行政院所屬各機關因公出國人員出國報告書

（出國類別：國際會議）

出席 2013 Gartner Symposium/ITxpo 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、黃素梅科長

派赴國家：澳洲

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摘要

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。2013 年 Gartner Symposium ITxpo 亞太地區年會於 10 月 28 日至 31 日在澳洲黃金海岸的國際會議中心舉行。

本次會議有亞太地區資訊專業人員約 1,400 人與會，共有 150 餘場次專題分析報告。其中涉及公部門之議題含括：電子化政府轉型為數位化政府、開放資料（open data）未來走向、混合雲（Hybrid Cloud）服務模式及使用者自有裝置管理（BYOD）等，其中許多新觀念及作法對本署未來推展資訊業務極有助益，包含下列事項：(1).建構資訊基礎設施「混合雲」架構模式：除機敏性系統及資料外，將逐步結合本署共構機房「私有雲」及「公有雲」服務。(2).提昇資訊專業同仁之資料分析職能：因應巨量資料時代，積極培植同仁資料分析職能，以分析大量資料所隱藏之訊息及價值，有效掌握業務創新契機。(3).推動環境雲成為跨越組織藩籬的資料服務（data as a service）新模式，擴大環境資料之應用層面及效益。(4).因應 BYOD 發展趨勢，研訂管理策略及措施，預防行動裝置資安風險，並兼顧業務持續推展。

目錄

一、會議背景及目的

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。2013 年 Gartner Symposium ITxpo 亞太地區年會於 10 月 28 日至 31 日在澳洲黃金海岸的國際會議中心舉行，Gartner 公司在台代表有感於本署目前正建置「環境雲」及開放資料（opendata）等系統平台，並於推行電腦機房節能改善等措施著有績效，可藉由該會議分享經驗並學習資訊科技發展趨勢，邀請本署資訊主管及技術人員與會，案經簽奉署長核可後與會（相關資料詳附件）。

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。本次會議中特別針對電子化政府（e-government）及數位化政府（digital government）課題安排半天議程。

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、會議過程及內容重點整理

本次會議約 1,400 人與會，主要為 IT 主管及資深從業人員，會議內容以技術趨勢及策略性課題研討為主，共有 150 餘場次活動。大會並邀請澳洲郵政總局資訊長及美國前陸軍司令座談資訊科技與組織轉型及管理等課題。

（一）10 月 28 日議程摘要

上午 9 時註冊後即開始各項議程。本日參加的技術分析發表場次主要集中討論公部門資訊統統發展所面臨的新型態挑戰與機會。Gartner 認為以往「電子化政府」的發展模式將逐漸轉向以「資料」為核心的「數位化政府（digital government）」模式，此二者之不同歸納如表 1。

由上表可知，電子化政府著重於作業流程改善及網站服務模式，也就是所謂後台作業（back-end operations）；惟因雲端運算、行動裝置及社群網路等技術日趨普及，傳統電子化政府將難以因應需求。數位化政府則是將重心從後台移向前台（front-end），同時資料來源將不限於公部門內部，社群網路上的資料亦將成為政府施政的重要參據。Gartner 估計在 2016 年開始，數位化政府將成為公部門資訊服務主流，並倡議公部門應思考設置「數位長（Chief Digital Officer, CDO）」

Gartner 分析師 Jerry Mechling 在分析報告中剖析現行各國政府積極推展的開放資料（opendata）服務，並研判未來公部門將從 open public data 轉化成 open any data（如圖 1）。Jerry Mechling 曾職於美國紐約州環保局及美國聯邦環保署，對公部門推展資訊服務頗有見地。

表 1、電子化政府及數位化政府之特性及差異

Characteristics	E-Government	Digital Government
Focus	Streamlining and Optimizing	Opening and Transforming
Scope	Service Delivery	Service Delivery and Operations
Approach	Service-Driven	Data-Driven
Technologies	Web	Cloud, Mobile, Social
Main Challenges	Interoperability, Back-Office Integration	Change Management, Governance

Source: Gartner (May 2013)

Rick Howard 則是另位曾任職美國政府部門資訊單位的分析師，提出聰慧政府（smart government）10 項策略性資訊科技（詳如表 2）。其中第 4 項「有效成本式開放資料」的概念特別值得思考。

Howard 的分析報告強調 Opendata 應考量成本效益，除了公眾需求外，同時宜注重政府跨部門間的應用及需求。Howard 認為現行 opendata 多著重資料集的「量」，這種作法會給政府部門帶來困擾。因為資料集

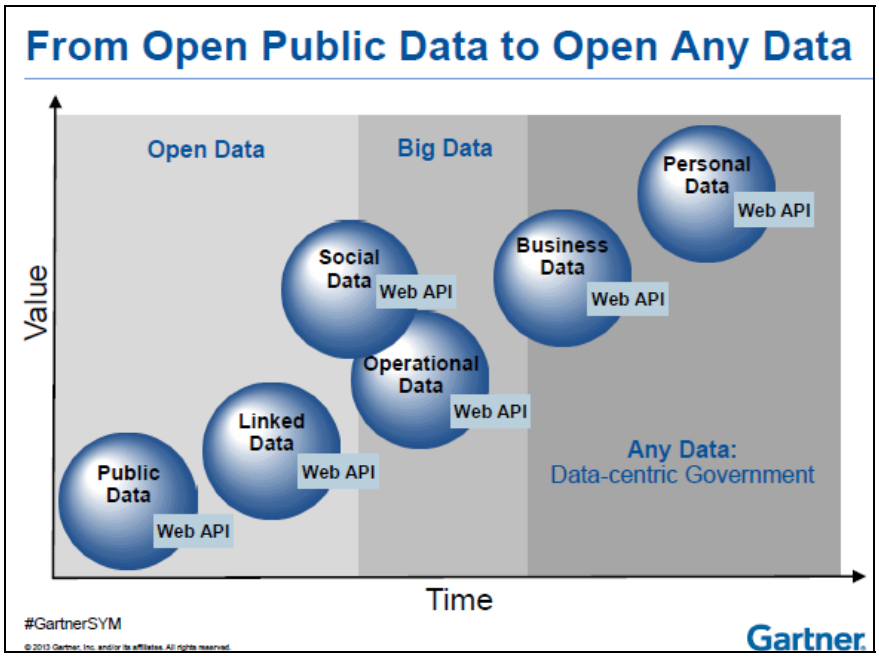

圖 1、Gartner 分析政府開放資料之進展趨勢

表 2、10 項政府資訊發展的技術趨勢

Top 10 Government Technology Trends	Social	Mobile	Information	Cloud
1. Personal Mobile Workplace	✓	✓		
2. Mobile Citizen Engagement	✓	✓		
3. Big Data and Actionable Analytics			✓	✓
4. Cost-effective Open Data	✓		✓	
5. Citizen-managed Data	✓	✓	✓	✓
6. Hybrid IT and Cloud		✓		✓
7. Internet of Things		✓	✓	✓
8. Cross-domain Interoperability			✓	✓
9. BPM for Case Management			✓	✓
10.Gamification for Engagement	✓	✓		

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一旦開收，不論其利用率如何，要退場十分不易，公眾會懷疑公部門要「隱藏」訊息。但若開放資料集只能「有增無減」，則行政成本能否持續支應，是否符合成本效益，不無疑問。其次，政府各部門間應充分利用開放資料，跨越組織藩籬，尋求資料整合及分析的創新應用。

其次，公眾管理資料（citizen-managed data）則是另一個值得探討的新課題。由於政府部門保有許有個人資料，例如健保資料、稅務資料，甚或消費資料等，這些資料的「所有權」之歸屬，究係政府亦或當事人，容有討論空間。Garnter 認為這種所有權未來將移轉給當事人，如果當事人要下載或是分享這些屬於他個人的資料，資料持有單位應如何因應？晚近國外「個人資料保險庫（citizen data vaults）」的作法，隨雲端技術的成熟，漸成趨勢。就我國現狀分析，「個人資料保護法」與這種新型態的服務模式是否契合或有所扞格，極待探究。

當天下午各項議程結束後，大會安排簡單的歡迎晚宴，讓與會者相互熟悉。晚宴在露天草坪舉行，特別針對公部門出席人員安排專區，而且分為地方政府、州政府及聯邦政府等不同區塊，估計公部門出席人數約 300 餘人，多數為澳洲及紐西蘭政府部門人員，可見紐澳地區公部門對資訊技術應用在公共行政領域的重視。

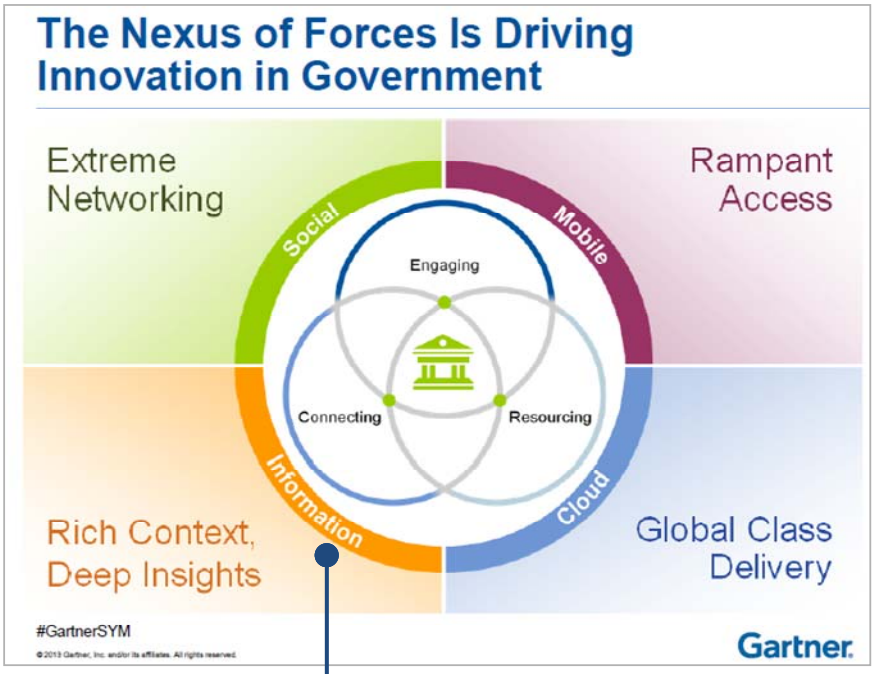
（二）10 月 29 日議程摘要

上午係正式的開幕會議，由 4 位 Gartner 資深分析師（Betsy Borton, John Roberts, Nick Jones and Peter Sondergarrd）對未來資訊科技的發展及應用（opening keynote），提出新的評析看法及預測。本年 Gartner 所揭櫫的主要核心議題是「聯結的力量（nexus of forces）」（如圖 2）。Gartnet 認為資訊科技將進入由社群、行動裝置、雲端及資訊分析這四項技術的發展與應用所主導，並可能成為顛覆性科技（disruptive technology），扮演驅動科技創新的主要動能，不論公私部門均須關注此演進過程及掌握創新契機。

分析報告：Cloud Sourcing Strategies, Risks, and Best Practices, by Linda Cohen

針對雲端運算及服務，Gartner 雖然認為已成趨勢，而且其效益亦逐漸彰顯，但有些課題必須及早因應。其中最重要的課題是將資料及系統移往雲端後的風險管理，包括：

(1) 提供服務的雲端業者停止營業或是突然倒閉。
(2) 儲存在雲端的資料，遭到竊取或不當利用，例如美國中央情報局雇員史諾登（Snowden）案例。



資訊分析與公部門之關係尤其密切，未來公部門需要運用巨量資料(big data)，分析挖掘資料中所隱藏的訊息，支援施政計畫

圖 2、藉由社群、行動裝置、雲端及資訊分析這四項科技所構成「聯結的力量」，可能成為顛覆性科技（disruptive tech.），驅動政府創新的能量

Gartner 建議所有移往雲端的系統、資料或服務都應該事先作好規劃，包括其適應性、彈性調整的策略，同時必須事先擬妥備案，也就是「B 計畫」，而且這些備案必經當檢視其可行性，一旦服務供應商出現狀況，備案即可發揮其功效。Gartner 同時也建議針對這類委外服務，應該建立風險註冊機制（risk register），作為 IT 部門與雲端服務供應商之間風險管理的重要元素。

