出國報告（出國類別：不定期會議）

2011 年德國漢諾威電腦 CeBIT 展出國報告

摘要

爲了解全球資訊產業脈動、未來資訊技術發展趨勢以及獲取相關領域專家學者之經驗，此次前往德國參觀 2011 年漢諾威 CeBIT 資訊與通訊展。希望能藉由這次參觀的經驗，對於未來政府在資訊產業的發展方向能有所幫助。

此次展覽特別針對 4 種不同領域的使用者，將展場區分爲 4 類，分別爲「PRO 專業商務買主」、「GOV 公務部門」、「LIFE 科技產品玩家」、「LAB 研發及創新人士」，讓不同類型的使用者能快速找到適合自己的展示區域。在「PRO」方面，展示了目前最熱門的雲端服務、3D 技術、無線射頻技術、資訊安全等議題；在「GOV」方面，呈現了健康照護服務與電子化公文流程等；在「LIFE」方面，提供數位生活、智慧居家等；在「LAB」方面，揭示了目前最新的綠能、體感操控等技術。

爲提升政府歲計會計作業資訊系統之管理效能與加強資訊安全控管，並維持國內資訊科技產業的領先地位，最後將針對這兩個部分提供幾點建議，希望能做爲日後政府歲計會計作業資訊系統與資訊產業發展之參考。

目次

壹、目的

德國為歐盟中重要的參與國之一，也是規模最大的經濟體。在資訊通訊市場方面，於歐洲市場位居第一，於全球位居第三；在電腦用戶方面，數量約佔全歐洲三分之一；在寬頻網路普及率方面，雖然不如瑞典（83％）、丹麥（80％）來的高，但在 ISDN（整合服務數位網路）方面，普及率卻是歐盟中數一數二的。有鑑於德國為經濟規模與資訊通訊高度發展的國家，相當適合做為國內廠商進入歐洲市場的最佳入口。

全球資訊與通訊科技日新月異，每年於美國舉辦 CES（消費性電子展），於西班牙舉辦 WMS（全球行動通訊展），於台灣舉辦 COMPUTEX（國際電腦展），更於德國舉辦 CeBIT（漢諾威電腦展）。CeBIT 為全世界規模最大的資訊與通訊展，是相關產業展示其技術與發展的重要舞台。展出內容包羅萬象，包括個人電腦、平板電腦、大型主機、電腦周邊設備、通訊、軟體、綠能科技與雲端服務與技術。台灣也有多家廠商參加此次盛會，希望能藉由與全球參展（觀）者的互動，增加自家產品的能見度與提升公司形象，以利日後在歐洲甚至全球資訊市場上的發展。本次展覽的重點為雲端技術與服務、3D 與綠能科技等，而「雲端工作與生活」更是此次展覽的標語。

故為獲取全球性大型資訊展覽的經驗與技術，於一百年三月初前往德國參觀展覽。希望能提供國內資訊產業發展之參考方向外，也期望藉由此次的所見所聞，對於提升政府歲計會計資訊系統之管理效能與資安控管，能有所幫助。

貳、過程

出國期間自民國 100 年 3 月 1 日至 8 日止，共計 8 天。

行程如下：

2011 德國漢諾威 CeBIT 展行程表

日期	星期	行程內容說明
3 月 1−2 日	二−三	由台北啓程，經由香港轉法蘭克福後，驅車前往德國漢諾威
3 月 2−5 日	三−六	全日參觀德國漢諾威 CeBIT 展覽
3 月 6 日	日	資料蒐集和整理
3 月 7−8 日	一−二	由德國漢諾威返回台北

出國費用：共計新台幣 89,842 元。

參、展出內容

此次展出共計來自全球超過 70 個國家、4200 家廠商與 500 位國際公司的 CIO（資訊長）參與這次盛會，估計帶來 500 億歐元的商機。展場總展館面積為 497,730 平方公尺，相當於台北世貿一館展館面積的 21 倍，展館數量為 27 館。本次展覽的重點為「雲端工作與生活」，各家參展廠商將帶來最新的雲端技術與提供使用者多樣化的雲端服務。而由於展出項目及廠商眾多，大會依照不同領域使用者的需求，將展館劃分為四大類，分別為「PRO 專業商務買主」、「GOV 公務部門」、「LIFE 科技產品玩家」、「LAB 研發及創新人士」，以下將各類展館與其重要產品和技術做一簡單介紹：

一、「PRO 專業商務買主」

本展區是針對企業高層決策者與買家，提供商務用的專業解決方案，共分布於 13 個展館，其展出重點為：

●Cloud Computing （雲端運算）

資訊系統的發展，最早是建立在集中式的大型主機架構，而因個人電腦軟硬體效能不斷提升，將部分的運算移往個人電腦，進而發展出 Client-Server 架構。之後，為避免系統安裝與更新時造成的困擾，以及網路連線的普及，遂使系統發展 WEB 架構。

如今，因網際網路的盛行與自行營運系統的高建置與維護成本，許多國際大廠紛紛提出滿足各類使用者需求的雲端服務，如 IBM、Microsoft、Dell 等，都有推出 OS（作業系統）雲端化的服務。使用者可選擇所需 OS，並透過網際網路連線到各家雲端服務廠商，安裝所需要軟體並架設自己的應用系統。除了雲端 OS 外，資料儲存也可以雲端化。使用者將資料直接儲

存在雲端服務廠商的機房中，而不需去煩惱磁碟空間不足的問題，並可與雲端 OS 結合，擴大應用系統的資料儲存空間。

●AutoID/RFID（身分辨識自動化/無線射頻技術）

1. 網路商交易之身分認證

德國政府已推出一套全新的身分識別卡 eID，將有助於提升網路交易之安全性。舉凡網路購物、電子化政府之服務（申請退休金、註冊汽車資料），甚至連此次 CeBIT 入場都可以使用。使用方式與我國的自然人憑證方法類似，透過卡片與個人識別碼，來進行身分確認。除此之外，也可支援電子簽章與指紋辨識，增強其身分辨識與卡片遺失時的安全性。

2. 智慧賣場

在超市或大賣場中，當商品的價格有所異動時，必須要全面性的更動架上的標價。又或是架上的標價不小心脫落，導致顧客無法得知商品價格。透過 RFID 取代傳統式的架上商品標價，將使問題變得簡單，經由架上的螢幕能清楚顯示商品的價格、產地及使用方式等資訊。而RFID 感應門也將可取代傳統結帳的方式，一次將購物車中的商品辨識出來。

●Security World（安全世界）

1. 以鍵擊特徵做為身分辨識

現今電腦中最常用來進行身分認證的機制，不外乎是利用帳號密碼進行認證。但大部分的使用者密碼都過於簡單，以至於容易遭到不法人士破解。若使用複雜度高的密碼和定期更改密碼的政策，雖使得破解難度提高，但要記憶那麼多組複雜的密碼確實對使用者造成困

擾。因此，有廠商研發出利用每個人登打鍵盤的習慣與特徵的不同，做為登入時的認證。如此一來，使用者在登入電腦時，除了無需記憶密碼外，也不用擔心被其他人非法登入。若再搭配傳統的帳號、密碼認證機制，將使電腦的安全性大大的提升。

2. USB 保護機制

USB 儲存裝置已廣泛為大眾所使用，但因為其體積小且易於攜帶的特性，被不肖人士竊取的風險相對提高。為此，許多相關保護機制也就孕育而生，例如有些 USB 裝置會透過軟體加密的方式，來降低資料遺失時的風險。但針對那些沒有提供加密機制的 USB 裝置，該如何處理呢？這裡提供了一個解決方案，使用硬體加密機制來確保資料安全。在電腦與 USB 儲存媒體中間，再加上一個 USB 加密裝置，對於經過的資料進行加解密的動作。如此一來，無論是甚麼樣的 USB 儲存裝置，都能藉由硬體加密裝置來保全資料。

●ICT Infrastructure（資訊通訊技術基礎硬體）

1. USB 3.0

USB 技術在我們日常生活中扮演了相當重要的腳色，在許多資訊設備上都看的到它的存在，如電腦、相機、手機、印表機等。而其技術也不斷的提升中，從最早的 Original USB 1.0 傳輸上限為 12Mbps，到目前已普遍的 High-Speed USB 2.0 傳輸上限為 480Mbps。而最新技術之 SuperSpeed USB 3.0 已經將速度再往上推升至 5Gbps，足足是 USB 2.0 的十倍。如此高的傳輸速度不僅能縮短資料傳輸時間，若之後發展為新的圖形顯示介面亦綽綽有餘。再搭配 Sync-n-go（快速同步即時傳輸）與節電技術，縮短使用者等待的時間並將低能源消耗，相信在不久的將來，會慢慢取代 USB 2.0 而成為市場主流。

2. 3D 技術

　　還記得第一部 3D 電影剛推出時，在全球掀起一股熱潮，許多電視製造商也開始研發與製造 3D 電視。但絕大部分的產品都需要搭配 3D 眼鏡來產生視覺效果，這對於已經帶著眼鏡的使用者來說相當的不方便。因此，新一代的 3D 技術捨去眼鏡的輔助，透過 Autostereoscopic Display（裸眼 3D）顯像技術，將影像依據觀賞者的眼球移動而進行調整，使得觀賞者不再需要戴上 3D 眼鏡，也能夠享受到 3D 技術所帶來的視覺震撼。

二、「GOV 公務部門」

　　本展區包含遠距醫療與公共事務與兩大主題，展示了 IT 系統如何幫助居家照顧管理與政府公共事務推行，共分布於 2 個展館，其展出重點為：

●TeleHealth（遠距醫療）

　　不論在台灣或是德國，醫療花費都有越來越高的趨勢。為了降低醫療成本，利用 ICT 技術，將病患、醫院、醫師做一有效連結是相當重要的事。以偵測心肌梗塞為例，病患可以將偵測心電圖之儀器戴在脖子上，該裝置會持續記錄心跳的變化。當病患感到不舒服或異常時，可將心電圖資料透過藍芽和智慧型手機的幫助，傳送至醫療中心並請專業醫師進行診斷，以即時掌握病情。

●Public Sector Parc（公共事務區）

1. 電子化流程系統

　　為加速政府行政效率，推動公文電子化勢在必行。而透過良好的電子公文流程管理系統，更能事半功倍。加上結合數位簽章的幫助，

對於公文稽核與有效性上更有保障。而為避免電子文件因儲存時間過長，導致數位簽章被破解的機率升高，也有相對應的處理技術與方案。將超過一定期間的文件集合起來，先以雜湊函數算出摘要值後，再針對摘要值進行數位簽章，以兼顧執行效率與降低資料被竊取的風險。

