

The Science Behind ERPsim™

Our unique business simulation is based on in-depth academic research

WHITE PAPER

Compliments of

BATON

The Science Behind ERPsim™

If your organization is planning or in the process of digital transformation, enterprise software like SAP™ ERP is likely a hot topic around your conference room table.

Meanwhile, business publications like *CIO Magazine*, *Harvard Business Review*, and *Forbes*, are replete with dramatic stories of ERP implementation failure, multi-year delays, and massive cost overruns. According to McKinsey, 70% of large-scale change programs fall prey to a common set of pitfalls that include but are not limited to¹:

- Lack of employee engagement
- Inadequate management support
- Poor cross-functional collaboration
- Lack of accountability
- Inability to change mind-sets and behaviours

If failure is the norm, implementing SAP seems a risky move for any organization or career-conscious individual. And yet, some organizations succeed at digital transformation (and enjoy enormous rewards)—why?

As we've discussed at length in our white paper on digital transformation, companies that transform are those that take a comprehensive and multi-faceted approach comprising both the "what" (*independent diligence, planning, implementation*) and the "how" (*people, processes, tools*).² Companies that omit any of these facets court disaster.

Taking care of the "how"

While you plan *what you need to do*—set the trajectory of transformation, develop a plan for line leaders, and launch efforts to drive value—you also must also determine *how to do it*.

Changing mind-sets and behaviours and enabling strong execution is no easy feat, and it's what keeps us up at night. At Baton, our chief aim is to help companies build and maintain momentum for digital transformation by taking care of the "how".

Experience is the best form of persuasion

For transformations involving SAP enterprise systems, we determined through research and experience that the best way to turn resistance into support is by enabling people to have a personal experience of transformation, using the system itself. No amount of telling or showing works. Only *doing* works.

ERPsim™ was born of this line of thinking. A business simulation that runs on a live SAP S/4HANA system, ERPsim makes people active participants in a "mini" transformation by pitting teams against each other in the race to drive maximum value in their (fictional) organizations. Learning the software is a natural by-product of the process. The main objective of ERPsim is to create a series of epiphanies in people and teams about the value of transformation and the central role of ERP. As participants use SAP S/4HANA to accomplish their goals, experimenting and adapting along the way, the power of collaboration, communication, and end-to-end process integration becomes real to them. Also, as they reflect on their experience individually and as a team, participants draw parallels between their simulation experience and performance, and their work experience and performance.

¹ McKinsey - 2018 - [The How of Transformation](#)

² Ibid.

Hundreds of ERPsim simulations have taken place around the world, in over 40 countries, on every continent, in virtually every business sector. In addition, ERPsim is used by over 150 universities worldwide in business schools and management programs. We know ERPsim is effective because it's proven. What makes ERPsim effective?

This question leads us to the point of this paper. By understanding the unique combination of strategies that make ERPsim effective, you can consider how to apply these same strategies in other aspects of your change initiative. You are also better armed to build a business case for ERPsim.

How ERPsim works

ERPsim simulations are run over periods lasting between two hours and a full day. To create a condensed but realistic experience of critical decision-making in a real-world scenario, ERPsim incorporates three main features:

- *Simulation of a real business problem and environment*

The ERPsim experience is designed to mirror experience in the real world, making it both relevant and engaging.

- *Automation of administrative functions*

By automating administrative functions, participants can focus on higher-order problems and decisions. It also enables them to make full use of the system's analytics and reports.

- *Passage of time, compressed*

Time passes quickly in ERPsim, where a minute is a day, for example. Participants see the results of their decisions and can adjust and improve accordingly. In retrospect, they see how their decision-making process changed over the course of the simulation.³

At the end of each round, there is a brief period of discussion and reflection, and the entire simulation closes with a debriefing session. Because debriefing is core to the effectiveness of ERPsim, we discuss it below in detail.

The Anatomy of ERPsim

ERPsim is a multi-dimensional design that employs several strategies that can be broadly categorized as adult learning, engagement, and experience design. We will examine each of these and its components to understand how they lend themselves to the ERPsim experience. ERPsim is a multi-dimensional design that employs several strategies that can be broadly categorized as adult learning, engagement, and experience design. We will examine each of these and its components to understand how they lend themselves to the ERPsim experience.

