

RISK FREE DECISION MAKING

THE WORLD'S MOST SUCCESSFUL EXECUTIVES ARE MAKING BOLDER DECISIONS – AND RUNNING OPERATIONS – WITH LESS RISK AND BETTER OUTCOMES.

THEIR SECRET? **SIMULATION: EVIDENCE BASED DECISION MAKING**



“THE ABILITY TO IMPLEMENT CHANGES WITHIN A SIMULATION THAT SPECIFICALLY MIRRORS OUR OPERATING ENVIRONMENT IS ESSENTIAL. IT ALLOWS US A **RISK FREE WAY** TO PREDICT THE IMPACT OF CHANGE AND ALSO ALLOWS US TO FIND AREAS TO MAKE FURTHER IMPROVEMENTS TO OUR PERFORMANCE. “

Jawn MacDonald

HBOS

WHAT IS SIMULATION?

Simulation is using a computer to emulate a real world situation. There are lots of variations of simulation, here we are talking about process, or to be official, discrete event simulation.

In process simulation you take a flow of events that happen over time in the real world and put them into your computer simulation. For example, the day-to-day operation of a bank, the running of an assembly line in a factory, or the staff assignment of a hospital or call center.

The simulation is time based, and takes into account all the resources and constraints involved, as well as the way these things interact with each other as time passes.

Most importantly, process simulation also builds in the randomness you would see in real life. For example, it doesn't always take exactly 5 minutes for a customer to be served and a customer doesn't always arrive every 15 minutes.

This means that the simulation really can match reality, so when you make changes to the simulation it will demonstrate exactly how the system would behave in real life.

A uniquely powerful approach to decision making

Simulation is a powerful technique that allows you to make bold, confident decisions because it gives you the evidence to be sure you are making the right choice.

It's all based on complicated sophisticated mathematic algorithms but you don't need to know anything about these to be able to use it. Simulation software takes care of all the complicated statistics. You just need to focus on the decision making.

“SOMETIMES YOU ARE SO CLOSE TO
THE ISSUES THAT YOU CAN'T SEE
THE FOREST FOR THE TREES.
SIMULATION IS GIVING US A
HELICOPTER VIEW OF THE FOREST”

Bill Fox

Fuji Film

HOW DOES SIMULATION WORK?

Draw your process

Creating a simulation is just like drawing a flowchart. Then you add timing information, when work arrives (products, patients, paper work etc.) and the time tasks take to complete. Add in some rules about where work goes and you've built your simulation.

Run your simulation

When you click run, every individual piece of work is simulated. Every significant event that happens in your process is simulated all the clashes for resources (like people) and delays (queues caused by things not taking the same time every time). The clock in the corner of the screen tells you what the equivalent time would be in the real world.

Visualize

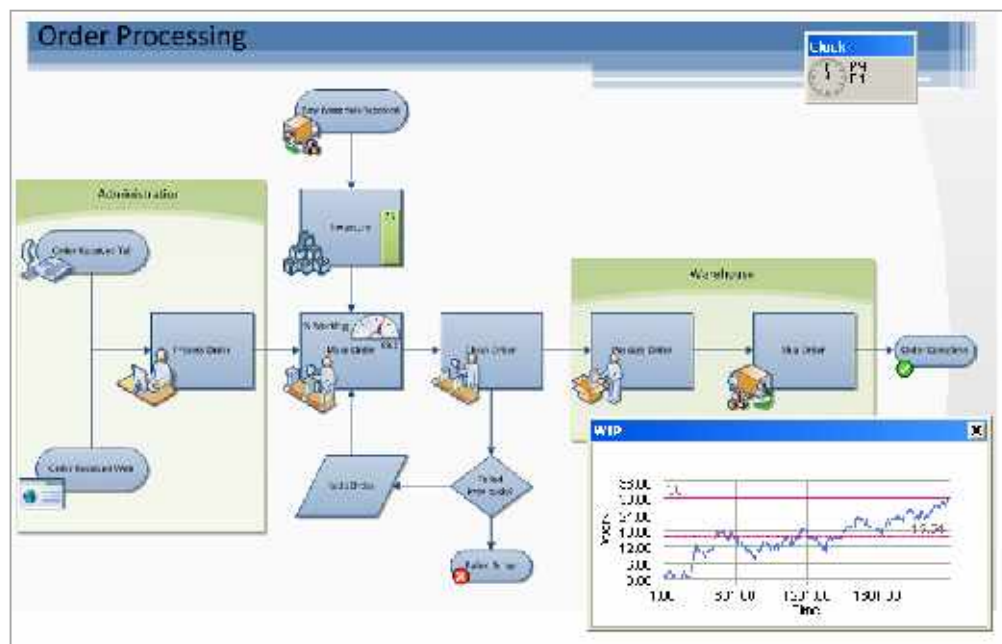
Simulation is animated. You can run the simulation at full speed to quickly get results, or run it slowly and watch every piece of work flow through your system. This enables visualization of your process. You can see key bottlenecks, over-utilized resources and under resourced elements of a system.

See the impact

The software automatically collects performance measures as the simulation runs so that you can not only visualize what will happen, you also get accurate numerical results about every part of your process.

