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Gamification

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Games can help motivate people in otherwise nongame scenarios and engage users in high interaction. For decades, animated strategy games have helped introduce MBA students to complex economic scenarios. More recently, marketing has been using gamification to connect users with products and sales channels. Software teams use gamification for collaborative experiences, learning, and knowledge sharing. Here, Dirk Basten explores gamification applications and underlying technologies. I look forward to hearing from both readers and prospective column authors about this column and the technologies you want to know more about. —*Christof Ebert*

GAMIFICATION, which applies game-related elements to nongame contexts,[1] has generated a high level of interest (see Figure 1) and is popular in many business domains. Examples include the star ratings for eBay sellers and buyers and progress bars that companies such as PayPal use to motivate users to complete their profiles. For repetitive, monotonous tasks, gamification can be particularly beneficial because playful experiences help make nongame scenarios more motivating and engaging.

By seeking to change how people behave, gamification creates value for companies in diverse ways:

- *Usability.* Game levels of increasing difficulty help new users of complex software platforms. As users complete higher levels, they get to know more and more features.
- *Trust.* Badges that users achieve for conjointly solving a task create a feeling of shared ownership. Enabling users to share or give virtual goods to others can further increase social interaction. As interaction among users improves, a climate of trust will likely emerge.
- *Motivation.* Because intrinsic motivation is a central idea of gamification, users will likely put considerable effort into gathering information and developing new ways to use the system.

Originating from the digital-media domain, gamification has experienced widespread adoption[2,3] (for some examples, see the sidebar "Real-World Gamification"). Because of gamification's benefits, most organizations are likely to use it in the near future.[4]

Gamification Design

Companies interested in gamification should consider these questions:

- What systems and respective processes should be gamified?

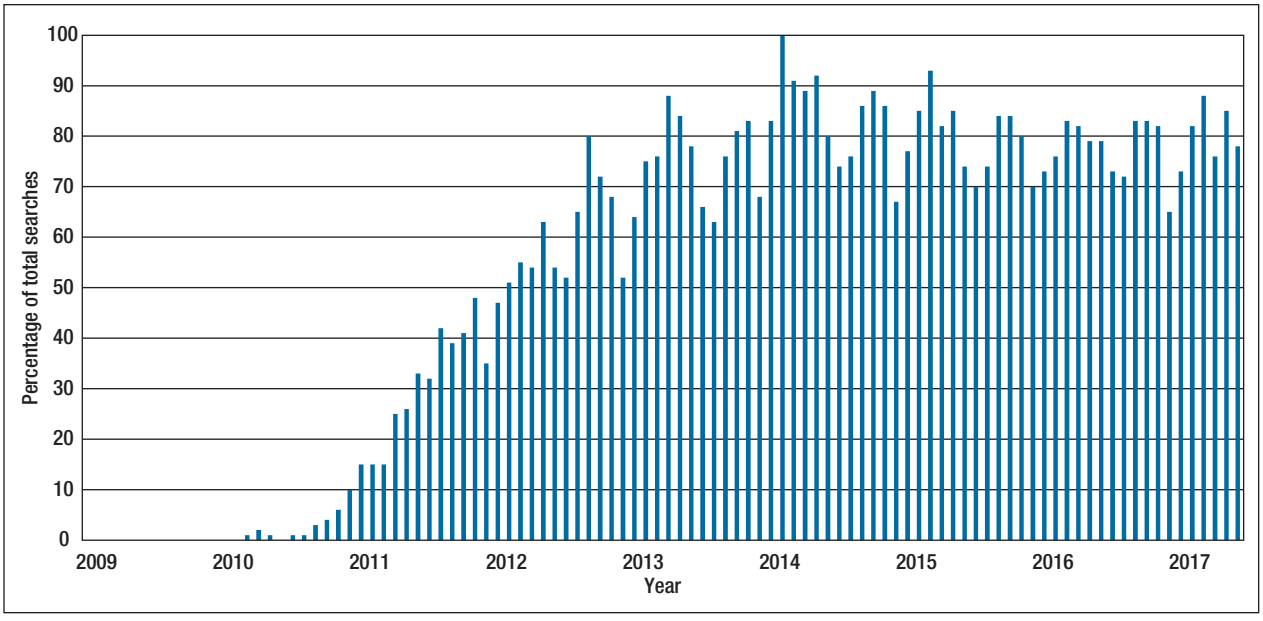

FIGURE 1. Google's normalized trend data for the topic "gamification." The percentage indicates the proportion of searches for that topic to all searches on all topics.

