JANUARY 2001 THE FORRESTER REPORT

Managing Content Hypergrowth

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By John P. Dalton

With Harley Manning

Katharine M. Gardiner

The Forrester Report

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Managing Content Hypergrowth

A tidal wave of content will soon hit click-and-mortar sites. To succeed, firms need the right mix of best-of-breed tools, open standards, and improved processes.

Headquarters

Forrester Research, Inc.

400 Technology Square

Cambridge, MA 02139 USA

617/497-7090

Fax: 617/613-5000

www.forrester.com

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MARKET OVERVIEW

Transition Underway For Content Managers

To cope with a flood of assets, site owners turn to content management software. As they outgrow their "home brew" solutions, they buy packaged applications -- even though today's products are immature.

IT'S ALL ABOUT VOLUME

When Forrester last reported on enterprise content management, we found site owners juggling an ad hoc assortment of manual processes and tools (see the February 1999 Forrester Report "Managing Web Content"). To determine the state of today's practices, we interviewed 53 executives who supervise content on B2C, B2B, and business-to-government initiatives.

Sites Are Big And Getting Bigger

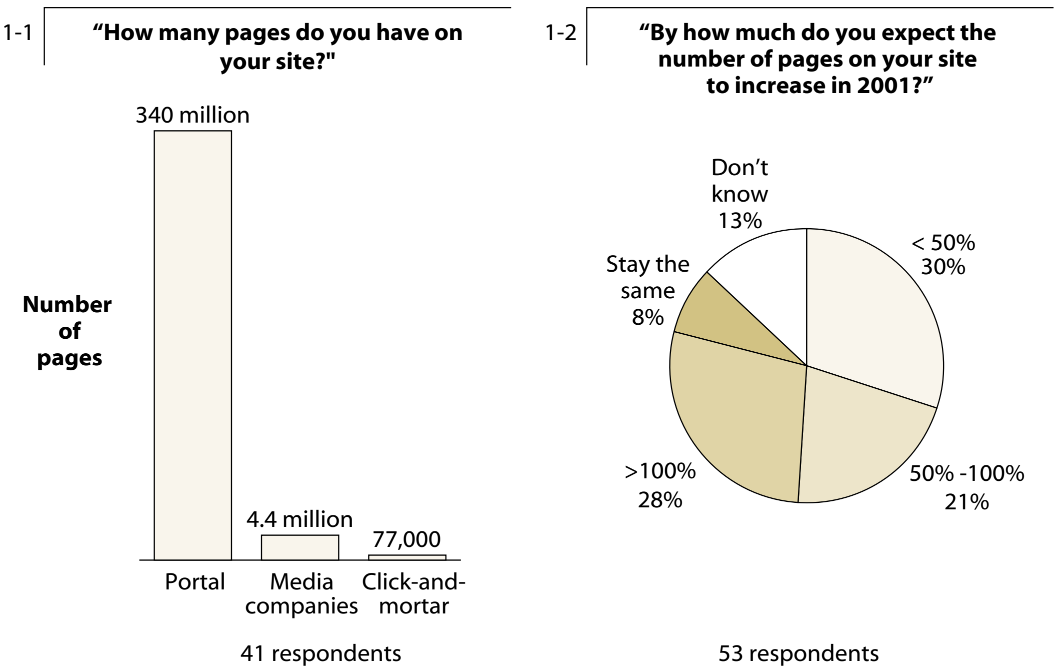
Our interviewees work on sites ranging from several thousand to many million pages. A search portal topped the charts, followed by media companies (see Figure 1-1). Click-and-mortar firms lagged but were still hefty, weighing in with an average of 77,000 pages. Looking forward, 79% of our respondents predict growth -- almost a third expect their content to at least double through 2001 (see Figure 1-2).

> "We index 315 million sites on the Web and sell 25 million articles, customized reports, and news feeds to our subscribers. It's impossible to predict growth, but one thing is certain: As we leverage new partnerships and expand syndication to cover even more sources, the volume will continue to mushroom." (Portal)

> "Currently we handle 36 million pages distributed throughout the six regions we serve in North America. Most of this content is news gathered from a growing number of field correspondents and essayists located throughout the regions. By next year, we expect to manage around 48 million pages." (Publisher)

> "We manage 10,000 pages today, but that number will triple within 18 months because our product line is so complex. There are a dozen unique product categories and each product within those categories gets promoted, assembled, sold, delivered and supported differently. To properly accommodate all those variables, we'll add more authors, text, and graphics." (Retailer)

Figure 1 Firms Predict Site Volume Will Continue To Grow



Source: Forrester Research, Inc.