2. 智慧型交通監控系統

透過智慧型的道路即時監控系統，能使城市交通更為順暢。利用在道路與車上的感測器，能監控當前的路況與車速等資訊。當發生交通事故時，透過簡單的圖形化管理介面，能及時做出指示，指派警車或救護車等前往支援。除此之外，亦可透過改變交通號誌，讓車速保持一定水準，減少塞車的時間。

三、「LIFE 科技產品玩家」

本展區為一般消費者 ICT 展示區，提供各類消費性電子產品，如行動裝置、電腦相關配備、筆電與小筆電等。並將資訊科技與能源使用做一良好結合。其分布於 2 個展館，展出重點為：

●Smart Energy（智慧節能）

在節能減碳以及綠能科技的影響下，使用無汙染的再生能源一直是各國所追求方向，對於歐盟也不例外，其計畫於 2020 年將再生能源佔總能源消耗比例提高至 20%。為了達到這個目的，整個資訊科技產業及政府必須建立一套電力基礎架構，內容包含 Smart meter（智慧電表）、Smart grid（智慧電網）與 Smart home (智慧居家)。智慧電表是透過限制每日用電量或停止供電非必要的電器用品來達到省電效果；智慧電網則是依據不同時段的用電量，動態調整配電大小來節省電力；而智慧居家則是透過對家電用品的妥適電力管理，降低不必要的浪費。透過三者之間的協調合作，對能源做

最有效的利用。

●Consumer Electronics（消費性電子）

1. 投影鍵盤

鍵盤的種類可說是五花八門，有的是為專業玩家設計，也有的強調人體工學設計，更有的強調其按鍵耐用程度，或是攜帶方便性，但以上都需要透過實體的鍵盤運作。如今，投影鍵盤也被許多廠商所實作，透過投影出的虛擬鍵盤，使用者可在平面上，作為輸入裝置使用。搭配紅外線以及光學感測器，更能增強輸入的正確性，相當適合用在沒有一般鍵盤的資訊設備上，如智慧型手機、平板電腦等。

2. 體感滑鼠

誰說滑鼠只能握在手中，難道沒有別的使用方式嗎！目前已有廠商展示可以套在手指上的無線 3D 滑鼠。除了能像一般滑鼠放在桌上使用外，也可套在手指上作為簡報以及雷射筆使用。透過手指的移動來帶動滑鼠游標，使得簡報操作能更為直覺。再搭配各種手勢的操作，來下達指令，像是「離開應用程式」、「回到上一頁」、「前往下一頁」、「開啟新視窗」等，為電腦使用者帶來更多的便利與樂趣。

3. 平板電腦

本次參展的廠商，針對平板電腦這個近年來相當熱門的產業，提出了許多概念機種。像是 Daul Pad 的雙螢幕平板電腦，使用者可將兩個平板電腦分開使用，抑或將兩者透過特殊的卡榫連接起來，整合為一台雙螢幕平板電腦，其中一個平板電腦還可作為鍵盤輸入裝置使用。而投影平板電腦，則可將螢幕上的畫面，透過電腦上方的旋轉式

USB 微投影鏡頭投射出去，很適合用在簡報展示。且平板電腦的處理器也慢慢從單核心走向雙核心，運算時脈也逐漸提高，相信其運算與多工能力將會逐步提升。

四、「LAB 研發及創新人士」

本展區提出各種前瞻性的項目，內容包含綠能、3D 等新穎技術。其分布於 2 個展館，展出重點為：

●Research & New Technologies（研發與新技術）

1. Transparent LCD（透明液晶顯示器）

在全球綠能科技的帶動下，催生了利用環境光源作為背光以及驅動電力的透明觸控式 LCD。也就是說，它是一個不需要外接電力，只需靠著足夠的環境光源（例如日光），再接上訊號線後就能夠使用的顯示器。除此之外，利用其透明的特性，還可以讓使用者看到顯示器後方的物品。因此，除了拿來做為戶外看板與視訊會議使用外，日後也蠻適合開發成成汽車導航等設備。

2. 眼控式筆記型電腦

為了提供傷殘人士能更容易的電腦，廠商進而研發出利用眼睛來執行移動、選取；上下滾動網頁等動作的筆記型電腦。藉由凝視螢幕，就能使電腦游標出現，或是執行放大圖片等功能。雖然目前還無法普及給一般民眾使用，但仍是相當有趣的一項研究。

3. 腦機介面

　　鍵盤或滑鼠已為最普遍的人機輸入介面，而近年來聲控與觸控面板的盛行，也為人機介面增加了一個新的領域。但是否能將控制方式再往上提升一個層次，直接用意念控制電腦呢？腦機介面就是以此為概念，透過將腦波轉化為電波訊號的方式來操作電腦，雖然目前只能做些簡單的動作。但是若日後發展成熟，這對於身障人士來說將是一大福音。

4. 全無線解決方案

　　早期的桌上型電腦，總是需要連接一堆的電源線、訊號線才能順利運作。因此，有需多廠商陸陸續續推出了無線滑鼠、無線鍵盤等周邊設備，希望能減少實體線路連結所帶來的不便。如今，一個全無線的解決方案誕生了。不只鍵盤、滑鼠不須線路連結，甚至連電源線、顯示器訊號線也都不需要了。透過 SUPA（Smart Universal Power Access）的無線電源供應技術以及 UWB（Ultra-Wide Band）的無線 USB 技術做為訊號來源，讓全無線電腦解決方案成為可能。

肆、心得

一、雲端運算將是未來應用系統的發展趨勢

　　就如同這次 CeBIT 電腦展的口號「雲端工作與生活」一樣，雲端運算技術已發展出許多新穎概念，讓我們在工作和生活中，都能享受雲端帶來的好處。在雲端運算概念尚未提出之前，為了讓沒有大型主機的企業也能具有等同於大型主機的運算能力，因而發展出了（Grid Computing）網格運算的分散式運算概念。將許多伺服器利用網格串接起來，藉由分工合作來提升運算效能。

　　而雲端運算大致可分為公有雲與私有雲兩大類，私有雲是利用本地端資源，再搭配虛擬化技術，藉此達到企業內部的雲端平台。而公有雲是使用企業外部的資源，透過網路連線來存取與使用資源與服務。兩者都可以提供 IaaS（Infrastructure as a Service）、Paas(Platform as a Service)、Saas(Software as a Service)等服務。而當企業內部資源不足或考量自行建置系統的成本過於昂貴時，就會轉向尋求各種公有雲的服務，例如 Google 的 Gmail，IBM、Dell 和 Microsoft 的雲端式作業系統、亦或趨勢科技的雲端防毒等等。

　　雲端運算除了能為使用者和企業帶來各式各樣的服務之外，在開發應用程式方面，也可透過雲端平台來協同工作，縮短產品開發的時間。但雲端技術仍存在著一些隱憂，像是個人隱私、資料安全、資料備份等議題，都在考驗其可靠度。例如使用雲端服務使用者的個人資料、操作行為與習慣是否被妥善的保護而避免遭到破壞或竊取。企業資料在網際網路上傳輸或儲存於雲端設備時，針對機敏資訊是否已做好加密等管控措施。當不可預期的災難發生時，系統之同地備援、異地備援機制是否完整且能及時啟動。因此，雲端技術若要繼續發展，雲端服務提供者必須針對這些議題做良好且完整的規劃。

二、平板電腦的發展將持續加溫

於 1983 年，IBM 在漢諾威展示了其第一台的個人電腦以來，至今個人電腦的發展就不斷日新月異。除了一般傳統桌上型電腦外、筆記型電腦、All-in-One電腦、小筆電、掌上型電腦、智慧型手機等，各式各樣的電腦裝置讓人眼花撩亂、目不暇給。而在觸控技術的不斷進步與蘋果電腦 iPad 的推波助瀾下，平板電腦市場已是各家廠商必爭之地。此外，展出總計超過 40 台的平板電腦，其主要作業系統還是以 Google 的 Android 以及 Microsoft 的 Windows 7 兩大陣營互相較勁。

平板電腦之所以會成為現今最熱門的原因，可歸納為以下幾點：一、重量：比起傳統筆電動輒都要一公斤以上的重量，而絕大多數的平板電腦都不到一公斤，有的甚至不到五百公克，大大降低移動上的限制，非常適合隨身攜帶。二、體積：平板電腦只有一個螢幕大小，比起筆電來說要更為輕薄短小，可以一手掌握。三、操控性：使用了最新多點觸控技術，讓手寫辨識與系統操作更為便利。四、推動無紙化：在現今強調無紙化的時代，透過易於攜帶與大螢幕的特性，很適合做為推動電子書、文件電子化的媒介。

但平板電腦也不是沒有缺點，其運算能力、輸入方式、價格、螢幕尺寸等方面，都較筆電來的差，且電力消耗仍然是一個問題。因此若要完全取代筆電，仍有一段很長的路要走。然而，平板電腦的技術也不斷在進步。從早期只支援單核心 CPU，到如今已可以支援雙核心且時脈也已提升到 1GHz 以上。除了不斷追求電腦效能的同時，增加產品的多樣性也是相當重要的。許多款概念機紛紛出爐，像是投影平板電腦以及雙平板電腦等創意，將不斷的衝擊平板電腦市場，也考驗著消費者的接受程度。在 CeBIT 展出的期間，蘋果電腦也已在舊金山發布旗下最新平板電腦產品 iPad2，相信又將會引發一場平板電腦的激烈角力戰。

三、以綠能科技來推動節能減碳

「IT meets Energy」是此次 CeBIT 的展出重點之一，希望透過資訊科技為能源做出更有效的利用，而節能減碳與提升再生能源使用率也是全球各國對於能源利用的主要政策。此次自法蘭克福驅車前往漢諾威時，沿途看到許多的風力發電設備，更證明於先進國家德國，使用乾淨再生能源是多麼重要的事。台灣是個高度工業化的國家，能源消耗量十分龐大，若要推動綠能與節能減碳，我認為宜從幾個方面著手。

