

Application of System Dynamics

Indriani Noor H.

Prepared for CSP320 System Modeling
Faculty of Computer Science
Universitas Esa Unggul - 2018

References:

Sterman, John D. (2000). *Business Dynamics: Systems Thinking and Modeling for a Complex World*. McGraw-Hills. Chapter 3: The Modeling Processes.

- Read Sterman Chapter 2: System Dynamics in Action

Case 1 - Automobile Leasing Strategy: Gone Today, Here Tomorrow

- Dynamic Hypothesis
- Elaborating the Model
- Policy Analysis
- Impact and Follow up

Case 2 - On Time and Under Budget: The Dynamics of Project Management

- The Claim
- Initial Model Development
- Dynamic Hypothesis
- The Modeling Process
- Continuing Impact

Case 3 - Playing the Maintenance Game

- Dynamic Hypothesis
- The Implementation Challenge
- Results
- Transferring the Learning: The Lima Experience

Principles for Successful Use of System Dynamics

- Develop a model to solve a particular problem, not to model the system
- Modeling should be integrated into a project from the beginning.
- Be skeptical about the value of modeling and force the “why do we need it” discussion at the start of the project.
- System dynamic does not stand alone. Use other tools and methods as appropriate
- Focus on implementation from the start of the project

Principles for Successful Use of System Dynamics (2)

- Modeling work best as an iterative process of joint inquiry between client and consultant
- Avoid black box modeling
- Validation is a continuous process of testing and building confidence in the model
- Get a preliminary model working as soon as possible. Add detail only as necessary.
- A broad model boundary is more important than a great deal of detail.
- Use expert modelers, not novices.
- Implementation does not end with a single project.

End Slides.