Site Owners Turn To Software Packages For Help

Thirty of our interviewees use content management products, while 23 rely on homegrown solutions. But 43% of the do-it-yourself set say they're considering a commercial solution -- primarily because they've outgrown the system they built.

> "We've reached the point where the number of users and the amount of content have combined to crush our processes and software. We have to buy, otherwise we'll need to grow a staff of hundreds." (Insurance company)

> "Before we bought, we had one guy who was the content manager, and he did everything manually. But the amount of content was exploding; one person couldn't handle it all. We decided to buy because we wanted to put control of the assets back into the hands of the creators and reduce the risk of publishing incorrect information." (Diversified services company)

But Today's Products Are Nascent

How well do packaged solutions support firms' needs? To find out, Forrester's TechRankings™ service graded the offerings of 12 vendors. We determined that today's products are immature, and show three classic signs of an early market:

Figure 2 Immature Products Characterize The Marketplace

Vendor and product	Overall score (0-5 scale)	Capabilities	Integration	Performance	Reliability	Security
Open Market's Content Server 3.1	**3.0**	3.4	2.7	3.9	3.3	0.5
Documentum's 4i 4.2	**2.9**	3.7	1.8	2.7	3.1	1.9
Vignette's V/5 Suite 5.5	**2.9**	2.9	2.1	2.2	3.1	2.7
BroadVision's One-To-One Publishing 5.5	**2.8**	2.9	2.3	3.4	4.0	3.0
FileNET's Panagon WS 3.1, CS 5.1, WP 4.1	**2.6**	3.0	1.6	1.5	1.6	1.9
Interwoven's TeamSite 4.5	**2.6**	2.9	1.1	0.5	2.8	2.4
Intranet Solutions' Xpedio 4.0	**2.6**	3.6	1.0	1.6	2.7	2.5
Eprise's Participant Server 3.0	**2.4**	3.1	0.6	3.7	2.4	2.6
NCompass Labs' Resolution 3.1	**2.2**	2.6	1.2	3.2	0.7	2.3
Gauss Interprise's VIP 5e	**2.1**	2.6	1.2	1.6	2.4	2.3
worldweb.net's Expressroom I/O 2.0	**1.8**	2.6	0.7	1.4	2.7	1.5
eBT's engenda 4.5	**1.6**	2.2	0.1	1.3	1.9	1.5

Forrester's TechRankings™ as of January 8, 2001. For latest rankings, see www.forrester.com/TechRankings.

Source: Forrester Research, Inc.

- **Incomplete products.** The highest overall score among the 12 solutions providers evaluated was an underwhelming 3.0 out of a possible 5.0 -- and that modest grade was achieved by only one vendor (see Figure 2). Though most products demonstrate proficiency in one or two categories, offsetting weaknesses prevent any one solution from adequately addressing all needs.

- **Poorly defined category.** Vendors have an even more basic problem -- they don't agree about what "content management" means. Whereas firms like Documentum and FileNET emphasize asset management capabilities like workflow and library services, Vignette and BroadVision tout delivery features like personalization.

- **Diverging visions.** Tool providers generate equally conflicting roadmaps for the future of their category. Vendors pin their hopes on opportunities as diverse as portals, wireless applications, and collaboration tools.

ANALYSIS

Content Managers Need A Long-term Plan

Firms face a daunting challenge: impending content hypergrowth complicated by shifting publishing needs and evolving infrastructure. To succeed, companies must adopt a best-of-breed approach to site architecture, develop strong tagging practices, and extend tight control over collaboration efforts throughout the network.

