



Good-bye Files, Hello Hypertext!

The Implications of Hypertext and Compound/Interactive Models on Collaboration and Content Management

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Agenda

- Thesis
- Context setting/key concepts
- Information worker value proposition
- Market snapshot
- Market dynamics
- Market impact
- Recommendations

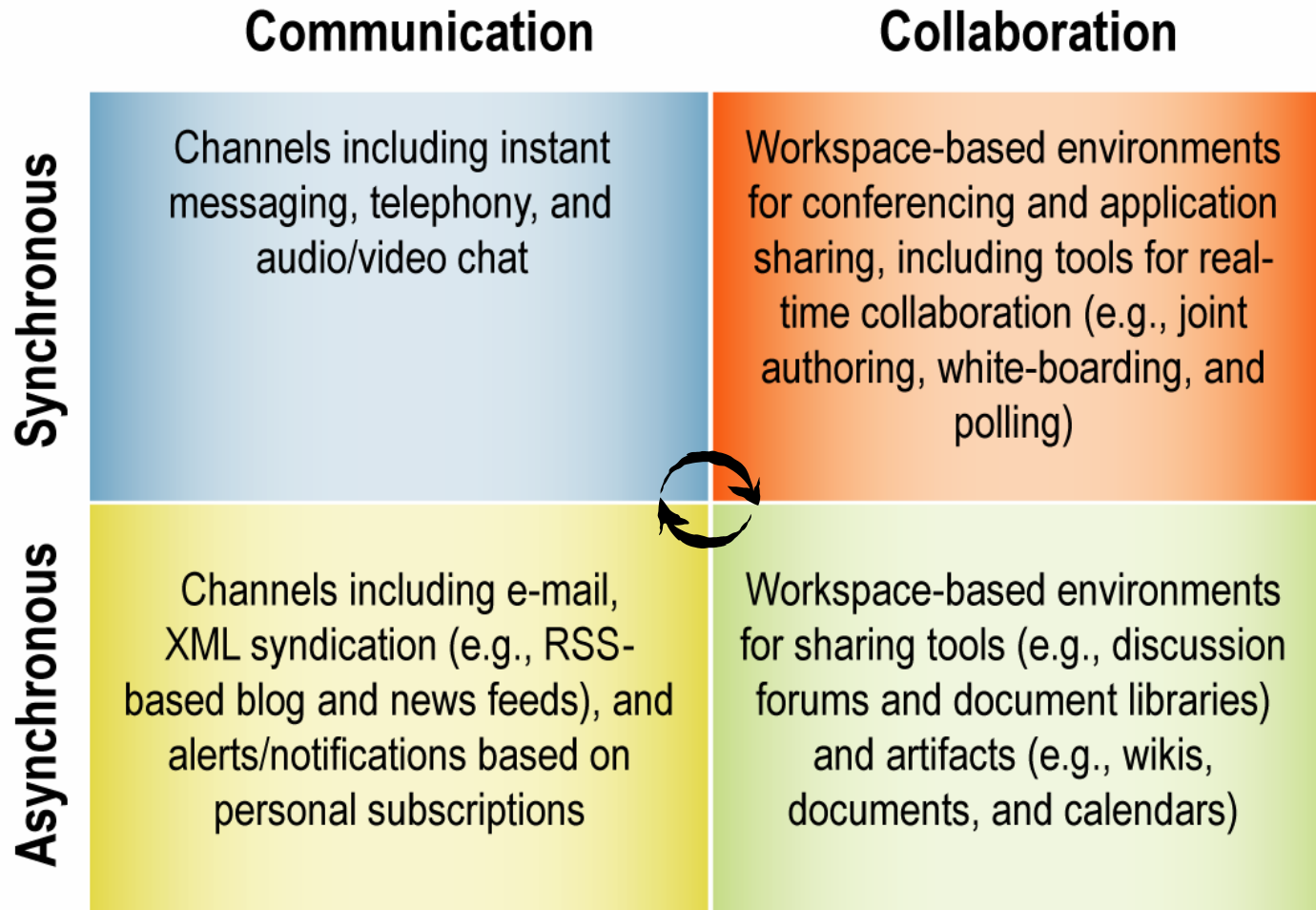
Thesis/synopsis

- Three important document-related trends are reshaping collaboration and content management
 - Hypertext
 - Compound documents
 - Interactive documents
- Collectively, the trends offer opportunities to significantly improve information worker efficiency, effectiveness, and user experience
 - They represent a better mapping to the ways people actually think, work, communicate, and collaborate
- Blogs and wikis, somewhat paradoxically, are pivotal to the mainstreaming of hypertext and compound/interactive documents
- It's not the end of the web (or Office) as we know it...
 - But hypertext, compound documents, and interactive documents will be central to collaboration and content management strategy

Historically...

