

Early Requirements Prioritization Technique

Jenny Stuart, Vice President of Consulting, Construx Software

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Contributors

Earl Beede, Professional Software Engineer

Jerry Deville, Professional Software Engineer

Organizations can recognize significant schedule and cost savings by making early decisions about what will and will not be delivered by a project or program. This paper outlines a technique for early analysis of the potential cost to develop a feature and the potential return on investment. This preliminary information helps organizations make early business decision about feature set priorities. It supports decision making about whether or not the organization wishes to spend additional resources and effort pursuing an idea into a more detailed evaluation phase.

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Introduction to Early Requirements Prioritization

Early prioritization allows business representatives, engineering personnel, and other stakeholders to make tradeoffs about the most important features for a particular project. This enables stakeholders and project personnel to compare the preliminary cost with the preliminary benefit and evaluate the feature's potential return on investment as early as possible.

This preliminary estimate is primarily useful in making internal business tradeoffs. It supports decision making about whether or not the organization wishes to spend additional resources and effort pursuing an idea into a more detailed evaluation phase.

This paper outlines an early requirements prioritization scheme, including ways to understand the development effort and the business value. It provides a baseline that organizations can customize to support early business decision making on feature priorities on projects and programs.

Early Evaluation of Effort and Business Value

Preliminary effort and value sizing should not focus on building up detailed, fine-grained estimates because at this early phase in a project they are generally impossible to obtain. Instead, the focus is on determining the relative size of features, understanding the relative value of a feature to the business, and evaluating the probable development effort to create a feature at a very high level. It is equally as important to understand the business value of the feature and the potential effort necessary to create the feature. Understanding both of these supports early decision making about whether or not the project team should invest any additional effort into further investigation of its detailed requirements to support more fine-grain effort estimation and project planning.

Outlined below is an early requirements estimation technique (sometimes called *T-Shirt sizing*) that enables early evaluation and discussion of relative priorities of the proposed features for a project:

- **Preliminary Business Value.** The business value of delivering the feature should be provided using a fuzzy logic range. Construx generally recommends using fuzzy ranges of Very Small, Small, Medium, Large, and Very Large. To support meaningful discussions, the adopting organization may need to map the fuzzy estimate ranges to the expected return on investment.
- **Preliminary Development Effort.** The preliminary analysis of the total effort necessary to create and release a feature should use fuzzy coarse-grained effort estimate ranges. These ranges should include the total effort necessary for the adopting organization to analyze, design, construct, and validate the feature. Consideration should be given to the non-functional requirements for the feature such as how fast, how reliable, how accurate, or how robust the feature needs to be.

Construx generally recommends using estimates of Very Small, Small, Medium, Large, and Very Large. Adopting organizations may need to map the fuzzy estimate ranges to actual effort ranges, such as 0-3 weeks, 1-5 weeks, 4-9 weeks, 6-12 weeks, and 12 or more weeks.

These ranges could be provided in hours, days, weeks, or months, depending on the typical feature size. The fuzzy estimates should overlap to indicate the level of uncertainty in the effort estimates provided at this point in time.

Understanding, even at a high level, the relative effort to produce a feature and the relative value to the business supports early decision making regarding which features are not worth investing further effort in to analyze, which features are less important for producing a successful product, and which features are most critical so that the project team can immediately focus further effort on them.

Preliminary Feature Set Evaluation

Once the relative value and effort for a feature are understood, it is possible to make business tradeoffs based on which features are the most valuable to pursue on the project. In general, the feature priority is a function of value and cost and can be modeled using a simple matrix.

This early analysis of the requirements using coarse-grain estimates is a powerful tool for making early decisions about what is clearly in a project's scope and what is clearly out of scope. It enables the organization to focus the early discussions about the features where the return on investment for building the feature is more uncertain. For more agile or iterative projects, project personnel can begin their work using the features which are identified as high value without further analysis. For date-driven projects, early analysis can enable teams to begin work on the highest value features while further analysis is performed on the ones that are more unclear. For feature-driven projects, the analysis can provide input into the order that the work should be complete, which features should be in the current release, and which features should be in a future release.

Provided below is an illustration of a preliminary feature set evaluation matrix.

Feature Priorities

		Preliminary Market Value				
		Very Large	Large	Medium	Small	Very Small
Preliminary Development Estimate	Very Large	?	?	✗	✗	✗
	Large	✓	?	✗	✗	✗
	Medium	✓	✓	?	✗	✗
	Small	✓	✓	?	?	✗
	Very Small	✓	✓	✓	?	?
Legend	✗	The feature will not be included in the next release and no further analysis or investigation will be performed.				
	?	The feature may or may not be included in the release. Additional requirements, architecture, and other investigative work will occur to better understand the scope and effort prior to making a final go/no-go decision about its inclusion or exclusion.				
	✓	The feature will most likely be included in the release, and robust requirements analysis, architectural analysis, and other preliminary analysis work will be conducted on it.				

Figure 1 Early Requirements Prioritization Scheme

An organization adopting this technique should modify the matrix to reflect its unique needs before using this technique.

About Construx

This white paper was created by Construx Software Builders, Inc. Construx Software is the market leader in software development best practices training and consulting. Construx was founded in 1996 by Steve McConnell, respected author and thought leader on software development best practices. Steve's books *Code Complete*, *Rapid Development*, and other titles are some of the most accessible books on software development with more than a million copies in print in 20 languages. Steve's passion for advancing the art and science of software engineering is shared by Construx's team of seasoned consultants. Their depth of knowledge and expertise has helped hundreds of companies solve their software challenges by identifying and adopting practices that have been proven to produce high quality software—faster, and with greater predictability.



Steve McConnell, CEO/Chief Software Engineer

steve.mcconnell@construx.com
+1(425) 636-0100



Jenny Stuart, VP Consulting

jenny.stuart@construx.com
+1(425) 636-0108



Matt Peloquin, CTO

matt.peloquin@construx.com
+1(425) 636-0104



Steve Tockey, Principal Consultant

steve.tockey@construx.com
+1(425) 636-0106



Mark Nygren, COO/VP Sales

mark.nygren@construx.com
+1(425) 636-0110

For more information about Construx's support for software development best practices, please see our website at www.construx.com, contact us at consulting@construx.com, or call us at +1(866) 296-6300.



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Construx Software Builders, Inc.

10900 NE 8th Street, Suite 1350

Bellevue, WA 98004

U.S.A.

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