SITE OWNERS: BRACE FOR A TSUNAMI

Firms overwhelmed by swelling sites grab for content management systems the way a drowning man snatches at a life preserver. And they *do* feel relief -- when asked to grade the solutions they've bought, 87% percent of our interviewees rated their purchases as good or excellent. Yet Forrester's TechRankings research reveals that today's products have serious shortcomings. How could this be? Two sobering realities indicate that site owner satisfaction will be short-lived:

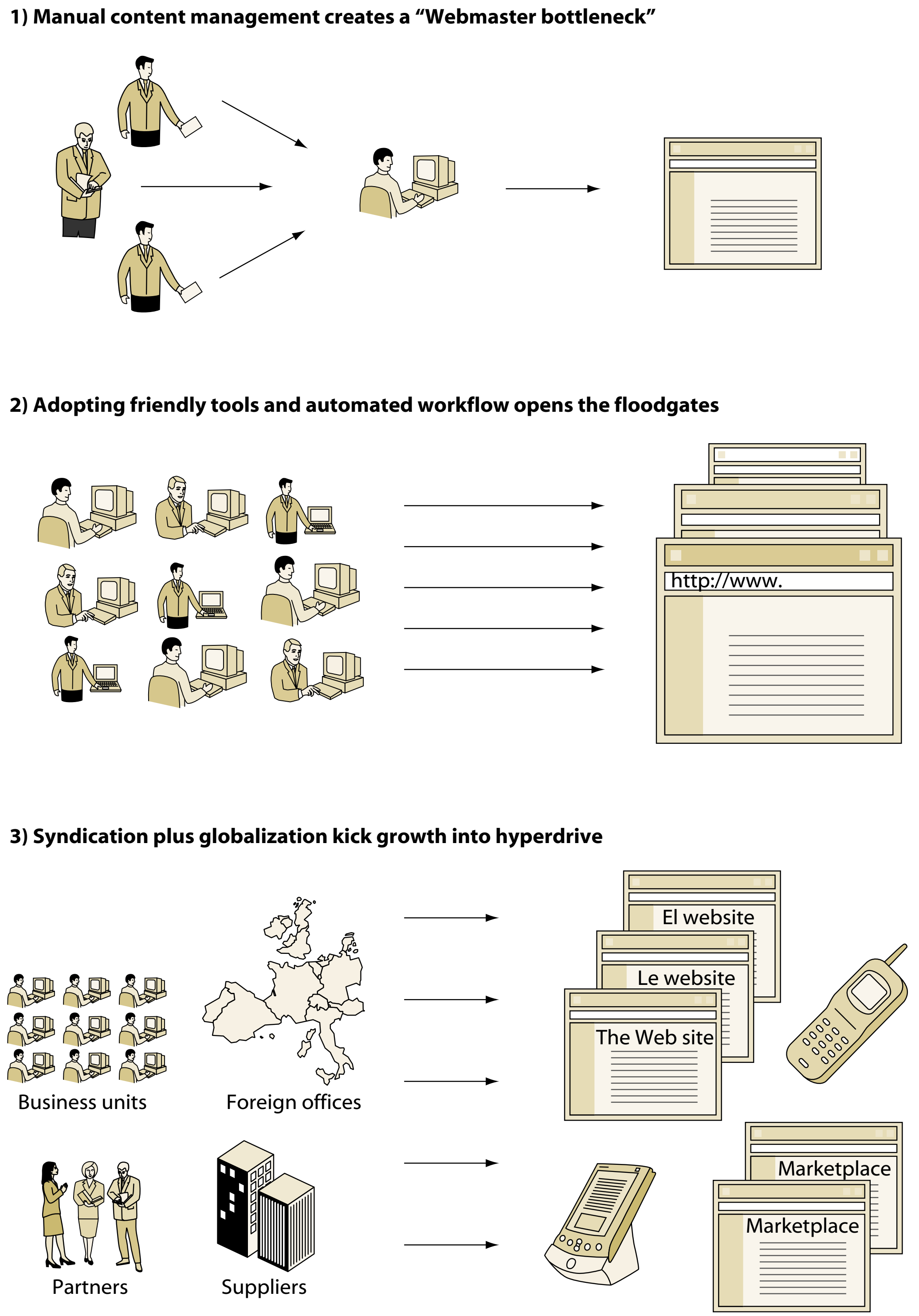
- **The honeymoon is in full swing.** Our respondents have limited experience with the solutions they've purchased. A full 70% bought within the last year, and 43% sealed the deal within the last 120 days. Most of these firms have yet to confront ongoing maintenance and customization projects ranging from tuning their caching strategies to managing workflow and templates -- initiatives that require deep product knowledge and scarce engineering expertise.