- Most content-based, asynchronous communication and collaboration was facilitated via print-oriented models
 - Focused on narrative, hierarchy, sequence, and page layout
 - Perfectly reasonable for many needs
 - This is how humans have shared stories and concepts for centuries
- Print-centricity is not always optimal, however
 - Useful for some contexts, but not a 1:1 mapping to “as we may think”
 - Human information processing and communication/collaboration are dynamic, interactive, and associative
 - Most information systems, however, have, ironically, perpetuated limitations associated with earlier, print-centric media
 - Including pervasive desktop metaphors and tools such as Mac OS, Windows, and Adobe Acrobat
- We need to further blur the boundaries among documents, applications, and multimedia
 - Otherwise contextual communication/collaboration/content will continue to be constrained and cumbersome

Context Setting and Key Concepts



Content: the currency for all modes of communication and collaboration. Content lifecycle concerns include creation, storage, management, discovery, distribution, archival, and analytics.

Hypertext

- A content meta-model centered on collections of information items rather than document/page structures
 - Units of thought (ideally)
 - Articles and paragraphs; collections and items
- With, generally
 - Typed, bidirectional relationships (association, annotation, etc.)
 - Dynamic and fine-grained access control
 - Tagging/labeling
 - Journaling
 - Beyond page-level versioning to support the ability to explore content at different timeline points (e.g., rewind/replay)
- Still compatible with print-centric needs, as appropriate
 - Supporting print-oriented snapshot views of hypertext content

Front Page

Projects

MarketResearch

Newspage

Recent Articles

Headlines

News

Research Reports

Question Queue

Open Objectives

Recent To-Do

Recent Done

Notices

Bulletins

med

small

small

large

small1

small2

small3

mediumalone

largealone

s1

s2

Weblogs gain consumer ground, graze enterprise

MarketResearch63 (#) | TrackBack | December 10, 2002 | 11:27:16 PM EST

Posted by SallySu | Edited by Jordan Frank | View edit history

Cross References | 3 Comments

Weblogs have gone from relative obscurity to high visibility in the last 11 months. References to weblog technology and the social phenomenon found their way into technology mags like InfoWorld and Wired over the summer, and the grand finale appears to be coverage in such popular and widely read publications as the Economist, the New York Times, and Newsweek. 01

Dennis Callaghan, eWeek refers to: "the growing enterprise Weblog software space". See [Search Companies Buy New Technologies](#), eWeek, 18 Feb 2003.

[Greg Lloyd, MarketResearch170, March 2, 2003, 3:33:23 PM EST]

Jim McGee has picked up the thread as well, see [MarketResearch224: McGee's Musings Grassroots knowledge management](#), [MarketResearch227: McGee's Musings | Thinking in Public](#)

[Greg Lloyd, MarketResearch229, April 17, 2003, 10:55:05 AM EDT]

oh i agree...

Show Full content

news
Report
weblog

Active Years

2002

2003

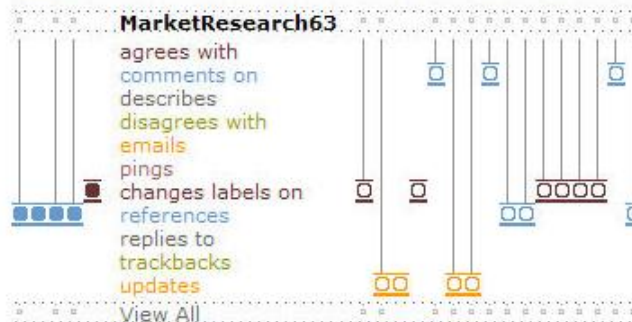
2004

2005

- Add New Article
- Print Version
- Show Collector
- Edit Article
- Change Labels
- Email Articles
- Collect Articles
- Add Comment
- Email Reply
- Send Trackback
- Visibility
- Erase Articles
- Create Share Folder
- Sign Out
- My Account (admin)
- Project Setup
- Server Setup

Cross References: MarketResearch63: Weblogs gain consumer ground, graze enterprise

