



Tier II ERP Systems: The Fiscally Responsible Solution



Table of Contents

Executive Summary.....	2
ERP Tier Definitions	3
Risks and Costs	3
Goals of Implementing ERP	3
ERP Commentary	
1. Tier I ERP.....	4
2. Tier II ERP.....	5
3. Tier III ERP.....	6
4. Off-the-shelf Applications	6
Summary	7
About the Author	7
About Expandable Software, Inc.	7

Executive Summary

An enterprise resource planning (ERP) implementation is a key milestone for any company. The ERP selection decision is typically based on increased productivity and cost reductions. However, key elements often overlooked are the optimum stage in a company's growth cycle to deploy the ERP and which tier ERP to deploy. From a financial perspective, this is a critical oversight.

Both ends of the ERP spectrum are loaded with risks and costs that need to be fully analyzed and understood even before the short list of vendors is finalized. The implementation of a Tier I system before it is really required is a very expensive mistake (see net present value calculations starting on page four) and increases the likelihood of a failed implementation. On the other end, implementing or remaining on an under-powered solution for too long also has significant cost ramifications.

A Tier II ERP system will almost always be the best choice for a company that fully expects to be on a growth path for the next five years. Not only will a Tier II ERP have the functionality required to support the complexities of the business well past the \$200M - \$300M revenue mark, but the cost and complexities of a Tier II solution pales in comparison to a Tier 1 ERP and the benefits of a Tier II ERP far exceed the incremental cost of lower tiered solutions.

ERP Tier Definitions

While there is no real industry formal definition of a Tier I, Tier II or Tier III ERP, for purposes of this paper it is assumed:

1. Tier I ERP solutions are typically purchased by companies approaching or exceeding \$1B of revenue that have complex business operations around the world.
2. Tier II ERP solutions can effectively handle multi-site and multiple company organizations, with operations around the world whose annual revenue is in the \$0M - \$750M range.
3. Tier III ERP can effectively support single site and single company organizations with revenues in the \$0M-\$30M range.

Risks and Costs

There have been numerous studies regarding the failure rates of ERP implementations, ranging from the 51% identified in the 2001 study by Robbins-Gioia, to the alarming 70% Bob Lewis asserted in 2001 on InfoWorld.com. While the stated failure rates have to be viewed in the context of each study's definition of failure, there seems to be a general belief that ERP implementations are subject to a high failure rate. This belief is echoed by an ERPsoftware360.com article posted on their website on December 31, 2007 by Julian Peterson and Terry McCarthy which states: "While the infamous ERP implementation failure rate will not grow in 2008, it will also not decline as it has in years past." Given the above, a company embarking on an ERP implementation certainly has cause for concern.

For a fresh look at infamous large ERP failures, some of which have allegedly forced companies into bankruptcy, one only has to read the newspaper or search the web. The intent of this paper is not to single out any one failure, so I will leave the investigating to the reader.

For smaller companies, if the ERP implementation is for too low a tier or the decision is to delay the implementation of a higher tier, then significant costs are likely to occur. Materially higher costs that could have been avoided can and should be viewed as elements that increase the failure rates higher than the rates mentioned in the above studies.

Goals of Implementing ERP

The three basic goals of an ERP system implementation are to:

1. Increase productivity: reduce costs or increase output of current staff.
2. Improve communication: share information across functional lines so employees can have a larger view of the company's operations which have ramifications on their function or specific job.
3. Cost avoidance: provide better information which enables better decision making.

If all three above goals are not considered prior to ERP selection, the probability of selecting an ERP system that is not in the most fiscally responsible tier for your company will increase. Many companies today tend to focus on only the first two goals with the appropriate due diligence such a decision requires. While the goal of cost avoidance is considered, the true ramifications of the financial implications tend to be overlooked.

Without truly understanding the cost avoidance goal, by definition, the selection of an optimum ERP in terms of ROI (i.e. fiscally responsible) will be not made.

Tier I

Any company, that purchases a Tier I ERP that does not require, for the foreseeable future, most of the incremental Tier I functionality, would be making a very expensive financial mistake.

One must realize that along with the increased functionality that a Tier I application provides, the biggest cost to actual users is the complexity in getting the job done. Typically, there are more screens and clicks required to perform most operations, transactions or maintenance. This increased complexity is certainly the cause of most failures of Tier I implementations. The cost of failure will be well over \$2M and can easily approach \$5M or more if the analysis includes company lost productivity, increased overhead to support the application, missed shipments, excess inventory, incorrect or inadequate information and employee morale.