- **Implications haven't sunk in.** Today's purely tactical purchasing decisions have unforeseen consequences for the rest of site architecture. For example, a telecom company that uses ATG's Dynamo application server recently decided to buy Vignette's V/5 product because of its campaign management capabilities. But the buyer will soon discover that V/5 doesn't integrate with Dynamo. As a result, the firm will have to rip out and replace its current application server, wasting both license fees and the Java programming skills it developed to support Dynamo.

The Content Deluge Has Just Begun

Complicating matters further, site owners underestimate both the extent and complexity of the assets they will soon be called on to manage (see Figure 3). Firms will draw text, graphics, and multimedia from many sources for delivery to multiple devices and

Figure 3 The Elements Of Content Hypergrowth



Source: Forrester Research, Inc.

countries. This will give manufacturers, retailers, and financial institutions the same headaches that media companies have, and give media companies portal-size problems:

- **Users can't find information.** Mushrooming online assets force both contributors and end users to wade through even deeper content haystacks for the "needles" they want, dramatically increasing the likelihood of confusion and frustration. To circumvent endless menus, users turn to search tools. But hastily assembled, poorly tagged content subverts even the most sophisticated search technologies (see the June 2000 Forrester Report "Must Search Stink?").

- **Process anarchy hamstrings new opportunities.** With the chain of contributors, users, and inventories extending beyond the enterprise -- and national boundaries -- the challenge of ensuring quality skyrockets. Even so, a financial services firm managing 401(k) accounts across hundreds of client sites can't afford to post inaccurate Asian market data from its Japanese partners, or it will lose customers -- and get hit with litigation.

- **Integration woes intensify.** As the number of content formats and business initiatives accelerate, site owners face the daunting challenge of stitching together a patchwork of products to keep pace. But if a firm that purchased NCompass Labs' Resolution decides to enhance its site with syndicated content, it will find that it can't because the product neither supports the Information and Content Exchange protocol (ICE) nor integrates with syndication specialists like ScreamingMedia or Kinecta.

A FORWARD-LOOKING APPROACH TO CONTENT MANAGEMENT

Firms do not have to collapse under the weight of bulging data assets, increasingly complex initiatives, and infrastructure limitations. Regardless of content type or publishing requirements, companies must:

1) **Lay a durable foundation.** To protect infrastructure investments, firms should target vendors with strong core content management features and high commitment to open, extensible architectures.

2) **Manage content with end users in mind.** Critical site functions such as search and personalization tank without structured content. Companies must develop and enforce metatagging best practices to boost asset performance.

3) **Extend content management best practices to partners.** Well-managed workflow plus rock-solid permissions and security practices let firms safely leverage an expanding range of content types and contributors.

8

1) Lay A Durable Foundation

With site architectures and vendor offerings evolving rapidly, firms should avoid getting trapped with a product that bundles many functions into a single, restrictive package. Instead, firms must seek out products that facilitate deep customization and the ability to easily integrate best-of-breed applications (see the March 2000 Forrester Report "Commerce Software Takes Off"). To protect investments, site owners should:

- **Nail the fundamentals.** At its core, a content management system helps firms contribute, collaborate on, and control page elements. Companies should invest in solutions that get the basics right by storing all content types, supporting sophisticated library needs, and providing a highly tailorable workflow (see Figure 4). For example, Documentum's 4i 4.2 handles digital assets from HTML pages to video files, features element-level locking, and boasts support for serial, parallel, ad hoc, and rules-based workflow.

- **Leverage third-party products to enhance performance.** Companies should pick systems that leverage tight integration with robust third-party tools for functions like content creation, delivery, and personalization. Interwoven's TeamSite 4.5 cleanly integrates with standard template design tools like Allaire's HomeSite and Macromedia's Dreamweaver, and it relies on application servers from firms like ATG and IBM for publishing and delivery.

