GILBANE

Content Technology Works

Technology Review: Moving into the Black with On-Demand Content Management

Technology Review's online publishing operation uses an on-demand content management system to reduce costs while simultaneously simplifying editorial workflow and increasing advertising revenues.

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The online publication group at MIT's Technology Review magazine found that it needed to reduce costs, which meant reducing the technical staff support committed to the online publication. At the same time, the online publication needed to increase revenues, which meant increasing its inventory of advertising impressions. In short, it needed to do more, but do it with less. Technology Review found that by moving from an in-house content management system to an on-demand system it was able to reduce the size of its technical staff. Just as important, the new content management system was easier to use and could do more. This now allows the organization to change its editorial workflow, which will free up even more technology staff time. In short, Technology Review has the best of both worlds: it is growing and adding new features and capability, all while reducing overhead costs. This success story demonstrates that selection of a publication's content management system, and its approach to using that system, can have a substantial impact on the health of the business.

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Introduction

Content Technology Works (CTW)

CTW is an industry initiative that is administered by The Gilbane Report to develop and share content technology best practices and success stories. The premise is that when given enough proven recipes for success, enterprise consumers will be able to adapt and replicate that success for themselves – increasing productivity and confidence. Success stories are written by The Gilbane Report and are told in the voice of the enterprise adopter with final editorial control resting entirely in the hands of the adopter. The result is that:

- Vendors do not control content
- Success stories are as opinionated and as jargon-free as the adopter prefers
- Analysis is included from The Gilbane Report and invited contributors
- The stories are not just about technology, but also focus on what matters to the adopter in terms of business requirements and other objectives.

Typically, this kind of valuable information is only available for purchase. CTW content is different because CTW partners subsidize the program to ensure that this information is free. Partners want to make examples of best practices available to as many organizations as possible with the expected result that all firms involved with content technology -- vendors and technology adopters -- will benefit. For more information on the CTW program, visit www.gilbane.com/technology_works.html.

Overview of success story

Technology Review is confronting a problem common to many online publishing organizations: it needs show that it can operate in the black. As is true for any organization that has most of its growth still in the future, this produces a collision of problems:

- The organization must reduce technical staff costs
- At the same time, it must improve its technical infrastructure to increase productivity, so that it can publish more and expand advertising inventory
- Finally, it must expand readership by offering new kinds of content, new features, and new services -- all of which requires technology investment and staff

The collision of these demands has the potential to send an organization into a downward spiral. Decreased in-house technical capability can translate into decreased ability to make internal changes, with the result that publication schedules grow longer, readership declines, revenues decline, and the publication runs into financial trouble.

Technology Review has avoided such dangers and, instead, met the cost and staff reduction challenge with an approach that simplifies editorial workflow, enabling publication of more content more quickly. The key to this success has been a shift to an on-demand content management system provided by Atomz. The on-demand system not only requires less in the way of technical staff support, but also opens new opportunities to streamline the editorial workflow. The result is that, rather than being caught in a downward spiral, Technology Review is looking toward to the new opportunities that are now available. Taking a new approach to content management has enabled new ways to grow.

Using this case study

This case study outlines essential elements of applying an on-demand content management service to the needs of an online magazine. This is an individual story about one organization, Technology Review. While Technology Review's approach may not be universal, its success in solving critical problems is indisputable. It is not possible to generalize Technology Review's recipe for success into a universal formula, but there is much here that will be useful to other firms and organizations facing the need to publish more high quality content, more quickly, while reducing costs.

We should also add a brief note about Technology Review and Technology Review. This is a story about an online magazine and about the organization that publishes it. Both have the same name. When we refer to the publication, we use italics. When we are talking about the organization there are no italics.

Acknowledgments

The Gilbane Report would like to acknowledge the generous contribution of time and intellectual property from Technology Review. Specifically, they have allocated the time of talented and heavily committed staff to improve the understanding and adoption of enterprise content technology.