ADULT LEARNING STRATEGIES

Originally developed in a research environment at HEC Montréal, ERPsim is fundamentally about learning, using strategies that include *immersive* and *experiential* learning in a social context.

Immersive learning

In her book on immersive learning, Koreen Pagano notes that “as a design strategy, immersive learning provides a pathway to behavior change and skill improvement through features designed to emulate real performance environments.”⁴ Note the emphasis on behaviour change. Knowledge alone has little impact

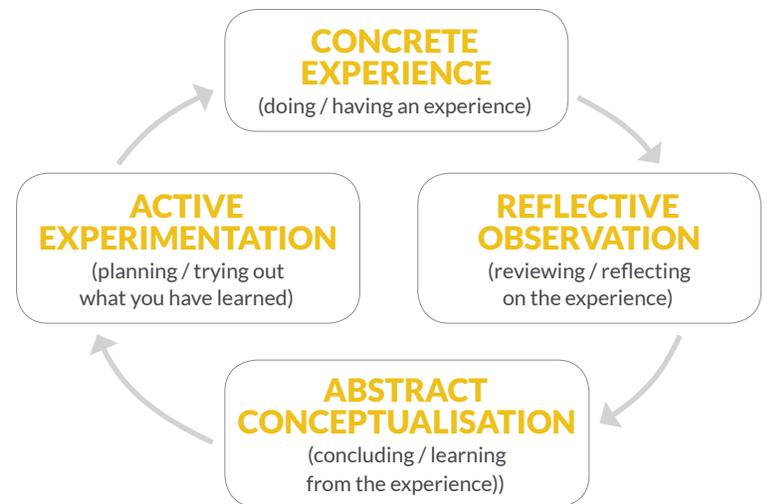
³ Léger, P. M., Robert, J., Babin, G., Lyle, D., Cronan, T. P., & Charland, P. (2014). ERP Simulation Game: A Distribution Game to Teach the Value of Integrated Systems. *Developments in Business Simulation and Experiential Learning*, 37.

⁴ Pagan, K. (2013). *Immersive Learning: Designing for Authentic Practice*. Virginia: American Society for Training and Development.

on behaviour. Many people know that better collaboration leads to better business results, and yet they remain sequestered in silos. In ERPsim, individuals must communicate and collaborate with each other if their team is to achieve superior results. Throughout the process, they see how team performance depends on their individual and group behaviour and the adjustments they make along the way. At the same time, they further develop their analytical skills and learn to use SAP software to support decisions.

Experiential learning

If you're a training professional, you'll recall that David Kolb was a pioneer of experiential learning in the 20th century, building on groundwork laid by John Dewey. According to Kolb, "learning is the process whereby knowledge is created through the transformation of experience. Knowledge results from a combination of grasping and transforming experience."⁵ In brief, knowledge cannot be transferred, like pouring water into an empty vessel; rather it must be apprehended and synthesized through experience. In addition, the process is cyclical, not linear, as shown here.



In the SAP context, ERPsim doesn't merely "show and tell"—it *involves* participants in a chain of experiences that form the total simulation experience. Rather than hearing a presentation, looking at slides, or reading a workbook, participants involve their whole selves in the exercise.

The instructor plays a crucial role in an ERPsim event. In their academic paper on ERPsim, Léger et alia provide guidelines for instructors so they can "create a learning environment where learners have a reduced risk of making mistakes, to provide scaffolds that help learners build self-confidence, and to help learners reflect on their mistakes, speculate on root causes, and intelligently design alternative solutions."⁶

They also report that instructors who have been trained in this approach see a boost in learner evaluation, motivation, engagement, and competence with SAP. To ensure that participants and teams derive maximum value from ERPsim, only properly trained and certified ERPsim Instructors can lead ERPsim events.

Social learning context

The ERPsim experience is inherently a social one. Participants are grouped in teams typically composed of peers who have different roles or departments in an organization. Research on ERPsim indicates that good teamwork will develop when the simulation is a high-stakes game. Moreover, teamwork has a positive influence on outcomes, e.g., profit and team satisfaction.⁷

In addition, the debriefing session at the end of the simulation is an opportunity to share both knowledge and experience.

⁵ Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development*. New Jersey: Prentice-Hall.

