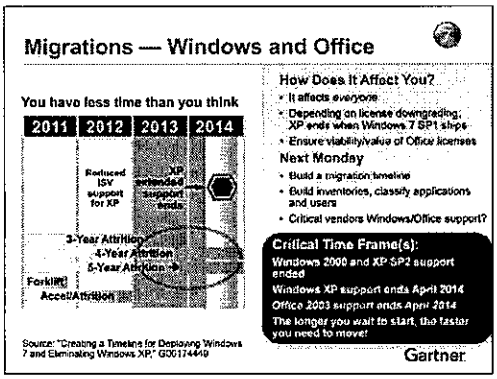




Social networking is a force that continues to grow. Its impact on society will have a direct impact on business. Facebook and Twitter now get more daily searches than Google.



Strategic Planning Assumption: Plan to be off Windows XP by YE12 to avoid ISV support issues.



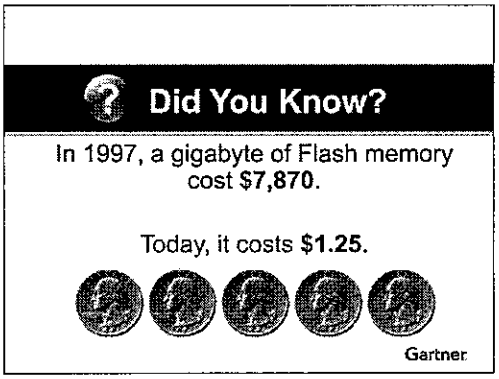
Key Issue: How long can you run your current software and what are your options, including ones from vendors other than Microsoft?

Microsoft will support Windows XP with security fixes (the support deadline that worries most organizations) to April 2014. However, past experience has shown that ISVs will stop testing new versions of their software on Windows XP as early as 2010, and this will be a common problem by 2012. That means that new releases of critical business software may require Windows Vista or Windows 7 long before Microsoft support for Windows XP ends.

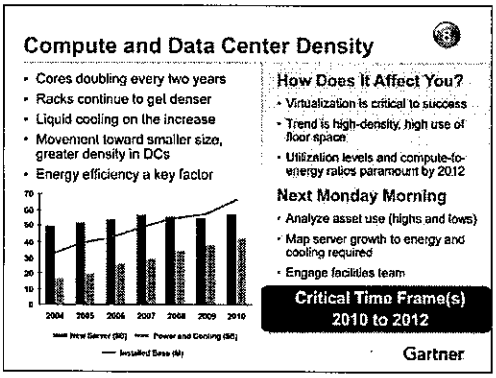
Therefore, to be conservative, we would suggest that organizations plan to have all their users off Windows XP by YE12. This provides two benefits: (1) it ensures that new versions of critical business applications will run on most users' PCs by 2012 and 2013; and (2) if you run late with your project and don't make your YE12 goal, you have a buffer of 15 months of continued security patches for Windows XP. Organizations that require extended support from Microsoft to get security patches beyond April 2014 will likely have to pay a minimum of $200,000 for the first year of custom support, money which would be better spent moving off Windows XP and onto Windows 7.

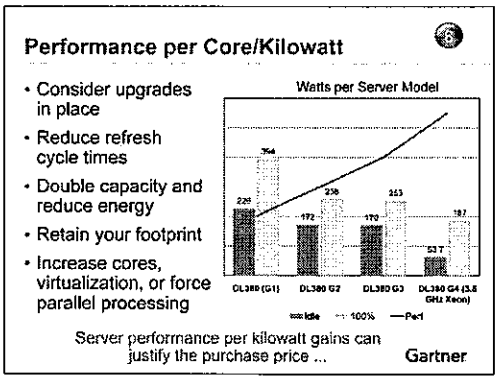
Because most organizations will not be able to begin a migration to Windows 7 before early 2011, that provides two calendar years (2011 and 2012) to do the migration.

Action Item: If you have not done work on Windows Vista by now, you're skipping it. Start your Windows 7 work to get XP out by YE12.



SSD and NAND technology will continue to be the driver of performance, capacity and energy efficiency gains across the IT spectrum.



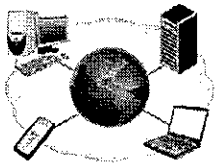


Server power consumption is dropping, and power efficiencies are increasing. Today's Nehalem processors, at full load, consume less energy than a five-year-old server at idle — with 10 times the performance.

Traditional asset life cycles for servers have averaged between four and five years, with many companies keeping older servers around even longer for use in less mission-critical (or compute-intensive) environments. While this was often done to reduce capital costs in replacements, the cure was often worse than the disease, as the energy consumption of these older servers was significantly more than newer ones. One alternative view to this type of asset life cycle management is to look at Moore's Law and apply it to upgrades in place. As with all technology changes though, there are often hidden cascade effects. In the case of increasing processor and core density, the question that needs answering is, "How best to use them?" While some enterprises will continue the virtualization push, others are beginning to realize that business-critical applications designed for x86 may need to be rewritten to take advantage of four-core (and greater) systems. This will reintroduce the concepts of parallel processing and parallel development methodologies into the AD teams, while creating its own series of cascade effects across the IT group. The requirements of parallel processing in applications will drive significant change with IT development teams, both from a skills perspective and core methodologies. Senior staff may not be able to adapt as quickly as needed, which will force a new look at acquiring outside talent to augment the staff.

Cloud Computing

- Where do I compute?
- Who do I trust?
- Stabilize service levels
- Shrinking data centers
- Commodity services



How Does It Affect You?

- Common services are available now — may reduce operating expenses
- Private clouds improve agility and will dominate
- Reassess critical compute requirements
- Ignore the hype — focus on results

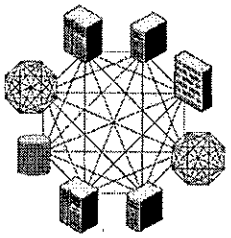
Next Monday Morning

- Evaluate commodity services you provide and what can move to the cloud
- Evaluate cloud delivery model for internal use
- Categorize applications/services based on SLAs and risk before proceeding

Critical Time Frame(s)
2010 to 2013

Gartner

Fabric Computing or Infrastructure Convergence



How Does It Affect You?

- The end of "silos"?
- Completely different approach to data center design
- *Highly scalable via* resource pools

Next Monday Morning

- Assess; be ready when vendors come knocking on your door
- Develop long-term data center strategy; think "hybrid"

Critical Time Frame(s)
2012 to 2014

Gartner

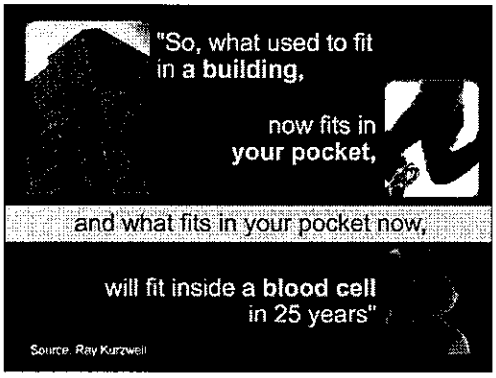
Did You Know?

The computer in your cell phone today
is a **million times** cheaper,
and a **thousand times** more powerful,
and about a **hundred thousand** times smaller

than the **one computer installed at MIT**
in 1965

Gartner

The message is clear — what we've seen, which has been pretty incredible, is nothing like we will see in the next generation.



The message is that although IT continues to change at an ever-increasing rate — and I&O will have to deal with it — the pace will continue to escalate and we all need to get ready for it, from an infrastructure, process and organizational perspective.

Recommendations

- ✓ Take virtualization to the next level — focused on all facets of IT.
- ✓ Scale vertically first, horizontally second. The new KPI will be about compute per kilowatt.
- ✓ Staff skill sets will reach a crisis point if not addressed soon. Look again at incentives and motivational techniques.
- ✓ Social networks will be an impact on all enterprises — get ready for it.
- ✓ Fabric-based systems are the future — eventually.

Gartner

Your Action Plan

CIOs and enterprise architects should ...

- **Monday Morning**
  - *Assess* all projects and their relationships — look horizontally.
  - *Prioritize* based on risk, reward and long-term impact.
- **Next 90 Days**
  - Look again at capacity planning — without presumptions.
  - Assess *staff skills* based on breadth of knowledge and value to the business, not just value to IT.
- **Next 12 Months**
  - *Review* opportunities to converge networks, infrastructures and skill sets.
  - *Establish* impact on other business plans.

Gartner

Related Gartner Research

"Microsoft's Desktop Virtualization Strategy Is Becoming Clearer"
Mark A. Margevicius (G00175894)

"Understanding 'Client in the Cloud'"
Stephen Kleynhans (G00174116)

"IT Infrastructure and Operations Key Initiatives, 2010 and 2011"
Jay E. Pultz (G00174909)

"Grow Disk Storage 800% or More, Without Increasing Power or Cooling Costs, in the Same Space"
Dave Cappuccio (G00175118)

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Implementing Lean in IT

Gartner Symposium/ITxpo 2010

Andrew Rowsell-Jones

November 16-18, 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

Gartner

CIOs Are Using Lean to Reduce Waste

Lean is a powerful, proven and effective way to create and sustain a continuously improving enterprise, and it is gaining currency with CIOs.

The challenge facing IT leaders is knowing where to start and how far to go.

Gartner

Lean is gaining currency with CIOs as a powerful, proven and effective way to create and sustain a continuously improving enterprise. In short, lean works, and CIOs are proving it. Though few IT organizations will go all the way to transformational lean, there is little reason not to try focused lean.

"Lean thinking may be simple, but it is not easy. You need the capability to abstract and see things in a particular kind of way. Everybody can do it, but not everybody does."

— Clifford Burroughs Head of Lean and CIO United Biscuits

Aggreko: Transforming Service Delivery With Lean

aggreko

"For this" Renaissance CIO, lean ... will become the stock in trade."

— Tom Armstrong, CIO

- Founded in 1962
- Headquartered in the U.K.
- Global leader in the rental of power generation and temperature control equipment
- 133 locations in 100 countries
- In 2008, revenue was £946.6 million ($1.5 billion)

- **Uses lean to drive continuous improvement:**
  - To reap full benefits of recent worldwide infrastructure replacement, Aggreko adopted lean-based continuous improvement.
  - Reworked lean to fit a service company.
- **Lean is now essential for the Renaissance CIO:**
  - Lean is now a learning-to-see journey, showing managers and staff where inefficiences hide.
  - "As IT's technology components become utilities lean ... is essential if IT is to have greater business orientation."

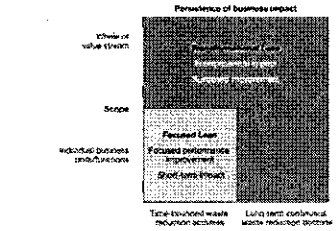
Based on an interview with, and lectures from Tom Armstrong, CIO, Aggreko, November 2008

Gartner

Aggreko is a global leader in the rental of power generation and temperature control equipment. Founded in 1962 and headquartered in the U.K., Aggreko has 133 locations in 100 countries and 2,200 employees. In 2008, revenue was £946.6 million ($1.5 billion).

To reap the full benefits of a recent worldwide infrastructure system replacement, Tom Armstrong is adapting continuous improvement methods that sharpen business processes. "As a service business in a new era," says Armstrong, "our challenge is to take the thinking that came out of manufacturing 20 or 30 years ago and make it relevant." He is using lean as the center of this: "Orange Excellence" is Aggreko's worldwide operational excellence program ("orange" signifies the company brand), which applies key lean and Six Sigma principles without labeling them as such to avoid evoking an image of manufacturing-dominated thinking. "We talk instead about continuous improvement methods," Armstrong says. "We throw out the baby — the terms lean and Six Sigma — and keep the bathwater: the tools and techniques."

Lean Can Be Implemented as "Transformational Lean" or "Focused Lean"



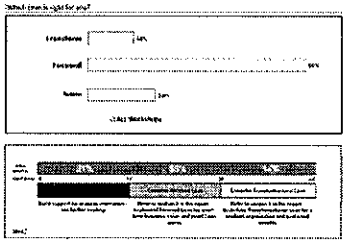
Gartner

Lean works well in service organizations.

All service organizations have processes, and most processes can be improved by eliminating waste. Lean is being applied successfully in both the private and public sectors, and across a variety of industries. Its principles also translate to the IT organization. As the figure above shows, the eight areas of waste found in a lean manufacturing environment have IT equivalents.

In manufacturing, for example, too much waiting leads to delays in the production process. The IT equivalents of these delays are hand-offs from one party to another. Similarly, product or service quality defects in manufacturing equate to such things in IT as software functional defects, operational service quality defects or information accuracy defects.

Most Enterprises Are Considering Focused Lean



Gartner

Results based on respondents attending a series of lean IT workshops, EMEA, April/May 2010 around Europe (where 47 responses where collected) the overwhelming conclusion is that, for most IT leaders, lean is a tool that can be used — at least initially — as to address performance issues in a limited context and in the short term.

Only a small minority are viewing lean as the basis of a business transformation.

Focused Lean Is Implemented in Six Stages

1. Create the organizational foundations for focused lean.
2. Understand how your customers perceive value.
3. Set up the flow from start to finish.
4. Produce only what is "pulled" by customers.
5. Remove waste from your value streams.
6. Prevent backsliding.

Gartner

Implement focused lean using a six-stage process.

Focused lean applies tools and techniques to solve specific problems. It is more likely to tackle a value stream's parts, rather than the whole. For example, the focus of an order-to-cash value stream might be on delivery and invoicing, as opposed to the end-to-end process. Focused lean should be implemented using the six-stage process shown above.

1. Creating the Organizational Foundations for Focused Lean at a large CPG/Retailer

"Once we had some successes with lean it caught on, and we were be able to drive it forward across the whole of IT."

— CTO & VP Global Shared Services

- U.S.-based global enterprise
- FY09 revenue range $5 billion to $10 billion
- Operates in 100-plus countries

- **First attempt at lean failed, so a new approach was needed:**
  - Lean 1.0 used top-down approach, killed by passive resistance.
  - Lean 2.0 used bottom-up viral approach that "got people doing lean before they realized that was what they were doing lean."
  - You also need "crazy people to champion lean adoption."
- **Lean, for us, is a means of optimizing our use of resources:**
  - Metrics from the six focal (ITIL) processes showed 10% to 20% step improvements in key metrics.
  - But what they are most proud of is less tangible: "When you start hearing, 'I think I can make this faster, leaner,' it is exciting."

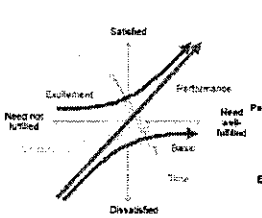
Based on interviews with, and statistical facts, CTO & VP Global Shared Services, Large CPG/Retailer Corp, November 2009

Gartner

A large CPG/retailer corporation initiated a corporate lean program, having successfully used lean approaches in its quality and cleanliness manufacturing programs. However, the top-down approach met with passive resistance, and failed to take hold. The CTO and VP of Global Shared Services took a different approach to institutionalize lean using a viral method driven by "crazy people." To overcome the earlier problems, the CTO & VP Global Shared Services took a viral approach to introduce lean concepts. This Lean 2.0 approach is designed to address the passive resistance by getting people doing lean before they realized that was what they were doing. It relies on finding some willing participants, champions, to create some early successes. Find the crazy people and make them lean champions. Their strategy involved identifying the "crazy people" (alluding to Tom Peter's notion of the crazies that drive projects to success) that would champion lean and drive its adoption. They felt that it was more important to have good leaders than process experts as people get excited about the crazy guys trying to make something successful. "Once we have some successes, lean should then catch on and we will be able to drive it forward across the whole of IT." Results: The large CPG/retailer reaped positive results even from the initial, ill-fated lean initiative. In that initiative, the metrics from the seven focal processes showed 10% to 20% step reductions. "Even though that program is defunct and the results may appear minor, they are still positive results and we are proud of them." What they are most proud of, however, are the less-tangible, but more important and powerful results of the new, viral program evidenced in the organizational language change. "The biggest improvement I see is the language of our employees. In small pieces, they are beginning to use the language of lean. When you start hearing, 'I think I can make this faster, leaner,' it is exciting because that is the real benefit. The six ITIL processes chosen were system development life cycle, change control/management, release management, testing quality, supplier management and incident response.