分析報告：Information 20/20 Beyond Big Data, by Douglas Laney and Ian Bertram

巨量資料（big data）的分析處理在未來幾年將成為資訊科技發展的重要課題，但巨量資料的管理與傳統的資訊管理，不論在學理面或實務面都有很大的差異，其中最為顯著的是，巨量資料的管理風格是「隨興的」，與傳統資料倉儲或資料庫技術講求正規形式及標準流程等不同，至於二者的目的，也隨著外部環境改變而不同，傳統資訊管理著重在運用資料作出較佳的決策（better decisions），但巨量資料所追求

的是較佳的業務（better business）。因應趨勢發展，Gartner 建議：

(1) 就巨量資料的技術觀點，強制要求「標準」的時機已不複存在，現在是以實驗性質積極導入新技術的時代

(2) 資訊應該視為組織的資料，要直接作為組織發展與成長的重要元素；企求以傳統資訊管理技術，支援制訂較佳決策的業務案例已成過去

(3) 導入新技術要注意不要跨越所謂的 Creepy Line，亦即要適度節制，倘若任由新技術在組織內毫無方向地「蔓爬」，則對組織的聲譽可能造成嚴重損傷。

（三）10 月 30 日議程摘要

分析報告：Managing Mobile Devices in the Enterprise, by Song Chuang

隨著行動裝置及無線網路日趨普及，組織成員越來越傾向於攜帶自己的設備到工作場所（Bring Your Own Devices, BYOD），並且要求以自有設備連結組織內部網路，擷取內部資料，員工甚至將其自己在消費型雲端服務內所儲存的個人資料，例如：Dropbox, Google Apps 等服務，與公務資料相互混雜。這種趨勢造成組織對資訊設備、系統、資料管理及資通訊安全的重大挑戰。Gartner 建議：

(1) 首先要區隔使用者；根據不同區域、平台、資料需求及資安成本作區分

(2) 制定行動裝置管理政策

(3) 審慎評估導入行動裝置管理工具（Mobile Device Management, MDM），目前市面上這類工具很多，必須考量不同面向，不宜就單一功能或特性決定品項，未來這類工具必須能提昇為企業行動管理（Enterprise Mobility Management, EMM）系統。（詳如圖 3）

分析報告：CIO Agenda for 2014, by John Roberts

根據 Gartner 的調查統計與分析，2014 年IT部門最主要的方向性改變將由「傳統被動式地追求效率，轉向主動式的創造價值與創新[1]」。在此前題下，下列議題在 2014 年必須特別加以關注：

(1) 與使用者建立夥伴關係

(2) 調整資訊預算的分配；由傳統的軟硬體購置轉向雲端服務購置或租賃，而先期投入雲端服務的組織將開始獲益

(3) 面對數位化海嘯（digital tsunami）的衝擊，Gartner 調查有 39% 的企業 IT 部門尚未作好準備

[1] From reactive effectiveness to proactive value creation and innovation.

圖 3、行動裝置快速普及，BYOD（Bring Your Own Devices）勢成趨勢，但資安課題必須及早因應

(4) 掌握創新來源，根據 Gartner 分析過去 10 年及未來 10 年的創新來源將會有很大改變，傳統的軟硬體製造商，將逐進失去創新優勢，未來將有 32%的以上的創新作為會由與現在截然不同類型的企業所趨動，而現行的 IT 產業在未來 10 年仍保有創新影響力，可能只有 Google 及 Amazon。（詳如圖 4）

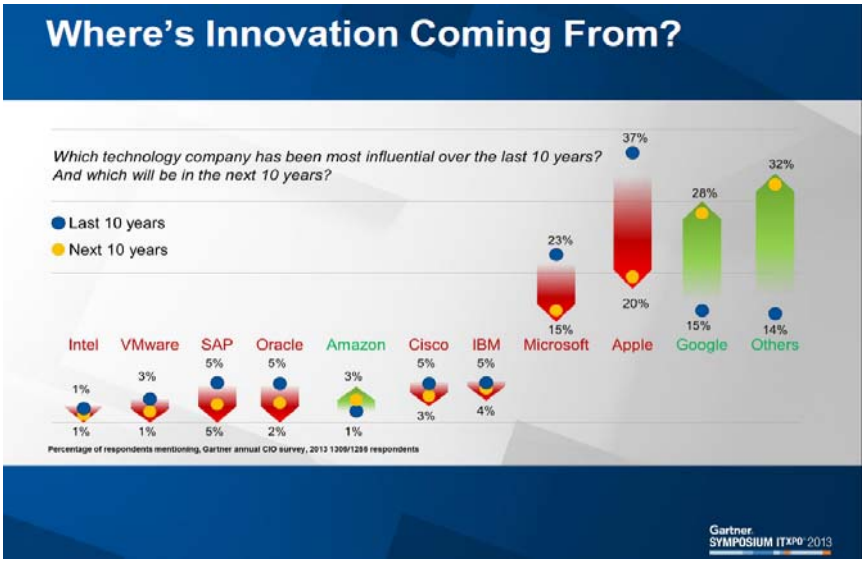


圖 4、Gartner 分析 IT 產業的創新影響力消長趨勢

分析報告：The Cloud Computing Scenario: End of the Beginning Goes From Cloud to Ground and Back, by David Mitchell Smith

組織內部的員工個人或業務部門對於雲端運算的興趣或應用程度日漸增長，無論是免費或付費的公有雲端服務，讓他們可以更為容易略過 IT 部門而取得所需的資訊服務（無論是 IaaS, Paas, SaaS）。IT 部門雖無須貿然躁進，但亦不能固守現狀，應正視這個課題（從不同面向考量，例如預算、安全、靈活度、環境複雜度、資源整合度...），加快雲端服務的導入決策，制訂相關治理機制。

IT 部門倘以鴕鳥心態面對數位時代的雲端應用趨勢，極有可能被組織的使用者邊緣化；又若以抗拒的作風，固守自建的私有雲服務，亦將被組織的使用者視為與公有雲供應商同等地位的選項之一，IT 部門較佳的作法是提升職能成為公有雲服務的仲介者，以更為彈性之資訊治理，確保組織資訊策略主導權。

（四）10 月 31 日議程摘要

分析報告：The 10 Habits of Highly Effective Application Organizations, by Andy Kyte

企業組織的應用系統發展並非只有「自建」或「外購」二種途徑，但不論採取何種方式，現今都面臨新型能的挑戰。這些挑戰包括使用者的期待與系統發展者的量能落差加大，敏捷式軟體發展技術未能發揮功效等課題。Gartner 除了提出 10 項「紀律」規則外，同時提出下列建議：

(1) 軟體系統的發展組織要扁平化
(2) 對於非功能需求，必須在選用工具及發展方法前，明確釐清
(3) 對發展方法及程序，必須由全體成員共同擁有及承擔
(4) 爭取充分的時間及預算，從事系統的設計並詳為檢視
(5) 針對所有系統發展活動，必須掌握即時回饋
(6) 在正式啟動發展前，務必對系統有完整的定義（definition of done）
(7) 在發展過程，嵌入品質保證（quality assurance, QA）程序。

分析報告：Hybrid Clouds and Hybrid IT: the Next Frontier, by Michael Warrilow

雲端運算已逐漸成熟為一種可持續運作的資訊服務樣態，但是雲端服務尚無法取代所有資訊作業及其服務，這種新型態的服務模式與趨勢，對 IT 部門的功能與定位產生一定程度的衝擊，調整與改變勢在難免。Gartner 倡議的混合型雲端服務及混合型 IT 服務可能是未來 IT 部門的新定位。所謂混合型 IT 組織（Hybrid IT Organization）係指：IT 部門對所有 IT 服務，扮演可靠的仲介者（brokers）及提供者（providers）的角色。

這裡所指的 IT 服務可能來自組織內部自有的設施，或是外部的服務提供者，包括以雲端運算模式及傳統資訊作業模式；IT 部門對這些服務採行整合、聚類、客製化、管理與治理等措施，以滿足組織的 IT 需求。要轉型為混合型 IT 組織，Gartner 建議以下作法：

(1) 設計及建置私有雲服務時，必須預先考量混合雲的服務模式，確保將來能整合及互通
(2) 制訂策略性架構，設計可由仲介者整合的簡單雲端平台，或是複雜的雲端平台，但仍可由仲介者控管
(3) 承諾混合型 IT 策略，落實定位 IT 部門，使其成為組織內的 IT 服務仲介者。

分析報告：From IT Strategy to Digital Business Strategy, by Leigh McMullen

因應數位化時代來臨，2014 年起應逐步將業務數位化策略與 IT 策略更緊密連結、並重發展，避免重複投資與策略相左。Gartner 以波士頓的新都市為例，波士頓運用 Web2.0、社群網絡、行動裝置等技術，連結市民與公部門的服務，公民不再單向的接受公部門服務，而是透過參與，成為公部門創新服務的發展夥伴。例如市民運用行動裝置即時通報市街坑洞，城市的發展成為全市民的共同任務。

物聯網（Internet of Things）的應用將日趨普及，IT 部門的定位應從以往的系統管理逐步轉型為組織數位化的引領者，IT 的資訊治理除與業務部門的數位網絡（電信網絡、能源網絡等）建立合作模式，亦應考量組織外部網絡的發展（使用者個人的行動裝置、外部社群網絡、巨量資訊分析）。Gartner 建議從成功案例學習業務數位化的 6 項黃金法則：

(1) 面對組織的問題或機會時，試著思索「如果採行數位化所帶來的影響是甚麼?」
(2) 快速且果決地處理系統的「拆換」問題
(3) 思考數位與實體之組合
(4) 專注在數位生態系統的演進
(5) 在多元化的工作團隊嵌入數位化執行原則
(6) digital business requires digital-ready infrastructure

Gartner 建議組織業務數位化的 6 個步驟：

(1) Define: 訂定數位化的範圍、目標與時程表
(2) Direct:訂定數位化策略與措施的 sponsorship, leadership and governance approaches
(3) Discuss: 業務數位化的策略框架必須經過各領導階層的充分討論
(4) Design: 包含新的機制、所需預算、工具及專業團隊
(5) Decide: Embed decisions and prioritized actions in the business strategy and the program portfolio. Ensure plans for digital talent are included.
(6) Deploy: Execute on the resulting plans.

（五）與分析師討論及晤談

Gartner Symposium 與其它類似的資訊科技論壇或會議之不同處及其特色之一，在於與會者可預先與分析師或講員約定時間，針對特定的問題進行單獨的討論晤談。這項服務由於可直接請益具有特定主題專長的分析師，所以十分受到與會者歡迎，部分熱門的分析師其必須在會議前 1 個月就預約時段（1 對 1 晤談面談預約看板圖 5）。本次與會前，本處事先透由網路，與 Gartner 二位分析師預約晤談時段，每次各 1 小時，對釐清相關問題關鍵，頗有收獲。以下僅摘述討論及晤談過程。

圖 5、Gartner 分析師預約晤談現場看板圖

與 Gartner 分析師 Mr. Eric Thoo 晤談紀要

主題：資料整合技術及資料倉儲產品工具之性能分析

時間：10 月 30 日 13:30pm – 14:30pm

地點：One-On-One Meeting Room, Gold Coast Convention and Exhibition Centre, AUSTRALIA

Eric 是 Gartner 資料管理業務研究主管，專注於資料整合研究（例如資料倉儲、資料品質之治理）及新興資訊科技（例如雲端（cloud）技術及軟體服務（Software as a service））對於資料管理的影響。本次晤談特別針對本署目前進行中之環境雲計畫相關議題向 Eric 請益。

對於本署刻正進行之環境資源資料整合計畫，Eric 表示要將散落於不同區域的資料（即環境資源部各附屬機關的資料）運用雲端平台整合，須思考基礎架構服務化（Infrastructure as a Service, IaaS）、平台服務化（Platform as a Service, PaaS）、軟體服務化（Software as a Service, SaaS）此三個階層服務的鏈結。本署在基礎架構服務階層採用混和雲模式（運用本署共構機房及公有雲服務）是可行的方向。Eric 建議可運用現有的工具（例如 Informatica）進行本地端及雲端資料整合之連結。

