

See discussions, stats, and author profiles for this publication at: <https://www.researchgate.net/publication/236972734>

Enterprise Architecture as Strategy — Creating a Foundation for Business Execution

Book · May 2006

CITATIONS

968

READS

67,764

3 authors, including:



[Jeanne W. Ross](#)

Massachusetts Institute of Technology

87 PUBLICATIONS 9,022 CITATIONS

[SEE PROFILE](#)



[Peter David Weill](#)

Massachusetts Institute of Technology

85 PUBLICATIONS 12,913 CITATIONS

[SEE PROFILE](#)

Enterprise Architecture as Strategy

*Creating a Foundation for
Business Execution*

Jeanne W. Ross
Peter Weill
David C. Robertson

HARVARD BUSINESS SCHOOL PRESS
BOSTON, MASSACHUSETTS

Copyright 2006 Jeanne W. Ross, Peter Weill, and David C. Robertson

All rights reserved

Printed in the United States of America

10 09 08 07 06 5 4 3 2 1

No part of this publication may be reproduced, stored in or introduced into a retrieval system, or transmitted, in any form, or by any means (electronic, mechanical, photocopying, recording, or otherwise), without the prior permission of the publisher. Requests for permission should be directed to permissions@hbsp.harvard.edu, or mailed to Permissions, Harvard Business School Publishing, 60 Harvard Way, Boston, Massachusetts 02163.

Library of Congress Cataloging-in-Publication Data

Ross, Jeanne W.

Enterprise architecture as strategy : creating a foundation for business execution / Jeanne W. Ross, Peter Weill, David C. Robertson.

p. cm.

Includes bibliographical references.

ISBN 1-59139-839-8

1. Industrial management—Automation. 2. Information technology—Management. 3. Strategic planning. I. Weill, Peter. II. Robertson, David C., 1935– III. Title.

HD45.2.R72 2006

658.4'038—dc22

2006010226

The paper used in this publication meets the minimum requirements of the American National Standard for Information Sciences—Permanence of Paper for Printed Library Materials, ANSI Z39.48-1992.

Contents

Preface and Acknowledgments vii

1. To Execute Your Strategy, First Build Your Foundation 1
2. Define Your Operating Model 25
3. Implement the Operating Model Via
Enterprise Architecture 45
4. Navigate the Stages of Enterprise
Architecture Maturity 69
5. Cash In on the Learning 91
6. Build the Foundation One Project at a Time 117
7. Use Enterprise Architecture to Guide Outsourcing 143
8. Now—Exploit Your Foundation for Profitable Growth 165
9. Take Charge! The Leadership Agenda 187

Notes 209

Index 221

About the Authors 233

To Execute Your Strategy, First Build Your Foundation

DOES IT FEEL AS IF the employees in your company are working harder and harder, but you're still losing ground? You've got great people, you invest carefully, and you believe you have the right strategy. You watch the market, listen to your customers, and react as quickly as you can to competitors' moves. In short, you do everything the management literature says you should, but you still can't get ahead.

And the signs aren't encouraging for the future. You see Chinese companies taking over manufacturing in industry after industry.¹ Indian companies providing more and more services.² Small, agile competitors from around the world picking off niche after niche in your markets. Competition is only getting tougher.

Yet some companies—some of your competitors—seem to be able not just to survive but to thrive. In the face of tough global competition, companies like Dell, ING DIRECT, CEMEX, Wal-Mart, and others are growing and making money. These companies have more-productive employees, get more from their investments, and have more success with their strategic initiatives. What are they doing differently?

We believe these companies execute better because they have a better foundation for execution. They have embedded technology in their processes so that they can efficiently and reliably execute the core operations of the company. These companies have made tough decisions about what operations they must execute well, and they've implemented the IT systems they need to digitize those operations. These actions have made IT an asset rather than a liability and have created a foundation for business agility.

We surveyed 103 U.S. and European companies about their IT and IT-enabled business processes. Thirty-four percent of those companies have digitized their core processes. Relative to their competitors, these companies have higher profitability, experience a faster time to market, and get more value from their IT investments.³ They have better access to shared customer data, lower risk of mission-critical systems failures, and 80 percent higher senior management satisfaction with technology. Yet, companies who have digitized their core processes have 25 percent *lower* IT costs. These are the benefits of an effective foundation for execution.

