

Improving Application Development with Digital Libraries



How on-demand access to trusted information is used to overcome costly delays and rework in the application development process - through timeliness and accuracy.

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Introduction

“When I have a problem and need information, I turn to the Web. What I most often find is one person’s view or solution. The quality of the solution is often unknown. You just don’t know if he’s been through all the *gotchas*.”

—*Thomas Edmondson, Senior Developer, Seattle WA*

Former contractor at EMC, Weyerhaeuser Company, and Hydra Worldwide Corporation

Technology managers understand that software developers, architects, and engineers face many challenges in the application development process.

To increase efficiency and drive down cost in an environment driven by changing market conditions, these professionals must meet or exceed extremely high standards of quality and speed.

In order to achieve these goals, application development solutions must be accessible and adaptable —without sacrificing accuracy or market intelligence. These solutions include not only the actual development tools, but information resources about technology and development skills that can help developers create applications more efficiently and effectively. In the application development process, system complexity can be compounded by the use of inaccurate information—and even

obtaining information that turns out to be inaccurate can be difficult or time-consuming.

In other words: What tools help development teams meet higher standards of quality and also reduce the overall length of time for any given initiative? And how do members of a development team cut through the clutter?

This white paper outlines some of the most salient challenges and demonstrates how technology managers can enable their development teams to streamline application development and troubleshooting, while keeping them current on emerging technology, new product versions, and changing market trends—allowing them to move right past the *gotchas*.

Application Development: Challenges and Needs

Though terminology varies, there are predictable phases of development and challenges associated with each phase. For example, a successful testing phase relies on solid testing and constructive feedback, while a successful design phase requires data showing up-to-date best practices. And external information is needed in each phase.

Common phases, challenges, and information needs can be found in this table:

	Phase I: Requirements/ Specifications	Phase II: Design	Phase III: Construction/ Building	Phase V: Testing/ Debugging	Phase VII: Release
Role	Client, developer, project team	Architect, design, engineering	Development, engineering	QA (testing)	QA (release)
Challenges	Gathering requirements and defining specifications.	Architecture and defining scope and cost.	Technical challenges and project management.	Accurate testing and feedback.	Proper planning.
External Information Needs	Document templates, best practices requirements.	Design approaches; pluses & minuses of various approaches.	Development tips and techniques; troubleshooting information.	Debugging tips; debugging tools available.	Case studies of lessons learned.

As noted by Thomas Edmondson, the Web is a vast resource, but the quality of the work is largely unknown. Though authors and books are a trusted source, finding and buying books can be a costly endeavor both in terms of time and money. Having a central, standardized source would overcome those inefficiencies and provide a consistent methodology for individuals and teams to follow.

Keeping Development on Target

“When I am onsite, I bring my books and set them on whatever desk my client provides. However, the most up-to-date information isn’t always in these references and wading through them can cost valuable time. Plus if I am traveling or working remotely in the evening, it can be impractical to bring those resources with me.”

— *Thomas Edmondson*

Today, development teams have to deal with problems that require multitasking, adapting to changing requirements and new technologies, and real-time execution—all at once.

The application development process can be slowed by a number of information challenges, resulting in lost productivity, costly project or product development delays, budget overruns, and even employee turnover. And a lack of information—or use of incorrect or inaccurate information—can not only sideline a stage of development, it will also make it difficult to reliably predict outcomes before, during, and after implementation.

Accurate real-time data is critical for any member of a development team and can dramatically improve agility at each stage of the development process. For example, a search for current best practices during the design phase may lead to the discovery of a design pattern that saves time, since the pattern has been previously vetted by other developers. During the testing phase, a review of previously-published test cases

and plans may help provide a framework for a project’s overall quality assurance approach. Scenarios like this exist for each member of the development team and across all stages of development.

But where can one find the most up-to-date best practices from a reliable source, at any time and from any location?

An April 2008 survey of 225 technology professionals that was commissioned by Safari Books Online reveals that about half of those surveyed frequently use online resources to troubleshoot applications. Of those surveyed, about half reported that the information found online was later determined to be inaccurate.

These responses underscore the challenge that lies between the need for fast, accurate information and a lack of reliable online resources. In an era where the information pipeline and cycle times are shortened every day, this challenge is more critical to overcome.

The Solution: Digital Libraries

In 1731, Ben Franklin and others founded the first subscription library service in the United States—the Library Company of Philadelphia—where member dues paid for book purchases and borrowing privileges were free. Though it may be a stretch to add the development of digital libraries to Franklin's historic vision, his subscription system mirrors how today's digital libraries are structured for technology managers and the professionals who work for them.