- What user behavior is desired?
- What game elements should be used?

Regarding the alignment of the desired behavior and game elements, companies can rely on a framework[5] that distinguishes between three aspects of gamification design:

- *Mechanics*. Game components concerning data representation and algorithms (for example, points and badges).
- *Dynamics*. Runtime behavior of mechanics concerning players' inputs and outputs over time (for example, completion and choices).
- *Aesthetics*. The desirable emotional responses evoked in users when they interact with the gamified system (for example, the feeling of being challenged and the feeling of community).

TABLE 1

Common game elements.[3]

Game element	Definition
Feedback	Immediate notification that keep users constantly aware of progress or failures
Goals	Activity goals that are adapted as challenges for the user
Badges	Optional rewards and goals outside the scope of a service's core activities
Point system	Reward for completing actions (that is, a numeric value that's added to the total points)
Leaderboard	Tracking and displaying desired actions to drive desired behavior through competition
User levels	Indication of the user's proficiency in the overall gaming experience over time

Concerning mechanics, Table 1 shows game elements commonly used for gamification of software systems. (The literature describes such elements in more detail.[6]) However, dynamics and aesthetics are subject to the context and the company's objectives and must be derived by key stakeholders. Figure 2 illustrates an example interaction between a user and a gamified customer relationship management (CRM) system. It makes a difference whether M&Ms uses gamification

REAL-WORLD GAMIFICATION

Here I discuss several companies that have successfully used gamification. I focus particularly on the Ford Professional Performance Program (p^2p) Cup.[1,2]

Cisco uses gamification for social-media training. It provides courses for different business contexts and links training to three certification levels (specialist, strategist, and master). Thousands of courses have been taken.

Relying on Badgeville technology (see Table 2 in the main article), Deloitte gamified its executive training and obtained benefits such as faster course completion and easier identification of experts. The system includes missions with clear goals to guide users through various tutorials.

Cigna, an early adopter of gamification, reported a considerable increase in the completion rate of its health assessments after it gamified them. Users earn rewards by interacting with the gamified app. In the healthcare industry, tracking activities with the help of wearables can support gamification.

The Ford p^2p Cup is a platform for sales and service personnel that aims to increase content use, accelerate certification, and motivate learning. To implement the p^2p Cup, Ford relied on the Nitro gamification platform (see Table 2 in the main article).

The p^2p Cup uses a car-racing analogy and employs these elements:

- Players receive points and badges for activities such as watching videos, consuming the latest product information, and participating in webinars.
- Badges are issued in a virtual trophy cabinet.
- Users with sufficient points rise to higher levels.
- Leaderboards compare employees.
- Team goals for car dealerships promote a sense of community and foster competition.

Gamifying the learning platform has provided several benefits.[3] In the year after Ford introduced the p^2p Cup, visits to the platform increased by more than 400 percent. More than 7,000 training plans were created, and almost 175,000 web courses were completed. Furthermore, the share of staff members certified in areas such as sales and parts and service exceeded 80 percent; such growth typically leads to increased sales and more satisfied customers.

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3. "Ford Professional Performance Program (p^2p)," Bond Brand Loyalty, 2015; bondbrandloyalty.com/our-work/ford-professional-performance-program.

for a marketing campaign[7] or Ford aims to engage its staff in using a learning platform (see the sidebar "Real-World Gamification").

Companies must be aware that a one-size-fits-all approach is unlikely to work. Users' personalities affect how they perceive gamification. For instance, *explorers* strive to find hidden items they can likely collect by exploring a software system's different areas, whereas *achievers* are eager to complete the many challenges with which they're confronted.

Also, organizations should be cautious in providing monetary or other concrete rewards. Such approaches conflict with the aim of fostering intrinsic rather than extrinsic motivation.

Available Technologies

Table 2 provides an overview of some prominent gamification technologies. Technologies come from both established software companies such as SAP and companies that focus on gamification, such as Bunchball. (A broader overview of gamification technologies is at technologyadvice.com/gamification/products.)

