

Teaching ERP Implementation with Microsoft Dynamics Sure Step

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Abstract: This paper presents ideas of teaching Enterprise Resource Planning (ERP) implementation using Microsoft Dynamics Sure Step in a college classroom. The paper outlines a general approach and topics related to ERP implementation. Microsoft Dynamics and Sure Step Methodology is introduced. Ideas for classroom activities, student learning outcome and results from the sample assignment are included.

INTRODUCTION

Enterprise Resource Planning (ERP) system has been an integral part of business information systems for decades (Robert Jacobs and Weston, 2007). An extensive body of research has explored various ERP-related topics including, but not limited to, implementation, optimization, management, ERP tools, studying ERP, and educational issues related to ERP (Schlichter and Kraemmergaard, 2010).

At many universities, ERP system courses are offered as part of undergraduate as well as graduate-level business curriculums. Significant amount of resources are required from various parties in order to integrate ERP into the curriculum (Hepner and Dickson, 2013) including faculty (e.g., ERP training and developing course materials and assignments), an information technology department (e.g., maintaining ERP), and administration (e.g., subsidizing the cost of software, hosting, and faculty training). There are also many other factors that pose challenges for successful ERP education: the faculty team, funding, infrastructure, employer involvement, pedagogy, and leadership (Hepner and Dickson, 2013; Corbitt and Mensching, 2000).

This paper presents ideas of teaching ERP implementation using Microsoft Dynamics Sure Step in a college classroom. The next section outlines a general approach and topics related to ERP implementation. Microsoft Dynamics and Sure Step Methodology is then introduced. Ideas and suggestions for classroom activities are provided (Example assignment instructions and questions are included in Appendix 2). Student learning outcome results from the sample assignment are also included, followed by discussion and conclusion.

TEACHING ERP IMPLEMENTATION

One of the topics often covered in an Introduction to ERP class is ERP implementation, a complex and dynamic process in which an organization adopts an ERP software (Monk and Wagner, 2012; Motiwalla and Thompson, 2012). Examples of student learning objectives involving ERP implementation include:

- Defining ERP implementation
- Identifying common implementation strategies
- Describing the ERP implementation process
- Recommending appropriate ERP implementation methodologies
- Discussing success factors regarding ERP implementation

Teaching ERP implementation often starts with the System Development Life Cycle (SDLC), a conceptual model guiding software development and maintenance process. Common SDLC methodologies include the waterfall, spiral, and incremental/iterative models (Alshamrani and Bahattab, 2015). Traditionally, SDLC is the main methodology used to create, adopt, and maintain information systems including ERP systems. However, with the wide selection of off-the-shelf ERP software, it is often cost prohibitive for organizations to create their own ERP system compared to purchasing and customizing the software to fit their needs. Hence, ERP implementation is much less about creating software but adopting and customizing already-made software to fit organizations (Adnan et al., 2014). Both SDLC and ERP implementation share many similar aspects including the ultimate goal of successfully implementing an information system in an organization.

Similar to SDLC, the process of ERP implementation is broken into various stages or phases. This approach allows a large, complex system to be more understandable and manageable. There is no 'magic number' for how many phases of ERP implementation and there are many different ERP implementation models discussed in the academic literature (Adnan et al., 2014) as well as professional publications (Neal, 2010; Ultra Consultants, n.d.).

Many software vendors and consultants provide their own implementation methodologies. For example, Accelerate SAP (SAP), Sure Step (Microsoft), NetSuite One Methodology (NetSuite), Business Integration Methodology (Accenture), FastTrack for Oracle (Deloitte & Touche), and The Total Solution (Ernest & Young) (Motiwalla and Thompson, 2012).

MICROSOFT DYNAMICS AND SURE STEP METHODOLOGY

Microsoft Business Solution is one of the Tier I ERP software vendors offering various ERP software packages such as Dynamics AX, Dynamics CRM, Dynamics GP, and Dynamics NAV (Panorama Consulting Solutions, 2016; Bradford, 2014). With a market share of 9%, Microsoft Dynamics is a sound software option to use in the classroom as it is a well-established software from a reputable company. With the support from the Microsoft Dynamics Academic Alliance program (DynAA, see Appendix 1), adopting the Microsoft Dynamics software for classroom use is very affordable, requiring a relatively low monetary investment because it may be deployed using a cloud platform (e.g., Schultz, 2015).

