White Paper

Total Cost of *Adoption*: A Framework for Evaluating Content Management Solutions

Total Cost of Adoption is the missing link to forecasting and maximizing ROI

Sebastian Holst
May 2003

Abstract

Return on investment (ROI) is the first hurdle to, and the final grade on, content management (CM) investments. ROI forecast have become a required component of virtually every funding request. This paper presents a framework to improve the accuracy of, and increase the confidence in, ROI forecasts for content management investments. An important ingredient in ROI calculations is Total Cost of Ownership (TCO). This paper presents the case that TCO calculations are often incomplete and that these omissions result in inaccurate and unreliable ROI forecasts. A broader approach to TCO, labeled Total Cost of Adoption (TCA), incorporates traditional TCO metrics and accounts for additional factors that influence the cost and ultimate success of adoption, factors that are typically marginalized or ignored. TCA extends each component of a TCO calculation to provide a more comprehensive view on the total investment required to increase the level of confidence in ROI forecasts and to improve a CM investment's return.

There Is No ROI without Adoption

End user adoption is "the last mile" of enterprise software ROI

ROI is a simple concept that is difficult to forecast and even more difficult to achieve

Generically, ROI is a combination of cost savings and increased revenue. At its most basic, this can be expressed as follows:

ROI = the sum of (+/- Savings) and (+/- Revenue) over a period of time.

The challenge is twofold: accurately forecasting ROI and maximizing actual results.

Forecasting ROI

The arithmetic is simple. The difficulty lies in accurately accounting for and precisely measuring all of the line items that need to be plugged in to these final variables. Forecasting revenue is doubly hard in that outside factors such as competition, pricing and other market factors that have nothing to do with a technology investment must be factored. As such, new revenue forecasts are usually heavily discounted because of a lack of *confidence* in that end of the ROI equation. There are two important takeaways from the current treatments of revenue in technology ROI calculations:

- The practical ROI equation is most often based solely upon savings.
- ROI = (+/- Savings) over time.
- Without confidence, ROI forecasts are worthless.

In order to salvage ROI as criteria for technology investment, a high degree of confidence in the *savings* side of the ROI forecast is essential. This leads to a few more conclusions:

- In order to maximize a credible ROI, maximize measurable savings.
- An understanding of the resulting cost structure is essential to an ROI forecast.
- Without confidence in the cost analysis, there is no basis to justify a technology investment based upon ROI.[1]

Maximizing ROI results

ROI is intimately connected to changes in organizational and individual behavior. At its best, enterprise software introduces new efficiencies, improves quality and acts as a catalyst for entirely new ways of working. However, technical innovation and engineering prowess are not sufficient; end user adoption is "the last mile" of enterprise software ROI. Successful enterprise software is not installed with scripts; it is assimilated into existing habits and practices.

> *Changes in individual and organizational performance are at the heart of an enterprise's return on investment.*

[1] One could argue that it is the lack of confidence in ROI forecasts are at the heart of the current freeze in technology spending.

Total Cost of Adoption

Organizations that properly account for organizational impact of adoption will make better decisions and maximize their ROI.

Total Cost of Ownership (TCO) is extended to reflect a Total Cost of Adoption (TCA)

Calculating ROI is complex, and accurately forecasting ROI borders on black magic. Doing so based strictly on technology efficiencies without a deep appreciation for the existing organization is impossible. It is impossible because the "resulting cost structure" includes a complex set of behaviors that result from the assimilation of new technology over a period of time.

Adoption is best defined as the deployment of technology *plus* the assimilation of all behaviors the new technology is intended to facilitate *plus* the abandonment of old behaviors that are to be eliminated.

The *adoption rate* is the rate at which the user population adopts best practices and abandons outmoded behaviors. For example, if a portal is intended to eliminate unnecessary overnight shipments of hardcopy content but the shipments are still made even though the portal is operational, there is not complete adoption and the forecasted savings are forfeited.

TCA extends TCO to include specific considerations that impact the rate and extent of technology adoption.

