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# Chapter 4 Knowledge Elicitation And Conceptual Modeling To

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Working Minds

Techniques and Applications

Principles, Techniques, and Applications

Knowledge Acquisition for Expert Systems

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Research and Development in Intelligent Systems XIX

Introduction to First and Second Generation and Hybrid Knowledge Based Systems

The Psychology of Expertise

Knowledge Management

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In Search of an Integrative Vision for Technology

Building Intelligent Agents

Knowledge structures and the usability of knowledge systems

Information Systems, E-learning, and Knowledge Management Research

Knowledge-Based Systems, Four-Volume Set

Knowledge Risk and its Mitigation

KM Approaches Methods and Tools - A Guidebook

Expert Systems Research Trends

An Apprenticeship, Multistrategy Learning Theory, Methodology, Tool and Case Studies

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Second International Conference, DTGS 2017, St. Petersburg, Russia, June 21-23, 2017, Revised Selected Papers  
Skill Acquisition and Training  
Questions and Information Systems  
Philosophical Frameworks for Understanding Information Systems  
How Managers Solve Thorny Problems With the Knowledge Jam  
A Survey on Requirements Elicitation  
The Acquisition of Strategic Knowledge  
State of the Art Report 15:3  
Knowledge Management in Theory and Practice, third edition  
Proceedings of ES2002, the Twenty-second SGAI International Conference on Knowledge Based Systems and Applied Artificial Intelligence

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## **GIOVANNA CHERRY**

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*Working Minds* Routledge

In *Decision Modelling And Information Systems: The Information Value Chain* the authors explain the interrelationships between the decision support, decision modelling, and information systems. The first two parts of the book focus on the interdisciplinary decision support framework, in which mathematical programming (optimization) is taken as the

inference engine. The role of business analytics and its relationship with recent developments in organisational theory, decision modelling, information systems and information technology are considered in depth. Part three of the book includes a carefully chosen selection of invited contributions from internationally-known researchers. These contributions are thought-provoking and cover key decision modelling and information systems issues. The final part of the book covers contemporary developments in the related area of business intelligence considered within an organizational context. The topics cover computing delivered across the web, management

decision-making, and socio-economic challenges that lie ahead. It is now well accepted that globalisation and the impact of digital economy are profound; and the role of e-business and the delivery of decision models (business analytics) across the net lead to a challenging business environment. In this dynamic setting, decision support is one of the few interdisciplinary frameworks that can be rapidly adopted and deployed to so that businesses can survive and prosper by meeting these new challenges.

#### **Techniques and Applications** CRC Press

To manage business operations – let alone innovate – amid frequent restructurings, outsourcings and retirements, leaders must quickly capitalize on hidden know-how (knowledge). That is, know-how that lives inside their organizations or networks – in the teams, processes and experts that comprise them. Yet, many organizations are coming up short in this race. Knowledge sharing and transfer have been reduced to reports, e-mails and tweets replacing vital personal interaction. The lack of meaningful conversation coupled with intense fragmentation across organizations and networks has left leaders floating in a sea of information and ideas without a map to channel insight into action. *Sharing Hidden Know-How* starts the conversation that allows organizations to take what they know to the bank. The “how-to”/“how-act” guidebook unveils Knowledge Jam, a facilitated collaborative method for helping organizations rediscover the fundamental discipline of knowledge transfer – the conversation. Developed by Katrina Pugh, president of AlignConsulting, the proven process uses human interaction to capture unwritten insights, and more importantly to put them to

work. Offering a step-by-step process and practical tools, *Sharing Hidden Know-How* will help any organization harness untapped knowledge to solve today’s thorny problems: Accelerating New Product Development and Market and Segment Innovations Maximizing Combined Knowledge in Mergers Integrations, Restructurings, Off-shoring and Outsourcing Overcoming Information Overload (Focus on Social Media) Smoothing Executive Transitions and Succession Planning Smoothing Team Transitions Spreading Insight across Geographies and Network Partners Tapping into Sales Insights The next generation of leadership effectiveness is about conversation and reflective facilitation, not just texts and tweets. *Sharing Hidden Know-How* makes the case for intentional, conversation-based leadership, and provides the practice model to pull it off. Viewed from above, this important book is itself a conversation between Kate Pugh’s basic propositions and those of a diverse group of other thinkers, all woven into a unified whole. Viewed on the ground, it is an intellectual joyride, coherent, insightful, promisingly pragmatic, and with just the right measure of the personal to fully reveal a fruitful mind in motion. — David Kantor, director, Kantor Institute; author, *Reading the Room* (Jossey-Bass, 2012) “[This] book addresses one of the time-honored problems in organizations: ‘How do you get people with experience, solutions and knowledge to share them effectively with those who need those valuable assets?’ Technology, we now know, is not the answer—human discussion is. [Pugh] tells you how to structure and facilitate these important conversations.” —Thomas H. Davenport, President’s distinguished professor of IT and Management, Babson College; author of *Analytics at Work* and

