

BUSINESS KNOWLEDGE BLUEPRINTS

Enabling Your Data
to Speak the Language
of the Business



**About
Vocabulary
& Concept
Models**

2nd Edition

by RONALD G. ROSS

Business Knowledge Blueprints

*Enabling Your Data to Speak
the Language of the Business*

Second Edition

by Ronald G. Ross

*Co-Founder & Principal, Business Rule Solutions, LLC
Executive Editor, BRCommunity.com
Chair, Building Business Capability (BBC) Conference*

Business Knowledge Blueprints

Enabling Your Data to Speak the Language of the Business

Second Edition

by Ronald G. Ross

Copyright, 2020. Business Rule Solutions, LLC.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior written permission of Business Rule Solutions, LLC.

ISBN:

Chapter 4

Creating Concept Models

We work with clients across a wide variety of industry sectors and, within those sectors, subject areas often new to us. You can probably guess some of the main sectors: insurance, finance, pharmaceuticals, retail, computer services, government. But many you probably would not guess: car racing equipment, electrical transmission, flight upgrade exchanges, immunology, railroads, subscription services, maritime services, luxury car dealerships, trucking, patent offices, weapon laboratories, NATO, and many others.

Time and time again, our clients have expressed surprise and admiration for how quickly we are able to get up to speed on their rich business knowledge. In a matter of days or a week or two we are able to ask insightful, probing, and highly fruitful questions. It makes us sound quite knowledgeable. Clients often say we somehow seem to know their business better than they do.

I confess it's a trick of sorts. If you have a blueprint to the business knowledge – well-defined and carefully structured – I believe *anyone* with a bit of deliberate care can quickly bootstrap their way to asking the right questions in the right ways. It all comes down to the terms and wordings you use to

form questions and to record the answers; that is, to *structured* communication and disambiguation.

Your concept model gives you a way to talk with subject matter experts in a way you've never had before. I'm not saying it's easy – there are many thorny questions lurking in business knowledge and legacy vocabularies. Rather, I'm saying the concept model will put you directly on the fast path to clarity. It's structure that gets you there.

In short, the concept model will:

- Guide you in asking the right questions.
- Help you achieve business clarity.
- Show you how the pieces all fit together.
- Make you sound smart.

What Creating a Concept Model Involves

A concept model addresses the all-too-common problem of people talking over each other, or past each other. It's about reaching shared understanding – getting everyone on the same page about their knowledge. A pragmatic approach to creating a concept model, and the business knowledge blueprint of which it is part, requires three fundamental ingredients:

1. Road-tested techniques for forming, naming, defining, and disambiguating concepts. Part II, coming up next, discusses those important topics. It tackles the challenge of making the fuzzy part of concepts *unfuzzy*.
2. An inventory of patterns for how concepts can relate to one another – *elements of structure*. Parts III and IV cover those. Elements of structure are critical. I'll have more to say about them later in this chapter.

3. A comprehensive set of guidelines for crafting precise, business-friendly definitions. Part V details those. These guidelines are not coincidental. A business knowledge blueprint will not be consumable by humans without solid definitions of terms.

Examples, Examples, Examples

In addition to the above, another factor critical for creating a concept model is having plentiful examples at your fingertips. Always know whom to ask for such examples and interact with those people frequently.

We once created an extensive concept model with a client for medical insurance. The question arose whether *disease* and *medical condition* were the same concepts. We're not doctors! Only by accessing lists of official examples could we determine they are *not* the same concept (at least for that business).

We strongly recommend identifying typical examples for each concept (as well as counterexamples) and then recording them for future reference. You'll be pleasantly surprised how helpful they can be in jogging memory and in confirming and explaining concepts as time goes by. Make recording examples a standard part of your approach.

Size Matters

How big will your concept model be? How many concepts? The answer is naturally *it depends*. We have created useful concept models of only several dozen concepts. And also ones with many, many hundreds of concepts. Practical size depends on:

- Defined scope. (*Always* define scope!)
- Complexity of the business knowledge.
- Degree of disambiguation capability desired.

What are your objectives? How pervasive and costly is potential miscommunication? What size body of text do you need to disambiguate?

To give you a rough idea, the largest concept model we have helped create addressed over 10,000 business rules in property and casualty insurance. It included approximately 40 neighborhoods (diagramming divisions of convenience), 500 terms, and 750 verb concepts.

The best advice: Start small, then see where you need to go from there.

Getting Started

In creating a concept model, you can start in any of several ways, whichever best fits your circumstances. For example, you can start by identifying terms or concepts that seem to be central to miscommunication and so most badly in need of clear definitions. Or you can create a list of terms most basic or most frequently used in business communications within scope.

Digging Deeper: Automated tools for extracting terms from existing, well-written documents are publicly available, many free.

It's always an excellent idea to identify existing definitions from reputable business glossaries to prime and accelerate discussion. Such glossaries may be external or internal to the organization. Our experience is that relevant business glossaries exist far more

often than you might imagine. They can give you an important head start.

