

Computer Aided Strategic Planning of Digital Enterprises

Concepts, Methodology and a Toolset

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Concepts, Methodology and a Computer Aided Environment

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PREFACE

The objective of this book is to present a practical coverage of strategic planning, engineering and management of digital enterprises with emphasis on computer aided planning. This book is based on corporate experience, consulting assignments, teaching graduate level courses, and research in computer aided planning, engineering and management. The emphasis and format of the book has been greatly influenced by practical insights gained through numerous consulting assignments and discussions with practitioners from different industry segments and World class organizations such as the United Nations, the Fulbright Foundation, Bell Communications Research, IBM and Ford Motors. Development of graduate level courses in this overall area at the university of Pennsylvania, Harrisburg University of Science and Technology, and Fordham Graduate School of Business have also influenced this book. The salient features of this classroom tested book are:

- Emphasis on recent and relevant issues
- Focus on the planning, integration, security and administration of digital enterprises
- Mixture of business and technologies, not just business or pure technology
- Several case studies and examples to illustrate the key points.
- A step by step methodology that shows how all the pieces fit together
- A computer aided toolset (SPACE – Strategic Planning, Architectures, Controls and Education) that can be used in classroom exercises and hands-on corporate training workshops

The basic premise of this book, as stated previously, is that although strategic thinking and strategic planning are extremely important in organizations, they are not sufficient to assure success. The strategic plans have to be translated into working solutions that can be implemented and managed. Simply stated, all the activities in the entire Learn-Plan-Do-Check cycle, displayed in Figure 1, need to be paid equal attention.

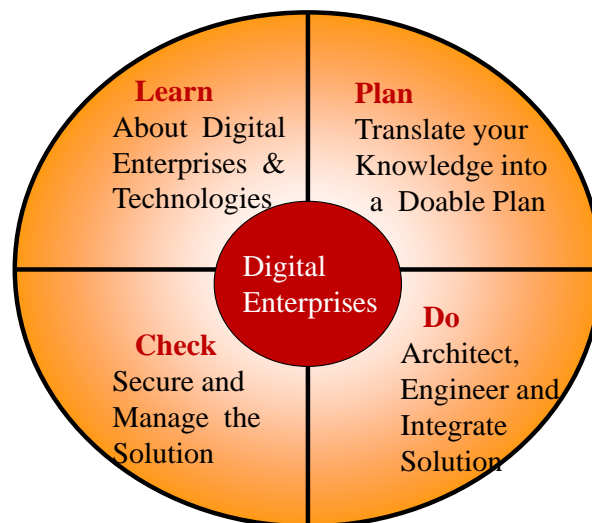


Figure 1: The Learn-Plan-Do-Check (LPDC) Circle

Quick Comparison with Other Books

Many books have been written so far on strategic planning (see a partial list of the recent books). Some emphasize business e.g., [Abraham 2012, Bradford 2001 and Olson 2012] while others concentrate on IS/IT e.g., [Boar 2001, Dhillon 2014, King (2015 and Ward 2001)]. This book attempts to span both. The key distinguishing features of this book are

- Focus on a computer aided planning, engineering and management environment for hands-on experiments for practical insights
- Discussion of the entire Learn-Plan-Do-Check (LPDC) cycle instead of one narrow topic
- Introduce a very simple LPDC methodology with sufficient details on each stage (e.g., business planning, application planning, technology planning, security planning) so that the reader can develop wholistic knowledge
- Show, through examples, how a wide range of patterns (e.g., business patterns, application patterns, technology patterns, and security patterns) can be used to develop practical solutions
- Provide heavily tested classroom materials that consist of powerpoint slides, student projects, homeworks, and hands-on experiment
- Discuss how latest digital technologies such as Big Data, IoTs, Analytics, and Artificial Intelligence influence the planning, engineering and management decisions
- Global perspective due to extensive practical experience with United Nations Projects that involved more than 50 developing countries

Recent Strategic Planning Books:

- Abraham, SC (2012), *Strategic Planning: A Practical Guide for Competitive Success*, second edition, Emerald House Publishing
- Bradford, R. (2001), *Simplified Strategic Planning: The No-Nonsense Guide for Busy People Who Want Results Fast*, Chandler House Press, 2001
- Boar, B. (2001), *The Art of Strategic Planning for Information Technology*, Second Edition, John Wiley, 2001
- Dhillon, G. (2014), *Strategic Information Systems Planning: Readings and Cases*, Semantic Books
- King, W.R. Editor (2015), *Planning for Information Systems*, Routledge Publications
- Olsen, E., (2012). *Strategic Planning Kit for Dummies, 2nd Edition*. John Wiley & Sons, Inc.
- Ward, J and Peppard, J. (2001), *Strategic Planning for Information Systems*, John Wiley & Sons

