MICRO FOCUS

WHITE PAPER

CREATING A BLUEPRINT FOR SOFTWARE PROJECT SUCCESS

Executive Summary

The shocking reality in software development today is that project success rates are at their worst for ten years. In spite of the methodologies and tools thrown at the problem, 44% of projects are late, over budget, or missing required features and functions, according to the Standish Group's CHAOS Summary 2009. In addition to project failure rates, consider the percentage of time your organization wastes on unproductive rework. The average is a staggering 40%. If you had a manufacturing business, and a manager had 40% waste on his shift, it's unlikely that manager would be around for long. However, in software development, we tolerate it. Why? In manufacturing, waste is easy to measure – however in software development, we tolerate waste because we do not know the sources or how to measure it. How can you remediate what you cannot see or quantify?

While the industry offers the methodologies and tools that we need to develop and deliver software effectively, the odds of project success are still not in your favor if you lack an effective, repeatable approach to build quality in from the start. Take the age-old concept of requirements management (RM) for instance. The Software Capability Maturity Model (CMM) from the Software Engineering Institute was created 18 years ago – and RM is the first key process area in CMM Level 2. We have all the guidance we need to do RM right, and nearly 20 years of industry experience, however requirements misfires continue to be the primary source of rework in any software development organization. Managing requirements is likely not the issue – it is the accuracy of the requirements in the first place – do they reflect what the business really needs?

> *"Seventy percent of defects in production are introduced in the requirements stage of development."*
>
> Gartner

A vast majority of software process improvement initiatives fail to deliver on their objectives. Is there something wrong with the models or methodologies? No. A model like CMMI is a proven maturity model, however most organizations struggle with understanding the effects that software process improvement will have on the business (not the IT group, the business itself). What changes in your software development approach will drive the optimum results for the business? One of the most common, challenging issues with improvement initiatives is – what is the return on investment (ROI)? Most organizations don't know and they have been unable to effectively model the alignment of the critical business and economic drivers impacting software development with their process improvement initiatives (historical models are silent on this topic).

Micro Focus has developed a pragmatic approach to software process improvement to help organizations identify and remediate sources of waste and risk. It is the Applications Management Value Profile (AVP). How is it so different? First, the AVP is "practical and pragmatic", this alone is very different than applying typical industry models. Secondly, the AVP begins and ends with business alignment as the principle driver of the software process improvement initiative – that is completely different from other models. Third, we investigate, identify and quantify the economic impact of change – in other words, we begin to outline how change will either make or save money for the company.

Let's discuss an entirely different approach to:

1. Align software process improvement with your critical **business drivers**
2. Know (not guess, but really know) what steps you should take to **gain competitive advantage**
3. Identify and **reduce waste** in the software process
4. Identify and **reduce risk**
5. Increase project **success rates**

> *"A reduction in rework costs has been shown for increases in the general level of process maturity. Through such approaches the cost of rework can be reduced significantly, in some cases to less than 10% of total project cost."*
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> Department of Computer Science University of Massachusetts

The Micro Focus AVP guides organizations through the process of making strategic improvements to the SDLC. This white paper describes this framework and its benefits, and contrasts it with other historical approaches.

Assessments

Assessments can be very effective in providing a baseline for developing an improvement initiative, however some forms of assessment can be expensive, invasive, non-prescriptive and lack alignment to the business. We have seen, and delivered, many forms of assessments in the past 20 years – CMM & CMMI (including high-maturity), various Quality models - People CMM, PSM, ISO, Agile, Organizational Change Readiness, ITIL, COBIT, the list goes on. The fact is, they are all good – we endorse all these and other models and methods, and they all work. This experience has provided us with the basis to develop an innovative, new, balanced assessment. We have extracted intelligence and assets from all these models and others (such as PMBOK) to offer a "light", pragmatic approach to profiling software development and testing disciplines, including a correlation to the business user's expectations.

An effective assessment does not need to be a deep dive into every detail of your SDLC and software quality program. A good assessment can be high-level and brief, as long as the method extracts the intelligence needed to formulate improvement solutions – it is not quantity of details you need – it is quality of data and intelligence to form the basis of a plan; a plan which will demonstrate improvement driven by business need.