Eric 進一步建議環境資源資料庫除了進行收集、整理、儲存、整合展示工作，更應扮演資料發布者（data broker）的角色，透過各程序準則

將具有品質的資料直接供應給公眾加值應用。

與 Gartner 分析師 Rick Howard 晤談紀要

主題：政府開放資料（opendata）及數位化政府議題
時間：10 月 31 日 14:00pm – 15:00pm
地點：One-on-One Meeting Room, Gold Coast Convention and Exhibition Centre, AUSTRALIA）

Rick 是 Gartner 政府業務研究主管，專注於公共部門的 IT 解決方案、管理規範和技術發展趨勢的研究。本次晤談特別針對政府開放資料（Open Data）議題向 Rick 請益。

Rick 表示開放資料的重點是將原本儲存於特定資料庫內不同格式的資料，以開放格式（Open Format）並包含該些資料的詮釋說明（meta data）供應出去，供應的對象不只侷限於社會大眾，其實最大的受惠者是各政府部門。Rick 建議政府部門應先有準則評估適合開放的資料，因為資料一旦開放後，即會產生使用者，如要下架亦應制定下架機制，以免造成資料應用者的困擾。Rick 建議政府資訊單位負責基礎架構平台建置，業務單位運用於建立軟體系統產製資料後，應將資料回饋給資訊單位彙整開放。Rick 同時建議政府部門設置資料科學家，提升資料品質，同時將資料有效分析，也建議資訊部門雖然無須深入業務部門領域，但應了解業務流程，以從例行操作維護階層提升為資料分析的階層。

Rick 建議政府資訊單位執行基礎架構平台維運，應建立資源使用評估機制，對不同處理時效或資源需求的業務系統，提出使用者付費的評估準則，以利業務單位共同分攤維運經費或評估下架時機。

（六）三場關於領導、創新及管理策略的演說摘要

本次會議於午餐或晚餐時段，特別安排知名業界人士演說（時間 1 小時），由於演說者在各領域俱有聲譽，其內容多有值得學習處，僅摘述如下：（詳如附件 2）

1. 演說者：General George W. Casey（前美國陸軍總司令，退役陸軍 4 星上將，2004 年伊拉克戰爭聯軍指揮官）
   時間：10 月 29 日，13:00pm-14:00pm

   Casey 將軍的演講內容有 3 項主題：環境、人員、領導。針對環境

課題，Casey 將軍認為現今世界變化之快及其複雜程度，斷非任何人所能預料。職場環境的變化與戰場環境的變化不分軒輊，二者基本的核心課題，並無不同；身為領導者如何掌握外部及內部環境的變化，是成功的關鍵因素之一。

就人員而言，Casey 將軍特別以他本身在軍旅生涯選任「將軍」為例，他認為凡要擔當領導責任者，必須具備以下 3 條件：

(1) 願景：領導者特別需要從外部組織看待事物發展的能力，切忌固步自封；
(2) 勇氣：不僅軍人需要勇氣，職場上的領導者更要培養勇於嘗試及冒險的能力，Casey將軍特別提到 "not thing good happen without risk"，用以彰顯勇氣的重要；
(3) 品行：特別需要具備忠誠、負責及正直這 3 項特質。

就領導能力而言，Casey 將軍著重以下 6 點：

(1) Develop Vision Strategy: 領導者必須很清楚掌握想要達成的任務及目標，必須澈底瞭解，同時以圖像、口語及文字等不同方式，明確、清晰且完整地表達。
(2) Build Commitment: 針對上述的願景策略，領導者必須向同僚作出承諾，爭取組織外部的支持；Casey 將軍以其在伊拉克戰爭的經歷，表示戰場上重要策略，都必須獲得華盛頓、美國大使館及伊拉克總理府的支持，方能克盡事功。
(3) Build Team: 團隊必須根據任務需求建立，針對團隊的表現，領導者必須顧及部屬成長的需要及其軟弱的一面，不需要求事事完滿（not to try good at everything）。
(4) Identify Future Opportunity: 領導者必須有積極正向的思維，看事情的角度要超前及拔高。
(5) Driving Change: 多數人不喜歡改變，但變革卻是組織成長的動力來源，領導者在推動變革時，必須顧及變革幅度，幅度太大則易造成衝擊並引發反彈，幅度大小則又不足以造成改變；其次，組織文化是推動變革的關鍵成功因素，必須審慎考量。
(6) Sustain Yourself: 作為領導者，必須要有充足的智識及良好的體能；Casey 將軍認為領導者必須經常閱讀以擴大視野、經常運動、適度睡眠及休息以保持體能、再者是無時無刻地「思考」。

2. 演說者：Mr. Tim Longhurst（Futurist）

Longhurst 是澳洲當地知名的演說家，其主要專長在資訊科技趨勢

研判。其演說內容有 2 項重點：（1）empowering individuals （2）leading innovation。針對第（1）項，他認為現行外部環境變化快速，資訊科技對人們生活影響至鉅，他用 3 個面向的技術發展，構建如圖 6 的生活模式，特別強調年輕族群對資訊科技的依賴，造就新型態生活方式。

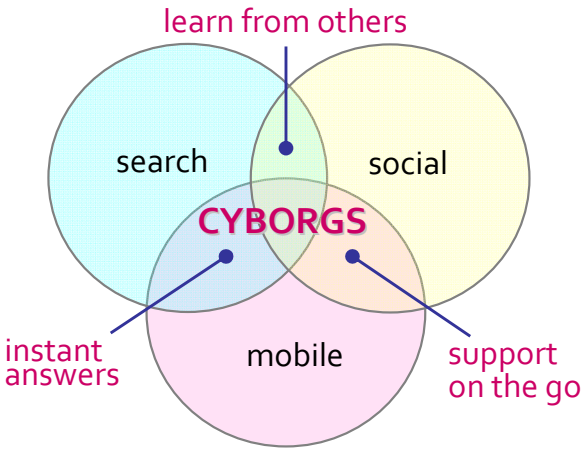


圖 6、搜尋、社群及行動 3 項技術構成新的生活型態

有關引領創新的趨勢，Longhurst 認為：

(1) 小規模的力量（power of small），他特別以網路募集資金為例，強調小創意可以帶來意外的收獲；網路上曾有人僅以提供生產「某種特殊類型的手錶」的想法為標的（這種手錶事實上尚不存在），在網路上短時間內竟可募集到上百萬美金的創投資金。

(2) 邊界消失（Barriers are collapsing），網路課程及教學即為最佳例子。

(3) 智慧隨手可及（Wisdom is in the grasp），Longhurst 特別舉一個例子：某人想拍攝紐約街景影片，但缺乏資金，於是寫 email 給紐約各知名飯店，請他們提供由飯店窗口拍攝的街景影片。不久他收到上百影音檔，經過剪輯，造就一段知名的紐約街景影片，在網路廣受歡迎，而作者卻從未到過紐約。顯見創意唾手可得，我們只是缺乏發現的能力。尤如眾人皆看見蘋果自樹上落下，唯獨牛頓發現萬有引力。

3. 演說者：Dr. Marshall Goldsmith（任教於達特茅斯大學商學院，曾擔任 120 家大型企業 CEO 與高階主管的顧問與教練）

Dr. Goldsmith 是華爾街日報推崇的 10 大最頂尖的主管教育家（executive coach）之一，在全求享有卓著聲譽。其演講主題是 The Leader of the Future: “What Got You Here Won’t Get You There”。他

建議 IT 主管應具全球化思維、跨文化鑑賞能力、對新科技的靈敏度、與業務部門建立良好關係及執行共享式領導。就領導能力的精進，Dr. Goldsmith 建議 8 項作法： ASK, LISTEN, THINK, THANK, RESPOND, INVOLVE, CHANGE, FOLLOW-UP。

Dr. Goldsmith 演說內容廣徵博引，生動風趣，但發人深省。他特別強調家庭生活與工作相互平衡的重要性;他認為許多企業主管過於熱衷工作目標的追求，忽略家庭生活，是不智之舉。其次，主管應經常詢問週遭工作夥伴，什麼地方需要改善（what can I do to be a better manager?）Dr. Goldsmith 不認同傳統的回饋機制（feedback），他認為主管應該「前饋（feed-further）」，也就是在能預先改變自己的行為模式及工作態度，而非事後尋求改善。

三、參加會議心得及建議事項

（一）會議心得

本次會議雖僅有 4 天，但議程安排緊湊且多元，除了一般性技術專題分析報告外，尚有針對資深資訊主管的工作坊（workshop）及圓桌會議（round table meetig）。會議各場次技術分析報告涵蓋各個不同產業，包括政府部門、銀行金融及零售等，以下綜整歸納本次會議與公部門相關之議題及心得。

1. 現行各國政府開放資料（open government data）的作法，估計在 2015 年後將轉型為數位化政府（digital government） 之發展模式。未來政府將由服務導向轉為以資料為核心（data-centric）的運作型態，其發展趨勢如圖 7。我國推動政府資料開放較國外略晚 2 年，未來在數位化政府工作需迎頭趕上。
2. 雲端運算邁入成熟期，就公部門而言，將以混合雲（hybrid cloud）之應用為主要趨勢。我國現行「政府雲」計畫中所著重者仍以「私有雲」模式為主，隨雲端運算技術成熟，未來部分不涉機敏性之系統及資料，應可優先考量「公有雲」所提供之服務，藉以降低營運成本，提昇整體效益。
3. 資訊單位未來必須同時扮演服務提供者（service-provider）及服務仲介者（service-broker）；此外，資訊單位必須提昇資料整合、加值及分析之作業能量，因應巨量資料（big data）之應用需求。

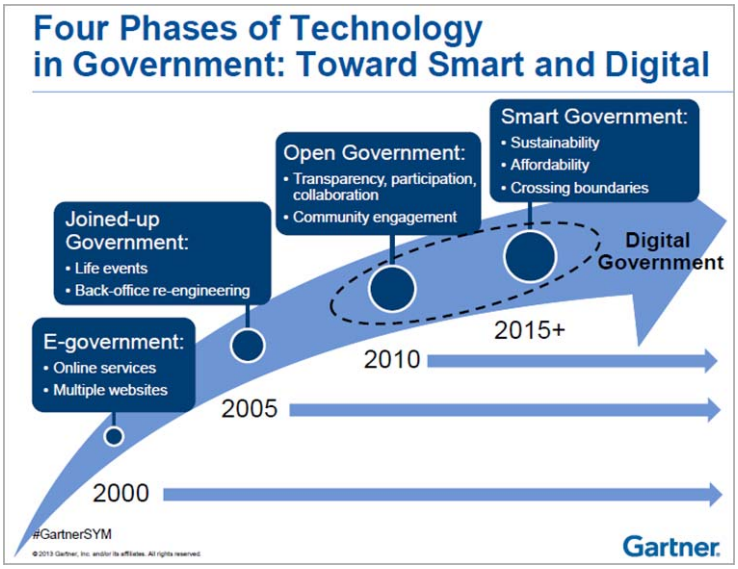


圖 7、現行各國政府開放資料（open government data）的作法，估計在 2015 年後將轉型為數位化政府（digital government） 之發展模式。未來政府將由服務導向轉為以資料為核心（data-centric）的運作型態

4. 社群、行動裝置、雲端及資訊分析將構成「聯結的力量（nexus of forces）」，並可能成為顛覆性科技（disruptive tech.），公私部門均須關注此演進過程及掌握創新契機。
5. 行動裝置快速普及，BYOD（Bring Your Own Devices）勢成趨勢，但以員工自有裝置連結內部網路所衍生的資安課題及配套管理措施，尚未完備。
6. 物聯網（Internet of Things）的應用將日趨普及，在未來 5 年內，任何物件（尤其是 sensor 類物件）都可能聯結網路。
7. Gartner 預測未來 2 年，各國政府資訊業務將著重：（1）資料分析（2）舊系統現代化 （legacy modernization）及重整 （3） 合作型資訊管理；（4）行動裝置管理等課題。

（二）建議事項

1. 建構「混合雲」之共用資訊基礎服務設施模式

   本署已規劃將全署同仁之 email 及共用硬碟等服務設施移往雲端（10 月 28 日已決標採用 Google Apps），未來除機敏性系統及資料外，視本次運用情況及環境資源部組改進程，逐步擴大。