How to Use the Text, Courseware, and Toolset

It is very difficult to teach courses that cover concepts, methodologies, design tradeoffs, and evaluation of different solutions by relying on just powerpoint slides and discussion of case studies. Engaging the students in problem solving exercises is a valuable learning experience. Based on several years of consulting, management, and university teaching experience, I have assembled a learning package, shown in Figure 2, that consists of this text, lecture materials and a computer aided toolset. This package has been used in academic courses (management/engineering schools) and corporate training with very good results.

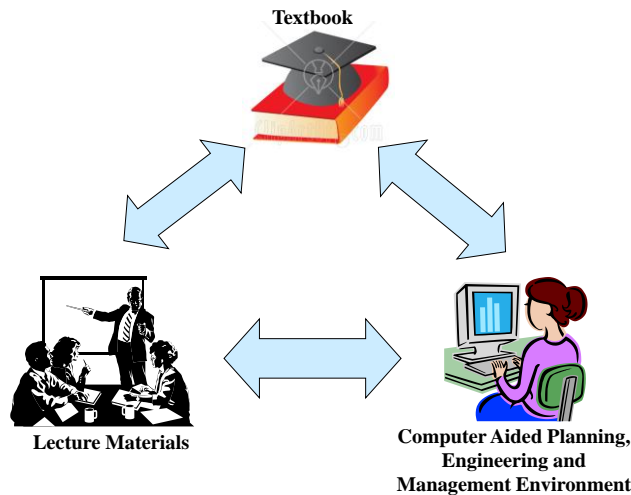


Figure 2: The Learning Package

Textbook: This practice-based book examines the most recent and relevant issues in strategic planning, engineering and management of digital enterprises and services. Topics include digital enterprises, strategic planning methodology, patterns to support strategic planning, business strategies, enterprise applications, digital infrastructure, and computer aided planning, engineering and management. Several case studies and examples illustrate the key points.

Computer Aided Planning, Engineering and Management Environment: A practice-based computer aided environment is available to support the text and the lecture materials. This environment called SPACE (Strategic Planning, Architectures, Controls and Education) can be used and has been used extensively for academic as well as corporate training courses on IT planning, SOA, enterprise architectures and integration, information security, IS analysis and design, project planning and IT governance. The students seem to really enjoy SPACE experiments and see typically “dry” topics come to life. A quick overview of the SPACE environment is given in Appendix A.

Lecture Materials (Courseware): Classroom tested lecture slides can be freely downloaded from the author site. Instructors can access student projects, sample exams, and other teaching materials. Through an instructor only site. A sample course outline is presented in Appendix B. See the author site (www.amjadumar.com) for details.

APPENDIX A: SPACE (Strategic Planning, Architectures, Controls and Education) – A Toolkit for Practitioners & Teachers

The SPACE environment has been developed to support the planning methodology described in the previous section. SPACE consists of the following components (shown in Figure 3):