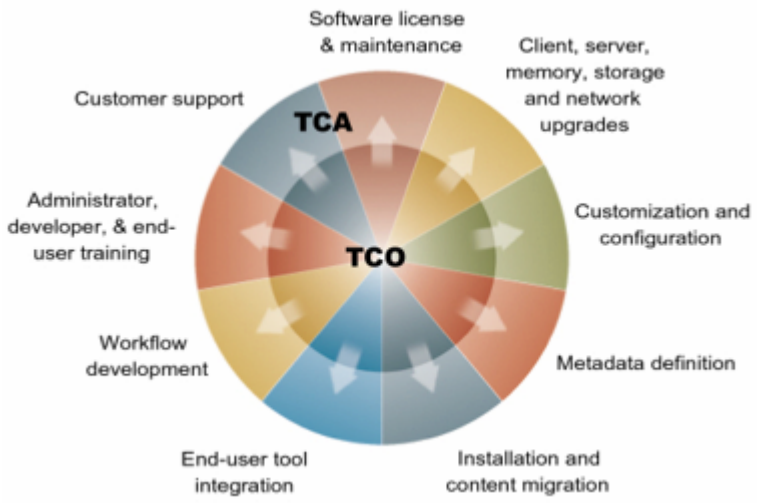

Figure 1: Total Cost of Adoption (TCA) is shown to be incremental to each of the various categories that typically comprise a Total Cost of Ownership (TCO) calculation.

In a typical TCO calculation, the categories in Figure 1 are assigned a cost and level of effort. A TCA calculation would include all of these and then factor in the level of adjustment and/or additional effort required to overcome anticipated resistance from stakeholders due to pre-existing comfort levels, training, expectations, *etc.*

> *Failure to capture adoption rates will invalidate break-even calculations and undermine returns over time.*

Additional TCA factors are important because the cost of mitigating barriers to adoption is real, material, and must be absorbed by the customer, the supplier or both. If a customer is unduly burdened with this cost, ROI will be diminished or eliminated.

This begs the question as to why vendors wouldn't simply build specific functionality into their products to remove barriers to adoption. The answer is that they do if they have the resources and the expertise. However, there is a significant amount of development and discovery that must precede this final layer of functionality and packaging.

The Enterprise Software Category Lifecycle

Enterprise software categories emerge and evolve through a number of predictable phases as they move from promising a theoretical ROI to delivering predictable and measurable value. Figure 2 below illustrates the three major phases of software category evolution. TCA and ROI confidence are directly impacted by category maturity.

Figure 2: The standard evolution of enterprise software includes validating the technology, developing a robust value proposition and finally eliminating barriers to adoption.

> *Suppliers cannot invest in removing barriers to adoption until they have substantially completed core development and absorbed the results of a significant discovery process that must proceed this final phase of maturation and packaging.*

The following table lists defining qualities by generation and their impact on TCA.

	1st Generation Early Adopter	2nd Generation Go to Market	3rd Generation Mainstream
Essential characteristics of each generation of content management software	Architecture and baseline functionality in place, but substantial customization is usually required to meet the needs of early adopters. Support and training are also highly personalized	A value proposition that can be understood by mainstream decision makers and recommenders. This is derived from early adopter expertise and traditional marketing techniques.	Prepackaged functionality to provide enterprise value and the hooks and processes necessary to entice end-user communities. The final ingredients are derived through a comparison of the theoretical ROI sold and actual early customer ROI.

Primary objectives of software suppliers	Solve critical business needs of early adopters and prove enterprise-worthiness through customer success.	Move this category into accounts beyond the initial technically savvy minority utilizing traditional direct and indirect sales channels.	Ubiquity, broad acceptance and high value ROI.
TCA implications	The level of effort and expertise required to take these early sites into production (TCA) is typically quite high. This expense must be absorbed by the vendor or shouldered by early adopters.	Customers must fund entire cost of adoption. A broader sales effort means that vendors can no longer absorb this cost. Theoretical ROI is refined, but the TCA is still undetermined. ROI cannot be reliably predicted.	Vendors have mitigated much of the cost of adoption by prepackaging functionality and business practices that target barriers to adoption.
Content Management Examples	Peer to Peer (P2P) Distributed Content Management	Digital Asset Management Enterprise Content Management	Document Management Web Content Management

Table 1: The three generations of enterprise software evolution are contrasted and compared.