Thinking for a Living. “In this innovative and useful book Kate Pugh shows how you can be a far better knowledge practitioner just by releasing the power of talking in your organization. A fine example of the new generation of knowledge books.” —Larry Prusak, author, *Working Knowledge*; visiting scholar, Marshall School of Business, University of Southern California; and senior knowledge advisor to World Bank and NASA “[This book] meets an urgent need within leadership practices: an effective conversational process for capturing and transferring deep smarts.” —Stephen Denning, author, *The Leader’s Guide to Radical Management and The Secret Language of Leadership* “Leaders have long known that the ‘know-how’ of experienced teams is key to their organizations’ ability to achieve strategic goals. The challenge has always been to distill this wisdom and deploy it in a way that maximizes and accelerates its impact on organizational effectiveness. [This book] provides a practical approach to addressing this challenge, and, in so doing, improves competitiveness.” —Paul Lucidi, chief information officer, Insulet Corporation “A fantastic replacement for the long dormant and never used lessons-learned repository! This book provides well documented and effective tools for really learning from your organization. As our business continues to go through transformational change, I hope to make good use of the Knowledge Jam to make that transformation efficient.” —Sheryl Skifstad, senior director, Supply Chain IT at a Fortune 100 company

*Principles, Techniques, and Applications* IGI Global

Building an expert system involves eliciting, analyzing, and interpreting the knowledge that a human expert uses when

solving problems. Experience has shown that this process of “knowledge acquisition” is both difficult and time consuming and is often a major bottleneck in the production of expert systems. Unfortunately, an adequate theoretical basis for knowledge acquisition has not yet been established. This requires a classification of knowledge domains and problem-solving tasks and an improved understanding of the relationship between knowledge structures in human and machine. In the meantime, expert system builders need access to information about the techniques currently being employed and their effectiveness in different applications. The aim of this book, therefore, is to draw on the experience of AI scientists, cognitive psychologists, and knowledge engineers in discussing particular acquisition techniques and providing practical advice on their application. Each chapter provides a detailed description of a particular technique or methodology applied within a selected task domain. The relative strengths and weaknesses of the technique are summarized at the end of each chapter with some suggested guidelines for its use. We hope that this book will not only serve as a practical handbook for expert system builders, but also be of interest to AI and cognitive scientists who are seeking to develop a theory of knowledge acquisition for expert systems.

**Knowledge Acquisition for Expert Systems** Springer Science & Business Media

No matter the industry, the development of information technologies has transformed how information is distributed and used to predict trends. Collecting and identifying the most vital information, however, requires constant management and manipulation. *Current Issues and Trends in Knowledge*

Management, Discovery, and Transfer is an essential reference source that discusses crucial practices for collaborating and distributing work as well as validating accrued knowledge from real-time data. Featuring research on topics such as dynamic knowledge, management systems, and sharing behavior, this book is ideally designed for academics, researchers, librarians, managing professionals, and students seeking coverage on knowledge acquisition and implementation across systems.

**Cognitive Patterns** diplom.de

The design of knowledge systems is finding myriad applications from corporate databases to general decision support in areas as diverse as engineering, manufacturing and other industrial processes, medicine, business, and economics. In engineering, for example, knowledge bases can be utilized for reliable electric power system operation. In medicine they support complex diagnoses, while in business they inform the process of strategic planning. Programmed securities trading and the defeat of chess champion Kasparov by IBM's Big Blue are two familiar examples of dedicated knowledge bases in combination with an expert system for decision-making. With volumes covering "Implementation," "Optimization," "Computer Techniques," and "Systems and Applications," this comprehensive set constitutes a unique reference source for students, practitioners, and researchers in computer science, engineering, and the broad range of applications areas for knowledge-based systems.

