

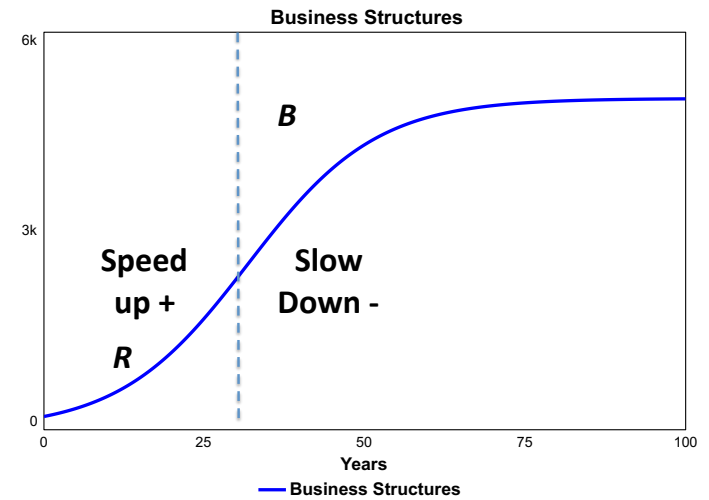
Exploring System Behaviour Using Model Structure

John Hayward

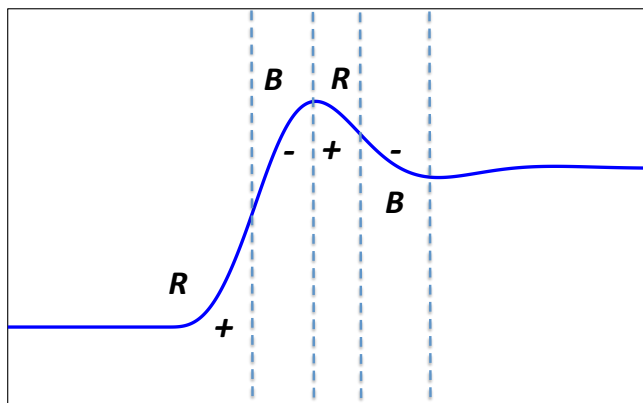
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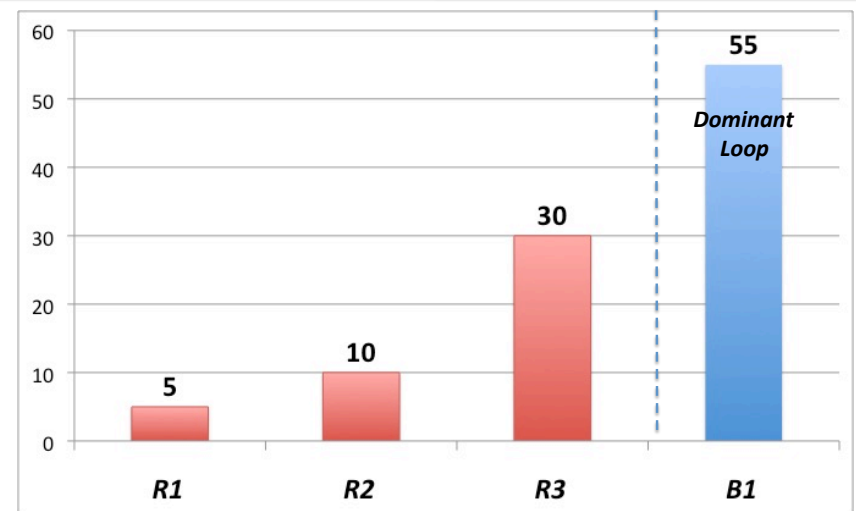
Behaviour