一、電力取得：

火力發電一直是台灣電力的主要來源，燃料主要來源為煤、油與天然氣。但火力發電最大的壞處除了燃料資源終告枯竭外，對於環境的傷害也是相當嚴重，所排放的二氧化碳與廢氣將會對環境造成極大的影響。為此各國也陸續採用許多再生能源方案，如風力、水力、潮汐、地熱、太陽能發電等。而對於 IT 產業來說，太陽能是一個相當有潛力的再生能源，目前已有廠商研發透明的 LCD，不須連接電力線，而是以環境光源作為電力來源。

二、電力配送：

透過智慧電網的幫助，可將電力依實際需要分配至各地，除了能減少電力浪費，也讓能源達到更有效的運用。

三、電力使用：

要如何才能更省電，一直是各類資訊產品所追求的目標，NB 與 USB 省電技術亦不斷的在進步當中。而透過智慧電表與智慧居家的協助，讓我們對電力使用進行有效的控管。今年三月十一日不幸於日本發生芮氏規模 9.0 的強震，導致福島核電廠遭受嚴重的損害，並使得部分核廢料外洩，全

球都將遭受影響。為此，推動乾淨的再生能源將是不可忽視的一項議題。而歐盟也提出於 2020 年，再生能源需占總能源 20%之願景，相信於明年的 CeBIT 電腦展，將會出現更值得我們期待的綠能技術。

四、資訊安全仍是未來資訊產業發展中重要的一環

無論資訊科技如何推陳出新，資訊安全都一直是各企業的資訊長所最關心的議題。為避免資料遭受被竊取、遺失、損毀和竄改的風險，各式各樣的資安技術不斷被應用到 IT 產業。尤其是近期火紅的雲端運算，雲端服務提供者要如何提供雲端資料安全的保證就變得相當重要。以下針對幾點分享自己的看法。

一、提高網路交易之安全性：

隨著網際網路越來越普及，雲端服務越來越多元，在網路上的交易行為也越來越頻繁。然而，許多非法行為也開始層出不窮，像是個人資料外洩，密碼盜用，即時通訊軟體被駭客入侵等，都會讓使用者對於網路交易安全性上畫上一個問號。為此，德國政府已推出一套可用於網路交易，及各項電子化政府服務的身分認證機制。在台灣的自然人憑證也是類似的概念，只是於網路交易上的應用尚未普及，這有待日後政府的大力推行。

二、多功能的防毒軟體：

以前的防毒軟體主要是以電腦病毒的預防與偵測作為主要功能。後來漸漸的把網路防火牆、郵件掃描與垃圾郵件過濾機制也加在其中。而現今的防毒軟體功能又更上層樓，已有廠商把資料加密、資料備份與還原，以及虛擬鍵盤（為避免駭客竊取密碼而發展出圖形化鍵盤的概念）等功能包含在裡面，使得防毒軟體逐步往資料保護方面發展。

三、資料雲端備份與復原機制：

　　　　資料的備份與復原機制一直都是伺服器管理人員最關心的事情。而透過雲端技術的發展，異地備份的地點或許可以多一種選擇，將資料備份到雲端上。尤其是當中小型企業無法支付異地備份的軟硬體成本時，使用雲端備份倒是一個不錯的解決方式。但仍需詳細了解該服務供應商所提供之資安控管機制，以避免重要資料外流。

四、USB 資料保護：

　　　　USB 技術已發展到 3.0 的版本，傳輸速度與 2.0 相較之下快了 10 倍，USB 技術的應用面一定更加廣泛。雖然資料傳輸速度的提升有助於 USB 儲存裝置的使用；但相對其資料保護技術也必須做到一定水準，以避免當 USB 儲存資料遺失時，其機敏資料遭到竊取或盜用。

五、3D 技術將繼續發展

　　　　還記得 2009 年 12 月上演的一部電影「阿凡達」嗎？該部電影斥資五億美金打造，成為影史上製作成本最高，票房超越「鐵達尼號」的 3D 電影。在此之後，片商就不斷推出各類型的 3D 電影，引發 3D 電影的狂潮。電視製造商當然也不會錯過這個商機，紛紛開始積極研發 3D 電視。至今為止各家廠商已推出許許多多的 3D 電視，但絕大多數都需要配戴 3D 眼鏡才能顯示 3D 效果。而透過凸透鏡式或視差屏蔽式的裸眼 3D 技術，雖然可不戴 3D 眼鏡就能產生 3D 效果，但仍會出現視角疊影和可視角度的限制。目前最新的人眼追蹤技術，會將影像隨著人眼的移動來變換成像視角，讓觀賞者可透過全視角來觀賞影片。此技術當然也不是沒有缺點，除了增加可調變的液晶模組使得重量加重外，目前也只支援單人使用。但整體上來說，3D 技術已經大幅度的進步了，相信在不久的將來，會有更好的解決方案，甚至是以立體投影技術投射出 360 度的虛擬影像，豐富我們的影音生活。

六、消費性電子產品創意無限

　　電腦周邊產品發展至今，已出現許多創新的想法。前面已提到投影鍵盤、體感滑鼠等新穎設備，不斷的將新想法帶給消費者。除此之外，還有像是「戒指滑鼠」，可像戒指一樣戴在手上，滑鼠上方有游標感應區與左右按鍵，透過大拇指進行操作。另外，結合雲端運算的印表機，可透過印表機的網際網路連線與接收 E-mail 的功能，將檔案以電子郵件傳送至印表機即可列印，完全不須透過電腦作業，而搭配智慧型手機一併使用也相當方便。而體感偵測技術也持續不斷的進行研究，除了大家所熟知的微軟 Kinect 以全身進行體感操作外，國內也有廠商研發出可與之媲美的 W.A.V.I.體感偵測技術。在居家生活方面，國內廠商更研發出不輸國外大廠的自動吸塵器 iCleaner。綜上所述，消費性電子依然是一個充滿創意且相當有潛力的市場。

七、充滿嶄新概念的 iF 大展

　　德國漢諾威的 iF 公司（The International Forum Design）自 1953 年開始，每年都舉辦工業設計大展，內容包含 Product design award（產品設計獎）、Communication design award（傳達設計獎）、Material design award（材料設計獎）、Packaging design award（包裝設計獎）、Concept design award（設計概念獎）等，是全球最大的工業設計展。而此次的設計概念獎有來自 52 個國家，8007 件作品參加。在會場中可看到許多優秀的入選作品，以海報的方式展示其獨特的創意。除此之外，如果想看更多有趣的創意，服務台旁邊也放置了參展作品的書面介紹，數量相當驚人。若要將所有展項看完，可能要花上將近一天的時間。而在此次參展作品中，發現台灣的創意實在是相當驚人，在 100 件得獎作品中，台灣就拿下了 31 件，比起南韓的 24 件數量更多。除了讓世界各國都能了解到台灣優秀的創意，更顯示出台灣在全球的工業設計概念上，有著獨到和領先的優勢。

伍、建議

　　為維持政府之歲計會計業務能順利推行，提供各機關完善的政府歲計會計作業資訊系統一直是本中心的主要業務。以政府歲計會計資訊管理系統（GBA）而言，更是本中心推行多年且成效卓著，並獲得第十屆全國標準化獎殊榮之歲計會計系統。然而資訊科技仍不斷地推陳出新，為使政府歲計會計作業資訊系統能與現今資訊技術接軌，並在推行上獲得更好的成效。希望能經由這次參觀 CeBIT 的所見所聞，提供以下幾點建議，以提升系統之管理效能和安全控管機制，並為國內資訊產業發展趨勢，提出幾點看法。

一、以雲端服務提升政府歲計會計系統管理效能

●縮短系統之建置與更新時間

　　以「雲端服務」的概念，將系統建置由提供軟體安裝的做法，轉型為提供服務讓使用者直接使用。系統只需在「雲」的部分架設完畢，並做好妥善的軟硬體設施規劃與足夠的網路頻寬。身在「端」的使用者，再也不需自行架設系統，只要經由幾個簡單的申請動作，就能透過網路來使用系統提供的服務。此種作法將大大的減少使用者在進入系統所需的前置作業，進而加速系統推動。此外，當系統需要更新版本時，只需在「雲」的部分更新完成後，在眾多「端」的使用者，就能即時看到修正後的結果，這比起傳統主從式或分散式系統架構來說，系統更新顯得更為方便且迅速。

●加快系統之問題處理效率

　　當系統剛推出時，總是會有各式各樣的問題要處理。而在經過一段時間的磨合後，才會越來越趨於穩定的狀況。因此磨合期的長短，也就成為影響系統能否成功推行的重要因素。系統透過雲端服務，可將問題的種類

由發散轉為收斂，將問題點導向系統功能面，而非處理使用者之系統安裝、系統環境設定、以及軟硬體設施調校等問題。另外，當系統在資料面發生問題時，直接在「雲」的部分就能夠進行檢視，以縮短問題掌握與處理的時間。而不像分散式系統般，需等待使用者將問題資料送達後，才有辦法進行後續的處理。

二、強化政府歲計會計系統安全控管

●結合電子化流程管理、電子簽章、身分認證等機制提高系統安全

為確保系統的資料流能正常運作，加入流程管理機制就顯得相當重要。當資料須透過不同身分的使用者進行維護、確認、審核時，即時的通知與適當的資料鎖定、解鎖功能，能加快系統運作進度，並避免資料於審核過程中遭到異動。透過電子簽章功能，能提供資料之完整性、私密性與不可否認性等，降低資料遭到竄改和竊取的機率。為了進一步對使用者的身分進行確認，也可將適當的身分認證機制（如自然人憑證）導入系統，取代傳統僅以帳號密碼的方式登入，來強化系統安全。

三、對資訊產業的建議

●想像力與創意即是競爭力

以這次展出的 ICT 消費性電子產品來說，想像力和創意確實為產品帶來不少的附加價值與競爭力。像是最常使用的輸入設備，如投影鍵盤、體感滑鼠；輸出設備，如環境光源 LCD、裸眼 3D 電視。其他還有像是雙平板電腦等，均充滿了巧思與創意，也顯示了與其他同質性產品的鑑別度，提高產品競爭力。

●雲端運算的商機無限

　　「雲端運算與生活」是此次展出的口號也是重點。許多國際大廠如 IBM、Microsoft、Dell 等也提供各種雲端服務解決方案。可以預見的，雲端運算將是資訊產業的未來發展趨勢。國內廠商除了直接提供各種雲端服務外，也可間接的透過提供「雲」和「端」所需要的產品與技術抓住這龐大的商機。

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４. Computex, http://www.computextaipei.com.tw

５. Mobile01, http://www.mobile01.com

６. Engadget, http://chinese.engadget.com

７. CNET, http://taiwan.cnet.com

８. Google 新聞, http://news.google.com.tw

９. 聯合新聞網, http://udn.com

Raue: "The atmosphere is very upbeat"

Ernst Raue, a board member at Deutsche Messe AG in Hannover, believes the mood is very positive in the ICT industry. COMPUTERWOCHE editor Jan-Bernd Meyer spoke with him in the run-up to the CeBIT 2011.