2. Understand How Value Is Perceived by Your Customers

Example: Use the Kano model to classify customers' wants into three categories:



	Description
Basic *	Assumed to be in place and taken for granted.
Performance *	Desired, but not expected to be fully in place.
Excitement *	Customers do not expect them (and often can't articulate them).

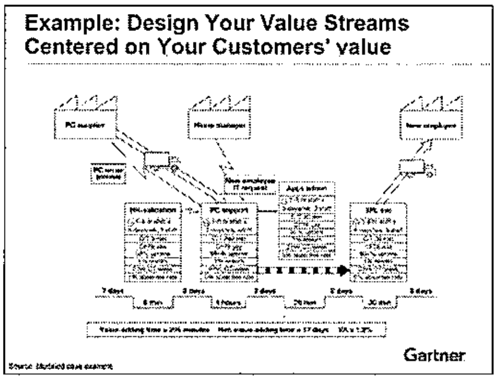
* More formally referred to as dissatisfiers, satisfiers and delighters

Gartner

Lean focuses on value streams — the ways in which customer value is created.

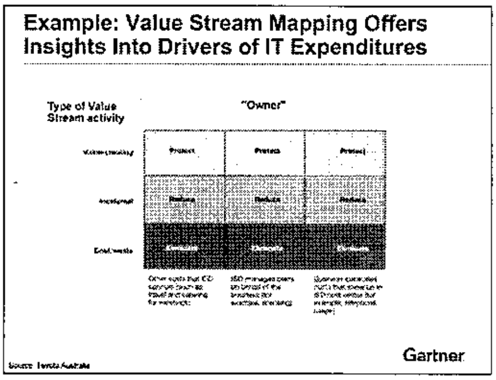
Lean is characterized by an intense focus on clearly understanding how customers perceive value. The business then focuses on improving the way value is created, as well as trying to improve the value delivered to the customer. Value is created through end-to-end value streams. Value streams cross functional and organizational boundaries, and even include the "consumption" of the product or service by the customer. "The focus in lean thinking is to continuously eliminate waste from the enterprise's *complete value stream*, waste that would otherwise drain resources away from creating value for the customer," say academics Cunningham and Jones, and the authors of "Easier, Simpler, Faster" Productivity Press, New York. 2007.

One way of identifying value, as shown above, is the Kano model, developed in the 1980s by professor Noriaki Kano, classifies customer preferences into three broad types: basic, performance and excitement. Failure to understand value from the customer's perspective, despite having great processes, risks delivering the wrong product or service.



The figure shows a simplified value stream map for new employee IT provisioning (the values noted are for illustrative purposes only). A value stream is a way of representing a set of activities within a business required to create value for a customer, and value stream mapping is the process of creating such a map.

These maps are useful because they show how a process really works, its throughput, resource consumption and so on — all data that is invaluable in the hunt for waste to be eliminated.



Toyota Australia's Waste Busters initiative was a series of initiatives aimed at reducing IT expenditures. To start, they examined every line item in the division and placed every budget item within the categories. This provided a clear picture of the opportunities to reduce waste and the things they were willing to give up and those they needed to fight to keep. According to a company representative, "Waste Busters allowed us to identify and then knock out all the big-ticket waste items, allowing us to identify the things that we could do now and the things we could do in future." To further inform their discussions during budgeting, they created a visualization of a value stream analysis of the Information System Division (ISD) costs, as depicted in the figure.

3. Set Up Flow From Start to Finish

Principle
- Structure value streams so that they flow smoothly, without delays, interruptions, or wasted effort.

Process
- Smooth and speed up the flow of value, for example:
  - Remove clutter (electronic and physical).
  - Arrange all necessary skills on same team (customer understanding, domain knowledge, architecture, etc.).
  - Automate testing.

Outcome
- Fewer hand-offs and quicker delivery reduce errors and rework, and enhance efficiency and customer satisfaction.

For example: Five Ss — a good way to make things flow better

	5S Principle
Sort	Eliminate unused materials and tools.
Straighten	Organize the items that remain.
Shine	Establish a routine for cleanliness.
Standardize	Ingrain best practices.
Sustain	Revisit regularly the first four Ss.

Gartner

Flow Cleanly

When something moves from Point A to B, it can move smoothly, or it can bump along, stop, start, stop and start again. Flow smoothly, and you tend to get a better outcome at a lower cost. Flow is where something moves continuously from beginning to end, without being delayed in queues or accumulated and processed in batches. In the case of a manufactured item, there is a flow from concept to raw material to finished goods to delivery to the final customer. Achieving continuous flow for IT means reducing hand-offs, data rekeying, delays and batch processing. In addition, for application development, it means running projects from beginning to end, with the same people dedicated throughout (and not being diverted every five minutes to other tasks). One way to achieve this is to reduce the size of the delivered system, essentially breaking it down into subcomponents, each of which can be delivered quickly and providing incremental business value. For example, a much larger application that might take a couple of years to implement if managed via a waterfall project methodology (requirements, design, development, integration, test, implementation), might be implemented instead as a series of "90-day sprint" modules, each of which delivers incremental value from a business case perspective. The consequence is that the development team has a continuous stream of small projects. Shorter projects have much less chance of "going wrong," can be quickly brought "back on track," and help maintain momentum by delivering incremental value.

Denver Health: Leverages Lean for a Breakthrough in Enterprise Patient Scheduling Implementation

DENVER HEALTH
Level One Care for ALL

"I'm not sure people will really believe it."

— Gregg Veltri, CIO Information Services and Health Information Management (HIM)

- Large, U.S. integrated-delivery system
- Colorado's primary "safety net" health system, delivering services to 25% of all Denver residents
- 5 000 employees.

- **Needed a way to expedite value and reduce the cost of new patient-scheduling system:**
  - Patient scheduling core to DH
  - Slow/expensive cutover would negatively impact patients and budget
- **Combined solid project management with lean for faster, less-expensive delivery:**
  - 30 clinical, nonclinical and IT staff in lean rapid-improvement events
  - Results:
    - Combined cost and revenue benefits > $11 million
      - Budget duration: From 16 months in budget to eight actual, consulting costs from 1,400 hours in budget to 900 actual, go-live support costs from two to three weeks in budget to one week actual

As a safety-net provider, DH has little in the way of discretionary funds. Despite this constraint, DH is making major IT investments targeted at improving patient safety and quality, as well as administrative processes. In 2007, the organization decided to move ahead with an enterprise scheduling system (ESS), and computer-based patient record and revenue cycle management applications, selecting the Soarian product line from Siemens Medical.

With such a large-scale endeavor, DH brought in an outside firm for overall program assistance. This left the IT department responsible for project planning and execution for each specific application set. The enterprise first implemented Soarian HIM, and the project went well. However, with so much work to come, the CIO sought new methods to speed up the time to impact and reduce the implementation cost of these important projects.

DH wanted to use the new system to create an ideal way to schedule patients across the organization, eliminating waste and improving five critical areas: Decreased rework and defects (patient frustration and denied claims), improved first-pass yield on claims (getting paid the first time), a better experience for the patient (for example, kept appointments and coordination of care), better utilization of staff, and increased patient/staff/physician satisfaction.

4. Produce Only What Is "Pulled" by Customers

"Moving IT to a more iterative approach, that delivers an 80% solution today and refines that solution by another 80% tomorrow, can be challenging for IT that feels it has only one chance to design the perfect mousetrap."

CIO Clifford Burroughs, of United Biscuits

Principle
- Shrink inventory (work in queue)
- Deliver fast (in small batches)
- Defer commitment as late as possible

Process
- Break larger projects into multiple smaller projects
- Adopt continuous testing, continuous integration, continuous release

Outcome
- Quicker delivery, reduced schedule variance, customer satisfaction

Gartner

Pull: Make Only Things for Which There Is Demand

Another source of waste is so pervasive that most people don't even notice it — making stuff simply because there is idle capacity that needs to be kept busy. There is great temptation to keep people and machines running at "full capacity" — trying to achieve "economies of scale." In manufacturing, this approach creates large "buffer stocks," fills up warehouses and ties up working capital in inventory. The IT equivalents of these same problems exist in queuing and batching of work, doing projects that can't be justified, making changes that are unnecessary, or overproducing information (as in putting data into a data warehouse "just in case" it might later be needed).

The lean approach drives the production process by way of "pull" from the customer — produce only what customers have asked for and do it quickly, with "just-in-time" techniques. By way of a simple example, consider PC provisioning. In a truly lean environment, no PCs would be held in stock. Instead, they would be provisioned via an effective and highly automated process. When a PC was required, it would be delivered just in time (with just the right software preinstalled) by an upstream supplier, rather than from inventory. To be able to run an effective lean process, it is necessary to architect capability and flow of work so that the rate of arrival of requests is equal to the rate at which the work can be done.

Ashley Furniture Industries: Using a Pull Strategy in Application Development Paid Dividends

"There are many opportunities to apply lean to IT itself, starting with the basics."

— Bob White, CIO

- Founded 1945, headquartered in Arcadia, Wisconsin
- Privately owned, home furniture manufacturing and distributing company
- 3 million square feet of facilities, 400 stores in the U.S., Canada, Mexico, Central America and Japan

Based on an interview with, and material from, Bob White, CIO, Ashley Furniture, October, 2009

- **Lean implementation starts by establishing rules to guide behaviors.**
  - Trained key individuals in lean
  - Leveraged lean-experienced people from elsewhere (e.g., manufacturing) to help
  - Identified performance strengths and weaknesses, defined targets and tightly measure improvement
- **Lean helped IT deliver value faster.**
  - Speeded up cadence of delivery to a series of three-week sprints — a "pull strategy"
  - Improved business process efficiency faster
  - Lean changed business's perception of IT from cost center to a business partner

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Ashley Furniture Industries, Inc. is a privately owned, home furniture manufacturing and distributing company.

Bob White started IT's journey to lean very carefully and simply. To help introduce lean practices into IT, he involved experienced people from manufacturing and warehousing.

The idea of delivering in three week sprints also caught on quickly. Producing a requirements road map enables IT to produce incremental releases every three weeks that are easy to manage and digest and adopt by the business, and that provide quick successes. To further ensure success, each sprint has a built-in training capability, and is subject to QA and user acceptance testing.

One of the first big business successes was a warehouse management system IT developed in partnership with the warehouse organization. They reduced the number of people required to manage the warehouse and to move product almost to a lights-out level. The inventory loss reduction effort resulted in numbers well below the industry average.

"The benefits of lean within IT are that we see the value we are delivering to the business. However, the real benefit is when the organization views us as true partners capable of helping them realize their vision and delivering true value. In this sense, lean tools change business' perception of IT from a black hole and cost center to a business value partner."

"When you start to see benefits in the first few weeks of adopting lean, then that should be reward enough. I think over time this snow ball will grow, and momentum will be gained as people start seeing the benefits of this program.

Based on an interview with, and material from, Bob White, CIO, Ashley Furniture, October, 2009.

5. Remove Eight Deadly Wastes From Your Value Streams

Waste	Hardware/ancillary supplies	Software or e-services	Workflow or processes
Overproduction	Extra copies	[illegible]	[illegible]
Unnecessary waiting	[illegible]	Batch processing	[illegible]
Unnecessary transportation	[illegible]	[illegible]	[illegible]
Overprocessing	[illegible]	[illegible]	[illegible]
Unnecessary inventory	[illegible]	[illegible]	[illegible]
Unnecessary movement	[illegible]	[illegible]	[illegible]
Too many defects	[illegible]	[illegible]	[illegible]
Underutilized resources	[illegible]	[illegible]	[illegible]

Source: [illegible]

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Find Then Eliminate Waste

Before eliminating waste, you must identify it. This is surprisingly difficult, partly because many work practices, enterprise cultures and organizational structures inadvertently hide waste.

Commonly, process operators and managers are brought together to eliminate waste by conducting fact-based reviews of their processes. This approach is most effective if the attendees come from as wide a base as possible. The list of eight deadly wastes provides a good starting point for analysis.

6. Prevent Backsliding

Step	Description
Continue your public support for lean.	Review lean results as part of a routine IT management review.
Tie rewards to lean outcomes.	Pay for results tied to achieving lean goals.
Retain and re-energize lean champions.	Keep the lean champions you appointed to help establish lean, and find new ways to incentivize them to keep driving lean initiatives.
Maintain (external) support for lean efforts.	Keep bringing in expert practitioners to help identify waste and keep everyone focused on being lean.
Continue and extend training in lean tools and techniques.	Once an organization becomes familiar with lean techniques, it can advance with new tools for added benefits, ongoing training re-energizes existing skills, and develops new ones.

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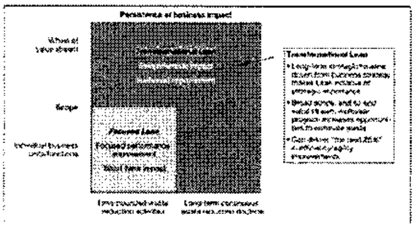
Because focused lean emphasizes tools and techniques, rather than a deeply ingrained culture of lean, backsliding that undoes lean benefits is a real danger. To prevent backsliding, take the steps outlined in the figure.

Tactical Guideline: Each e-opportunity category has different characteristics, and these have implications for governance, management, resourcing and leadership.

For Those Targeting Transformational Lean Approach as a Major Cultural Change Program



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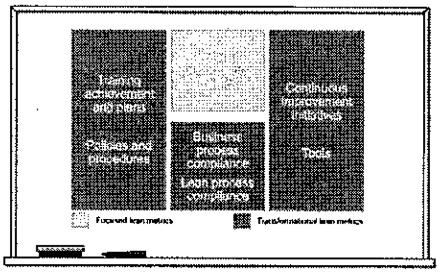
Transformational Lean Can Deliver a 25% Improvement

Enterprises looking for transformational change and a sustainable culture of continuous improvement must look beyond focused lean. Case studies suggest that transformational lean's enterprisewide, end-to-end view of value streams can improve critical business areas, such as cycle time, efficiencies and customer satisfaction, by 25% or more (see the figure above). Compared with focused lean, transformational lean requires substantially more commitment from every level of the organization and a much deeper investigation of waste.

Expand Metrics to Measure the Right Things



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Expand Measurement

Measuring the right things in the end-to-end value stream — cost, quality, cycle time, productivity, etc.— is essential to successful transformational lean. Keep in mind that the relevance of any performance framework chosen for a lean initiative may diminish as enterprise needs and business environments change.

The figure illustrates how the scope of measurement for transformational lean is greater than focused lean, factoring in process and training metrics, in addition to metrics aimed at gauging outcomes of the process. In transformation lean, how you got the right answer (because it points to repeatability and creates a platform for continuous improvement) is as important as the outcomes of the process itself.

Expand the Transformational Lean Initiative as the Organization Matures

	[illegible]	Intermediate	Advanced
Tools and techniques	• 5 S • [illegible] • 5 steps • Root cause analysis • [illegible] • [illegible] • ...	• Value stream mapping • Six Sigma • Control charts •	• [illegible] • [illegible] • [illegible] •
Performance tracking	• Measure outcomes of lean activities	• Measure value stream performance	• Measure value stream improvements
Accounting	• [illegible]	• [illegible]	• "Beyond Budgeting" [illegible]
Rewards	• [illegible]	• Team-based measures • [illegible]	• Team-based measures • [illegible]

[illegible]

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Transformational lean is often referred to as a long journey. Indeed, it can take years to implement —estimates range from five years to more than 20. As an enterprise matures with lean, management and staff become more comfortable with lean tools and techniques. Mature organizations benefit from tailored performance tracking and accounting and reward systems, which instill even more lean behaviors and values, until one day lean thinking becomes almost instinctive. The figure outlines lean maturity levels, each lasting for at least 18 months, and shows how the more visible elements of transformational lean change as an enterprise matures.

