THE ILS MANAGER'S LSA TOOLKIT

with Availability Engineering

Dick Biedenbender
Florence Vryn
John Eisaman

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Availability Engineering

Dick Biedenbender

Florence Vryn

John Eisaman

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The ILS Manager's LSA Toolkit

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Preface

As this book goes to print, the 1A LSA standard is slowly maturing and the 2A standard has been replaced by the 2B standard. CALS is beginning to have a major impact on LSA/LSAR.

As we survey the evolution, practice, and use of the LSA standards, two conflicting messages are found. First, anyone who reviews the history of the two standards can honestly point with pride to significant progress over the past 15 years. However, despite this progress, one also encounters considerable dissatisfaction with the current standards, particularly in terms of practice. I as well as the authors have encountered this numerous times. In late 1990, a knowledgeable senior OSD official was publicly stating in presentations that for some reason LSA had problems in implementation. From the industry end of the spectrum, the industry CALS LSA subgroup received two completely independent formal suggestions that the tasks in the 1A standard need to be better defined.

Making LSA/LSAR work is what this book is all about. It provides detailed suggestions on how to write better LSA contract requirements and alternatives on how to execute the LSA tasks. Thus this book is unique in that it discusses both sides of the coin. Understanding the other side can be of significant benefit in developing cost-effective responses.

The principal and secondary authors of the book have a unique range of experience, and this book covers development of the LSA standards, development of government guidance for application, review of contractor responses to LSA requirements, and last but not least, actual performance of the LSA tasks. Again, this range of experience provides the reader with a unique view across both requirer and performer perspectives.

The book is also unique in that it presents many new developments in LSA/LSAR which are not yet incorporated generally into DOD guidance. The book purposely includes significant amounts of detail, with numerous examples and checklists. Most readers will find a lot of ideas in the material on how to actually do some of the LSA tasks, a subject not really addressed in depth in the existing literature.

Some readers will find parts of the book at variance with their con-

victions in the sense that they disagree with some parts or feel they have a superior approach. Experts in all disciplines hold a variety of opinions on appropriate techniques. LSA is no exception. Hopefully, the book will foster further dialogue exploring differences that will lead to advances in LSA. I am confident that for every point of disagreement, something useful will be found.

This book has been developed for government as well as contractor personnel. The tips on tailoring and focusing, or further refining, the requirements in the 1A standard should help anyone write more cost-effective requirements. The responses should reflect both better understanding and improved results.

Lastly, a word about commercial products. Most people in the ILS world understand that commercial product development is a suitable candidate for the selective application DOD ILS/LSA. Linda Green, in her book, *Logistics Engineering*, mentions several companies who have actually done this. The example of the development of a commercial lawn mower was chosen because the product is familiar to most readers and it illustrates a simple commercial application.

There is a need for the information in this book. We have expended great effort to make the format user-friendly. The result of more specific information and detailed guidance will be decreased costs of analysis, increased productivity, and products that better meet the needs of the consumer, both government and civilian. It will be a useful addition to libraries. Readers will find in it ready solutions/departure points for problems which suddenly confront them in practice.

Jim Jones

Acknowledgments

This book would obviously not be possible without the cooperation of many people. It also would have been impractical, if not impossible, without the technology of the word processor.

In terms of motivation to do this book, I would like to express my appreciation to Walter Finkelstein and Jim Fulton.

In terms of book preparation, obviously, Florence Vryn and John Eisaman, my collaborators, deserve thanks. John lent his LSAR expertise to the preparation of Chapter 6 and to four of the appendixes as well as some of the graphics material. Flo contributed in a major way to Chapters 2 and 3 and the appendix on the new DOD acquisition policies. Equally important, she was especially helpful to me in structuring the book and in ensuring that the industry perspective is adequately represented.

I would also like to mention George Desiderio, OSD ILS/LSA Focal Point, John Peere, chief of LSA/LSAR at MRSA, and Bert Upton, head of ILS at NAVSEA, for providing some of the material used in the book preparation.

Special thanks go to the people at Interlog. John Brown, Del Dalpra, and Rich Richardson lent management support. Jim Campbell assisted in numerous ways. Joe Murray helped prepare some of the material for some LSA guidance prepared for a DOD program office which was adapted for use in this book. Jim Heidmous did much of the lawn mower example used in Chapter 5. C. C. Johnson was unbelievably good in rounding up and preparing graphics.

Last, but not least, I would like to thank my wife Lucy, who has helped with the word processing and who, on more than five occasions, saved my "life" in terms of saving "lost" work or finding and unlocking hidden word processing codes which threatened to halt all progress.

While I have tried to acknowledge sources, recognizing that these were drawn from a library collected over 15 years, I apologize for any omissions.

