Solving business problems with game-based design

Ari Lightman
Director of the CIO Institute at Carnegie Mellon University
Acknowledgments

Advisory
Principal & Technology Leader
Tom DeGarmo

US Thought Leadership
Managing Director
Howard Kravitz

Strategic Marketing
Katrina Kajm
Natalie Kontra

Center for Technology & Innovation
Managing Editor
Bo Parker

Editors
Vinod Baya
Alan Morrison

Contributors
Nafez Al Dakkak
Steve Alter
Christopher Carfi
Adam Ferris
Galen Gruman
Dion Hinchcliffe
Kat Mandelstein
Bud Mathaisel
Bill Roberts

Internal Interviewees
Robert Claeys
Saker Ghani
Larry Gioia
Tim Hillison
Eoin Russell

Editorial Advisor
Larry Marion

Copy Editor
Lea Anne Bantsari

Transcriber
Dawn Regan
Industry perspectives
During the preparation of this publication, we benefited greatly from interviews and conversations with the following executives:

Ian Bogost
Professor of Interactive Computing
Georgia Tech University

Todd Carter
Chief Executive Officer
Tagasauris

Kris Duggan
Chief Executive Officer
Badgeville

Bill Fulton
Founder
Ronin User Experience

Mohit Garg
Chief Executive Officer
MindTickle

Mario Herger
Technology Strategist and Community Manager
SAP Labs

Ambrosia Humphrey
Director of Human Resources
HootSuite

Jun Kim
Senior User Researcher
Tableau Software

Jeff Lefebvre
Founder and Partner
PriSim Business War Games

Ari Lightman
Distinguished Service Professor and Director, CIO Institute
Carnegie Mellon University

Andy Mott
Manager, In-trial Marketing
Autodesk

Bryan Neider
Senior Vice President and Chief Operating Officer
EA Labels

Rajat Paharia
Founder
Bunchball

Milt Riseman
Former President
Advanta Mortgage Services

Richard Ryan
Professor of Psychology, Psychiatry, and Education
University of Rochester

Patrick Salyer
Chief Executive Officer
Gigya

Dawn Wolfe
Senior Digital Marketing Manager
Autodesk

US studio
Design Lead
Jyll Presley

Illustrators
Chris Pak
Tatiana Pechenik

Production
Jeff Ginsburg

Online
Managing Director Online Marketing
Jack Teuber

Designer and Producer
Scott Schmidt

Reviewers
Matthew Clarke
Christopher Curran
Paul D'Alessandro
Yael Even-Levy
Jean Lee
Matt Moore
Stanley St.-Fleur
Keith Weiss
Deborah Wise

Special thanks
Adena DeMonte at Badgeville
Sharon Middendorf at Tagasauris
Tom Short
Companies don’t need to build games themselves to be able to tap deeper sources of motivation, but they do need to get more inside the heads of their customers and employees the way games have.

Jun Kim, a senior user researcher at Tableau Software, performed field studies on the use of deal-of-the-day coupon services that underscored the appeal of discovery. “I found that people were going to their favorite site every day, not for the discounts, but for the discovery experience,” Kim says. “They wanted to find something new that they can do—an activity that they hadn’t thought of. They would say, ‘One day I found this blueberry picking activity. On another day, I found this balloon ride. I would never have thought of those things, and it gave me some new ideas of things I could actually do and save money at the same time.’”
When done well, gamification is really the studied, thoughtful, and creative application of game design elements to business processes. Companies already acknowledge their business outcomes are tied to how well their employees engage. Introducing game elements to their business processes gives them a new way to encourage much higher levels of engagement.

This issue of the Technology Forecast examines the wide range of game design techniques that can be used in nongame environments for business benefit. These techniques are turning out to be pivotal in motivating customers, employees, and other stakeholders, and the most compelling use cases underscore the degree to which success depends on a thoughtful reassessment of the user experience.

The article, “The game-based redesign of mainstream business,” on page 06 explores how techniques long used in video games are now being used online in business to engage and motivate the workforce and inspire customers. Companies don’t need to build games or make business a game to take advantage of these techniques. Instead, they can take tips from gamers on how to motivate and challenge stakeholders, and they can modify their online environments to enrich interaction.

“Improving the customer and employee experience with gaming technology” on page 30 describes the baseline technology that can help enterprises become familiar with the use of game mechanics and dynamics. Enterprises that readily mix capable user experience design, psychology, social group dynamics, and enterprise architecture will reap the most rewards. There are straightforward ways to start small when it comes to gamification, but enterprises should plan over the long term for more ambitious efforts that are sure to follow.