Recommendation: Pilot Lean in Your IT Organization

- Monday Morning
  - Familiarize yourself with lean and its uses within IT, and use the self-assessment tool to gauge which lean is right for you: focused lean or transformational lean?
- Next Month
  - Identify a target process or value stream, and begin to create organizational foundations for lean.
  - Begin implementing your lean pilot.
- Next Year
  - Based on your early experiences with applying lean, begin to expand its application and the breadth of tools being deployed.

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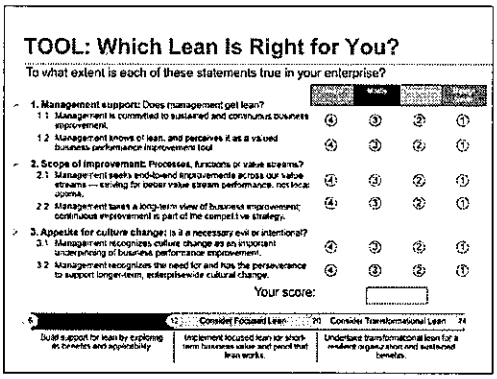
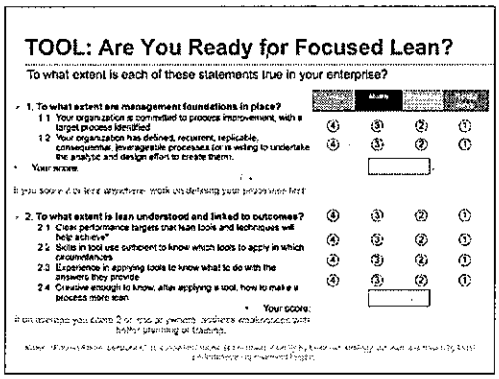


This self-assessment tool allows CIOs to gauge their readiness for focused lean or transformational lean — or determine whether their organizations need to become more process-oriented before undertaking a lean initiative. Decide the extent to which each statement applies in your enterprise, tally your points and assess your results.

If you scored between six and 12, either support for lean, or support for the cultural changes needed to implement lean, is weak or absent. Based on lean's waste reduction benefits (and its applicability to a wide variety of organizations and types of value stream), discuss with lean's potential stakeholder group ("management" in the questions above) whether lean could be applied, and if so, what benefits might be expected from it. Convincing stakeholders to support lean plays an important part in improving this low score.

If you scored between 12 and 20, a focused lean initiative would be a good starting point, because it would prove that lean would work in your enterprise. Furthermore, this approach would create a platform for a future move to transformational lean.

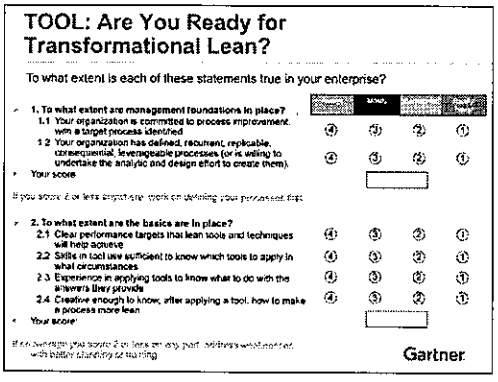
If you scored 20 or above, your processes, management support and appetite for cultural change would seem to be sufficient to consider a transformational lean initiative.



This self-assessment tool will help CIOs gauge their readiness for a focused lean initiative. Use Part 1 of the questionnaire to confirm your enterprise's level of commitment. Use Part 2 to determine whether your processes are sufficiently defined to undertake a lean initiative. Decide the extent to which each statement applies in your enterprise, tally your points and assess your results.

Part 1: A score of two or less on either question suggests that other approaches to business, such as business process redesign or Six Sigma process improvement, would be more effective than lean.

Part 2: A score of two or less on any question suggests weaknesses that should be addressed before embarking upon a lean initiative.



This self-assessment tool below will help CIOs gauge their readiness for a transformational lean initiative. Use Part 1 of the questionnaire to confirm your enterprise's current level of commitment. Use Part 2 to determine whether your processes are sufficiently defined to undertake a lean initiative. Use Part 3 (next page) to explore your enterprise's readiness for cultural change. Decide the extent to which each statement applies in your enterprise, tally your points and assess your results.

Part 1: A score of two or less on either question suggests that other approaches to business, such as business process redesign or Six Sigma process improvement, would be more effective than lean.

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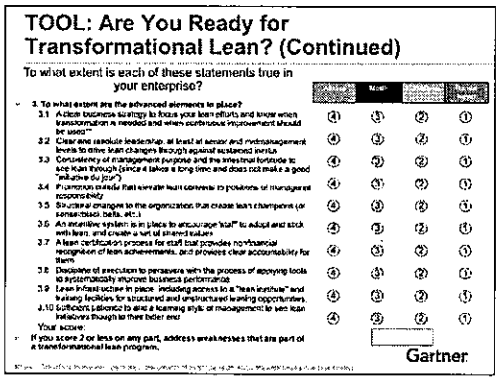

Use Part 3 of this self assessment tool (Parts 1 and 2 on previous page) to explore your enterprise's readiness for cultural change. Decide the extent to which each statement applies in your enterprise, tally your points and assess your results.

Part 3: A score of two or less on any question suggests a lack of readiness to undertake the grueling cultural change that transformational lean demands. Take the remedial actions that the questions imply.

Related Gartner (and Other) Research

- "Implementing Lean in IT" (G00174947) Andy Rowsell-Jones
- "Implementing Lean in IT: Toolkit" (G00175405) Andy Rowsell-Jones
- "Value Stream Mapping in IT is Not as Difficult as You May Think" (G00173926) Andy Rowsell-Jones
- "Moving Lean From the Plant to the IT Organization," Parts 1, 2, 3, 2009" (G00162656, G00164082, G00166133) Dan Miklovic
- "Agile Foundation: Lean Software Development" (G00201274) David Norton
- "Easier, Simpler, Faster," Productivity Press," New York, 2007. James P. Womack, Daniel T. Jones, "Lean Thinking," Free Press 1996, 2003. J. Cunningham and D. Jones
- "Implementing Lean Software Development," M. Poppendieck, Pearson Education, 2007

Gartner

Information Governance: What Every CIO Should Know

Gartner Symposium/ITxpo 2010

Ted Friedman

November 16-18, 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

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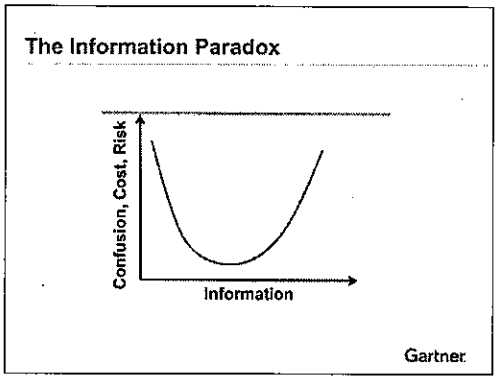
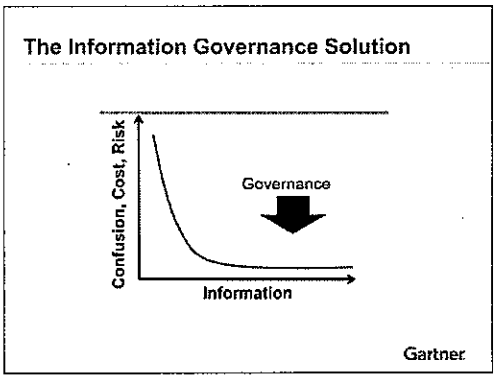
Storyline: When it comes to information, we all have too much, but we almost never have enough. This is the information paradox. To solve the information paradox, apply the principles of information governance.



The big advantage that our species has is its ability to produce language. Much of our physiology, awkward and inferior in so many ways to that of other animals, has given us "The Killer App": language. Our upright posture and large brains facilitate it, even though both are disadvantageous in other ways. Although we lack many survival features possessed by our fellow creatures, we have one that makes us superior to all of them: We can share information using language. Language makes it possible for us to share information through time, space and generations. Although other animals teach (and learn), they must be physically present together in order to do so. We don't. The works of Plato and Cicero are as accessible to us, as is today's newspaper, and you can find all of it on the Internet. We can leave messages for our children and transmit our values to them: not just how we do things, but WHY we do them. We all stand on the shoulders of giants when we fly from one continent to another, communicating with people thousands of miles away by way of outer space. In many ways, we also stand, figuratively, on a pile of books and other information that was left for us by those who went before, transmitted from human to human via language, art and symbols. We are, therefore, optimized to produce, but above all, to SHARE information. So that is what we do. But our gift has a dark side. Our magnificent gift, our ability to manipulate symbols, reproduce them and share them has resulted in a virtual information flood that is threatening to overwhelm our ability to effectively share information. That's a big problem. For individuals, companies and the globalized economic world, it is imperative that we take up the cause of information management. Here's what it is and why it should be your No. 1 priority.

Storyline: When it comes to information, we all have too much, but we almost never have enough. This is the information paradox. To solve the information paradox, apply the principles of information governance.

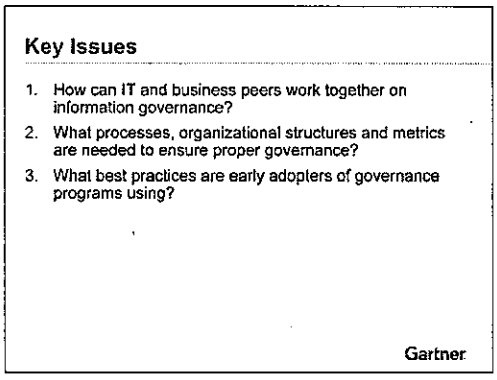


Why is it that when it comes to information, we all have too much, but never enough or enough of "the right kind"?

Here are some paradoxical facts about information:

- Despite increases in volume and velocity, people seem to want more (and more).
- As it creates more risk and requires more governance and policy to manage, enterprises seek to control it less (and less).
- As connectivity, access and technology become ever more ubiquitous, citizens, employees, suppliers, regulators and governments want information access to be better (and better).

Information governance solves the information paradox.



"Governance" is among the most overhyped and misused terms in the lexicon of both business and IT leaders. What does it mean, how is it done, and where should IT focus its efforts to ensure that information is governed correctly? Succeed by understanding the role of information governance in the business and by working with business leaders to ensure the proper standards, processes, staffing and metrics.

How is information governance the solution to the information paradox?

Key Issues

1. How can IT and business peers work together on information governance?
2. What processes, organizational structures and metrics are needed to ensure proper governance?
3. What best practices are early adopters of governance programs using?

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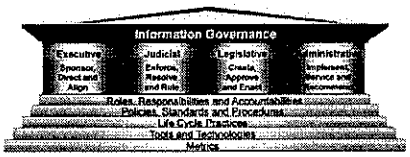
Definition: Information governance is the specification of decision rights and an accountability framework to ensure the appropriate behavior in the valuation, creation, storage, use, archival and deletion of information. It includes the processes, roles, standards and metrics that ensure the effective and efficient use of information in enabling an organization to achieve its goals.

New Responsibilities: Governance and Processes

Information governance is the specification of decision rights and an accountability framework to ensure the appropriate behavior in the valuation, creation, storage, use, archival and deletion of information. It includes the processes, roles, standards and metrics that ensure the effective and efficient use of information in enabling an organization to achieve its goals.



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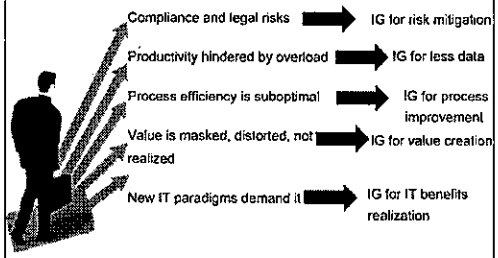
Key Issue: How can IT and business peers work together on information governance?

Governance (of anything) consists of several elements. Its main elements are decision rights and accountability. In the area of information governance, for example, one might ask the question as to who gets to decide how long a particular set of information is kept. Decisions can be made by individuals or groups. Once those decisions are made — for example, in the context of an e-mail retention policy — we can then ask who is held accountable for enforcing the decision. Sometimes it's easy. As in the e-mail example, if we as a company and an IT department decide to retain e-mail on the Exchange server for only 90 days, there isn't much individual users can do about it, and messages more than 90 days old can be automatically deleted. The IT organization can be held accountable for enforcing the policy. Governance consists of processes and standards (how we will manage this) and roles (who will manage this). The goals of governance are to make sure that information supports business goals effectively and efficiently. The definition thus implies that we must first decide what information assets are worth investing in from a governance perspective. Too much time and effort are wasted on creating and maintaining that which is not of business value — duplicate copies of files, old and outdated information, and so on. Another important implication of the definition is the notion that all phases of the information life cycle (creation, storage, use, archival and deletion) must be covered. *Action Item: Socialize this definition of information governance with any teams that are involved in information management, knowledge management or information quality initiatives.*

Strategic Planning Assumption: By 2011, IT will allocate 75% of information management resources (people, systems and software) to integrate and analyze a blend of traditionally structured and diverse data types, whereas today 75% of resources are focused only on structured data ("Predicts 2010: Enterprise Information Management Requires a Staffing and Metrics Focus," G00172726).

Governance Business Drivers and Benefits



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Key Issue: How can IT and business peers work together on information governance?

The benefits of information governance fall into three categories: efficiency, risk reduction and value creation. By focusing on one or more of these categories of benefits and then a specific subset of benefits therein, you can both set the objectives for and measure the outcome of your information governance program. One of the underlying goals of all information governance efforts is to improve information quality. To measure quality, you must have metrics. The data quality problem includes various objective metrics, such as: (1) Accuracy — Whether the data values being held reflect the properties of the real-world object or event that the data is intended to model; (2) Consistency — Whether the values of attributes managed or presented in multiple locations are the same; (3) Existence — Whether a value is being held for a particular attribute; (4) Integrity — Whether all expected relationships between data in multiple data stores, tables and files are intact; and (5) Validity — Whether the values held fall within the allowable domain of values established for an attribute. It also includes subjective measures. There are many benefits that follow from data and content quality initiatives. Picking the correct underlying focus and the correct business focus is essential to your success.

Action Item: Picking the correct business focus is the most important first step to successful information governance.

Tactical Guidelines: (1) Focus information risk management on business risks, including regulatory and legal discovery risks. (2) Establish governance for a centralized information risk management function, and provide adequate operational support.

First Thing We Do, We Scare All the Lawyers

Risk Mitigation

- **Compliance** — Transparency of information
- **Specific Regulations** — Basel II
- **Security** — No one can find, duplicate or send what they should not
- **Life Cycle Management** — Old data is culled
- **E-Discovery** — Reduce litigation burdens
- **Auditability** — Ensures objects can be traced
- **IT Asset Management** — Creating data maps

- Risk is a board-level issue.
- There is only one role or group in your company that has **real** information management responsibility.
- If you can tie IG to e-discovery or information retention efforts, you will have a business case.
- Take advantage of high-profile data breach episodes.
- For security, compliance and legal professionals it's very simple: Information governance helps control information risk.

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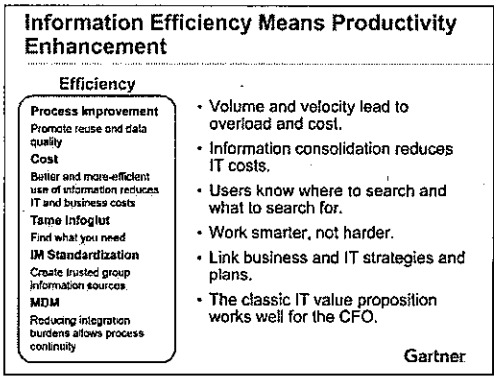
Key Issue: How can IT and business peers work together on information governance?

