The fourth step in game development is quantifying the relationship between decisions and results.
—Richard Marvin Hill, Marketing Concepts in Changing Times

At first glance, the term game development presents itself as a bit of a simpleton, a self-descriptive term that means just what it says. Games are developed via a software-development process that merges the design of gameplay, art, and audio with the technical constraints of platform, be it console, mobile device, the Web, or some combination thereof. Development most often occurs in teams, although this was not always the case historically. Today the process involves a fairly standardized set of iterative stages, from preproduction to the design of a proof-of-concept prototype through production, testing, launch, and, in some cases, ongoing revision. Members of a game-development team most often play a specific role in the game’s development, although a single person might take on multiple roles. The team can include game programmers or engineers, game designers, level designers, artists (two dimensional, three dimensional, animation, cinematics), sound engineers, producers, writers, and testers. Although development teams today range in number from 5 to 60 or more, as late as the 1980s a team could be as small as one person.

On the surface, this explanation of the term game development seems pretty straightforward, but a second look reveals it to be far more interesting. From its origins in analog and tabletop gaming through university and military application to the birth of console gaming and the rise of the software-development industry, the meaning of game development has changed in subtle but interesting ways.

Before we dig into that rich history, it is important to note that game development is not a stand-alone term: it is tightly coupled with the concept of and term game developer, the individual, team, or company undertaking the development of the game, and it’s difficult to say which came first. To most current practitioners, including those who create and those who
publish games, the terms simply go hand in hand—game developers are the entities that do game development.

Each of these terms also appears to have had independent meanings at various times and places. For example, the term game developer has a slightly different meaning in the United Kingdom and the United States. In the United Kingdom, a game developer can be a job title for an individual or a company; when it refers to an individual, there is the definite implication that programming will be involved. In the United States, however, designers and artists who never touch code are also referred to as game developers.¹ This linking of the game developer and the programmer can be traced to the early days of video games: “In the early days, all designers were programmers, because that was the only way they could get their games made. It’s a common misconception to say that all early computer games were designed by programmers: actually, many (if not most) were programmed by designers.”² Designers programmed in order to develop games. But they weren’t the first game developers, as we shall soon see.

Emergence of the Term

I would bet [the term game development] goes back to analog games. When I joined Sirtech in the early ’80s, it was a known term.

—Brenda Romero³

Game development seems to have first emerged as a term descriptive of the work done by the designers of board games and board war games, such as those published by Parker Brothers, Avalon Hill, and Simulations Publications, Inc. (SPI). As a result, the term gets tangled up with game designer, a term that most certainly predates game developer. The developer in the context of analog-game creation was someone who took the draft of the rules provided by the designer and saw to development, testing, and production of the game. Avalon Hill began giving credits for rule development in 1974, but by the second edition of the game Third Reich in 1976 and the release of Rail Baron in 1977, there was an actual game-development credit in the rules (Don Greenwood for the former and Randy Reed for the latter).⁴ SPI published development credits in 1973 for both Sniper! and Fall of Rome. And in 1979 SPI’s game John Carter Warlord of Mars credited Eric Goldberg as the game developer right on the box.

Further, issue 22 of Moves, a wargame magazine popular in the 1970s, published the game-“development” schedule for Firefight, a tactical-level simulation set in 1970s West Germany pitting Soviet and American forces against one other. Designed by James F. Dunnigan and Irad B. Hardy, Firefight was funded by the US Army as a way to develop simulation-based training materials for US ground troops assigned to the European theater during the Cold War (“SPI,
“Firefight” 1999, 1). Note that in this context the term development refers to the sequence of levels to be designed rather than to the overall process of the game’s creation, which is its standard usage today. The development of Firefight was to proceed as follows:

**FIREFIGHT I: DEVELOPMENT STAGES**

Stage I—The basic introductory level game to include the rules covering movement, combat, sequence of play, victory conditions, as well as description of the playing map and the playing pieces. The map itself will be 8” x 10” using 16 millimeter hexes; the scale will be assumed to be companies of leg infantry, two kilometer hexes and twelve hour turns.

Stage II—This stage will introduce all the rules required for ZOC [zones of control]. These Zones will be assumed to be semi-active rigid.

Stage III—This stage will include the introduction of stacking rules. Stacking will be two high.

Stage IV—This stage will include the introduction of effects of terrain on movement and combat. In Stage I, of course, terrain either allowed you to go into a hex or not to enter it.

Stage V—This stage will introduce ranged fire. This will also include opportunity fire, as well as yet to be developed rules for suppressive. (SPI, *Firefight* 1999, 1)

In 1977, the staff of *Strategy & Tactics Magazine* coauthored the study *The History, Production, and Use of Conflict Simulation Games*. One of the chapters, “Game Design and Development: A Case Study” (Berg 1977, 41), cemented the use of the term across the industry.