**Research and Development in Intelligent Systems XIX** IGI Global

This volume provides an overview of experimental methods, approaches, and techniques used by field linguists of the Russian

school, and highlights the fieldwork experience of Russian scholars working in regions with a range of languages that differ genetically, typologically, and in the degree of their preservation. The collection presents language and sociolinguistic data relating to fieldwork in diverse languages: Uralic, Altaic, Paleo-Siberian, Yeniseian, Indo-European Iranian, Vietic, Kra-Day, and Mayan languages, as well as pidgin. The authors highlight the fieldwork techniques they use, and the principles underlying them. The volume's multidisciplinary approach covers linguistic, ethnolinguistic, sociolinguistic, educational, and ethnocultural issues. The authors explore problems associated with the study of minority languages and indicate diverse and creative techniques for data elicitation. Close collaboration with speakers lies at the core of their approach. The collection presents strategies for eliciting systems of knowledge from mother-tongue speakers, triggering linguistic self-awareness, and providing semantic and morphosyntactic context for their languages. This publication is intended for academics, and for specialists in the field of linguistics and minority and indigenous languages. It will also benefit students as a guide to field research, as well as language activists, interested in documenting and preserving their mother tongue.

**Introduction to First and Second Generation and Hybrid Knowledge Based Systems** Taylor & Francis

This book constitutes the proceedings of the 4th World Summit on the Knowledge Society, WSKS 2011, held in Mykonos, Greece, in September 2011. The 90 revised full papers presented were carefully reviewed and selected from 198 submissions. The papers address issues such as information technology, e-learning,

e-business, cultural heritage, e-government.

**The Psychology of Expertise** Springer Science & Business Media

This book describes, for the first time in pedagogical form, an approach to computer-based work in complex sociotechnical systems developed over the last 30 years by Jens Rasmussen and his colleagues at Risø National Laboratory in Roskilde, Denmark. This approach is represented by a framework called cognitive work analysis. Its goal is to help

**Knowledge Management** MIT Press

Building Intelligent Agents is unique in its comprehensive coverage of the subject. The first part of the book presents an original theory for building intelligent agents and a methodology and tool that implement the theory. The second part of the book presents complex and detailed case studies of building different types of agents: an educational assessment agent, a statistical analysis assessment and support agent, an engineering design assistant, and a virtual military commander. Also featured in this book is Disciple, a toolkit for building interactive agents which function in much the same way as a human apprentice. Disciple-based agents can reason both with incomplete information, but also with information that is potentially incorrect. This approach, in which the agent learns its behavior from its teacher, integrates many machine learning and knowledge acquisition techniques, taking advantage of their complementary strengths to compensate for each others weakness. As a consequence, it significantly reduces (or even eliminates) the involvement of a knowledge engineer in the process of building an intelligent agent.

Toward Safe, Productive, and Healthy Computer-Based Work  
Springer

Experts, who were the sole active dispensers of certain kinds of knowledge in the days before AI, have now often assumed a rather passive role. They relay their knowledge to various novices, knowledge engineers, experimental psychologists or cognitivists - or other experts! - involved in the development and understanding of expert systems. This book achieves a perfect marriage between experimentalists and theoreticians who deal with expertise. It tries to establish the benefits to society of an advanced technology for representing and disseminating the knowledge and skills of the best corporate managers, the most seasoned pilots, and the most renowned medical diagnosticians. This book interests psychologists as well as all those out in the trenches developing expert systems, and everyone pondering the nature of expertise and the question of how it can be studied scientifically. Its scope, the pivotal concepts which it elucidates and brilliantly summarizes and appraises in the final chapter, as well as the references it includes, make this book a landmark in the field.