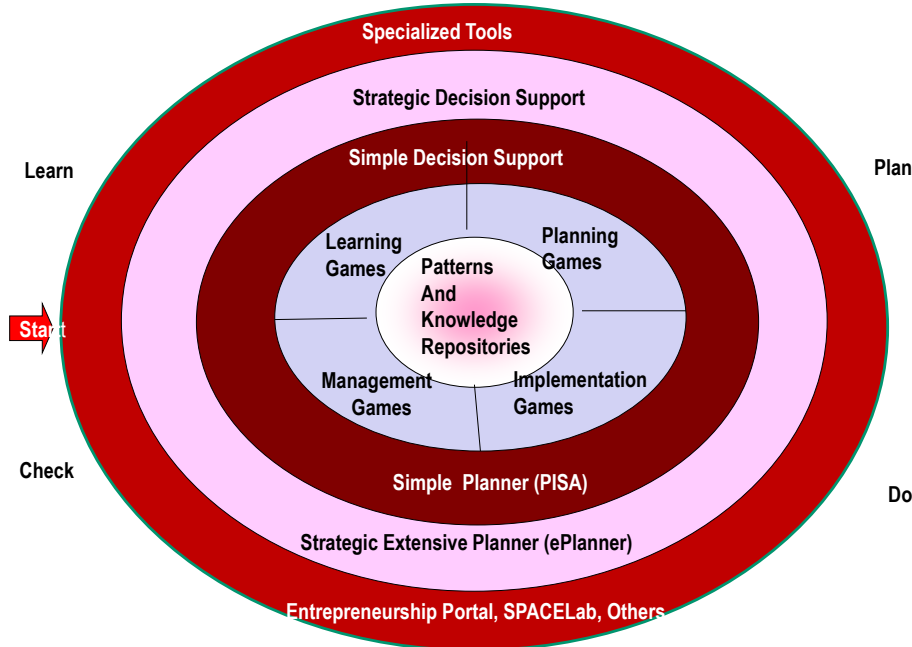


Figure 3: Conceptual View of SPACE (Strategic Planning, Architectures, Controls and Education)

- **Patterns Repository for Industry Sectors (PARIS)** that capture the core knowledge needed by SPACE (almost 200 services in more than 12 sectors such as healthcare, education, public safety, public welfare, transportation, and others).
- **Games and Simulations** that support decisions in strategic analysis, mobile services planning, interagency integrations and health exchanges, application migration versus integration tradeoffs, risks and failure management, and quality assurance.
- **Simple Planner (PISA)** that can be used to quickly build real life business scenarios for small businesses and then guide the user through IT planning, integration, security and administration tasks by using best practices.
- **Extensive Planner (ePlanner)** that can be used for small to large scale government and the private sectors who need to strategically plan, architect, integrate, and manage the needed IT initiatives quickly and effectively by using the best practices.
- **Specialized Initiatives and Tools** that are built on top of the SPACE environment (i.e., they invoke many of the SPACE capabilities). Examples of these tools are the SPACE Lab (an online training center), an Entrepreneurship Portal, and several specialized advisors and tools to support the UN initiatives and other partnerships. More tools and initiatives are always being added to this layer.

SPACE is currently being used to help developing countries and small to medium businesses to plan and engineer their systems. In addition, SPACE is being used extensively to support graduate courses and professional education in strategic planning and enterprise architectures and integration. Please visit the SPACE site at www.space4ict.com for additional details).

APPENDIX B: Suggested Usage in a Course

COURSE TITLE: Strategic Planning of Modern Digital Enterprises

Description: This course introduces the basic principles (systems thinking and quantitative methods) of systems engineering and shows how these principles can be used to strategically plan, integrate, secure and administer the complex information systems (IS) that support and drive the current and future digital enterprises. The first part of the course will introduce systems engineering principles and review the emerging features of current and future enterprises (e.g., service orientation, reliance on web and mobile services, globalization, and agility). The second part will explicate the role of IT to enable and drive such enterprises and will explain the building blocks of the modern information systems that span business processes, enterprise applications, databases, computing and platforms, and network services. The final segment explores how the needed IT systems can be planned, engineered/re-engineered, integrated, secured and managed by using the systems engineering principles. Extensive case study method will be used throughout the course.

Course Texts:

The main course text is the "Enterprise Planning" Course Pack, available from PayPal, that contains:

- *Textbook: "Strategic Planning, Engineering and Management of Digital Enterprises"*, by A. Umar, Target Publication. 2020.
- Four Month Access to a Computer Aided Planning, Engineering and Management Environment called SPACE.

Also Suggested Text: Management Information Systems, Managing the Digital Firm, Kenneth C. Laudon and Jane P. Laudon, Prentice-Hall (13th edition or later)

Additional Reading Materials:

In addition to the Coursepack, the course will rely on several external sources of information such as the following:

- Abraham, SC (2012), *Strategic Planning: A Practical Guide for Competitive Success*, second edition, Emerald House Publishing
- Boar, B. (2001), *The Art of Strategic Planning for Information Technology*, Second Edition, John Wiley, 2001
- Dhillon, G. (2014), *Strategic Information Systems Planning: Readings and Cases*, Semantic Books
- King, W.R. Editor (2015), *Planning for Information Systems*, Routledge Publications
- Ward, J and Peppard, J. (2001), *Strategic Planning for Information Systems*, John Wiley & Sons
- Articles on different aspects of digital organizations (theoretical models, examples and case studies)
- Literature on strategic planning and selected case studies

Overall Course Approach

The, course as displayed in Figure 4, consists of the following modules

- Course Start: Introduction to the course materials and the SPACE environment
- Warmup: HW1, Exam1, and Project1
- Midpoint: HW2, Exam2, and Project2
- Conclusion: HW3, Exam3, and Project3

