

# VIEW FROM THE TOP

Based on a tragic Mt. Everest climb, the Leadership and Team Simulation: Everest V2 aims to teach leadership and team dynamics. **By Lorri Freifeld**

Companies such as FedEx, The Hartford, and Union Pacific offer some of their leaders the opportunity to climb Mt. Everest. But the trek does not require parkas, ice axes, or karabiners. Nor will participants feel the least bit cold.

They must, however, make life-and-death decisions about who gets how much oxygen, correctly calculate the weather when the weather station is knocked out, and determine what to do when one of the team begins to experience hypothermia.

Welcome to the Leadership and Team Simulation: Everest V2, a simulation co-created by Bryant University (RI) Trustee Professor of Management Michael Roberto, D.B.A. Drawing inspiration from Roberto's research on the failures of a May 1996 Mt. Everest climb that resulted in the death of five

mountaineers, the simulation aims to teach leadership and team dynamics. "I've found that when you take executives out of the usual business setting, it's very compelling for them," Roberto says. "We wanted something focused on team dynamics and leading teams. We wanted to do something different, so we could measure performance."

Roberto had written several case studies on the Mt. Everest tragedy and other non-traditional business failures such as the Columbia Shuttle crash and the BP oil spill when Harvard Business Publishing approached him to develop a simulation. It knew his current work and work he had done previously at Harvard. He brought in a Harvard Business School colleague he had worked with, Amy Edmondson. Roberto and his colleagues worked with West Coast software developer Forio Business Simulations on the Web-based simulation, which took one year to develop.

Roberto admits creating this type of simulation was challenging. “It’s one thing when you are doing a strategy or marketing simulation—something that’s quantitative. It’s much more difficult when it revolves around behavior and trying to anticipate behavior.” He notes that typically in business schools, simulations are semester long, where every week, the participant makes business decisions and gets results per quarter. “But you’re not going to get executives to do that,” he notes. “You need something compact that you can do in a few hours.”

As a result, the team built paper-based beta tests first, Roberto says. “We wanted the simulation to be not too hard and not too easy. Faculty members around the world tested it with hundreds of MBA students.”

In the simulation, teams of five have to climb Mt. Everest. They move up from base camp to the summit. One person is designated as the leader, and the other four have specific roles, including: a photographer looking to get pictures from the summit, a physician doing research on high-altitude sickness, an environmentalist looking to clean up the mountain, and a marathoner looking to test his endurance. Each role has a specific goal and objective. The roles can be randomly assigned, or the company can specify ahead of time which learner takes on which role. “The goal for each team is to reach the summit and avoid rescue,” Roberto explains. “But during the simulation, students discover there are many challenges, including: weather; shortages of food, oxygen, and medical supplies; and the health and mental acuity of the climbers. Reaching the summit requires difficult group and individual decisions, and not everyone will succeed.”

The simulation can be done with everyone in the same room, working on a laptop or tablet. Or it can be done virtually, with learners communicating via phone or the text chat function built into the simulation. The platform is Web-based, so there is no downloading. Players just get a user name and password. They have access to pore through the results for some time after the simulation.

“It’s a half-day experience,” Roberto says, “with the simulation taking approximately three to four hours.” There is an introductory video, which includes an interview with climber James Clarke, instructions on how to play, and what to expect from the climb. “At the end, players engage in a debrief on the effectiveness of the leader and the team,” Roberto says. “There are survey questions embedded in

the simulation, and participants determine what percentage of the goals were achieved—there is a point system, so they can determine what was achieved personally and overall as a team.” The simulation also can be stopped in the middle to have a mini-debrief, so the team can talk about techniques it might use to improve performance in the second half of the simulation.


At the corporate rate, the simulation license costs \$100 to \$150 per person. If a company chooses to do it as part of an executive program at the school with Roberto facilitating, the cost is much less, he says.

While the simulation is not customizable for individual companies, it does lead to different dynamics depending on whether a company has an intact team participate or brings together learners from different functions and divisions within the organization. For example, with an intact team, the current leader might automatically assume the leader role, and the other team members might defer to him or her. That might lead to bad decision-making or at least prevent some team members from speaking up and bringing up a key point to consider.