“Getting past the hype of gamification” on page 48 considers the topic from a CIO viewpoint. For most CIOs, the first reaction to gamification is dismissal, either because game approaches just don’t feel like they belong in serious business, or because the CIO team’s agenda is already overloaded with mobility, social media, cloud, big data analytics, IT security, and other major initiatives. But in dismissing the opportunity, CIOs may forgo some very tangible benefits and a creative new way to make IT much more productive by leveraging the human factors that are the essence of gamification.

This issue also includes interviews with executives who are using gaming techniques and with subject matter experts who have been at the forefront of development in this area:

- Bryan Neider of Electronic Arts shares what a game publisher thinks about when it designs its own internal training software.
- Bill Fulton of Ronin User Experience compares and contrasts examples of good and bad emotion design in socially networked online environments.
- Ari Lightman of Carnegie Mellon University ponders the challenge of workforce disengagement and how game mechanics can accelerate knowledge sharing.

- Milt Riseman, former president of Advanta Mortgage Services, describes how he used business simulation to get employees across the enterprise to see the mortgage business through his eyes—before the advent of the web.

Please visit pwc.com/techforecast to find these articles and other issues of the Technology Forecast online. If you would like to receive future issues of this publication as a PDF attachment, you can sign up at pwc.com/techforecast/subscribe.

As always, we welcome your feedback and your ideas for future research and analysis topics to cover.
To have a deeper conversation about this subject, please contact:

Tom DeGarmo  
Global and US Advisory Technology Consulting Leader  
+1 (267) 330 2658  
thomas.p.degarmo@us.pwc.com

Christopher Curran  
Principal and Chief Technologist  
+1 (214) 754 5055  
christopher.b.curran@us.pwc.com

Bo Parker  
Managing Director  
Center for Technology & Innovation  
+1 (408) 817 5733  
bo.parker@us.pwc.com

Paul D’Alessandro  
Global Customer Impact Leader  
+1 (312) 298 6810  
paul.dalessandro@us.pwc.com

Christopher Curran  
Principal and Chief Technologist  
+1 (214) 754 5055  
christopher.b.curran@us.pwc.com

Paul D’Alessandro  
Global Customer Impact Leader  
+1 (312) 298 6810  
paul.dalessandro@us.pwc.com

Sean O’Driscoll  
US Principal, PwC Advisory  
+1 (425) 443 7064  
sean.odriscoll@us.pwc.com

Comments or requests?  
Please visit www.pwc.com/techforecast or send e-mail to techforecasteditors@us.pwc.com
PwC (www.pwc.com) provides industry-focused assurance, tax and advisory services to build public trust and enhance value for its clients and their stakeholders. More than 155,000 people in 153 countries across our network share their thinking, experience and solutions to develop fresh perspectives and practical advice.

© 2012 PricewaterhouseCoopers LLP, a Delaware limited liability partnership. All rights reserved. PwC refers to the US member firm, and may sometimes refer to the PwC network. Each member firm is a separate legal entity. Please see www.pwc.com/structure for further details. This content is for general information purposes only, and should not be used as a substitute for consultation with professional advisors. MW-13-0021
## Subtext

<table>
<thead>
<tr>
<th><strong>Game mechanics</strong></th>
<th>Techniques refined by designers to engage users in gameplay. Examples include intangible rewards and recognition for achievements, including points, ranks, badges, leaderboards, and progress bars, as well as penalties and other obstacles to progress.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Game dynamics</strong></td>
<td>Techniques designed to affect the pace of gameplay, including variable reward schedules, time limits or countdowns, appointment requirements, or behavioral momentum.</td>
</tr>
<tr>
<td><strong>Game narratives</strong></td>
<td>Epic or dramatic story lines that provide each user at least one role, situation, and mission along with a series of increasingly difficult challenges during the course of gameplay.</td>
</tr>
<tr>
<td><strong>Gamification</strong></td>
<td>The user of game mechanics, dynamics, and narratives in nongame environments.</td>
</tr>
<tr>
<td><strong>Self-determination theory (SDT)</strong></td>
<td>Richard Ryan and Edward Deci’s theory regarding the importance of self-motivated human behavior. Ryan and Deci draw a sharp distinction between such intrinsic motivators as autonomy, competence, and relatedness, and the extrinsic motivators of tangible rewards and punishments that B. F. Skinner favored in his earlier theory of behaviorism. Dan Pink, in his book <em>Drive</em>, based his notion of 21st-century motivators (autonomy, mastery, and purpose) on the intrinsic motivators identified in SDT. Pink believed that knowledge workers needed to be intrinsically motivated to be productive.</td>
</tr>
</tbody>
</table>