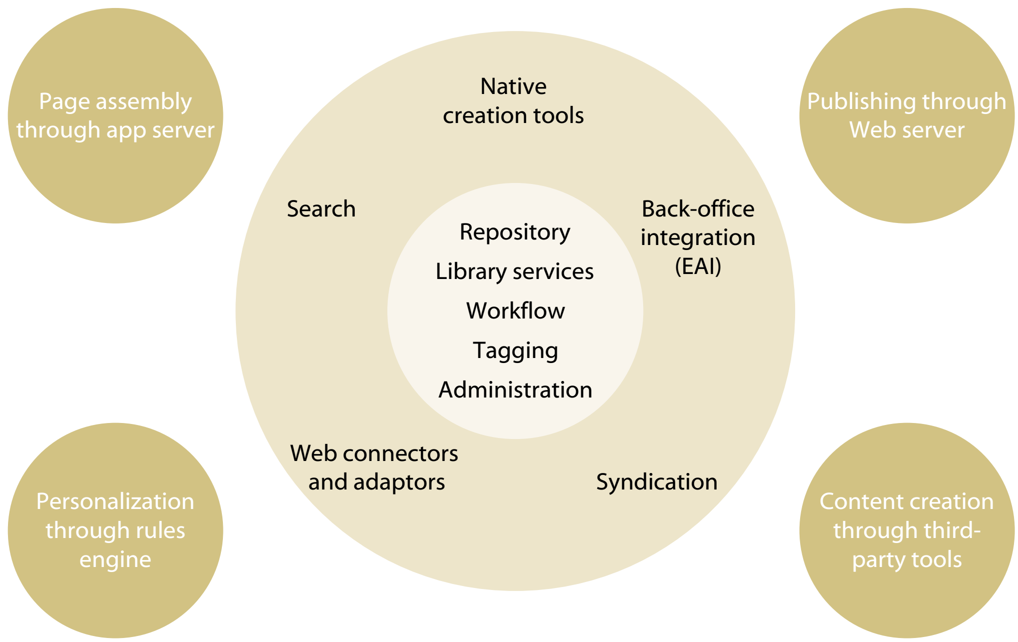
- **Focus on standards.** Content management products must support open object models and messaging formats, especially Java and XML. Reliance on these Internet standards lets development teams rapidly move from one project to the next without having to ramp up on yet another vendor's proprietary technology. For example, Open Market's Content Server 3.1 was built on Java platform standards, giving firms a development environment that's increasingly popular among both programmers and other solution providers. The product relies on app servers from iPlanet, BEA, and IBM, and integrates with relational databases from Oracle and Sybase.

2) Manage Content With End Users In Mind

Time management experts estimate that 95% of all paper documents filed in an office will never be seen again. The same fate awaits online assets unless firms structure content according to user needs. This requires four efforts:

- **Identify attributes.** Without metatags, search engines easily miss content. To create meaningful tags, cross-departmental teams must first identify terms used to describe products and then roll these attributes into metadata fields. This process should be augmented with synonyms gleaned from an analysis of search logs to capture end-user preferences. For example, while marketing, sales, and support teams recognize a popular paint as "Twilight Ivory," users simply call it "off-white."

Figure 4 Enhance Core Content Management With Third-Party Tools



Source: Forrester Research, Inc.

- **Define content hierarchy.** Search and personalization software only understands content relationships if those relationships are made explicit. For example, someone must tell a search engine that a search for "hand tools" should bring back hammers and saws. Most content management vendors address this dilemma with auto-indexing software from firms like Autonomy. But these solutions identify relationships that, while statistically relevant, are often irrelevant to users. To uncover and define meaningful relationships, firms will need to enlist the services of information management specialists from companies like Requisite, Northern Light, and Argus.

- **Enforce tagging.** Once firms establish attributes and hierarchies, site owners must ensure that no untagged content goes live. The surest path to this goal is to build tagging right into the workflow. This lowers barriers to adoption among busy professionals by letting them add appropriate tags selected from a prepopulated list as they create or update content, a process that's no more difficult than manipulating a pull-down menu.

- **Create feedback mechanisms for continuous improvement.** Vocabularies and tagging schemes must change as product lines, merchandising strategies, and end-user needs evolve. For example, if search logs reveal that clothes shoppers have stopped looking for "fabric" and instead show a preference for "cleaning instructions," teams should add that attribute as a tag.