“A little bit of dysfunction is a good thing in this type of simulation,” Roberto says. “That way you have a conversation about why some teams do well and others do not.” He believes it’s helpful to have 20 people—four teams—from one company do the simulation, so there are results they can compare to and benchmark against.

In addition, for reinforcement purposes, the simulation is most successful as part of a leadership development program, Roberto says. “FedEx brings the same group of people together over 12 to 18 months, so they are seeing me and other professionals throughout that time, and they are reminded of the lessons learned from the simulation. The simulation works best if I have the whole day with the team, not just the three to four hours of playing time. I’ll do exercises on playing devil’s advocate and how to break teams into sub-groups, for example. This helps to reinforce the messages learned in the simulation.”

Roberto says there has been “an explosion of simulations now that have become more effective, more realistic, richer, and more enabled by technology. The one rule to remember is: The clearer a simulation is, the more powerful it is.”

To see a video about the Everest V2 simulation, visit <http://www.youtube.com/watch?v=vFOqM1B6nuE> 

## CASE STUDY

## MEDTRONIC, INC.: SIMULATING HIGH-POTENTIAL TEAMWORK AND MEDICAL DEVICE USAGE

Here are two case studies that illustrate how Minneapolis-based Medtronic, Inc., a provider of medical technology uses simulations from two different technology providers in two very different parts of its business—but with the same superlative results. **By Margery Weinstein**

### HIGH-TECH FOR HI-POS

When Medtronic, Inc., a Minneapolis-based provider of medical technology, needed a way to give high-potential employees a sense of teamwork under pressure, it turned to simulation technology. The company incorporated a team-based leadership simulation from Enspire Learning into its Emerging Leader Program (ELP) that creates insights on personal leadership styles. It also allows emerging leaders to practice cross-functional teamwork that deals with ambiguity under time pressure, communication across the enterprise, and making strategic trade-offs.

Medtronic offers ELP to a group of carefully selected rising stars within the organization. The program is designed to prepare high potentials for leadership roles by:

- Exposing them to Medtronic's core businesses and key business processes
- Creating and fostering strong cross-business and cross-geography networks

### WORKING AS A TEAM TO SOLVE PROBLEMS

Participants in the program have at least three to five years of experience working for Medtronic and come from diverse functional areas and geographic regions. The learning challenge was to engage this highly motivated and talented group in a meaningful and realistic leadership exercise that allowed participants to see their own blind spots and learn from their own mistakes in a meaningful way.

To reach program goals, Medtronic deployed Executive Challenge, an experiential learning

solution created by Enspire Learning that allows participants to collaborate, deal with adverse events, and solve problems under pressure. The simulation supports the Medtronic Mission and values such as customer focus, candor, trust and respect, courage, accountability, and passion to win.

### AN IMMERSIVE, COMPETITIVE MARKETPLACE

Medtronic uses the simulation over the course of two days as a capstone event for the second of three sessions. The simulation is used to prepare participants for their team presentations to the program sponsor at the end of the ELP. Teams of eight or nine participants immerse themselves in a dynamic, competitive marketplace in which they compete against three other teams. Participants have their laptop connected to the simulation online and play a unique role on the leadership team of a virtual company. The interface allows each participant to manage a pool of virtual employees, move projects through the virtual company's product development pipeline, check marketplace reports, and receive company announcements in their in-box. This technology lets each participant play an important role in the development of the company and be held accountable for his or her decisions as an individual, as well as a team. Participants must communicate with their team members to ensure everyone's individual decisions adhere to the team's overall business strategy. And just as participants learn how to effectively play their role, they receive an e-mail in their in-box notifying them of a corporate reorganization, where the CEO suddenly

may be reassigned as a director-level employee or vice versa.

