The statistics are clear. Since 2000, U.S. real wages have dropped 8%. Workforce participation has dropped 5%. Between 2000 and 2010, one third of all U.S. manufacturing jobs evaporated. Two thirds of those jobs moved to Asia due to a lack of competitiveness among entrenched U.S. producers.

In his article “Why the 2000’s Were a Lost Decade for America,” Robert Atkinson, President of the Information Technology and Innovation Foundation (ITIF) asks the question, “How do we make American firms more globally competitive to increase output, production and real growth?” (Industry Week, March 2013). I would offer a clear answer: “Reduce overhead.”

Salaried knowledge workers who plan, schedule, expedite, transact, and account for manufacturing operations can add up to 35% to production cost. The manufacturing knowledge worker’s principal problem-solving tool is a software called ERP – Enterprise Resource Planning. A senior executive at Infor, the number three ERP vendor globally, describes these ERP programs candidly, saying, “They suck.” I agree.

All of the current scalable ERP systems share a common weakness - in an effort to appeal to as broad an audience as possible, their internal functions have become extraordinarily complicated, rendering them *too big to radically alter.*  In turn, this has driven a calcification of business processes, requiring an expensive overhead structure. In order to remedy this, we must build industrial software systems with "complexity metrics" that grasp the strength of connections between people, problems, resources, and constraints. Ultimately, we must create a digital environment of orchestrated, laser-focused team problem-solving that maximizes the value throughput of the organization.

For 15 years I’ve built and deployed software tools that extend the limited usefulness of ERP. Currently, there are six factories in the U.S. and Europe using my software to generate about $1.3 billion annually. These factories have certainly enjoyed accelerated growth and decreased overhead, but the adaptations I’ve built thus far do not enable the level of problem-solving I aspire to achieve.

The largest area of opportunity for this software improvement is in scenario analysis. Knowledge workers want to the ability to rapidly try different solutions and pick the best options. The present system, however, takes too long to compute these scenarios. I hope that taking IS 604, DATA 609, and DATA 624 will provide foundational knowledge and skills that I can apply to solve this problem.

Secondly, the software should actively promote opportunities for users to help each other learn and solve problems together. This requires the software to understand the affinity networks and skillsets of its users. I hope that DATA 617 and DATA 621 will provide key insights into building this capability.

By building true ERP software - software that *doesn’t* suck - we can change the way manufacturing problems are solved, reduce overhead, and boost the competitiveness of U.S. producers. This is what I want to accomplish, and I believe earning the CUNY Masters in Data Analytics is an essential step on my journey toward accomplishing this goal.