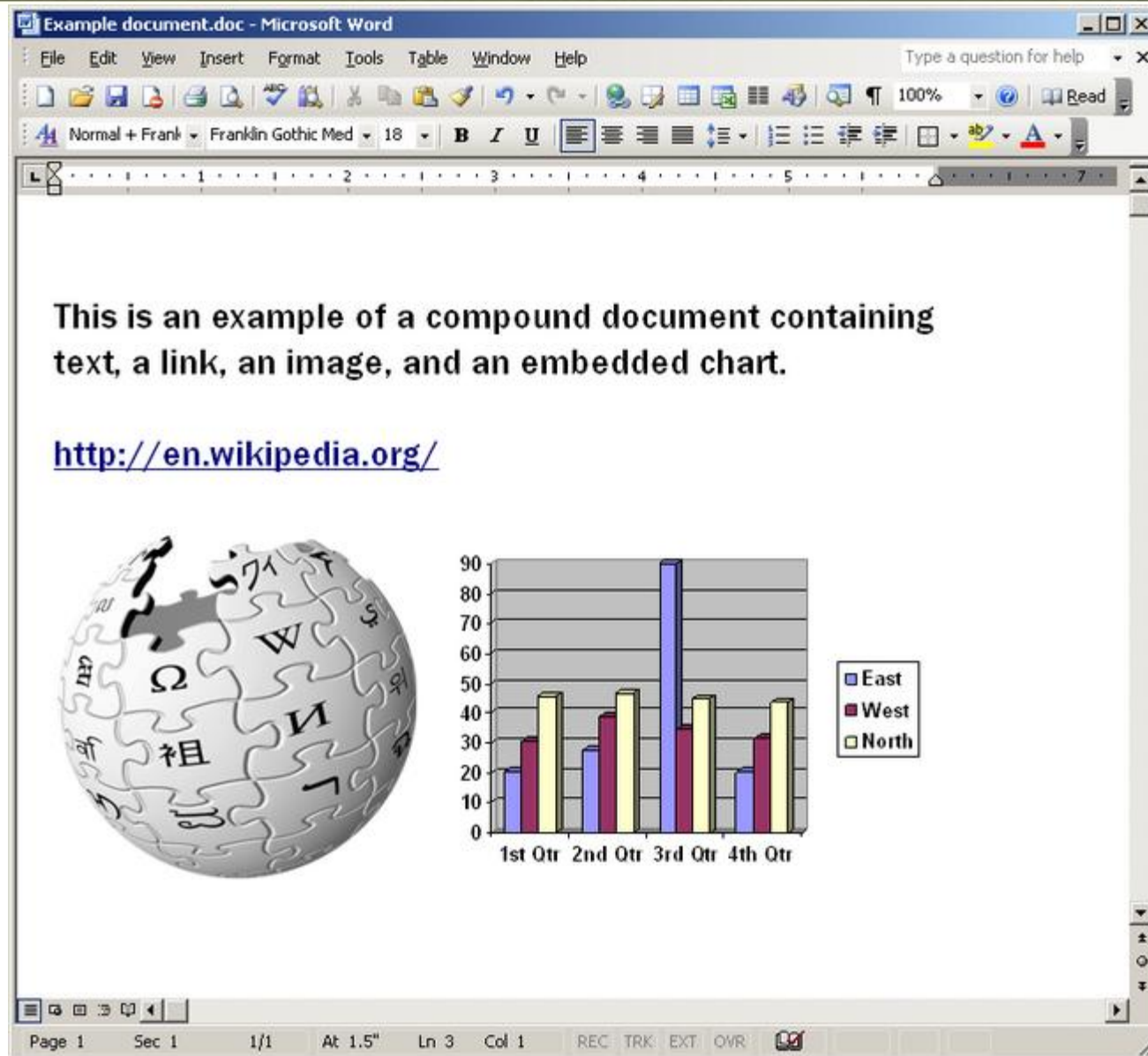
Show Instructions



Compound documents

- Multi-part documents, typically with a mix of text, images, and embedded objects such as spreadsheets, charts, and multimedia
 - Consistent with the hypertext model, extended with composite objects (not limited to basic links or text paragraphs/items)
- Sometimes quite elaborate, e.g., with
 - Linking and embedding with the ability to edit “in situ”
 - Dynamic content access and rendering
 - “Transclusion” and dynamic content/data/component retrieval
 - Intricate security/access control system integration
- Reality check
 - All of the above have been more widely and effectively exploited in web pages and apps than in Office-based docs/apps
 - Remember OLE2? Apple et al Bento/Open Doc?...

Context Setting and Key Concepts



Context Setting and Key Concepts

Zimbra: Notebook - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

Zimbra

Search Search Bu

New Refresh Edit Tag Upload Files

Documents

Notebooks

- Notebook
- Scott
- test
- KayakPaddleSpec

Tags


Zimlets

- Amazon
- Maps
- Contact Collector
- Evite
- Google Translator
- Salesforce
- Travel agent
- Traffic
- SMS
- RSS live!
- Arcade Games
- JSPSample
- Wikipedia
- Asterisk
- Voicemail
- Search
- Flight status

BMW shopping

2006 BMW-3 Series

330i 4dr Sedan (3.0L 6cyl 6M)