Dick Biedenbender

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Chapter

1

Introduction and Background

1.0 Introduction

This chapter presents an overview. It specifically discusses

Objectives (1.1)
Intended audience (1.2)
Synopsis (1.3)
Intended use (1.4)
Anticipated benefits (1.5)
Requirer versus executor (1.6)
Consider supportability, not just ILS/LSA (1.7)
Suggested library (1.8)
Updates (1.9)

This book is primarily about MIL-STD-1388-1A, "Logistics Support Analysis" (LSA),[2] and its commercial counterpart, Availability Engineering. This book is intended to supplement and augment current books, such as those by Jim Jones[3] and Ben Blanchard.[4] Although there is some unavoidable overlap, we have tried to keep this to a minimum. While various management aspects of MIL-STD-1388-2A/2B, "DOD Requirements for a LSA Record" (LSAR),[5] are discussed, this is not a book about minute details of entering LSAR data. It does extensively discuss approaches to LSAR requirements and execution and key management concerns in developing the LSAR.

The basic purposes of the book are to

- Relate LSA to major new management initiatives.
- Integrate in one book currently fragmented information.
- Provide an understanding of both government and contractor perspectives.
- Provide "how to" ideas to both parties for preparing more cost-effective
  - LSA requirements for Request For Proposals (RFPs).
  - LSA task analyses.
  - LSA proposals/plans/procedures manuals.

- Provide new ideas and departure point tools.

In short, the overall purpose of this book is to provide government and contractors with management information to manage LSA (and its commercial counterpart, Availability Engineering) more cost-effectively. It has become increasingly clear that the principles and methods of defense integrated logistics support/logistics support analysis (ILS/LSA) are adaptable to commercial projects. Dick Webster, one of the pioneers in applying ILS commercially, mentioned applications to commercial products such as transportation, electronic systems, power generation, information processing, heavy equipment, communications, light equipment manufacturing, the equipment service industry, and medical equipment in a presentation to the 1991 Society of Logistics Engineers Symposium. Examples of specific techniques used are Operational Availability Analysis, Life Cycle Costing (LCC), operation and maintenance feedback systems, built-in remote diagnostics, and readability/understandability. Reasons why defense logistics practices are increasingly of use commercially are discussed in Chap. 2.

Another trend of interest to many readers is the growing use of software and its implications logistically. This issue is probably a key factor to the near- and long-term future of the logistics profession. We discuss evolving software/ILS/LSA relationships in various parts of this book.

1.1 Objectives

We have been involved in the current LSA and LSAR standards since their inception. As Jim Jones says in the Preface, although a lot of progress has been made, many practicers on both sides of the LSA equation feel that further improvements in the standards and applications are needed. This is particularly true of MIL-STD-1388-1A. Thus, one of the objectives of this book is to consolidate in one place many of the "lessons learned" at the working level. In many cases this involves more "how to" information about what to require as well as "how to" execute. This book presents both new and more in-depth material on tailoring requirements and new approaches to LSA task performance and execution. The book also contains a more in-depth discussion of system readiness and availability than found elsewhere. While the book contains significant amounts of detail, it is not a "cookbook." Experiences with MIL-STD-1388-1A are not uniform. Some readers may find some parts of this book at variance with their experience. The majority, hopefully, will find parts that are immediately and directly applicable or that offer enough information to enable them to remove a mental block and/or devise superior approaches.

We have deliberately addressed both the requirer and the executor aspects, since we have found that it helps both parties to perform more effectively if they better understand the other's perspective.

In short, this book

Summarizes the best of government guidance in one place.

Contains new material not addressed anywhere in government guidance or the literature.

Incorporates numerous lessons learned but not yet reflected generally in widely available LSA documentation.

Contains numerous examples, checklists, and possible management tools potentially useful to the reader.

Discusses the application of LSA to software-intensive programs, since the use of software is rapidly growing.

1.2 Intended Audience

While the primary intended users of this book are obviously ILS/LSA managers in both government and industry, numerous other specialists could use it as a reference. A partial list of such specialists includes

- System engineering managers/specialists
- LSA and availability engineering analysts
- R&M engineers/specialists
- Spares/repair managers/specialists
- Training managers
- Publication managers/engineers
- Maintenance engineers
- Test equipment engineers
- Software managers
- Configuration management specialists
- Contracts and marketing managers

The material presented incorporates both government and industry experiences and practices. It has been updated to reflect evolving management and acquisition practices and technology trends. Much of the material has been used successfully as the basis for LSA evening courses at the university level and in courses conducted at both defense and contractor facilities. This book could be used as a basis for one of the courses in a logistics major at the junior, senior, or graduate level.

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