   導入雲端服務的同時，需注意資安風險及備案計畫（plan B）。當系統移往雲端後，在人員管理方面的資安風險，將不能只考量組織內部人員，對於提供雲端服務業者的人員管理，也要納入考量，以免發生類似美國中情局雇員史諾登（Snowden），竊取內部資料向外爆料的事件。其次，雲端服務業者亦可能因財務危機或其它因素，導致中途停止營業，所以備案計畫的範圍與可操作性，必需預為慎審規劃。
2. 提昇資訊專業同仁之資料分析職能

   考量組織內外資料增長速度，因應巨量資料時代，必須積極培植同仁資料分析及資料探勘（data mining）職能，藉以分析大量資料所隱藏之訊息及價值，有效掌握業務創新契機。
3. 推動環境雲成為跨越組織藩籬的資料服務（data as a service）新模式

   環境雲在 10 朵政府雲的框架下，將整合 10 個機關的環境資源資料，建置跨機關「環境資源資料庫」。本年度參考美國環保署資料集中交換（central data exchange, CDX）機制，已整合氣象局、水利署及水保局等資料，與消防署（災防雲）完成機讀（machine to machine）資料傳遞測試，未來配合組改進程，可望擴大環境資料之應用層面及效益。
4. 盤點評估本署資訊系統之成本效益，體現精實（lean）應用原則

   本署部分系統效能與耗用之 IT 資源難符比例，基於節能考量，擬

定期依 Gartner 建議之準則評估應用系統效能，適時調整資源配置。另於資訊系統開發時，遵循精實原則，避免造成膨脹體（bloatware）之系統環境，徒耗資源。

有論者以為，組織內之資訊單位未來必需等同業務單位（IT as business），而非輔助或支援單位，是以資訊單位提供的服務不再只是「成本支出」，而必須追求最大的效益（事實上，許多大型企業，例如 Intel, 已經實行此方案）。如此一來，業務單位所提出的「系統需求」，資訊單位必須審慎評估其效益，倘若未符組織整體目標，則其成本效益應由業務單位承擔。這種觀念已逐漸受到重視，唯在公部門能否運行，基於業務特性及組織文化，似尚待觀察。

5. 研訂 BYOD 管理策略及配套措施，預防行動裝置資安風險

員工使用自有的行動裝置處理公務及存取內部資料勢成趨勢，本處將根據使用便捷性及資安防護兼顧原則，擬研訂管理策略及措施，以因應業務推展及同仁工作需求。

Gartner Data Integration meeting (with Eric Thoo)

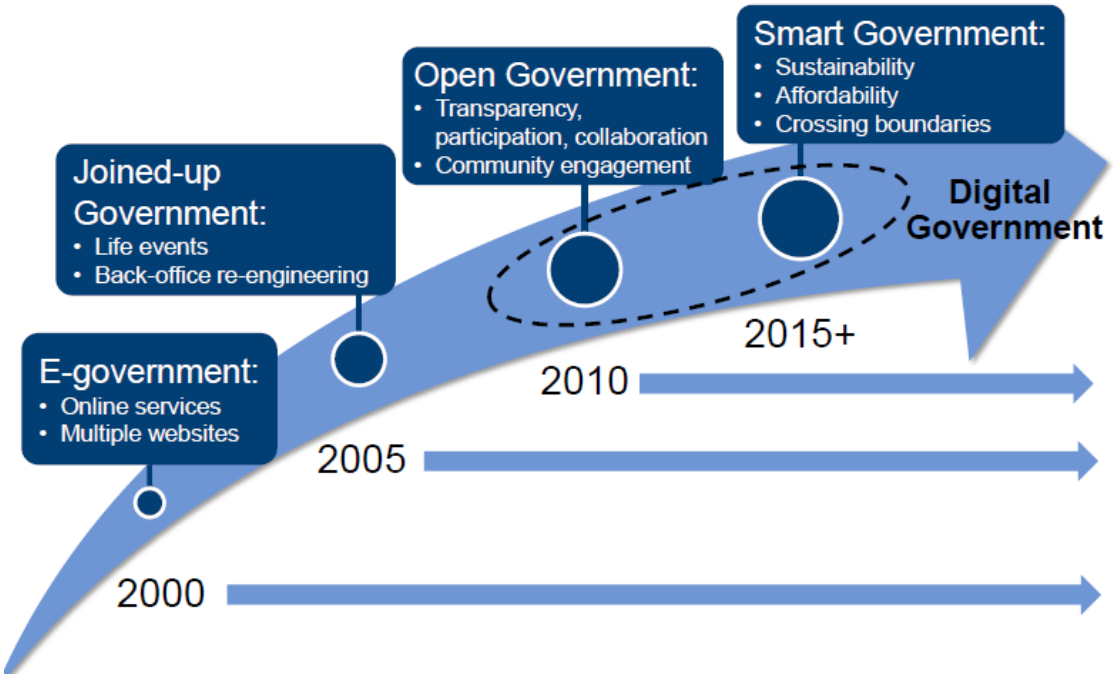
Scheduled for: 30 October 2013
Start time: 13:30
Duration: 60 Minutes

1. From the perspective of technology development, what is the future trend of data integration?
2. We are currently implementing a data integration project which intends to integrate the data distributed in various agencies such as Geology Survey, Bureau of Water Resources, Central Weather Bureau, and so on. For those integrated data, do you think whether we need to construct a centralized data repository, or we may maintain a decentralized mechanism that still gain the benefits of data integration?
3. The critical success factors of data integration. Are there any successful examples in the domain of government, or public administration?
4. From the perspective of data models, what is the major different between data integration and data warehousing?
5. How do you think the relationship, or the potential cooperative mechanism, between “government open data” and “government data integration”?
6. Mr. Lyn Robison of Gartner proposed a concept of “data cloud” in 2011 (see attached paper). Do you think it is suitable for government data integration? Are there any solid examples which can be referred as a practical model of “data cloud”?

Gartner Meeting (with Mr. Rick Howard)

Scheduled for: 31 October 2013
Start time: 14:00
Duration: 60 Minutes

1. Apart from the issues you mentioned in the following figure, are there other subjects that can help us to identify the difference between “e-government” and “digital-government”?



2. Some of academic and people from the non-government-organization in Taiwan highly focus on the issues of “copy-right of government open data”. They always ask government for giving up the “intellectual property” (or something like that), therefore they might use the data to produce something that might be “sold” without concerning the copyright. How do you think this issues when we toward digital government?
3. How do you think the relationship, or the potential cooperative mechanism, between “government open data” and “government data integration”?
4. Linked Open Data (LOD), sometime is categorized as the “five-star”

category open data, do you think that really helps the government data to be more “useful”? From the perspective of government side, it seems to take a huge amount of efforts to fulfill the task, not only the shortage of budget but also lack of skillful people. Do you have any comments on this?

5. Regarding the “open government”, you mentioned that we should concern the requirements not only from citizen, but also the employee within the government. Do you have any practical example that we can learn form it? (for example, do we need to form a committee to deal with this issue?)

G00252158

Digital Government Is Both Different From E-Government and More of the Same

Published: 28 May 2013

Analyst(s): Andrea Di Maio

Several jurisdictions are pursuing digital government strategies, but some of their objectives are not so different from those of earlier e-government initiatives. CIOs must know how to leverage experience from those earlier programs and better understand the differences between the two approaches.

Key Findings

- Digital government has different meaning for different constituencies, which can cause skepticism about its real transformational value.
- Digital government has some of the same governance issues and time frames as e-government, but its focus on leveraging digital assets in new ways challenges established organizational boundaries.
- Digital government can be even more challenging in terms of governance due to the disruptive role of the Nexus of Forces, and is characterized by a changed suppliers' and partners' ecosystem, as well as sustained resource constraints.

Recommendations

Government CIOs involved in co-authoring or implementing a digital government strategy should:

- Not act defensively, but be supportive of the transformation and proactively partner with whichever role (such as the chief digital officer) is established to lead it.
- Help business executives understand the differences between digital and electronic government.
- Partner with the chief digital officer or similar role to establish an effective portfolio management process and agree on a common data management strategy.
- Identify opportunities for value generation through digital transformation that originate from internal stimuli (such as major resource constraints or a technology refresh).

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Analysis

During the past year, there has been a growing interest in digital government,[1,2] partly driven by the opportunities offered by the nexus of social, cloud, mobile and information analytics (see "How the Nexus of Forces Will Impact Government"), and partly as a consequence of political agendas aiming at a quantum improvement in constituent service and operational efficiency.

Although digital government strategies exhibit several new and disruptive characteristics, many skeptics discount such elements, claiming that digital government is just a new term for e-government, and that many of its goals can be found in earlier e-government strategies. While there is some merit in these statements — as digital government addresses constituent centricity, a single view of the client, joined-up services and applications — it is fundamentally different because it places its emphasis more on information and data than on processes and services, and genuinely aims at a more direct and effective engagement of external stakeholders. Different constituencies weigh these aspects in dissimilar ways, which may lead to potential confusion and underestimation of digital government's transformation potential.

The iconic statement "digital by default" used by the U.K. government[1] has a much deeper meaning than just making sure that digital channels are the main ones. It implies that the fuel of any process,

transaction or decision is digital information, and that such information is at the core of the strategy, rather than being ancillary to the provision of services and the execution of transactions. The immediate consequence is that those services and transactions can be shaped, changed and created in multiple new ways to process, combine and analyze digital information.

Despite all this, digital government faces some of the same challenges as e-government, as well as new, more recent ones. Cross-government collaboration is probably the most relevant example of the former, while resource constraints and increased levels of uncertainty are examples of the latter.

Comparing E-Government and Digital Government

Table 1 provides a high-level comparison of the characteristics of e-government and digital government.

Table 1. E-Government Versus Digital Government

Characteristics	E-Government	Digital Government
Focus	Streamlining and Optimizing	Opening and Transforming
Scope	Service Delivery	Service Delivery and Operations
Approach	Service-Driven	Data-Driven
Technologies	Web	Cloud, Mobile, Social
Main Challenges	Interoperability, Back-Office Integration	Change Management, Governance

Source: Gartner (May 2013)

E-government originally was designed to provide a more convenient access channel to information and services, and later focused on cost reduction. It started with simply replacing in-line channels with online ones, and then focused on joining up the online channel with back-office processes and applications to provide a more seamless and efficient interaction.

Digital government takes a more radical approach by assuming that all data should be digital. Therefore, processes and customer experience can be redesigned around a more frictionless and efficient sharing of information. As a consequence, while e-government started transforming front-office service delivery and then moved to address back-office transformation, digital government addresses both internal operations and service delivery, and blurs the boundaries between the two. For example, the availability of open digital data allows constituents — individuals or groups — to be directly engaged in the way that services are delivered (see Note 1).

While e-government programs have been looking at specific services to be made available online or transformed, digital government is inherently more data-centric: The focus is no longer on applications, but on data around which applications and services can be built (see "Moving Toward Data-Centric Government").

From the technology standpoint, the Web plays a central role in both strategies, but digital government fully exploits the potential offered by the nexus of cloud, mobile, social and information (see "How the Nexus of Forces Will Impact Government"), leading to changes in the boundaries between service providers and service recipients across the entire value chain. For example, government digital data can be used by intermediaries to create better citizen services through mobile applications (something we have seen in several open government initiatives, with applications for transportation, libraries and tourism). Similarly, citizen-created data can be used by government in combination with its own data to improve operations, as we have seen in areas like public safety (as in neighborhood watch communities) or public works (when citizens report or discuss problems such as potholes or malfunctioning traffic lights).

Finally, while e-government faced mostly technical challenges in areas like interoperability between front- and back-office technology, as well as between data formats used across different organizational silos, digital government can overcome many of these issues by taking a data-centric approach that addresses them early in the transformation process.[3] However, on the downside, this requires a deeper change in how agencies develop their services and manage their own data and application assets. Exposing open data and open services (see "Government Open Services Are the Next Step for Government Open Data") implies that applications as well as constituent services can be built in an evolutionary fashion, but also that they can be built by third parties such as intermediaries, other agencies and citizen communities.

