

Nb. Boxes are clickable.

- Abstract
- Database Design and the Conceptual Schema
 - Data Model Development
 - Requirements Analysis
 - View Modeling
 - View Integration
 - The Conceptual Schema and Semantic Descriptions
 - Figure 1: Generalization Examples
 - (a) Generalization Hierarchy
 - (b) Three-dimensional Representation of Generalization
 - Figure 2: Schema Specification for a Database
- The REA Accounting Model
 - Economic Resources and Events
 - Figure 3: Generalization of Accounting Stocks and Flows
 - Economic Resources
 - Economic Events
 - Stock-flow
 - Duality
 - Economic Agents and Units
 - Figure 4: Generalization of Accounting Participants
 - Economic agents
 - Economic units
 - Control
 - Responsibility
 - Generalized Framework Summary
 - Figure 5: The REA Accounting Model
 - (a) Entities and relationships
 - (b) Role declarations
- Database Design With the REA Framework
 - Initial REA Example
 - Figure 6: Initial REA Example
 - Conclusion Materialization
 - Things to Materialize Conclusions About: Resources and Claims
 - Figure 7: Event Imbalances as Resources and Claims
 - Methods for Producing Conclusions: Procedures
 - Figure 8: Procedure Types
 - Conclusion Materialization Summary
 - Design Decisions Based on Specific Aspects of Existing Practice
 - Claims as Base Objects
 - Temporal Summation of Event Data
 - Event Partitioning and Combination
 - (a) Expensing of immediate services
 - (b) Transfer of materials
 - Figure 9: Event Combinations
 - Macro-level Duality
 - Figure 10: Matching as Macro-Level Duality
 - Equity Transactions
 - Existing Practice Summary
- Conclusion and Future Research Directions
 - References

Nb. Boxes are clickable.

- Abstract
- Database Abstraction Process
 - Figure 1 "Database Abstraction Process"
- An Accounting Data Model
 - Identification of Entity|Relationship Sets
 - Figure 2 "Objects, Agents, Events, Model, and Relationships"
 - Construction of an Entity-Relationship Diagram
 - Figure 3 "A One-to-One Correspondence"
 - Figure 3a "Two Related Event Sets"
 - Figure 3b "E-R Diagram"
 - Figure 4 "A One-to-Many Correspondence"
 - Figure 4a "Two Related Sets of Events"
 - Figure 4b "E-R Diagram"
 - Figure 5 "A Many-to-Many Correspondence"
 - Figure 5a "Related Object and Event Sets - Two Views"
 - Figure 5b "E-R Diagram"
 - Identification of Characteristic Mappings
 - Figure 6 "E-R Diagram for the Entire Retail Enterprise"
 - Figure 7 "Characteristic Mappings Defined on Entity Set INVENTORY"
 - Figure 8 "Characteristic Mappings Defined on Entity Set SALE"
 - Figure 9 "Characteristic Mappings Defined on Relationship Set SALE Line Item"
 - Organization of Data Into Entity|Relationship Tables
 - Figure 10 "SALE Entity Table, and INVENTORY Entity Table"
 - Figure 10a "SALE Entity Table"
 - Figure 10b "INVENTORY Entity Table"
 - Figure 11 "Relationship Table for SALE Line Item"
 - Figure 12 "Relationship Tables for PURCHASE Line Item and SALE Payment"
 - Figure 12a "Relationship Table for PURCHASE Line Item"
 - Figure 12b "Relationship Table for SALE Payment"
- Reconciliation of Traditional Accounting with the New Data Model
 - Comparison with Relational Model
 - Summary of Model Concepts and Advantages
 - Top Down Approach for the Whole Enterprise
 - Ability to Integrate with any Database Model
 - Vehicle for Incorporating Measurement Concepts and Causal Double-Entry
 - Sound Theoretical Basis for "Events" Approach to Accounting
 - Considers Wide Range of Decision Models Using Multidimensional Measures
 - Improved Ability to Aggregate Data
- References

Nb. Boxes
are clickable.

