



Electronic Laboratory Notebooks: A Foundation for Scientific Knowledge Management Edition V Table of Contents

Executive Summary

Chapter 1 A Foundation for Scientific Knowledge Management

- Introduction
- What is Knowledge Management?
- KM Lessons Learned
- Paper Laboratory Notebooks and ELN
- The Use of ELN in a Knowledge Management Strategy

Chapter 2 Electronic Laboratory Notebooks

- Definition of an ELN
- Why an ELN?
- ELN Evolution
- ELN Architecture
- ELN as a Component of Informatics Architecture
- ELN Reference Architecture
- Commercially Available ELN Products
- DoitYourself Option
- History of ELN

Chapter 3 Application of ELN to Example Use Cases

- Synthetic Chemistry Single Product Reaction
- Pharmacology Locomotor Study
- Bioanalytical Procedure Execution ELN

Chapter 4 The Benefits of an ELN

- Introduction
- Example Case
- User Experiences
- General ELN Benefits
- Downsides to an ELN Implementation

Chapter 5 Legal and Regulatory Considerations

- Patents
- Hybrid or Not?
- Pharma and Electronic Records
- Legal Changes Affecting Electronic Discovery
- US Patent and Trademark Office
- US Federal Rules of Evidence
- Record Admissibility
- Records Management
- Record Preservation
- Government Recognition of Electronic Records
- Regulatory Considerations

Chapter 6 Technology

- ELN in the Cloud
- Survey of Potential ELN Users
- Cloud Security
- ELN Architectures
- Web Services and Services Oriented Architectures
- Data Types and Metadata
- Information Lifecycle Management and Storage
- Data Mining
- Data Organization
- Interoperability and Integration
- Future Trends in ELN Technology
- Accessing the ELN Software in the Laboratory

Chapter 7 Security, Integrity, Signatures, and Time Stamps

- System Security
- Introduction to the ISO 27001 series
- Record Authentication and Digital Signatures
- Digital Signatures, Public Key Cryptography
- Time Authentication

Chapter 8 Change Management

- Challenges
- Data Management Challenges
- Project Challenges

Frameworks for Change

Chapter 9 Defining a Project Strategy and Requirements

- Strategic Implications of an ELN
- Vision and Strategy Development Process through Product Selection
- Building a Business Case - Calculating a Return on Investment

Chapter 10 Requirements

- General Capabilities
- Domain Specific Requirements

Chapter 11 Implementation

- A Methodology for Implementation
- Lessons Learned
- Communication

Chapter 12 Market Drivers and Restraints

- Biopharmaceuticals
- Other Markets

Chapter 13 Size of the ELN Market

- Background Data
- R&D ELN Market Size - Units
- R&D ELN Market Size - Software Sales
- The Market for Systems in Quality Assurance and Control

Chapter 14 The Current Market for ELN

- Sales made prior to 2011
- R&D
- Quality
- Characteristics of ELN users
- Supplier Market Positions
- Dislikes
- Changes in Support
- Where systems are used
- Comparison of Installed Domains to Areas of Potential Use
- Perceptions of Suppliers

Chapter 15 ELN Products

- Comparing Products
- Accelrys – Symyx Notebook, iLabber (Contur)
- Agilent Technologies – OpenLAB ELN
- Arxspan – ArxLab
- Asseco – shareSignELN
- Axiope eCAT
- Cognium Systems iPad
- Edge Software Consultancy BioRails
- iAdvantage eStudy
- IDBS EWorkbook, BioBook, ChemBook
- KineMatik eNovator
- Laboratory Data Solutions Labnotes
- LABTrack LABTrack ELN
- LabWare – LabWare ELN
- NoteBookMaker NotebookMaker ELN
- Microsoft Microsoft SharePoint
- PerkinElmer Informatics ENotebook (Formerly CambridgeSoft), Nexxis (Formerly Labtronics)
- Rescentris CERF
- STARLIMS STARLIMS Electronic Notebook
- VelQuest SmartLab
- Waters Vision Publisher

Chapter 16 The Future of ELN

Appendices