Leveraging the E-Government Experience in a Digital Government Initiative

Several lessons, both good and bad, can be taken from past and current e-government programs.

Governance Is Crucial

What is today called a "chief digital officer" is not very different from the so-called "e-government champions" or "czars" that were popular roles more than a decade ago. Some of them succeeded and some of them failed, according to the degree of political support and authority they were given. In order for such roles to be effective, there is a need to control or at least concretely influence the budget and the procurement processes. Very often, "czar" positions reporting to the leader of government have been less effective and shorter-lasting than similar positions reporting to the CFO or an equivalent position.

Of course, there are differences among specific forms of government regarding how much authority any of these previous roles can be given, and the balance between the ability to make executive decisions and the need to reach consensus among stakeholders. There is no reason why digital government roles should not face challenges similar to those faced by these previous roles.

The U.K. government's focus on a "digital leader" working in conjunction with a "service manager" within each agency provides a much-needed focus regarding the authority and responsibility for business changes that will be necessary for digital government to succeed.

Prioritization Is Crucial

In the later stages of e-government, several jurisdictions (especially in Europe) have pursued a "100% online service" policy, striving to put every constituent service online, regardless of transaction volume, frequency and complexity. Focusing on where digital makes sense first, because of demographics and volume, is key to maximizing impact and achieving ROI (see "Analyze Government Transactions to Make Them Citizen-Centric"). A good example of how this is being done in a digital strategy is offered by the U.K. plan,[1] where services are being prioritized by transaction volume.

Back-Office Transformation Must Be Tackled Earlier Rather Than Later

E-government programs led to a rush to put services online. This created a long-lasting disconnect between e-services available to users and traditional processes supported by traditional technology in the back office. As a result, there was a lot of patching and suboptimal solutions to integration problems, and the creation of new silos that would either replace or add to the old ones. Digital government may incur the same risk by focusing exclusively on an outward-looking view. Lessons learned through joined-up government programs, such as the use of enterprise architecture as a tool to drive transformation (see "The Canadian Government's Style of Enterprise Business Architecture"), are still relevant to digital government transformation.

Digital Transformation Is a Long-Term Program

Despite the aggressive objectives set by some digital government strategies and the political support they enjoy, digital transformation will take a long time. In the many jurisdictions where the e-government transformation has not been completed, digital programs face two different types of legacy: traditional IT systems still supporting primarily in-line services, and partially integrated but mostly siloed e-government systems. Modernizing this double layer of legacy will take several years, which means that political support and an effective governance model most be sustained over a number of different administrations.

Understanding the Differences Between E-Government and Digital Government

Despite the many similarities between e-government and digital government, there are also striking differences — mostly caused by the technology and socioeconomic changes that have occurred during the past few years.

The Nexus of Forces Is Disruptive

The confluence of social, cloud, mobile and information analytics is characterized by the greater role of consumer-grade technologies and, therefore, by a power shift from IT professionals to IT users in the enterprise. Trends like "bring your own device" (BYOD) and the transformation of the workplace (see "Governments Must Plan for the Workplace of the Future"), the public cloud creeping among the available sourcing options (see "How Cloud Is Affecting Government Agency CIOs and Shared Services"), and the use of consumer social media platforms to collaborate internally and engage externally (see "Governments Must Rethink Their Social Media Strategies and Guidelines") are

blurring the boundaries between the enterprise and the environment it operates within. Digital information that is relevant to making mission-critical decisions is a blend of internal data and external data residing in social networks and the public cloud. Open data used by external stakeholders allows them to self-serve or engage in new ways with service delivery. As a result, controlling and governing the nature of a digital service becomes far more challenging than it was a decade ago, with new options and open data APIs creating opportunities for citizen developers and third parties to access, mash up and build commercial offerings based partly on government data.

Governance Is More Difficult

In addition to the disruption caused by the Nexus of Forces, an additional challenge is that the chief information officer role is more mature and better established than it was more than 10 years ago. As new roles emerge as potential competitors to the CIO — such as the chief digital officer or the chief data officer — they may create significant friction in organizations where the CIO has a powerful mandate and he or she manages most of the IT budget and/or the IT procurement process. In some organizations, these new roles are more outward-looking, with the CIO expected to deal with internal support. However, the inevitable move toward data centricity will exacerbate potential conflicts between these roles.

Resources Are Scarce and Will Remain So

E-government programs were conceived at a time of growth in technology spending and budgets, and on the wave of the dot-com boom. The financial crisis and lasting economic recession that have affected different parts of the world since 2008 have changed the context for technology investments. The focus is much more on "smart government" approaches that ensure affordable and sustainable solutions and rely on cross-boundary collaboration.

Smart government is key to the success of digital government initiatives, as it supports and almost enforces the adoption of scalable, evolutionary and agile solutions. It also helps overcome some of the cross-agency governance challenges that have plagued e-government programs in the past by focusing on bottom-up, collaborative approaches to address common and immediate problems. While digital government strategies advocate agile approaches,[1] in some jurisdictions, this type of a more bottom-up approach may be seen as being contrary to the ambitious objectives of digital government strategies.

The Suppliers' and Partners' Ecosystem Has Changed

As we have noted, relevant technologies that characterize the Nexus of Forces lead to a shift in the power balance between providers and users, and between professionals and consumers. As a consequence, the ecosystem surrounding government digital services will be far more varied than the one for e-government.

While typical intermediaries for e-government services were the financial sector or software providers (such as for tax filing and payment), digital government intermediaries may be virtual communities and social networks (as we already see with neighborhood watch communities for public safety or self-help communities for social services and healthcare).

As far as technology suppliers, traditional large IT suppliers and system integrators that assumed the lion's share of work on e-government programs will be complemented and in some cases replaced by a new breed of vendors — both consumer-oriented and of a smaller size. For example, in the U.S. and the U.K. digital strategies are accompanied by positive actions toward smaller IT suppliers to government, and even include individual application developers who have a role in the deployment of mobile apps.

Recommendations

Government CIOs should:

- Not act defensively, but proactively partner with the chief digital officer (or equivalent role) and be supportive of the transformation, aiming at strengthening their role by helping digital strategies to succeed and at positioning themselves where they can provide the most value in the new scheme of things. Depending on how good their relationships are with senior business leaders, they may step up to expand their responsibilities to assume a chief digital officer role themselves.
- Help business executives as well as the chief digital officer or equivalent role understand the differences between digital and electronic government by providing concrete examples of new types of value proposition as well as stakeholder engagement.
- Collect evidence from prior e-government transformation projects performed by the organization in order to identify good and bad practices, especially in areas such as governance, business case accuracy, benefit realization assessment and interoperability.
- Establish solely or with the chief digital officer (or equivalent role) an effective portfolio management process that helps prioritize digital transformation efforts based on a shared understanding of public value.
- Create solely or agree with the chief digital officer (or equivalent role) on a common data management strategy that puts data at the center of the development of digital services. This implies a greater focus on information architecture than on service architecture in developing a vision of future digital services.
- Identify opportunities for value generation through digital transformation that originate from internal stimuli (such as major resource constraints or a technology refresh) to complement opportunities of a more external nature that the chief digital officer or other business executives will bring to the table.

Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"Governments Must Plan for the Workplace of the Future"

"How Cloud is Affecting Government Agency CIOs and Shared Services"

"How the Nexus of Forces Will Impact Government"

"Does Your Business Need a Chief Digital Officer?"

"Digitalizing the Business"

"Business Model Innovation: Unleashing Digital Value Everywhere"

Evidence

[1] The U.K. has made reference to "digital by default" in its Civil Service Reform and made it central to its Government Digital Strategy in November 2012. Also, see Digital Britain 2: Putting Users at the Heart of Government's Digital Services from the U.K. National Audit Office.

[2] The U.S. federal government published its digital strategy in May 2012 (see "U.S. Digital Government Strategy Is Too Short-Term and Technology-Focused"). Prior to that, it issued Executive Order 13571 — Streamlining Service Delivery and Improving Customer Service. The U.S. federal government has issued an Open Data Policy, pursuant to the executive order Making Open and Machine Readable the New Default for Government Information.

[3] The Danish government published a data strategy in October 2012.

Note 1 Open Government and Digital Government

Digital government makes open and transparent government objectives easier to achieve. Since all data — public and otherwise — is digital, it is easier to share data with relevant constituencies, allowing citizens to participate in service delivery (such as reporting problems like a pothole in the street, or using government data to optimize waste collection or carpooling) or intermediaries to provide value-added services to their customers (such as tax advice).

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Moving Toward Data-Centric Government

Published: 18 March 2013

Analyst(s): Andrea Di Maio

The confluence of open data and legacy modernization is creating the conditions for a new way for CIOs to structure government services and applications that is centered on data rather than processes.

Key Findings

- Open data is not synonymous with public data: An increasing number of organizations are leveraging open data for internal transparency and data integration purposes.
- Although the political capital of open data resides in its external consumption, government organizations can greatly benefit from it internally.
- New government digital strategies and transformation programs are giving data a much more prominent role than in previous years.

Recommendations

For government CIOs:

- Help establish a chief data officer role.
- Identify low- to moderate-risk legacy modernization initiatives where an open-data-centric approach can be used.
- Leverage some of the innovative open-public-data-based development methods for internal application development.

Analysis

Many government organizations are struggling with modernizing their legacy mission-critical systems by using a combination of commercial off-the-shelf (COTS), open-source, reusable and externally sourced (including cloud-sourced) solutions. At the same time, they are involved, to different extents and degrees of maturity, in a number of open government initiatives that often revolve around making public data more easily accessible through Web APIs.

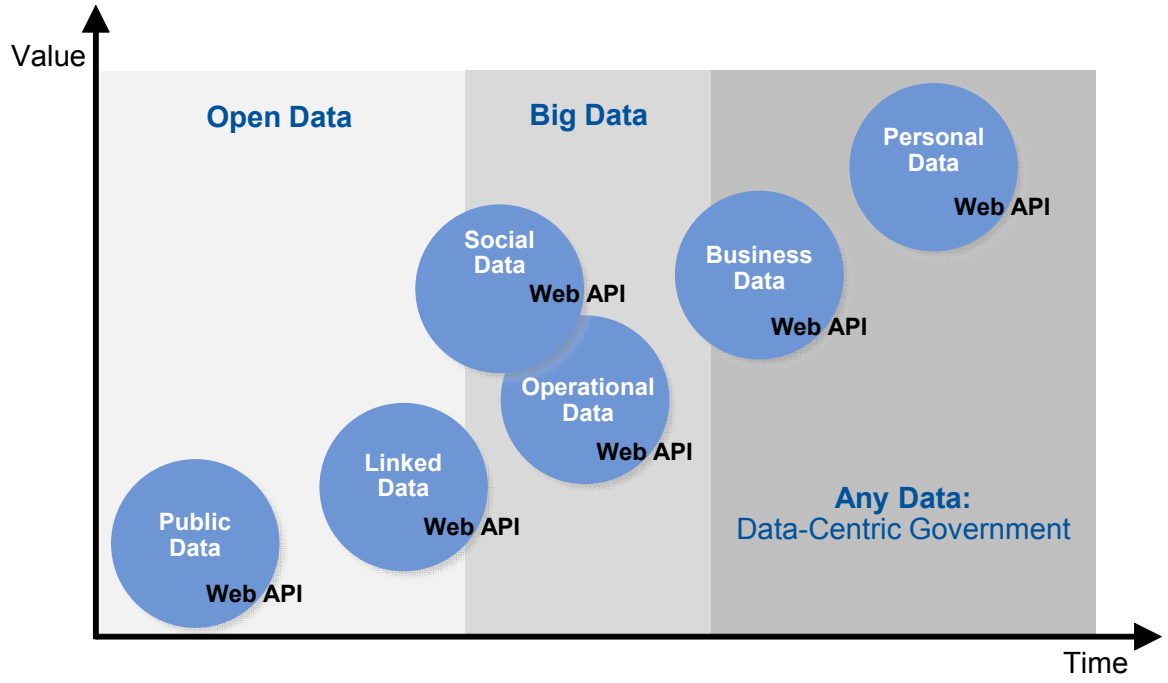
These two activity streams may be much more closely related than many people think. Better integration and data exchange between mission-specific applications and more-accurate data analysis capabilities to improve performances are top of mind for many government CIOs, and yet they rarely connect the dots between those problems and how open data may offer a solution.