In contrast, 12 percent of the companies we studied are frittering away management attention and technology investments on a myriad of (perhaps) locally sensible projects that don't support enterprisewide objectives. Another 48 percent of the companies are cutting waste from their IT budgets but haven't figured out how to increase value from IT. Meanwhile, a few leading-edge companies are leveraging a foundation for execution to pull further and further ahead.

As such statistics show, companies with a good foundation for execution have an increasing advantage over those that don't. In this book, we describe how to design, build, and leverage a foundation for execution. Based on survey and case study research at more than 400 companies in the United States and Europe, we provide insights, tools, and a language to help managers recognize their core operations, digitize their core to more efficiently support their strategy, and exploit their foundation for execution to achieve business agility and profitable growth.⁴

What Is a Foundation for Execution?

Every human being performs a variety of critical, fairly complex tasks without actually thinking about them. These tasks include breathing, hearing, swallowing, and seeing. With experience, humans can take on more-deliberate tasks like walking, riding a bike, driving a car, and making coffee. At first, these more-deliberate tasks require some concentration and adaptation, but they quickly become second nature. Over time, different humans develop distinguishing capabilities. A talented musician learns how to play piano; a great athlete plays basketball; a famous chef prepares extraordinary meals. Each of these distinctive capabilities has repeatable, routine activities that would be hard for a novice but that the expert can perform without thinking. Because experts need not focus on the routine activities in their field, they can concentrate on achieving greatness.

Companies are not blessed with the equivalent of the human brain, which coordinates all of a person's activities. Activities as simple as sending an invoice, taking an order, or mailing a package can easily go wrong—even after considerable practice. To focus management attention on higher-order processes, such as serving customers, responding to new business opportunities, and developing new products, managers need to limit the time they spend on what should be routine activities. They need to automate routine tasks so those tasks are performed reliably and predictably without requiring any thought.

A manufacturing company, for example, needs transparent information on customer orders, products shipped, finished goods inventory, raw materials inventory, work in process, invoices sent, payments received, and a host of related transaction data—just to perform at a minimally acceptable level. A mistake in any of that data can have ripple effects on a company's financial performance, its employee satisfaction, or its relationships with customers or suppliers. This is where a foundation for execution enters the picture. The foundation for execution digitizes these routine processes

to provide reliability and predictability in processes that must go right. The best companies go beyond routine processes and digitize capabilities that distinguish them from their competitors.

For example, 7-Eleven Japan (SEJ) has built a foundation for execution that has helped make the convenience store chain the eighth-largest retailer in the world.⁵ SEJ's foundation for execution allows each of the company's 10,000 stores to individually manage inventory while ensuring that they all generate rapid turnover on their large stocks of fresh foods. The underpinning for SEJ's foundation for execution is a network of 70,000 computers that collect data at the point of sale on every customer and every item sold. Each day the point-of-sale data is analyzed for use the next morning. Other digitized processes allow each store to place orders and receive deliveries three times each day. SEJ trains all of its 200,000 employees to use available point-of-sale, product, weather, and regional information not only to order from existing product lists but also to create hypotheses about possible new products. SEJ's foundation then connects employees with manufacturers to develop and test new items. The effect? In the average 7-Eleven store in Japan, 70 percent of the products sold each year are new.

In short, a *foundation for execution* is the IT infrastructure and digitized business processes automating a company's core capabilities. As with human development, a company's foundation for execution evolves—usually beginning with a few basic infrastructure services (e.g., employee hiring and recruiting, purchasing, desktop support, and telecommunications), then encompassing basic transaction processes (sales, accounts payable), and eventually including unique and distinguishing business capabilities. Building a foundation doesn't focus only on competitively distinctive capabilities—it also requires rationalizing and digitizing the mundane, everyday processes that a company has to get right to stay in business.⁶

Paradoxically, digitizing core business processes makes the individual processes less flexible while making a company more

agile. To return to the human analogy, a great athlete will have muscles, reflexes, and skills that are not easily changed. But these capabilities give athletes a tremendous ability to react, improvise, and innovate in their chosen sport.⁷ Similarly, digitizing business processes requires making clear decisions about what capabilities are needed to succeed. And once these new processes are installed, they free up management attention from fighting fires on lower-value activities, giving them more time to focus on how to increase profits and growth. Digitized processes also provide better information on customers and product sales, providing ideas for new products and services. The foundation for execution provides a platform for innovation.