CW: *Mr. Raue, as a board member at Deutsche Messe, you probably have a sense of how the ICT industry is doing right now.*
RAUE: We organize more than 100 trade fairs and that gives us a pretty good perspective on what the mood is in the various industries. Right now, the IT segment is doing extremely well, especially now that the crisis is behind us. Many companies didn't feel much of an impact from that period of instability because they had some of their own solutions ready and also helped other companies get through it. Right now, I'd say there's a truly positive upswing in the industry.

CW: *What trends are you seeing this year? What changes will there be?*
RAUE: The biggest trend we're seeing at the CeBIT is a shift away from pure hardware. In the past, we filled halls with computers, printers, copiers, and so on, and later software got into the picture. Then, telecommunications came on the scene. Now, you can find all of those capabilities in a small smartphone. Obviously, the world has totally changed.

CW: *What does that mean for a trade fair organizer like Deutsche Messe?*
RAUE: For us, it means that we had to take a completely different tack. We don't need as much surface area. We need more intelligence in the systems. That's why we completely reconfigured the CeBIT. We have more of a user's perspective now than a supplier's. Accordingly, we clustered the various subject areas together.

For example, we have a section for government where we exhibit smart solutions for administrations. We also have a professional section for business customers. We just also opened up a new zone that is very exciting called "CeBIT life". Here you can see live applications, or apps as they're called, that are used in smartphones. In other words, it's where information technology meshes with our daily lives.

CW: *The major topic of the CeBIT 2011 is cloud computing. You coined a catch phrase for that: "living with the cloud". Can you explain that a little more for us?*
RAUE: We always assign a theme to the CeBIT. We've had Green IT, and last year we had Webciety. This year, we were thinking about the cloud and asked ourselves, What is it actually? Does it mean working and living in a cloud? Are we flying blind? Or does it refer more to "working and living with the cloud"? "Cloud" actually refers to large-scale computer systems that provide services that one can no longer obtain at the workplace. Working and living with the

> „Yes, it also means that we have to think differently about business processes."

cloud then means that we are actually using large-scale systems. They are having their renaissance so to speak. We've seen that in the past when computers had a high utilization rate. Then came the small systems and everyone had their PCs. However, they weren't being fully exploited, and now we're coming back to a more cost-effective situation…

CW: *… As well as a new situation for users and companies?*
RAUE: Yes, it also means that we have to think differently about business processes.

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Photo: Deutsche Messe AG

CeBIT Global Conferences

The Global Conferences provide a panoramic view of the digital world's mainstay markets: ICT and Telecommunications, Digital Media also Consumer Electronics. Daily from 10 a.m. to 2 p.m. – Convention Center, Room 2, Exhibition Grounds.

Tuesday, 1 March 2011

ICT solutions for a better world

10.45 a.m. – 11.15 a.m.
Cloud Solutions for a Better World
Cloud computing marks a major paradigm shift in the way companies and organizations access software and computing power. It creates cost and efficiency benefits which are available to organizations of all sizes, from the largest of enterprises to the smallest of start-ups, and even in the public sector in areas like health and education. These operational benefits open doors to potentially game-changing opportunities for innovative services, which will benefit the business or organization, but also the individual. Jean-Philippe Courtois will in his speech discuss how Europeans and people around the world can benefit from cloud computing

and what Microsoft is doing to advance cloud adoption.
Jean-Philippe Courtois, President Microsoft International

11.15 a.m. – 11.45 a.m.
Making Digital Europe A Reality
Matthew Key, Chairman & Chief Executive Officer, Telefónica Europe plc

11.45 a.m. – 12.15 p.m.
The Digital Agenda of the European Commission
Implementing the ambitious Digital Agenda of the European Commission will contribute significantly to the EU's economic growth and outlines different priority areas for action, e.g. creating a digital Single Market, faster internet access, more investment in R&D and applying ITK to address challenges facing society like climate change.
Neelie Kroes, EU-Commissioner for the Digital Agenda, Vice-President of the European Commission

12.45 p.m. – 1.15 p.m.
Applying 'One Ford' Principles to Innovation: Ford Motor Company's Global Vision of Affordable Technology for All"
Ford Motor Company is founded on a history of innovation, from ideas to technologies. Yet there is something that differentiates it from other innovators. Henry Ford applied innovation to reach, affect and be attainable to all around him. The same thinking applies today, as the 'One Ford' approach to product development delivers new technologies at an unexpected pace to consumers around the world.
Alan Mulally, President & CEO Ford Motor Company

1.15 p.m. – 1.45 p.m.
IT Enables Smart World
The fusionization of technology where IT, BT, NT are merged on one platform will become the megatrends and IT will be the driving force of this convergence. With this fusionization,

we will enter the Smart World described as "Self-Intelligence". Korea, as an Innovation Magnet, will help you make your dream come true. This can be a win-win for both and a foundation for the co-prospering world.
Dr. Chang-Gyu Hwang, Secretary General, IEEE Fellow, PhD. Office of Strategic R&D Planning Ministry of Knowledge Economy Republic of Korea

Wednesday, 2 March 2011

Real Business – Real Time

10.00 a.m. – 10.15 a.m.
What's next in tech?
Next Generation Access – 10G PON and Phantom Mode, the Evolution towards Ultra-Broadband. This presentation gives you insights about the next evolution steps with regard to wireline access networks – both optical fibre and copper-based. In addition to new solution concepts in the context of 10G PON

and DSL we also present latest products, where these new concepts has already been realized. Welcome to the future, welcome to ultra-broadband.

Sanjay Patel, CTO Wireline Networks, Alcatel-Lucent

10.15 a.m. – 10.45 a.m.
Five Megatrends Shaping Enterprise Communication and Collaboration

Open collaboration for social, mobile, wired, wireless and now cloud - five megatrends will re-shape the enterprise communication and collaboration experience and enhance acquisition and deployment options over the next 24 months. Hamid Akhavan, CEO of Siemens Enterprise Communications discusses the game-changers that underpin the next generation of enterprise networks and unified communications.

Hamid Akhavan, CEO, Siemens Enterprise Communications

10.45 a.m. – 11.30 a.m. (Panel)
The importance of security

Data security and privacy have been a hot topic of debate the past few months. This debate has made it apparent that any business model based on Cloud Computing can only be successful if users are convinced of the privacy and security of their data. What do providers need to offer and what do users need to be mindful of?

12.00 noon – 12.35 p.m.
The Cloud 2: Social, Mobile and Real-Time

The future of the Cloud is social, mobile and real-time. A new paradigm for enterprise collaboration, data that finds its way to you before you ask for it, and the ability to access it all from any mobile device. How will this new model lead to enhanced productivity for companies of all sizes? Hear salesforce.com co-founder Parker Harris talk about the real Cloud 2.

Parker Harris, Co-Founder & Executive Vice President, Technology and Products, salesforce.com

12.35 p.m. – 1.35 p.m.
Cloud Computing Summit: The power of clouds - The big players in Cloud Computing

In the opinion of many experts, Cloud Computing is going to permanently change the IT landscape. IT providers are promising enhanced flexibility, efficiency and scalability. For the user, the key issues involve security and compliance. Some skeptics consider Cloud Computing merely another marketing slogan. To what extent do Cloud-based solutions actually fulfill the high standards required of high-performance ICT infrastructure?

Smart Grid Summit: IT meets Energy

The energy industry is putting into effect the biggest change in its history. Efficient and intelligent energy supply networks represent the requirements for economic growth in the decades to come. With investments of several trillion Euro in more efficient and intelligent energy supply networks, the foundations for the next generation of energy networks shall be laid. In the course that these developments will take, IT will play a key role. During the Smart Grid Summit on **2 March 2011**, the top managers from the IT and energy sectors will discuss the potentials possessed by the new market.

Keynotes
(2.30 p.m. – 3.00 p.m.)

- *David McAllister, Prime Minister of Lower Saxony*
- *Friedhelm Loh, President, German Electrical and Electronic Manufacturers' Association (ZVEI)*

Panel (3.00 p.m. – 5.00 p.m.)

Six top managers will discuss innovative solutions and very promising business models for the future energy market at the Smart Grid Summit – from e-mobility to an efficiently controlled server park. ◄
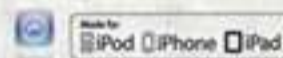
The Four Platforms of the CeBIT 2011

The trade fair has adopted a new structure featuring the "pro", "lab", "life", and "gov" platforms. Below are some highlights from these four areas.

CeBIT pro: Business Solutions for All Industries

• **AutoID/RFID:** A specialty area for automatic identification technologies is the **"Auto-ID/RFID Solutions Park"** in Hall 7. Featured are innovative applications pertaining to auto-ID technology and its behind-the-scenes collaboration with software systems. Sample scenarios include the RAN (RFID for Automotive Networks) project sponsored by Germany's Federal Ministry of Economics. "Networks" refers to the networked supply chains between automobile manufacturers and their suppliers. The Bremen-based BIBA Institute will be presenting identification processes for vehicles as they are loaded for shipment. Other applications are personal finance accounting books, electronic shopping lists and shopping assistants, as well as a shelf management system like the one used by DFKI in Saarbrücken together with the Globus retail company to test future-oriented, retail-related processes.

• **Business Communications & Networks:** After holding the successful kick-off event for last year's CeBIT, Bitkom is organizing **"Broadband World"** (Hall 13) at the CeBIT 2011 in partnership with the Federal Ministry for Economics and Technology, Deutsche Messe AG as well as municipal umbrella organizations. This exhibit provides information about Germany's future-ready broadband supply. Besides moving into no-coverage areas and expanding high-speed networks, requests for innovative applications are gaining in significance.

• **ICT Infrastructure:** Successfully launched in 2010, the special presentation **"Next Level 3D"** will once again be held in Hall 16. It deals with the product and service chain associated with 3D stereoscopy. A special highlight this year will be a cyber-classroom with its ultramodern 3D learning environment.