Another approach to developing a concept model, better in many respects, is in conjunction with the actual authoring of textual business statements themselves (e.g., policy statements, product descriptions, regulation, etc.). We have done this for many years, for example, in conjunction with writing business rules. There's nothing like actual written business communication to sharpen awareness of disconnects among different business participants than having to write things clearly.

No matter what approach you use, always remember you're not actually starting from scratch. People already have concepts in their minds. The challenge is that those concepts are often not very precise and not necessarily shared.

Your Business Glossary

In case you haven't noticed, this book includes a Glossary at the end. I would be hugely remiss in bringing you the message of this book if I failed to define my own terms(!). Now is a good time to have a quick look at the Glossary.

You too will be defining your business vocabulary. It's fundamental to your business knowledge blueprint.

In organizing the entries in the book's Glossary, I included not only definitions, but examples, notes and basis (any source used for a definition). I need not have stopped there. I could have included other relevant information such as descriptions, reference sources, graphic illustrations, etc. Glossaries also typically identify synonyms and preferred terms, if any, and may include equivalent terminology in one or more other natural languages.

In organizing your own glossary, include as much or as little as you need (but never less than terms and definitions!).

Digging Deeper: There is nothing new about basic dictionary and glossary practices. The field of lexicography dates back centuries, so there is long and deep experience in the area. SBVR itself, for example, builds on the International Standard Organization (ISO) terminology standard 1087-1. Concept models do, however, bring potent new ideas to the table. One is verb concepts, as discussed in Part IV. Another is a sharper focus on defining concepts, not just words.

Diagrams of Concept Models

Yes, you can depict the structure of your concept model using diagrams. And you definitely *should*. Visualizations are extremely helpful in portraying sizeable blueprints of anything complex. *Go for it!* An example of a concept model diagram is included in Appendix 3.

Use the diagrams to verify the completeness and consistency of your vocabulary and definitions. Often, diagrams also help in simplifying the concept model. Do remember one important thing though. In the final analysis, if a diagram disagrees with the entries in your glossary, it's the diagram that's wrong, not the glossary.

What notation should you use for your diagrams? A warning: *Do not try to use data modeling, UML, or other software design conventions for that purpose.* Those conventions weren't designed for concept models.

A concept model is about capturing business knowledge and disambiguating business communications. It's about business meaning, not about designing computer systems or databases. *Big difference* – one software and database professionals often have a hard time appreciating! Ignore this warning and you are likely to turn off business people to concept models pretty quickly.

Digging Deeper: This book uses diagramming conventions that work well for us. They are part of *ConceptSpeak™*, the Business Rule Solutions, LLC (BRS) set of guidelines and techniques for designing business knowledge blueprints. Refer to Parts III and IV for examples and explanations of its conventions for diagramming and to Chapter 7 and Part V for defining concepts.

Whatever conventions you use, here's an important rule of thumb for the boxes in your concept model diagrams: *Never leave a new box undefined overnight.* Without a definition, you have no shared concept at all, with or without a term. Take a stab at it. Sleep on it. What you wrote down will probably need significant revision, but at least you've put a stake in the ground. All bets are off with undefined boxes!

Inevitably, you will be asked to explain how to read your diagrams. Be careful about the words you use for that. Never use the word *flow*. Process models *flow* (i.e., embody a series of transforms). Concept models, in contrast, are always structural; they *never* comprise flows.

A consequence of the *no-flow rule* – one that can be initially hard for people new to concept models – is that there is no natural or preferred point to start 'reading' a concept model diagram. Any starting point is as good as another. *Just dive in!* That part will become easy once you get the hang of it. Also, you will always

find that some concepts are more central than others, so those will naturally gravitate centerstage.

Tooling

Concept models scale in size quickly. Flip charts will do fine to get started. Beyond a certain point, however, you will want tooling to help you.

Naturally the tooling should be diagram-friendly. You don't want to constantly wrestle with diagramming features and functions, so the diagramming capability needs to be as robust and as user-friendly as possible.

Diagramming alone, however, isn't nearly enough. Creating a concept model is text-intensive work, especially but not exclusively for definitions. To support the work, you need a tool capable of building a business-friendly glossary that can be used directly on its own by business people and business analysts. The tool should provide complete synchronization between the text included in diagrams, and the text represented in the glossary. Comprehensive tracking and notation for terms within all text is also essential.

The full vision for business vocabulary is complete integration with document-authoring tools used by business people. Why shouldn't definitional criteria be embedded behind every business communication written, whether contracts, product/service specifications, governance or regulatory compliance documents – or even requirements for automated business solutions? In the Knowledge Age, definitions should be as immediate as spellcheck.

An important caution: Most repositories currently available were built for software engineering and software developers, not for

capturing business knowledge blueprints. They are generally neither as text-friendly or as business-friendly as they need to be for concept models. You are not engineering software. There is no point in force-fitting an ill-suited tool meant for IT. Don't fall into that trap.

Two Fundamental Kinds of Elements of Structure

In creating a concept model, you are designing a special kind of business blueprint, one crucial for knowledge work now and in the future. That blueprint needs to be specifically shaped using the structural notions described below.

Aside to the business executive: Understanding these structural notions is essential for practitioners.

Explanations, unfortunately, can sometimes sound a bit esoteric. If you've gotten the message thus far, feel comfortable leaving the rest to practitioners.