Many tend to equate open data with public data, given its original definition (see Note 1). However data can be defined as open when it is machine-readable and is accessible through an API. This can apply to potentially any data that needs to be processed: whether it be public, discoverable through Freedom of Information Act requests, or restricted (for example, covered by privacy laws).

The value of public open data resides in increasing transparency, allowing internal and external parties to figure out new ways to use data that can deliver efficiency or even contribute to economic growth.

Figure 1 illustrates a potential path from open public data to open "any" data.

Figure 1. The Progression From Open Public Data to Open Any Data



Source: Gartner (March 2013)

Efforts are already under way in several jurisdictions, such as the U.K., to move from open public data to linked public data (see Note 2). The use of linked data supports easier sharing and integration of data across enterprise boundaries. Also, relentlessly opening data allows the uncovering of so-called "dark data" — that is, information assets that organizations collect, process and store in the course of regular business activity but generally fail to use for other purposes.

So far, this has been primarily a government concern. However, some enterprises (especially in the media, retail and telecommunications sectors) are starting to become providers of open and linked public data.

Besides government and business open and linked public data, people collect a wealth of data themselves through their own online communities. Gartner calls this data "social data," but it may well be open and linked in nature, depending on how those communities structure it.

Further, real-time operational data comes from devices that are embedded in industrial processes, vehicles and city infrastructures, as well as from consumer devices, such as mobile phones or consumer GPS, which add to open and social data and therefore help fuel the so-called big data phenomenon.

The ability to access this data as open data can unleash an even greater value than the simple use of government open data. There are already examples where mashing up data coming from consumer applications (such as Waze) or from social initiatives (for example, Neighborhood Watch) with open public data creates new ways of managing city infrastructure or increasing public safety.

The next, more disruptive step, is to consider usually restricted business-specific and personal data as open data. This data is not meant for public consumption, and is fraught with privacy and sensitivity issues, yet it can be modeled as open data to facilitate the development of more granular and agile applications, as well as a more coherent data exchange and analysis across agency boundaries and beyond.

There is only anecdotal evidence that this is happening (see the Evidence section), but this is a key trend for governments that want to become smarter — that is, more affordable and sustainable.

This approach gives rise to what we call *data-centric government*. The focus is no longer on applications, Data is now the key asset, around which applications are built.

Data centricity in government has several advantages. It supports:

- Better interoperability and joining-up. Rather than being forced to extract data from applications to achieve integration across organizational boundaries, data is described and accessible through a Web API by all prospective user applications according to specific access rights.
- Innovative application development and procurement. The same approach that is used to develop mobile or Web applications based on open public data (such as app contests, hackathons or datapaloozas) can be used to build applications that access nonpublic data. This would favor more-agile development and support greater employee centricity, as employees would be able to develop and/or compose applications to access data in more effective and convenient ways.
- The evolution toward "citizen data vaults," giving citizens a much better ability to control access to their own data and share it across agencies or with the private sector at their leisure (see Note 3).

Data centricity also carries a number of challenges:

- By helping to break silos, data centricity threatens the status quo, and thus may encounter all sorts of resistance, usually expressed in terms of security and privacy implications. Open data does not pose a threat to either per se, as access to data can be controlled in an even more granular and auditable way. However, the proprietary attitudes of programs or agencies that generate data can also have a chilling effect on open data and data-sharing initiatives. Data "ownership" issues are often as big a barrier as security or privacy, so open data governance is key.
- Open data and public data are often synonymous or used interchangeably, and this leads to possible confusion. Senior leaders do understand the importance of open public data and want to be seen as progressive and transparent, while they are unlikely to see any political capital in focusing open data on more-internal issues, such as productivity and integration (see Note 4).
- Required skills for data architecture are in short supply, and open data expertise is mostly available in the Web 2.0 and open government circles where people are mostly concerned with transparency and cool apps.

Recommendations

Government CIOs should:

- Promote the establishment of a chief data officer role, making sure that this position carries responsibilities that go beyond traditional open public data provision, and set metrics to encourage actual transformation. While the details of the position and the reporting line will vary across organizations, it is important that the emphasis is as much internal as it is external, with a focus on how to open corporate data for better internal use and more-effective application development, rather than on supporting more traditional open government endeavors.
- Identify low- to moderate-risk legacy modernization initiatives in which an open-data-centric approach can be used.
- Leverage some of the innovative open-public-data-based development methods for internal application development, mostly focusing on applications for increased employee productivity, as well as to deliver better information and services to constituents.
- Start securing the skills needed to support data-centric development.

Recommended Reading

Some documents may not be available as part of your current Gartner subscription.

"CEO Advisory: Chief Data Officers Are Foresight, Not Fad"

"Government Open Services Are the Next Step for Government Open Data"

"Meeting the Information Needs of the Government Business Executive in 2023"

"How to Determine the Value of Open Government Data"

Evidence

The U.S. Digital Government Strategy and the Danish government report "Good Basic Data for Everyone — A Driver for Growth and Efficiency" provide hints of an extension of open data beyond the realm of public data (see http://blogs.gartner.com/andrea_dimaio/2012/10/22/why-government-should-care-less-about-open-data-and-more-about-data). In the Netherlands, data centricity has been supported through a focus on "basic registries," which are now converging toward an open data approach: At least one significant legacy modernization project, at the Dutch Prison Service, is using this method.

Initiatives like the Blue Button by the U.S. Department of Veterans Affairs and the Green Button by the U.S. Department of Energy are further examples of this shift toward open data in government.

Note 1 Definition of Open Data

The most widely accepted definition of open data originates from a workshop conducted in 2007, during which eight principles were stated (see www.opengovdata.org/home/8principles):

1. Complete: All public data is made available. Data is electronically stored information or recordings, including but not limited to documents, databases, transcripts and audio/visual recordings.
2. Primary: Data is published as collected at the source, with the finest possible level of granularity, not in aggregate or modified forms.
3. Timely: Data is made available as quickly as necessary to preserve the value of the data.
4. Accessible: Data is available to the widest range of users for the widest range of purposes.
5. Machine-Processable: Data is reasonably structured to allow automated processing of it.
6. Nondiscriminatory Access: Data is available to anyone, with no requirement of registration.
7. Nonproprietary Formats: Data is available in a format over which no entity has exclusive control.
8. License-Free: Data is not subject to any copyright, patent, trademark or trade-secret regulation. Reasonable privacy, security and privilege restrictions may be allowed as governed by other statutes.

In order to extend the concept of open data to nonpublic data, it is sufficient to tweak the first and sixth principles by saying that "all data is made available to those who have the right to access."

Note 2 Linked Data

Gartner defines linked data as a Web-oriented set of technologies and methods that simplify the publishing, discovery, interoperability and reuse of data for the purpose of generating information-sharing network effects (see "Innovation Insight: Linked Data Drives Innovation Through Information-Sharing Network Effects"). "Linked data" is a data management and mathematical principle, which holds that any time two data points are used together it creates a weighted link. As more valid use cases for the link emerge, the link grows in weight. Linked data is the principle that

this "weight" is further increased by the use of datasets in a pervasive linking pattern, and that the use of the sets of data begin to alter business processes for the positive.

Note 3 Citizen Data Vault

Citizen data vaults are services that provide data subjects with the ability to access their data outside the context of a particular government transaction, allowing them much finer-grained control about when and how data can be accessed, and by whom, within the relevant legal framework that they are subject to. They need to interoperate with government, as well as with third-party systems that directly provide services to constituents.

Note 4 The Open Data Paradox

A CIO in a city in North America that is well-known as an early mover in the open data space told Gartner that, while most of the value from open data comes from internal transparency and the ability of departments to use each other's data, this aspect has limited political capital because political leaders prefer to focus on the external use of open data.

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For a complete list of worldwide locations,
visit http://www.gartner.com/technology/about.jsp

Technology leaders converge on the Gold Coast this week for Gartner Symposium/ITxpo 2013

附件2-Gartner新聞稿與會場照片

GOLD COAST, Australia, 28 October, 2013 Australiaslargest and most important annual gathering of chief information officers(CIOs) and senior technology executives, Gartner Symposium/ITxpo, will be heldat the Gold Coast Convention Centre from 28 to 31 October.

More than 1,400 people will attend theconference and exhibition held over four days and more than 70 technology companies will exhibit theirproducts and services, including Google and Microsoft as premier sponsors. Thisyear, there are also exhibitors from as far afield as Sri Lanka and Jiangsuprovince in China.

Gartner is theworlds largest technology research and advisory company that advisesinformation technology (IT) executives on the trends and technologies they needto understand to make the best decisions for their organisation.Symposium/ITxpo is the companys flagship annual conference held in eightlocations around the world.

Gartner moved the eventfrom Sydney to the Gold Coast in 2011 to improve the quality of the Symposiumexperience for delegates and exhibitors and make it easier for delegates fromAsia to attend.

Gold Coast Mayor Tom Tatesaid part of the citys new economic development strategy was to diversify industry, which includedsupporting early stage technology companies.

Were certainly open for business and we recognisethe importance of an event such as this in delivering cutting edge informationas well as attracting new business to our city to boost growth, he said.

On Monday from 11.00am,technology executives from the banking, government, education, retail, energyand utilities, manufacturing and healthcare sectors will hear about technologytrends and issues specific to their industry.

The mainconference starts at 9.15am Tuesdaywith a welcome keynote address by Gartner senior vice president and global headof research Peter Sondergaard, who will provide a forecast for IT spending byAustralian businesses and top trends for the year ahead, including smart mobiledevices, the digitalization of business, big data, the Internet of Things, 3Dprinting and more.

Keynote speakers include:

AndrewWalduck, chief information officer, Australia Post

DanFlynn, Founder of social enterprise Thankyou

Dr.Marshall Goldsmith leadership thinker and best-selling author

The theme ofthis years Symposium/ITxpo is leadingin a digital world.

CIOs and senior ITexecutives need to lead the creation of the digital enterprise, said Gartnervice president, distinguished analyst and conference chair for Symposium/ITxpoJohn Roberts. Previously, when people thought of digital business it wasindustries like media, publishing, banking and retail that sprang to mind,those faced with major disruption to their business model. Now every sectorfrom agriculture to government to mining needs to navigate through this newdigital world.

Noteto editors: Event photography available.

AboutGartner Symposium/ITxpo

GartnerSymposium/ITxpo is the world's most important gathering of CIOs and senior ITexecutives. This event delivers independent and objective content with theauthority and weight of the world's leading IT research and advisoryorganisation, and provides access to the latest solutions from technologyproviders. IT executives rely on Gartner Symposium/ITxpo to gain insight intohow their organisations can use IT to address business challenges.

Additional informationabout Gartner Symposium/ITxpo on the Gold Coast is available at www.gartner.com/au/symposium. Follownews, photos and video coming from Gartner Symposium/ITxpo on Facebook at http://www.facebook.com/GartnerSymposium,and on Twitter at http://twitter.com/Gartner_incusing #GartnerSym.