Do You Have a Good Foundation for Execution?

In our visits to dozens of companies, we have learned to recognize the warning signs of a company that doesn't have a foundation that supports its strategy. Comments from senior executives like the following are indicators:

- Different parts of our company give different answers to the same customer questions.
- Meeting a new regulatory or reporting requirement is a major effort for us, requiring a concerted push from the top and significant infrastructure investment.
- Our business lacks agility—every new strategic initiative is like starting from scratch.
- IT is consistently a bottleneck.
- There are different business processes completing the same activity across the company, each with a different system.
- Information needed to make key product and customer decisions is not available.

- A significant part of people's jobs is to take data from one set of systems, manipulate it, and enter it into other systems.
- Senior management dreads discussing IT agenda items.
- We don't know whether our company gets good value from IT.

As those comments suggest, companies without an effective foundation for execution face serious competitive and regulatory threats.

An effective foundation for execution depends on tight alignment between business objectives and IT capabilities. Toward that end, most companies put in business processes and IT systems using a fairly straightforward logic. First, management defines a strategic direction; then the IT unit, ideally in conjunction with business management, designs a set of IT-enabled solutions to support the initiative; and, finally, the IT unit delivers the applications, data, and technology infrastructure to implement the solutions. The process starts over each time management defines another strategic initiative.

This process goes wrong in at least three ways. First, the strategy isn't always clear enough to act upon. General statements about the importance of "leveraging synergies" or "getting close to the customer" are difficult to implement. So the company builds IT solutions rather than IT capabilities. Second, even if the strategy is clear enough to act upon, the company implements it in a piecemeal, sequential process. Each strategic initiative results in a separate IT solution, each implemented on a different technology. Third, because IT is always reacting to the latest strategic initiative, IT is always a bottleneck. IT never becomes an asset shaping future strategic opportunities.

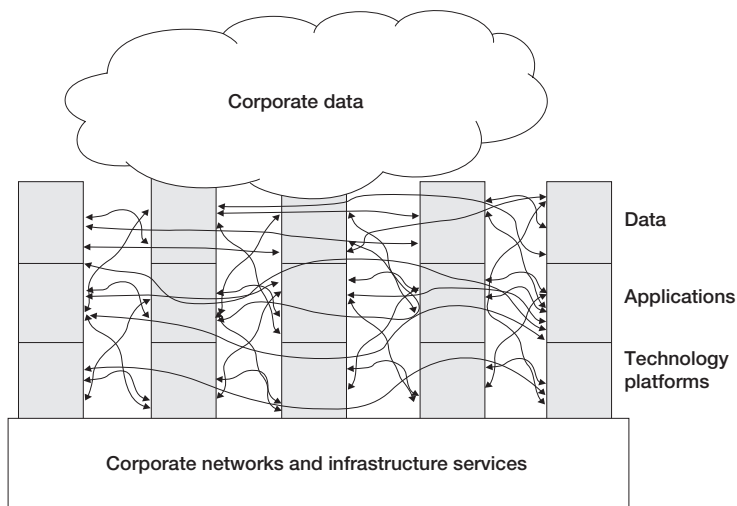
Figure 1-1 shows the combined effect of traditional approaches to IT development—a set of silos. Individually, the applications work fine. Together, they hinder companies' efforts to coordinate customer, supplier, and employee processes—they do not form a

foundation for execution. And the company's data, one of its most important assets, is patchy, error-prone, and not up to date. Companies often extract from silos to aggregate data from multiple systems in a data warehouse (the cloud in figure 1-1). But the warehouse is useful only as a reference—it does not offer real-time data across applications.

The many squiggly lines in figure 1-1 reflect efforts to integrate isolated systems supporting an end-to-end process. One IT executive in an investment banking company claimed that 80 percent of his company's programming code was dedicated to linking disparate systems, as opposed to creating new capabilities. This executive bragged that his developers were able to link together systems so effectively that no human being ever touched a transaction—every process was supported end-to-end by meticulously

FIGURE 1-1

Capability from traditional approach to IT solutions



integrated silo applications. But then he noted, “It’s a miracle they work.” Eventually this company’s lack of a foundation for execution made it a juicy takeover target. Today these systems are being replaced with those of the acquiring company.

Few companies are comfortable with a dependency on miracles. They want technology to reliably support existing processes. What’s more, they’d like their existing technology to enable future capabilities. These companies need to take a different approach to implementing IT-enabled business processes.