In addition, if your company is not large enough to assign, over a long period of time (typically greater than 12 months), a dedicated team comprised of a subset of the most highly regarded employees in the company, then the failure of the implementation is almost guaranteed. It is important to note this requirement is necessitated by the simple fact that most successful ERP implementations are not just an IT exercise.

Knowledgeable employees, in terms of job skill, company culture and processes, across multiple functions are needed to provide key input to the multitude of questions and issues that will inevitably surface during the planning phase of the implementation project. Employees who have to do their normal job and bear the responsibility of implementing a Tier I ERP will not have enough bandwidth to perform all the tasks that are required to review, analyze and modify existing business processes, work with the army of consultants assigned to the project, attend meetings, test the data, supply key input to ERP variable decisions, and make status presentations to the executive team.

Even if the early Tier I ERP implementation is called a wonderful success, the ROI proves otherwise. This point can easily be shown by using a simple net present value comparison of delaying the ERP decision by "n" number of years. For illustration purposes, following are two examples (30 users and 100 users) of the cash implications of delaying the Tier I implementation by five years.

Savings Realized if Tier I Decision Is Delayed 5 Years: 30 Users (\$000)

Cost of Capital	15%						
Tier 1	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Total
ERP initial cost	500	0	50	0	0	0	550
Annual Maintenance	100	100	110	110	110	110	640
Professional Services	1,000	50	50	50	50	50	1,250
Dedicated internal team	300	0	0	0	0	0	300
2 IT Headcount	200	200	200	200	200	200	1,200
Capital Expense	50	0	0	0	0	0	50
Total Cost	2,150	350	410	360	360	360	3,990
NPV Tier 1	3,386						
Tier 2	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Total
ERP cost	150	10	20	10	10	500	700
Maintenance	30	32	36	38	40	100	276
Professional Services	20	10	10	10	10	1,000	1,060
Dedicated internal team	0	0	0	0	0	300	300
1/2 IT Headcount (for Tier II)	50	50	50	50	50	200	450
Capital Expense	5	0	5	0	0	50	60
Total Cost	255	102	121	108	110	2,150	2,846
NPV Tier 2	1,638						
Tier 2 Savings	1,748						

Savings Realized if Tier I Decision Is Delayed 5 Years: 100 Users (\$000)

Interest Rate

15%

<u>Tier 1</u>	<u>Yr 1</u>	<u>Yr 2</u>	<u>Yr 3</u>	<u>Yr 4</u>	<u>Yr 5</u>	<u>Yr 6</u>	<u>Total</u>
ERP initial cost	1,000	0	100	0	0	0	1,100
Annual Maintenance	200	200	220	220	220	220	1,280
Professional Services	2,000	100	100	100	100	100	2,500
Dedicated internal team	1,000	0	0	0	0	0	1,000
3 IT Headcount	300	300	300	300	300	300	1,800
Capital Expense	75	0	0	0	0	0	75
Total Cost	4,575	600	720	620	620	620	7,755

NPV Tier 1

6,712

<u>Tier 2</u>	<u>Yr 1</u>	<u>Yr 2</u>	<u>Yr 3</u>	<u>Yr 4</u>	<u>Yr 5</u>	<u>Yr 6</u>	<u>Total</u>
ERP cost	300	50	100	50	50	1,000	1,550
Maintenance	60	70	90	100	110	200	630
Professional Services	20	10	10	10	10	2,000	2,060
Dedicated internal team	0	0	0	0	0	1,000	1,000
1/2 IT Headcount (for Tier II)	50	50	50	50	50	300	550
Capital Expense	10	0	5	0	0	75	90
Total Cost	440	180	255	210	220	4,575	5,880

NPV Tier 2

3,328

Tier 2 Savings

3,384

The \$1.7M and the \$3.4M savings above are meant to be a fairly conservative view of the savings realized, but obviously one should feel free to create their own model with variables and assumptions better fit to one's own particular company and expectations. Regardless, the savings of delay are real and quite substantial.

Tier II

Depending on the size of the company, number of user licenses, business complexity, modularity of the ERP offering and the "bells and whistles" required, a Tier II ERP system's initial cost can range from \$30K to \$300K. This cost includes implementation, training, customizations, and first year's maintenance.

Without listing all the modules/features that a typical Tier II ERP solution provides, a small representation is provided below to simply supply some context on how a Tier II ERP solution can benefit a company. The below modules as well as a host of others are fully integrated in order to increase productivity, increase accuracy, and to supply a "single source of truth" for a company to use.