Optimize your process

Now you can play "what if". Make a change, run the simulation again and see the impact of that change. Each scenario you run, takes you a step closer to optimizing your business.



WHY SHOULD YOU USE SIMULATION?

Better decision making

Using simulation all your decisions will be evidence based. You can compare multiple scenarios to consider all possible angles. As a result you will know your process inside out and be confident in making bold decisions.

Test ideas in a risk free environment

Experimenting in real life is costly. It's not only the capital expenditure of hiring new staff or purchasing new equipment, it's the cost of the ramifications of these decisions. What if you fire 3 staff, then find you can't cope with the workload and you lose customers? The only cost with simulation is the software and the man hours to build the simulation.

You don't need to wait to see what will happen

A simulation runs much faster than real life – so you can try many ideas in a few minutes. If you want to know whether hiring another 3 doctors will reduce patient waiting lists over the next 2 years you'll actually have to wait 2 years. With simulation you can run 2, 10 or even 100 years into the future in seconds. Get the answer now, don't leave it too late to react.

Test different ideas under the exact same circumstances

In real life it's impossible to repeat the exact same circumstances again. So how do try different ideas and know which one is the best? With simulation you can test the same system again and again with different inputs.

Helps you think and communicate

Simulation provides a vehicle for discussion about all aspects of a process. The rule and data collection forces you to consider why elements work in a certain way, if they could work better. It also brings to the surface inconsistencies and inefficiencies especially between different parts of a process that work independently. Sometimes the simulation doesn't even have to be finished - the framework it has provided to think through the issues can reveal the solution.

Visualization and animation

Simulation is visual and animated. It lets you clearly describe your proposal to others. It's more convincing than just displaying the end results as people can't see where these came from. Simulation is so effective at communicating ideas that many companies now use it as a sales tool to sell their products.



UK NHS REDUCES DEATHS BY 18%

Simulation helped the UK NHS understand how to implement best practice in care of stroke victims.

They showed they could decrease deaths by 18% without significantly increasing costs.

Learn how the NHS and others have used simulation to improve patient care and efficiency at

www.SIMUL8.com/healthcare



GM INCREASES THROUGHPUT BY 5%

An increase in demand meant GM had to increase production. Using simulation they got smarter about maintenance prioritization rules.

This meant they could cope with an increased throughput of 5% without increasing their costs.

Learn how GM and others have used simulation to improve throughput and production at

www.SIMUL8.com/manufacturing

8 SIMULATION SUCCESS STORIES

Simulation consistently delivers significant value – strategic to tactical, top-line to bottom-line – to the organizations and executives who use it.

A few examples:

- 1** Alabama saved \$250 million using simulation to provide greater predictability in predicting the short and long-term impact of policy and budgetary decisions.
- 2** Simulation helped the UK NHS understand how it could save \$166 million by moving treatment of dermatology from hospital outpatient departments into the community.
- 3** NASA used simulation to model the manufacture of a test flight article for the future Ares 1 launch vehicle to help NASA return to the moon.
- 4** Wyeth Pharmaceutical used simulation on 2 projects. Each took less than a month from start to finish and resulted in avoiding capital expansion costs of between \$1million to \$2million.
- 5** New Zealand IRS used simulation to plan shared services at a national level. Simulation helped them get back to full operation just 3 days after an earthquake.
- 6** NATO used simulation to analyse the communication between command and control for effective decision making on the battlefield.
- 7** The Mexican Foundation for Health used simulation to predict the future economic burden of obesity in children and determine the shape their health services of the future will need to be.
- 8** Boston Scientific saved \$150k in inventory costs on their production line by moving from static spreadsheet analysis to simulation.

For more simulation case studies, visit www.SIMUL8.com/our_customers

5 SIGNS YOU COULD BENEFIT FROM SIMULATION

1. You face complex decisions.

Are you faced with more decision factors than you can get your arms around? Do you need to make changes to your process but you can't risk it going wrong? As humans there are only so many variables we can hold in our heads at one time. A computer can easily and accurately process all the complicated interactions that happen in your process.

2. You're having problems with processes.

One or more of your processes is broken or needs to work a lot better. Many small, day-to-day decisions are not being made well, and it's having an impact on your bottom line. Simulation can help you help you test different ideas to find the most efficient solution to your problem.

3. You can't wait to see the impact.

If your decisions will have implications in months or years to come then it's impossible to put a change in place and see what the outcome will be. With simulation you can fast forward to see the impact of your choices.

4. Your business process has variability or uncertainty.

If events in your process don't always take the exact same time, or you can't predict exactly when new work will arrive then you have variability. If you use other techniques like spreadsheet modeling you'll have to rely on averages. Averages can never truly reflect the real world and when just a little real world variability is added the results can be wildly different. Simulation can be made to match your process exactly.

5. Your process doesn't exist yet.

You need to create a new business process, but how can you know it will work? Will it be able to cope with demand? Simulation can help you design your process and validate your assumptions before waiting for the real system to be ready.

MORE QUESTIONS ABOUT SIMUL8?

Visit www.SIMUL8.com

Or contact SIMUL8 at 1-800-547-6024

225 Franklin Street
26th Floor
Boston
MA 02110
1-800-547-6024

29 Cochrane Street
Glasgow
UK
G1 1HL
+44 141 552 6888