1. Introduction

2. Accounting Information Systems

2.1 Conventional Model

Figure 1 Conventional Accounting Model

2.2 Events-Accounting Systems

3. The Entity-Relationship Accounting Model

3.1 Introduction

3.2 Declarative Aspects

Figure 2 Accounting Entities and Relationships

3.3 Procedural Aspects

3.4 Integration with Other Functional Areas

Figure 3 Triggered Update of Resource Set

Figure 4 Accounting Views

Figure 5 Integration of Accounting and Non-Accounting Elements

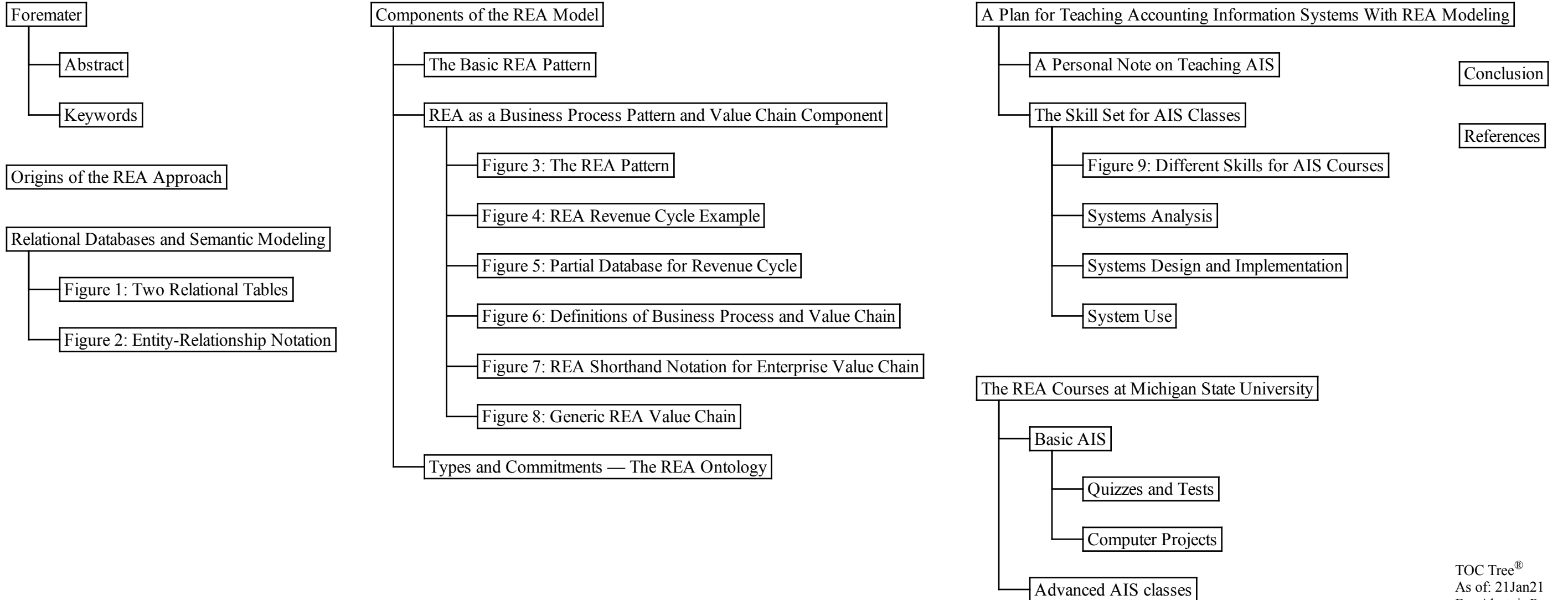
4. Conclusion

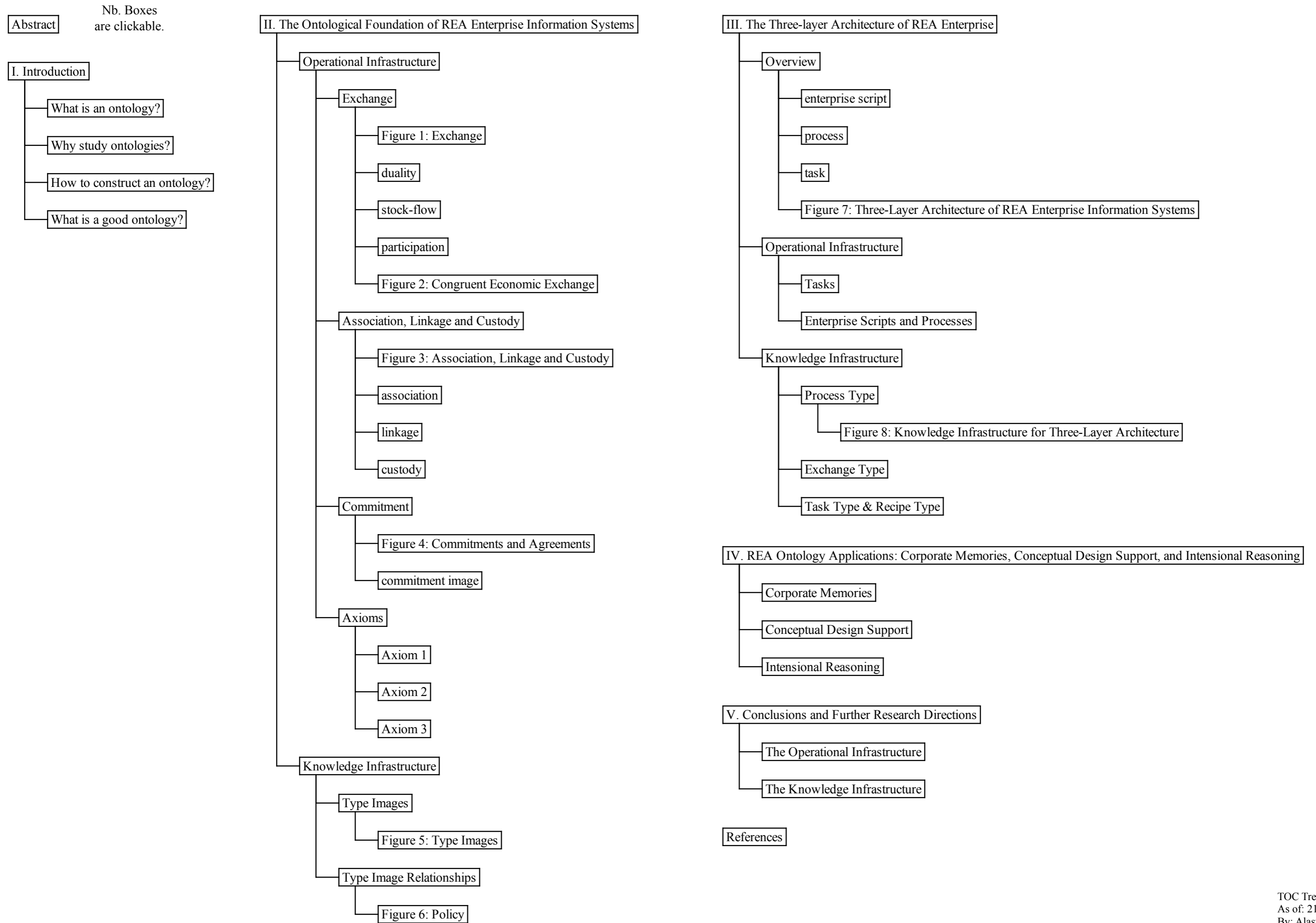
Acknowledgements

References

Nb. Boxes are clickable.