Through interactive debriefs and reflection periods, participants identify individual leadership and management styles, and learn how to balance personal and organizational objectives, build effective teams, solve complex business problems collaboratively, define a clear strategic vision, and implement their vision in the face of adverse events. Working closely with fellow Medtronic employees in the simulation also helps participants forge strong relationships across departments, offering networking opportunities for the participants.

## INDIVIDUAL VS. TEAM DECISION-MAKING

From the learner perspective, here is how it works: After the introduction to the virtual competitive landscape, teams write mission statements for their virtual companies, describing what strategy they want to pursue and how they want to make decisions as a team. Over the course of two days, teams then work together to invest in and launch product lines to build a profitable and sustainable company. They must manage human resources,

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finances, and pipeline progression in timed quarters of game play. Participants have their own laptops to input individual decisions into the simulation. Teams often discuss these decisions as a group, but, just as in the real world, when the decision is left up to individuals, they may use the team's business strategy as a guide, or, when there is less clarity or cohesion among the team, may decide to do what's best for their functional department instead. And when critical adverse events arise—hurricanes that threaten to shut down a production line or dangerous manufacturing

defects, for example—individuals often have to make important decisions under time pressure and with ambiguous data while their peers are distracted with their own problems.

Between periods of simulation play, facilitators lead debriefs to reinforce learning objectives. These debriefs are targeted toward effective team leadership. Topics include awareness of individual strengths in team settings, influence of individual leadership styles on team dynamics, and awareness of contributions and roles within cross-functional teams. Participants think critically about their performance in the simulation and reflect on the connection between effective team communication and the ability to solve problems successfully. As the simulation experience draws to a close, teams review the mission statements they created at the beginning of the experience and consider how they can take the lessons from the Executive Challenge simulation back to their actual responsibilities at Medtronic.

Trainers and administrators need little training to get the browser-based, hosted simulation up and running, but talented and committed facilitators are essential ingredients for Medtronic to frame the simulation and relate the experience back to the participants' day-to-day jobs. Medtronic targeted the debrief topics for this program toward team communication and collaborative problem-solving, but the same simulation set-up often is used for other competencies such as change management or business acumen.

The Executive Challenge simulation, including facilitation and program set-up, costs Medtronic approximately \$30,000 per deployment for groups of 30 to 40 individuals. Medtronic first incorporated Executive Challenge into the ELP in spring 2010. Due to positive participant feedback and alignment with learning objectives, the program has been repeated twice annually since the first event and may expand further in the future. At the end of the two-day simulation experience, participants completed program evaluations. More than 90 percent of participants

responded “agree” or “strongly agree” to the statements that they received significant value from participating in the simulation and that the experience increased their ability to work more effectively as part of an organization and team.

“It was great to think about the big picture,” says one participant. “I feel so cut off from many parts of the organization in my day-to-day job that this will help me continue to see and think about higher-level decisions.”

## CASE STUDY 2

# SIMULATION WITH HEART

Medtronic, Inc.'s Endovascular Therapies division needed to train doctors to use one of its medical devices, but wanted to enable this training in a risk-free environment, so it chose a Medical Simulation Corporation (MSC)-developed simulation technology. MSC develops and delivers customized simulation training programs with medical device manufacturing partners to accelerate clinical trials, support product launches, meet market development goals, and, ultimately, produce better patient outcomes.

A high-fidelity simulation training program was developed around the Valiant Captivia Thoracic

thoracic aortic aneurysm can cause life-threatening bleeding. In recent years, a treatment has been developed to repair an aneurysm without major surgery. The procedure results in less blood loss, less trauma to the aorta, and fewer (or no) days in intensive care.

The Valiant Captivia device treats descending thoracic aortic aneurysms using a minimally invasive procedure called endovascular stent grafting or endovascular aneurysm repair (EVAR). Historically, this disease process would have been treated in an open surgical procedure, which requires the patient to undergo a general anesthetic

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Stent Graft, used in the treatment of a thoracic aortic aneurysm, which is a weakened and bulging area in the upper part of the aorta, the major blood vessel that feeds blood to the body, says Amy Ketron, RN, BSN, director of Clinical Services, MSC. About the thickness of a garden hose, the aorta runs from a person's heart through the center of their chest and abdomen. Because the aorta is the body's main supplier of blood, a ruptured

and be healthy enough to survive a major surgery. The open procedure is performed by vascular surgeons and/or cardiothoracic surgeons, using a skill set that was taught during their training. Surgeons who were historically trained in open procedures now are learning to deploy these new devices via this minimally invasive endovascular approach.