Microsoft Dynamics Sure Step Methodology is the ERP implementation methodology for Microsoft Dynamics ERP software. The systematic, end-to-end, and scalable approach of this methodology may be used to guide the ERP implementation effort throughout the whole system life cycle. Microsoft Dynamics Sure Step Model breaks down ERP implementation into six primary phases: Diagnostic, Analysis, Design, Development, Deployment, and Operations phases. Each phase consists of a set of activities and tasks, resulting in deliverables that usually provide input to the next activities in the phase or the next phase in the methodology.

SUGGESTED CLASSROOM ACTIVITIES

To promote interest on this topic, students should be assigned to read a few articles about ERP implementation, with both positive as well as negative outcomes. To maximize active learning and the value-added time in the face-to-face classroom, these readings could be assigned as a part of class preparation in a blended teaching approach. Examples of articles include:

- Famous ERP disasters, dustups and disappointments (Wailgum, 2009)
- When Bad Things Happen to Good Projects (CIO, 2007)
- Harvey Building Products Retires Its Legacy Systems to Gain a 360-Degree View of Its Business (SAP insider, 2010) and related video Harvey Building Products Case Study (Itelligence's Official Channel, 2011).
- State Road & Tollway Authority (SRTA) Transportation agency handles increased responsibilities with Microsoft solution (Microsoft, 2015)

In the classroom, students are presented the concepts of ERP implementation, methodologies, and related process (see Bradford, 2014; Motiwalla and Thompson, 2012). Class discussions could proceed by asking students, individually

or in small groups, to identify appropriate implementation methodologies utilized in each case read previously and explain why [they think] the company utilized that approach. ERP success factors may also be discussed during the class period.

Microsoft Dynamics Sure Step is then introduced as the ERP implementation methodology for Microsoft Dynamics solutions, along with the Microsoft Dynamics Sure Step program as a tool to facilitate the overall implementation process. The class assignment for this portion, provided in Appendix 2, allows students to have hands-on experience using the Sure Step program to learn the details of each phase in the methodology and to explore the process flows and documentation supporting the overall implementation project. The answer key(s) to this assignment are available from the authors upon request.

Microsoft Dynamics Sure Step software is available for educators through the Microsoft Dynamics Academic Alliance (DynAA) program (See Appendix 1 for more information about DynAA). DynAA member institutions receive access to CustomerSource, an exclusive online portal providing access to product information and resources pertaining to the Microsoft Dynamics software suite. The institution’s CustomerSource account also allows access to the Microsoft Dynamics Sure Step software.

Please be aware that the user interface of the Microsoft Dynamics Sure Step Online is slightly different from the 2012 version (See Figure 1 and Figure 2). The content, however, should be very similar. The online version is available through the CustomerSource portal which students do not have access to. Therefore, the assignment in Appendix 2 instructs students to download and install the Sure Step program using a standalone desktop version. The accompanying materials for this assignment and questions are also written for the desktop version.