• **Security World:** Focusing on security solutions, this exhibition area (Hall 11) specializes on current issues such as security in the cloud, virtualization, data theft, and encryption. This year and for the first time, CeBIT is launching the **"CeBIT Against Cybercrime"** initiative, which is oriented toward greater security on the Web. As a run-up to the initiative that took an entire year to plan, a live stage will be the setting for two fascinating podium discussions among pre-eminent subject matter experts, which will be held on Tuesday, March 1, 1:30 pm to 3:30 pm. The topics will be "Internet Crime – Hazards, Threats, and How to Protect Oneself" as well as "Internet Crime – Protecting Children and Teens on the Web".

• **Webciety – Internet Solutions:** By means of the new **"eCommerce Park"** in Hall 6, CeBIT wants to address the ever-increasing appeal of the Internet as a sales channel. In addition to the exhibition area, the eCommerce Park has a stage that suppliers and service providers can use to present their online retail solutions. Some of the other topics include eCommerce solutions for mobile end devices, online payment systems, Web 2.0 solutions for online stores, and augmented reality (AR) applications.

CeBIT life: ICT for high-tech aficionados

The "life" platform includes the **"CeBIT sounds!"** stage as a way to showcase the connection between IT and music. It is set up as a "timing device" for ideas and solutions destined for the digitized music industry. After its successful premiere in the spring of 2010, the interdisciplinary music fair is ready to launch with an expanded concept. Besides many musical highlights, the concert stage will feature many podium discussions and presentations on the topic of "IT & Music."

In addition and as part of CeBIT life, Deutsche Messe AG is holding the **"media live experience"** (Hall 19) for the first time this year. Over a period of five theme-days pertaining to the media realm, visitors will get an in-depth look at the industry's hot spots. Besides trends in media usage, other subjects to be discussed include 3D stereoscopy, the legal aspects of digital distribution, and the new challenges facing media literacy and competence.

Under the **"Smart Home"** theme, Hall 19 will display products and solutions for com-

munications, home automation, entertainment electronics, and information technology – all in one integrative overall concept. Together with its partners, Smart Home will present the current status of development in our various digital realms.

"Sports & Health" will premiere this year in Hall 19. For this new theme area, CeBIT was able to bring on board the following cooperation partners: Barmer GEK (a health insurance company) with its "Germany gets moving!" health initiative, ZDF (a television station), BILD am SONNTAG (a weekly magazine) and the Deutsche Sporthilfe foundation (to promote sports). Also included are the health initiative's prominent ambassadors such as Heike Drechsler, Torsten May, Jochen Wollmert, Danny Ecker and Christina Obergföll. The presented material will show how ICT gets people moving and how it can promote a healthy lifestyle over the long term. It will also demonstrate how ICT helps people to engage in sports at the highest levels and improve their performance.

CeBIT lab: Research and Development

CeBIT lab is a platform for universities, industrial research institutes as well as startups and spinoffs to present future projects, and discuss scientific advances and megatrends. In Hall 9, CeBIT is offering a conference forum by the name of "lab talks" with more than 100 lectures, live presentations, podium discussions, and project demonstrations scheduled. Topics include 3D technologies, Web 3.0, open cloud computing, private clouds, the Semantic Web, and urban management (smart cities).

Another focus area is the interconnectedness of small and medium-sized companies using cutting-edge ICT research (**"SME meets research"**). Research facilities from

throughout Germany will give brief presentations on current projects about to see completion and whose results can be commercially utilized with partners. For that reason, these presentations will emphasize possible applications.

A third highlight is the international cooperation exchange by the name of **"future match."** It enables exhibitors and trade fair visitors to initiate business or technology partnerships as well as research collaboration in the area of information and communication technologies throughout Europe. The event is geared toward companies as well as universities and research institutes that are looking for international cooperation partners. In 2010, more than 440 participants from 46 countries used future match as an opportunity to establish new contacts.

CeBIT gov: Solutions for the Public Sector

CeBIT gov will be presenting the firmly established **"Public Sector Parc"** and Tele-Health areas. The Public Sector Parc depicts how modernization is affecting public administrations. A new feature here is the **"KOMmune INNovativ"** exhibition area. It brings together ICT solutions that can fulfill municipal administration requirements and it serves as a meeting place for suppliers and users. Also part of the platform is a top-notch workshop program and its own presentation venue, the KOMmune INNovativ Forum. Besides being used by exhibitors for their products, many municipal umbrella organizations can use the Public Sector Parc as an information and communications platform for their members. On different days, members of these organizations from Lower Saxony, North Rhine-Westphalia, Rhineland-Palatinate, Hesse, and Schleswig-Holstein will be visiting Hall 9.

TeleHealth (Hall 9) will portray the new technologies that facilitate the work being done on a daily basis in medical practices, hospitals, and pharmacies. A special highlight is the **„FutureCare health course"** that Bitkom (an industry association) was responsible for organizing. It clearly presents IT's integration into the health care sector and health care system. The true-to-life application scenarios stem from medical practices, pharmacies, hospitals, and domestic environments.   *(ue)*

The New ERP: Mobile, Flexible, Cloud-Based

To generate appeal for new ERP solutions among your customers, manufacturers are working on apps for smartphones and tablets as well as additional functions easily obtained from the cloud.

By **Martin Bayer***

ERP solutions no longer just refer to tedious financial bookkeeping with a little production planning and machine controlling tools thrown in for good measure. Something like that would hardly draw anyone to the CeBIT. Manufacturers are refining and continuing to upgrade their ERP solutions. Increasingly, the focus is on integrated solutions that one can easily and flexibly expand by means of cloud services and mobile apps.

SAP – Time for a Practical Approach

At this year's CeBIT, SAP is casting the spotlight on new developments in the areas of cloud computing, in-memory computing, mobility, and business analytics. For Europe's biggest software supplier, the motto at its three booths (Hall 4, Booth D04; Hall 5, Booth A18; and Hall 9, Booth C52), covering a total surface area of almost 3,000

square meters, is "Here and Now". According to the SAP managers, it seeks to convey how applications and technologies can meet the requirements of business customers and how decision-critical information can be provided for all end devices.

At its main booth in Hall 4, SAP is presenting its complete application portfolio including basic technologies and industry solutions. Already introduced last year, in-memory computing serves as the connecting link between the two. According to SAP, it can significantly accelerate data queries and analyses. On this basis, brand new applications are now possible that ultimately can also change the nature of business management. Supported by the Hasso-Plattner Institute, SAP will be staging

true-to-life scenarios that demonstrate the uses of in-memory technology.

In Hall 5, SAP along with its partners will exhibit topics geared toward small and medium-sized enterprises (SMEs). The main attraction is the "Business ByDesign" solution, a complete ERP-on-demand package that SAP launched last year. Now, it's a matter of finding partners to expand and market Business ByDesign. In the Public Sector Park in Hall 9, SAP is displaying solutions meant for public administrations. According to the company, the emphasis is on demography-oriented management of human resources, budgets, and finances as well as administrations and e-government. Other subjects include technologies for secure administrative processes as well as

procedures used primarily by security and social insurance agencies.

Microsoft – It's All about the Cloud

At Microsoft, this year's CeBIT appearance (Hall 4, Booth A26) is all about the cloud. Currently, the portfolio extends from e-mail to CRM online. ERP seems to have not been included to date but that could still change in the future. Companies will supplement their local infrastructures, platforms, and applications more and more often with flexible resources obtained from the cloud, claim representatives of the world's biggest software manufacturer.

In terms of ERP, Microsoft is displaying the latest versions of "Dynamics NAV" and "Dynamics AX." With Dynamics NAV, Microsoft has a product intended for SME customers. The interface is based on Outlook and is desi-

ERP Quick View

- **Demand Software Solutions** GmbH (Hall 6, Booth A16) will be displaying the current release 2.11 of the web-based "Genesis-4Web" total ERP solution as well as a new module for production planning and management.
- The focus of ams.**Solution** AG's exhibit (Hall 5, Booth F01) at the CeBIT is a solution that machine and plant engineers can use to automate their capacity planning.
- At its booth, the **proALPHA Group** (Hall 5, Booth E18) is placing the emphasis on the areas of variant generation and CAD integration.
- For its CeBIT package, **Oxaion** AG (Hall 5, Booth C28) has developed new functions and sample processes for Business Process Management (BPM) integrated into an ERP system.
- Mobility is the core topic of **Alpha Business Solutions** (Hall 5, Booth C36). It is presenting solutions with which users of mobile end devices can access proALPHA's ERP system and SAP's on-demand Business ByDesign solution. The **GUS Group** (Hall 5, Booth D38) will be displaying ERP-supporting modules for quality management, CRM, and BI, as well as cross-section modules for archiving and document management.
- Apps are also the main feature for **Haufe Lexware** and **Mamut Lexware** (Hall 5, Booth F26). The software manufacturer will be presenting a gross-to-net calculator app for Windows phones. Another highlight is its "Mamut One" complete ERP package that can be supplemented with online services.
- **Nissen & Velten** (Hall 5, Booth C38) is introducing its "eNVenta" ERP system as a cloud-based solution. The SaaS product is based on Microsoft's Azure platform.
- **Psipenta** (Hall 5, Booth E16) will have on display solutions for integrated mobile processes, exemplified by an ERP/MES scenario that is expanded to tablets and smartphones by means of applications.
- **Open Big** (Hall 5, Booth C04) will be presenting the various packages of its open-source "Open ERP" system as well as the preconfigured "Open ERP Box" appliance.

gned to be user-friendly. Besides financial management, the ERP package offers tools for marketing and distribution management, procurement, sales, warehousing, and logistics, as well as production planning and control. Dynamics AX is geared toward customers falling into the category of upmarket SMEs and large-scale companies. The manufacturer claims that this product can help standardize business processes across various locations and improve transparency. The ability to adapt an Office-supported and role-based user interface to certain tasks is meant to facilitate working with it.

Sage – ERP via iPhones

Sage (Hall 5, Booth B16) has on exhibit an iPhone app for its ERP solutions by the name of "bäurer industry" and "bäurer trade." Users with the proper authorization will have mobile access to business data stored in the ERP system. And with the iPhone dashboard, they can also configure statistics and data retrieval. Sage plans on safeguarding security by means of a virtual private network (VPN) connection. For its "Office Line," Sage is introducing a "Task Center" that enables users to configure an individualized and task-oriented user interface. Thanks to a "Light Client," companies will be able to connect peripheral workstations to the ERP system.