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In Their Own Words: Technology Review's Perspective

As CTW listened to the staff at Technology Review talk about the transition from their initial in-house content management system to a hosted, on-demand system supplied by Atomz, we recognized that the big picture -- the reasons for the change and the results that were achieved -- emerged directly from the quotes we had captured in those conversations. So, we begin with the Technology Review staff's own description of the problems, opportunities, and solution.

Recognizing the Problem*: How did you know that needed to make changes in your content technology?*

"Technology Review, along with many other ad supported sites, experienced a downturn in both print and online revenues after the bubble burst in 2000. It lasted on until 2002 and has just started to pick up in the last calendar year. The management and strategic philosophy that came out of that experience was that we should be very attentive to cost containment even when the revenues start growing."

– Matt Mattox, Vice President, Business Development

"Back in 2000 we had a full IT department, including a database administrator, a full time programmer and another full time content person. ... That is all changed. It is just Jo and me. We knew that doing maintenance upgrades would have been impossible. We looked at a bunch of content management systems, including a few on-demand systems and a few in-house systems, and we very quickly eliminated the in-house ones --even though we liked a few of them -- we just didn't have the resources to implement them and maintain them."

– Tom Pimental, Web Producer

"We are running out of inventory of impressions. We are almost selling out every month -- in fact, in one month we did sell out. So, putting more content on the site is directly related to attracting more people."

– Matt Mattox, Vice President, Business Development

"The upgrades [with the earlier, in-house system] were maybe half the problem. The other half was really that it was inconsistent publishing. It didn't always publish what I wanted, where I wanted. And it didn't publish that quickly either."

– Johanna Purcell, Content and Development Manager

The Opportunity: *What did you want to be able to do by using a different approach to content technology?*

"The thing that makes the site valuable is the content. So, if we can get more of it up there, we'll get more people coming back. People really like our content. If we can put five stories up, instead of just one, people will come back more often. We will have more page impressions, which will drive ad sales, and we'll make more money."

– Johanna Purcell, Content and Development Manager

"Our plan going forward is to increase the frequency of publishing content. So we needed to pick a solution that would allow us to do that easily."

– Tom Pimental, Web Producer

"Saving time. Really, the important thing was saving time, and empowering more people to be able to contribute content to the site."

– Johanna Purcell, Content and Development Manager

"If you take a step back and look at what is happening in direct mail, it is more and more expensive to acquire a subscriber for the print edition of the magazine by mailing them a promotional package. Online is a much less expensive way to acquire them."

– Matt Mattox, Vice President, Business Development

Selection: *What considerations shaped your choice of a new solution?*

"From day one, when we said, OK, we need a content management system, the most important thing was really getting the editorial team in there, inputting their own content. It seemed very redundant to have them send us a file and then have us copy and paste it, when they could just input it themselves."

– Tom Pimental, Web Producer

"The important things in selecting a content management system were how easy it was to use, how well it would integrate with our current site -- we weren't going to redesign the site -- the content management tool really had to fit with what we had. Would people who weren't technical be able to use it pretty quickly, with a short learning curve? Would we be able to implement it in a short amount of time, with our limited resources and staff? And price, which was a big issue."

– Johanna Purcell, Content and Development Manager

"One of the metrics we watch is how often people return to the site. Just having more content on the site doesn't create inventory -- somebody has to actually read it to create the inventory. The more content that we put up on a daily basis, the greater our ability to bring people back frequently to check out what's new. ... We have a pretty good idea of what type of content to put up. So the challenge is frequency. The more we put up, the more people get back to the site on a regular basis, which translates to more pages read, which is more inventory."

– Matt Mattox, Vice President, Business Development

Success: *How do you know the new approach is working?*

"We are actually experiencing 94% revenue growth. Our revenues are growing, but we are still focused on being efficient and on employing as many cost effective solutions as possible. The move to Atomz was very much in line with that thinking. ... As we have stepped up the amount of content on the site, we have attracted more regular visits from users, which translates into more impressions, which translates into more revenue. Our plan moving forward is to take that even further and add more content to the site. Atomz greatly facilitates doing that in a cost effective way."