William E McCarthy, "The REA Modeling Approach to Teaching Accounting Information Systems," Issues in Accounting Education (November 2003), pp. 427-441.





Abstract

Nb. Boxes are clickable.

- 1. Introduction
 - Ornithopter Analogy
- 2. An REA modeling example
 - 2.1 Sy's Fish
 - 2.2 The basic template – Resource-Event-Agents
 - Figure 1 REA Instantiation
 - 2.3 Economic event templates at different levels of abstraction
 - Enterprise Value Chain
 - Figure 2 Different REA Abstraction Levels
 - Working Heuristic
 - Implementation Compromises
 - Levels of Abstraction
 - Figure 3 "Sy's Fish" Value Chain
 - Figure 4 Customer-Driven Value Chain
 - Portfolio of Attributes
 - 2.4 Full REA modeling, interoperability of object components, and implementation compromises
 - Figure 5 Possible REA Compromises for Sy's Fish
- 3. The REA model and object-oriented analysis|design methods
 - 3.1 REA implementation platforms -- databases, knowledge-bases, and object-oriented systems
 - 3.2 Coad patterns for analysis and behavioral abstraction
 - 3.3 Use Cases of Jacobson
 - 3.4 Design patterns of Gamma, Helm, Johnson, and Vlissides
- 4. Summary
- 5. Reference

Nb. Boxes
are clickable.

REA Accounting as a Script

decrement

increment

Figure 1: REA Entrepreneur Script

(a) Business Entrepreneur Script

(b) Give-and-Take Constellation of Entities That
Each Value-Added Exchange (Revenue Cycle) Experiences

Acquisition Cycle

Conversion Cycle

Revenue Cycle

Decrement

Increment

REA-Based Architectures

Figure 2: REA Object Infrastructure for an Enterprise

Coupling with Knowledge-Based Decision Tools

Knowledge-Intensive Enterprise Systems Design

Research Extensions and Implementation Work

Figure 3: Intelligent System use With Different Accounting Systems

Ontological Directions

Implementation Directions

References

Nb. Boxes are clickable.

- Foremater
 - Abstract
 - Key Words:
- I. Introduction
 - Figure 1: Knowledge-Based Accounting Systems: Stand-Alone Intelligent Applications
 - Figure 2: Knowledge-Based Accounting Systems: REA-Based Semantic Infrastructure
- II. The Resource-Event-Agent Model
 - Figure 3: The REA Model
 - Figure 4: REA Instantiation
 - Stock-Flow
 - Control
 - Duality
- III. Augmented Intensional Reasoning in Knowledge-based Accounting Systems
 - Different Modes of Knowledge-Intensive Assistance in the Design and Operation of an AIS
 - Figure 5: Knowledge-Intensive Assistance in the Design and Operation of AIS
 - a: Routine Design and Operation of an AIS
 - b: Knowledge-Intensive Design and Routine Operation of an AIS
 - c: Knowledge-Intensive Design and Operation of an AIS
 - Routine Design and Operation of an AIS
 - Knowledge-Intensive Design and Routine Operation of an AIS
 - Knowledge-Intensive Design and Operation of an AIS
 - Aspects of Augmented Intensional Reasoning
 - Procedural-Declarative Transformations
 - How:
 - What:
 - How:
 - What:
 - Epistemological Adequacy
 - Implementation Compromise
- IV. Knowledge-intensive ais Design: The CREASY Environment
 - Figure 6: Conceptual Structure of the CREASY Environment
 - conceptual schema design
 - domain-specific design
 - operational design
 - operational system
- V. Knowledge-Intensive AIS Operation
 - Code Components of Knowledge-Based AIS
 - Figure 7: REA Example
 - Conceptual Schema Definition
 - Accounting-Specific Classifications
 - REA-Based Definitions of Accounting Phenomena
 - Control
 - Agent
 - Event
 - The Database
 - Supportive Definitions
 - id|2
 - occurrence|2
 - part|4
 - relpart|5
 - Claim Materialization
 - Claim Definition
 - dualrel(Event,Dual,FutureEvent)
 - part(Event,Dual,DualValue,EventValue)
 - not relpart(Event,EventValue,Dual,FutureEvent,FutureEventValue)
 - control(Event,Control,Agent)
 - relpart(Event,EventValue,Control,Agent,AgentValue)
 - Execution of the Claim Definition
 - Table 1: Claim Type Extension (a)
 - Table 2: Claim Type Extension (b)
 - Table 3: Claim Type Extension (c)
- VI. Conclusions and Implications for Research
 - References
 - Appendix
 - A Knowledge-Based Accounting System Implementation

Nb. Boxes are clickable.