In addition, Sage is also showcasing the latest version of its personnel management solution. According to the company, the new release offers more functions associated with personnel controlling and reporting. For example, by means of the "Sage Infocenter" module that can retrieve live data from the HR application, users will be able to access all employee information and utilize it for further processing. The web application makes it possible to group the data based on personnel master data or personnel development, and then provide that information in a linked portal or on the Intranet.

Comarch and its Semiramis App-Center

For its Semiramis ERP system, Comarch (Hall 5, Booth A16) is introducing an app center where customers can find out more about upgrades and new functions as well as taking the next steps toward implementation. The App-Center's spectrum extends from add-ons such as computer-telephony integration tools to more complex things, such as contract management apps. In addition, this Polish software manufacturer says it has refined the depiction and selection of information in the Semiramis system. Users can also access and process this data via smartphones.

Besides ERP as a Service and EDI as a Service (a service for the electronic exchange of business documents), there will soon be products and services relating to Infrastructure as a Service (IaaS) with freely selectable capacities and operating periods for hardware resources.

Also coming is Platform as a Service (PaaS) by means of which customers can utilize computer platforms with various operating system- and database-related options.

Abas Raffles Off an ERP System

Those at the CeBIT who want to learn more about various ERP systems but don't have enough cash on them to buy software can try their luck at Abas (Hall 5, Booth C18).

The software manufacturer is raffling off an ERP system valued at €50,000. To participate, please go to www.abas.de/gewinnspiel. Abas will draw the name of the lucky winner at 11:00 am on March 4 at its booth. ◄

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Cloud Computing Comes with New Tasks for Managers

Bitkom President August-Wilhelm Scheer sees cloud computing bringing a lot of positive changes, but challenges as well, as he explains in a conversation with COMPUTERWOCHE editor Jan-Bernd Meyer.

CW: *Prof. Scheer, as the Bitkom president, you have a very good idea of what makes the ICT industry tick. How is the mood in that segment right now?*
SCHEER: The mood is very, very good. The industry's optimism indicators are the highest we've ever seen.

CW: *Does that apply to all industry segments?*
SCHEER: As you know, we are a diverse industry that consists of the information and telecommunications segments as well as the new media, as they're called. They include among other things flat screen monitors and digital cameras along with their manufactures. So with all these different players, you're going to see various degrees of business expansion. However, we are seeing excellent growth and I can imagine that we will even increase our prognosis for this year.

CW: *It sounds as if the ICT industry has absolutely no challenges left to face.*
SCHEER: It would be rather unfortunate if challenges no longer existed. It would be boring actually, but that's not how our industry is. I'm sure the various segments are facing their own challenges, but one thing they do have in common is a shortage of highly skilled employees.

Right now we have 28,000 vacancies that we're having a difficult time in filling. That's why we are also turning to policy-makers so that they can draft policies that will make it easier for specialists to immigrate to Germany. However, we have to do our own homework, too, and make our industry more appealing to women.

CW: *There's one topic that everyone at the CeBIT 2011 is talking about and that is cloud computing. Bitkom has a term "Cloud World" to address it. What is that about?*
SCHEER: It refers to a special CeBIT exhibition called Cloud World, where we have assembled a number of providers offering various cloud-related services and displaying different infrastructures and applications. That's critical to us because we don't just want to create a lot of hype, or throw a new expression into the discussion. Instead, we want to show in concrete terms how cloud computing actually works, and there will be presentations and demos to do that. This lets

> **"Prices will drop – all made possible by cloud computing."**

potentially interested individuals obtain the information they need. And for decision-makers, we have also prepared written material they can take with them.

CW: *Alongside the positive buzz about cloud computing, there are also a lot of concerns about how everything is going to change. What advice do you have for users?*

SCHEER: Well, first off, things will primarily change for the better. Investments in software and hardware will not burden companies as much in the future because procured services can be deducted. Computing and application capacity will be procured from the Web. Therefore investment expenses will transform into operating expenses that are paid on an as-needed basis. These are all positive changes. Also prices will drop due to the improved exploitation of computer, storage, and web resources – all made possible by cloud computing.

CW: *What changes can IT managers expect in their companies?*
SCHEER: The IT system managers' responsibilities are going to change. They will need the expertise to negotiate contracts with cloud computing service providers. They will also have to know more about data security and develop strategies regarding what type of cloud computing can be used for a given set of applications. These are some of the new responsibilities facing IT managers. ◄

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Thursday, 3 March 2011

Entertainment & Mobility: Connecting real and virtual worlds

10.00 a.m. – 10.15 a.m.
What's next in tech?
HCL Technologies: Global enterprise relies on transparency and integration. Armed with the slogan of "employees first, customers second", Vineet Nayar, CEO of HCL Technologies, is tackling the challenges of a globally active engineering and IT enterprise. Based on his practice of Enterprise 2.0 – including open 360° feedback, trust remuneration and an internal ticket system, Nayar has created a foundation of trust at his enterprise which translates into dollars and cents.
Vineet Nayar, CEO, HCL Technologies

10.15 a.m. – 10.45 a.m.
Pushing the Boundaries of the Mobile Internet
The mobile Internet is growing at a staggering rate, and traditional web content and services are increasingly both mobile, and location aware. This has far-reaching implications for all within the ecosystem. Learn more about the realities of today's playing field and the trends that are pushing Yahoo! and other companies into new territory.
John Matheny, Senior Vice President Communications & Communities, Yahoo!

10.45 a.m. – 11.15 a.m.
IT – ever evolving – ever more fun
What people expect from technology is constantly changing. The way people use technology has fundamentally changed. In the technology industry we are finding innovative ways to better understand our customers so we can address those needs. We also work with our eyes fixed on new possibilities which many people have not even realized and which will lead to even more advanced ways to use technology.
Paul Henri Ferrand, Chief Marketing Officer, Global Consumer and SMB, Dell

11.15 a.m. – 11.45 a.m.
The Web Browser: Why it matters now more than ever
The web browser is the most important software available today. In an era in which we connect everything to the cloud, the web browser will only grow in importance. Jon von Tetzchner, Opera Software's co-founder, will discuss how the browser will transform over the next five years, what new technologies can we expect to see, and what impact will the browser continue to have in our everyday lives.
Jon von Tetzchner, Co-founder, Opera Software ASA

11.45 a.m. – 12.30 p.m.
Pushing the Envelope of Computing in a Connected, Virtual and Real World
Mooly Eden will discuss Intel's vision for computing in a connected virtual and real world today and tomorrow. With over 1 Million PCs being shipped every day, Mooly will discuss how computing devices have become indispensable in our lives today, and how Intel Architecture based solutions are evolving to deliver outstanding user experiences any time any place. Mooly will demonstrate the cool capabilities of the new visibly smart 2nd generation Intel Core processors.
Shmuel (Mooly) Eden, Vice President, General Manager, PC Client Group, Intel

12.30 p.m. – 1.00 p.m.
The History of Geocaching
Geocaching, a high-tech treasure hunt, is enjoyed by millions

of participants of all ages worldwide. Bring your trekking pole as Jeremy Irish, founder of Geocaching.com, walks through a decade of history from the first geocache placed in Beavercreek Oregon over 10 years ago to the use of smartphones for geocaching today.

Jeremy Irish, President and CEO, geocoaching.com, Groundspeak

1.00 p.m. – 1.30 p.m.
One World – One Web
Gary Kovacs will outline how standards and open technologies gain importance as we continue to evolve what we do on the Web. As access through mobile devices increases, so does fragmentation of mobile platforms. The Web is responding to the challenge by providing richer capabilities. Kovacs shows how Mozilla is an advocate for users in regard to app-discoverability, ownership of data, and overall privacy.

Gary Kovacs, Chief Executive Officer, Mozilla

1.30 p.m. – 1.40 p.m.
What's next in tech?
ConventionCamp Hannover: Internet conference meets BarCamp culture. The ConventionCamp Hannover is a combination of traditional conference and innovative BarCamp format. Participants from business, science and the Web 2.0 take advantage of rostrums, workshops, spontaneous sessions and thematic speed dating to discuss the future of the digital world. Having established itself as a permanent fixture, the camp thrives on the open interaction of its participants.

Friday, 4 March 2011

Social Media: The art of conversation

10.00 a.m. – 10.45 a.m.
Next Generation Social Networking: The Mobile Revolution
Social networking and mobile are the two major trends shaping today's internet. More than one billion people use social networking sites, mobile internet is expected to overtake desktop usage within the next four years. Stefan Groß-Selbeck highlights the chances and challenges of next generation social networking.

Dr. Stefan Groß-Selbeck, Chief Executive Officer, Xing AG

10.45 a.m. – 11.15 a.m.
The importance of Communication and Communities
How did we change our communication during the years and how will we communicate in the future? How can we use communication to be creative and innovative? How important is it to communicate? What is the right way to communicate with the community and can we really create a community?

Chris Pirillo, Internet Celebrity & Founder, Lockergnome.com

11.15 a.m. – 11.45 a.m.
Yelp – Word of Mouth Goes Online
More than ever before consumers are relying on reviews to help them make a spending decision. For more than 7 years, Yelp co-founder and CEO, Jeremy Stoppelman, has been at the forefront of connecting people and businesses with one another online, offline and now via mobile. Ongoing product development and innovation and what lies at the core of Yelp's continued success – its community.

Jeremy Stoppelman, Co-founder and CEO, Yelp Inc.

12.15 p.m. – 1.00 p.m. (Panel)
The art of conversation – Hearing, Listening, Understanding
Over the past few years, social games have evolved into mainstream Internet applications. Their users number in the millions, as their sales hover around the billion-dollar threshold. How does this new market work, and how much potential is still available? ◄

Der Kunde im Fokus   CAS

At the CeBIT, CAS Software AG celebrates its 25-year anniversary.

CRM TRENDS:
Social Media, Mobile Apps and the Cloud

At the CeBIT 2011, about twenty companies specializing in customer relationship management (CRM) will demonstrate how they and their partners implement the IT world's latest developments in their products.

By **Wolfgang Schwetz***

As smartphones and tablet PCs see more and more widespread use, Bitkom president August-Wilhelm Scheer believes that the significance of mobile Internet usage in the business realm will increase tremendously. Gartner is projecting that by 2012 the worldwide market for social CRM will account for 8 percent of all CRM expenditures – double the figure for 2010. Accordingly, this topic will be the talk of the world's biggest computer trade fair, even though it may not be taken up to the same degree by software.

