Finding the GaaP - Data, Dashboards, and Independent Games

Stuart Anderson, Abertay University

Darshana Jayemanne, Abertay University

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DATA AND INDEPENDENT GAMES PRODUCTION

Scholars from fields such as cultural studies, game production studies and platform studies have examined how platformisation is changing the ways that games are made, disseminated and maintained in light of large-scale shifts - in particular, the shift in market from traditional GaaP (games as a product) models in which the goal of development is a single 'boxed' game product, to GaaS (games as services) where ongoing updates, maintenance and additions extend the development process indefinitely. Platformised cultural production, and videogame-specific platforms such as Steam, do not merely disseminate games as creative cultural products, but have had profound effects on the quality and type of games that are made and how they are played as services: "Platforms... are powerful cultural shapers, and the workings of platforms are of material concern and intense interest to creators; but their architectures and operations are often difficult to observe" (Burgess 2021, 22).

Game analytics has become an important aspect of modern game development, increasing in importance in tandem with platformifisation and the rise of live operations (LiveOps) or GaaS models. These techniques can potentially afford game developers with understandings of players' interactions with their games, and can assist in the process of improving the user experience and in meeting business goals. Game telemetry is logged to an analytics platform for later analysis via dashboards and reports. The focus of this analysis typically relates to a single game, such as player actions, user acquisition funnels, monetisation, technical performance, or player retention. Often in LiveOps games, specialist data analysts are employed, and data is efficiently integrated into studio workflows. Data Science techniques can be applied to the data captured for analysis that require methods standard analytics platforms do not cover (El-Nasr et al., 2021).

However, there are a wide range of developers for whom the use of data is more ad hoc, or for whom it presents specific problems. As Su et al (2020) put it, for many developers considering data science approaches, "The main challenges include how to conduct market promotion based on ROI data analysis, how to collect useful and valuable game data, and how to analyse these data and guide their game optimization and game self-publishing process". Where mobile game studios are more likely to have a core orientation to GaaS, and AAA developers are actively experimenting with GaaS techniques to supplement big-budget 'boxed' game products, there is a 'middle' set of developers who may fall somewhere in between, navigating GaaS and GaaP models. These developers focus on creating discrete game products and view digital platforms as tools for distribution and marketing rather than as directly influencing core feature sets.

Such studios presuppose a high level of specialised division of labour, and this organisation likely prioritises the development of feature sets rather than technological

disciplines that directly deal with platformisation. Mirza-Babei & Galati (2018) note: "Small studios (often indie developers), with arguably limited resources, may find that user testing is difficult to conduct and question the return on investment". This observation may also obtain for business intelligence, market analysis and wider data analytics disciplines. Many of the articles published relating to the idea of the 'indiepocalypse' support this, containing ad hoc analysis of market conditions. The small size of many independent teams can often mean that core game development roles are prioritised, and strategic work with regard to platform dynamics may be outsourced or assigned to a team member as a secondary role: "many indie game studios have no dedicated analyst" (Su et al. 2020).

Game Analytics for Indies

In this paper, we will focus on an academic project that has addressed itself to this 'middle' group of developers working between GaaP and GaaS: The InGAME Market Intelligence Tools (IMAT). These tools can help studios consider strategic action in the conditions of uncertainty and uneven skills and resourcing described above by allowing them to gain a sense of 'dark data' pertaining to their operations.

Data on over 54,000 games on the Steam platform was obtained from the Steam API, including the game name, developer/publisher, release date, pricing, genre, tags, reviews and DLC, before being transformed into a dataset suitable for analysis and study. Analysis of the dataset identified opportunities for a refined set of heuristics for estimating unavailable data, such as sales and income. This considered changes in Steam market conditions over time, game success and genre variance.

The IMAT technology infrastructure makes use of cloud based solutions for dataset construction and dashboard visualisations. Data is sourced from the Steam Store API as JSON files before being processed into a flat file structure for analysis and visualisation. Microsoft Azure cloud services document store and SQL database services are used for data storage. The R programming language is used for data processing and analysis. Shiny, an R package for the creation of interactive visualisations, is used for dashboard creation, accessible from an Azure web server instance. This dataset is of use for academic research into Steam market conditions, but also is of value for industry and can generate insights of use across the development cycle.

The IMAT functionality was tested in the active game development cluster of Dundee. Eleven games developers/publishers were involved in user testing sessions, or as part of collaborative R&D projects focussed on the development of product market strategies. For the user testing sessions, participating companies were given access to the IMATs, following which a semi structured interview was conducted. For the collaborative R&D projects, data was gathered via observation during synchronous online sessions and post project surveys. The findings were used to refine and develop the dashboards and playbooks throughout the development process. After reviewing existing scholarship on game analytics and independent development, this paper will present findings on the IMAT and potential collaborations between academia and independent game studios.

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