Regulatory and legal developments are placing a greater focus on information management. The traditional response of most organizations to information requests from regulators and discovery actions from litigants is to place a hold on a vast amount of information, which can impede normal business information flows. Organizations then comb through the troves of information to find the requested or discoverable information, as well as any related information. This reactive approach is expensive, with teams of employees, auditors, accountants, IT personnel, consultants and attorneys sifting through massive repositories, archives and databases to find the information demanded by outside parties and seeking to ensure that any related incriminating information or exculpatory evidence is found. KPMG, an international auditing firm that provides discovery services, estimates that a typical legal-discovery action can cost more than $3 million, with most of this spent on labor to review documents and e-mails for discoverable material. In large companies, teams of IT personnel have been created to support these legal and compliance activities (see "Risk Intelligence: Applying KM to Information Risk Management," G00151742).

Action Item: Assign a specific individual to be accountable for information risk management and maintaining controls for information risk mitigation.

Strategic Planning Assumption: Annual IT budgets will sustain a worldwide average growth rate of 0% until 2012 (see "Predicts 2010: CIOs and IT Executives Brace for a Tough Year, Even as Economic Indicators Improve," G00173506).

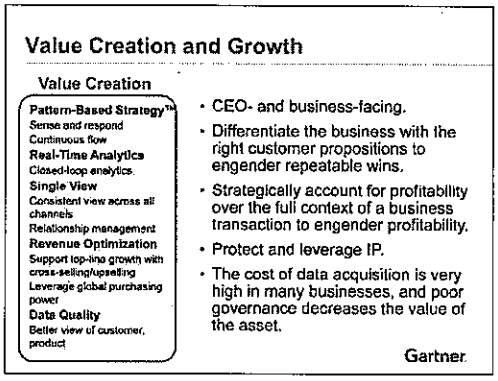


Key Issue: How can IT and business peers work together on information governance?

These are times of transition. Executives face a shifting environment economically, strategically and technologically. The decisions they make will open or close strategic options and set their enterprise on a course of action. The global economy is in transition across multiple fronts: from recession to recovery, from efficiency to productivity, and from owner-operated technologies to social ones. The changes implied by each transition will impact every organization differently, but one constant will be the rising value of timely and informed decisions and actions. In the near term, business expectations and CIO strategies appear stable, with a continued focus on business process improvement, cost reduction and analytics. At the same time, however, business expectations are shifting from greater cost-based efficiencies to achieving better results based on enterprise and IT productivity. The different emphasis may seem subtle, but it changes the way CIOs lead IT. This change is important because it reflects a broader change that CIOs see in their overall IT organization and its role in the enterprise.

Action Item: Expand the use of information and intelligence.

Strategic Planning Assumption: By 2012, half of all CIOs will measure revenue per IT dollar spent (see "The Research Incubator: A Journal of Unconventional Thinking, Volume 3," G00163746).



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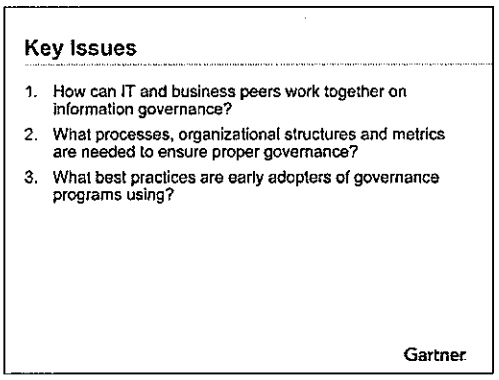
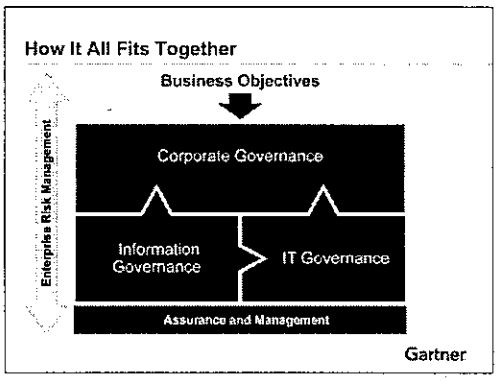
Action Item: Picking the correct business focus is the most- important first step to successful information governance.



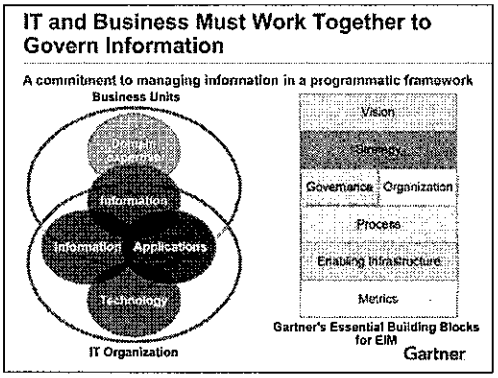
Strategic Planning Assumption: By 2013, 30% of EA core teams will refocus away from enterprise technical architecture (ETA) and toward enterprise business, information and solution architectures, as well as on EA strategizing work (see "Predicts 2010: Major Changes in Store for Enterprise Architecture," G00172857).



Key Issues: What processes, organizational structures and metrics are needed to ensure proper governance?

Corporate/enterprise governance is not new but has received heightened attention because of the Enron, Tyco and Parmalat debacles, just to name a few. The recent global financial crisis has once again placed corporate governance at the forefront. Two principles of corporate governance (disclosure and transparency — board responsibilities) are closely linked to IT governance and must be considered when defining IT governance. In many organizations, as much as 50% of the capital budget is attributed to IT. This represents a significant proportion of allocated investor funds, which must be governed properly. Enterprise architecture (EA) governance plays a significant role in both IT and corporate/enterprise governance. EA governance, if properly executed, plays a significant part in corporate governance by working to help the enterprise meet its strategic goals and ensuring that IT governance is aligned with those strategic goals. EA governance touches both IT and the business by helping realize the business strategy.

Action Item: To counteract the problem of information silos, information architects must focus on designing the requirements, principles and models for information flows among systems and across the enterprise — not on managing the information within specific systems.

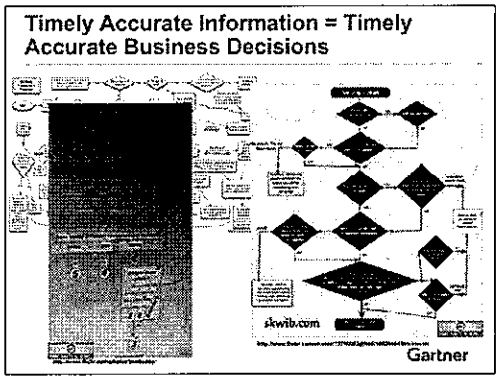


Key Issues: What processes, organizational structures and metrics are needed to ensure proper governance?

We define EIM as "an integrative discipline for structuring, describing and governing information assets, regardless of organizational and technological boundaries, enabling business insight." How is this different from plain old information management? Isn't that what we do? Yes and no. We do practice information management in our organizations; we just don't do it in a connected way. As with almost everything else in business, information management is siloed. While we have good methods for managing application information and many good examples of process-specific or departmental information management efforts, what's missing in most companies is an enterprisewide, strategic view of information. To make information a strategic focus, you initially need two things. First, a commitment — an organizational commitment — to managing information is necessary. This comes from the executive level and results in restructuring the IT department and adding information management job roles across the business. The second item needed if you are going to make a strategic commitment to information management is that you must have a framework for doing so. Gartner's Essential Building Blocks for EIM is a programmatic framework that enables organizations to conceptualize an EIM program and then carry it out and measure its results. For more information, see "The Essential Building Blocks for Enterprise Information Management," G00130527. The creation of an organizational structure to manage information, the staffing of that structure and the ongoing commitment to funding it is the surest way to create and increase the stock of valuable information assets in your organization.

Action Item: Introduce the EIM definition and EIM framework to your executives, business users and IT personnel.

Research Finding: Business unit executives share concerns about information quality in their companies. They asked for a better quality of information and faster access to information (Gartner 2009 Business Pulse Survey).



Key Issues: What processes, organizational structures and metrics are needed to ensure proper governance?

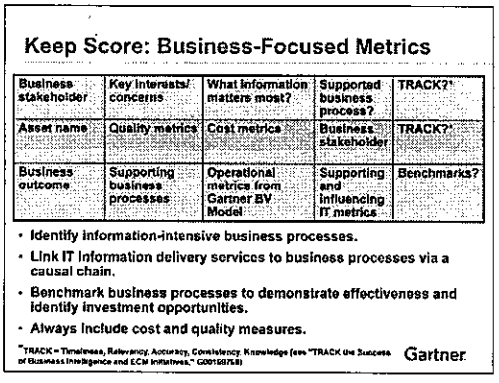
In 2006, Paul Rogers and Marcia Blenko wrote the following in the Harvard Business Review (HBR):

> Indeed, making good decisions and making them happen quickly are the hallmarks of high-performing organizations. When we surveyed executives at 350 global companies about their organizational effectiveness, only 15% said that they have an organization that helps the business outperform competitors. What sets those top performers apart is the quality, speed, and execution of their decision making. The most effective organizations score well on the major strategic decisions — which markets to enter or exit, which businesses to buy or sell, where to allocate capital and talent. But they truly shine when it comes to the critical operating decisions requiring consistency and speed — how to drive product innovation, the best way to position brands, how to manage channel partners. (From "Who Has the D?: How Clear Decision Roles Enhance Organizational Performance," HBR, January 2006)

To make decisions quickly and correctly, we depend on information. Yet as the variety, volume and velocity of information increase, it becomes much more difficult. The fundamental question is, given that we cannot do anything about the information overload that engulfs us every day, how do we tune our decision-making processes to those information channels that we need and that we trust to provide information for business decision making?

Action Item: Tie strategic information to high-level roles in the company, and assess the timeliness, relevance, accuracy and consistency of that information.

Tactical Guideline: Take an inventory of the business performance metrics used in your organization. Assess the breadth and depth of these metrics for gaps and overlaps before using them in your strategic planning processes.

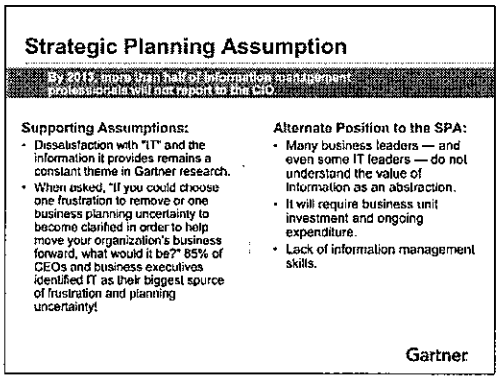


Key Issues: What processes, organizational structures and metrics are needed to ensure proper governance?

The value of almost every executive in the world is measured in terms of his or her comparative performance vis-à-vis competitors. One common exception to this rule is executives working in IT and in other internal service-focused organizations, such as HR. Internally focused metrics measure things that only matter internally (duh!) and, in IT's case, usually matter only to IT. By focusing on cost and efficiency, IT metrics usually miss the more important business-led metrics of effectiveness and value. IT processes are activities performed within IT — for example, network management. IT services, including the delivery of information, are things of value consumed by the business. Unless IT's contributions are defined as services, it's difficult to bound or measure IT's contribution to any business process. In other words, it's hard to define exactly what IT is contributing and what the impact on business processes is when the contribution changes. Many IT organizations confuse processes with services, frustrating business consumers, who have difficulty making the connection between their own operations and IT's offerings. The solution is to define an IT "catalog" of offerings based on an understanding of what internal consumers want to buy, not what IT wants to sell.

Action Item: Players know the score. Keep score, and communicate this to the rest of the enterprise.

Strategic Planning Assumption: By 2013, more than half of information management professionals will not report to the CIO (see "Predicts 2010: Enterprise Information Management Requires a Staffing and Metrics Focus," G00172726).



Key Issues: What processes, organizational structures and metrics are needed to ensure proper governance?

Dissatisfaction with IT remains a constant theme in Gartner research. In "Taking the Pulse of Business Unit Leaders: Growth and Information Top Concerns," G00172260, 20% of business leaders surveyed say they don't have the information they need to run their business.

As part of Gartner's 2010 survey of CEOs, participants were asked to comment on this question:

"If you could choose one frustration to remove or one business planning uncertainty to become clarified in order to help move your organization's business forward, what would it be?"

Information technology was identified as a frustration by 85% of CEOs and business executives who responded to this question — far above any other business planning uncertainty. We categorized the IT-related responses to produce this report, identifying approximately 20 different issues. Having tried so many other things, we believe that business leaders will start to look outside of IT for what they need in the way of information. Counterpoints to this SPA include the historic reluctance to add head count (especially for abstract activities such as information management) and the lack of real understanding and skills in the realm of information management and information governance.

Action Item: Partner with any information management professionals you find in the business, and help develop and train them (if you can) via programs run from within IT (see "Toolkit: Information Manager Job Description," G00172555).

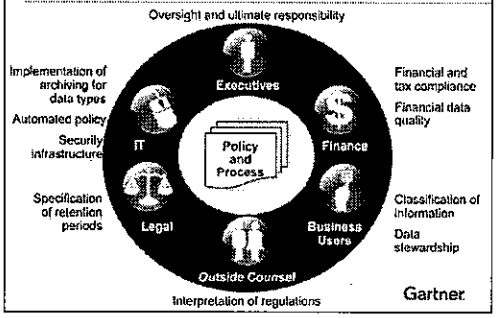
Key Issues

1. How can IT and business peers work together on information governance?
2. What processes, organizational structures and metrics are needed to ensure proper governance?
3. What best practices are early adopters of governance programs using?

Gartner

Strategic Planning Assumption: By 2013, 25% of companies in highly regulated industries will create and staff positions in accounting, human resources, compliance and audit, and law that deal explicitly with the management of information via technology (see "Organizing for Information Governance," G00172224).

Involve Everyone in Governance ...



Gartner

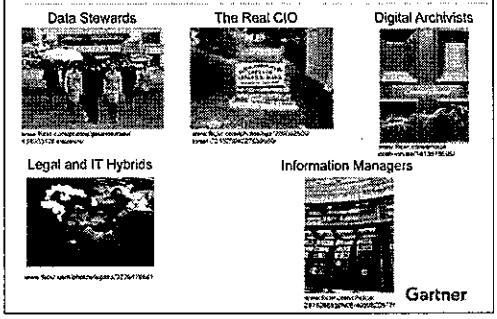
Key Issue: What best practices are early adopters of governance programs using?

Companies are still struggling with the issue of information governance, an issue that they have been trying to address since 2001, when the current upswing in government regulations started. In 2010, many of our clients still have not formulated effective information governance policies, let alone implemented them. Creating a retention policy is complex and must be worked out between the legal department, the IT organization and the lines of business working together. Many organizations need the help of outside counsel or a specialist consultancy to put together a retention schedule for data and documents. There are now law firms with practices specializing in nothing but records-retention schedule creation. For those companies that managed to work through a retention schedule, implementing it proved to be difficult. Particularly when it comes to e-mail, users are very reluctant to change their ways of working. Telling individual users to file e-mail is a recipe for failure. It has become apparent that some automation is necessary to enable businesses to implement their retention schedules. E-mail systems have long had client- and server-side rules that can be used to help with retention policies. For example, a company might save all e-mail that goes outside the firewall. The masses of electronic information that we create cannot be managed without technology; it is simply beyond human capacity.

Action Item: Form a team consisting of legal, IT and key business users.

Strategic Planning Assumption: By year-end 2011, there will be twice as many new positions in roles related to information management, most of which will be outside of IT organizations (see "Key Issues for Enterprise Information Management, 2010," G00173393).

... But Make Governance Someone's Job



Gartner

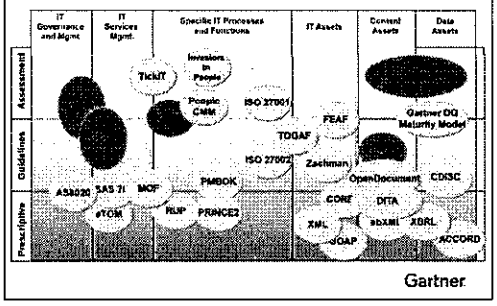
Key Issue: What best practices are early adopters of governance programs using?