– Matt Mattox, Vice President, Business Development

"It allows me to get off of doing content and actually do some development work. Going forward, when people ask me to do stuff, I will actually have the time."

– Johanna Purcell, Content and Development Manager

"The fact that there is more of Jo available means that she can do things like personalization on the site, or she can develop special vehicles for our advertisers' marketing campaigns. We can leverage her skills to create new things, rather than tying her up with manual, low value tasks of copying and pasting."

– Matt Mattox, Vice President, Business Development

Technology Review Corporate Background

Since 1899, Technology Review has been MIT's magazine of innovation. Its mission statement, "to promote the understanding of emerging technologies and their impact on business and society," defines the unique value that Technology Review delivers, making it a vital resource for business decision makers in emerging growth and global 2000 companies.

Technology Review is at the center of the conversation on emerging technologies no matter where the conversation takes place. With international editions recently launched in China, Italy, Germany and The Netherlands, the exposure of Technology Review magazine, combined with the its signature events, newsletters, and online businesses, reaches over two million business leaders throughout the world each month.

Technology Review publishes online as well as in print. The online edition contains the content in the print addition and also adds daily stories about emerging technologies. It complements the longer stories presented in the printed magazine with shorter articles that cover a wider range of issues and that can address current technology news.

For more information on Technology Review, visit http://www.technologyreview.com/.

Criteria for Success

Problem definition

Technology Review needed to solve three problems in parallel:

- The organization needed to reduce staff costs, which meant, in particular, reducing technical support staff.
- To grow readership and revenues, Technology Review needed to increase the volume and publishing frequency of quality online content.
- Despite the technical staff reduction, Technology Review needed to continue to add new features and capabilities to the site to attract new readers and new customers

These are general problems that confront any online publication that hopes to run its business in the black. These general problems present themselves through clusters of more detailed problems that differ for different organizations. At Technology Review the problem clusters come together like this...

Reducing technical support staff expense

There were two substantial issues here. The first was that the in-house content management system that Technology Review had in place was relatively difficult to maintain. The software vendor provided maintenance upgrades every six months or so. Installation of these upgrades was difficult, time-consuming, and required significant technical know-how. Part of the difficulty was due to custom applications that Technology Review had built on top of the content management system to make it more user-friendly. Part of the problem also seemed to be due to the software supplier's upgrade process. It was not unusual to lose content and capability during an upgrade, which meant that each upgrade had to be accompanied by careful testing, site integrity checking, and sometimes by repair efforts.

A second difficulty was that the content management product was not user-friendly. Tagging and preparation of content required technical capability that the editorial staff did not have. As a further difficulty, the content management system could not support both a staging server in addition to the actual, live system used on the public site. Consequently, after the editorial cycle was complete and a finished article was finally published to the staging server, transfer to the public server was by FTP, requiring, once again, attention from the technical staff.

Increasing publishing volume and frequency

As V.P. of Business Development Matt Mattox says in his comments, quoted above, Technology Review is in the happy position of having an increasing number of advertisers who want to buy space. The problem the online magazine faces is one of needing to create more ad inventory to sell. So, the constraint to growth has been more on the supply side than the demand side

The key to solving this problem is publishing more content, more often. As Content and Development Manager Johanna Purcell, put it, "People really like our content. If we can put five stories up, instead of just one, people will come back more often. We will have more page impressions, which will drive ad sales, and we'll make more money."

So, what was causing the problem? Once again, the content management system was at the center of it. The editorial cycle under the old system was painfully slow. Here is Web Producer Tom Pimental's description of the process:

> "The editorial person would send Jo a Word document with the story. Jo put all the elements into the content management system and published the page to the staging server. She would then tell the editorial person that it was live. That person would then print it out, look it over, make any proofs or changes by hand, in pen, on the printout, then hand the printout to Jo. Jo would then go in and change everything and post it again to the staging server. They would do that for one more round. If there were no more changes, then it will go live by having Jo FTP the story from the staging server to the live server."