- Foremater
 - Abstract:
 - Key Words
- 1. Introduction
 - Business Process Reengineering (BPR)
 - Resource Event Agent (REA)
 - Design
 - Operational Framework
 - Rent-A-Crazy-Car (RACC) Business
- 2. Enterprise Value Chains With Resource-Event-Agent Components
 - 2.1. Decomposition of an Enterprise Value Chain
 - Figure 1: Process Decomposition of Value Chain
 - Process
 - Economic Event
 - 2.2. The REA Object Template
 - Figure 2: REA Object Template
 - 2.3. The Rent-A-Crazy-Car (RACC) Example
 - Figure 3: Maintenance REA Definition
 - Figure 4: 'Maintenance' Business Process Business Policy Specifications
 - Figure 5: Partial RACC Data Model
 - Figure 6: Rent-A-Crazy-Car Simple Value Chain
- 3. An REA Approach to Business Process Modeling
 - 3.1 REA Events and the Need for Task-Level Specification
 - 3.2 Criteria for Differentiating Between Economic Events and Tasks
 - Figure 7: Augmented Consumption - Acquisition Pattern
 - 3.3 Event and Task Specification for RACC
 - Figure 8: Business Processes and Tasks Specification
 - Figure 9: System Flowchart of "Rental Contract" Tasks
- 4. Conclusions and Further Research Directions
- 5. References
- Footnotes

Nb. Boxes
are clickable.

Guido L Geerts and William E McCarthy, “**An Ontological Analysis of the Primitives of the Extended-REA Enterprise Information Architecture,**”
The International Journal of Accounting Information Systems (March 2002) pp. 1-16.

Foremater

Abstract

Keywords

1. Introduction

2. The REA model: an accountability and policy infrastructure for business enterprises

2.1. The basic REA model

2.2 The extended REA model

Figure 1: The Basic REA Model

Figure 2: Accountability & Policy Infrastructures

3. The ontological analysis of John Sowa

Figure 3: Reality to Category Mapping

Figure 4: REA components in Sowa categorical form

4. Specification of REA ontological categories

4.1. Firstness

4.2. Secondness

Figure 5: Description Representation

Figure 6: History Representation

4.3. Thirdness

5. Summary and future directions

References

Nb. Boxes are clickable.

- Foremater
 - Abstract
 - Keywords
- I. Introduction
- II. A Policy-Level Extension to REA Enterprise Systems
 - Figure 1: Policy-Level Specifications in REA Enterprise Systems
- III. Policy Definitions with the Typification and Grouping Semantic Abstractions
 - The Typification and Grouping Semantic Abstractions
 - Figure 2: Typification
 - Figure 3: Typification and Generalization
 - Figure 4: Grouping
 - Table 1: Typification Versus Grouping
 - Figure 5: Hybrid Representation of Type and Grouping Definitions
 - Policy-Level Associations
 - Figure 6: Compromised Definition for Mass-Produced Inexpensive Products
 - Figure 7: Policy-Level Associations
 - Policy Definitions
 - Patterns for Policy-Level Specifications
 - Figure 8: Patterns for Policy-Level Specifications
 - Figure 9: Stereotypical Patterns Applied
- IV. Policy Applications for REA Enterprise Information Systems
 - Type Definitions for Resources, Events, and Agents
 - Figure 10: Heuristic Nature of Patterns
 - Grouping Definitions for Resources, Events, and Agents
 - Knowledge-Intensive Descriptions
 - Figure 11: Knowledge-Intensive Descriptions, Validation Rules, and Target Descriptions
 - Figure 12: Knowledge-Intensive Descriptions
 - Validation Rules
 - Table 2: Shipment Policy Decision Table
 - Figure 13: Validation Rule Definitions
 - Figure 14: Validation Rule Definitions
 - Target Descriptions
 - Figure 15: Validation Rule Definitions
 - Figure 16: Target Descriptions: Standard Definition
 - Figure 17: Target Descriptions: Budget Definition
 - Figure 18: Target Descriptions: Broken-down Budget Definition
- V. Conclusion
- References

Nb. Boxes are clickable.

Foremater		
Abstract		
Introduction		
Relational Databases and Query-By-Example		
QBE With a Single Table		
Figure 1. Database Table (Relation) Representing Inventory Items		
Figure 2 Query-By-Example Extracted Tabular Data		
Figure 2 (a). Inventory Intension		
Figure 2 (b). Query for In-Stock Teddy Bears		
Figure 2 (c). Results of the QBE Operation		
QBE with Multiple Tables		
Procedural Overview		
The Structure of a QBE Programming Module		
Program Hierarchies		
Figure 4. A Structure Chart		
View Construction		
Figure 5. Two-Level Module Structure for View Materialization		
Relational Implementation of an Events Accounting Database		
Procedural Overview		
Figure 6. Structure Chart for Materialization of General Ledger		
Accounts-Payable for Inventory		
Figure 7. Entity-Relationship Model (Partial) of Inventory Purchases		
Figure 8. Populate Module for Materialization of Accounts-Payable Inventory		
Figure 9. Graphic Illustration of Accounts-Payable Derivation		
Other Materialization Modules		
Figure 10. Populate Module for Materialization of Accounts-Payable Services		
Figure 11 Materialization of Negative Claims for the Entire Enterprise		
Figure 11 (a). First Populate Module for Negative Claims		
Figure 11 (b). Second Populate Module for Negative Claims		
Discussion		
Figure 12 Controlling Module of the Program Hierarchy		
Figure 12 (a). Populate Module for General Ledger Materialization		
Figure 12 (b). General Ledger Table		
Limitations in Scope		Acknowledgments
Insights Provided		Notes
Recommendations		References

Nb. Boxes
are clickable.