Price

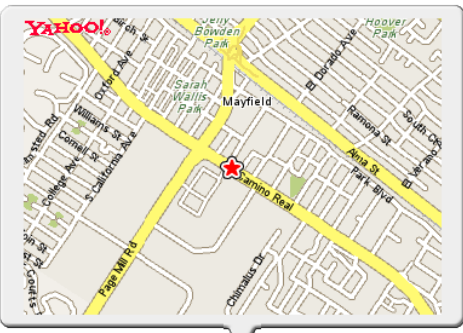
| Code | Description | MSRP | Invoice |
|---------------|-----------------------------|--------------|--------------|
| | Base Price | 36600 | 33485 |
| 541 | Active Cruise Control | 2200 | 2000 |
| ZPP | Premium Package | 2200 | 2000 |
| 609 | Navigation System | 2000 | 1820 |
| ZSP | Sport Package | 1600 | 1455 |
| | Leather Upholstery | 1450 | 1320 |
| 205 | Automatic Transmission | 1275 | 1210 |
| 217 | Active Steering | 1250 | 1140 |
| ZCW | Cold Weather Package | 1000 | 910 |
| 639 | BMW Assist | 750 | 715 |
| 655 | Sirius Satellite Radio | 595 | 540 |
| 417 | Rear Sunshade | 575 | 525 |
| 494 | Heated Front Seats | 500 | 455 |
| 322 | Comfort Access | 500 | 1456 |
| 465 | Fold Down Seats w/ Ski Bag | 475 | 430 |
| 507 | Park Distance Control | 350 | 325 |
| 693 | Satellite Radio Preparation | 75 | 500 |
| 4AC | Poplar Natural Wood Trim | 0 | 0 |
| 4AD | Aluminum Trim | 0 | 0 |
| Total: | | 53395 | 50286 |

Dealers

| Name | Web Site | Phone # | Location |
|----------------------|---|--------------|--|
| HammerAuto | http://www.hammerauto.com | 650-813-6100 | 3017 El Camino Real Palo Alto CA 94306 |
| Stevens Creek BMW | http://www.scbmw.com/ | 800-486-2171 | 4343 Stevens Creek Blvd Santa Clara CA 95051 |
| BMW of Mountain View | http://www.allisonbmw.com/ | 877-565-3682 | 150 E El Camino Real Mountain View CA 94040 |
| Peter Pan BMW | http://www.peterpanbmw.com/ | 866-462-7124 | 2695 S El Camino Real San Mateo CA 94403 |

Notes

12:10 PM



Zimbra example

- Contextual
- Composite
- Connected
- Dynamic

Interactive documents

- Tools and document models extended to automatically and unobtrusively detect content patterns (a.k.a. entity extraction) and offer potentially useful, supplemental resources in context, e.g.,
 - Detect FedEx or UPS shipping identifiers and offer the ability to check shipment status
 - Detect person name and offer real-time communication options
 - Detect customer account name and offer related information such as currently outstanding orders and support requests
 - Dynamically retrieved from an ERP system such as SAP
- Very useful for contextual communication/collaboration and content management

Democratizing and Directing Collaboration and Content Management

DOC TYPE: Report

THREAD: Collaboration and Content Strategies/ Collaboration

ANALYST(S): Peter O'Kelly

ADDITIONAL INPUT:

VERSION #: 1

KEYWORDS: communication, collaboration, content management, wiki

DOCALERT TEXT:

Wikis are among the most significant developments in collaboration software during the last decade. Empowering users and democratizing hypertext content-based collaboration, wikis offer collaboration scenarios and a new set of trends for incumbent products like SharePoint. Many enterprises are on IT radar, managed by hosted wikis that offer significant opportunities for content management. Enterprises that face considerable and rapidly

Answers.com

>> More Options Close

hy-per-text (hī'pər-tĕkst')

n.

A computer-based text retrieval system that enables a user to access particular locations in webpages or other electronic documents by clicking on links within specific webpages or documents.

[Read more >>](#)

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Related Ads: [Deposition Summary](#) [Distributed Computing](#) [Novel](#)

Wikis in the Enterprise - Microsoft Word

File Edit View Insert Format Tools Table FlashPaper Window Live Meeting Help

Type a question for help

Normal 12

Enterprise: Collaboration and Collaboration

ent management, wiki

ts in collaboration software
nocratizing **hypertext** content-
ages for many enterprise
t leading indicators of future
Notes and Microsoft
, although they're often under
s. Effectively exploited, wikis
ation and content
based collaboration, however,
d compliance risks

Research

Search for:
hypertext

All Reference Books

Back

Encarta Dictionary: English (North America)

hypertext (noun)
hyp·er·text [hīpər tɛkst]
data storage system
a system of storing images, text, and other computer files that allows direct links to related text, images, sound, and other data

Translation
Translate a word or sentence.
From English (U.S.)
To French (France)
Send document for translation over the Internet in unencrypted HTML format
Translation options...
The required dictionary is not installed. To install the dictionary, on the Tools menu, select Language, and then select Translate.

