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Ecology of Online Communities

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Abstract

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An ecological understanding that accounts for the complex dynamic interactions between communities and their environments is important to understanding the success and failure of online communities. Most prior studies have focused almost exclusively on communities' internal features, but in biology and organization studies, ecological approaches have shown that success is largely---and sometimes overwhelmingly---a function of what others groups are doing. This dissertation contributes to the fields of Human Computer Interaction, Social Computing, and Communication by drawing from *organizational ecology*, a vast social scientific literature that applies ecology to human organizations. Online communities are very different from classical organizations, so this investigation required questioning how well foundational assumptions of organizational ecology apply to online communities and empirically validating

basic assumptions about when online communities will form competitive or mutualistic relationships. It uses linear and nonlinear time series analysis to infer competition and mutualism in clusters of online communities and shows that mutualistic relationships are more common than competitive ones because they last longer. Interviews with members of overlapping online communities provide additional evidence for this widespread mutualism and help explain why so many overlapping communities are created in terms of the complementary benefits different communities can provide. An important implication is that designers of platforms and leaders of online communities should support resource sharing between complementary communities and cultivate ecosystems of overlapping and differentiated communities. By developing foundational ecological concepts, this work lays a foundation for future research and applications to support the emergence, performance, and design of online communities.