Several years ago, Gartner analysts hosted a debate in which the proposition was that most traditional IT organizations will be closed by 2012. Forty percent of the audience agreed. Intended to catalyze debate, rather than provide an answer, the fact is, the traditional ways of staffing and organizing IT, and the way the IT organization does the work, are changing. The most important proactive change that your IT organization should make is distinguishing between managing technology and managing information. We will still need traditional organizations and skills: The focus of value will be technology services, and competencies will center on technology and technical processes. This is the part of IT that is most easily outsourced. It is the "T" in IT. The other value focus of IT will be on business processes and information, and the competencies will be on understanding business processes and related information and how to provision, govern and provide access to that information. So the first new IT role — or rather, the first two — are ones that we already have but rarely distinguish between. Most organizations will have both a CTO and a CIO, and their jobs and organizational affiliations will be different. The CTO will likely report to a chief operations officer or chief financial officer, as the focus will be on getting the best technology at the lowest price. The CIO will likely report to the legal or compliance department, or the CEO.

Action Item: Decide which title you want and/or which organization you are inclined to work for.

Strategic Imperative: Carefully select and combine the appropriate standards to generate value through transparency while minimizing bureaucracy.

Put Information Governance in Context With Standards



Gartner

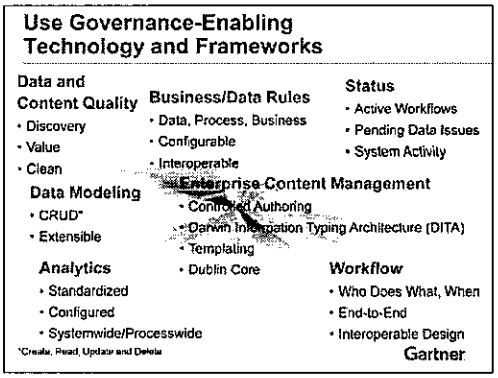
Key Issue: What best practices are early adopters of governance programs using?

In an ideal world, you would have one standard for IT management and improvement that covered all areas of IT governance, management and service delivery and was suitable for all enterprises. We are not in that ideal world for a number of reasons. There is no standard that covers every area of IT management. Many standards overlap with each other, and there are some coverage gaps, such as defining the highest-level domains and mechanisms of IT decision making in IT governance. Furthermore, some standards are more like guidelines and assessment methodologies, rather than detailed approaches to IT management. Every standard necessarily leaves room for interpretation, and every active standard is subject to revision.

This slide shows the different domains of IT-related management and improvement. In addition to the six improvement domains, shown horizontally, there are three broad types of standards, shown vertically: assessment frameworks, which help CIOs measure where their capabilities currently are and where there are gaps; guidelines, which suggest a rough approach to implementation; and prescriptive standards, which provide detailed templates for implementation. Some industry-specific examples are HL7, CDISC, PRISM and OFX.

Action Item: At the lowest and, therefore, most useful level, determine if there are any industry-specific data or content standards that you can use or adapt.

Strategic Planning Assumption: By year-end 2011, major software and service vendors will include support for information governance principles, processes and information infrastructure, and 75% of global organizations will have a formal information governance team in their organization structure, comprising a combination of IT and business resources.



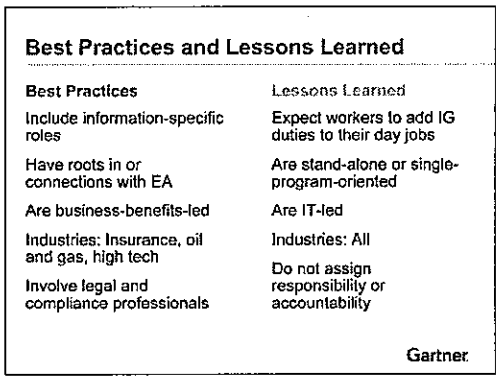
Key Issue: What best practices are early adopters of governance programs using?

Information governance is not a technology market, although there are many technologies that can and should be used to underpin good information governance programs. Some technologies are closely related to governance (such as data quality, workflow and analytics) in that identifying, matching, linking, cleaning, organizing and measuring what is happening directly impacts the consistency of the master data. Some technologies are less obviously related but increasingly important — one example is "status."

Governance is not only about "doing" things; there is a need for stewards to monitor and evaluate the health of data and content across the business. Technology can help bring together all the data needed by the stewards to understand "where they are," which is a prerequisite to any process improvement.

Action Item: Ensure your governance strategy embeds the right technology tools to support an effective master data governance effort.

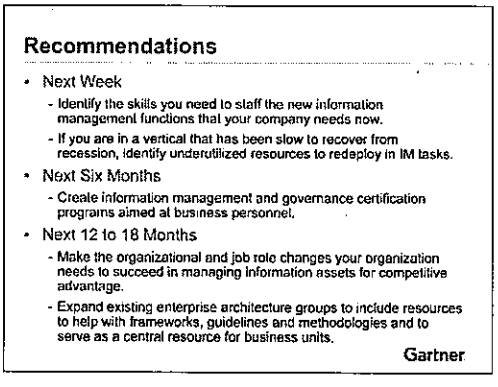
Strategic Planning Assumptions: Through 2011, CIOs will be forced to meet expanding business goals with no meaningful increase in employment ranks (see "Leading in Times of Transition: The 2010 CIO Agenda," G00173506). Through 2011, the immaturity of data governance will be the biggest barrier to the implementation of successful enterprise data security initiatives (see "Predicts 2010: Comprehensive Governance, Risk and Compliance Remains Elusive," G00172945).



Key Issue: What best practices are early adopters of governance programs using?

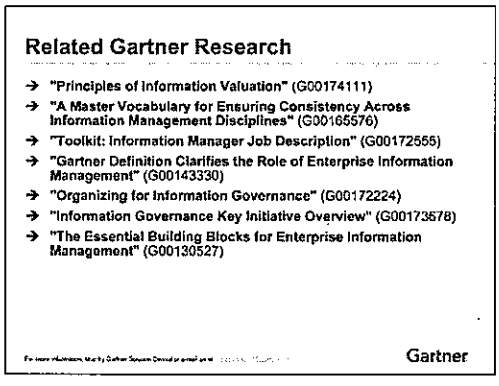
Gartner research is starting to accumulate examples of governance practice. Some organizations get it right and some don't. We see examples in the U.S. federal government (ISE; www.ise.gov), the Australian government (www.centrelink.gov.au/Internet/Internet.nsf/about_us/strategics.htm) and in commercial companies, including mining, high tech, and oil and gas. We have also seen many organizations go astray in their efforts to manage information in a more holistic way. EIM requires dramatically different thinking and investment to succeed. Enterprises do not solve this pervasive problem with the same thinking that got them there. An increasing number of organizations are viewing information quality as the responsibility of the business as a whole, rather than just IT (see "Survey of Data Quality Initiatives Shows Progress, But Challenges Remain" G00157794). Tangible benefits from such programs include reductions in customer data duplication levels, increasing levels of information accuracy to more than 99.99%, system consolidation, and increased awareness and engagement on the part of the business as to how increasing data and information quality drives increased revenue (see "Data Stewardship Case Studies Show Increased Organizational Focus on Data Quality and Information Governance" G00164977).

Action Item: Organizations need to identify breakthrough approaches to dramatically increase their information management competencies and deliver on the promise of the information infrastructure.



Many people will argue that the time of a well-paid knowledge worker should NOT be spent sorting through piles of data. Far less expensive, is it not, to let the data pile up, on personal hard drives, servers, data centers and then on tape? Why should we bother with any of it, as we have finished with THAT project and are moving on to the next one? After all, it's a new year and a new decade. Let's move forward. That data may not help us — in truth we don't know — but it certainly isn't going to hurt us. And besides, storage is cheap, cheap, cheap, and my staff have better things to do than look through old data and make decisions about its disposition.

When you examine these arguments closely, they do not stand up to scrutiny. Nor does the standard set that revolves around "Our lawyers say …" or "We don't know so …" or "Having that data will vindicate us …" I'm sure you have some of your own to continue to avoid the onerous task of EIM. No matter how onerous it looks, no matter what your lawyers may be saying, and however much resistance you think you will encounter in the user community, if you take up the cause of information management in your organization, you will be making a valuable contribution in 2010.



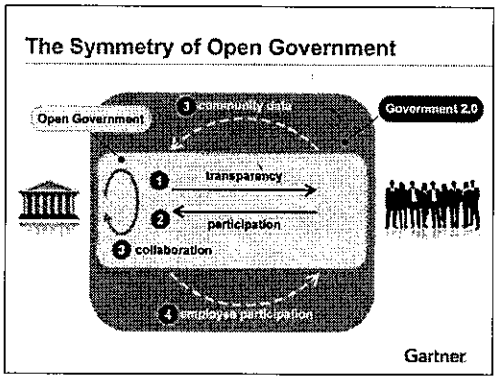
The Real Value of Open Government

Gartner Symposium/ITxpo 2010

Andrea Di Maio

November 16-18, 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

Gartner



Views of open government as those expressed in the U.S. Open Government Directive are based on supporting transparency, participation and collaboration as basic principles. These imply that data must be provided by government to citizens and that citizens can participate and collaborate in government activities on channels that government controls (such as government websites or Facebook pages).

There are plenty of examples where data goes the other way around, from citizens to government, and government can use it in combination with data it owns (such as financial, HR, case-related ones, as well as taxonomies) in order to improve the way it deliver services or to initiate policy changes. Examples about in domains as diverse as human services (child welfare, unemployment), public safety (to locate people in need after major disasters), tax and revenue or law enforcement (to look for evidence of evasion or crime).

Government 2.0 implies a bidirectional flow of information and services. It will require business intelligence suites that integrate data analytics with social networking analysis to help identify patterns revealing future behaviors; case management tools that give case managers the ability to alter case processing on the basis of data from external communities; online citizen services that can be integrated with third-party portals; and indeed open data repositories that allow citizens to develop value-added mashups and new applications.

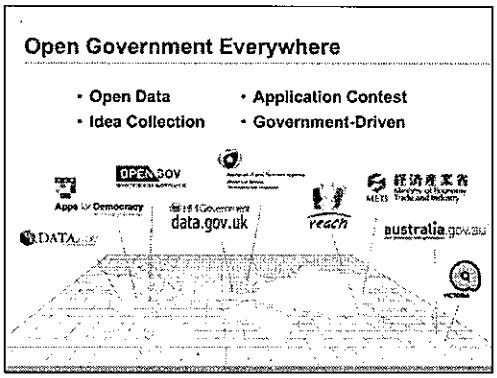
Key Issues

1. What are the main characteristics of open government?
2. How do information management and social media strategies relate and contribute to open government?
3. How can government CIOs help their organizations determine the benefits, costs and risks of open government?

Gartner

Many people have only a superficial appreciation of the implications and challenges of open government and undertake such initiatives based on the assumption that it is the right thing to do. However, in order to make them valuable and sustainable in the long run, it is important to articulate their value as well as understand the underlying risks.

This presentation explores the main aspects of open government as well as its longer-term outlook. It also looks at the broader topic of Government 2.0, which Gartner defines as the socialization and commoditization of government services, processes and data, and takes place at the junction of open government and social-media policies. It examines the implications on information management caused by the combination of internal and external information. Finally it explores how open data initiatives and engagement on external social media can be combined to achieve the objective of effectively engaging with citizens.



Open government initiatives have blossomed all over the world, at the national as well as local level. The U.S. government launched the Open Government Directive in December 2009, paving the way to similar initiatives in other part of the world. The OGD drove federal agencies to create open government plans that have set the stage for several flagship initiatives and moves agencies on a path for greater transparency through the publication of data on Data.gov. Similar websites are blossoming in other jurisdictions, such as the U.K. and Australia, and several EU countries.

In order to increase participation in policy making as well as selected government processes, various governments have launched *idea contests* where they are crowdsourcing the solution to certain problems, such as the formulation of budgets cuts in the U.K., the revision of the e-government program in Japan or the development of open government plans in the U.S. Some of these initiatives are targeted to citizens, while others are targeted to employees. Another type of engagement initiative, also directed to citizens and/or employees, is the development of applications that use open data: from the flagship project, AppsForDemocracy in D.C., to similar initiatives across multiple jurisdictions, as well as more internal (such as the A4A application contest launched by the U.S. Army).

Most of these initiatives are characterized by being driven by government, and take place on government virtual turf.

In developing economies, with perhaps limited technical resources or governments, attitudes toward openness may be different. In some cases, there may be a willingness to do this, but it would be heavily skewed to the already empowered, while leaders in countries that are not mature democracies may not want to.

The Reality of Open Government

	Perception	Reality
Internal Collaboration	*It is all about choosing the right platform*	• Hard to plan and sustain • What about Facebook et al?
External Communication	*If we build they will come*	• Who cares?
Open Data	*More data = transparency*	• Only for the usual suspects • How many can/will engage?
Understanding the Collective	*Not urgent: government is the single source of truth*	• Truth is not trust
Employee-centricity	*Ban or tolerate*	• Protect and reward

Gartner

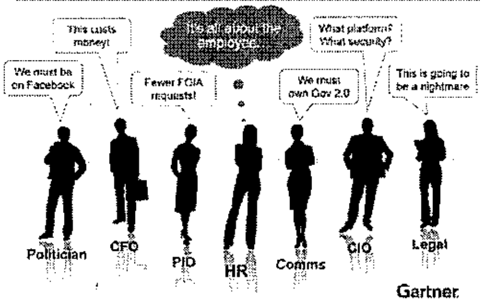
Discussions about open government often overlap with discussions about Government 2.0 or collaboration or social media. Quite a few focus on internal collaboration, which is an important area and remains within the span of control of government. While government IT leaders focusing on choosing the best tools, many employees have already chosen external consumer tools to collaborate among themselves and with constituents, and bringing that collaboration on the right side of the firewall can be a challenge.

A second area for discussion is the use of social media for communication and PR purposes. Over the last two years this has led to the development of many government pages on mainstream social networks such as Facebook, Twitter and YouTube. However the number of followers is usually quite limited, as people tend to follow other people or specific issues, rather than organizations.

Another topic — open data — concerns the open provision of (mostly public) raw data so that the public and third-party organizations can analyze and present it in different ways, as well as to create value (see the W3C-backed "Open Government Data Principles" at http://resource.org/8_principles.html). While this is a popular initiative at the center of many open government initiatives, it appears that it is most enticing to well-identifiable constituencies, such as the press, lobby groups, political activities and vendors.

Over the last year, there has been a growing but still very limited understanding of the need for identifying external communities as data sources to be analyzed and used as appropriate. The real challenge remains the engagement of employees across the organization with constituents on those external networks. While Web 2.0 and social media are an entirely people-centric phenomena, governments — with very few exceptions — are not yet valuing their most important asset (i.e., their people) to create sustainable engagement.

Different Perspectives on Open Government



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Activities on open government are usually under the purview of the CIO or communication officer, and social media engagement are definitely within the remit of the latter.

However all parts of the organization have a role to play, although this is rarely articulated with the needed clarity. Open government plans developed by U.S. federal agencies in response to the Open Government Directive provide a good spread of organizational structures. However social media strategies are often dealt with as a separate activity, while there are very strong reasons (the symmetry of Government 2.0) to be more tightly integrated.

Roles that are often understated are those of HR management and the CFO. The former is key to ensure that the right framework is in place to enable employees to leverage social media in the context of their job description and in compliance with regulations and internal policies: in particular, how to integrate the successful use of social media into the employee's appraisal scheme is a priority. The latter is required as the open government initiative gains steam, in order to make sure it creates value and provides a cost-effective contribution to the agency's mission.

The Future of Open Data: Smart Government?

	Government Data	Citizen-Generated Data
Environment	• Air quality • Water quality • Water consumption	• Instant oil consumption/ carbon emission • Instant water consumption
Energy	• Instant power supply • Instant power demand • Energy consumption	• Instant home power demand • Active devices per type
Traffic	• Traffic light map • Number of vehicles per zone • Parking lot status • Traffic cameras	• Consumer GPS location • Traffic-related feeds & microblogs • Geolocated pictures & videos

Most open government initiatives promote the publication of great quantities of data in raw format that should presumably generate new application and services for constituents. However, very few have looked at the possible implications of extending the concept of "open data" beyond the traditional boundaries of information technology to encompass operational data, such as those provided by a variety of sensors from transportation, water, electricity network, which are often under the purview of (local) governments or local utilities.