We are not trying to replace deep dive assessments. We do not "certify" anything, or register any reports with any outside organization. There is certainly merit and the requirement sometimes for external endorsement of your software process program, such as with the Software Engineering Institute (SEI). We fully accept that, and, in fact, Micro Focus is an SEI Partner and we offer CMMI Services worldwide. It is, in part, through this experience that we have developed our profile approach.

Think of the AVP in the context of continuous improvement. Software process improvement is part of your overall continuous improvement effort. We have talked with some organizations that do not have any software process improvement initiative at all, and don't want to make time for it – we wonder, are these organizations all finished with continuous improvement? We hear, "We aren't focused on improving the SDLC now – we have too much to do…" - without a quality-driven approach these organizations will likely decline in competitive advantage, maintain 40%+ waste, and will have steadily deteriorating business satisfaction – tactical and reactive versus strategic and proactive in their improvement opportunities. Which are you?

With our model, we will extract enough information in half a day to provide at least a starting point for an improvement program, with direct business relevance (not just technical flare).

Relevance - Business Value

The Standish Group Chaos summary discusses three factors in the definition of "successful" software projects:

1. Schedule
2. Budget
3. Required features

These are all ultimately driven by the business expectations placed upon the software organization. The business is driven by market expectations, such as price, product quality, and competitive edge. Your software process and quality program improvement initiatives should be prioritized to maximize impact on those practices that will drive the optimal business value for your company, as opposed to just reacting to some trend or the latest method. The business side doesn't care about IT's latest trends – they care about competitive edge. IT needs to respond in business terms.

Logic dictates that we should first understand the pressures facing our business, then evaluate our software processes relative to those pressures, then optimize our processes, methods and tools accordingly. Sounds intelligent and straightforward, however practically every software process improvement approach of the past falls short of this. The AVP begins with a fairly comprehensive analysis of the business issues rather than the technical issues (that comes later). The AVP offers you a structured, logical approach to gain an understanding of:

1. What are the expectations of the business relative to the software you are building for them?
2. What characteristics of the software, and your process to build it, will have the greatest economic impact for your company?
3. How should you prioritize investment in process improvement to maximize value to the business?

Identifying and eliminating unnecessary cost is certainly logical. One approach to cost cutting is to continuously search for waste (rework in the software world) and drive it out of the system. This is an opportunity for cost-cutting without getting rid of more people, in other words, optimize productivity. Optimizing productivity, and thereby responsiveness and time to market, can yield a business competitive edge. This is something that you can control in the software development process and will have material impact on the business – but how should you prioritize and invest? It is upon this basis that we built our Application Value Profile (AVP) and the recommendations that will result from the analysis.

To intelligently prioritize your process improvement opportunities, you need data. In the next section, we discuss how we achieve this with our unique AVP approach.

Economics

IT organizations are not immune to economic distress – no one is. Like every area of business operations, software development organizations are being pressured to do more with less: cut costs, downsize, restructure, and rebalance. In the case of software development, this means producing more software, maintaining quality, and meeting schedules while controlling or even reducing costs. Getting more productivity from resources not only means managing software development more closely, but also having a well-designed and precise improvement roadmap for the future.

Process variability results in waste – the best way to "do more with less" in today's economy is to reduce waste. Process Optimization sounds good – but - what processes? For example, what improvement efforts in requirements management will drive the maximum value? Improvement initiatives aren't free, they are investments, and investments must have a return. Until now, understanding the potential and cumulative returns have been difficult because of the lack of viable models.

Let's assume you have 100 developers and average process maturity. Do you know that you could waste $4,000,000 every year on unproductive rework, just to pay the people? In software development, organizations typically tolerate waste because they do not know how to measure it. Consider the table opposite – find a number close to the number of software developers in your organization in the blue column, and read across that row. That is the amount of waste you are experiencing annually. Even if you are above average and only have 20% rework (divide the number in red by two), does it make sense to accept even that amount of waste?

We spend our own money on navigation systems so we don't get lost - yet at work, we know we spend millions of dollars and are still unable to effectively navigate projects. Do something about it – at least investigate the sources of waste so that you can intelligently improve. Software organizations can deliver significantly more business value by improving Project Management, Quality Management, Change and Configuration Management, and Requirements Management practices. What differentiates our approach to improvement is that it helps you identify the business value (either making or saving money for your company) of improving those disciplines.

