Title of initiative to be proposed:

The Indiana Social Simulation Platform (ISSP)

Name of lead PI, with title, department/school:

Edward Castronova, Media School

Key team member names and departments/schools (up to 10 names):

Diane Henshel, Coady Wing, Justin Ross, Alexander Alexeev (SPEA); Bennett Berthental, Psychological and Brain Science; Sandra Kuebler (Department of Linguistics) ; Patricia Mabry, Xiaoran Yan (Indiana Network Science Institute); Xiaozhong Liu (SOIC)

Description of area to be proposed. What constitutes this area of research or creative activity as emerging? (Word limit=500)

We aim to build a virtual platform for hosting human societies, much as a petri dish is used to host colonies of microscopic organisms. We will use existing game technology to build a virtual environment. Users will see themselves as players of a game much like any other. There will be puzzles, dangerous animals, quests, communication, travel, trade, crafting, and so on. But in playing this game, the users will form a simulated human society. Research has shown that the societies that emerge in virtual spaces like this emulate many relevant real-world behaviors, such as markets, reputations, and leadership. As a result, this simulated society can be used to conduct controlled experiments that are relevant to real world phenomena.

The platform, being a computer app, can be copied and replicated easily. With random assignment of users, the different copies of the world, the "shards," constitute control and experimental environments. Policy interventions can be inserted into different shards, allowing direct causal inference: "Policy X was attempted in World 3, 4, and 5, and Outcome Variable A fell in each one compared to the control environments 1 and 2." We would use EAR funding to build a small platform, then prove the concept using two research projects. Once proven, the platform would be leased to other researchers doing grant-funded work.

The first research project involves communication and malicious behavior: How and when do people switch from talking about a malicious act to doing it? And, what is the best way to respond to clues in communication streams? The second project involves economic growth: Why do countries blessed with natural resources have lower economic growth? And, what is the best way to encourage growth in these environments? (We may also team up with Fritz Breithaupt and Peter Todd to run experiments on consciousness.)

Building a large social experiment platform is now feasible. The game industry has been building worlds like this for more than a decade. Costs have fallen dramatically and know-how has spread outward. What is needed now is an adaption of this technology toward research. Not easy, but possible with the right team. Our initial team reflects the broad range of disciplines necessary for success. We have media producers, database specialists, big data analysts, modelers, linguists, biologists, psychologists, and economists.

We see a medium-term future in which the ISSP could host hundreds of thousands of users in complex social arrangements that persist for years. This social-macro level is where the thorniest human problems live. Controlled experiment at this level, which has never before been possible, could provide important new insights. The Indiana Social Simulation Platform has the potential to ignite a revolution in the study of human society.

Please submit to earprogram@indiana.edu