Notes:

- An instructor can easily customize this course for 3 modules instead of 4
- Purpose of the homeworks is to prepare the students for the exams
- All projects require hands-on experiments
- The focus of homeworks is on concepts and the projects focus on use of the concepts in real life situations

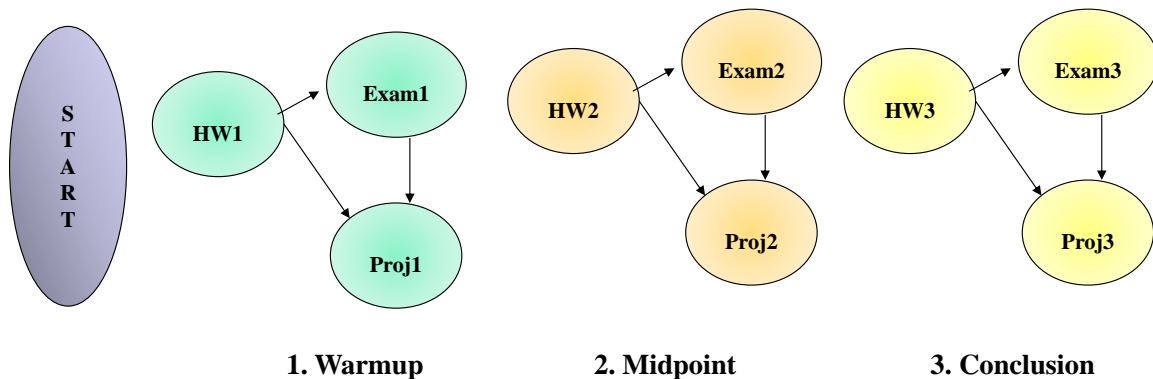


Figure 4: The Overall Course Approach

Additional Information about the Projects:

All projects are team projects and each team forms a company. Each team goes through the Learn-Plan-Do-Check cycle for the company that they have formed. Specifically, the students do the following:

- **Project 1:** Develop a Strategic business Plan for the chosen company by using the well known models such as SWOT, Porter, Critical Success Factors, PESTLE, etc. The students also do same hands-on experiments by using the SPACE games.
- **Project2:** Develop a Technology Plan for the same company by using the latest technologies (e.g., Big Data, IoTs, Mobile Apps, wireless sensor networks, web technologies, Business Analytics, latest ERPs, etc). The students also do some hands-on experiments on an Entrepreneurship Portal
- **Project3:** Hands on Experiments self assessments by using the SPACE Computer Aided Planning Tools and other planning tools available in the marketplace. The students basically compare and contrast the plans generated by them against the available planning tools. The students also conduct research into a special topic of their choice.

Course Outline

Note: U(Ch 1) indicates chapter 1 from Umar Book

Week	MODULE 0: Introduction to Digital Enterprises and Planning	Readings (Umar)	Graded Assignments
1	Orientation and Course Overview,	U (Ch.1)	
2	Overview of Strategic IS Planning, Patterns and Toolset	U (Ch. 2)	HW1 & Exam1 Discussion
3	Examples and case studies	U (Ch. 3)	Proj1 – Discussion
	MODULE 1: Business Strategies, Processes and Applications		
4	Introduction to Modern Digital Enterprises, Business Strategy, Organizations and Management Systems	U(Ch. 4)	HW1 & Exam1 Due
5	Global eBusiness Information Systems Engineering and Management in the Digital Enterprise	U (Ch.5)	
6	Enterprise Applications & Digital Business (Electronic Commerce, Electronic Business, Digital Government)	U (Ch. 6)	Project1 Due
7	Synching and Discussions		HW2 , Exam2 & Proj2 Discussion
	MODULE 2.Digital Infrastructure and Architectures .		
8	Enterprise Architectures and IT Infrastructure Overview	U (Ch. 7)	
9	Data Bases, Data Mining and Business Intelligence	U (Ch. 8)	HW2 Due and Midterm (Exam2)
10	Telecommunications, Web, and the Internet	U(Ch.9)	
11	Information Security Management	U(Ch. 11)	Proj2 Due
	MODULE 3: Artificial Intelligence (AI) and Computer Aided Planning		
12	Knowledge Management and AI	U(Ch. 10)	
13	Computer Aided Planning, Engg & Mgmt	U(Ch. 11)	HW3 Due
14	Systems Development and Systems Management		Proj3 Due
15	Trends and Wrapup		Final Exam (Exam3)