Extending the mashup paradigm to operational data that are collected by consumer devices (such as home automation systems, portable GPS systems, and so forth) opens a totally new perspective on where open government could go.

Some government organizations and several vendors start articulating the concept of "smart city" or "smart jurisdiction" as the integrative use of information and operational technology to drive jurisdictions to new levels of performance. Almost none of the frameworks that are being developed for open government look at the option of extending the open data approach to operational data and basically empower citizens (as well as business) to decide what constitutes a "smart jurisdiction" for them.

Open Government and Open Society

By 2012, as many as one in five government processes will rely on crowdsourced data.

Why this may not happen	Why this will happen
• Open government data will be used only for political purposes.	• Open government data will impact service delivery and operations.
• High-profile privacy incidents will slow down the adoption of social media.	• Growth of social networks is unstoppable.
• Citizens will trust government more than each other.	• Social networks will gather and manage mission-critical data.

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The "collective" will become a key component in how government entities will operate. Government service delivery and domain-specific operations will be affected in areas such as tax and revenue, health and human services, law enforcement, public safety, and transportation. The collective via social media will play a fundamental role in supporting and transforming horizontal processes common to most agencies, such as human resource management and procurement. As social media policies solidify and more government employees are allowed to use social media in a work-related context, access to external data will be easier and become an integral part of many government jobs. This will be further accelerated by open-government data initiatives (such as Data.gov), which will trigger data tagging, aggregation, transformation and analysis by many third parties. The resulting data will become as important as the original agency data in driving service delivery and influencing operations.

The focus of data analytics will move from internal to external data to help identify patterns that indicate possible pain points, as well as shifts in needs and emerging trends.

The increasing relevance of external data will pose critical risk management issues. Information assurance and security processes will have to be revised to cope with organizational and individual risks caused by the blurring boundaries between internal and external collaboration, and by the blending of internal and external information.

Action Item: Make sure that agency executives empower employees to continuously look for relevant data outside of the government, and make it an integral part of an EIM program. Develop and enforce governance frameworks for assessing, analyzing and using such data.

Internal Use of Social Media: Boundaries Are Blurring

- Combined grass-roots approach with strong leadership drive
- No silos allowed, collaboration across diverse areas
- Meets new intelligence challenges (rapidly changing threats)
- Supports horizontal collaboration
- Collaboration between scientists, engineers, program managers and operational "war fighters"
- Collaboration with defense suppliers
- Reaches out beyond the suppliers' base

Gartner

Looking at the internal use of open government principles, there are several cases where wikis proved useful.

A best-practice example remains the Natural Resources Canada wiki, which was launched as part of an effort to make a very siloed and diverse organization more collaborative and integrated. In less than nine months, more than 1,500 users (close to 30% of the department) had signed up and generated more than 3,400 articles. Natural Resources Canada let the users find the best uses for the wiki, but deliberately avoided letting people create closed workspaces or shape the wiki to fit the department's existing structure. Strong drive from the minister was an important component of its success.

Another well known case is Intellipedia, used by various intelligence agencies to draw up reports.

Along the same lines, the U.S. Department of Defense's Techipedia includes an internal wiki (open to DOD employees, non-DOD feds and industry). This example is particularly interesting though, as it is one where the community had soon to be extended outside the boundaries of federal staff and DOD contractors, to gather suggestions from new stakeholders. This led to DefenseSolutions.gov, which is a portal to crowdsource solutions for companies and research organizations.

Externally Facing Social Media: Crowdsourcing

Area	Examples
Policy making	• Gather ideas, vote and rank
Compliance	• Crowdsourcing income tax auditing
E-channels	• Mashup and application contests
Service delivery	• Services to elderly and disabled through relatives • Neighborhood watch, SeeClickFix
Service design	• User-tagged archives to increase relevance • User selection of automatic crops and zooms
Internal processes	• Collaborative RFP preparation • Broadcasting Q&A sessions with suppliers

Gartner

Proactively reaching out to citizens and other stakeholders, which is at the basis of open government, is already creating value.

While most of the attention focuses on the policy-making side of this – through e-consultations and idea gathering and ranking – there are examples of impact in several different areas:

- The Italian government crowdsourced income and tax data to seek help from people in identifying cases of tax evasion.
- Several jurisdictions in the U.S., U.K. and Australia have run application contests that led to the development of useful services and mobile apps.
- Self-organized communities to oversee neighborhood safety or to share information and best practices to take care of elderly or disabled people.
- In the U.S. and the U.K., citizens have been engaged online in tagging or improving pictures in virtual museums.
- Even internal processes such as procurement can be streamlined by involving prospective suppliers in the preparation of the RFP.

Using Nongovernment Communities and Information

Domain	Example	Platform
Tax & Revenue	• Use of aerial pictures or photo-sharing sites for auditing	Google, flickr
Child Welfare	• Detecting and preventing problems through changes in behavioral patterns	facebook
Unemployment	• Using employee's own contact network	LinkedIn
Public Safety	• Locating people in need	
Law Enforcement	• Looking for crime evidence on external sites	YouTube, flickr
HR Management	• Recruitment and skills management	LinkedIn

Gartner

On the other hand, information that is already out there in self-organized communities can be equally relevant to solve problems and improve processes.

Examples include:

- The use of multimedia information on social media such as YouTube or Flickr to gather evidence about fraudulent or criminal activity.
- The analysis of behavioral patterns on social networks like Facebook to keep an eye on young people in their foster homes and identify and prevent problems, including possible abuse or runaways.
- The use that government employees make of personal contacts in social networks like LinkedIn to help unemployed persons find a new job.
- The use of Twitter or Facebook during large-scale emergency, such as flooding, bushfires or earthquakes, to locate where people may need help and deploy public safety officers accordingly.
- The use of external social networks (e.g., in LinkedIn) to support internal business processes, such as skills management or workforce planning.

All these examples clearly witness that government service delivery and operations are already influenced by social media, although in almost all cases this is the result of individual initiatives and not of a fully-fledged strategy.

Action Item: Do assume that some use of social media is already happening in your organization that has changed or will soon change traditional processes. Identify and leverage these cases to distill good practices and move from occasional to sustainable value creation.

Different Challenges for Information Management

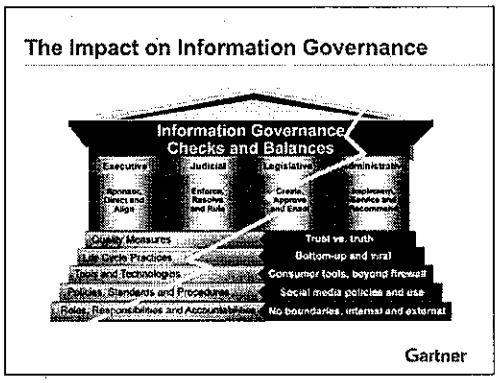
Open Data		Social Data
Top-down	Creation	Bottom-up and sideways
Declassification, de-identification, transformation	Capture	Social network analysis, sentiment analysis
Taxonomies and ontologies	Categorization	Tagging, rating, usage, folksonomies
Formal and specialized	Maintenance	Informal by crowd
Information assurance	Trust	Trusted sources, reputation, social rating
Mostly text and structured data	Media	People, text, graphics, audio, video

Gartner

When looking at a continuum of information encompassing open government data as well as social data collated and created by external communities, it is important to appreciate their differences.

- Open data is created and maintained through a top-down process, which ideally leads to rather rigorous taxonomies, while social data is collected, tagged and rated by individuals through an organic and viral process.
- In order to be shared, open data requires to be declassified and stripped of any reference to personal identifiable information, while social data is used as is, but needs to be analyzed to identify patterns that may reveal issues, needs, ideas.
- Open data are assumed to constitute the truth and need to undergo a rigorous information assurance process, while trust in social data is a consequence of the reputation of individuals who create it and complex social rating mechanisms.
- Open data is usually textual or structured (mostly XML) in nature, while social data exhibits a much greater diversity of formats

Action Item: When extending information management to external, social data sources, consider employee-centric processes and tools and leverage rather the fight information diversity.



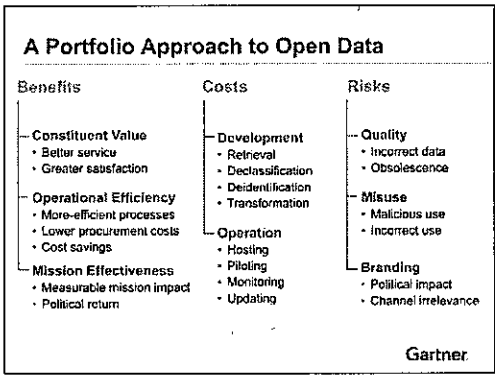
Governance (of anything) consists of several elements. Its main elements are decision rights and accountability. In the area of information governance, for example, one might ask the question as to who gets to decide how long a particular set of information is kept. Decisions can be made by individuals or groups. Once those decisions are made — for example, in the context of an e-mail retention policy — we can then ask who is held accountable for enforcing the decision.

The use of social media is making information governance more complicated. While, for instance, the IT department can maintain control of e-mail retention policy, if employees use external social media for internal or external collaboration purposes, retention policies are outside the control of the enterprise and its IT department.

Ironically, as enterprises become better at developing and enforcing processes, standards and roles, the impact of both open and social data will disrupt those, challenging choices around tools and life cycle practices.

When the external social media come to contain valuable record information, several important questions are raised. How can we then protect this as a government would versus leaving it to the vagaries of a commercial operation? In the case of many social media companies, they are not even viable commercial operations yet. What happens to data when they go out of business or decide its too expensive to archive?

Action Item: Revise the definition of information governance to encompass the impact of open and social data.

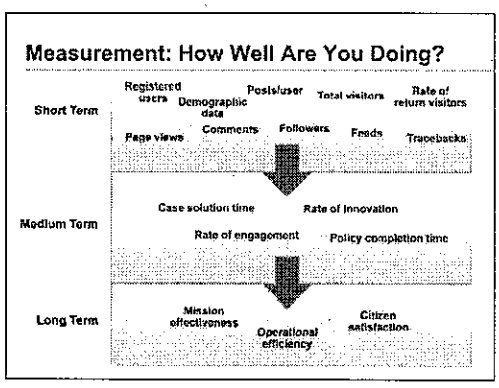


Open government initiatives present other prioritization challenges. Therefore, it is essential to select and enforce a value framework to capture benefits, risks and costs. Assessing the value of open data is not dissimilar from assessing the value of an investment. There are several public value of IT frameworks that are in use around the world and, although they use different terminology, they all look at three fundamental dimensions of public value — i.e., constituent service, operational efficiency and impact on agency mission.

Constituent service includes how the data can contribute to improving service levels to different target audiences or lead to increased constituent satisfaction; operational efficiency includes how the data impacts a number of internal metrics, such as costs and productivity, while mission effectiveness and political return refers to the impact on an agency's strategic business objectives.

Besides the value, though, it is important to appraise costs (in terms of data development and publication, maintenance and monitoring) as well as the risks, including those derived from malicious or inadvertent use of open data that may backfire on the agency.

Action Item: Apply a rigorous cost-benefit analysis framework to prioritize and phase in the publication of open data.



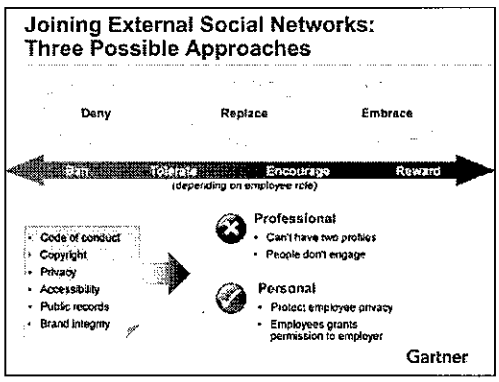
Measuring the success of an initiative in terms of value creation may be challenging. While it is useful to articulate which areas of public value are likely to be impacted by the initiative, it may be difficult at an early stage to link traditional metrics with value creation. Depending on the nature of the initiative, measures may include:

- Number of page views
- Number of registered users
- Number of visitors
- Rate of return visitors
- Number of posts/average posts per user
- Number of comments/average number of comments
- Number of followers/friends
- Number of trace-backs/external links
- Number of feeds

They may also include growth rates for each of these over a given period of time.

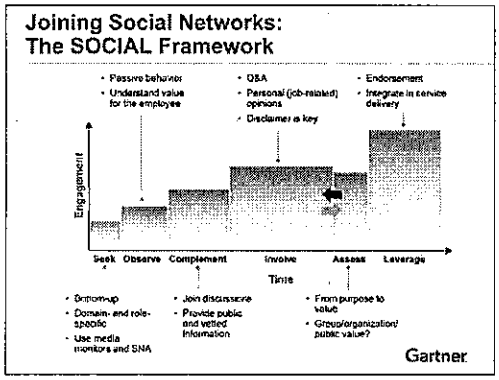
Going forward, the measurement framework should evolve toward a benefit assessment realization process based on the value framework used to prioritize open government initiatives. The long-term focus is particularly important for open government, given the cultural shift that it implies.

Action Item: Develop, apply and evolve a measurement framework to constantly assess the success and value of open government initiatives



When considering the relationships between government and social networks, government executives tend to take one of three attitudes. The first is *denial*. Based on the domain they operate within, the demographics of the citizens they serve, and even personal beliefs, they think their current channel is appropriate and that social networks are something of a passing fad. The second is *replacement*, where executives understand the value of social networking but believe that government must retain control and that it can provide a better user experience and a more compelling proposition than third-party networks. The third is *embracing*, based on the understanding that citizens will always choose the networks they find most compelling (for whatever reason) and the only sensible approach is to provide information and services — where appropriate — through those networks. Although the first attitude is almost inevitably short-sighted and the third looks the most sensible, there might be cases where government can add value by creating or taking leadership of a community: examples are city planning, environmental issues and health crises. The question then is how to regulate the use of social networking tools by employees. Attitudes vary, as do approaches — from banning their use to encouraging it. Government employees already sign codes of conduct that cover how they deal with information, the public and the press. Additional areas, such as accessibility and brand management, may be covered by other policies. Government organizations should capitalize on what they already have. On the other hand, effort is rather required to determine (1) the exact purpose and value of using social media, whether from an institutional or an individual perspective (or both), and — in the latter case — (2) the rights and obligations of employees when it comes to using their own personal profiles for official purposes.

~~*Action: Don't rewrite codes of conduct, but focus on new challenges posed by social networking.*~~



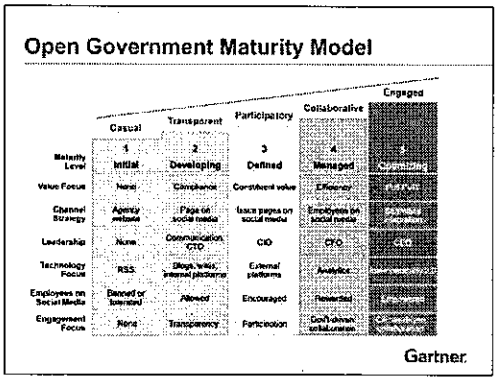
Before doing anything regarding social media in a government agency, it is important to understand whether constituents are already debating issues or sharing information that may be relevant to the agency in self-organized, external communities.

This requires individual employees to hunt for and connect with external communities, with the understanding and blessing of their managers. This exploration is not meant to be a "free for all" and requires the employee to be able to prove his or her manager with the job-related value of engagement.

The Gartner "SOCIAL" framework suggests a phased approach to determine whether such communities exist and how to become gradually involved with the most promising ones. It starts with *seeking* external communities, possibly with the use of tools for social-media monitoring and social-network analysis, followed by *observing* the behavior of promising one, gradually engaging in discussions and information gathering *(complement* and *involve* phase), until when times are ready to *assess* whether there is value not just for the individual employee but for the organization as a whole to *leverage* these communities.