Can't find it?

Get updates to your services...
Get services on Office Marketplace
Research options...

Draw AutoShapes

Page 1 Sec 1 1/47 At 3.7" Ln 12 Col 60 REC TRK EXT OVR English (U.S.)



DOC TYPE: Report
THREAD: Collaboration and
ANALYST(S): Peter O'Kelly
ADDITIONAL INPUT:
VERSION #: 1

Hover over recognized
smart tag

DOC TYPE: Report
THREAD: Collaboration and
ANALYST(S): Peter O'Kelly
ADDITIONAL INPUT:
VERSION #: 1

Click icon for action menu

DOC TYPE: Report
THREAD: Collaboration and Content
ANALYST(S): Peter O'Kelly
ADDITIONAL INPUT:
VERSION #: 1
KEYWORDS: collaboration
DOCALERT T
Wikis are amor
during the last
based collabora
collaboration so
trends for incur

- Person: Peter O'Kelly
- Send Mail
- Schedule a Meeting
- Open Contact
- Add to Contacts
- Insert Address
- (Lotus Notes) Create Memo to
- (Lotus Notes) Invite to Meeting
- (Lotus Notes) Show Name Details
- Remove this Smart Tag
- Stop Recognizing "Peter O'Kelly" ▶
- Smart Tag Options...

Back to basics

- Hypertext, compound documents, and interactive documents make it easier to
 - Create/collect information items
 - Organize/synthesize collections of items
 - Share/communicate/collaborate using collections of items
 - Exploit content and other tools/services/resources in context
- This can help people optimize their time and attention, improve content management and sharing, and foster improved communication and collaboration
- Examples
 - Hypertext: Traction
 - Compound documents: Microsoft Word, Traction, Zimbra
 - Interactive documents: Microsoft smart documents, Traction widgets

For the most part, we're not there yet...

- Most information workers don't manage information in hypertext or compound/interactive documents today, in part because
 - The World Wide Web is built on a very limited hypertext model
 - Hypertext authoring tools and conceptual models haven't broadly established good return-on-investment (e.g., time, attention, and money) track records for mainstream users
 - Most non-web compound document models have been complex and cumbersome
 - Resource-intensive
 - Constrained by file system-based linking/embedding models
 - Interactive document models have been controversial and daunting

For the most part, we're not there yet...

- There are some important exceptions, e.g., hypertext and compound document information management in Traction and IBM Lotus Notes
 - But Notes is largely limited to communities of Notes users
 - E.g., it's not as easy to exploit doc/view/db links outside of the Notes client
- Many work-arounds have been created to address World Wide Web hypertext limitations, e.g.,
 - Algorithmic relationship indexing such as Google PageRank
 - Effective for some needs but web relationships are still untyped, incomplete, and easily broken
 - The TrackBack model
 - Unfortunately awkward (multi-step) and subject to abuse
- Many related standards initiatives are works in progress...

Blogs and wikis are rapidly advancing hypertext

- In general
 - Blogs are hypertext journal communication channels
 - Wikis are organic, collaborative, hypertext content-based workspaces
- Both make hypertext authoring, communication, and collaboration more accessible and relevant to mainstream information workers
- Until recently, however, the authoring tools were generally geeky
 - Required some knowledge of CamelCase, HTML, XML, etc.
 - Often tightly coupled tool/service pairs
 - Also challenged by metaphor shear
 - Basic browser clients are for browsing, not creating/editing content

Emerging tools are simplifying hypertext authoring

- WYSIWIG-style wiki tools in offerings such as Atlassian Confluence, Google/JotSpot, Traction, and Socialtext
 - Also in Windows SharePoint Services v3/2007
- The latest generation of browser clients is also simplifying the use of hypertext, e.g., with AJAX and browser tabs
 - Also useful for reducing metaphor shear, e.g., overriding menus/toolbars
- Add-ins to support blog authoring from widely-used products such as Microsoft Word
 - With direct blogging support from Microsoft in Word 2007
- Ongoing, aggressive competition among Google, Microsoft, Yahoo, and other key players
 - For web authoring including photo sharing and other compound document contexts

Emerging tools will greatly simplify hypertext authoring

- Innovative desktop applications such as Microsoft OneNote
 - Hypertext authoring, focused on items (and collections), not files
 - Extended with communication/collaboration services
 - Can publish to HTML, but OneNote is not (directly) a blog or wiki authoring tool
- New tools such as Microsoft Windows Live Writer
 - Non-geeky hypertext and compound document authoring
 - Free, and integrated with the Windows Live Toolbar
 - Created by JJ Allaire and his former Onfolio team; also integrated with Onfolio
 - Onfolio is a free Microsoft tool for capturing, organizing, and sharing information items from web pages, Office apps, and other contexts



2. Click "Blog It"

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[Collaboration and Content Architecture](#)

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Application Platform Strategies (APS)

Application Platform Strategies focuses on planning and building general-purpose infrastructure for managing distributed applications across disparate platforms and technologies that may span intranets and extranets. This research and advisory service covers technologies such as java/Java 2 Enterprise Edition (J2EE), Microsoft .NET, Web services, and service-oriented architecture (SOA).