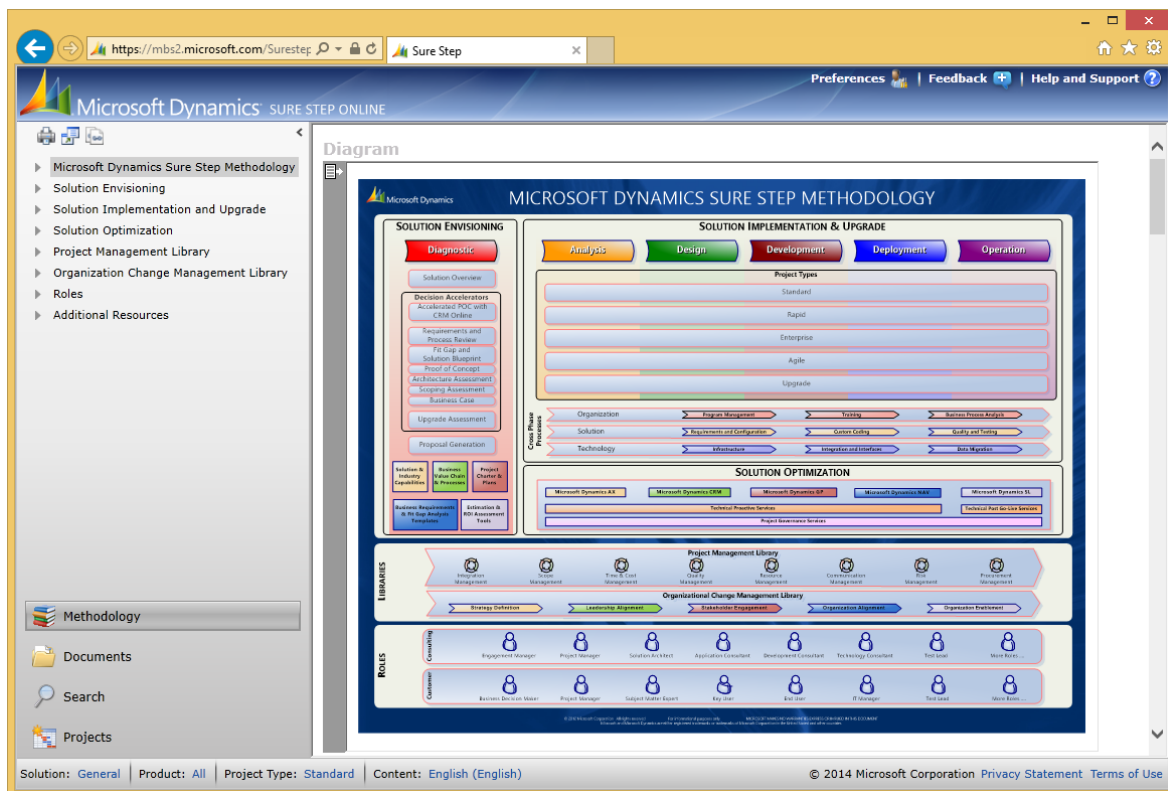


Figure 1: Microsoft Dynamics Sure Step Online

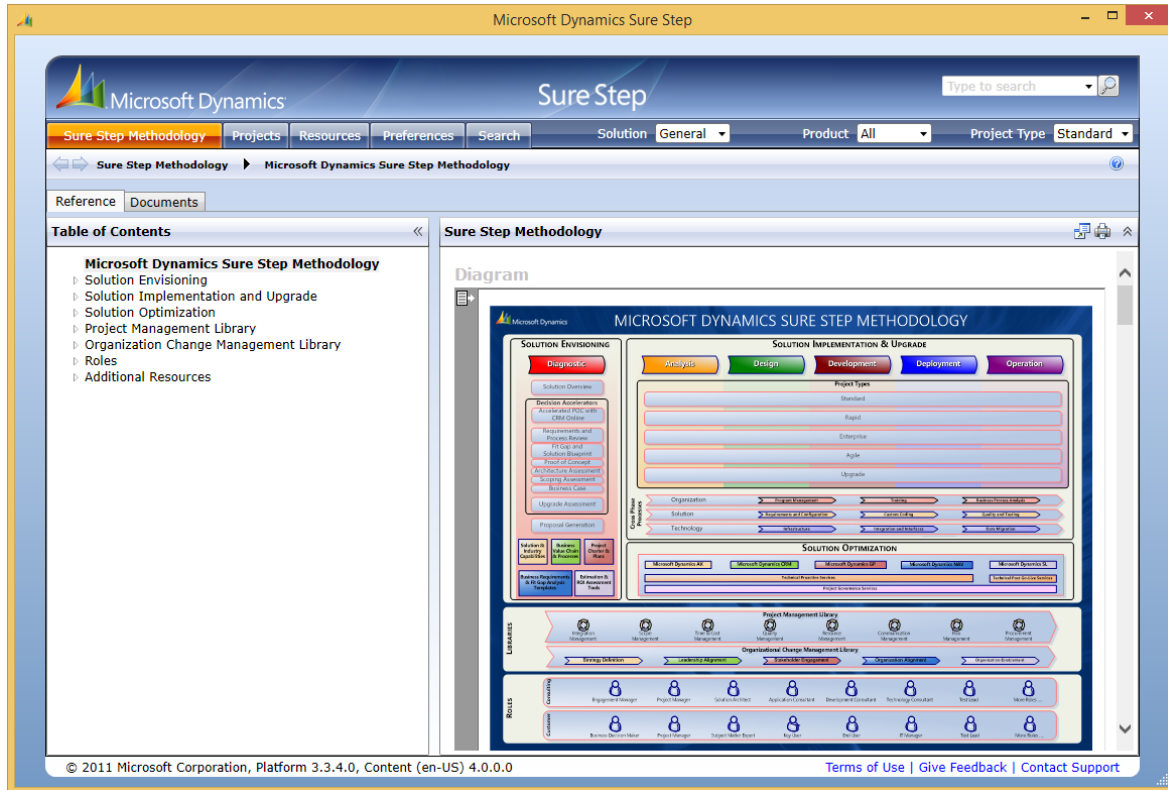


Figure 2: Microsoft Dynamic Sure Step 2012 (Desktop version)

STUDENT LEARNING OUTCOMES

The assignment on Appendix 2 was required by students enrolled in a 15-week ERP System class. A total of 14 students, which was the full class enrollment, completed the assignments with an average score of 79% and a median score of 85%. The assignment was completed outside the class time and took about 3 hours to complete. The direct evidence of student learning outcomes for this assignment are provided in Table 1.

Table 1: Student Learning Outcome Results of Microsoft Dynamics Sure Step Assignment

Outcomes	% of students received each rating				
	>=90%	>=80%	>=70%	>=60%	<60%
1. Identify and order phases of ERP implementation following Sure Step methodology	71.43%	7.14%	7.14%	0.00%	14.29%
2. Define various components of Microsoft Dynamics Sure Step model	64.29%	0.00%	14.29%	21.43%	0.00%
3. Describe different project types and deliverables supported by Sure Step methodology	50.00%	14.29%	14.29%	0.00%	21.43%
4. Navigate the Sure Step program	35.71%	14.29%	14.29%	14.29%	21.43%
5. Locate documents related to each phase of implementation	57.14%	0.00%	0.00%	0.00%	42.86%

DISCUSSION

The results in Table 1 indicate that the majority of students were able to achieve the learning outcomes specified for this assignment. They demonstrated the knowledge of the Microsoft Dynamics Sure Step Methodology and the majority of them successfully navigated the Sure Step program. A number of students had some difficulty locating required documentation for a specific phase of implementation (objective 5). Based on these results, additional guidance in the classroom may be necessary to ensure that students can locate relevant documents required for each phase of implementation.

CONCLUSION

Pedagogically, hands-on experience with computer software helps solidify the concepts as well as increases student confidence on the subject matter (Chou, 2001; Gist, Schwoerer, & Rosen, 1989). Therefore, ERP software vendors play a significant role in ERP education in college. They often provide ERP software, technical support, and user training at little or no cost. However, the university still has to find an appropriate hardware platform to run the program. The infrastructure for ERP could cost thousands of dollars regardless of the class sizes or the number of students. As a result, it is often economically infeasible for smaller universities to offer an ERP class using the same/similar platform as larger universities.

Sure Step methodology is a viable approach for teaching ERP implementation methodology in a college classroom for many reasons:

- It is an established methodology used in well-known ERP software packages
- It is a flexible methodology that may be applied to many scenarios
- The methodology is well documented with training materials and available to educators enrolled in the Microsoft Dynamics Academic Alliance (DynAA) program. (see Appendix 1 Microsoft Dynamics Academic Alliance for more information)
- Sure Step software provides hands-on experience and active learning in the classroom. The program is available also through the DynAA program.