There's no disputing that the subject of customer management continues to draw a lot of interest in the German business world. According to estimates by industry experts, about half of the companies in the B2B market still have not implemented a professional customer management system with the corresponding CRM software. The number of CRM users who are utilizing CRM solutions but are not satisfied with outdated versions or off-the-rack standard systems is also on the rise.

Representing the CRM market in Hannover will be international suppliers equipped with ERP solution portfolios such as SAP, Microsoft, and Sage, along with CRM-focused small and medium-sized enterprises (SMEs) with extensive partner networks, and niche suppliers. For individuals looking for CRM systems who don't want to end up at booths pitching phone systems, document management programs, or data protection systems, it's worth taking a close look at what the trade fair offers. Some of the suppliers listed under the "CRM" keyword on the CeBIT pages really don't have much to do with CRM in the strictest sense. On the other hand, the products and services displayed by the CRM providers themselves are very diverse, some having as many as ten different solutions on exhibit at the fair.

Hall 6

Let's start with the **CRM Arena** in Hall 6, where one will actually only find two CRM-related booths. **Sellmore**, a Sage partner,

provides visitors with information about the Saleslogix and ACT! packages. Sage itself along with its software lines can be found in Hall 5. **Pitney Bowes** (main booth in Hall 6), a worldwide supplier of software solutions in the areas of customer data, analytics, and customer communications, will be introducing its Enterprise Geocoding module. It allows addresses to be supplemented with geocoded information, thereby enabling real estate properties to be better analyzed.

On the occasion of its 25th anniversary, Karlsruhe-based **CAS Software AG** has an extensive agenda for its CeBIT appearance in Hall 6. With six partners, the SME-focused CRM company will present the innovations contained in CAS GenesisWorld, the CAS PIA cloud-only product, and many other industry solutions, including some intended for organizations and associations. One highlight of their booth is the integration of social media services such as Facebook or Twitter. Another first-time exhibit focuses on the enhancement of CRM to

xRM, as well as new user interfaces for Apple products and Android-based end devices for mobile smartphone applications.

Also marking its 25th anniversary, **Cobra** will have six partners at its booth in Hall 6. New products and services emphasize the themes of mobility and efficiency. When one is on the go, customer data can still be accessed by means of an iPhone, Blackberry, iPad or via the Internet. The Cobra CRM Pro contains a new efficiency improvement tool designed to help increase sales growth by double-digits.

Right next door, a new portfolio will be displayed by **SugarCRM**, a successful supplier of commercial open-source CRM software based in the US, along with its partners **Genius4U Limited, Insignio CRM GmbH, CRMADDON Factory GmbH and Devoteam Danet**. Their focus will be primarily on social CRM as well as Sugar Mobile for iPhones. Comprising some new tools for system developers and a Twitter connector, the Sugar 6 program is available as an on-demand and an on-site solution.

Halls 4 and 5

In Hall 5, CRM is represented by **ITML**, an SAP Gold Partner that is showcasing an Internet-based solution that integrates very easily into SAP ERP. In other words, users do not require SAP CRM licenses or any SAP interfaces. The web portal, shop system, as well as the Customer Interaction Center (CIC) are all new, too.

In Hall 4, one should pay a visit to **Vertec**, a Zurich-based supplier of a CRM and ERP solution for the service sector. The software comes in three flavors: as a PC client in a network, as a web solution via browser, and as an iPhone app for mobile access. With this program, users on the move can check on payments and charges, update addresses, and take care of any administrative tasks.

SAP's presence is dominant in Halls 4 and 5. SMEs may be especially interested in the on-demand SAP Business ByDesign service, run by SAP in its data centers and made available for a monthly flat rate per user (starting at €79). Subscribers to this service are spared the investments in licenses and hardware required by conventional solutions, and that preserves the user's liquidity. The price also includes recurring costs associated with maintaining and updating the software. SAP offers an entry-level CRM package that still allows for additional expansion.

Uniorg, an SAP Channel Partner that specializes in the integration of heterogeneous

system topographies into the SAP environment, is located in Hall 5. It is presenting itself as an SME partner offering the SAP Business One, SAP Business All-in-One and SAP CRM-RDS products. RDS stands for "Rapid Deployment Solution," and is intended to cut system integration time down to a few weeks.

Also in Hall 4 is another well-known SAP Gold Partner: **Itelligence** out of Bielefeld. Besides offering SAP CRM and SAP Mobile Sales, the provider also develops customized SAP-based solutions. It will display its mobile SAP solutions for iPads, iPhones, and Android devices for the first time at the CeBIT; also on exhibit will be the new it.x-mobile
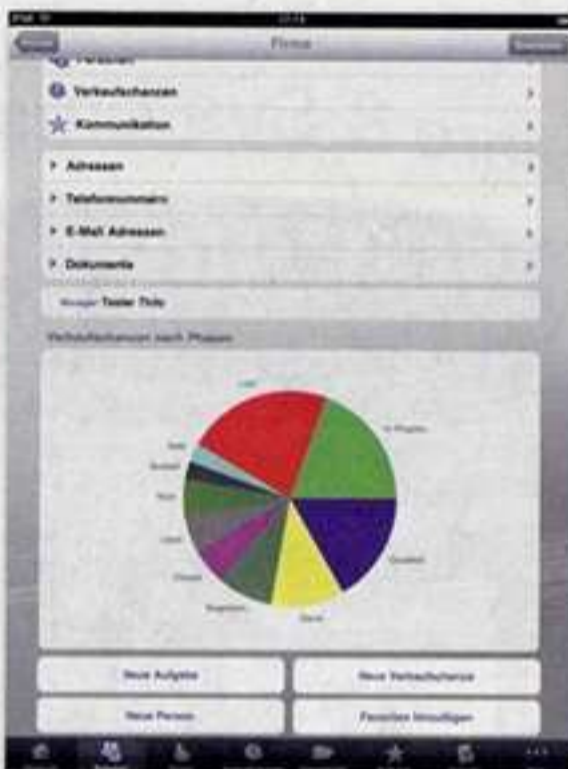
Gedys Intraware is working even more intensively on iCRM; this system enables one to manage customer relations while on the go using an iPhone or iPad.

solution that enables SAP data to be sent on smartphones or tablets. In addition, the company has developed three new sophisticated business models geared toward SMEs.

Also at its booth in Hall 4, **Microsoft** explains what its recently introduced version of Dynamics CRM online/CRM 2011 can do. The new generation of this established CRM software is sure to impress with its intuitive user interface and many new functions. Among other things, it also supports the integration of social media platforms. It will soon be available as an on-premise version as well as in a cloud variant. Potentially drawing a lot of interest, Microsoft also has the new Azure cloud operating system meant to function with the SQL Azure cloud database. Making the switch becomes extra-

appealing with a special price of €31 per user per month.

About 60 Microsoft partners are on hand to present their Microsoft-based, CRM-related industry solutions and product developments. These partners include Infoman out of Stuttgart that has produced a solution specifically for engineering. Visitors to this booth can also get some insight on current topics such cloud services and SAP integration.

Hannover-based **Infinitas** offers CRM using Microsoft Dynamics xRM as well as a flexible development platform for complex corporate structures. The latter enables one to manage customers, suppliers, employees, and other business relationships. With Oracle not attending the CeBIT, partners such as Infinitas are taking over the presentation of Oracle's Siebel CRM.

Hall 2

Hall 2 is a must for users of Lotus Notes. At the booths of **IBM** and the German Notes User Group, one can find exhibitors whose CRM systems are based on Notes. One of these companies is **Gedys Intraware**, which is now working even more intensively on iCRM; this system enables one to manage customer relations while on the go using an iPhone or iPad. An additional Gedys highlight is the Lotus Traveler for iPhones, iPads and Android devices. **GIS**, another Notes specialist for CRM solutions, is another partner displaying its wares at the IBM booth. Tapping into a hot trend, the GIS Collaboration Center enables integrated social computing.

Lastly, it's worth stopping in at **Organice** at the joint booth for the City of Berlin in Hall 2, where the focus is on SMEs. At the CeBIT, it has on exhibit its latest CRM version with components for business intelligence, logbooks, and travel expenses; it also combines an integrated e-mail client, a web solution, and a CTI integration program.

Summary

A trip to Hannover with a CRM-focus is worthwhile to get an overview of the current technology trends and their applications in sales, marketing, and customer service.   *(ue)*

*****Wolfgang Schwetz** is the owner of schwetz consulting (a CRM consulting firm based in Karlsruhe), a member of the CRM-Expertenrat (a council of CRM experts), and the publisher of an annual CRM market profile review entitled "CRM-Marktspiegel."

DMS Booming Among SMBs

Hall 3 is proof of it. Germany's document management systems market remains very fragmented. To attract small and medium-sized companies, competing vendors are placing more emphasis on function than on price.

By **Bernhard Zöller***

The market for electronic archiving and document management systems (DMS) is booming. This is explained by the increasing problems faced when handling a wide variety of documents. In the past, DMS was seen as a fix for specific problems associated with paper documents, especially the high storage costs and cumbersome access as well as the lack of IT integration. These days, DMS may also be the right solution as new requirements crop up in regard to electronic documents.

Flood of Documents

The rising flood of digital documents is affecting innumerable systems and storage devices, including local PC hard drives, file servers, e-mail systems and file repositories. The decentralized chaos facing administrators ultimately winds up on many network drives that give the impression they are managed by chronically disorganized individuals. Storage media are filled with data that is either in the wrong place or can't be found by the employees working there.

Classification systems that provide the rules and structures for governing storage processes often don't exist or are ignored because they are too complex. However, storage space is only slightly less expensive than a properly maintained repository; in fact, it is usually even more expensive because the high costs associated with disorder and manual processes are not transparent.

The "complete file," i.e., the compiled process documentation that serves as the basis for process handling and also for maintaining order and the simple, rugged capability to provide information, is long gone. Among users who are aware of this problem, this often becomes the driving force behind the implementation of a DMS solution. The trend is reinforced by many situations where audits or the finance department require that the lack of organization be corrected.

