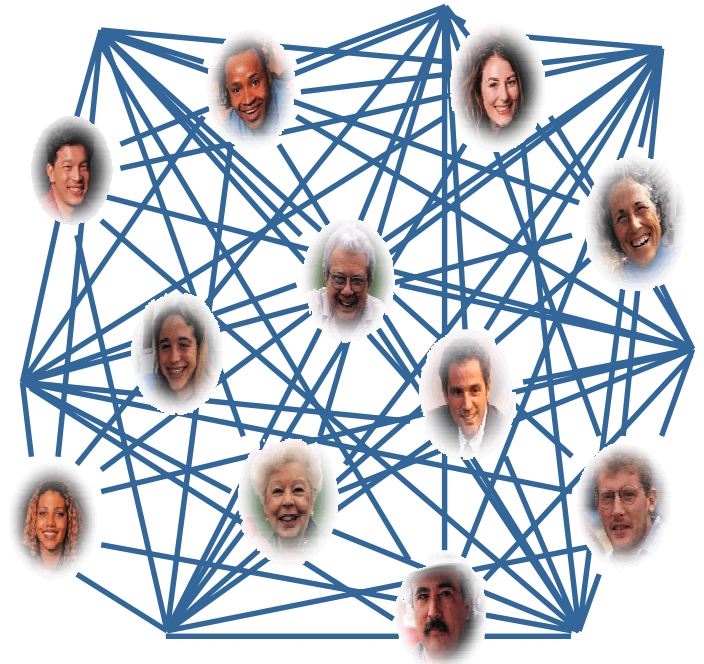


The complex dynamics of organizational change can be simulated using agent-based modeling

- Agent-based modeling is a type of computer simulation in which many objects are represented individually; agents are entities in the simulation that are autonomous, and may be able to learn, adapt and interact
- Agents may be individual people, companies, or divisions or units within one or more organisations
- Agents typically have individual characteristics and behaviors that differentiate them from other agents, even agents of the same type
- Agent-based modeling is a proven successful method at PwCC, with clients in many different areas



Agent-based modeling is an ideal tool to simulate organizational change since it can simulate the impact of change before the change is actually implemented, often showing unintended side effects

Agent-based modeling gives the ability to see what might happen in the future, gaining insight as to how to change organizational relationships to achieve objectives

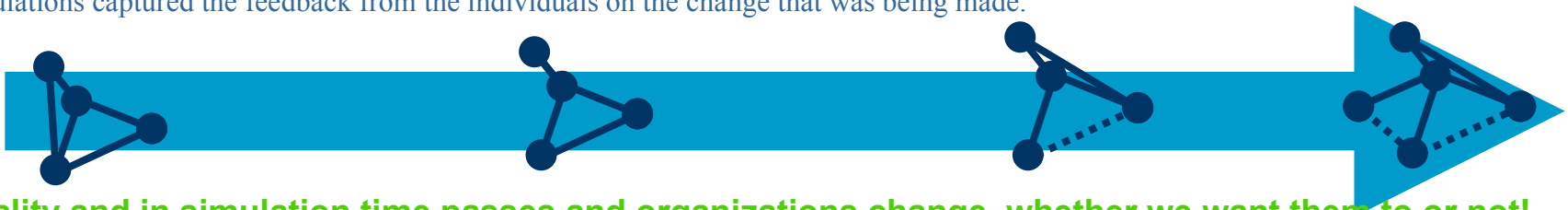
- Simulations are frequently viewed as “event-driven.” For example, machine X fails every 10 hours on average, product throughput is 500 per hour, expect one defect every 5,000 units.

But organizations are made of people!

- And unlike machines, people plan, adapt and react. Agent-based modeling can simulate organizational change in a moving and adapting target and even capture the feedback of people back on the policy of change.

Example: Company X decides centralize all billing, purchasing, contracting and invoicing relieving the business units of these functions. This change is supported by deterministic models showing that each business unit will be able to cut their overhead time by 10%. After a month, management was puzzled on why their new administrative division was underused. After some investigation they found that users in the business units did not have their user accounts terminated and they could still perform these functions as they always had and many still did so. When asked why they were not using this new benefit answers ranged from the practical, “takes less time,” to the suspicious “I’m not going to be the guinea pig,” to the ignorant “Huh? I never got that email.”

An agent-based model could have measured the reaction of the organization to the change and through several “what-if” simulations captured the feedback from the individuals on the change that was being made.



In reality and in simulation time passes and organizations change, whether we want them to or not!

We can learn from agent-based modeling by constructing simulations, validating them, performing what-if experiments, and altering assumptions

- **Construction of the simulation**
 - Who are the stakeholders?
 - What are their relationships?
 - What kind of interactions do they have?
 - Who else might be involved?
- **Validation of the simulation**
 - Does what we have constructed seem to represent reality?
- **Performing what-if experiments**
 - Suppose that X happens, what might happen in the simulation?
 - What if we implemented policy Y?
- **Altering the assumptions**
 - Does A really trust B as much as we think?
 - Are there other behaviors that would cause that event to happen?

PwC Consulting uses established proprietary construction tools to create realistic agent-based simulation models

The **Archimedes** simulation platform provides a system for modeling agent behavior in a framework that is easily accessible and extensible to domain experts.

The platform allows PwCC to rapidly create an organizational change simulation after analysis and investigation of a client's existing organization