Remainingdates and locations for Gartner Symposium/ITxpo this year:

November4-7, Sao Paulo, Brazil: www.gartner.com/br/symposium

November10-14, Barcelona, Spain: www.gartner.com/eu/symposium

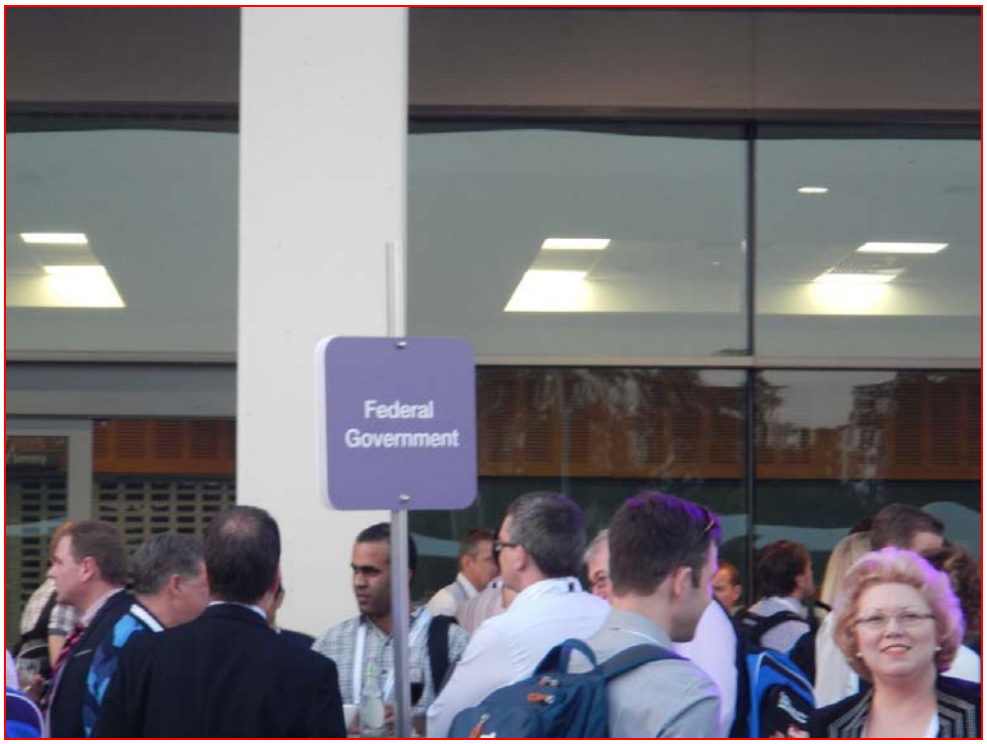
About Gartner

Gartner, Inc. (NYSE: IT) isthe worlds leading information technology research and advisory company.Gartner delivers the technology-related insight necessary for its clients tomake the right decisions, every day. From CIOs and senior IT leaders incorporations and government agencies, to business leaders in high-tech andtelecom enterprises and professional services firms, to technology investors,Gartner is a valuable partner in more than 13,000

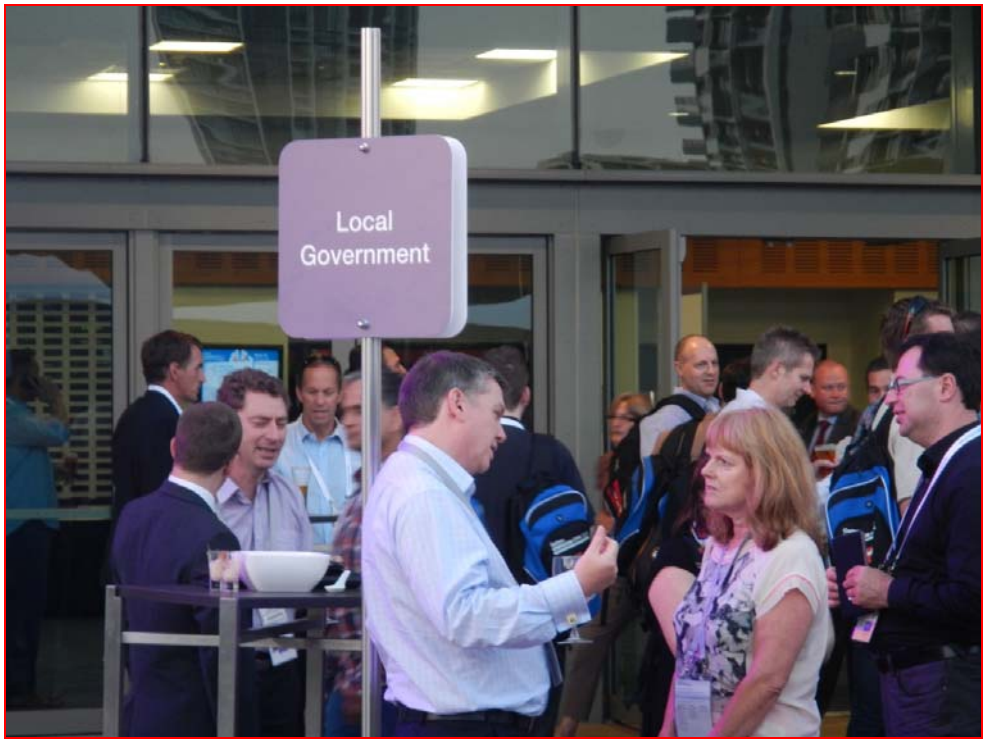
distinct organizations.Through the resources of Gartner Research, Gartner Executive Programs, GartnerConsulting and Gartner Events, Gartner works with every client to research,analyze and interpret the business of IT within the context of their individualrole. Founded in 1979, Gartner is headquartered in Stamford, Connecticut, USA, and has 5,500 associates,including 1,402 research analysts and consultants, and clients in 85 countries.For more information, visit www.gartner.com.

圖一：大會入口立標，於 102 年 10 月 28-31 日假澳洲黃金海岸國際會議中心舉行，約有 1,400 人參加

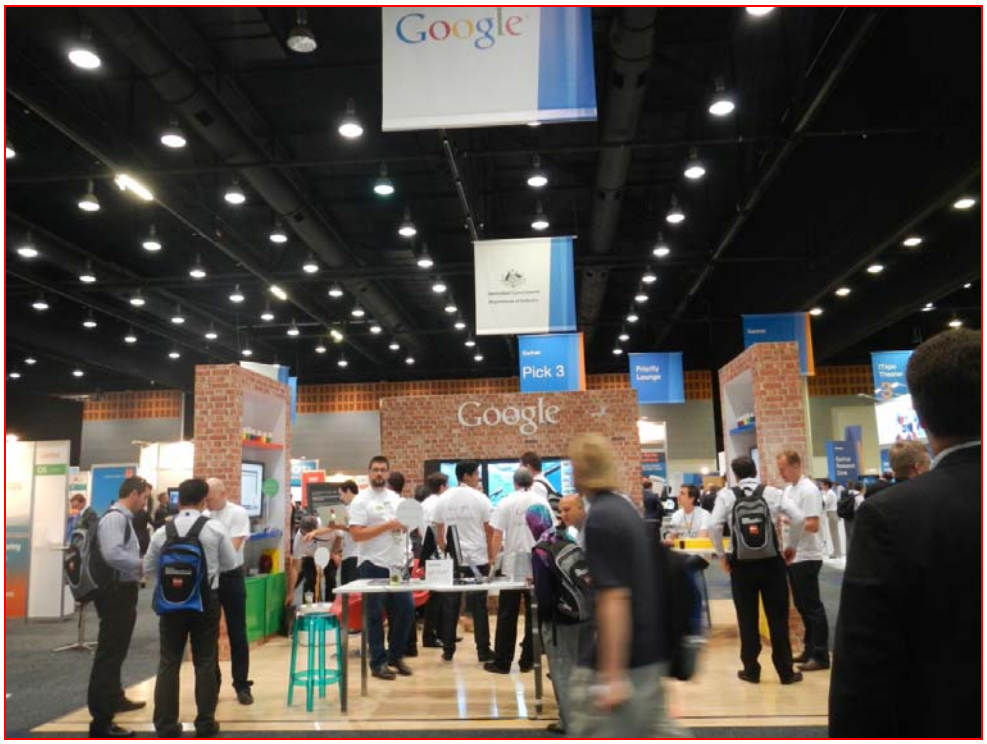
圖二：大會安排 150 場次專題演講或圓桌會議，其中澳洲郵政總局資訊長於現場分享分其如何因應新趨勢，提升澳洲郵局營運績效



圖三：各國聯邦政府部門的與會人員進行交流



圖四：各國區域政府部門的與會人員進行交流



圖五：各資訊國際大廠於會議現場提供互動產品及說明，包含本署已著手導入的 Google 員工雲端服務方案

圖六：各資訊國際大廠於會議現場提供互動產品及說明，包含本署已導入的 Schneider 機房節能設備廠商

附件3-與同仁分享會議情形報告

行政院環境保護署
Environmental Protection Administration
Executive Yuan, R.O.C.(Taiwan)

Gartner Symposium/ITxpo 2013
心得分享

環境監測及資訊處
報告人：黃素梅

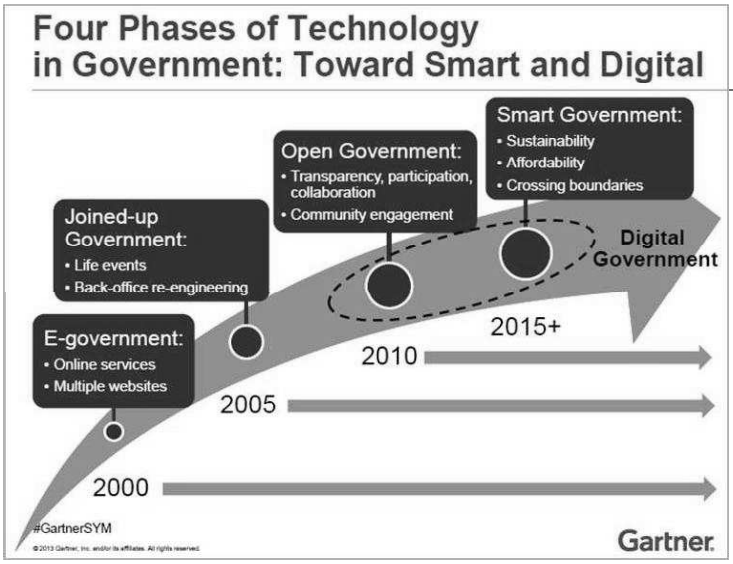
中 華 民 國 102年11月22日

大綱

- Digital Government
- Hybrid Cloud
- BYOD Policy
- 與 Gartner分析師晤談紀要 (Eric, Rick)
- Data as a Service
- 結語與建議

3

2



Ref: Digital Government Is Both Different from E-Government and More of the Same

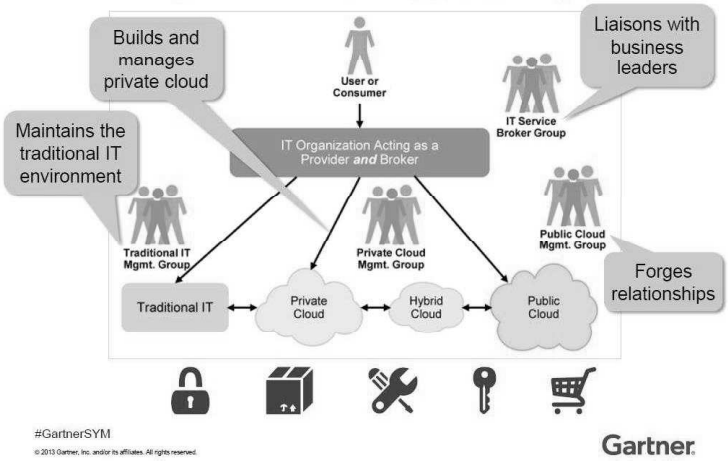
4

From E-Government to Digital-Government

E-Gov	D-Gov
Website Online service	Social, Mobile, Cloud
流程改造	開放與創新
服務導向	資料導向
後端系統整合及互通性	變革管理及資訊治理 (governance)

5

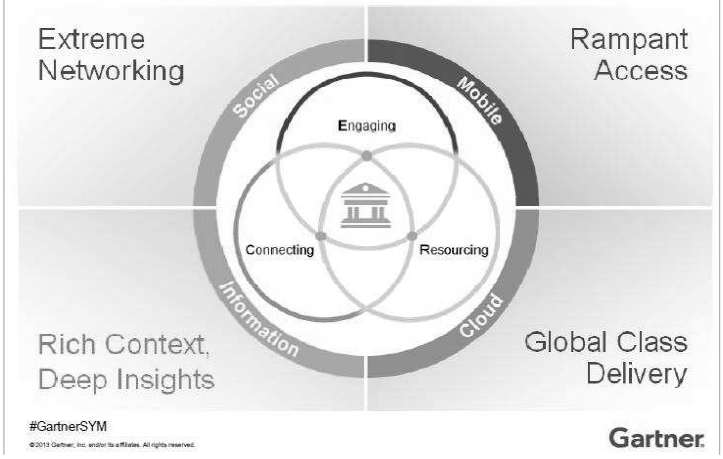
Work Toward the New Hybrid Role: Hybrid IT Is an Opportunity