How Do You Build a Foundation for Execution?

The foundation for execution results from carefully selecting which processes and IT systems to standardize and integrate. Just as humans must learn how to ride a bicycle (and think hard about what they are doing while they are learning), the processes built into a foundation for execution require a great deal of concentration—for a while. Eventually routine business activities—just like bicycle riding—become automatic. Outcomes become predictable. The foundation for execution takes on another layer. A company’s identity becomes clearer, and executives can focus their attention on the future.

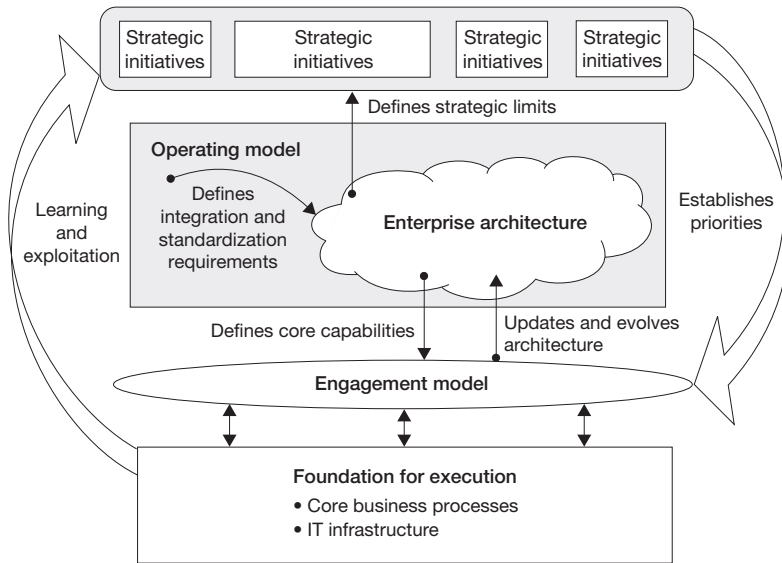
To build an effective foundation for execution, companies must master three key disciplines:

1. *Operating model.* The *operating model* is the necessary level of business process integration and standardization for delivering goods and services to customers. Different companies have different levels of process integration across their business units (i.e., the extent to which business units share data). Integration enables end-to-end processing and a single face to the customer, but it forces a common understanding of data across diverse business units. Thus, companies need to make overt decisions about the

importance of process integration. Management also must decide on the appropriate level of business process standardization (i.e., the extent to which business units will perform the same processes the same way). Process standardization creates efficiencies across business units but limits opportunities to customize services. The operating model involves a commitment to how the company will operate.

2. *Enterprise architecture.* The *enterprise architecture* is the organizing logic for business processes and IT infrastructure, reflecting the integration and standardization requirements of the company's operating model. The enterprise architecture provides a long-term view of a company's processes, systems, and technologies so that individual projects can build capabilities—not just fulfill immediate needs. Companies go through four stages in learning how to take an enterprise architecture approach to designing business processes: Business Silos, Standardized Technology, Optimized Core, and Business Modularity. As a company advances through the stages, its foundation for execution takes on increased strategic importance.
3. *IT engagement model.* The *IT engagement model* is the system of governance mechanisms that ensure business and IT projects achieve both local and companywide objectives. The IT engagement model influences project decisions so that individual solutions are guided by the enterprise architecture. The engagement model provides for alignment between the IT and business objectives of projects, and coordinates the IT and business process decisions made at multiple organizational levels (e.g., companywide, business unit, project). To do so, the model establishes linkages between senior-level IT decisions, such as project prioritization and companywide process design, and project-level implementation decisions.

FIGURE 1-2

Creating and exploiting the foundation for execution

© 2005 MIT Sloan Center for Information Systems Research and IMD. Used with permission.

Figure 1-2 illustrates how companies apply these three disciplines to create and exploit their foundation for execution. Based on the vision of how the company will operate (the operating model), business and IT leaders define key architectural requirements of the foundation for execution (the enterprise architecture). Then, as business leaders identify business initiatives, the IT engagement model specifies how each project benefits from, and contributes to, the foundation for execution.

Why Is a Foundation for Execution Important?

Our research found that companies with a solid foundation had higher profitability, faster time to market, and lower IT costs. These outcomes are universally beneficial and timeless—they were valu-