Graham Gal and William E McCarthy, “**Declarative and Procedural Features of a CODASYL Accounting System,**”
in P. Chen, ed., Entity-Relationship Approach to Information Modeling and Analysis (North-Holland, 1983), pp.197-213.

1 Introduction

2 Declarative Features of the Events System

2.1 Introduction

Figure 1 Development of Declarative Features

2.2 Object System - E-R Data Model

2.3 E-R Data Model — CODASYL DBMS Processable Schema

Figure 2 E-R Diagram

Figure 2 (b) CODASYL Structure E-R to CODASYL Translation

Figure 3 CODASYL Record Fields

2.4 CODASYL DBMS Processable Schema - Storage Structure Definition

2.5 Declarative Features Summary

3 Procedural Features of the Events System

3.1 Introduction

3.2 Transaction Processing

Figure 4 Set S7 Occurrences (FIFO Ordering)

Figure 5 (a) Sale Processing

Figure 5 (b) Source Document for Sale

Figure 6 Line Item Occurrences

3.3 Information Retrieval

Accounts-Receiveable (A|R) Retrieval

Figure 7 (a) A|R Retrieval

Cost-of-Goods-Sold (COGS) Retrieval

Figure 7 (b) COGS Retrieval

Non-Accounting Data Retrieval

3.4 Summary of the Procedural Features of the Events System

4 Conclusion

5 References

1. Introduction

Nb. Boxes
are clickable.

2. Formulation of Views and Control of Their Use

2.1. Accounts Receivable

Fig. 1. Relational Database Subset

Fig. 2. Program for Subsidiary Accounts Receivable

Fig. 3. Establishing Authority Constraints on the Accounts Receivable View

Fig. 4. Establishing Authority Constraints on the insertion of Sales Data

Fig. 4.a Authority Constraints as Actually Implemented

Fig. 4.b Authority Constraints as Part of a Query

2.2. Accounts Payable for Services

Fig. 5. Portion of Conceptual Model

Fig. 6. Program Accounts Payable Services

Fig. 7. Establishing Authority Constrains on Accounts Payable View

2.3. Section Summary

3. Limitations of the Implementation

3.1. Dynamic Authority Constraints

3.2. Integrity Constraints]

Fig. 8. Semantic Integrity Constraints

4. Conclusion

References

Abstract Nb. Boxes are clickable.

- 1. Introduction
- 2. Conceptual Structure of an Accounting Information System
 - Figure 1. Conceptual Structure of an Information System
- 3. Events Accounting and Data Base Design With the REA Accounting Model
 - 3.1. Events Accounting
 - 3.2. The REA Accounting Model
 - Figure 2. The REA Accounting Model
 - 3.3. The Enterprise Modelling Process
 - Figure 3. Instantiation of REA Template
 - Figure 4. Integration of REA Views in Manufacturing
 - 3.4. Materialization of Account Balances and Statements
 - Figure 5. Chart of Accounts Materialization
- 4. DSS Use of an Events Model
 - 4.1. Introduction
 - 4.2. Critical Role of the Internal Data Base and the Need for an Events Approach to its Development
 - Figure 6. Events Accounting Foundation for DSS Environment
 - 4.3. Example KMAN Operations
 - 1. Relational retrieval
 - 2. Spreadsheet population and use
 - 3. Graphical output
- 5. Conclusion
- References

Abstract

Nb. Boxes are clickable.

Introduction

Design of Shared Environment Accounting Systems

Figure 1: Accounting information system development

Design Task and Domain Knowledge Representation

Design Task

Figure 2: The REACH domain

Figure 3: The REA accounting model

Knowledge Representation

First-order Theories of Events Accounting Systems

Reconstructive Expertise of Accounting System Implementers

Implementation Heuristics for Events-Based Accounting Systems

Integration Conflicts and Implementation Compromise

Integration Conflicts

Table 1: Integration conflicts

Implementation Compromise

Information Use Compromise Heuristics

Figure 4: Information Use Compromise Heuristics

Temporal Aggregation of Event Histories

Representation and use of a Subset or Superset

Substantive Non-implementation or Procedural-declarative Tradeoffs for Entity Sets

Conceptual Congruency of Closely Related Entities

Physical Implementation Compromise Heuristics

Figure 5: Physical Implementation compromise heuristics

Between-cycle, Resource-oriented Events

Within-cycle, Agent-oriented or Claim-oriented Events

Limited Dimension Resources and Events

Current Implementation Of REACH

Problem Domain

Accounting Knowledge in REAVIEWS

REA Theory in the Other Knowledge Levels

Outputs of System

Figure 6: Partial Output from REAVIEWS

Figure 7: Partial Output from REAVIEWS (in E-R format)

Summary and Future Directions

Acknowledgements

References

Nb. Boxes
are clickable.

- 1 Introduction
- 2 Overview of REA Design Theory
 - 2.1 REA Constructs
 - Figure 1. The REA Accounting Model
 - Figure 2. Expanded REA Design Theory Acquisition Cycle
 - Figure 3. Four Levels of the REA Ontology
- 3 Intellectual Heritage of REA Research
 - Figure 3x. REA as Intersection of Computer Systems|Information Systems and Business Domains
- 4 REA Design Science Research
 - 4.1 Refinement and Analysis of REA Constructs
 - 4.2 Proposed REA Extensions or Applications in New Contexts
 - 4.3 REA Proofs of Concept
 - 4.4 Summary of REA Design Science Research
- 5 Behavioral REA Research
 - Figure 4. The Research Pyramid
 - 5.1 REA System Design and Implementation
 - 5.2 REA System Use
 - 5.2.1 System Comprehension
 - 5.2.2 Information Retrieval
 - 5.3 REA System Management, Monitoring, and Audit
 - 5.4 Summary of REA Behavioral Research
- 6 Influence of REA on Practice
 - Figure 5. Open EDI Ontology with Business Transaction Phases and Business Events
 - Figure 6. Service-oriented Architecture Model for E-services
 - 6.1 Summary of the Influence of REA on Practice
- 7 REA Going Forward and Concluding Comments
 - References
 - Appendix
 - Table A1. Timeline of Influential Work
 - About the Authors Cheryl L. Dunn Gregory J. Gerard Severin V. Grabski

Semantic Models of Economic Exchange Phenomena:
Aspiring to a More Conceptual Basis for Accounting Systems

Nb. Boxes
are clickable.