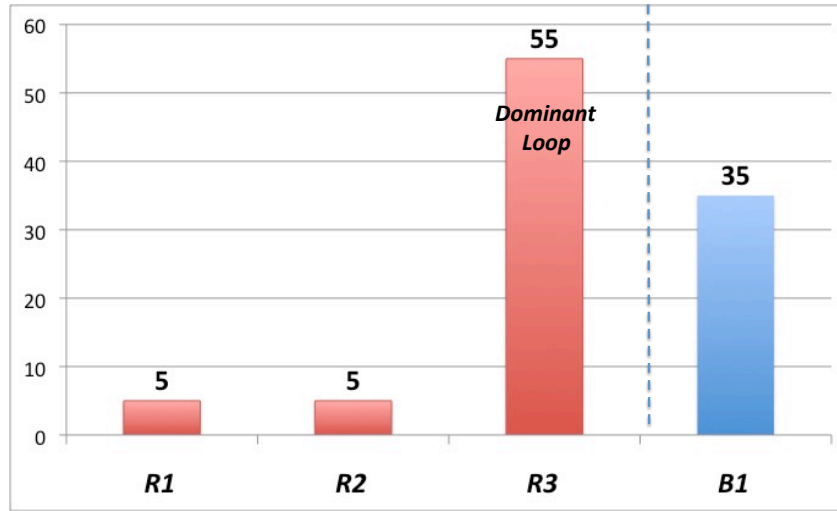
Loop Impact



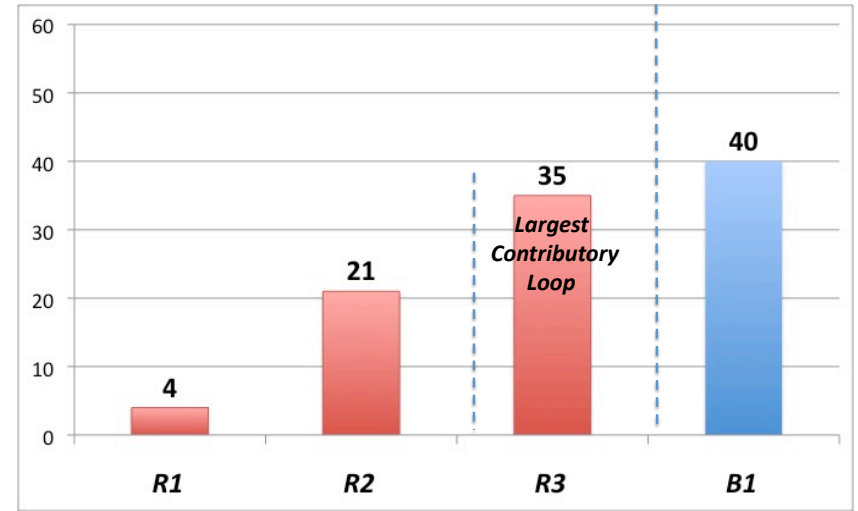
Balancing Behaviour



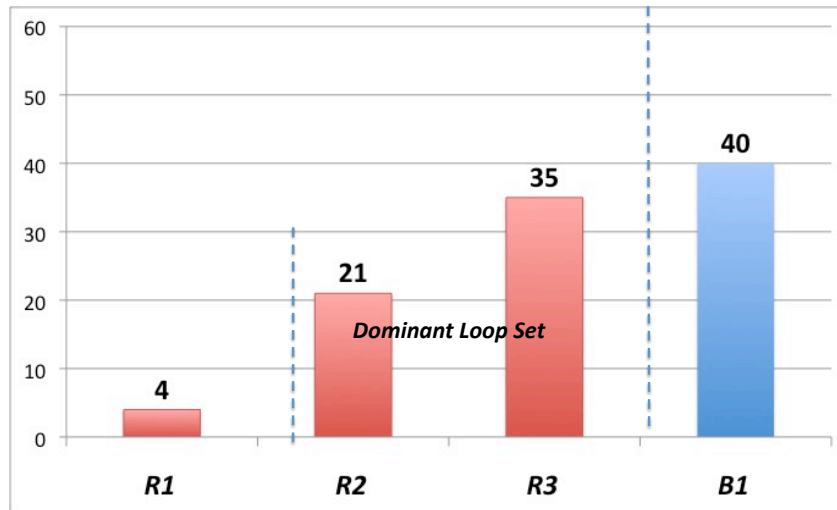
Reinforcing Behaviour



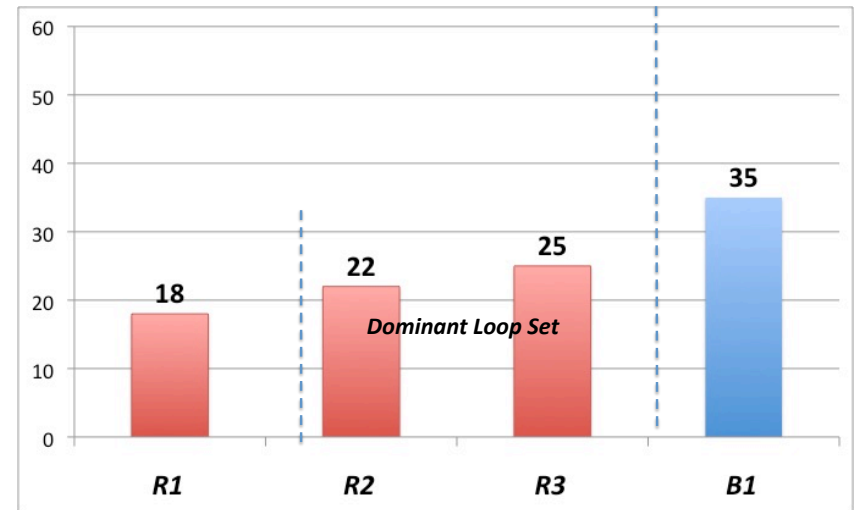
Reinforcing Behaviour



Reinforcing Behaviour



Reinforcing Behaviour



Stella Architect

<https://exchange.iseesystems.com/>

Search: Loop Impact

Select: Limits to Growth Archetype
Play

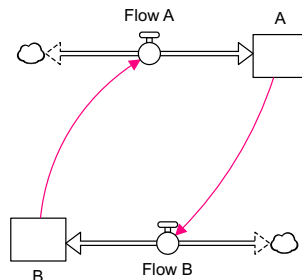


Impact

Impact of Loop on A = $\frac{\text{Change in Flow A}}{\text{Change in A}}$

= Change in Flow A given change in B X $\frac{\text{Change in B}}{\text{Change in A}}$

Impact of Loop on A X Impact of Loop on B
= Loop Gain



Structure -> Behaviour

1. What behaviour do we seek to explain?
Stocks – Curvature (speed up +, slow down -)
2. What structures do we use to explain it?
Feedback Loops (R, B)
3. How do we measure the effect of a structure?
Loop Impact – Ratio measure of change
4. How do we decide which structure is dominant?
Dominant Loop Set, alternatively: largest contributory loop