Along with business concepts, a concept model comprises a set of structural relations between and among those concepts. These *elements of structure* come in well-defined forms, which enable a highly disciplined approach. As discussed briefly below, elements of structure come in two basic varieties, *standard relations* and *verb concepts*. These elements of structure are discussed in-depth in Parts III and IV of this book respectively.

1. **Standard relations.** *Classification* and *categorization* bring deeper meaning (semantics) to sets of concepts that can be reasoned over. These two elements of structure do not need to be worded, just called out (often but not always graphically).

Example: We know that all mammals are animals. By calling out that connection, anything we subsequently say about animals in general automatically also applies to mammals in particular. If not, there is a flaw in our knowledge. *Reasoning for free!*

- 2. *Verb concepts.*** These elements of structure are based on verbs and verb phrases you'll need to form and disambiguate sentences to express your knowledge. The wordings for these verb concepts mean exactly what you say they mean – nothing more and nothing less.

Example: Suppose you say “*A person steals a car.*” That doesn't mean the person *owns* the car or *leases* the car or *drives* the car or anything else. It means a person *steals* a car. When you use the verb *steals* in a sentence in connection with person and car, you'll mean exactly *steals*. If this verb concept is not in your concept model but you need it to communicate something, you have a hole in your business knowledge (or at the very least, your ability to communicate that knowledge). Verb concepts are essential to the expressiveness and precision of business communications.

About Standards

Elements of structure provide enriched semantics, hence potential computational power. Collectively, these elements of structure permit you to call your concept model a *business ontology* if you like.

Digging Deeper: I mean *ontology* in a technology-agnostic sense – that's why I say *business ontology*. For example, I'm *not* talking about OWL (*Web Ontology Language*). But yes, your concept model can provide a solid grounding for use of such tools.

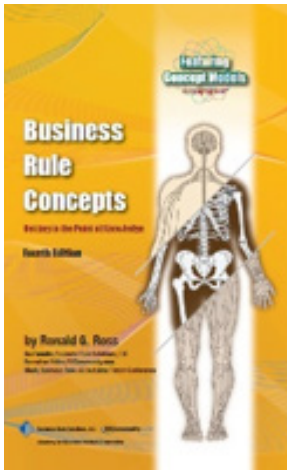
Just beware that not everything called a business ontology is a concept model. To be a true concept model, terms used in natural language business communications must be defined as business authors intend their meanings. Also be sure no one is put off by “business ontology”. Effective communication depends on using terms natural to *business* people.

The standard we follow in this book is the Object Management Group’s (OMG’s) *Semantics of Business Vocabulary and Business Rules* (SBVR)¹. SBVR is grounded in predicate logic as well as coordinated with standards such as OWL. You’re on very solid ground in using the approach this book describes.

By the way, it’s not surprising that SBVR arose in conjunction with business rules. Business rules in the large sense (not just what you see in most vendor platforms to date) have always been about expressing knowledge. They are much closer to writing legal contracts than IT requirements. But that’s a story for another day.

¹ Refer to the SBVR Insider section of www.BRCommunity.com for more information about SBVR. SBVR was initially published in January 2008 by the Object Management Group (OMG). Its central goal is to enable the full semantics of business communication (including business rules) to be captured, encoded, analyzed for anomalies, and transferred between machines.

Other recent books by Ronald G. Ross ...

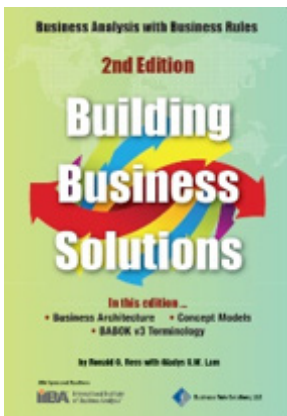


BUSINESS RULE CONCEPTS

Getting to the Point of Knowledge (4th ed.)

The classic in the field, this book is an easy-to-understand explanation of business rules and how they relate to business processes and business vocabulary.

Find out about the two major kinds of business rules and how to make business processes smart and agile. Down-to-earth, authoritative.



BUILDING BUSINESS SOLUTIONS

Business Analysis with Business Rules (2nd ed.)
(with Gladys S.W. Lam)

How can you put the ‘business’ into business analysis? How do you deliver true business value? What should you be doing before requirements?

This handbook presents practical, proven, innovative methods to build great business solutions, then derive requirements directly from them.

The latest online interactive training from BR Solutions.com ...

Engineering the Business Experience *How Processes, Rules, Data and Requirements Can All Work Together*

Top rated, top attended workshop at the BBC conference!
Session Leader: Gladys Lam (half day)

Concept Modeling *All About Business Vocabulary, Definitions and Shared Understanding*

Based on Ron's newly released book *Business Knowledge Blueprints!*
Session Leader: Ron Ross (half day)

Business Analysis with Business Rules *Sharpening Processes, Decisions & Requirements*

Proven techniques to create a robust business solution. Add real
value to your business.
Session Leader: Kristen Seer (3 days)



*Contact us at BR Solutions.com for
consulting, mentoring & training!*