7

Ref: The Cloud Computing Scenario: End of the Beginning Goes From Cloud to Ground and Back

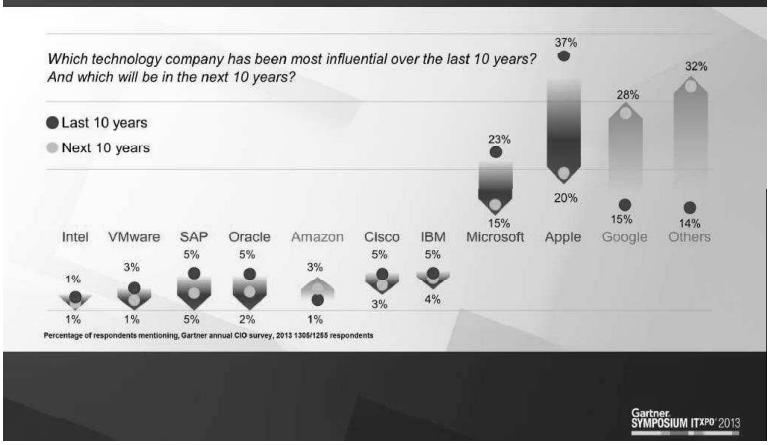
The Nexus of Forces Is Driving Innovation in Government



6

Ref: Top 10 Strategic Technology Trends for Smart Government

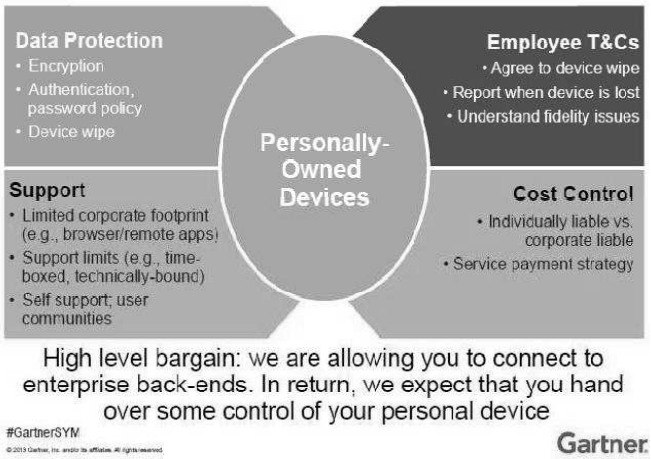
Where's Innovation Coming From?



8

Ref: The CIO Agenda for 2014

Elements of a BYOD Policy

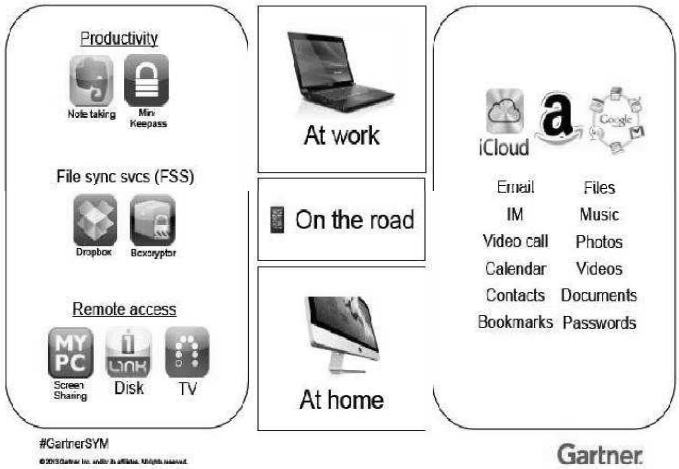


Ref: Managing Mobile Devices in the Enterprise

與 Gartner分析師晤談紀要(Eric)

- Eric 專精於資料整合（例如資料倉儲、資料品質之治理）及新興資訊科技（例如雲端技術及軟體服務(Software as a service)）對於資料管理的影響
- 資料整合
  - 思考 Iaas, Paas, Saas三個層次的鏈結
  - 運用工具(Informatica, Oracle odi, Composit…)
  - 擔任資料仲介者(data broker)

Bring Your Own App, and a Day in the Work Life of a Personal Cloud User

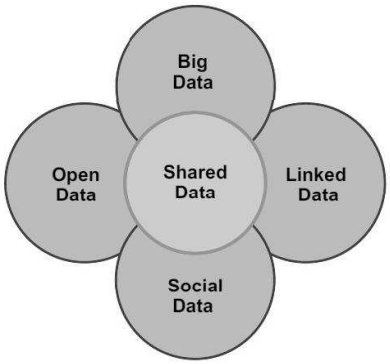


與 Gartner分析師晤談紀要(Rick)

- Rick 專精於公共部門的IT解決方案、管理規範和技術發展趨勢的研究
- 開放資料之建議
  - 開放前之評估準則，開放後之下架機制
- 資訊部門之建議
  - 適度了解業務流程，提昇資料分析職能
- 基礎設施資源分配之建議
  - 建立使用者付費機制

Data as a Service

- Data-Centric Government
  - 跨域資料互通
  - 創新應用



Source: Gartner (December 2011)

13

相關文件

- The Key to Smart Government Is Choice
- Predicts 2013: Government IT Will Be Disrupted by the Nexus of Forces
- How Cloud Is Affecting Government Agency CIOs and Shared Services
- Government Open Services Are the Next Step for Government Open Data
- Governments Must Plan for the Workplace of the Future
- Governments Must Rethink Their Social Media Strategies and Guidelines
- Innovation Insight: Linked Data Drives Innovation Through Information-Sharing Network Effects
- Smart Government Makes IT a 'Must Have'

Gartner簡報及相關文件分享於：
Y:\L0_處分享區\L004_第四科分享區\102Gartner亞太地區年會相關簡報

16

結語與建議

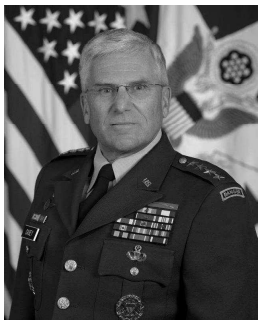
- Hybrid Cloud
  - Google Apps雲端服務
- 舊系統現代化(legacy modernization)及重整
- 精進資料分析之職能
- BYOD管理策略及措施
- Hybrid IT
  - Provider → Broker & Advisor

14

三場精彩演說

- General George W. Masey, Jr.
  - Former 36th Chief of Staff of the US Army
- Tim Longhurst
  - Futurist and Transporter
- Dr. Marshall Goldsmith
  - Executive Coach

General George W. Casey, Jr.



Environment

- Change fast and continuously
- More complicate than what you think
  - Battle fields
  - Public administration
  - Business
- Core issues are same in different fields

General George W. Masey, Jr.

- Environment
- People
- Leadership

People - how to find your generals?

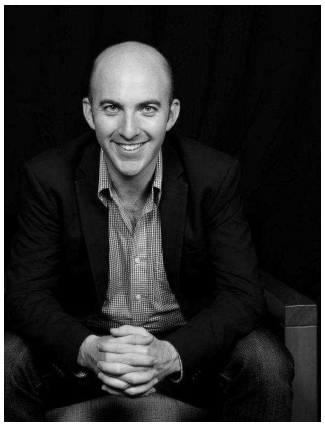
- Vision
  - Look from outside of the organization
- Courage
  - Not thing good happen without risk
- Character
  - Loyalty
  - Duty
  - Integrity

Leadership (1/2)

- Develop vision strategy – what you try to accomplish
  - Understand, Visualization
  - Description, Declare – writing and speaking clear
- Build commitment – for vision strategy
  - Peer – outside your organization
  - How to influence people
- Build team – around mission
  - not to try good at everything
  - Generals also need help
  - Executive will take care themselves if you find right people

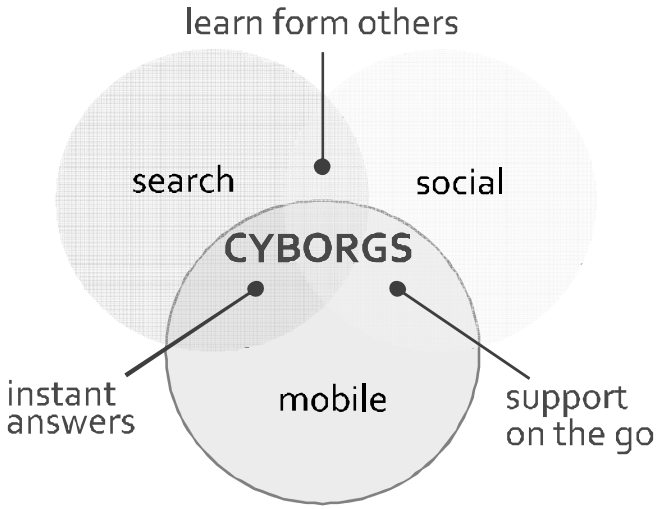
Tim Longhurst

- Empowering individuals
- Leading innovation



Leadership (2/2)

- Identify future opportunities
  - Aggressive and aggrement must set
- Driving change – people do not like change
  - How much they need and how far?
  - Culture issues need to take into account
- Sustain yourself
  - Read
  - Exercise – 4-5 times/week
  - Sleep/Rest
  - Think – before you take any action

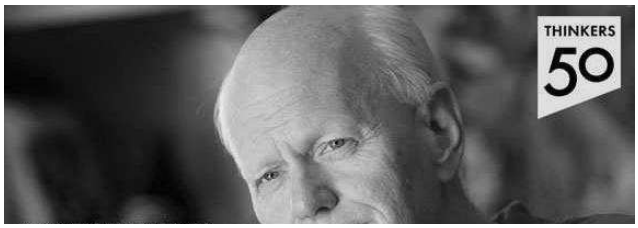


Empowering individuals

- Be my guest - coworkers
  - Hackathon
  - Ignite talks
  - Brown bag lunch
  - Yammer
  - Internal social
- From core → edge – where the magic happen

我要儘量靠近邊緣，又不至於越界；在邊緣你會看到從中央見識不到的事物。 馮內果（美國作家）

Dr. Marshall Goldsmith



葛史密斯（Marshall Goldsmith）

葛史密斯為UCLA組織行為學博士，2010年並榮獲該校創校七十五年來的百位傑出畢業生榮譽。他在達特茅斯大學商學院（Dartmouth's Tuck School）任教，並受邀在其他頂尖商學院講課。他曾擔任一百二十家大型企業CEO與高階主管的顧問與教練，教練的對象包括福特汽車CEO、葛蘭素大藥廠領導人、戴爾電腦(Dell)創辦人、高盛投資銀行總經理、美國心臟協會領導人。他曾擔任彼得杜拉克基金會的董事長達十年，並且擔任美國陸軍、海軍、女童軍、國際紅十字會的志工教師。

葛史密斯曾在美國商業週刊、華爾街日報、快速企業雜誌等刊物撰寫專欄。他著有三十一本著作，包括接班（Succession）、未來領導人（The Leader of the Future）等書。其中Mojo（中譯本為「下一步，我該怎麼走？」）、What Got You Here Won't Get You There（中譯本為「UP學」）兩書，更蟬聯紐約時報、華爾街日報暢銷書排行榜第一名。他的著作被翻譯成二十八個國家的語言，在八個國家榮登暢銷書排行榜。

Leading innovation

TRENDS

- Power of small
  - Watch doesn't exist
- Barriers are collapsing
  - Internet courses and teaching
- Wisdom is in the grasp
  - Car-share
  - views form the hotels of New York City

what got you here won't get you there!

- Global thinking
- Cross-culture appreciations
- Technology savvy
- Building alliances and partnerships
- Shared leadership

Developing yourself

- Ask
- Listen
- Think
- Thank
- Respond
- Involve
- Change
- Follow-up

What can I do be a better...
a story about mother and daugther

Loss control?...
where is the problem

Why we punish messenger?...
<ego, pride>

Can people change?...
will people change?

BE HAPPY NOW!

Lesson learned

- **Contents**
  - focus on PEOPLE!
  - Profession × Passion = P^2 ??
  - **THINK** is the key issue
  - physical and mental exercise...
- **Speech skill**
  - different style, same performance
  - oral is more important than visual (ppt)
  - excellent time control