Gamification technologies work with software ranging from Microsoft Office to CRM systems and enterprise systems. Except for gamification technology explicitly for Microsoft Office and SharePoint, these technologies are applicable across diverse platforms owing to their web-based accessibility. The technologies don't differ regarding common game elements (see Table 1)

and typically can be used by any size company. Free trials or demos are usually available. The technologies differ primarily in their application domain and pricing models.

Zurmo (zurmo.org) focuses on CRM and provides rewards for all types of actions in the system. It's an open source technology that also can be obtained through subscription. Zoho (www.zoho.eu/crm) also focuses on CRM; it's available through subscription, and there's a freemium version. As standalone solutions for gamified CRM, Zurmo and Zoho don't offer APIs.

SAP Cloud Platform Gamification (cloudplatform.sap.com/capabilities/collaboration/gamification.html) offers diverse licensing models, an API for including gamification in existing enterprise applications, and SAP Single Sign-On. So, it can be applied in diverse contexts.

Badgeville Enterprise Plus (badgeville.com/products/badgeville-enterprise-plus) works in contexts such as online communities, sales, learning, training, and customer support. It offers APIs for applications such as Salesforce, IBM Connections, and Microsoft SharePoint.

The CROWN SharePoint Learning Management System (www.messageops.com/sharepoint-gamification-learning-management-system) gamifies Microsoft Office and SharePoint. Through Active Directory, it can be linked to existing applications.

Nitro (www.bunchball.com/products/nitro) gamifies enterprise apps, websites, and social networks and is thus broadly applicable to different domains. It works with a variety of software systems such as Salesforce and SAP.

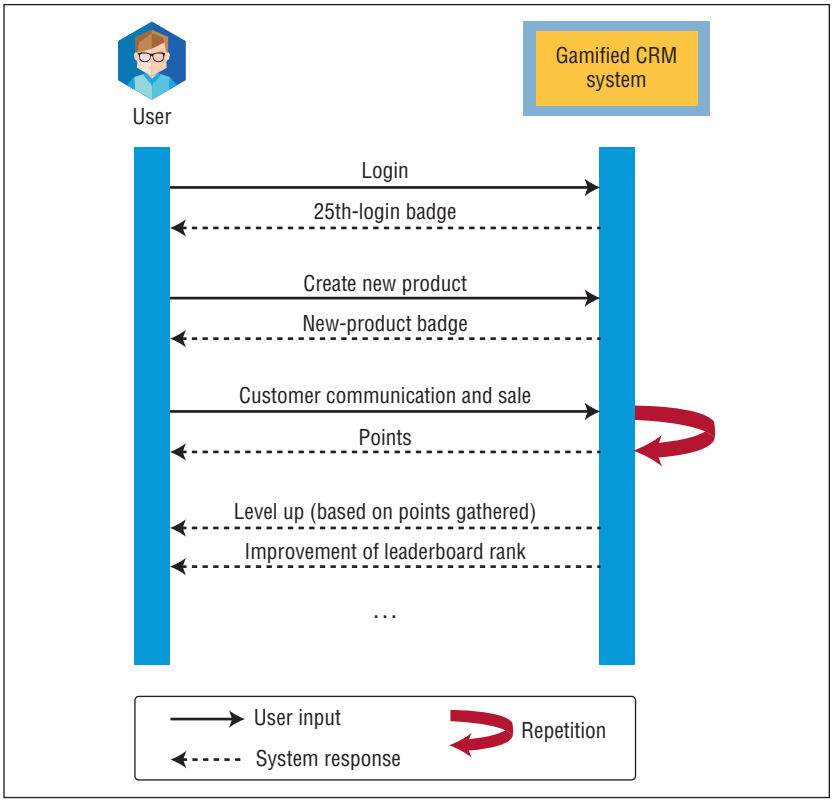

FIGURE 2. Interaction between a user and a gamified customer relationship management (CRM) system. The interplay of mechanics and dynamics during system use is meant to evoke the desired aesthetics.

Jive's Advanced Gamification Module (www.jivesoftware.com) focuses on social software and offers integration for Outlook, Office, SharePoint, Salesforce, and others.