MSC and Medtronic partnered to develop a program to teach the proper technique for deployment of the device utilizing MSC's endovascular simulator, the Simantha simulation system, Ketron explains. “The Simantha system incorporates multiple engines and components that work together during simulated procedures to immerse the trainee into a real-time and realistic interventional training experience,” she says. The endovascular simulator encompasses

a physics engine that allows for physics-based navigation of catheters, wires, and medical devices in 3-D anatomies. “The rules engine drives the major and minor teaching points of a procedure in a consistent manner, so trainees are exposed to the pertinent points of the case,” says Ketron. The trainee can choose various methods of treatment during the simulation to achieve the proper results, and can follow a variety of different paths based on choices made during the simulation. Another engine in the simulator couples real-time hemodynamics, oxygen saturations, heart rate, and heart rhythm with the rules engine. Actual procedural tools and medical devices are incorporated into each case to drive realism and user interaction, and to immerse trainees in all of the components they would experience during the procedure.

## NO-RISK REPETITION

Learning through this methodology allows physicians to experience using new devices in a clinically realistic, risk-free environment. They are allowed to practice their skills repeatedly within different anatomical subsets until they feel confident and competent in their decision-making and their skills. They are forced to encounter potential complications with the theory so they learn what causes them and can avoid such actions in the future and successfully resolve them if they do occur. The value of the simulation training not only comes with technical aspects of device deployment, but also with the cognitive aspects of critical thinking. “The Simantha system captures numerous data points that track the user’s actions and decisions. These data points then can be reviewed to analyze results and plan for optimization for future success,” Ketron explains.

MSC and Medtronic began the process with a comprehensive analysis of the customer’s needs and teaching points of the device. An expert clinical and engineering development team then integrated this analysis with proven processes, which resulted in the creation of an effective, customized training solution. For the Valiant Captivia Thoracic Stent Graft, three different and increasingly complex simulation cases were created to mimic real patient scenarios. Each simulation begins with a patient history through which the physician can learn about the patient selection criteria, complex anatomical

challenges, and other co-morbid conditions that must be considered prior to treatment. For example, real patient CT scan data is reviewed to determine correct device sizing for the patient in the simulation.

Medtronic typically engages physicians in a 1.5-day training course. Simulation is utilized, along with other teaching components, such as didactic lecture and live case observation. The simulation is facilitated by proctors, allowing for further dialog among the participants and proctors regarding device and procedural avenues for success, and provides consistent training across the procedure team. Participants rotate through the various parts of the training and progress through all of the simulation cases. They are provided immediate and direct feedback as to their treatment choices by the simulated patient response.

Each Simantha simulation system is operated by an MSC Clinical Educator who has previous experience in interventional procedures. The Clinical Educator is proficient at not only facilitating the use of the simulator, but also teaching about the device and procedure. This allows the trainee to focus entirely on learning the device and its proper use. Individual metrics are tracked by the simulator and can be analyzed and reported back to Medtronic and/or the trainee.

## ENHANCED PERFORMANCE

During the rollout into the marketplace of the earlier-generation thoracic device, Talent Thoracic Stent Graft, several of the physician proctors gathered data related to the use of the MSC simulation training program and the impact on physician performance. The control group consisted of physicians who were considered more experienced and did not participate in the simulation training program. The other group consisted of physicians who did not have experience with the device but participated in the simulation training program.

The results: The group of physicians who did not have experience with the device, but who participated in the simulation, demonstrated a 29 percent reduction in overall complications and a 35 percent reduction in deployment complications compared to “more experienced” physicians who did not undergo simulation training. ■