



Applying Simulation With Flexsim

Learning to get the most out of simulation technology

A text book featuring a new, immersive approach to teaching when and how to use simulation.

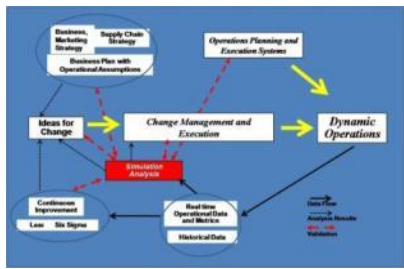
Based on the ease of use, visualization, and analytical capabilities of **Flexsim** 3D SIMULATION SOFTWARE

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 William Nordgren, MS-CIM

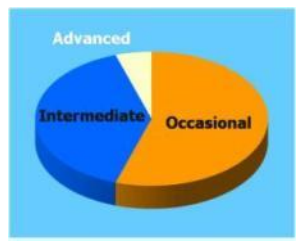
Section 1

Why Simulate ?

- Reviews the background that made simulation a valuable tool
- Details when simulation should be used based on characterizing the system under study
- Provides examples showing the economic justification of simulation
- Analyzes the impact of software technology on simulation and the changing nature of commercial simulation applications.



- Identifies how simulation interacts and complements business, lean, value stream mapping, organizational, and other improvement tools
- Defines the various levels of users based on their background and job requirements.



With minimal training, students immediately begin a hands-on journey through the various levels of simulation expertise. Each user level analyzes problems or resolves issues based on a series of operational examples drawn from application experience. The result is a learning experience that maintains student interest.

All the examples in the text are expressed as a problem or assignment. They contain the information and instructions needed to use Flexsim. Each exercise describes:

Background: Information about the company, plant, or operation.

Problem Statement: Definition of what has to be resolved

Operating Data: Information about the system (data statements, excel spreadsheets, etc)

Expected Results: The format of the result (report, presentation, etc)

What you need to know: Information about using the software relevant to the example

Section

2

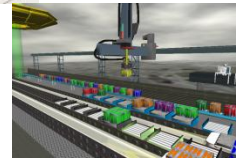
The Casual User

- Immediately starts solving problems with minimal training
- Changes simulation variables and analyzes results in pre-built models
- Practices specifying a simulation project to meet a particular need
- Learns to create a dynamic functional diagram by laying out equipment on the simulation surface.



:Recommend staffing policy

:Determine how to Increase throughput



Section

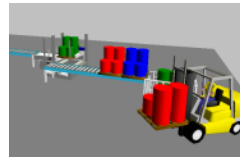
3

The Intermediate User

- Starts creating simulations
- Use templates to describe logic rather than programming
- Includes interactions of people, equipment or services,
- Configures conveyor systems
- Develops builds data tables as well as reports

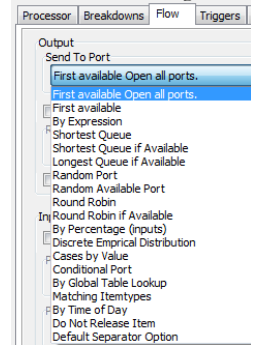


Operate a Ticket Office



:Increase Capacity

:Describe Logic



Section

4

The Advanced User

- Acquires a deeper understanding of the system being simulated and the simulation application
- Understands the software application structure
- Creates custom logic for complex applications
- Controls equipment and executes schedules
- Utilizes advanced techniques for data input, output, and reporting.



Improve batching operations



:Determine impact of multi line schedules

Appendix

Supplemental Information

- Instructions for obtaining and using the Flexsim software
- Statistical distributions used in the simulations
- Commands and techniques for input and output of data
- Impact of software structure and language on simulation applications
- Advanced visual techniques

Questions: contact malb@flexsim.com ----- Find out more and Download a preview edition at www.flexsim.com

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About the Authors



Malcolm Beaverstock, PhD. After a 40 year career applying advanced control and simulation to industrial problems, Malcolm Beaverstock retired to join Flexsim. During his 13 years with General Mills, he developed and lead their simulation program which was involved with more than 300 projects and resulted in significant savings attributed to the use of simulation.

Following graduate studies, Malcolm joined UniRoyal Chemical as manager of their advanced control group where he installed direct digital control systems. During his 17 years at the Foxboro Company he managed various technology groups and established the systems research department that resulted in the early development of Foxboro's I/A control system. As Vice President of Automation Technology, Malcolm initiated work into model-based control applications.

Malcolm holds a Bachelor's degree in Chemical Engineering and Labor Relations from MIT and a Doctorate from Cornell University in Chemical Engineering and Computer Science. He's the author of more than 200 papers on the application and use of advanced technologies.



Eamonn Lavery, PhD. Dr. Lavery completed his first object-oriented simulation software while in graduate school. In 1999 Dr. Lavery was hired by F&H Simulations B.V. to conduct research and development for new simulation products. He developed the OpenGL virtual reality animation views for Taylor ED simulation software. In 2003 Dr. Lavery Joined Flexsim Software Products, Inc. as the Chief Technology Officer. Dr. Lavery is the author and architect of the Flexsim Software.

Dr. Lavery holds a Bachelor of Science in Mechanical Engineering and a Doctorate in Object Oriented Modeling and Simulation of Manufacturing Systems from Queens University of Belfast.



William Nordgren, MS CIM. Bill is the President and CEO of Flexsim Software Products, Inc. In 1988 Mr. Nordgren founded ProModel Corporation and was Vice President until he left in 1992. In 1993 Mr. Nordgren founded F&H Simulations, Inc. (now Flexsim Software Products, Inc.) and introduced Taylor II, Taylor ED, and Flexsim into the market. Mr. Nordgren has authored several papers dealing with simulation project management, queuing theory, and has taught hundreds of classes in the use of simulation software. Mr. Nordgren is listed in Marquis Who's Who in America for his accomplishments in the advancement of simulation technology. Mr. Nordgren received a Bachelor of Science in Manufacturing Engineering Technology, and a Master of Science in CIM (Computer Integrated Manufacturing) from Brigham Young University.