Complimentary Content:

- **In-Depth Research** [Ajax: A Rich Internet Application Technology](#)
- **TeleBriefing** [Ruby on Rails: A Panel Discussion with David Hansson, Dave Thomas, and David Greary](#)
- **Reference Architecture** [Tech Position: Portals Tiers, Instances, and Roles](#)

Collaboration and Content Strategies (CCS)

Collaboration and Content Strategies focuses on the complex set of decisions facing IT strategists in order to ensure that collaboration and content solutions gain broad user adoption, are extensible by developers, and leverage common infrastructure services while enabling applications that satisfy business needs. **This requires a pragmatic approach that balances vendor and product maturity against emerging technologies that present both opportunity and risk.**

Complimentary Content:

- **In-Depth Research** [Communication, Collaboration, and Content: Compelling Convergence](#)

Identity and Privacy Strategies (IdPS)

Identity and Privacy Strategies focuses on planning and building general-purpose infrastructure for managing and applying identity information, and supporting the identity lifecycle. This research and advisory service covers technologies such as identity management, access management, directory services, authentication, federated identity, privacy, and personalization.

Complimentary Content:



- [APS Content List](#)
- [CCS Content List](#)
- [IdPS Content List](#)
- [NTS Content List](#)
- [SRMS Content List](#)