This workflow chewed up time from both the editorial staff and the technology staff. Publishing more than just a couple stories a day this was really difficult.

Adding new features and capability

Growth in readership for the online edition of Technology Review depends not only on more content, but also on more ways to reach and serve readers and advertisers. Over the past year Technology Review has added weblogs by prominent emerging technology commentators. The staff is in the process of adding new services for advertisers. These critical extensions and additions require significant time from the technical staff. But the technical staff is spending a good part of its working day cutting, pasting, and assisting the editorial staff. Once again, the content management system was at the root of the problem.

Success criteria

Given these understandings of the problems and barriers to solving them, it was clear to Technology Review that it needed to revisit its three year old investment in an in-house content management system. Budget constraints made it very clear that the organization would need to reduce its spending on technical staff. Consequently, as Tom Pimental noted, the focus was on finding a hosted, on-demand solution. Technology Review needed to find an on-demand content management system that would be:

- easy to use, so that the editorial staff could assume full control of the editorial cycle.
- compatible with the portal and server software that actually makes the website available to readers
- able to support both a staging server and public, production server
- affordable

Solution Components

Product components and architecture

Technology Review uses an internally designed and built portal system to actually deliver the online magazine content to readers. This system serves content that is contained in files within a directory structure on the site (as opposed to content retrieved from a database). So, the actual article content is, essentially, a set of static files that contain prescribed markup that, when assembled with the ads and other content on the page, result in the Technology Review look and feel.

Figure 1. Technology Review home page showing story leads, ads, and navigation aids.

Because the portal system draws content from files, rather than from a database, the coupling between the content management system and the actual delivery environment on the server could be loose. What was needed was a content management system that could reliably place the edited content in the right files, in the right directories and subdirectories. Since Technology Review publishes initial drafts of stores to a staging server for editorial checking and review before "going live" on the production server, the content management system needed to be able support publication to two separate servers. Figure 2 illustrates this high level architecture.
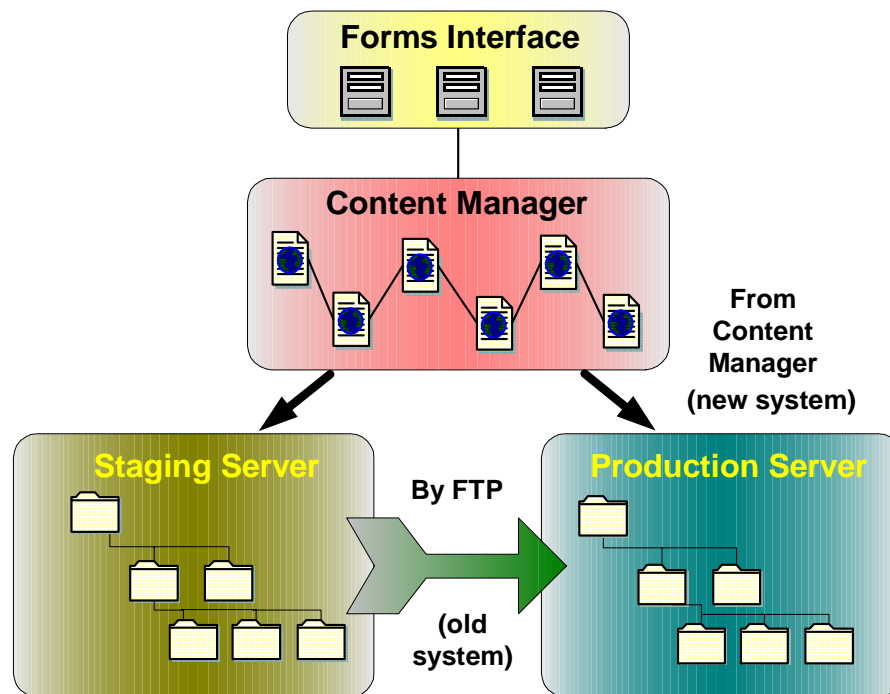
**Figure 2. High level components and architecture**

As Figure 2 shows, in the in-house system that predated the switch to the Atomz on-demand system, support for the two servers was external to the actual content management system, making the transfer from the staging server to the production server by FTP. The new Atomz system can support direct publication to either server.