I. Natural and Artificial Phenomena

Baseball and Double-Entry Accounting

II. The Wola, M&M Enterprises, and an REA Model

A Give-and-Take Community

Give-and-Take Accounting

Company Overview of M&M

Figure 1 - M&M Script

The Revenue Cycle of M&M - Extra Details

Semantic Network Model of the M&M Revenue Cycle

Figure 2 - Revenue Cycle Sub-script (in Entity-Relationship format)

Database Retrieval - Specific Story Details

Figure 3 - M&M Database Tables

Figure 4 - The M&M Story

The M&M Database - A Summary

The Benefits of REA Accounting

III. Accounting Systems - Objectives and Description

Accounting Objectives

Accounting Through The Ages

Figure 5 - Accounting Through The Ages

The Agrarian Age

The Mercantile and Industrial Age

The Information Age

Database Rationale

Complexity Management

System-Based Inference and Learning

System Adaptability

Summary of Information Age

The Crisis in Accounting Systems

IV. REA Accounting as an Information Age Paradigm

V. Summary - The Case for Conceptual Accounting Models

1. Semantic models encourage standardized use and definition of information structures across organizational boundaries

2. Conceptual models make intellectual complexity manageable by using natural primitives that abstract to generalized descriptions of structures which in turn cover many thousands of cases with as few exceptions as possible.

3. Conceptual models allow for the possibility of system-based inference and learning.

4. Conceptual models allow for greater system adaptability.

VI. - References

Nb. Boxes are clickable.

- Foremater
 - Acknowledgments
 - Abstract
 - Key Words
 - The REA Accounting Model: Intellectual Heritage and Prospects for Progress
- I. Intellectual Heritage
 - Events Accounting
 - Database Accounting
 - REA Accounting
 - Figure 1: REA Template
 - Influences of Mattessich and Ijiri on the REA Model
 - Section Summary
- II. Differentiating Accounting Models
 - Criteria for Differentiation
 - Database Orientation
 - Semantic Orientation
 - Figure 2: Revenue Process
 - Structuring Orientation
 - Application of the Differentiation Criteria
 - Events Accounting
 - Figure 3: Events Versus REA Accounting
 - Database Accounting
 - REA Accounting Systems
 - Figure 4: Overlap of Accounting Frameworks
 - Section Summary
 - Table 1: Categorization of Accounting Frameworks
- III. Existing Validations of Accounting Models
 - Events Accounting
 - Database Accounting
 - Semantically-modeled Accounting
 - REA Accounting Validation
 - Section Summary
- IV. Prospects for Progress
 - March and Smith Framework for Information Technology Research
 - Figure 5: March and Smith IT Research Framework
 - The Build and Evaluate Categories
 - The Theorize and Justify Categories
 - Individual User Validation Studies
 - Organization Level Validation Studies
 - Section Summary
- V. Conclusion
 - References
 - End Notes

William E McCarthy. "**Semantic Modeling in Accounting Education, Practice, and Research: Some Progress and Impediments**,"
in: *Conceptual Modeling: Current Issues and Future*,
Editors: P. P. Chen, J. Akoka, H Kangassalo, B. Thalheim, L. Y. Wong. Springer Verlag, Berlin and Heidelberg, April 1999, pp.144-53.

Nb. Boxes
are clickable.

1.0 Introduction

2.0 REA Progress and Impediments

2.1 Semantic Modeling in Accounting Education

2.2 Semantic Modeling in Accounting Practice

2.3 Semantic Modeling in Accounting Research

3.0 Summary

4.0 References

TOC Tree®
As of: 21Jan21
By: Alastair Paton

Nb. Boxes
are clickable.

I. Introduction

II. Developing the Framework: The Evolution Analogy

Figure 1: Evolution of Animals

Figure 2: The Evolution of Enterprise systems

Systems With No Organizing Rationale

Systems With Inward Organization

Systems With Outward Organization

III. Using the Framework

A. Species Classification

B. Adaptation

C. Mutation

Figure 3: Business Models for Application Solutions

IV. Conclusions

References

Biographies

Robert Haugen and William E McCarthy, “**REA: A Semantic Model for Internet Supply Chain Collaboration**,” in the proceedings of the Business Object Component Workshop VI: Enterprise Application Integration (January 2000).

Introduction

Nb. Boxes
are clickable.

How is a supply chain different from an enterprise system?

Definitions

What's wrong with ERP+EDI as a supply chain model

Motivation

Where is ERP going?

Alternative models for supply chains

APS is better, but not good enough

Enterprise Resource Planning (ERP)

EAI is better yet. but...

Electronic Data Interchange (EDI)

Trading Hubs?

eXtensible Markup Language (XML) EDI (XML-EDI)

How about XML-EDI, eCO, RosettaNet, etc?