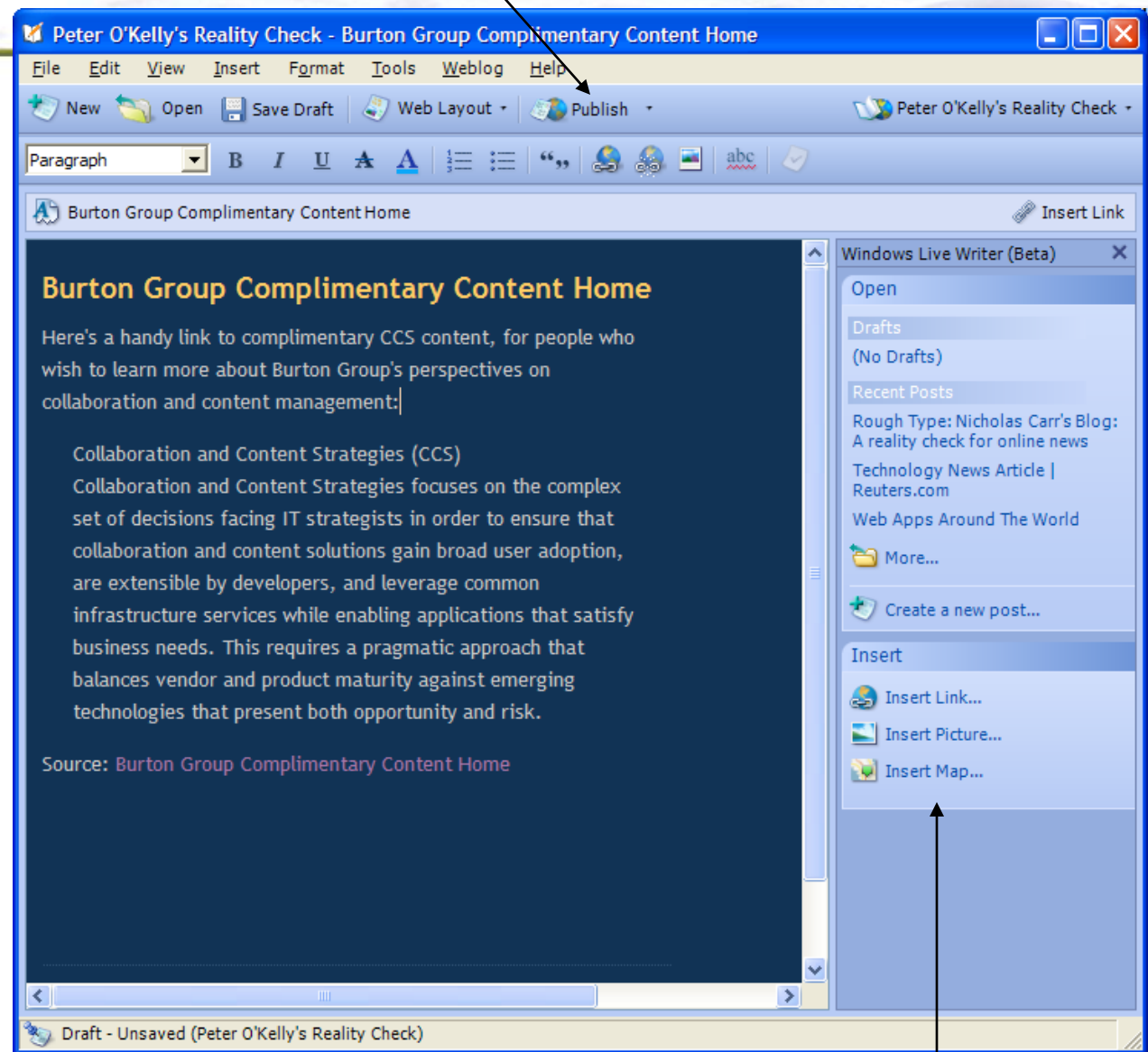
1. Select content



Click to publish

Annotate/edit

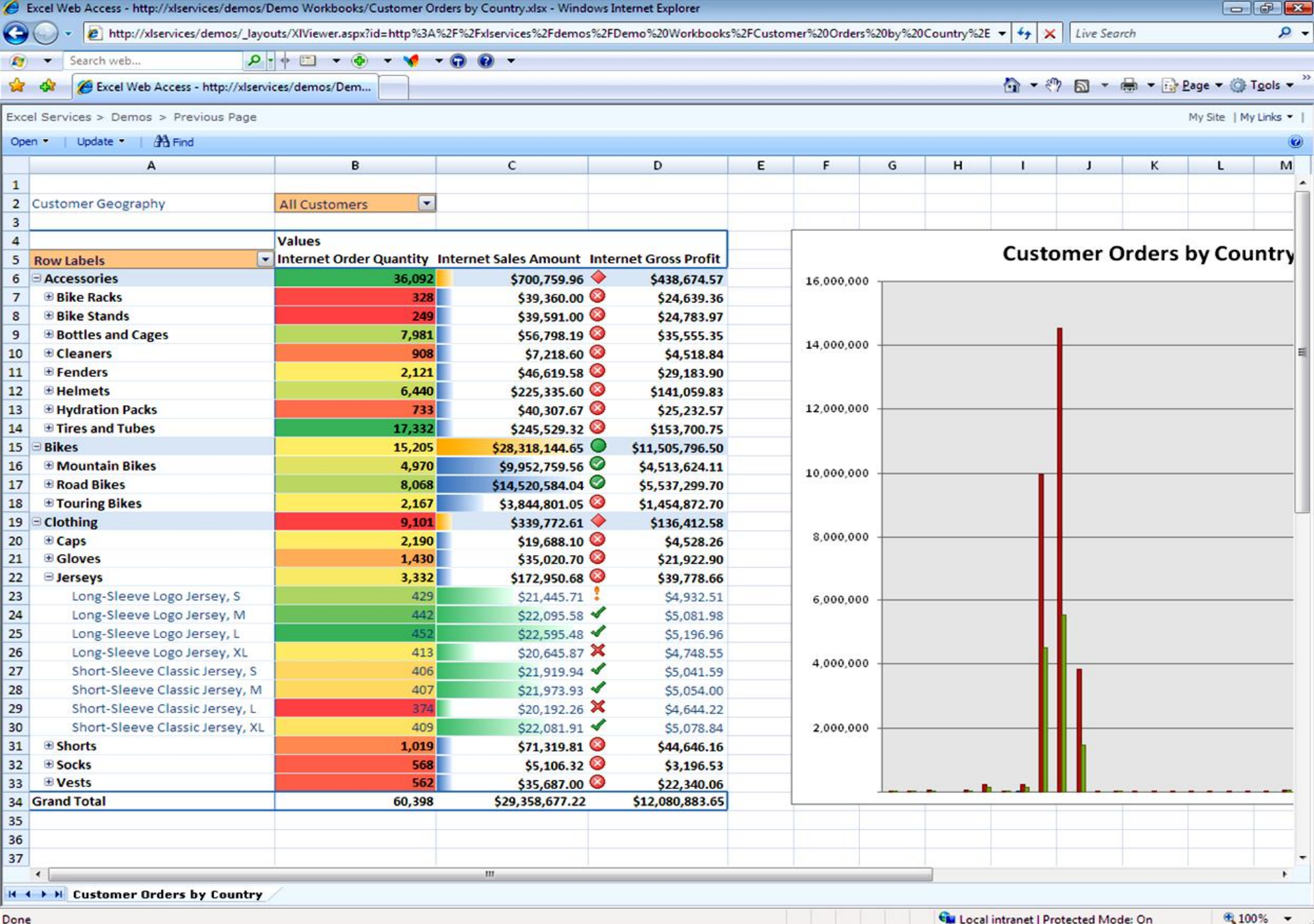
Selected text,
presented in the
post template
for the target
blog