Financial Modules

General Ledger
Accounts Receivable
Accounts Payable
Multi-Company
Foreign Currency

Manufacturing Modules

Inventory Control
Purchasing
Bill-of-Material
MRP/Master Scheduling
Serial # / Lot control

Data Management

Data Analysis
Security
Uploads from external sources
Executive Dashboards
Miscellaneous Utilities

Additional important factors in deploying a Tier II versus a Tier I application include:

- The time to “go-live” for a Tier II solution is typically measured in weeks or months as compared to quarters or years for a Tier I application
- Business interruption and operational focus are hugely favorable for the Tier II ERP
- Quick measurable “wins” for both staff and management are easier obtained in a Tier II implementation

Tier III

All the reasons for buying a Tier II ERP solution are valid for a Tier III ERP solution. However, given the price differential between a Tier II and III solution the incremental expense is usually money well spent. If nothing else, if your company is successful, you will tend to outgrow the Tier III solution and need to upgrade to a Tier II ERP rather quickly as the need for multiple sites, multiple companies, and other complex modules (e.g. consolidation, foreign currency) will probably appear when you reach the \$20M - \$40M revenue mark.

Provided that the Tier II solution sells the more complex modules as optional features, for a relatively minimal incremental expense, you can buy only the modules that you currently need from the Tier II vendor. This will help mitigate some of the initial cost differential. As your company grows, you can add other modules on an as needed basis. By deploying this logic and strategy, your company can avoid the pain and cost of implementing an additional ERP package if you simply jump to a Tier II solution and bypass the Tier III altogether.

Off-the-Shelf Applications

The benefits of deploying a Tier II or Tier III system as compared to a simple general accounting package or off-the-shelf solution are mentioned in the *Goals of Implementing ERP* section above. However, when a company is still in its infancy, using a low level solution can work and save some money in the early stages of a company's life cycle. An argument can still be made for buying a higher tier ERP relatively quickly as it will allow the company to initiate best practices at an early stage. These best practices provide major financial and operational benefits and will facilitate a smoother transition and less pain as the company moves through its growth cycle.

Regardless, many small growing companies will make the mistake of not upgrading to a higher Tier system at the appropriate time on the belief that “we can't afford it” or “we probably can get by for another year.” However, the cost of an ERP system should not be viewed only in terms of absolute dollars for licenses, maintenance, consulting, implementation and support. The costs of not implementing a higher level tier need to be considered as well. Completely disregarding the stress and increased workload of your employees by staying on a lower tier ERP longer than warranted, the purchase price of a higher tier ERP can easily be recovered if just one occurrence of a litany of events materializes. For example:

- Failure to take or ship an order due to raw material shortages caused by procuring inventory based on an outdated Bill-of-Material
- Failure to take or ship an order due to raw material shortages caused by failure to run an accurate materials requirement planning (MRP) program on a regular and timely basis
- Longer outside financial audits at higher costs due to lack of clean processes, comprehensive and integrated systems, extensive use of manually created spreadsheets and the inability to supply quick responses to auditor questions
- Building the wrong product because an engineering change notice (ECN) did not make its way into the hands of production

Summary

The only three questions that a company must answer in order to decide “go or no-go” on an ERP purchase decision are:

- Do we have enough cash or can the cash requirements be mitigated through special payment terms, subscription pricing, software as a service (SaaS) solutions, or other financing alternatives?
- What are the costs/risks, both from a financial and employee morale perspective, of waiting too long to move up from an off-the-shelf ERP application?
- Do we really need the functionality of a Tier I ERP?

Once the above questions are answered, most companies will find the only truly fiscally responsible ERP selection is a Tier II solution.

About the Author

Bob Swedroe is President and CEO of Expandable Software, Inc., a leader in manufacturing software development since 1983. Bob has held executive management positions at both start-ups and Fortune 500 companies including XO Communications, Silicon Graphics and Concentric Networks.

About Expandable Software, Inc.

Expandable Software, Inc. develops, markets and supports an enterprise resource planning (ERP) software suite designed to help fast-growing manufacturing companies maximize business performance.

Expandable’s fully integrated enterprise solution achieves a low total cost of ownership by delivering long-term deployment of a single system implementation.

With its unique model of direct sales and support, Expandable minimizes implementation costs and assures expert ongoing customer support.

Expandable is located in California’s Silicon Valley and is on the web at www.expandable.com. For more information, contact Expandable Software, Inc, 1171 Homestead Road., Santa Clara, CA 95070. Phone: 408-261-7880. Fax: 408-247-2160. Email: sales@expandable.com.

Copyright © 2009 Expandable Software, Inc. All rights reserved.

Sources

Bob Lewis: The 70% Failure, InfoWorld, October 26, 2001

Robbins-Gioia Survey (2001), conducted by Robbins-Gioia LLC, Alexandria, Virginia (<http://www.robbinsgioia.com>).