Like their predecessors, digital libraries are repositories of information. But you can search and browse from any location, at any time—and even borrow from code “collections” for use in your own applications.

Digital libraries save time and money by providing around-the-clock solutions to information needs, including emerging and existing technology and business knowledge. A comprehensive, easy-to-use digital library allows technology professionals to:

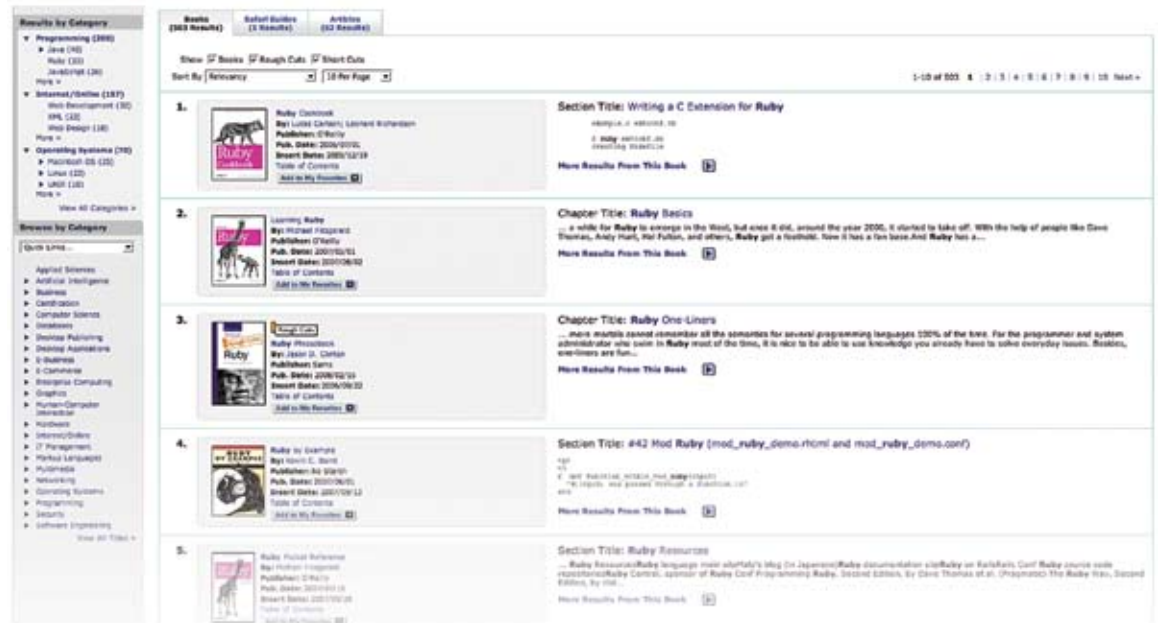
- » Solve technical challenges more quickly.
- » Learn about new technologies and techniques.
- » Earn technical certifications.
- » Support projects and development work through access to current information.

This type of resource also cuts through online clutter by using a platform that provides a much more concise search result.

General search query (Ruby) on Google.
Result topics include gemstones, the programming language, and music videos.

The screenshot shows a Google search interface with the query 'ruby'. The search bar includes the Google logo and a 'Search' button. Below the search bar, there are links for 'Advanced Search' and 'Preferences'. The search results are categorized into 'Web', 'Books', 'Video', 'Blogs', 'Code', 'Groups', and 'Images'. The 'Web' category is selected, showing related searches: 'ruby bridges', 'ruby jewelry', 'ruby the mineral', and 'ruby version'. The first result is 'Ruby Programming Language' from 'www.ruby-lang.org', described as a dynamic, interpreted, open source programming language. It includes links to 'Downloads', 'Documentation', 'About Ruby', 'Download Ruby', 'What's Ruby', 'Libraries', and 'Documents'. The second result is 'Ruby (programming language) - Wikipedia, the free encyclopedia', described as a growing article with links to many related topics. The third result is 'Ruby - Wikipedia, the free encyclopedia', describing Ruby as a pink to blood red gemstone. The fourth result is 'Kaiser Chiefs - Ruby' from a YouTube video, with a thumbnail image and a link to the video.