Appendix 1 Microsoft Dynamics Academic Alliance (DynAA)

Microsoft Dynamics Academic Alliance (DynAA) provides free software and support to educational institutions who want to use Microsoft Dynamics Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) software in the classroom.

Member institutions receive the following Benefits:

- Free Microsoft Dynamics software licenses and product upgrades
- Free service and support, including access to the Microsoft Dynamics customer portal, which provides access to product downloads, documentation, knowledge bases, e-learning, and training material.
- Microsoft Dynamics curriculum and related materials
- Access to Microsoft-hosted events

For more information about Microsoft Dynamics Academic Alliance program, please visit

www.microsoft.com/dynamicsAA or email dynaa@microsoft.com

Appendix 2 Microsoft Dynamics Sure Step Assignment

Learning objective: At the end of this assignment, students should be able to

1. Identify and order phases of ERP implementation following Sure Step methodology
2. Define various components of Microsoft Dynamics Sure Step model
3. Describe different project types and deliverables supported by Sure Step methodology
4. Navigate the Sure Step program
5. Locate documents related to each phase of the implementation

Instructions: In this assignment, you will learn about Microsoft Dynamics Sure Step, the methodology for implementing Microsoft Dynamics Solutions.

1. Download and install Sure Step 2012. The software is available at <http://dynaa.azurewebsites.net/LCS/> (Sure Step 2012 Install link)
2. Download the SureStep Book. Also available at <http://dynaa.azurewebsites.net/LCS/> (Sure Step Book (Zip file) link)
3. Unzip the SureStep Book (Zip file). You will need the following two chapters for this assignment
 - Chapter 1: An Introduction to Microsoft Dynamics Sure Step
 - Chapter 2: Implementation Phases and Offerings
4. Answer the following questions.
 1. Microsoft Dynamics Sure Step model divides a full Microsoft Dynamics implementation project into six primary phases. Please match the phase name to the correct order.

Phase 1	a. Analysis
Phase 2	b. Deployment
Phase 3	c. Development
Phase 4	d. Operations
Phase 5	e. Diagnostic
Phase 6	f. Design
 2. Please match each component from the Microsoft Dynamics Sure Step model with its definition.

Phases	a. Defined sets of activities and tasks that result in the creation of deliverables.
Project Management Discipline	b. Features of Microsoft Dynamics Sure Step model that assists the customer in the decision making process.
Processes	c. The steps that are required to complete the activities and tasks in each phase.
Decision Accelerators	d. Groups of related activities and tasks that span multiple implementation phases.
Cross-phase processes	e. How-to information and best practices for groups of related project management tasks.
Preconditions	f. Guidance for starting, executing, or closing an implementation.
Project management processes	g. Definable work outputs from the processes performed that the project is chartered to deliver in each phase.
Deliverables	h. Dependencies that must be met prior to performing a phase, activity, task, or subtask.
 3. Microsoft Dynamics Sure Step provides diagnostic and implementation guidance at an Industry level and at a vertical and subvertical (or solution) level. On the Dynamics Sure Step program, use the filter buttons to view Client ready Deliverable related to Dynamics AX for Manufacturing Industry. Which TWO documents are provided to support the Operation phase?
 - a. Project Closeout Report
 - b. Health Check for Microsoft Dynamics AX
 - c. Project Review Document
 - d. Disaster Recovery Test Results
 4. Fit Gap Analysis is used to match organizational requirements to an ERP system. On the Microsoft Sure Step Program, go to Fit Gap and Solution Blueprint activity page. Locate the diagram for Fit Gap and Solution Blueprint Process Flow. According to the diagram, how long does it take to conduct requirement gathering workshops?

(Hint: Fit Gap and Solution Blueprint is one of the Decision Accelerator Offerings.)

