

## **Industrial Resilience**

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In this presentation, I will review the management literature on industry life-cycles and link it to ecological concepts of resilience. The management literature on industry life-cycles provides an opportunity for understanding some of the boundary conditions for resilience. Industrial activity contains conditions with high rates of innovation, entry by new “species”, the emergence of new resources, and rapid succession. As a result, there are some intriguing parallels between the literature on industrial and ecological resilience.

I will begin by reviewing the literature on industry life-cycles – highlighting the role of routines as a type of industrial genetic code. I will discuss some of the prominent theories and their empirical support before developing a general model of industry life-cycles. I will show that the management literature draws on the idea of succession and explains industrial shakeout based on differing rates of growth among firms with properties that mirror “R” and “K” species. I will demonstrate that theories of firm clustering, industrial dominance, and decline are all based on these differing rates. Finally, I will show that managers on average are making decisions in concord with profit maximization, but these decisions tend to reinforce the power of ecological models of industry development.

I will then discuss resilience concepts that management might profitably import to improve theories of industrial life-cycles. Prominent among these examples of potentially valuable theories are ecological models of island biogeography and ecosystem cycling. For example, management scholars remain unaware of the potential value of C.S. Holling’s work on the rate and scale of resource cycling. Yet stylized facts and anecdotal evidence suggest that the rate of cycling could help explain the relative stability of highly innovative regions, and the scale of cycling could help explain the slow recovery of some economically depressed regions.

Finally, I will review how existing models of industrial development have been used and misused by management scholars in thinking about how firms can develop more sustainable means of production and consumption. I will show that some of these models appear to provide a false hope in low cost solutions, while others appear to overstate the true cost of response.