Table 1 illustrates the strong relationship between category maturity and the total cost of adoption. In the earlier stages of evolution, TCA tends to be much higher and more difficult to predict.

The increase in cost and decrease in confidence puts a greater burden on both the customer and the supplier. Specific kinds of organizations tend to be attracted to, and best able to accommodate, specific evolutionary stages.

Successful adoption is often a function of good matchmaking between organization and technology.

> *Organizations that properly account for organizational impact of adoption will make better-informed decisions and maximize their ROI.*

Table 2 lists some key organizational traits one would expect to find in each stakeholder community across the evolutionary spectrum.

Community profiles	1st Generation Early Adopter	2nd Generation Go to Market	3rd Generation Mainstream
Customer	• Technology is strategic • High degree of technical expertise • Willing to take calculated risks	• Urgent need for solution • Large budget • Willing to accept a certain level of risk	• Fits & trusts ROI profile • Does not want to commit significant IT resources • Risk averse
Supplier	• Technology is strategic • Assigns most skilled resources before & after sale • Knows less than customer about potential for ROI	• Heavy investment bet on successful launch • Revenue pressure • Powerful value proposition	• Skilled at sales, deployment and support
Press/Analyst	• Bleeding edge coverage	• Maximum coverage and excitement. • Increased vendor investment results in awards, event coverage and seminars	• Marginal interest. This is ironic in that this category has the greatest immediate value to both consumers and suppliers.

Table 2: Community profiles that are most likely to be attracted to each generation.

It is not surprising that the additional cost and risk of the *first* stage category attracts customers that have an immediate sense of urgency, technical competence and a willingness to assume risk.

Yet, the *second* generation holds the greatest risk for a supplier. The commitment to fund a broad market push brings with it a pressure to demonstrate results. While a supplier may firmly believe in its value proposition, it has yet to translate that value into increased revenue. At best, it creates a very competitive atmosphere that puts a premium on large enterprise deals. At worst, it can result in over-aggressive sales tactics and over-the-top marketing messages, all of which can lead to poorly set customer expectations and disappointing results.

Ironically, the third phase yields the highest value to customers and yet it gets the least amount of coverage from a press and analyst perspective. New technology (generation 1) and new market initiatives (generation 2) are seen as newsworthy. Proven technology delivering predicted value (generation 3) is, like most good news, not covered with nearly the enthusiasm of the first two generations.

Content Management Evolution and TCA

As with all enterprise software, content management software is designed to "cure" specific organizational ailments. Once the initial product is built, the work has only just begun; the new software is now ready for human and organizational trials. The *theoretical* benefits (ROI) are well understood; what is not at all clear is how to deliver on the promised ROI without causing more harm than good, e.g. customer displeasure, security breaches, employee revolt, etc.

Enterprise software categories emerge and evolve through a number of predictable phases as they move from promising a theoretical ROI to delivering predictable and measurable value.

Content Management Diversity

Individuals and organizations alike are being overrun by content. Content is not only multiplying exponentially, content is also becoming increasingly rich and diverse. It stands to reason that the content management market is also growing in both in size and complexity. The result is a growing number of content application segments that focus on managing either specific content types or specific aspects of the enterprise content management problem. These include digital asset management (DAM), document management (DM), enterprise content management (ECM), knowledge management (KM), learning object management (LOM), and web content management (WCM). These specialized segments are evolving independently and are in differing stages of maturity.

Evaluating TCA for Content Management Solutions

There is no guarantee that simply because a *category* has reached the mainstream that every product offering within that category will reflect the appropriate level of maturity, e.g. features that streamline and simplify adoption.

The following table provides specific examples of functionality that vendors can offer to simplify and accelerate each step of the adoption process. Consumers of content management technology should expect to bear a disproportionate percentage of the cost of adoption unless the following pre-packaged functionality and pre-existing practices are available.