3) Extend Content Management Best Practices To Partners

To successfully manage more ambitious efforts like globalization, syndication, and B2B marketplaces, firms must extend today's best practices to partners and suppliers. Firms can avoid future content chaos if they:

- **Synchronize workflows.** Firms must integrate multiple streams of assets into a single production cycle. Site owners must first work with partners to identify all contributors, editors, content formats, and publishing schedules across cooperating companies. Then managers must create a comprehensive publishing process that orchestrates collaboration and contribution both inside and outside the firewall. The bad news: No existing product supports intercompany workflow. However, most content management systems can at least send email and pages to alert contributors of the next step in a process -- even if they're in a different company or country.
- **Build bulletproof permissions.** In addition to defining classes of users who can't make changes without approval, site managers must use administration tools to restrict some users' *view* of specific assets. For example, an automobile manufacturer with image licensing agreements must avoid the embarrassing mistake of letting toy makers sneak a peek at prototype sports car designs intended for its ad agency.
- **Leverage security features to ensure accountability.** Once site managers have coordinated workflows and secured assets, they must also verify the authenticity of users and updates with digital signatures and auditing reports that track who did what, when, and where. Documentum's 4i 4.2 integrates with Pen Op for digital signature support and maintains security logs notifying site managers of any breaches to the system.
- **Coordinate data exchange with syndication tools.** For syndication, firms have two choices: either subscribe to a catalog of content aggregated and distributed by intermediaries like ScreamingMedia and iSyndicate, or create direct syndication relationships using technology provided by firms like Kinecta. Many content management vendors bundle one of these solutions as part of their product, but firms looking for tight control over syndication with their subscribers should make sure that the product they buy supports the ICE standard.

Figure 5 Basic Costs Of Content Management

Investment	Type	Cost	Vendors
Content management software	License	$250,000	Vignette, Documentum, Interwoven
Professional services	Implementation* Training	$180,000 $3,000†	Software professional services groups plus integrators like Sapient, IBM Global Services
Knowledge engineering	Controlled vocabulary and content hierarchy	$200,000‡	Requisite, SAQQARA, Metacode (Interwoven)
Total:		**$633,000**	

* Three developers for 8 weeks @ $1,500/day
†Two-day training course for 3 staff members @ $1,000/pupil
‡Average cost for 50,000 pages

Source: Forrester Research, Inc.

The Cost Of Content Management

The software, services, and training required to prepare for content hypergrowth won't come cheap. The price of enterprise content management solutions easily surpasses a half-million dollars, with actual cost depending on the complexity of the site, the level of customization required, and the number of users. But firms should not be shocked by seven-figure deals. Among our interviewees who reported costs, the average total was a whopping $1.8 million. Three components drive this expense (see Figure 5):

- **Software licensing fees.** Entry-level investments in products with basic storage, workflow, and library services start at just under $100,000. Firms will pay at least another $150,000 for more sophisticated systems that orchestrate the work of dozens of contributors and parallel projects.

- **Professional services.** To customize their purchases, firms will spend $1,500 a day for each vendor services representative and systems integrator required to install and configure the software. For an eight-week implementation, involving one vendor rep and two third-party integrators, companies can expect to pay $180,000. Companies should set aside another $3,000 for a two-day training course for three in-house staff.

- **Knowledge engineering.** Firms should plan to spend $4 per page -- $200,000 for a 50,000-page site -- for help developing controlled vocabularies, data cleaning, and creating content hierarchies. Information management expertise is in short supply and demand is just beginning to ramp up, so companies should expect these prices to head north in a hurry.

AMONG A THUNDERING HERD, A FEW WINNERS EMERGE

Market leaders Interwoven, Vignette, and BroadVision will rack up more than $1 billion in revenue among them in 2000 -- yet the market remains mostly untapped (see the July 2000 Forrester Report “Commandeering Retail Content”). Moreover, at least a dozen other vendors compete in this space, including innovators like Openpages and Mediasurface. But despite the frenzy in the marketplace, the field of likely winners boils down to a handful of players.

- **Vignette, BroadVision, and Interwoven will continue to dominate.** These giants have the market presence and partnerships -- like those with systems integrators Ernst & Young and IBM Global Services -- required to win the confidence of Global 2,500 accounts. Armed with ample war chests, the big guns will also have the pick of the litter among acquisition and partnership opportunities. For example, Interwoven’s savvy recent purchase of Metacode gives the vendor 80 packaged ontologies and scarce knowledge engineering expertise.

- **Documentum will make it into the big leagues.** Once pigeonholed as an old-economy document management company, Documentum enhanced its robust library services and workflow functionality with tight integration to third-party Web creation tools and app servers. Its strategic relationships with BEA, ATG, Verity, E.piphany and integrators like PricewaterhouseCoopers solidly position this vendor for the long haul.