*In Search of an Integrative Vision for Technology* Springer

How to collect data about cognitive processes and events, how to analyze CTA findings, and how to communicate them effectively: a handbook for managers, trainers, systems analysts, market researchers, health professionals, and others. Cognitive Task Analysis (CTA) helps researchers understand how cognitive skills and strategies make it possible for people to act effectively and get things done. CTA can yield information people need—employers faced with personnel issues, market

researchers who want to understand the thought processes of consumers, trainers and others who design instructional systems, health care professionals who want to apply lessons learned from errors and accidents, systems analysts developing user specifications, and many other professionals. CTA can show what makes the workplace work—and what keeps it from working as well as it might. *Working Minds* is a true handbook, offering a set of tools for doing CTA: methods for collecting data about cognitive processes and events, analyzing them, and communicating them effectively. It covers both the "why" and the "how" of CTA methods, providing examples, guidance, and stories from the authors' own experiences as CTA practitioners. Because effective use of CTA depends on some conceptual grounding in cognitive theory and research—on knowing what a cognitive perspective can offer—the book also offers an overview of current research on cognition. The book provides detailed guidance for planning and carrying out CTA, with chapters on capturing knowledge and capturing the way people reason. It discusses studying cognition in real-world settings and the challenges of rapidly changing technology. And it describes key issues in applying CTA findings in a variety of fields. *Working Minds* makes the methodology of CTA accessible and the skills involved attainable.

**Building Intelligent Agents** Cambridge University Press  
Computational intelligence paradigms have attracted the growing interest of researchers, scientists, engineers and application engineers in a number of everyday applications. These applications are not limited to any particular field and include engineering, business, banking and consumer electronics.

Computational intelligence paradigms include artificial intelligence, artificial neural networks, fuzzy systems and evolutionary computing. Artificial neural networks can mimic the biological information processing mechanism in a very limited sense. Evolutionary computing algorithms are used for optimisation applications, and fuzzy logic provides a basis for representing uncertain and imprecise knowledge. *Practical Applications of Computational Intelligence Techniques* contains twelve chapters providing actual application of these techniques in the real world. Such examples include, but are not limited to, intelligent household appliances, aerial spray models, industrial applications and medical diagnostics and practice. This book will be useful to researchers, practicing engineers/scientists and students, who are interested in developing practical applications in a computational intelligence environment.

**Knowledge structures and the usability of knowledge systems** Straits Knowledge

Typically, landscape ecologists use empirical observations to conduct research and devise solutions for applied problems in conservation and management. In some instances, they rely on advice and input of experienced professionals in both developing and applying knowledge. Given the wealth of expert knowledge and the risks of its informal and implicit applications in landscape ecology, it is necessary to formally recognize and characterize expert knowledge and bring rigor to methods for its applications. In this context, the broad goal of this book is to introduce the concept of expert knowledge and examine its role in landscape ecological applications. We plan to do so in three steps: First we introduce the topic to landscape ecologists, explore salient

characteristics of experts and expert knowledge, and describe methods used in capturing and formalizing that knowledge. Second, we present examples of research in landscape ecology from a variety of ecosystems and geographic locations that formally incorporate expert knowledge. These case studies address a range of topics that will interest landscape ecologists and other resource management and conservation professionals including the specific roles of expert knowledge in developing, testing, parameterizing, and applying models; estimating the uncertainty in expert knowledge; developing methods of formalizing and incorporating expert knowledge; and using expert knowledge as competing models and a source of alternate hypotheses. Third, we synthesize the state of knowledge on this topic and critically examine the advantages and disadvantages of incorporating expert knowledge in landscape ecological applications. The disciplinary subject areas we address are broad and cover much of the scope of contemporary landscape ecology, including broad-scale forest management and conservation, quantifying forest disturbances and succession, conservation of habitats for a range of avian and mammal species, vulnerability and conservation of marine ecosystems, and the spread and impacts of invasive plants. This text incorporates the collective experience and knowledge of over 35 researchers in landscape ecology representing a diverse range of disciplinary subject areas and geographic locations. Through this text, we will catalyze further thought and investigations on expert knowledge among the target readership of researchers, practitioners, and graduate students in landscape ecology.

*Information Systems, E-learning, and Knowledge Management*

*Research* Springer Science & Business Media

The ink and stylus tablets discovered at the Roman fort of Vindolanda are a unique historical resource but are extremely difficult to read. This book details the development of what appears to be the first system constructed to aid experts in the process of reading an ancient document, exploring the use of techniques from Artificial Intelligence.

