Appendix C

PROVIDED MODELS

The models in Tables C-1 through C-6 are referenced in the chapters and provided to registered book owners. The list of models will be updated on the book's Internet site(s).

Table C-1. Chapter 1—Introduction Models

Model Filename	Description
brooks.itm	Example Brooks's Law model

Table C-2. Chapter 2—The Modeling Process with System Dynamics Models

Model Filename	Description
dynamic behaviors.itm	Example structures that produce typical dynamic behaviors
delay tests.itm	Demonstrates different time delay structures
test functions.itm	Demonstrates standard test input functions

Table C-3. Chapter 3—Model Structures and Behaviors for Software Processes Models

Model Filename	Description	External Source
rayleigh.itm	Rayleigh curve staffing rate	
resource allocation.itm	Resource allocation infrastructure where tasks with the greatest backlog receive proportionally greater resources ("squeaky wheel gets the grease")	Modified from isee systems

(continued)

Table C-3. *Continued*

Model Filename	Description	External Source
production.itm	Simple software production structure with single stock for personnel	
reuse.itm	Demonstrates reuse economy	
example1.itm	Example project that combines software product development (see production.itm) with personnel chain	
example1 reuse.itm	Adds software reuse to product development and personnel pool in example1.itm	
example1 incremental.itm	Adds incremental development structure to example1.itm	
system development.itm	Detailed model of combined hardware/ software development includes competition and market factors	Modified from isee systems
product.itm	Product production infrastructure includes target inventory and experience effects	Modified from isee systems
perceived quality.itm	Models perceived quality with delay for adjusting perceptions	Modified from isee systems
single tier personnel chain.itm	Single-tier hiring and quitting infrastructure with target growth percentage and replacing for attritions	Modified from isee systems
interact.itm	Detailed organizational model showing interactions between human resources, finance, product quality, and clients	Modified from isee systems
two tier personnel chain.itm	Two-tier hiring and quitting infrastructure	Modified from isee systems
rookie.itm	Simple rookie and pro personnel chain	Modified from isee systems
wrkchain.itm	Work flow main chain infrastructure whereby tasks undergo inspections with applied resources	Modified from isee systems
hrprod.itm	Human resources productivity infrastructure with levels for motivation, knowledge, and experience	Modified from isee systems
hrchain.itm	Human resources main chain infrastructure with three levels of personnel experience, promotion delays, and quitting fractions	Modified from isee systems

Table C-4. Chapter 4—People Applications Models

Application Area	Model Filename	Description and External Source
Project Workforce Modeling	human resource management.itm	Human resource sector from Abdel-Hamid's integrated software project dynamics model. Provided by Margaret Johnson.
	rookie.itm	Simple rookie and pro personnel chain. Modified from isee systems.
	hrprod.itm	Human resources productivity infrastructure; includes levels for motivation, knowledge, and experience. Modified from isee systems.
Motivation	overtime.itm	Effect of overtime on productivity relationship
Exhaustion and Burnout	exhaustion.itm	Exhaustion submodel from Abdel-Hamid's integrated software project dynamics model
	burnout.itm	Alternate model of burnout dynamics. Modified from isee systems.
Learning	learning curves.itm	Demonstration and comparison of learning curve formulations
Personnel Hiring and Retention	hiring delay.itm	Simple hiring delay model
	single tier personnel chain.itm	Single-tier hiring and quitting infrastructure; includes target growth and attrition replacement. Modified from isee systems.
	two tier personnel chain.itm	Two-tier hiring and quitting infrastructure. Modified from isee systems.
	hrchain.itm	Human resources main chain, includes three levels of experience, promotion, and quitting. Modified from isee systems.
Team Communication	brooks.itm	Brooks Law example

Table C-5. Chapter 5—Process and Product Applications

Application Area	Model Filename	Description and External Source
Peer Reviews	inspections.itm	Dynamic project effects of incorporating formal inspections
	insp.itm	Version of Abdel-Hamid's integrated software project dynamics model (includes switch for inspections) (also see *base.itm* for incremental processes and inspections). Provided by John Tvedt.

(continued)

Table C-5. *Continued*

Application Area	Model Filename	Description and External Source
Peer Reviews (*cont.*)	wrkchain.itm	Simple work flow chain where tasks undergo inspections using a conveyer model. Modified from isee systems.
Software Reuse	reuse and language level.itm	Impact of reuse and language levels. Provided by Kam Wing Lo.
Global Process Feedback	global feedback.itm	Illustration of global feedback to software process (simplified version of Wernick-Lehman 98 model). Provided by Paul Wernick.
COTS-based Systems	COTS glue code integration.itm	Dynamics of glue code development in COTS-based systems. Provided by Jongmoon Baik.
Incremental and Iterative Processses	base.itm	Dissertation model for incremental development and inspections. Provided by John Tvedt.
	project increments.itm	Three-increment project model. Provided by Doug Sycamore.
	simple iterative process.itm	Highly simplified software development structure using arrays to model iterations
Software Architecting	MBASE architecting.itm	Software architecting using the MBASE framework; also includes iterations. Provided by Nikunj Mehta.
Quality	COQUALMO.xls	Spreadsheet version of the Constructive Quality Model (COQUALMO). Provided by the USC Center for Systems and Software Engineering.
Software Process Improvement	SEASauth.itm	Organizational process improvement. Provided by Steven Burke.
	Xerox SPI.itm	Xerox adaptation of Burke's process improvement model. Provided by Jason Ho.
Other—System Testing	STEAM.zip	System test and evaluation model (Extend model files and other assets). Provided by Greg Twaites.

Table C-6. Chapter 6—Project and Organization Applications Models

Application Area	Model Filename	Description and External Source
Integrated Project Modeling	integrated project.itm (and all sector submodels)	Abdel-Hamid's integrated software project dynamics model translated into Ithink. Provided by Margaret Johnson.
Earned Value	earned value.itm	Earned value project simulator and trainer
Staffing	rayleigh.itm	Rayleigh curve staffing model
	rayleigh interactive.itm	Interactive user control of requirements influx to gauge impact on Rayleigh curve staffing rate

Table C-6. *Continued*

Application Area	Model Filename	Description and External Source
Staffing (*cont.*)	rayleigh incremental.itm	Rayleigh curve model with array structure to model incremental development
	rayleigh COCOMO.itm	Rayleigh curve calibrated to COCOMO with parameterized staffing shapes
	external concurrence.itm	Generalized external process concurrence model
	1phase.itm	Single-phase dynamic development project model (with process concurrence and iteration). Provided by David Ford.
	DNFProjProcess.mdl	Multiple-phase dynamic development project model (with process concurrence and iteration). Provided by David Ford.
Personnel Resource Allocation	proportional resource allocation.itm	Resource allocation infrastructure where tasks with the greatest backlog receive proportionally greater resources ("squeaky wheel gets the grease"). Modified from isee systems.
	project contention.itm	Models the contention of senior developers between projects in terms of project transference losses
Product Line Strategy	COPLIMO.xls	Spreadsheet version of the Constructive Product Line Model (COPLIMO). Provided by the USC Center for Systems and Software Engineering.
	core product line reuse.itm	Top-level, nonexecutable model of product line core software reuse
Business Case Analysis	value based product.itm	Value-based product model with software process, quality, market/sales, and financial models
	system development.itm	Detailed model of combined hardware/software development with competition and market factors. Modified from isee systems.
	interact.itm	Detailed organizational model showing interactions between human resources, finance, product quality, and clients. Modified from isee systems.