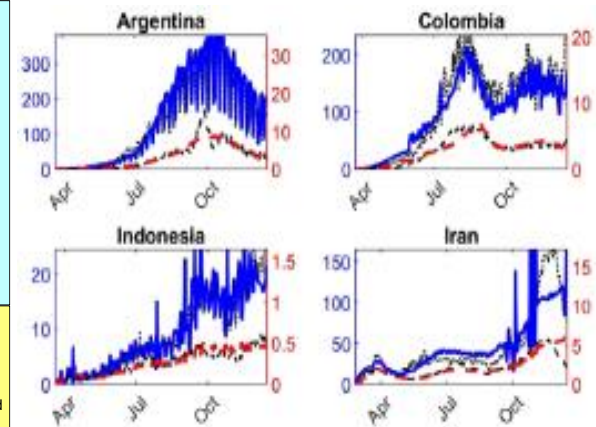
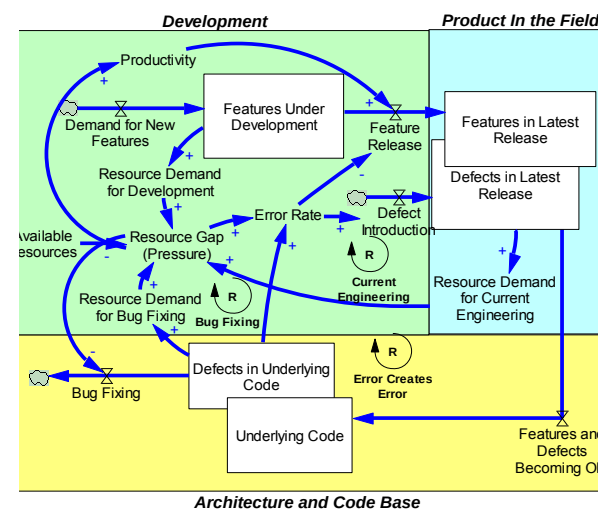
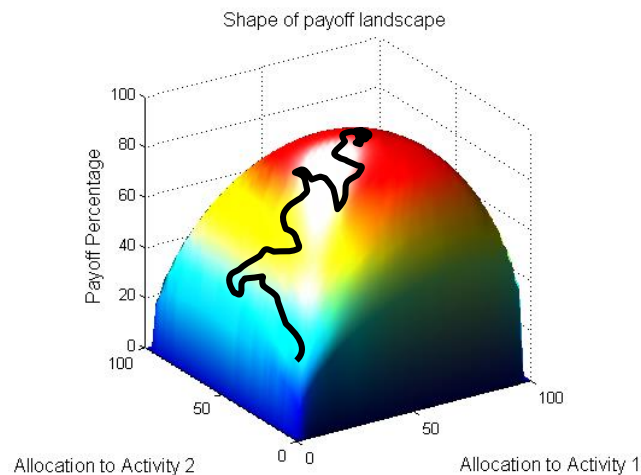
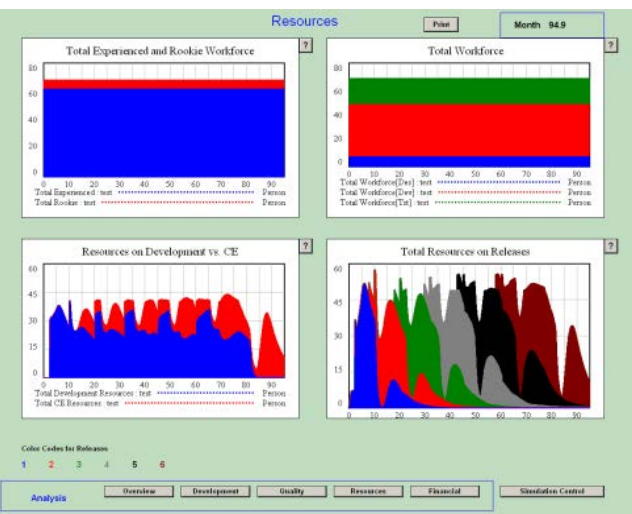


System Dynamics Research Seminar

Week 8: Endogenous Diffusion

15.879, Spring 2025



Problem Proposals

- Please upload your finalized proposal. If you have a question, let me know.
- Go through 2 (first draft) problems (based on the assignment method I emailed), critiquing those with the aim of designing more concrete problem definitions (leave comments on a copy of the draft in “FromClassmates”), and bring up discussion points on 4/18

S08: Endogenous Diffusion

- Diffusion of a product that is evolving over time:
 - Fraction of population adopting evolves with potential use cases (scope of the product) and its perceived utility
 - Faster adoption when more adopters help spread info
 - Scope expanded, with potential bugs gradually identified and fixed
 - Perceived utility getting feedback from perceived and actual bugs

Model S8- Common Challenges

- How to model bugs? From people who are using now, or anybody who has had bugs
- Scope of use vs. technology advancement: how to connect them?
- Can you do it chunk by chunk, or need to get bigger picture in place before moving?
- Complexity with units: lots of qualitative concepts

Model S8- What I look for

- Demand sector: alternatives to Bass that are simple and robust
 - Capturing the growth in market size with features (decreasing returns?)
 - Capturing the sensitivity of market size to (discovered) problems, and potential asymmetry in quality perception times
- Feature development (scope growth) and bug fixing:
 - Nice to have endogenous drivers for scope (marginal return? Profitability?)
 - Coflows or alternatives for modeling bug-fixing

What are good tests of performance and robustness for the resulting model?

- Inputs:
- Outputs:
- Expected behaviors:
- Robustness tests:

Next Week: Growth of a Professional Field

- Modeling the growth of a professional field of practice, e.g. SD:
 - Supply of services coming from practitioners; slow learning curve means we have novices and experts; quality of work determined by how much of work is done by novices
 - Potential demand stimulated by observing work done; reputation built with quality work and eroded with low quality practice, which limits or repels potential demand from becoming actual
- Bonuses: endogenous learning time (with expert support) and policy analysis

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15.879 Building Serious System Dynamics Models from Scratch
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