	Specific capabilities intended to reduce TCA and increase ROI
Software license & maintenance	Simplicity of pricing model reduces legal and financial support required. Similarity of terms and conditions to existing agreements reduces required legal resources, simplifies negotiations and reduces risk.
Client, server, memory, storage and network upgrades	Compatibility with existing infrastructure and diagnostic and reporting tools that are consistent with existing enterprise software reduce the need for additional IT training, increase confidence and reduce the need for incremental IT staff. Strength of relationship with current vendors simplifies support issues and increases the likelihood of ongoing compatibility.
Customization and configuration	Processes, interfaces to popular platforms and web tools, and other touch points that typically require additional effort in more generic systems are "baked in" to the initial product.
Metadata definition	Baseline definitions and simple administrative tools are included to reduce the need for custom integration and highly skilled programmers for this potentially complex phase of deployment.
Installation and content migration	Integrated system and migration utilities should come standard to move existing content into the CM system.
End-user tool integration	Preferred tools for contributors, administrators and developers must be integrated to shorten learning curves and leverage existing skills.
Workflow development	Baseline processes combined with simplified administration and editing utilities should be predefined to simplify process definition and permit the reuse of existing best practices.
Admin, developer, & end-user training	Ease of use, leveraging existing tools and training, and pre-built process and style elements are essential in reducing the amount of training that is required and permits a more flexible self-study program with on-demand training.
Customer support	Sensitivity to the specific user profiles is built in to every customer support channel, e.g. online, phone, etc.

Table 3: A mapping of extended TCO-centric functionality and packaging designed to minimize the total cost of adoption of a content management solution.

Table 3 provides specific examples of functionality that a supplier can provide to absorb a fair share of the cost of adoption. Of course, this functionality must be developed around a complete content management solution. Recall that there is an evolution that all enterprise software (and content management software in particular) must undergo before it can provide both the significant value-added functionality to speed adoption and lower the TCA and the baseline functionality intrinsic to its market segment[2].

> *Vendors who demonstrate a verifiable and predictable ability to absorb the cost of adoption merit special consideration.*

[2] Check in/out, query language, access control, *etc.*

Web Content Management and TCA

WCM is a mainstream category. WCM solutions should deliver a commensurate TCA

Evaluating Third Generation Web Content Management

A third generation WCM is one that incorporates the hard-won lessons of earlier web content management successes and failures making WCM-based benefits available to the general marketplace without significant investments in technology, training or integration.

One useful technique and an important step in evaluating the maturity of a WCM offering, is to correlate specific WCM functionality to their respective stakeholders. The resulting table should highlight specific functionality, partnerships and practices that specifically target adoption.

There are four primary areas in the web content lifecycle where organizations should expect direct cost savings, indirect savings and enhanced revenue potential:

- Content Creation
- Content and Code Deployment
- Web Site Maintenance
- Content and Code Enhancement

Each of these four functional areas must integrate through a combination of technology and human factors.

WCM stakeholders can be grouped into three general communities:

Business Users
Content owners and domain experts should have a simple means for direct content contribution, *e.g.* marketing, legal, human resources, web designers, graphic artists, *etc.* Direct and simple means of content contribution removes traditional IT/Webmaster bottlenecks.

Website Administrators
Typically, IT professionals require standard site management features to simplify administration, content access control, site maintenance, and regular content backup and recovery. These should be available through standard browser-based interfaces.

Web Developers and Project Managers
Typically, the team charged with creating and maintaining the various web properties need simplified change control and reporting on web site content and code integrated with task management and workflow processes. This ensures that the development environment and content processing is efficient, scalable and secure.

> *A third generation WCM must simplify and streamline each stakeholder's experience*

The following table highlights features that target key user groups in the four areas of WCM that promise the greatest theoretical ROI.