- **Intranet Solutions has the inside track with Microsoft devotees.** Microsoft plays well on intranets where performance requirements are less demanding than the Web. Highly rated Intranet Solutions has cracked this market on the strength of its robust library services and user-friendly administration utilities designed for business-to-business and business-to-employee initiatives running on NT. While Microsoft-centric competitors NCompass Labs and Eprise both offer solid alternatives, their combined customer list of 215 pales in comparison to Intranet Solutions’ impressive roster of 1,200 clients. Unless Microsoft.net gains ground against Sun outside the firewall, the best bet for NCompass Labs and Eprise is to be acquired and move to Redmond.

- **Open Market's products will survive.** Open Market's purchase of Future Tense gave the former commerce platform vendor a strong content management product -- its Content Server 3.1 finished at the top of Forrester's TechRankings. But a painful transition from failing platform vendor to content management specialist has burdened the firm with flat sales, management turmoil, and a market cap under $100 million. Buyers attracted to the firm's product but not its balance sheet can take heart for two reasons. First, the product's reliance on Java-compliant, third-party infrastructure means that firms won't waste most of their development dollars even if the vendor tanks. Second, Open Market's financial woes make it an attractive acquisition target for BEA.

ACTION

Start developing Java and XML skills now.

Because packaged applications are still maturing, sites should expect ongoing upgrades and even the possibility of a full-scale system replacement within two years. To minimize exposure, firms must not only pick open, standards-based systems but also invest in developing the Java programming and XML engineering skills required to configure and customize these tools.

Screen integrators for relevant experience.

Integrators on their first implementation of a complex content management system will make costly mistakes on the client's dime (see the June 2000 Forrester Report "eCommerce Integrators Exposed"). To avoid disasters, clients should pick service vendors with at least five previous installations. Firms must interview developers to make sure of getting the specific people with the relevant experience. To ensure transfer of critical knowledge required to maintain the system, involve internal staff members with the project from the outset.

Don't sweat wireless -- worry about globalization.

Almost all of the products Forrester reviewed support Wireless Markup Language (WML) and delivery to wireless devices. The real challenge with wireless, however, is keeping track of multiple content versions for PDAs and cell phones -- a task handled by core library services. The larger issue for Global 2,500 firms: vendor support for multilanguage publishing initiatives. Site managers should make sure that the vendor is not just committed to double-byte character sets, for example, but to the Unicode standard as well, the only encoding solution that can facilitate exchanges among all languages and dialects.

Euthanize homegrown solutions.

While packaged content management systems are expensive and complex, the market is on the verge of mainstreaming. In-house development teams won't be able to keep pace with a pack of highly competitive vendors. Firms should put current development efforts on ice and immediately focus on crafting RFPs for the commercial replacement.

WHAT IT MEANS

! Market giants won't come to the rescue.

Although smaller vendors like Fatwire and NCompass Labs have hopes of being acquired by behemoths like IBM and Microsoft, that's not going to happen. Stinging from the government's antitrust activism, the market titans have every incentive to foster a software ecosystem comprising a variety of application vendors instead of trying to own it all. This will stimulate competition on the basis of core content management features -- tools providers that can't grab market share with product excellence or strategic partnerships won't last.

! User scenarios fell content trees.

As sites continue to grow, managers will give up trying to maintain quality on all navigation paths through every menu and page. Instead, they will focus on keeping specific user scenarios linked and supplied with updated content. Today, site managers must map these scenarios to associated assets by hand. In the future, companies can expect vendors to provide software that lets site owners select user paths through the site and test "what if" scenarios for performance and reliability. This will let designers plot optimal navigation routes and generate scripts to ensure that these critical paths remain intact after updates.

! Proactive measurement tools give sight to the blind.

Site managers will see their content management solutions incorporate a new generation of measurement tools to help them gauge the effectiveness of their assets. Tracer GIFs -- single pixels with code attached -- will be planted on critically important content, revealing whether users respond to special offers posted on the home page or head directly to a configurator buried seven clicks down. Currently, firms rely on data generated by profiling vendors like Personify to get this functionality. Within a year, though, content management vendors like Vignette will add similar capabilities.

! Intranets fuel integration advances.