XML for Business to Business (B2B) eCommerce

REA is the best

Advanced Planning and Scheduling systems (APS)

How does REA work?

Trading Hubs

An REA supply chain in action

Enterprise Application Integration (EAI)

Conclusion

References

TOC Tree®
As of: 21Jan21
By: Alastair Paton

C. Dunn, J. S. David, and W.E. McCarthy, “**Enterprise Resource Planning Systems Research: The Necessity of Explicating and Examining Patterns in Symbolic Form,**” in the proceedings of the First International Workshop on Enterprise Management and Resource Planning Systems: Methods, Tools and Architecture. Venice, Italy. November 1999).

Summary

Nb. Boxes
are clickable.

Section 1: The Investigation of ERP Investment & the Research Pyramid Framework

Figure 1 – Research Pyramid

Section 2: The Symbolic Basis for ERP Study

Figure 2 – The Symbolic Basis for ERP Study

Section 3: The REA Model as a Basis for ERP Comparison

REA Definition

Figure 3 – “Sy’s Fish” Value Chain

REA as a Normative ERP Framework

Figure 4 – Various Functional Lineages of ERP

Section 4: Future Research Directions

References

TOC Tree®
As of: 21Jan21
By: Alastair Paton

Chunka Mui and William E McCarthy, "FSA: Applying AI Techniques to the Familiarization Phase of Financial Decision Making,"
IEEE Expert (Fall 1987), pp. 33-41.

Nb. Boxes
are clickable.

Summary

Financial Decision Making

Figure 1. The Financial Decision Process

Standardized Processing for Familiarization Purposes

EDGAR

The Financial Statement Analyzer

A System Model

Figure 2. An Overview of FSA Operations

Account Hierarchy

Figure 3. A Subset of Account Hierarchy

Footnote Schemata

Figure 4. A Rental Expense Schema

A Typical FSA Scenario

Accounts Receivable

Rental Expense

Conclusion

Acknowledgments

References

Author Bios

TOC Tree[®]
As of: 21Jan21
By: Alastair Paton

Nb. Boxes are clickable.

- Introduction
 - Accounting Information Systems in the Worlds of Databases and Artificial Intelligence
 - Figure 1 "Contrasting DB and AI Orientations"
 - Figure 2 "Computerized Accounting System and Decision Maker"
- Knowledge Representation Methods
 - Introduction
 - Logic
 - Rules
 - Semantic Networks
 - Figure 3 "Knowledge Structures"
 - Rule-Based Knowledge Representation
 - Figure 4 "Rule-based Knowledge and Inference"
 - Semantic Network Knowledge Representation
 - Figure 5 "Semantic Networks"
 - Aggregation
 - Generalization
 - Script
 - Aggregation
 - Figure 6 "Aggregation Hierarchy - Improved Mousetrap, and Budgerigar Perch"
 - (a) Two component structures
 - (b) Aggregation hierarchy for budgerigar perch
 - Figure 7 "Aggregation Hierarchy - Sale Line Item: Merchandise. Qty., and Sale"
 - Figure 8 "Entity-relationship Representation"
 - Figure 9 "Frame Representation"
 - Generalization
 - Figure 10 "Generalization (isa) Hierarchy"
 - Figure 11 "Frame-Oriented Aggregation and Generalization"
 - Scripts
 - Figure 12 "Various Types of Scripts"
 - Figure 13 "Revenue - Cycle Script"
 - Knowledge Representation Methods Summary
- Future Directions
 - Architecture of ES-DBMS Environment
 - Figure 14 "ES and DBMS Coupling"
 - Changes in Analysis and Design Methods for Accounting Information Systems
 - More Semantic Infrastructures
 - Figure 15 "Semantic Infrastructure for Future Generations of Knowledge-Based Accounting Systems"
 - More Use of Enterprise Modeling and Prototyping
 - Figure 16 "Davis Contingency Approach to Information Requirements Determination"
 - Summary
 - References

Nb. Boxes are clickable.

- Introduction
- An Alternative View of Accounting Representation
- Conceptual Schemas of Business Enterprises
 - Fig. 10.1 ANSI/SPARC Three-level Architecture
- Ingredients of a NIAM Conceptual Schema
 - Basic Concepts
 - Fig. 10.2 NIAM Constructs
 - (a) Basic Elements
 - (b) Binary Associations
 - (c) Example
 - Constraints
 - Cardinality Constraints
 - Fig. 10.3 Cardinality Constraints
 - (a) One-to-One
 - (b) One-to-Many
 - (c) Many-to-Many
 - Fig. 10.4 Uniqueness Constraint
 - (a) Information Structure Diagram
 - (b) Population Diagram
 - The Totality Role Constraint
 - Fig. 10.5 Totality Constraints
 - A Final NIAM Example
 - Fig. 10.6 Two World Representation
- The Book-Keeping Approach to Accounting vs An REA Semantic Model
 - A Debit-Credit Example
 - Fig. 10.7 Book-Keeping Model
 - Database Accounting With the REA Model
 - Fig. 10.8 The REA Accounting Model
 - Fig. 10.9 REA Instantiation
 - Fig. 10.10 Purchase Transactions
- An Extended REA Example
 - The Wilson Company - Purchase Transactions
 - ISD to Relational Database
 - Fig. 10.11 NIAM Model for Purchase Transactions
 - Fig. 10.12 Relational Model for the Purchase Transaction
 - Fig. 10.13 Relational Database.
 - Procedural Specification for Wilson
 - Fig. 10.14 Database Operations
 - (a) Data Entry Operations
 - (b) Retrieval Operations
- Conclusions and Discussion
- Discussion Questions and Exercises
- Acknowledgement
- References

Nb. Boxes are clickable.

