

***iThink* Uncovers Surprising Insights: Minimizing Risk with Systems Thinking**

Organizations know when they have a problem – sales are down, inventories don't meet demand, there's a revenue shortfall, people are complaining about service. The trick can be figuring out what's causing the problem. And when the cause of a problem is unknown, it can't be fixed. Worse yet, wrong assumptions often waste time and energy (and often cause embarrassment) as bad solution after bad solution is tried.

Using *iThink*, organizations test their assumptions about problems, their causes, and potential solutions with models and simulations. Models illustrate entire systems so that assumed problems are seen in context yielding real benefit. Seeing entire systems, not just the parts that seem problematic, often uncovers other, bigger problems or opportunities for better solutions. Better yet, it eliminates the risk associated with real world trial and error.

Egbert Roos, Principal of Buroos, a Netherlands-based consultancy that routinely applies Systems Thinking in client engagements, has provided several examples of organizations that have benefitted from *iThink* and the surprising insights it revealed.

Financing Youth Programs

Every year the City of Amsterdam funds a youth care program. The program's long waiting lists caught the attention of city officials who attributed it to poor performance. The waiting list also earned negative press which created pressure to review the program.

Roos was called in to help the city explore possible solutions to the waiting list problem. He created an *iThink* model that helped the city visualize the entire program, from wait list entry through program completion.

“Press attention really focused the client on waiting list length – not only as a problem but as an indicator that the program wasn't performing well,” says Roos. “Since they thought that the waiting list was the problem, it seemed obvious an increase in program funding would be the solution.” With more funding, more kids would enter the program and the waiting list would shrink.

Roos tested that assumption with the model and found that increased funding added to waiting lists. “At first we thought the model wasn't working,” reports Roos. “We examined the model that showed kids moving through the entire program, from sign up, through the waiting period, and into the program. It was working perfectly. We discovered that it was wrong to use waiting list length as a measure of program performance.”

When wait times were long, many kids dropped off the list in frustration. When funding increased, so did capacity. Waiting time decreased. There were more kids on the list but they got into the program faster and the drop-out rate decreased. The result was that more kids got the services they needed which led to better outcomes.

Without first testing assumptions with *iThink*, city officials would have increased funding, measured the waiting list, and concluded that increased funding was not improving performance. They probably would have decreased funding again and missed an opportunity to make program improvements.

Changing Parental Rights Review Process

iThink also helped the City of Amsterdam think through the parental rights review process. Revocation of parental rights is a serious measure that is taken to protect children who are in unsafe or unhealthy home environments. Of course, parental rights cannot (and arguably should not) be revoked without a thorough review of the situation and a lot of careful thought on the part of many people.

There was concern that the City's parental rights review process was long and arduous to the point of being detrimental to the children involved. It was assumed that a faster process would minimize harm by getting kids away from unfit parents and into family guardian homes.

Roos built a model that illustrated the entire review system; all players and all processes including the flow of funding from the national government to the city office that distributes financial support to family guardians. When the review process was shortened from one year to six months, the model indicated almost immediate, negative financial impacts.

“City officials were surprised to see that just months after the review process was shortened, costs for guardian families began to exceed budgets,” says Roos.” Because the model showed the entire system, it was easy for them to see why.

The national government pays the city for family guardians that were needed two years ago. For example, in 2009 the city received payment for guardians it funded in 2007. When roughly the same number of kids go to guardian homes every year, the funding cycle works. However, when the process speeds up, more kids need guardian families in the short term and there's a budget shortfall. The model goes on to show that over 10 years, the number of required guardian families would gradually decrease and financing would reach equilibrium – the amount the national government gave the city would equal the amount city paid guardian families.”

While shortening the review process might have been better for the children involved, it would have bankrupted the family guardian program in the short term. Testing their idea with a model was a risk-free way of learning about its negative impact.

Preserving Cash Flow in a Small Company

Running a profitable fashion jewelry design and manufacturing company requires good sales projection skills. Pieces that will go on sale in the winter have to be designed and market tested in the spring so that the right amount are made in the summer and marketed in the fall. That means that materials have to be pre-ordered which requires knowing how many pieces will be sold.

A small company that designs and makes jewelry needed to improve cash flow. They were paying a lot of money for materials months ahead of sales and then failing to sell their entire inventory. They had a problem but what was it? Were estimates poor? Was the material ordering process broken? Did the company have a sales problem?

iThink models are especially helpful when there is a problem but no clear, understood cause. And, as in this case, there are often several problems with several causes and *iThink* can help prioritize and focus on high leverage solutions.

Roos built a model of the company's business operations that included the design phase, sample creation, material ordering, manufacturing, selling, etc. The company did indeed have a problem with unsold inventory but they also had a significant financial problem with a simple, broadly beneficial solution.

"We quickly saw that the company's accounts receivables were out of control," said Roos. "That added cash flow pressure to the estimation process. Once we saw that problem, we realized it could be easily fixed by renegotiated payment terms. The company would realize revenue in a shorter time frame and could cover material costs without creating a deficit. Solving that problem first eased their cash situation which made it possible to address more difficult problems."

Only by creating a model of their whole business was it possible to see and fix problems they didn't even know they had. By fixing those problems, they gained the cash flow and time they needed to make other business improvements.

About Buroos (www.buroos.nl) — Buroos is a consultancy based in the Netherlands that specializes in Systems Thinking. Egbert Roos, Principal of Buroos, has over 15 years experience in consulting and in system dynamics modeling. With a background in engineering and economics, Egbert loves to be challenged by complex organizational issues (often with a quantitative angle). He has experience both in profit and non-profit organizations in the Netherlands as well as in neighboring western European countries. He has successfully completed numerous projects in local and national government and in various business sectors ranging from banking to high tech electronics to ICT in transportation and supply chains.

About *iThink* — *iThink* guides business teams through the creation of models that simulate processes and scenarios; pointing out the impacts of a new procedure or policy, and offering opportunity to fix undesirable outcomes. Based on Systems Thinking, *iThink* models serve as "practice fields", showing you outcomes that could be painful, costly, or embarrassing if discovered in reality.

With the help of *iThink* and consultants like Egbert Roos at Buroos, organizations around the world have gained better understanding of their own systems and discovered high-leverage, often surprising solutions to known and unforeseen problems. For more information or to download a trial version of *iThink*, visit www.iseesystems.com