Another feature of the architecture that is worth noting is that customization of the interface to the content management tool for the editorial staff is through a forms-driven interface. This was true both for the old system and the new one; the difference is that the forms capabilities of the Atomz system, coupled with Atomz's underlying document model, result in a system that is much easier for the editorial team to learn to use.

Finally, since the new Atomz system is an on-demand system, hosted elsewhere, the actual content management software is actually running on a machine someplace else, away from MIT. In the old setup, the content manager ran on a separate server maintained by the Technology Review staff.

Best practices and organizational changes

The really significant impact of the transition from the original, in-house content manager to the Atomz system shows up in the change to the editorial workflow associated with getting a story ready for online publication. As figure 3 illustrates, there was a lot of back-and-forth between the editorial side and the technical side. This was not just a single point of contact for each story, but multiple contacts and hand-offs that had to be managed for each individual story. If the technical staff was not available for any one of the tasks in the sequence, the story could not be published.
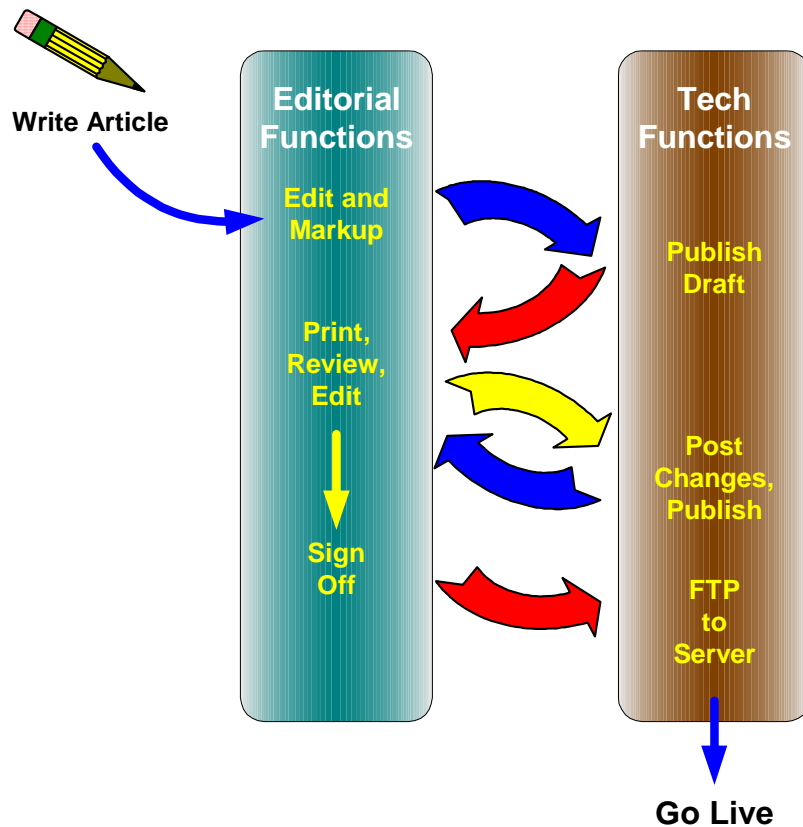
Figure 3. Editorial workflow for the original system

A quick look at figure 3 makes it clear why the technical staff had difficulty in moving forward with new development work: these people were anchored to the daily workflow on the editorial side.