Extendible list of insert-able object types

Compound document models are gaining momentum

- With web-centric models and tools leading the way, e.g.,
 - Personalized portal pages and user-generated content
 - Portlets and web parts are used to create compound pages, but they're largely de-geeked
 - Support for spreadsheet components/plugin-ins in wiki offerings such as Google/JotSpot, Central Desktop, ThinkFree, and Zoho
- There is considerable compound document model power in Microsoft Office
 - But the capabilities have not been widely exploited
 - That's likely to change with Office 2007, especially if SharePoint (e.g., PowerPoint Slide Libraries), Form Services, and Excel Services are successful



Excel Services example (source: Microsoft)

Interactive documents: slow but steady progress

- Office 2007 and composite application/"mash-up" tools/services will help to expand the use of interactive documents
- Microsoft's smart tag technology hasn't fully recovered from being stigmatized in 2000, but it also has considerable potential
 - Microsoft's loosely-coupled architecture, with recognizers and action handlers, is very robust
 - Other ISVs are now supporting the smart document model, e.g., IBM Lotus with Notes and Sametime
- Vendors such as Traction Software have also added support for interactive documents, through the use of widgets with a similar recognizer/action handler model
- Google/JotSpot and other vendors offer "mash-up" features with interactive document capabilities, e.g., auto-detecting addresses and dates, but it's not yet clear if they will have sustainable momentum

Related World Wide Web Consortium (W3C) activities such as XHTML and XForms

- These are positive developments, but it's not clear if/when they will be pervasive on the World Wide Web
- In the meantime more grassroots-styled standards initiatives have significant potential, e.g.,
 - Microformats: essentially a means of preserving schema-based structure in HTML
 - Very useful for more advanced indexing, copying/pasting with structure intact, and other needs
- Tangent: Open Document Format (ODF) and Open XML
 - Document schema models that support a range of hypertext, compound, and interactive document capabilities

Key themes

- It's not the end of the web as we know it...
 - The web is the platform for more advanced hypertext offerings – it's a complementary foundation
- It's not the end of the file as we know it...
 - Hypertext won't displace all traditional document contexts – but the momentum shift is happening
- Very rapid evolution in offerings and business models
 - Consumer-oriented offerings are evolving more rapidly
 - And influencing organizational tool/service selections
 - Shifting the balance between web-centric and traditional productivity applications
 - Word, for example, will be the default option less often

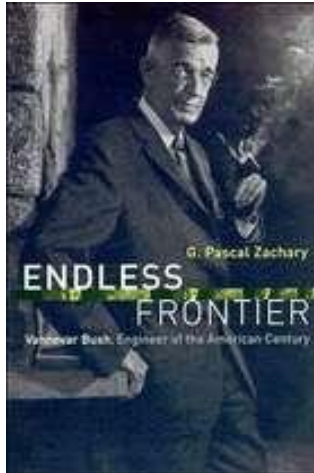
Key themes

- New security and privacy-related challenges and opportunities
 - A significant opportunity to establish more robust policies
- A pivotal milestone for Microsoft
 - Two platforms... Windows/Office and Windows Live/Office Live
 - Likely a net gain for Microsoft, if both sides execute well
 - E.g., Windows Live Writer is an unusual but encouraging development
- Several specialized vendors are also well-positioned
 - Rapidly growing need for beyond-the-basics hypertext tools
 - Successful blogs and wikis will often lead to requirements for more advanced capabilities

Get involved...

- Exploit hypertext, compound document, and interactive document opportunities
 - A very significant communication/collaboration/content management shift
- Provide resources to help information workers
 - Become effective hypertext authors (e.g., to use paragraph topic sentences)
 - Select the right tools for their tasks
- Exploit the shift as a means of establishing more pervasive security and privacy policies
- Plan on blogs and wikis accelerating hypertext communication/collaboration/content management
 - Anticipate that many successful blogs and wikis may require shifts to more elaborate hypertext systems (after hitting walls...)
- Seek to exploit hypertext in both traditional (e.g., Microsoft Office) and emerging (e.g., Traction) offerings

Read these books



G. Pascal Zachary. *Endless Frontier: Vannevar Bush, Engineer of the American Century*

Riverside, NJ: Free Press, 1997

Zachary also published an article about Bush in a 1997 *Wired Magazine* article titled "The Godfather"

http://www.wired.com/wired/archive/5.11/es_bush_pr.html



John Markoff. *What the Dormouse Said: How the 60s Counterculture Shaped the Personal Computer Industry*

New York, NY: Penguin Group, 2005

This book by *New York Times* technology journalist John Markoff is focused on Doug Engelbart and his career.