⁶ Léger, P.M., Charland, P., Feldstein, H.D., Robert, J., Babin, G. & Lyle, D. (2011). Business Simulation Training in Information Technology Education: Guidelines for New Approaches in IT Training. *Journal of Information Technology Education: Research*, 10(1), 39-53. Informing Science Institute.

⁷ Hwang, M. I. (2018). Relationship between Teamwork and Team Performance: Experiences from an ERPsim Competition. *Journal of Information Systems Education*, 29(3), 157-168.

SERIOUS GAMES AND GAMIFICATION

ERPsim is a competition that becomes progressively more challenging. In this sense, it falls into the category of what learning theorists and game theorists call a “serious game”. A serious game is simply a game designed for purposes other than entertainment.

We often encounter skepticism from executives who think a game has no place in a business context. They assume that “fun” is merely frivolous, and that “play” isn’t meaningful. ERPsim is *designed* to be fun and enjoyable because research shows that enjoyment improves learning outcomes. A 2015 study on the effectiveness of ERPsim provides empirical evidence that enjoyment is a significant factor “in creating positive business processes and ERP software usage learning outcomes.” The authors cite additional research showing that enjoyment reduces the perceived cognitive load of learning new technologies, improving learning outcomes.⁸

Games can be engrossing, and competition can stimulate higher performance. The business world caught on to this, and over the past decade, as companies have sought ways to improve engagement and boost performance, they have applied the principles of game design to “gamify” everything from sales performance to IT support. By 2017, gamification had moved into the “slope of enlightenment” in Gartner’s Hype Cycle for the Digital Workplace, meaning it was no longer hype and just a couple of years away from mainstream adoption.^{9,10}

Two important aspects of game design, and gamification, are *game mechanics* (actions or rules with defined outcomes) and *game dynamics* (the behaviours that emerge as participants interact with the game). To illustrate, in ERPsim, each simulation contains multiple rounds played against the clock, with progressively higher levels of difficulty. At the end of each round, team performance is tallied, and a leaderboard is established. Some of the game mechanics we see here are levels, progression, and countdown. In ERPsim, participants must work together under pressure, using SAP analytics, to be the winning team (e.g., the one with the highest profits). The game dynamics include involvement in the storyline, competition between teams, cooperation among teammates, and adversity.

ERPsim is designed to be neither too easy (leading to boredom) nor too difficult (leading to frustration and ultimately loss of interest). Each storyline is developed to present a real-world scenario that is relevant to participants, while game mechanics and game dynamics are finely-tuned to engage people with different learning styles, skills and aptitudes.

USER EXPERIENCE DESIGN

Attention to user experience (UX) isn’t a discrete part of ERPsim’s design in the way, say, debriefing is—UX infuses every aspect of the solution. There is one principle worth highlighting and that is backed by a large body of research.

Cognitive load

In brief, the concept of cognitive load is that there is a limit to the amount of information that a person can process simultaneously. In a learning context, information must be presented in a well-considered way to prevent an “overload” of information. Cognitive load has multiple facets, including intrinsic load (the challenge inherent in the task), and extrinsic load (the way in which the task is presented).¹¹

⁸ Chen, L., Keys, A., & Gaber, D. (2015). How does ERPsim influence students’ perceived learning outcomes in an information systems course? An empirical study. *Journal of Information Systems Education*. 26. 135-146.

⁹ Gartner news release (2017). Gartner Release “Hype Cycle for the Digital Workplace, 2017”. <https://www.gartner.com/en/newsroom/press-releases/2017-08-17-gartner-releases-hype-cycle-for-the-digital-workplace-2017>

¹⁰ Gartner. Gartner Hype Cycle: Interpreting Technology Hype. <https://www.gartner.com/en/research/methodologies/gartner-hype-cycle>

¹¹ Reedy, G. B. (2015). Using Cognitive Load Theory to Inform Simulation Design and Practice. *Clinical Simulation in Nursing*. 11(8). 355-60.

UX practitioner and author Steve Krug popularized this concept in his landmark book, *Don't Make Me Think!* When it comes to digital interfaces, “every question mark adds to our cognitive workload, distracting our attention to the task at hand.”¹² The main theme of Krug’s book is that a well-designed interface is one that removes the guesswork for users.

In designing ERPsim scenarios, we keep a close eye on cognitive load, which is one reason the simulation is divided into rounds of increasing difficulty. Certain system capabilities are “unlocked” in later rounds, for example, to prevent cognitive overload at the beginning and keep participants focused on the task at each stage.