The editorial workflow enabled by the new system is very different, as figure 4 illustrates. The entire process of entering a new story into the system, publishing it to the staging server, proofing it, making changes, and finally signing off on the article and making it live can be managed entirely by the editorial staff. The technical staff is still available as a resource, in case some problem arises, but they are freed from the tyranny of having to respond at multiple points during the editorial process for each story.

Write Article

Editorial Functions

Edit and Markup

Publish Draft

Review

Go Live
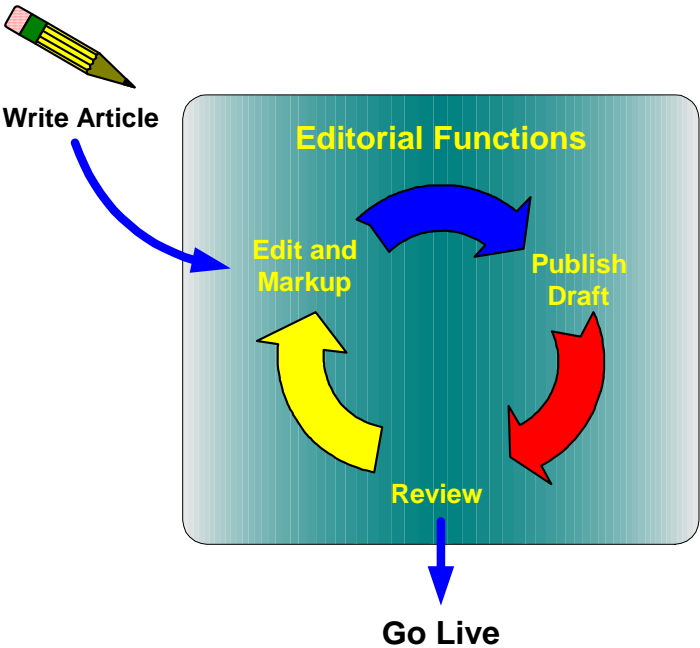
Figure 4. New editorial workflow

The two clear advantages gained from this revised workflow are that stories can be brought up more quickly and that the technical staff is now free to do more development work.

Results

Technology Review is still in the process of training the editorial staff to take full advantage of the new system, so final result are not yet available. The goal is to have the editorial side of the operation handling all the routine editorial workflow issues for new stories by the end of the year. (There will still be need for technical assistance for conversion of articles from the printed magazine, which laid out using Quark.)

The goal is to move publication volume up into the range of five stories per day. This will greatly expand the available ad inventory, which will translate into new revenues.

In addition to these improvements on the revenue side, Technology Review has been able to realize substantial savings through a reduction in the number of people employed on the technology side over the past year; these changes would simply have been impossible with the old system and its maintenance requirements. Finally, according to Matt Mattox, the organization is saving about $15,000 a year in reduced licensing fees and hardware costs.

A Supplier's Voice: Atomz

Technology Review achieved two goals by replacing an installed content management system with the Atomz on-demand content management solution: reducing the total cost of ownership and improving productivity. The first goal—cost reduction—is inherent to an on-demand solution: Atomz has found that the costs of its on-demand solutions are typically about one-half those of installed content management systems. The way that Technology Review achieved its second goal—improved productivity—is particular to the Atomz solution, which puts the Web site at the center of the content management experience.

Most content management systems (CMS) today take a system-centered approach to content management, where the user primarily interacts with a distinct CMS system to perform tasks. The system-centered approach often requires users to navigate an unfamiliar interface in order to find content and can require a dozen or more steps for even the easiest content changes. This type of system, as organizations like Technology Review quickly discover, is difficult to learn and clumsy to use because the CMS, not the Web site, is at the center of the interaction.

By putting the Web site at the center of the content management experience, Atomz reduces the number of clicks and steps and provides a simplified system for managing even the most complex Web content. Within this type of environment, Technology Review's editorial staff can assume full control over its content and workflow, allowing the company to reduce technical staff involvement while increasing productivity.