*Knowledge-Based Systems, Four-Volume Set* Nova Publishers  
Skill Acquisition and Training describes the building blocks of cognitive, motor, and teamwork skills, and the factors to take into account in training them. The basic processes of perception, cognition and action that provide the foundation for understanding skilled performance are discussed in the context of complex task requirements, individual differences, and extreme environmental demands. The role of attention in perceiving, selecting, and becoming aware of information, in learning new information, and in performance is described in the context of specific skills. A theme throughout this book is that much learning is implicit; the types of knowledge and relations that can profitably be learned implicitly and the conditions under which this learning benefits performance are discussed. The question of whether skill acquisition in cognitive domains shares underlying mechanisms with the acquisition of perceptual and motor skills is also addressed with a view to identifying commonalities that allow for widely applicable, general theories of skill acquisition. Because the complexity of real-world environments puts demands on the individual to adapt to new circumstances, the question of how skills research can be applied to organizational training contexts is an important one. To



address this, this book dedicates much content to practical applications, covering such issues as how training needs can be captured with task and job analyses and how to maximize training transfer by taking trainee self-efficacy and goal orientation into account. This comprehensive yet readable textbook is optimized for students of cognitive psychology looking to understand the intricacies of skill acquisition.

#### Knowledge Risk and its Mitigation Springer Nature

This book contains detailed guidance on how to apply 24 practical approaches, methods and tools for sharing knowledge, facilitating knowledge transfer, capturing knowledge and learning activities. It is intended to support the 80 KM method cards but can be used independently of them. The techniques in this book were selected because of their usefulness in supporting three very common areas of work where knowledge transfer, capture and learning are important: learning and knowledge capture through projects; activity cycles and case based work promoting peer collaboration; and networking and communities across workgroup boundaries identifying, eliciting, representing and transferring expertise. This book will be valuable to knowledge managers, community facilitators, KM activists, project managers, trainers, or anyone who wants to develop a portfolio of different techniques to support knowledge transfer.

#### *KM Approaches Methods and Tools - A Guidebook* Eburon Uitgeverij B.V.

This book provides a fascinating reading experience for anyone interested in an inquiring relationship between technical progress and the quality of the human condition. It manages to keep a healthier balance between these two complex topics than is

found in most publications of the genre. The book also manages to build accessible bridges over the gulf that tends to separate the philosophical language from the 'real' concerns of technologists.

#### World Scientific

*Artificial Intelligence: State of the Art Report* is a two-part report consisting of the invited papers and the analysis. The editor first gives an introduction to the invited papers before presenting each paper and the analysis, and then concludes with the list of references related to the study. The invited papers explore the various aspects of artificial intelligence. The analysis part assesses the major advances in artificial intelligence and provides a balanced analysis of the state of the art in this field. The Bibliography compiles the most important published material on the subject of artificial intelligence and includes all the materials cited in the invited paper and analysis references.

#### Expert Systems Research Trends Morgan Kaufmann

Enterprise modeling (EM) methods and techniques are indispensable for understanding the present situation of an enterprise and for preparing for its future - particularly in times of continuous organizational change, an increasing pace of innovation, new market challenges or technology advances. The authors combine a detailed description of the 4EM methodology with their concrete experience gathered in projects. Their book addresses the modeling procedure, modeling language and modeling practices in a uniquely integrated approach. It provides practical advice on common challenges faced by enterprises and offers a flexible EM method suitable for tackling those challenges. Much of the work presented stems from actual research projects

and has been validated with scientific methods. The 4EM methodology has proven its practical value in a large number of successful development and/or change management projects in industry and the public sector. The book was written for anyone who wants to learn more about EM, with a specific focus on how to do it in practice and/or how to teach it. Its main target audience thus includes instructors in the field of EM or business information systems, students in Information Systems or Business Administration, and practitioners working in enterprise or change management. The authors describe a clear reading path for each of these audiences and complement the work with a set of slides and further teaching material available under [www.4em-method.com](http://www.4em-method.com).

**An Apprenticeship, Multistrategy Learning Theory, Methodology, Tool and Case Studies** Springer Science &

#### Business Media

The design and functioning of an information system improve to the extent that the system can handle the questions people ask. Surprisingly, however, researchers in the cognitive, computer, and information sciences have not thoroughly examined the multitude of relationships between information systems and questions -- both question asking and answering. The purpose of this book is to explicitly examine these relationships. Chapter contributors believe that questions play a central role in the analysis, design, and use of different kinds of natural or artificial information systems such as human cognition, social interaction, communication networks, and intelligent tutoring systems. Their efforts show that data structures and representations need to be organized around the questioning mechanisms in order to achieve a quick retrieval of relevant useful information.

Best Sellers - Books :

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