Because of the complexity of SAP, ERPsim utilizes DAS, Baton’s solution for accelerating digital adoption. Offering contextual help and collaboration tools, among many other capabilities, DAS ensures that participants can focus on the big picture without struggling to learn the SAP interface and system features.

SIMULATION DEBRIEFING

The cornerstone of the ERPsim experience is the debriefing session. Every round ends with a quick discussion and group reporting on performance, but the debriefing session after all rounds are completed, is an opportunity to reflect, individually and as a team, and to compare notes across teams. Researchers have found that debriefing is the most important part of the process in a professional simulation.

When it comes to reflecting on complex decision and behaviors of professionals, complete with confrontation of ego, professional identity, judgment, emotion, and culture, there will be no substitute for skilled human beings facilitating an in-depth conversation by their equally human peers.¹³

This assertion is supported by evidence. In a study of the role of debriefing in simulation-based learning, Fanning et al. cite multiple studies that showed that learners who participated in a debriefing performed better than those without the debriefing. In addition, the debriefing skill of the facilitator was found to be the most important factor in how useful participants find the debriefing.¹⁴

One of the main benefits of an ERPsim debriefing is that it enables participants to define and champion the benefits of an integrated system, such as speed and agility, transparency, and accuracy.³ Learning new technology happens almost in the background. During debriefing, participants with little or no experience with SAP often express amazement that they used the system to make decisions, without any training. Finally, debriefing is a key factor in the ability of participants to retain what they learned.

ERPsim and digital transformation

Earlier, we said our focus is on helping organizations build and maintain momentum for digital transformation by taking care of the “how”. While this is true, it’s not the complete picture. Building momentum precedes both the “what” and the “how”, and ERPsim is an asset long before an implementation has begun. Indeed, for many of our customers, participation in ERPsim marks the turning point for stakeholder agreement on the direction they’re taking.

Once that direction is set, successive levels of stakeholders must be brought on board and become passionate supporters with the conviction and commitment to lead others on the path to digital transformation. Later, if the cadence of transformation milestones slows and internal commitment flags, ERPsim sessions can be instrumental in regaining momentum.

¹² Krug, S. (2014) *Don't Make Me Think, Revisited: A Common Sense Approach to Web Usability*. New Riders. 3rd edition.

¹³ Dismukes, R.K., Gaba, D. M., Howard, S. K. (2006). So many roads: facilitated debriefing in healthcare. *Simul Healthcare*. 1. 23-25.

¹⁴ Fanning, R. M., and Gaba, D. M. (2007). The Role of Debriefing in Simulation-Based Learning. *Society for Simulation in Health Care*. 2(2). 115-125.

Helping them *be* the change

Our roots run deep in organizational change management (OCM), and we know change doesn't happen simply by being imposed upon people. Their buy-in, ownership, alignment, and sustained participation are requirements for success. When leaders of transformation expect people to immediately embrace change because it's the rational thing to do, or to understand SAP's benefits for the company and themselves out of the gate, resistance is inevitable.

In the OCM world, the phrase "overcome resistance" is common parlance. It's a phrase that connotes a power play, the strong overpowering the weak. Instead, what if you could turn resistance around, channelling that energy and transforming it, through a powerful shared experience, into a source of ongoing support? What if you could align leadership to create a shared vision of your organization's future?

Visit our website to schedule an ERPsim session.

visit www.batonsimulations.com

ABOUT BATON

Today, successful organizations are ones that adapt quickly in the market. Such agility requires leaders with the strategies and the means to make rapid change a core competency.

Our *raison d'être* is to help these leaders realize their visions for digital transformation with powerful solutions that enable rapid change at each stage of the journey.

Established in 2009, Baton has deep roots in organizational change management (OCM) and learning innovations based on business software like SAP ERP. As experts in OCM, we know software doesn't solve business problems—people do.

Our solutions ERPsim™, DAS, and DAS Language Localizer, help leaders manage the people side of the equation while leveraging the technology side through faster adoption and better collaboration and communication across global organizations.

Based in Montreal, Quebec, we serve customers in more than 40 countries, on every continent, directly and through our elite channel partner network of systems integrators, training consultancies, and software vendors.