> *"The cost of rework can approach or exceed 50% of total project cost."*
>
> Department of Computer Science University of Massachusetts

Number of Developers	Your Annual People Cost	Your Annual Waste on Rework
30	$3,000,000	$1,200,000
50	$5,000,000	$2,000,000
100	$10,000,000	$4,000,000
200	$20,000,000	$8,000,000
300	$30,000,000	$12,000,000
500	$50,000,000	$20,000,000
1000	$100,000,000	$40,000,000
3000	$300,000,000	$120,000,000

Applications Management Value Profile (AVP)

The AVP is our unique methodology for profiling and analyzing an organization's SDLC relative to the business expectations facing the software development group. It probes an organization's business issues and processes in Project Management, Quality Management, Change and Configuration Management, and Requirements Management. We assign a capability-maturity rating for each discipline based on the degree to which the organization is using best practices. The ratings are based on structured interviews that a Micro Focus expert conducts with relevant members of the development organization as well as other stakeholders.

> *"The AVP allowed us to identify exactly where we need to invest, immediately, to prepare our distributed software development processes for a major upcoming modernization initiative."*
>
> Financial Services Company

Our Profile is typically 4-6 hours of face-to-face interviews, and the emphasis is on the quality and experience of the individuals in the session. An effective AVP calls for the presence of senior people in the following roles:

1. Development management
2. QA management
3. Project management
4. Business representative
5. Executive sponsor

Micro Focus provides the results of the AVP as a detailed report containing a set of charts (see Figure 1). The charts display information such as current capability in each discipline, a comparison of how you rank against other organizations and your best sources of business value.