Publishers such as Avalon Hill and SPI employed game developers, who acted like editors or producers, to “develop” games beyond their initial design. Even today in the board-game world, a developer is usually an employee of the publisher who refines the product and gets it ready for prime time. This structure is in distinct contrast to the way most commercial video game development occurs today, whereby large game publishers fund game-development companies to create games, which they then market and distribute. For example, game publishers such as THQ Wireless, EA Mobile, and UIEvolution (a former subsidiary of Square Enix) fund the game-development studio 5th Cell to produce games such as *Scribblenauts* (2009) and *Drawn to Life* (2007). This is one interesting distinction in how the term game development is used today in the contexts of analog and digital game development.

**Digital Game Development**

*If the predictions of Albrecht and other innovative leaders in computer game development are accurate, computer skills will be as common as riding a bicycle.*

—Dennie Van Tassel, *The Compleat Computer*
We know from the many written histories of video games that the first video games were developed in the 1950s by computer scientists, required mainframe computers to play, and as a result were not available to the general public. This form of game development in the 1960s and 1970s—digital game development—was occurring simultaneously with board-game and tabletop wargame development. Individuals such as Don Daglow and Kelton Flinn, both prolific game designers in the 1970s, were graduate students and graduate instructors with years of free access to campus computers. They used this access to develop many games. “In the 1971–80 university context,” explains Daglow, “we referred to ‘game development’ as a parallel to the standard term ‘software development,’ but did not think of it as a trade term, just as an alternative, more descriptive phrase to refer to our hobby (since there was no money in it in the early ’70s).” This intermingling with and distinction from software development marks the use of the term *game development* in production of digital games from the very beginning. Daglow was eventually hired in 1980 as one of the original five in-house Intellivision programmers at Mattel: “I know we used the term at Intellivision in 1980–83, because our official group title was ‘Intellivision Applications Development,’ and we never used that term but always changed it to ‘Game Development’ internally.”

Games such as *Tennis for Two* (Higinbotham, 1958) and *Spacewar!* (Russell/MIT, 1962) are well documented within game studies literature; less well documented are the numerous simulation games, master’s theses, and other game-development experiments that took place in marketing, urban planning, military, and engineering schools in the 1960s and 1970s, all of which contributed to the ongoing use of the term *game development*. From *CIDY* (*Communicate! I Dare You!*), a communications game submitted in partial fulfillment of a master’s in urban planning at the University of Michigan, we get this game-development feedback gem: “Their questions and criticisms regarding CIDY showed that they [the players] were learning something of game development themselves” (Baldwin 1970, 47). *Collegiate News and Views*, a Pennsylvania State University publication, records that “a 1964 survey by the University of Texas indicated that AACSB schools were using 30 functional games and 27 general management games. Of these games, 29 were noncomputerized. The period of time can be classified as “The Stimulation Period” (Keys 1974, 17). Further, a report from the University of Michigan president to the Board of Regents for 1975–1976 discussed “a growing interest in games and simulations as facilitators of understanding, dialogue, planning and decision-making, together with a modest increase in the number of organizations requesting services, have made the past year a time of expansion and creativity for the Extension Gaming Service. ... The number of formal gaming ‘programs’—workshops, game runs, consultations, demonstrations, game development projects—increased by almost 25 percent over the previous year, from 38–47” (University of Michigan 1975, 18).
So while Dunnigan and Hardy were hard at work developing tabletop simulation games such as *Firefight* for the US government, universities were exploring computer-based simulation-game development for a remarkable range of uses, including education. As a result, both analog and digital game development from this era served as a training ground for many of the designers, programs, artists, and others who went on to find employment in companies such as Atari (founded in 1972) and Electronic Arts (founded in 1982)—companies that became icons in the game-development industry as it is known today. They included designers such as Don Daglow, mentioned earlier, as well as Redmond Simonsen, Greg Costikyan, Warren Robinett, and Chris Crawford, to name but a few.

The final distinction in the evolution of the term *game development* can be made in the change from development handled by a single individual to development handled by a team. Because of the limitations of early computer and video game graphical displays, almost all aspects of early game development was handled by a single developer—programming, game design, art, and audio. We see this focus on the single developer beautifully captured in an advertisement from a November 1982 issue of *Creative Computing Magazine*, which introduces readers to The Frob, “the hardware/software system that converts your Apple II into a sophisticated Atari 2600 VCS game development workstation.” Due to the ever-increasing processing and graphical capabilities of arcade, console, and computer products, along with an increase in player expectations, game development soon moved beyond the scope of a single developer (Bethke 2003). This shift marked the beginning of team-based game development, the standard form followed today.

A last bit of history: when Chris Crawford launched the Computer Game Developers’ Conference in 1988, he originally wanted to call it “Computer Game Designers’ Conference,” but “one of our Board members—I think it was Stephen Friedman—pointed out that ‘Developers’ was a more inclusive term covering people such as artists and writers who made important contributions. After some discussion, we agreed that ‘Developers’ was a better word than ‘Designers.’”

**Notes**

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1. Richard Bartle to Katie Salen Tekinbaş, email, January 5, 2014.
2. Ibid.
Figure 24.1
5. Ibid.
7. Ibid.

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