As firms begin to realize the importance of well-designed and maintained intranets, they will turn to packaged content management solutions for relief. This will generate sophisticated requirements for back-office integration as companies look for systems that can import data not just from cafeteria workers updating the mess hall menu, but also from benefits providers like Fidelity for 401(k) account information and Met Life for health insurance.

RELATED MATERIAL

Companies Interviewed For This Report

Artesia Technologies
www.artesia.com

Blue Martini Software
www.bluemartini.com

BroadVision
www.broadvision.com

Chuckwalla
www.chuckwalla.com

Content Integrity
www.content-integrity.com

Digital Creations
www.digicool.com

Documentum
www.documentum.com

eBusiness Technologies
www.ebt.com

Eprise
www.eprise.com

FileNET
www.filenet.com

Gauss Interprise
www.gaussinterprise.com

Interwoven
www.interwoven.com

IntraNet Solutions
www.intranetsol.com

InStranet
www.instranet.com

Kinecta
www.kinecta.com

Mediasurface
www.mediasurface.com

Metacode (Interwoven)
www.metacode.com

Moreover.com
www.moreover.com

NCompass Labs
www.ncompasslabs.com

NextPage
www.nextpage.com

Open Market
www.openmarket.com

Openpages
www.openpages.com

Rational Software
www.rational.com

ScreamingMedia
www.screamingmedia.com

Six Open Systems
www.six-us.com

SOHOnet
www.sohonet.com

SteelPoint Technologies
www.steelpoint.com

TPN Register
www.tpn.com

Vertical Sky
www.verticalsky.com

Vignette
www.vignette.com

worldweb.net
www.worldweb.net

Related Research

June 2000 Forrester Report “Must Search Stink?”
June 1999 Forrester Report “Creation Tool Strategies”
February 1999 Forrester Report “Managing Web Content”

GRAPEVINE

We have canaries for that.
When we asked one VP of content services about the product his firm uses, he responded: "Interwoven, Vignette -- those names mean nothing to me. I suppose I should know what we bought, but I don't. You see, I have a 'VP' in front of my name, and that means I no longer have to lose sleep about what the grunts are doing in the content coal mines." Hopefully he won't get surprised by the coming content explosion.

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Cost analysis only a parent could love.
Many of the site managers we spoke with built their own content management systems. Understandably, they're quite proud of the solutions they've crafted. But we found that technical parenthood sometimes blurs common sense. For example, when we asked one glowing architect of a healthy three-year old enterprise system about the cost of developing and maintaining his creation, he vehemently explained that it cost the company absolutely nothing. How? Simple: "When I think of expenses, I think of software licenses. I don't count the time and wages of the developers on the job. So far no one's asked for those figures, so I don't calculate them."

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When syndication-ready content isn't.
Nick Denton, CEO of content-aggregation specialist Moreover.com, shared with Forrester an interesting tidbit about harvesting syndicated content on the Web. "We collect content from more than 2,000 sources. But of that, only 5% has been XML-formatted specifically for syndication, and of that 5% we can only use about 2%. The problem is that companies set up these syndication feeds but then forget to maintain them. They're so busy with the customer-facing content that they just ignore the syndication channel. Ironically, it's usually the least accurate content they publish. In most cases, it's just easier for us to index the old HTML site."

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TEAR ALONG PERFORATION

The Forrester Report

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QUICK VIEW

A tidal wave of content will soon hit click-and-mortar sites. To succeed, firms need the right mix of best-of-breed tools, open standards, and improved processes.

MARKET OVERVIEW

- Online content grows like wildfire.
- Software solutions help sites cope -- but underwhelm.

ANALYSIS

- Sophisticated workflow and storage provide the foundation for effective content management solutions.
- Tagging saves content from getting lost in the crowd.

ACTION

- Prepare for change by developing Java and XML skills.
- Hire integrators with product-specific experience.

WHAT IT MEANS

- Software ecosystems will drive market evolution.
- Testing will become central to asset management.

Headquarters: Forrester Research, Inc., 400 Technology Square, Cambridge, MA 02139 USA 617/497-7090 Fax: 617/613-5000

Amsterdam • Atlanta • Austin • Chicago • Frankfurt • London • New York • San Francisco • Tokyo • Toronto • Zurich

www.forrester.com Email: forrester@forrester.com

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