	Business Users	Website Administrators	Web Project Managers
Content creation	Integration with preferred desktop tools and forms based interfaces frees contributors from dependencies on IT staff.	Centralized management of user privileges, style templates and approval processes permits large numbers of "naïve" users to be supported without compromising quality, audit ability or style guidelines.	Programmers and project managers can use the integrated development environments (IDE's) of their own choosing to build applications logic, templates, *etc.* with the identical processes and quality controls that they prefer. Automate versioning and release management.
Content and Code Deployment	Code and content are managed independently while the respective communities are integrated through workflow.	Automated workflows, protyping, auditing and versioning simplify and eliminate many of the complex tasks associated with testing and releasing new web site functionality.	Integration with preferred IDEs ensures that developers are not "de-skilled" by having to work across multiple environments.
Web Site Maintenance	Direct content contribution enables content owners to quickly and efficiently update and maintain internal or external-facing web sites	Powerful migration utilities, centralized management, browser-based interfaces and thorough audit trails must simplify this cumbersome responsibility.	The coordination of development environments with web site management utilities to simplify the interface between developers and administrators.
Content and Code Enhancement	Code and content are managed independently while the respective communities are integrated through workflow.	Scalable utilities to permit migration, enhancement and deployment of multiple sites from a centralized location.	Direct content contribution, automated workflow, content reuse and repurposing, standardized template, integration with desktop applications and IDES and other standard features to speed time to web.

Table 4: A correlation of stakeholders with functional areas likely to impact ROI and efficiency.

A focus on specific users, their expectations and their abilities is required to optimize any enterprise system for adoption. As we have seen, adoption rates are the final hurdle that must be cleared to yield an optimal return on investment. Table 4 highlights features that specifically target WCM adoption rates.

Second Generation Content Management comes with some risk

Second generation CM offerings, such as ECM and DAM, promise a grand vision that will most certainly be realized in some form. However, the increase in volume and diversity of content has not slowed. The final versions of these solutions that achieve mainstream adoption are likely to be quite different from the initial projects currently underway. Today, there are a number of risks that need to be balanced against the tremendous promise of these emerging CM categories.

Increase in complexity

Today's broad content management problem is increasingly complex. The resulting architectures, product packaging, release management, content migration, *etc.* have to accommodate this complexity. This can significantly raise the initial and ongoing expense and the commitment of resources.

Increase in total cost of adoption

As every resource is stretched from capital equipment to professional staff, the care and feeding of a larger and more complex system is inherently and often considerably more expensive. Ensure that these costs are properly captured and that the ends justify the means.

Poor adoption rates

Broad horizontal systems have an additional burden in that additional integration and configuration is often required to achieve the "context" required to attract and retain end-users.

Today's WCM system should be a mainstream solution

While the Dot Com bubble has burst, the Internet and the social, economic and business practices it enables continue to transform business. There are significant efficiencies and revenue opportunities to pursue today and the opportunities are increasing day-by-day and quarter-by-quarter. It pays to get web content management right.

> *Enterprises should not need to rely upon homegrown systems or generic systems that do not reflect the experiences of those who have built the many thousands of web sites currently in production.*

Conclusions

If adoption is poor, there will be no ROI – end of story

Return on Investment is a goal and a final grade

Today's economic climate dictates that enterprise IT projects are selected and prioritized by their predicted ROI. ROI forecasts must be compelling, accurate and credible. A comprehensive definition of adoption and an understanding of its total cost is a requirement.

Customer, know thyself

If you build it and they do not come, there is no way to recover your investment. Each organization has a unique ability to tolerate change, discontinuity and risk. A self-assessment should be a pre-requisite to evaluating potential content management solutions and strategies. With a clear understanding of your organization's adoption thresholds, an organization is in a position to evaluate products and services.

Minimizing the Total Cost of Adoption is an essential step in maximizing ROI

Adoption implies both the deployment of technology and the assimilation of intended behaviors. Technology adoption is a complex and nuanced process. Accurately predicting adoption requires a deep understanding of the target communities and significant prior experience in deploying the technology.

Maximizing ROI is equally dependent upon streamlining and simplifying adoption. Prepackaged functions and pre-defined services targeting known barriers to adoption are by far the most cost-effective way to drive adoption rates.

It is most efficient to have the cost of adoption absorbed by suppliers

Commercial Off The Shelf (COTS) software is proven to be more efficient, reliable and cost-effective because the cost of development can be distributed across an entire customer-base. Vendors that have developed and encoded the best practices to drive adoption into their products offer a far more efficient alternative to customized configuration, training and support. Suppliers that offer TCA-reducing features deserve special consideration and preference.

Web Content Management has developed into a mature, mainstream category

There are numerous flavors of content management solutions competing for market share and revenue. While each category has its merits, many are still in the early phases of their evolution making them appropriate for only those organizations with the personality to manage the inherent risk. Web Content Management is one of the very few content management sub-categories that has evolved beyond promise and into the mainstream.