As a company whose livelihood depends on content, Technology Review naturally views the process of controlling and managing content as central to success. The company wanted to simplify its content management processes without sacrificing functionality and needed a system that would easily integrate with its existing Web site. With limited resources and staff, it was also imperative that the technology could be implemented quickly at a reasonable price. The company selected Atomz's on-demand content management solution as our model is designed to meet its requirements of control, flexibility and ease-of-use, while eliminating the inflexible workflow, cumbersome and time consuming maintenance and server issues it was experiencing with its former installed provider. In fact, with our solution, Technology Review calculated that it would reclaim 65 additional IT hours per month through its ability to schedule its own content updates, which are automatically pushed live to the site with an on-demand solution.

Today, Technology Review is committed to increasing both its content and readership to keep its publication thriving. As Matt Mattox indicated, Technology Review found itself close to running out of advertising inventory on a monthly basis, so adding content to the site is a top priority. Thanks to the role we've played in increasing productivity, the editorial staff is now able to concentrate on developing more content, while the technical staff focuses on expanding its advertising inventory – which will ultimately lead to increased ad sales and revenues to help Technology Review prosper. We are proud to serve Technology Review.

For more information about Atomz, please visit www.atomz.com.

Conclusions

The Gilbane CTW team sees two important things going on at Technology Review as the organization learns to extract the value from its new content management system.

The first is that Technology Review is demonstrating a solution to a problem that is facing many online publishers: they have to do more with less. The tech sector implosion in the first part of this decade put a number of online publications (as well as print publications) out of business. The lesson from that is that the operation has to run lean.

At the same time, an organization must focus on the "more," not just the "less." Technology Review got a vivid demonstration of this when it sold out of available inventory. A publication needs to be able to expand publishing frequency despite the reduced spending on technical staff.

Technology Review demonstrates that the choice of the content management system can make the difference between really doing more while spending less, on the one hand, and failing, on the other. For an online publishing operation, the content management system is not just a tool; it shapes all the day-to-day details of getting the product to market.

The second dimension of this case study that stands out for us at CTW is that this is another instance where an on-demand system turned out to be the right solution for a company. In our whitepaper, "On-Demand Access to Rich Media Assets," we took a hard look at the cost factors in a decision to use an on-demand solution rather than an installed, in-house system. In that whitepaper we noted that the functionality of on-demand solutions had improved to the point where you could, in some cases, set aside a comparison of functions and features and look strictly at cost over time.

What we see in this instance is a situation where the functionality from the on-demand system was not merely comparable, but actually exceeded the capabilities of the system that had been installed. The advantages of moving to the Atomz on-demand solution, in this case, emerged not only in terms of cost savings, but also in terms of improved efficiency that translates into increased earnings.

We don't believe that this will be the case in every instance. There are certainly situations where an installed system will be the right choice. But it is exciting to see that the capabilities of some on-demand offerings have now advanced to the point where, in some cases, it is not just a matter of trade-offs: the on-demand solution can be the all-around best option.

About Content Technology Works

When we first conceived of an initiative that would develop and distribute success stories that placed recipe over ingredients and favored no supplier, technology or computing standard, we also recognized that our most significant hurdle would be to recruit vendors to subsidize such an independent and open process.

Since the CTW program was first conceived in late 2003, we have sought out suppliers who were passionate about and committed to content technology as a game-changing force in the markets that they serve. Our CTW partners know that public, open and unfettered access to successful enterprise deployments, regardless of the technology mix, only benefit the commercial aspirations of organizations that offer material, dependable and predictable value.

The Gilbane Report team wishes to thank these diverse and often competing organizations for their generous support and sponsorship of the development, promotion and distribution of CTW material. They are: Software AG (TECdax:SOW), Sun Microsystems (NASDAQ:SUNW), Artesia Technologies (Open Text - NASDAQ:OTEX), Atomz, ClearStory Systems (OTCBB:INCC), Context Media, Convera (NASDAQ:CNVR), IBM (NYSE:IBM), Trados, Vasont Systems, and Vignette (NASDAQ:VIGN).