Hints for Practitioners

Critics say that gamification is a buzzword organizations use as a mere marketing tool to which many people won't respond. They also argue that gamification might induce unwanted behavior if game elements become more important than the core function. However, gamification can help organizations seek desired behavior when they use it as a supporting feature rather than building their business exclusively on gamified processes. To reduce the likelihood of gamification failure, companies must be aware of the following risks.

If gamified elements distract users from the task's main purpose, the quality of work tasks might suffer and productivity might decrease. So, software systems must provide appropriate levels of gamification.

Also, productivity will likely decrease if users feel a disadvantage due to other users cheating the system. If users can easily gain rewards by cheating (for example, owing to unclear rules), some users might reject gamification.

TABLE 2

Selected gamification technologies.

	Technology						
	Zurmo	Zoho CRM*	SAP Cloud Platform Gamification	Badgeville Enterprise Plus	CROWN SharePoint LMS*	Nitro	Advanced Gamification Module
Provider	Zurmo	Zoho	SAP	Badgeville	CROWN SharePoint	Bunchball	Jive
Domains	CRM	CRM	SAP Enterprise Platform	• Online community engagement • Sales performance • Learning management • Compliance training • Customer support	• Office 365 • SharePoint	• Enterprise apps • Websites • Social networks	Social software
Enterprises	Small to large	Small to large	Medium to large	Small to large	Small to large	Small to large	Small to large
Platforms	• Web-based • Mobile	• Web-based • Mobile	Web-based	• Web-based • Mobile	Web-based	• Web-based • Mobile	• Web-based • Mobile
Profiles	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Feedback	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Goals	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Badges	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Point system	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Leaderboards	Yes	Yes	Yes	Yes	Yes	Yes	Yes
User levels	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Analytics	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Free trial or demo	Yes	Yes	Yes	No	Yes	Yes	Yes
Pricing	• Open source (AGPL ver. 3*) • Subscription	• Freemium • Subscription	• License • Subscription	Upon request	Upon request	Subscription	Upon request
API	N/A	N/A	• Gamification service API • SAP Single Sign-On	Feature connectors for Jive, Jammer, Salesforce, SharePoint, IBM Connections, and other APIs	Microsoft ActiveDirectory	• Salesforce • BMC Remedyforce • IBM Connections • Jive • NICE Systems • SAP • Others	Integration for selected apps (for example, Outlook, Office, SharePoint, Salesforce, Box, and Evernote)

CRM = customer relationship management, LMS = learning management system, and AGPL = GNU Affero General Public License.

In addition, applying gamification to systems to make system usage more enjoyable requires a meaningful design. Organizations must avoid reducing gamification to simple "pointification" (the awarding of points only) and seeing gamification as a magic bullet for increasing user acceptance.

Privacy must also be considered because electronic monitoring and surveillance accompany gamification. Data can be collected for both the activity performed and the user performing it. Gamification thus requires clear differentiation between private and public data, and users should be allowed to decide whether to publish private data. To avoid a feeling of heavy-handed organizational control and lack of trust, data should be used only in an aggregated form.

Gamification's positive effects can decrease when its novelty has worn off. In the long term, gamification requires expenditures—for instance, to create new challenges. Otherwise, users might perceive tasks as too simple when their skills improve. Also, if game elements are removed, user performance might decline, even below the level before gamification was introduced.

Gamification is more than a buzzword (for further information on its applicability and potential, see the sidebar "Resources"). As a way to engage users, it will likely become even more important for future generations, who will likely have an increased affinity with video games. With the main focus on the supporting business processes (and with the core business processes being less of a focus), organizations seem to favor gamification of less critical areas. Although gamification's success depends on several design choices, gamifying software systems is a promising way to more productive sociotechnical systems.

RESOURCES

To keep updated on gamification of software systems, access these resources:

- Bunchball is a provider of cloud-based software-as-a-service gamification. Its website (www.bunchball.com) includes a blog with news, case studies, and more.
- The Gamification Research Network (gamification-research.org) is a communication hub that includes information about ongoing research activities and conferences.
- The Gameworks Blog (www.gameffective.com/blog) discusses workplace applications of gamification.

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7. H.W. Mak, "The Sweet Way That Gamification Helps M&M's Boost Consumer Engagement," blog, 6 Dec. 2016; www.gamification.co.

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