Price Decrease

In the past, large-scale users in particular were able to afford DMS systems and could exploit the economies of scale in regard to quantity and frequency. Yet now, a price decrease in the hardware and infrastructure components required by DMS solutions has made these systems more appealing to small and medium-sized enterprises (SMEs) and organizations. Other contributing factors include in particular the dramatic drop in costs associated with archiving devices, fast servers, and sufficiently broad LAN and WAN networks. Another reason for this market development is the very intense competition especially in Germany, which has resulted not only in price wars but also in a very close rivalry in terms of functions.

The market for SME-oriented solutions in the DMS segment has overtaken the market geared toward large-scale companies. It is primarily the SME

Photo: Deutsche Messe AG

market that is posting sales growth and new installations, while big companies are working on consolidation projects to integrate departmental solutions in central systems.

Standard Features

Many solutions, including those from SME manufacturers, have comprehensive functions that come as standard features, such as:

- Archiving for incoming mail, outgoing mail, e-mail, and MS Office
- Record management with tools for generating sample templates
- Handling of editing processes for "live" documents, including template management, versioning, and automatic functions (drafting workflow) to map complex editing, approval, and publication processes.
- Workflow functions for truly paperless processes with rules for distributing electronic work as well as modeling tools for business processes and their integration into other departmental processes, i.e., workflows as defined by business process management (BPM).
- Tools for retrieval, output, and process integration of the DMS into various background systems and departmental applications.
- Integration tools for portal applications, such as SharePoint or SAP Portal.

ECM at the CeBIT

Typically, CeBIT's focus on document and enterprise content management is displayed in Hall 3. The many industry representatives exhibiting there reflect the highly fragmented DMS and ECM markets in Germany. Some of the manufacturers and their SME-oriented products are listed below:

- Akzentum GmbH: Proxess (Booth D34),
- Canon Deutschland GmbH: Therefore (Booth A20),
- Ceyoniq Technology GmbH: nscale (Booth E20),
- COI GmbH: COI BusinessFlow G5 (Booth D34),
- d.velop AG: d.3 (Booth H20),
- DocuWare AG: DocuWare (Booth G20),
- EASY Software AG: EASY Enterprise.X (Booth H18),
- ELO Digital Office GmbH: ELOoffice etc. (Booth F30),
- Habel GmbH & Co. KG: Habel Document Management (Booth K35),
- Hans Held GmbH: Regisafe (Booth C20),
- Optimal Systems GmbH: OS5 ECM (Booth J18),
- Saperion AG: Saperion ECM (Booth D34),
- Windream GmbH: windream (Booth J20).

- Full-text searches with Costumizing and programming tools for individual adaptations.

Diverse Requirements

DMS requirements on the SME market differ from those of large-scale companies. For them, scalability, modern multi-level architectures, international availability, programmability to the nth degree, and seamless integration into highly complex IT environments are top priorities when selecting their DMS. These requirements are typically well met by many of the "big" manufacturers' systems. However, experience has shown that the heavy-duty ECM "freighters" require considerable expertise and effort in terms of setup, solution implementation, and continuous operations. The total costs of such systems still often exceed the budget of small and medium-sized companies.

For SMEs, costs and especially the solution's flexibility – and thus also the standard functions available – play a major role when choosing a DMS product. Identifying and properly evaluating the actual function-related differences pose one of the biggest challenges in the DMS purchasing decision.

Many Vertical Niches

DMS market share is not concentrated, as one might think, among a few large-scale suppliers, but is distributed among many medium-sized manufacturers. We are presently unable to determine whether this market fragmentation will change in the future. The smaller and medium-sized manufacturers have proven to be successful. The consolidation into a few global players, as was projected for a long time, has not occurred because the big guys have ignored the booming SME market for years. In addition, growth among long-term customers, who already set up their IT for key business processes, is naturally limited. One must also consider a frequent lack of sales channels to credibly serve the many vertical niches in the SME market and their specific requirements.

More than 50 Systems

Some of the big companies have already gone through the painful experience of finding out that it is impossible to capture these markets without offering reseller-oriented products or the right strategy. Specifically, the latter refers to setting up channels and developing market segments with unique selling points and repetitive sales prospects. The VOI's overview of the current DMS market confirms the diversity and sophistication of the functions offered. At the present time, it lists more than 50 systems in the DMS market. ◄

Bernhard Zöller, CEO, Zöller & Partner (www.zoeller.de)

VOI Forum at the CeBIT

- The VOI (an association of organizational and information system providers) represents the ECM industry in Germany. At the trade fair (Hall 3, Booth D 19), VOI experts can provide information on topics such as cost-effectiveness, compliance, electronic signatures, incoming mail solutions, e-mail management, output management, as well as ECM-related standards and norms.
- They also have basic information on ECM on hand and can offer an overview of various products. With its technical presentations, user reports, and discussion seminars, the Forum is geared toward experienced users as well as visitors who have had little exposure to ECM technology to date.
- The events will take place throughout the day, including on Friday.

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CeBIT pro
Business IT (Halls 2–6)
Webciety – Internet Solutions (Hall 6)
Telematics & Automotive World (Hall 7)
AutoID/RFID (Hall 7)
Banking & Finance World (Hall 11)

Security World (Hall 11)

Business Communications & Networks
(Halls 12/13, Pavilions 32/33,
Pavilion 11 A–B, open-air site)

ICT Infrastructure (Halls 14–17)

Planet Reseller (Halls 14/15)

CeBIT gov
TeleHealth (Hall 8)
Public Sector Parc (Hall 9)

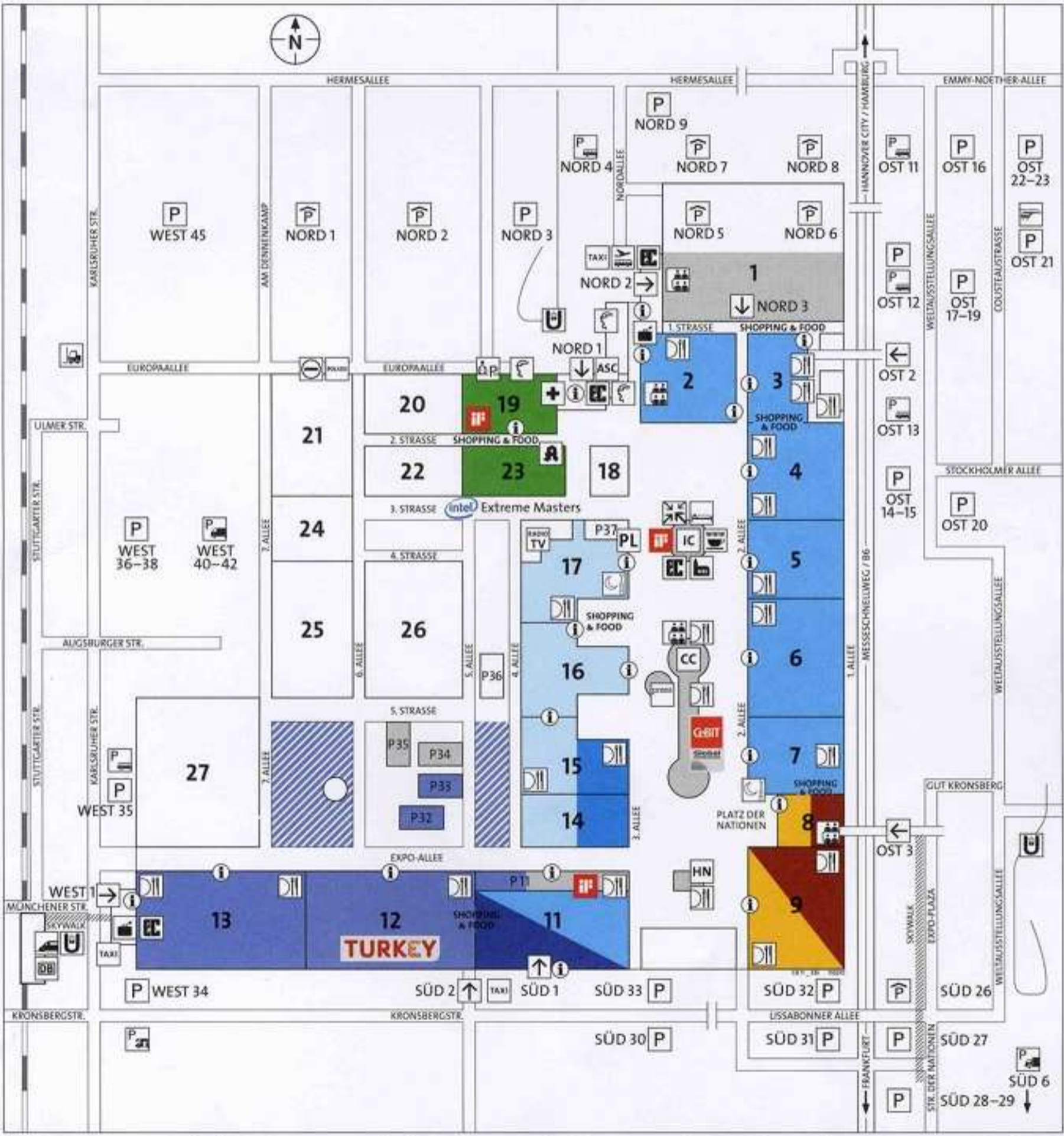**CeBIT life**
Smarter Living (Hall 19)
Content & Technologies (Hall 19)
CeBIT sounds! (Hall 19)
Intel® Extreme Masters (Hall 23)

CeBIT lab
Research & New Technologies
(Halls 8, 9)

Conference Area (Pavilions 34/35)
CeBIT Global Conferences (CC, Room 2)

Central Turkish Pavilion (Hall 12) TURKEY
Turkish joint pavilions (Halls 3, 7, 9, 11, 12)

CeBIT 2012 Sales Office (Hall 8, IC)

Deutsche Messe Verwaltung/Administration
Eingang Entrance
IC Informations-Centrum Information Center
CC Convention Center
Tagungsräume Conference Rooms
EC-Geldautomat EC-Cash dispensing machine
ASC Aussteller Service Center Exhibitor Service Center
ÖP Parkplatzverwaltung Car park admin. office
Bahnhof/Railway Station Hannover Messe/Laatzen
DB Fahrscheine DB-Tickets
Zimmervermittlung Accommodation Service
Gepäck-/Baggage Pre-Check-In & Transfer
PL Premium Lounge
Presse-Centrum Press Center
RADIO TV Radio TV-Centrum Radio TV Center
www Internet Lounge
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