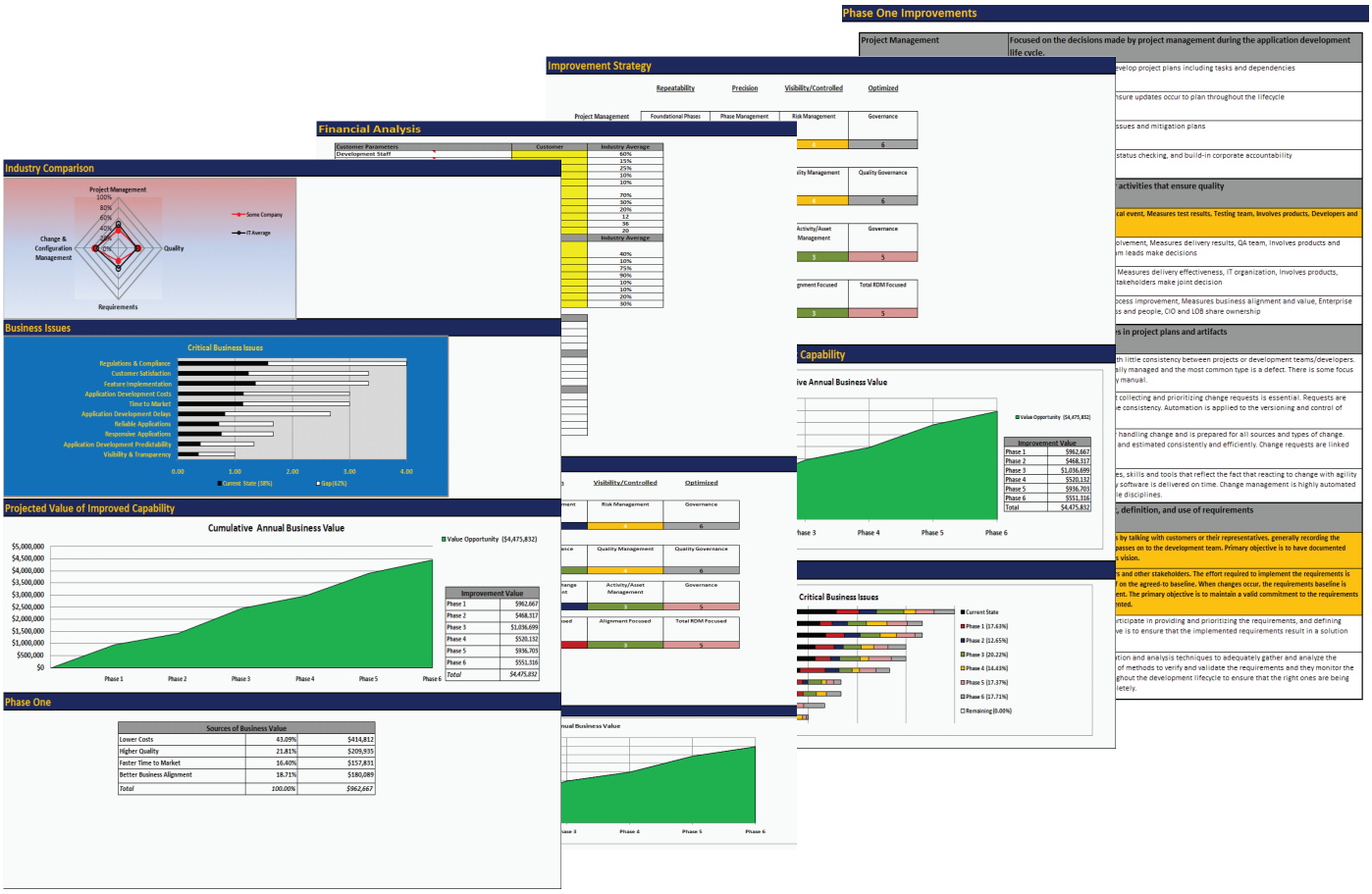

Figure 1 – Sample AVP Output

Key elements of the AVP include:

Capability Profile (Figure 2): This current capability chart easily illustrates strengths and weaknesses and provides a basis for analyzing and prioritizing potential improvement areas.

Improvement Strategy (Figure 3): The AVP will provide objective information. Decision makers in organizations typically have little issue making decisions; however, we often find that they lack the data they need to make informed decisions. With the output of the AVP, we will work with you to make intelligent, informed decisions regarding where to invest in improvements - based on optimizing business impact. The "Improvement Strategy" is just an outline – a starting point to focus an organization on the opportunities which will have the greatest business value. We provide this in the AVP.

Capability Profile

	Repeatability	Precision	Visibility/Controlled	Optimized
Project Management	Foundational Phases	Phase Management	Risk Management	Governance
36%	57%	40%	30%	15%
Quality	Quality Control	Quality Assurance	Quality Management	Quality Governance
47%	63%	45%	39%	39%
Change & Configuration Management	Essentials	Planning and Change Management	Activity/Asset Management	Governance
55%	60%	49%	60%	50%
Requirements	Document Focused	Stability Focused	Alignment Focused	Total RDM Focused
25%	40%	30%	24%	5%

Figure 2 – Capability Profile

Improvement Strategy

	Repeatability	Precision	Visibility/Controlled	Optimized
Project Management	Foundational Phases	Phase Management	Risk Management	Governance
	2	2	4	6
Quality	Quality Control	Quality Assurance	Quality Management	Quality Governance
	1	3	4	6
Change & Configuration Management	Essentials	Planning and Change Management	Activity/Asset Management	Governance
	2	2	3	5
Requirements	Document Focused	Stability Focused	Alignment Focused	Total RDM Focused
	1	1	3	5

Figure 3 – Improvement Strategy

The Economics of Improvement

The AVP incorporates a proprietary financial model designed to estimate the business value of improvement. This integrated financial calculator is unique among process capability models. Four types of business value (each is made of several components) are calculated. The four business values are:

- Lower Costs
  - Reduced waste
  - Increased developer productivity
  - Increased management productivity
- Higher Quality
  - Reduced maintenance costs
  - Reduced support costs
  - More satisfied customers
- Faster Time to Market
  - Earlier delivery
- Better Business Alignment
  - More reliable schedules
  - More successful projects
  - Higher priority projects

The calculations are based on a set of parameters derived from the financial side of the organization's software development activities. These parameters include values such as annual budget for software development, the estimated amount of rework, the amount of maintenance work compared to new-development work, and project success rate. In all, there are over 20 financial parameters included in the calculations.