**Targeted search query (Ruby) with a digital library from Safari Books Online.
Results are all technology specific.**



When considering a digital library for a software development team to use, the following variables should be carefully evaluated:

- » The extent to which technology comprises a core content offering.
- » Content relevancy to a group or company's set of technology clusters— software development and programming, network systems, information support and services, and interactive media—and projects or initiatives.
- » Depth, breadth, and publication date of covered technology topics.
- » The quality and number of publishers represented, as well as any exclusive content distribution agreements.
- » Coverage of specific technologies, operating systems, programming languages.
- » Diversity of content types, e.g., books, manuscripts prior to publication, videos, code fragment libraries, and PDF downloads for portable offline viewing.
- » The extent to which business content exists for supplemental development support.
- » Search, browse, and personalized notation capabilities.

- » Content ratings as determined by Nielson Bookscan, Amazon best seller lists, and Amazon reader reviews.
- » Vendor service, experience, training capabilities, and dedication to customer satisfaction.
- » Customer and marketplace references and testimonials.

These variables are very much in line with feedback from peers—the 2008 survey of developers and IT professionals asked respondents to rate their trust in online information. Their responses were rank-ordered as follows:

- » Content owner or publisher.
- » Whether material is vetted or peer-reviewed.
- » The presence of online peer forums.
- » Information provided by magazines or journals they trust.
- » Publisher series.
- » Author.

This type of resource also cuts through online clutter by using a platform that provides specific, targeted, accurate and current search results.

Advantages for Workgroups

Digital libraries provide a key benefit to workgroups—they multiply the benefit to one developer exponentially across an entire team. Another primary advantage to workgroups is that digital libraries foster increased collaboration, including information gathering and note-sharing for group evaluation.

Other advantages include:

Informed decision-making: Throughout the development process, workgroups can use digital libraries for solutions research. Resources include works from reputable publishers and their network of authors who are trusted thought leaders. The information is vetted through an established editorial process, conducted by credible sources who weighed other alternatives. With new information, teams can make decisions within the context of knowledge about new technologies and market trends.

Enhanced productivity: Information in digital libraries makes it easier to find information on emerging technologies, and also serves as a resource for historical reference. In addition, the data helps keep individuals and the team on schedule through more efficient searching, designing, developing, integrating, troubleshooting, and installing. In short, projects can stay on schedule more often.

Cost savings: From an enterprise management perspective, budget impacts are positive, and costly time-to-market delays can be avoided. Digital libraries also reduce the need to buy books, cut down on administrative time spent on reimbursements, and also lessen the need for out-of-office training. This resource also provides an easier method for employees to prepare for technical certifications, provides on-the-job training, and ensures support for blended learning programs that may also include more formal learning or training activities.

Conclusion

Technology professionals are on a constant mission to accelerate the development process while raising levels of quality—all within the context of change. Solutions are difficult to find, especially information resources that help developers create applications more efficiently and effectively.

It is not always practical to carry one's favorite resources everywhere, and the static nature of printed books can quickly render them outdated. A prolonged online search can create delays, and even then the results may not always be completely relevant and useful.

Studies show that technology professionals are hampered by a lack of available, accurate online information. To be able to focus on only the most critical information requires a consolidated,

up-to-date data source that is available at any time from any location—to the individual developer and to entire teams spread across time zones and continents.

Digital libraries can create new efficiencies for technology professionals at all stages of the development process. The data is current and the search function can be as narrow or expansive as the developer requires. Libraries reduce expenses and improve productivity, while offering a new resource for professional development and even certification.

More and more, technology professionals are using digital libraries to improve processes and gain cost-savings—with a minimum of training and transition required to use this new resource.

Safari Books Online

Safari Books Online is an on-demand digital library that provides one integrated source for over 7000 expert reference and learning materials from leading publishers. The site includes exclusive access to the collections of O'Reilly Media, Peachpit Press, Cisco Press, Addison-Wesley, as well as additional titles from John Wiley and Sons and Microsoft Press. Safari Books Online provides access to a broad and constantly expanding range of over 100 collections including digital curricula for certification, expert technology, creative and design, and business and management resources in video and text formats.

Safari Books Online enables professionals to save time and money by providing around-the-clock answers to their information needs, while keeping them abreast of emerging and existing technology and business knowledge that is critical to them.

Safari does this by delivering thousands of the best technology, interactive media and business management books, videos and certification guides, as well as a developer code library and manuscripts prior to publication for emerging technologies or topics—before they are publicly available.

Safari's unequalled, exclusive content and easy-to-use interface has enabled professionals around the globe to improve performance, remain competitive in the face of emerging technologies, save time, and improve their ability to retain talent. Our digital library ensures that you and your colleagues have the most current, relevant technology and professional information available to enable productivity, innovation, and growth.

For more information

Go to **www.safaribooksonline.com**.