Since platforms and communities change, this process must be applied continuously, as communities that are relevant today, may not be so tomorrow and new ones may emerge

Action Item: Government agencies must actively work to adopt a community mind-set when addressing challenges, and understand how to define and build communities effectively.



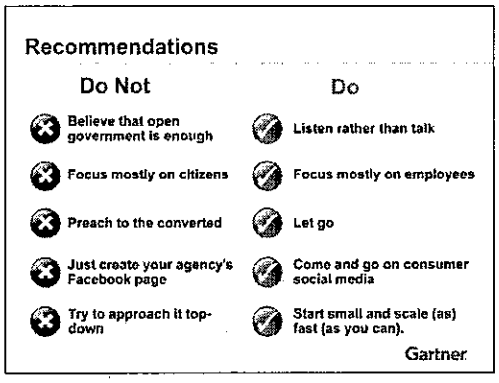
The Gartner Open Government Maturity Model defines five levels of increasing maturity: initial, developing, defined, managed and optimizing. In any organization, the stepwise improvement in Government 2.0 maturity will be a multiyear journey. Unlike other transformation processes, Government 2.0 is more organic and less prone to planning, since it is based on individual employees' as well as external constituents' initiative as much as — if not more than — careful planning.

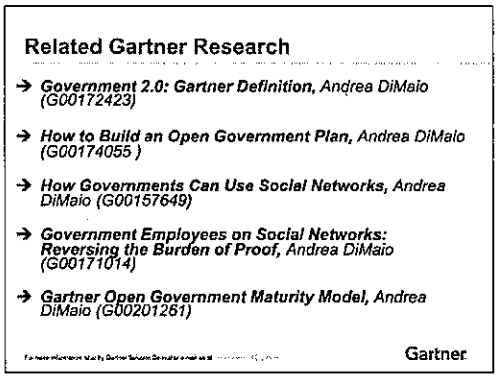
Unlike traditional maturity models, organizations may exhibit characteristics that belong to different maturity models, depending on which approach they take to engagement (i.e., inside-out versus outside-in).

Open government implies the use of a combination of enterprise and consumer technologies. They may play different roles at different levels of maturity, sometimes depending on what approach to engagement is being pursued.

Open government maturity is about mastering all aspects of constituent engagement and delivering public value in a measurable and foreseeable way. Because of the very nature of Government 2.0, the highest level of maturity may appear to be asymptotic.

Action Item: Leverage the Gartner Open Government Maturity Model framework to understand what may be missing in the current plans to make them sustainable over time and to achieve measurable transformation and improvement in service delivery and operations.





Government Clouds Beyond the Hype: Public, Private, Both or None?

Gartner Symposium/ITxpo 2010

Andrea Di Maio

16-18 November 2010
Sydney Convention & Exhibition Centre
Sydney, Australia

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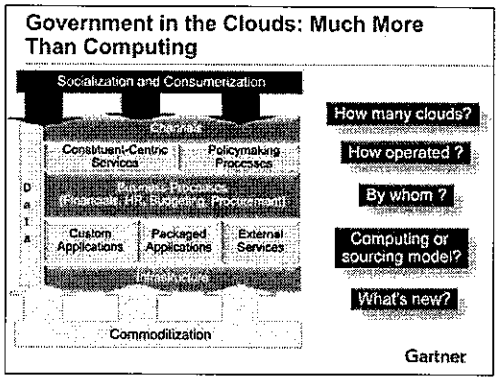
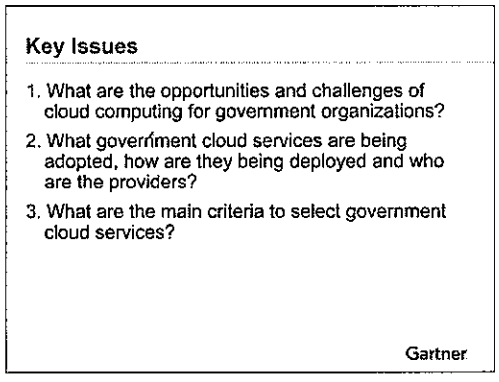


In order to best appreciate the role of cloud computing in government, it is important to reflect on two important trends that will impact both business and IT in government in the next decade: socialization (of processes and services) and commoditization (of resources).

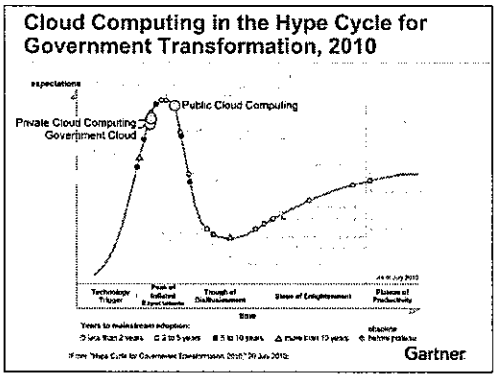
A traditional approach for many government organizations has been to *own* or directly control resources — processes, people or technologies. The resource may be totally insourced or totally outsourced, but the government organization is its exclusive user. Another approach is to *share* a resource with other government organizations, through joint governance arrangements and with one organization responsible for owning the resources or sourcing them as deemed fit. This is quite popular for both infrastructure, applications and selected processes. A slight variation of this is to *centralize*, which saves the joint governance component. Finally, the resource or the way to access it or both can be completely *commoditized*, and managed outside the government boundaries without any control of where it is located.

While many focus on commoditization of technology, the trends described suggest that commoditization will have a much broader impact. The commoditization of IT assets and services is closely related to the consumerization of client devices and social-media tools that is driving agencies to consider the use of consumer tools to engage with citizens and to support internal operations. Similarly, the socialization of information and the emergence of crowdsourcing models to engage new stakeholders (for example, citizens) in government service delivery and decision-making processes is closely related to the commoditization of applications and business processes made possible by cloud computing.



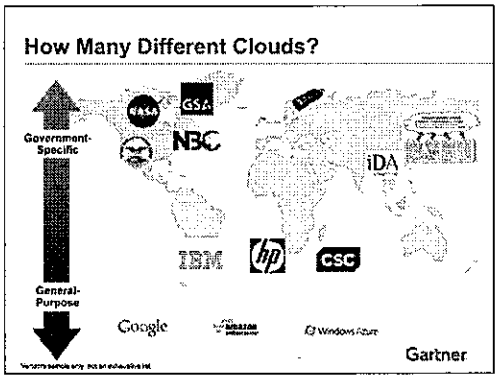
In 2009, cloud computing moved from being an overhyped phenomenon to something that governments took seriously from an enterprisewide perspective. While some agencies and departments already had adopted cloud-based solutions to meet selected infrastructure and software requirements, the Obama administration and the new U.S. federal CIO have made this a governmentwide issue, challenging a status quo where almost every department runs its own IT shop, and the largest departments have multiple shops and CIOs. Over the past several months, the U.S. federal government has created the first cloud application store for government, launched a request for quotation (RFQ) to determine the viability of infrastructure-as-a-service offerings, embedded references to cloud computing in the budget, and progressed its agenda on security and portability. The U.K., Japan, Singapore, Canada, Australia and other countries are all at various stages of policy development on cloud computing. At the same time, agencies at all levels have taken the lead in both providing cloud and using cloud services.

In spite of all these efforts, many governments struggle with fully articulating the value and risk of cloud computing for different workloads, applications and process requirements. Multiple definitions of what cloud computing is, different levels of maturity in managing external service providers, and different attitudes about the problem of owning and controlling the infrastructure create multiple viewpoints inside and across government organizations, as well as somewhat conflicting positions among central organizations tasked with overseeing enterprisewide IT and individual agencies and departments.

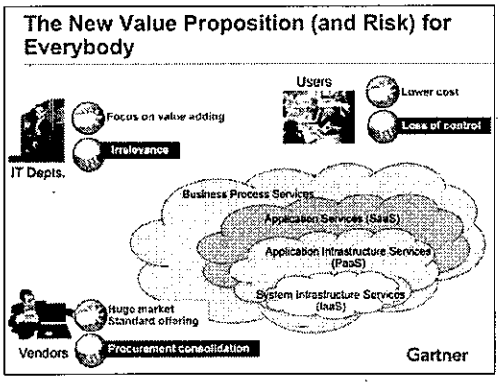


Cloud computing plays an important role in government transformation; however, as indicated in "Gartner Government Transformation Hype Cycle 2010," it is mostly at the Peak of Inflated Expectations.

While most of the focus remains on understanding the capabilities of technology service providers and how to use a pay-as-you-go model to access various resources, the toughest challenges with private or community government cloud services will concern governance. In particular, shared and centralized multiagency community clouds, which are supposed to serve a variety of agencies, will struggle with the same problems that shared-service initiatives have encountered over the past several years. Agencies such as GSA, NBC, DISA and NASA are all actual or potential providers of government community cloud services. At the same time, vendors such as Google and Microsoft have developed a government cloud by making part of their existing infrastructure compliant with U.S. federal government security requirements (FISMA). The public cloud is a little past the Peak of Inflated Expectations for all industries, and is still close to the peak for government, although with significant differences across regions. One important driver for adoption is engagement with external social networks and access to external information (such as Facebook, Flickr, Twitter and YouTube) in ways that will profoundly transform service delivery and operations, by socializing and commoditizing information and processes. Other areas where government organizations in all tiers start being active are e-mail and collaboration, website hosting (with particular reference to open government initiatives), and departmental, noncritical applications (mostly CRM-like). The main drivers for adoption are cost reduction and, often, speed of procurement and deployment.



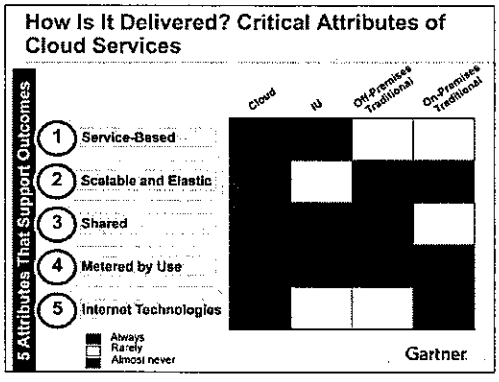
The growing interest in cloud computing is due in large part to leveraging Web 2.0 technologies (in response to internal and constituent demands for new services and collaboration) and increased pressures in constrained budget environments to reduce IT operational costs. On the surface, the value proposition looks compelling. Government IT organizations would save data and run applications outside their physical premises and control in environments that are owned and operated by third parties. This would eliminate or simplify a set of operational tasks, such as managing servers or installing and updating software on employee desktops, allowing government CIOs to focus on tasks that are more specific and critical to their missions. Besides vendors that are quite active in public cloud services and those that address the need for hosting workloads on infrastructure utilities or private clouds, several government organizations around the world are developing or consolidating cloud offerings. In the U.S., GSA is procuring infrastructure and application services, while agencies such as DISA, NBC or NASA have infrastructures that are being promoted as cloud-based. The U.K. Cabinet Office is moving along the same lines as the GSA, with its G-Cloud initiative, while Japan is building an infrastructure code-named Kasumigaseki, and Singapore is teaming with several vendors for a computing grid. In any large jurisdiction (countries, and large states and provinces), cloud computing may soon become a battlefield for those agencies that own infrastructures and want to retain them and provide them as a service to others, and those agencies that just want to buy less expensively and more flexibly, and do not care whether services come from inside or outside government. Organizations such as whole-of-government CIO offices, procurement agencies, e-government taskforces and the like will be stuck in the middle of the battlefield.



There are three main categories of cloud services:

- *Cloud Software as a Service (SaaS).* The consumer can use the provider's applications running on a cloud infrastructure. The applications are accessible from various client devices through a thin-client interface. The consumer does not manage the underlying cloud infrastructure, or individual application capabilities.
- *Cloud Platform as a Service (PaaS).* The consumer can deploy onto the cloud infrastructure the consumer's own or acquired apps created using programming languages and tools supported by the provider. The consumer does not manage the underlying cloud infrastructure, but has control over the deployed apps and possibly the application hosting environment configurations.
- *Cloud Infrastructure as a Service (IaaS).* The consumer can provision processing, storage and networks where the consumer is able to deploy and run arbitrary software, which can include OSs and apps. The consumer does not manage the underlying cloud infrastructure, but has control over OSs, storage, deployed applications and select networking.
- Gartner defines additional categories, including *business process services*, that are distinct from cloud application services, as they include some business process activity that is performed by the service.

Cloud computing is often presented as a win-win for all parties, but benefits need to be checked against risks.



In order to better appreciate the advantages of cloud computing, it is important to consider which of its attributes are essential for what the enterprise is trying to achieve, which ones are desirable and which ones are unnecessary.

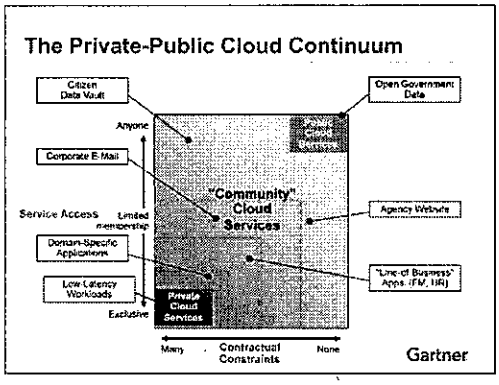
Service-based: The degree to which agencies need to access resources as a service depends on what they are trying to accomplish, as well as their level of maturity. Full automation may not be necessary in cases where services are provided by other government agencies — for instance, in the context of shared-service arrangements.

Scalable and elastic: Elasticity, as associated with an economic model that enables scaling in both directions in an automated fashion, may not be a key characteristic for most services provided by government agencies that operate at a relatively constant pace. Also, in cases where the changes in resource requirements can be planned relatively safely, coarse-grained scalability and elasticity may be sufficient, and limited flexibility in the level of automation and the payment/chargeback model may be acceptable.

Shared: This enables unused resources to serve multiple needs for multiple consumers, all working at the same time. Government agencies were dealing with shared IT services well before the advent of cloud computing.

Metered by use: The ability of government organizations to pay exclusively as a service is often hampered by their rigid procurement regulations. For amounts that exceed the discretionary spending of heads of units or agency, one has to go through more-traditional procurement processes (such as tendering), which may be unsuitable to support a strict pay-as-you-go model.

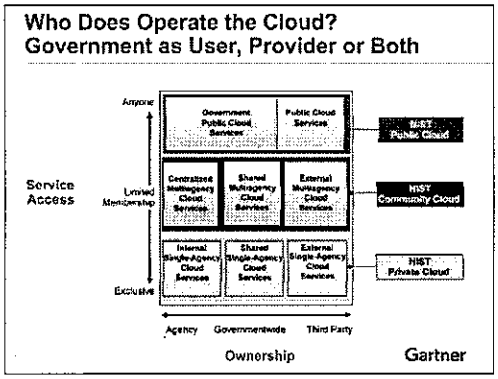
Uses Internet technologies: For cloud-based services, Internet identifiers, formats and protocols are used to link to the service, and this may be across the standard open Internet or more-private networks, but still using IP. In many cases, however, access through a private communication network is more than adequate.



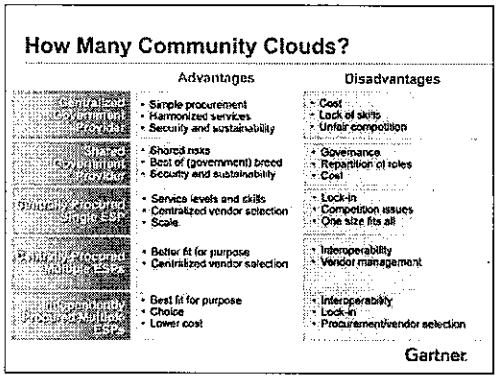
Government organizations need to exercise different levels of control on how cloud services are delivered. Some of this may be granted by the programmatic interface of those services, but some areas such as data location, security, availability and e-discovery — where control is needed for regulatory compliance purposes — may require peculiar contractual constraints. There is a continuum from private to public cloud services from the perspective of: (1) who accesses the service (a single agency, a limited set of agencies and other organizations, or anyone); and (2) the weight and influence of contractual constraints (in areas such as data location, security and availability) that are not supported through the cloud service programmatic interface, but need to be cast in the contract between clients and providers (be they government or third parties).

