New Media Ecosystems: Amazon and the Advancing Game Economy

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Keywords

Alexa, Amazon, Crytek, Game Engine, Lumberyard, Video Games

INTRODUCTION

As part of its nascent investment in game-based technologies, in a multi-million-dollar deal with game developer Crytek, Amazon licensed the CryEngine in 2015 as a codebase for its own proprietary Lumberyard game engine. With this acquisition, Amazon effectively expanded its web services (AWS) by consolidating a suite of products for video game developers: tools for building, hosting, and livestreaming. Amazon's 2016 acquisition of the game-streaming platform Twitch and its integration with AWS has deepened the company's attachment to an expansive game community, and connected developers to players. With close attention to Amazon's acquisition and build strategy, this paper unravels the complex intersections of the company's game portfolio and considers the impact of Amazon's holdings and approach—as a media company with significant traction in e-commerce, engine-based middleware and related media and communications hardware—on broader game-based economies.

Amazon software, hardware and data holdings form an elaborate ecosystem that crosses a series of industrial vectors: entertainment, news, information, manufacturing, science, technology, commerce. The company's array of engines, artificial intelligence and machine learning connects the dots between public and private domains, between bodies and technologies. Alexa (Amazon's intelligent voice recognition and natural language understanding service), for example, bridges the Echo family of smart home devices (the Echo Look, Dot, Spot and Button), the Fire TV and Fire Tablet, the Cloud Cam, as well as devices outside the Amazon family and beyond domestic space—with Alexa available in all BMW vehicles for the 2018 model year. And all of these vectors further the centrality of Amazon's cloud services platform: from computing power to database storage to networking to content delivery across enterprise and e-commerce. The broad product category of Alexa gadgets seamlessly integrates AI into the spaces of everyday life, moving parallel information streams, conversational interfaces and deep learning (dependent on feature extraction and dimensional reduction) across work and play, business and home, and the flows of commerce.

While game engines have become critical components of most media development pipelines and new information and distribution economies, including mixed reality and artificial intelligence (both may be understood as engine-driven blended environments), the imperatives of a common engine-driven codebase are largely invisible in everyday commercial flows and within domestic space. Indeed, the

centrality of Lumberyard to the Amazon ecosystem is far less certain than Alexa. And while Lumberyard has continued to expand its functionality with features such as a text-to-speech pipeline (Amazon Polly), Amazon's engine adoption rate lags behind that of other developers including Unity and Unreal; yet the company seems to be invested in pushing game-based mechanics into a broader range of Internet-connected devices, testing out playful engagements with extended reality that will undoubtedly inform a broad range of cloud-based services and devices. As contemporary information industries shape artificial intelligence and interface design to produce unobstructed transactional engagements, Amazon is using game space as a testing ground for new technologies, new modes of being, and new forms of interaction. Amazon is using Lumberyard, AWS and Twitch to crowdsource its research (by sharing its codebase and "reading" its communities) in the transactional nature of code, interface and user experience, as the company looks to refine its suite of services, products and devices to secure its role in larger computationally-driven media ecologies.

Amazon's movement into game production extends beyond the mechanics of its engines. The company is using the values and tactics of video game play to increase productivity inside its warehouses (Bensinger, 2019). A May 2019 *Washington Post* story reports that since 2017, Amazon has rolled out its gamification experiment to five company warehouses. The Amazon-developed games are optimized for being displayed on small screens at employee workstations: "With names like *MissionRacer, PicksInSpace, Dragon Duel* and *CastleCrafter,* the games have simple graphics akin to early Nintendo games like *Super Mario Bros,* workers say" (Bensinger). Employees who connect these playful metrics to the completion of physical tasks, often in team-based or competitive modes, are rewarded for their efforts. Amazon is not alone in these pursuits. Most providers of common goods and services have developed similar exercises—from Starbucks (star) Rewards program to activity-based reward systems for Lyft and Uber drivers and passengers. Gamification can lead to higher productivity, especially in repetitive low-skill work, but these systems also lead to higher surveillance—toward the production of more precise metrics. And like the operations of the engine, the data-layer of these interactions, the algorithm, remains hidden from sight.

This presentation follows the work of Dourish, Finn, Galloway, Mackenzie and others invested in the social influence of material technologies, and examines several complementary industrial impulses—the build of game engine architectures and the movement of those architectures into non-game spaces—within the Amazon ecosystem, to highlight the connections between algorithms and material outcomes. Amazon is part of a larger cultural shift that is redefining the limits of effective computability—extending algorithmic influence into the machinery of the information economy (Finn, 2017). This study is focused on the precise impact of engine-based mechanics on a marketplace of goods, services and ideas.

BIBLIOGRAPHY

Bensinger, G. 2019. "'MissionRacer': How Amazon Turned the Tedium of Warehouse Work into a Game." *Washington Post,* May 21. Accessed May 24, 2019. https://www.washingtonpost.com/technology/2019/05/21/missionracer-how-amazon-turned-tedium-warehouse-work-into-game/?noredirect=on&utm_term=.8059a4ccb60f.

Dourish, P. 2017. *The Stuff of Bits: An Essay on the Materialities of Information.* Cambridge, MA: MIT Press.

Dourish, P. and Bell, G. 2007. "The Infrastructure of Experience and the Experience of Infrastructure: Meaning and Structure in Everyday Encounters

with Space." *Environment and Planning B: Planning and Design* 34, no. 3 (June): 414-430.

Finn, E. 2017. *What Algorithms Want: Imagination in the Age of Computing*. Cambridge, MA: MIT Press.

Galloway, A. R. 2012. *The Interface Effect*. Malden, MA: Polity.

Mackenzie, A. 2006. *Cutting Code: Software and Sociality*. New York: Peter Lang.