While organizations struggle with the challenge of establishing ROI for software process improvements, the reality is that it is impossible to accurately predict the financial return of a software process improvement initiative. ROI is a mathematical calculation, the validity of which is dependent on predictability and measurement of a process improvement program outcome. How accurately can you predict the outcome, a year from now, of a change now in a software process discipline? Instead, organizations should look beyond ROI and prioritize candidate improvements based on the potential business value of change.

A major US Financial Institution identified over $800,000 per year of potential business value gain (reduced cost and increased revenue opportunity) in requirements management improvements.

AVP Results Report

The purpose of the AVP is to provide a strategy for improving capability and to estimate potential business value of change. We offer a mathematically defensible basis for estimating value and for prioritizing potential changes that you could make to improve across the SDLC. Our approach provides transparency and insight into these financial projections (rather than some mysterious, black-box model), and provides a basis for us to partner with you to develop a plan for improvement.

Frequently, organizations embark on improvement initiatives which attempt to change Project Management, Change Management, Quality Programs, Requirements Management and disciplines simultaneously. This is too much for an organization to absorb, and results in project failure. Our approach is different; we guide organizations to examine all potential improvement opportunities and then prioritize and isolate a few practices to focus on initially. Prioritization is based on business expectations of the software group, not what IT thinks is the best thing to do next.

The AVP model will provide financial projections of improvement as well as the incremental value of partial improvements. For these calculations, "Capability" is based on the Improvement Roadmap (an outcome of the AVP) and the degree to which the organization has achieved the different stages of capability within the different disciplines. We start with the current capability, and then compute the business value of adding the capabilities of successive phases. The result is the projected incremental value of improved capability, as illustrated in Figure 4.

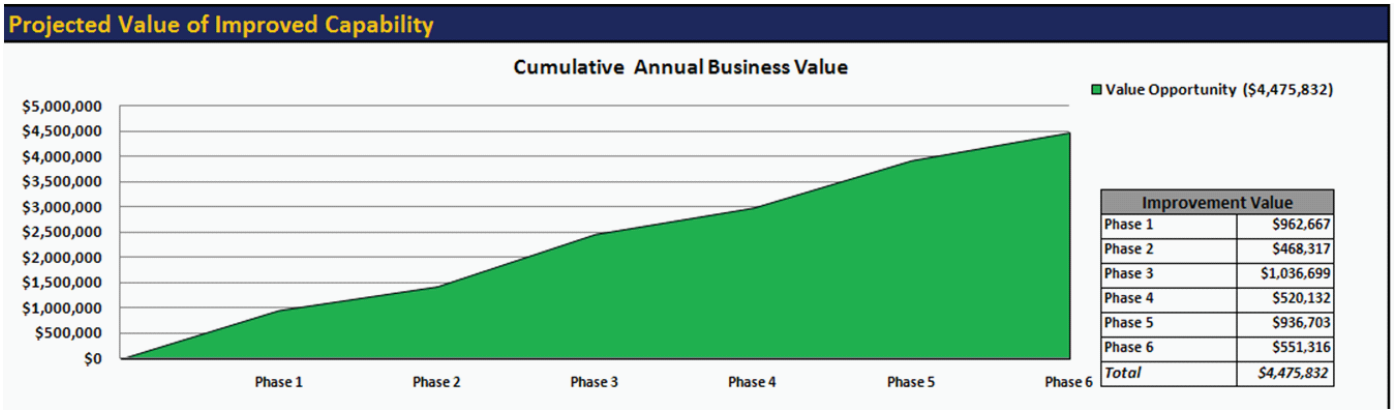

Figure 4 – Potential Value of Improved Capability

An Economically Sound Path to Applications Management

The Micro Focus AVP provides a logical path for improving the software development lifecycle, with a defensible method for calculating the business value of improvements. Using the framework, you can not only make the right investments in process improvement; you can also estimate the value, providing a basis for more informed budget decisions.

For more information about the Applications Management Value Profile or to schedule a Profile, contact: requestavalueprofile@microfocus.com

About Micro Focus

Micro Focus, a member of the FTSE 250, provides innovative software that allows companies to dramatically improve the business value of their enterprise applications. Micro Focus Enterprise Application Modernization and Management software enables customers' business applications to respond rapidly to market changes and embrace modern architectures with reduced cost and risk.

For additional information please visit: www.microfocus.com