> *Consumers evaluating web content management alternatives should insist upon mature, highly automated and robust solutions that deliver a compelling, accurate and credible ROI.*

Merant Collage

A WCM Whose Strategy Stays True to its Category

Merant Collage is a web content management system. As one would expect, this system has the generic content management functionality that can be found in ECM, DAM and DM systems.[3] However, Merant has made a strategic decision to focus on the challenges and opportunities that are unique to web content management. The rationale is consistent with the views expressed in this paper: to ensure a simple, consistent and highly intuitive experience for all communities and participants.

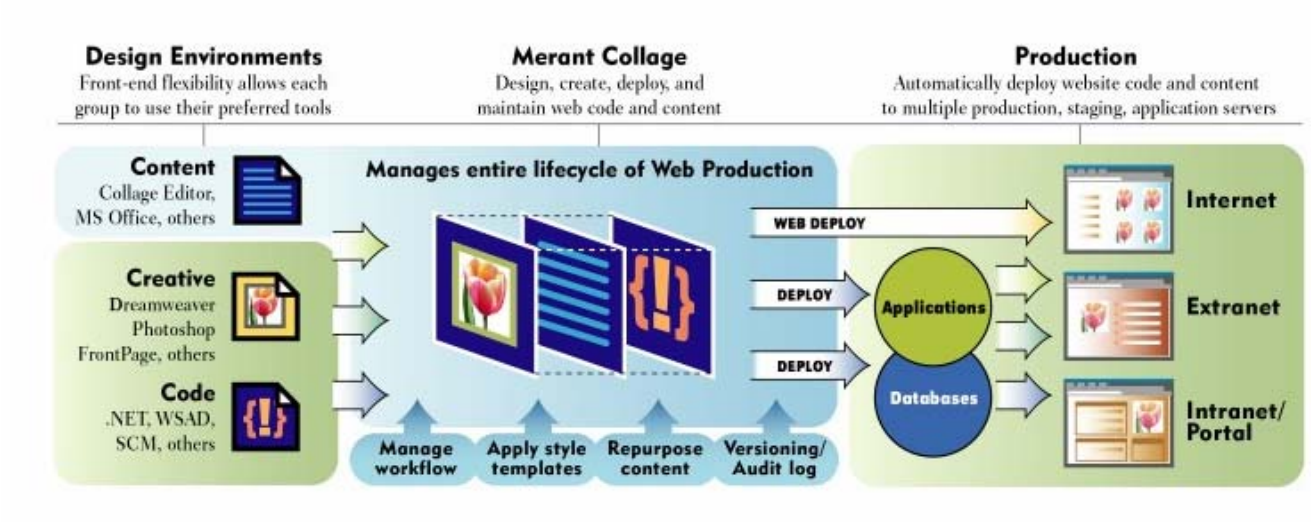

Figure 3. A view of Collage's functional and workflow scope[4]. As a dedicated WCM solution, the developers of Collage invest more heavily in end-user tool integration, migration utilities and predefined processes and workflows suited to web site development and maintenance.

The Merant approach is credible and worthy of consideration for organizations of any size

Merant Collage has been built using the same computing and industry standards and components that CIO's are relying upon to build their extended enterprise, *e.g.* XML, Java, *etc.* Collage is an enterprise product that has been designed to accomplish a specific set of tasks, *e.g.* managing web content. By baking in best practices developed and vetted over the past decade, Collage is designed to simplify a traditionally complex set of tasks that are also mission critical to virtually every organization. For a complete overview of Merant and Collage, visit their website at www.merant.com.

[3] In fact, if an organization has "light weight" requirements in these areas, it is possible that a WCM such as Merant's Collage could accommodate those requirements as well.
[4] Diagram courtesy of Merant.

Sponsoring Company:

For more information, please visit http://www.merant.com or contact:

Merant Headquarters
3445 NW 211th Terrace
Hillsboro, OR 97124 USA
Tel: (503) 645-1150

Product Information: 800-547-7827
General Inquiries: info@merant.com