- Forematter
 - Synopsis
 - Keywords
- Introduction
- Research Framework
 - Figure 1 Research Framework
 - Figure 2 Accounting Information Systems Global Environment
 - Relevance Cycle
 - Design Cycle
 - Artifact Development
 - Theory Building
 - Evaluation and Justification
 - Rigor Cycle
- Dynamics of the Research Framework
 - Figure 3 Design Cycle Dynamics
 - IT Internal Controls
 - Figure 4 IT Internal Controls
 - IT Internal Controls Artifact Development
 - IT Internal Control Evaluation
 - IT Internal Control Theory Building and Justification
 - REA Enterprise Systems
 - Figure 5 REA Enterprise Systems
 - REA Enterprise Systems Theory Building
 - REA Enterprise Systems Artifact Development
 - REA Enterprise Systems Evaluation and Justification
 - CA (Continuous Auditing)
 - Figure 6 Continuous Audit
 - CA Artifact Development
 - CA Theory Building and Justification
 - CA Evaluation
 - Generating Real-Time Financial Reporting
 - Providing Independent Assurance
 - Providing Internal Controls
- Emerging XBRL Artifacts and Future Research
 - XBRL Tagging Methods
 - Investor Use of XBRL Tagged Data
 - Assurance over XBRL Tagging
- Conclusions
- References

Forematter Nb. Boxes are clickable.

- An Introduction to Design Science Research
 - AIS Researchers: Are we social scientists or computer scientists?
 - Table 1 Generalization of Research sub-groups in AIS
 - What is Design Science?
 - The March and Smith (1995) Framework
 - Table 2 March and Smith's (1995, 255) Research Framework
 - Is building a system an empirical activity?
 - Differentiating Between Research and Development
 - Is the research truly novel, given the current state of the field?
 - Is the problem being addressed a "difficult" or "easy" one?
 - Is there already a proof of concept or of feasibility?
 - Design Science Summary

- The REA Model as an Example of Design Science Development
 - Introduction
 - Table 3 Design Science Papers or Books That Have Influenced REA Research
 - Table 4 Papers That Made Significant Design Science Advances In REA Modeling
 - Table 5 Significant Constructs, Models, Methods, and Instantiations Derived from REA Design Science Research
 - Constructs
 - Models
 - Methods
 - Instantiations
 - The Seminal and Definitive Origins of Cognate Research Work that Affected REA
 - Database Theory
 - Knowledge-Based Systems and Object-Orientation
 - Summary of the Seminal and Definitive Design Science Origins of REA
 - Some Papers That Have Made Significant Design Science Advances in REA Modeling
 - Seminal Exposition
 - Network and Relational Implementations
 - REA CASE Tools
 - The REA Value Chain Model
 - The Database, Semantic, and Structuring Criteria
 - The REA Ontology
 - Individual Listing of Significant Constructs, Models, Methods, and Instantiations in REA Modeling
 - REA Constructs
 - REA Models
 - REA Methods
 - REA Instantiations
 - Summary of the REA Design Science Examples

- Future Research
 - REA Extensions
 - Equity Transactions
 - Figure 1 REA Model of Equity Transactions
 - Intangibles
 - Figure 2 REA Model of Resource Recognition
 - ABC Costing
 - Summary of REA Extensions
 - New Frontiers for REA Research
 - REA and Enterprise-Wide Information Systems
 - REA and Interorganizational Systems and Markets
 - Summary of Areas for REA Research
 - Conclusions
 - References

William E McCarthy, "Accounting Craftspeople vs. Accounting Seers: Exploring the Relevance and Innovation Gaps in Academic Accounting Research." Accounting Horizons (December 2012), pp. 833-43.

Synopsis

Nb. Boxes
are clickable.

Introduction

Putting a (Limited) Normative Mindset Back Into Accounting Research — The Case for Design Science and Beyond

The Innovation Roadblock in Accounting Systems

Figure 1 Accounting Systems Evolution

What Exactly Is Design Science?

Figure 2 Outputs of Design Science Research

Is Building an Accounting System an Empirical Activity?

Research Craftspeople Versus Research Seers

Summary

References

W. E. McCarthy, E. Denna, G. Gal, and S. R. Rockwell, “**Expert Systems and AI-Based Decision Support in Auditing: Progress and Perspectives.**”
International Journal of Intelligent Systems in Accounting, Finance, and Management (January 1992), pp. 53-63.

[Introduction](#) Nb. Boxes
are clickable.

[Cognitive Modeling Rationale](#)

[Software Engineering Rationale](#)

[The March Framework](#)

[Figure 1 The March Framework](#)

[Domain Specificity and Maturity of the Research Field](#)

[Figure 2 Domain Specificity and Maturity](#)

[Figure 3. Prototype Module Structure](#)

[Research and Development Delineation in Prototype Systems](#)

[Summary](#)

[Some Research | Development Examples](#)

[Figure 4 Academic systems: Research and Development](#)

[The Accounting Firm Perspective](#)

[Figure 5 Accounting firm systems: research and development](#)

[The Contribution of Practice to AI Research](#)

[Practice and Academics Working Together — The Optimal Solution](#)

[Summary](#)

[Acknowledgements](#)

[References](#)

TOC Tree®
As of: 21Jan21
By: Alastair Paton