 - a. 1-2 Days
 - b. 2-3 Days

- c. 3-4 Days
d. 4-5 Days
5. On the Microsoft Sure Step, please provide the location of the Project Repository in the space below. This should be the location specific to the computer that you have the program installed.
6. Match each phase label to its description of the primary purpose
- | | |
|---|----------------|
| _____ To develop the customization, integration, and data migration processes and to complete the setup and configuration of the solution. | a. Diagnostic |
| _____ To gather additional information for all areas that are in the scope of the project to help identify a solution that meets all the customer's requirements. | b. Deployment |
| _____ To support the customer technically and functionally during the initial Go Live period for the new system. | c. Analysis |
| _____ To collect information used to define a high-level project scope and then create a customer proposal for the implementation project. | d. Design |
| | e. Development |
| | f. Operations |
7. Match the each implementation phase with related deliverable(s)
(Hint: use the Microsoft Sure Step program to locate the deliverables for each phase)
- | | |
|-------------------|---|
| _____ Diagnostic | a. Functional Requirements Document (FRD) |
| _____ Deployment | b. Process Test Scenarios |
| _____ Analysis | c. Project Closure Report |
| _____ Design | d. User Acceptance Test Scripts |
| _____ Development | e. Statement of Work (SOW) |
| _____ Operations | f. End User Training |
8. Match each project type to its description
(Hint: Use Microsoft Sure Step program to locate information about each project type)
- | | |
|--|---------------|
| _____ This project type is the standardized approach for implementing Microsoft Dynamics solutions in complex single-site deployments, or in global/multi-site organization wherein country/site specific unique business needs have to be factored on top of a core solution. | a. Standard |
| _____ This project type can be used in situations characterized by a limited scope, where the basic application features are desired, and/or where the large majority of the customer's business processes are not considered as complex. | b. Enterprise |
| _____ This project type utilizes an iterative approach to implementing Microsoft Dynamics Solutions at a single site requiring specific features and moderate-to-complex customizations. | c. Upgrade |
| _____ This project type can be used for implementing Microsoft Dynamics solutions at a single site requiring specific features and moderate-to-complex customizations. | d. Rapid |
| | e. Agile |
9. Jacob is a system analyst at ABC Inc. His latest project is to assist with the Microsoft Dynamics AX implementation following the Sure Step methodology. Following a Fit-Gap analysis, ABC Inc. needs to customize a few processes on the Dynamics AX software. One of Jacob's responsibilities is to create the Functional Design Document (FDD) for each customization. He will start by looking at a sample FDD document from the Sure Step program.
Please help Jacob locate a Microsoft Word document called "FDD Customizations Sample for Microsoft Dynamics AX" on the Sure Step 2012 program (note that the actual file name will be different). According to this sample document, which two forms will be modified?
(Hint: Use the tree structure to locate the sub-Phase where FDD documents is created. The document is located on top of the Activity Page.)
- a. Purchase Order form and Sales form

- b. Vendor form and Order form
 - c. Sales form and Order form
 - d. Vendor form and Purchase Order form
10. Jacob is a system analyst at ABC Inc. His latest project is to assist with the Microsoft Dynamics AX implementation following the Sure Step methodology (this is an Enterprise project type). Working on the Analysis phase, Jacob needs to gather data migration requirements from the end users as well as IT department. Which one of the follow activities is NOT a part of the Gather Data Migration Requirements process? (Hint: On the Sure Step 2012 program, apply appropriate Product and Project Type filters. Locate the information on Analysis Phase and look for a sub-process called Gather Data Migration Requirements.)
- a. Identify Data Migration Requirements
 - b. Identify Data Migration Approach
 - c. Design Data Migration Requirements
 - d. Document Data Migration Requirements

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Biographical Notes

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Todd Schultz is a professor and director of Computer & Information Sciences at Augusta University in the Hull College of Business. His academic background includes a doctorate in operations research -- or analytics in today's vernacular -- but his research interests and practical experience of over 30 years are in quantitative programming, enterprise software, database, and business intelligence as an independent consultant and with firms such as American Management Systems and Ernst & Young Management Consulting Services. He currently serves on the advisory board of Microsoft Dynamics Academic Alliance.