Along such a continuum, government IT leaders need a clearer segmentation of where cloud-computing services can be used (see examples in the diagram), how the control of resources can be exercised, and how they should be sourced in relation to existing or emerging consolidation and shared-service initiatives.

Action Item: Rather than getting caught in philosophical discussions about private versus public cloud, focus on how to gain as many cloud-computing benefits, while maintaining the required degree of control.



Two dimensions separate "public" from "private" cloud computing: service access and service ownership and control. Services can be limited to users in the single enterprise that owns the services (that is, single tenant), limited to a group of organizations (multitenant), or accessible to anyone (self-selected) or some partially limited variation in between. The service and its assets can be owned and controlled by the enterprise using the service, a third party or some variation. This applies to government, too. Cloud-computing services can be exclusive to a particular agency, used by some, many or all agencies in a given jurisdiction, or also can be used by nongovernment organizations. As far as ownership is concerned, they can be run by an individual agency (large enough to ensure scalability and elasticity), by a shared-service organization within government, or by an external service provider. However, some aspects are peculiar to government. The first is how agencies can collectively access cloud-computing services. During the past several years, there have been many attempts to establish consolidated and shared-service initiatives across different agencies. Many of these initiatives are running, and it is important for government organizations to position cloud-computing services against such initiatives. Second, it is important to make a distinction between ownership and control. *Ownership* concerns the provider of cloud services that are used by government agencies. The owner can be a single government organization, a cluster of government organizations sharing resources, or a third party. This leads to eight different categories: the diagram shows how they relate to the cloud-computing definition provided by the U.S. National Institute of Standards and Technology (csrc.nist.gov/groups/SNS/cloud-computing/cloud-def-v14.doc), which is being widely used across the federal government.



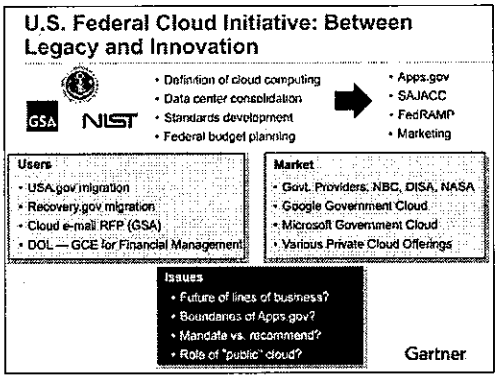
The concept of the community cloud is still relatively new and — in the government industry — can be confused and overlap with "shared services."

There are different ways to implement community clouds, ranging from government-owned infrastructures resulting from data center consolidation, to a multisourced community cloud.

Solutions that are government-operated allow to leverage existing investments and skills, but may not be sustainable or cost-competitive over time. Solutions that are mostly operated by external service providers (ESPs) require greater vendor management skills and put a greater onus on the procurement process, both if it is centralized or devolved to different agencies.

In addition to the above, some vendors (for example, Google and Microsoft) have developed their own government community clouds.

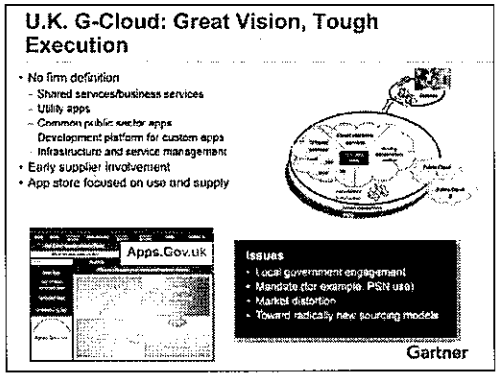
Action Items: Central government organizations in charge of cloud-computing policies should consider the pros and cons of different models to implement a government community cloud (or G-Cloud), looking at the short-term benefits and the sustainability of the adopted model. Government agencies that are considering the use of government community clouds should examine and compare different alternatives, if available.



A recent report about the state of public sector cloud computing published by the U.S. Federal CIO provides a rosy picture of the many efforts undertaken by the U.S. administration to push cloud computing adoption. The General Services Administration, the Office of Management and Budget (OMB) and the National Institute for Standards and Technology are collaborating in a number of areas to overcome the main roadblock. For instance, the Standards Acceleration to Jumpstart Adoption of Cloud Computing (SAJACC) includes a publicly accessible NIST-hosted portal that facilitates the exchange of verifiable information regarding the extent to which prestandard candidate interface specifications satisfy key cloud computing requirements.

User agencies are moving their first steps (the report above provides an initial list), and vendors are responding to the pressure, realizing the market potential. However, there are still many issues to be addressed, such as how much of the previous administration's line of business (LOB) initiatives will be leveraged to support cloud deployments, the actual impact of the procurement portal Apps.gov (whose development has been slower than anticipated) and the ability of the OMB to mandate the use of cloud, without falling into the trap of zealously pushing for certain solutions.

Action Item: CIOs in U.S. federal agencies should evaluate alternative cloud options in terms of cost, benefit and risk for their agencies, challenging mandates where those may clearly hamper the ability to cost-effectively meet their mission priorities.

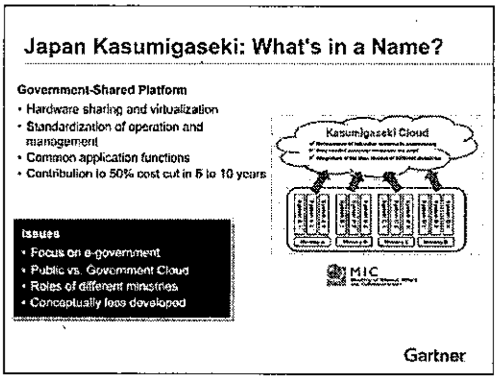


The U.K. G-Cloud initiative is one of the many streams of activity supported by the IT strategy issues before the recent change of government. The new coalition government is still pursuing the original objective and is pushing for a more aggressive approach, where the use of certain services (such as the Public Sector Network) will be mandatory.

However, the U.K. approach is remarkably broad and "soft" in terms of definitions. Rather than developing a specific definition of what a cloud service is, it aims at making departments and agencies reflect on a variety of alternatives, standardizing purchasing behaviors. As a result, the U.K. application store — which is only internal to government and still under development — will not be limited to cloud service only, but will become a single point of contact for the procurement (and the provision) of any kind of IT services.

Agencies that provide cloud-based services, software code or business process solutions will be able to make them available through the portal, largely like vendors. This should allow the U.K. government to blend traditionally separate streams such as open source, reuse and cloud-based services.

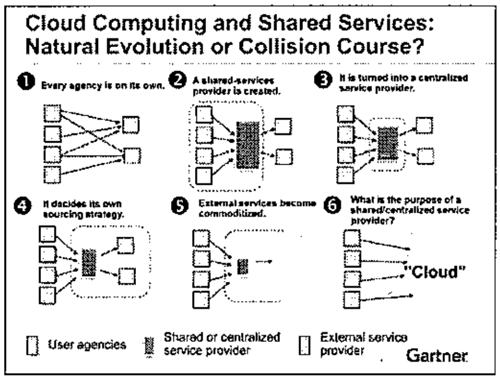
Action Items: Government organizations in charge of cloud-computing policies should look carefully at the U.K. model as an inspiration to integrate the procurement and operation of cloud-based services with more-traditional computing models.



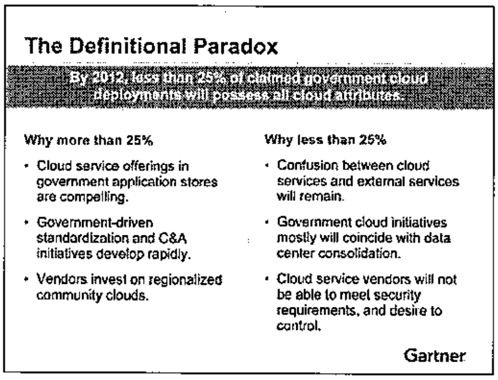
Japan's Kasumigaseki cloud takes its name from the area of Tokyo hosting the government headquarters, but its literal translation is "Fog's Gate" or "Gate to the Fog," which may be read as an unlikely (and unwilling) reference to the problem of clarity plaguing all governments dealing with government cloud initiatives.

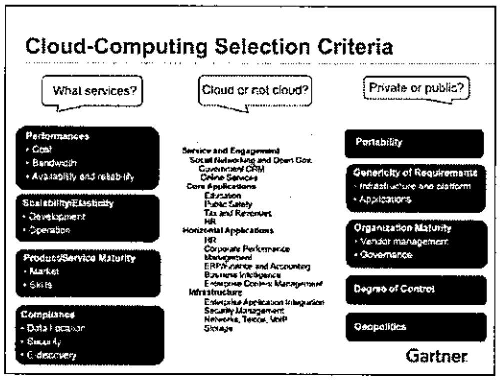
The Japanese initiative, spearheaded by the Ministry of Internal Affairs, is focused primarily on building a common platform for e-government, although it is also expected to contribute to significant cost savings going forward.

Although this initiative started earlier than others in the Western world, it appears that it is struggling to find its way.



One of today's most frequently discussed topics with government clients is shared services. Although some groups are still confused about the distinction between centralization and sharing (the latter assuming a direct involvement of service clients in the governance of service delivery and evolution), the debate should shift to how much consolidation and sharing will take place. Consolidation and centralization tend to follow cycles, depending on how political devolution plays out, which, in turn, is a function of the ruling coalition and socioeconomic situation. The current path seems to be toward the establishment of shared services as an intermediate step before centralization. Truly shared-service organizations (Diagram 2) actively engage users in governance, while increasing centralization severs the governance link (Diagram 3) and assigns greater autonomy to the centralized service provider about its sourcing strategy. However, the emergence of alternative delivery models, such as software as a service (SaaS), and the fact that increasingly more services will be provided by cloud services (Diagram 5) will question the role of some of these centralized service providers (Diagram 6).

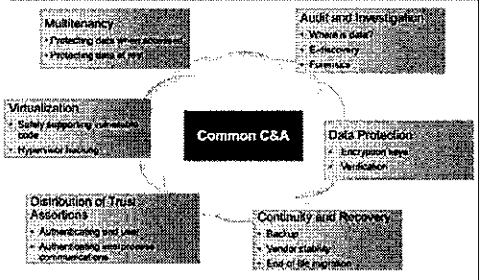




Cloud services offer government agencies new opportunities to deploy and deliver IT services. However, challenges stand in the way of achieving the potential efficiency benefits that cloud computing promises, starting with the uncertainty about the security of multitenant systems, to the complexity of pricing plans and SLAs that allow users to access elastic and scalable services. To overcome these challenges, government IT executives need to apply evaluation criteria that are an evolution of those they have been using for traditional IT delivery models, such as on-premises implementations of packaged software, or outsourcing of IT operational services.

Evaluation criteria need to address the specific vendor cloud offering that is being assessed (including traditional criteria about the financial viability of the vendor, its references, and so forth), as well as whether the government IT organization and the specific application or infrastructure requirements are appropriate for a cloud deployment.

How Can You Verify Security and Continuity?



Cloud computing is especially challenging because it is often distributed across an arbitrary number of sites, and owned and controlled by different organizations. Process controls and operations are unique in order of magnitude, and dependence upon multihost/multisite virtualization is unique. This complexity creates a potential for new and unrecognizable vulnerability that will be exploited, unless appropriate security mechanisms are developed, deployed and maintained. There are two special challenges in cloud computing. First, human and digital trust must be robustly chained across an arbitrary number of virtual machines, hosts, sites, organizations and legal jurisdictions. Second, the segregation, integrity and availability of data must be reliably maintained through the virtualization mechanism, ensuring that each authorized entity has full access to its own data, wherever in the cloud it is, but not the data of other entities. It is nearly impossible to verify the degree to which a cloud redundancy mechanism can be relied on. Often, it makes sense to regularly store local copies of the data. But it can be a long journey from a copy of the data to a running application. Besides data, an application comprises software, a platform to run it on, configuration, management and remote access. If the SaaS provider goes out of business, or you decide not to use it anymore, you may not find it easy to migrate the data to another application, to another cloud or in-house. If an application becomes unavailable (through financial failure, technical failure or site disaster), it is often impossible to restore backup data on another platform. If the backup data is with the failed provider, it may be inaccessible. The further up the stack the service, the greater the role the provider plays in ensuring security. An infrastructure service user can provide a lot of technical functionality, plus auditing, investigative and backup processes. In SaaS, if the provider does not provide that, it is not provided. SaaS buyers often underestimate the benefit of having access to these controls. Once you have put your eggs in someone else's SaaS basket, you cannot add security or monitoring mechanisms, but must depend on the provider to anticipate and fulfill your needs. The governmentwide initiative provides joint authorizations and continuous security monitoring of shared IT services for federal departments and agencies that enter contracts with outside providers, including those offering cloud computing solutions. FedRAMP would establish a unified risk management process by: (1) creating agreed-on security requirements among federal departments and agencies; (2) ensuring compatible security requirements on shared systems; (3) eliminating duplication of effort and associated cost savings; (4) enabling rapid acquisition by leveraging preauthorized solutions; (5) encouraging better system integration with government-wide information security efforts; and (6) increasing security through focus assessments. However, there are still challenges as to how to verify all of this new technology, especially when it is provided through a new model, for example, existing certifications such as ISO/IEC 27001 are adequate for known quantities, such as a database running on Linux, but less when applied to something such as Google Apps Premier Edition

Pros and Cons of Different Roles

	DESCRIPTION	PROS	CONS
User	• Use services	• Flexibility, costs • Mission focus	• Rigid sourcing • Vendor lock-in
Provider	• Provide services	• Existing assets • Security	• Focus on commodity • Competition with market
Broker	• Single point of contact • Multisourcing	• Flexibility, costs • Resource balance	• Complexity • Interoperability
Storefront	• Manage service and provider catalogs • Negotiate framework contracts	• Guidance • Devolution	• Outdated information • Predicting demand
Regulator and Supervisor	• Drive and supervise vendor standardization and compliance activities	• Confidence on compliance • Pressure on market	• Market distortion • Policy conflicts

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Some governments (for example, the U.S. and the U.K.) are developing a whole-of-government strategy for cloud computing. In these strategies, government can and does play a variety of roles, besides the obvious user role.

The role of a storefront to consolidate procurement and provision of cloud services is emerging as a key one. Apps.gov in the U.S. and G-AS in the U.K. aim to provide a single point of contact for any government organization that wishes to purchase cloud services from different cloud providers. This includes the negotiation of common terms and conditions (T&Cs) with cloud providers and, ideally, a common Certification and Accreditation (C&A) process for security. In the U.K. version, the storefront extends well beyond cloud computing and aims at becoming a more comprehensive procurement, as well as an exchange platform for any sort of IT service that a government organization may require. Another role is service provider, for those agencies that will still operate their infrastructures and provide them to other agencies, as well as brokers (which partially overlaps with the storefront role).

Last, but not least, there is an important regulatory role in areas such as standardization, portability and security.

Recommendations

Monday Morning
- Become conversant in the delivery and deployment models in this section, focusing on the continuum between private, community and public cloud.
- Start deploying low-risk, well-confined applications where cloud computing can deliver a compelling value proposition.

Next six months
- Carefully assess which kinds of processes and applications require all attributes of cloud computing; for these, determine and apply plausible deployment model options.
- For government-shared or centralized service provider organizations. Assess what value you would add to users by undertaking the provision of cloud-based services.

Next 12 to 18 months
- Encourage policymaking and procurement organizations to work with vendors to establish common approaches and standards that reduce adoption and lock-in risks.
- Evolve IT and sourcing strategy to include cloud computing.

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Related Gartner Research

- → **"Five Roles for Government in Cloud Computing"** (G00201496)
- → **"Criteria for Government to Evaluate Cloud Computing"** (G00175342)
- → **"Helping Governments Cut Through the Definitional Cloud"** (G00175062)
- → **"What You Need to Know About Cloud Computing Security and Compliance"** (G00168345)

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