

# Is Independence Better? A Historical Analysis of Development Problems on Indie and Non-indie Games

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## 1 INTRODUCTION

*“Indie developers are the most important creators in [the game] industry [...] Every game developer, at one point in time, was an indie developer.” – Reggie Fils-Aimé at the Game Awards 2019<sup>1</sup>*

In software engineering, games are a particular type of software that are multidisciplinary and, therefore, raise different challenges regarding their development processes than traditional software. Some authors claim that they require different processes [4] while others that agile processes fit [5]. Nonetheless, it is well known, in either academia, industry, or the media, that game development has chronic problems, ranging from technical [2], management [5], and even cultural aspects [1].

We distinguish independent from non-independent games and then study the prevalence of their different problems per types and in time. We thus show that Indie and Non-indie games are different and suffer from different problems while Non-indie games seem to have less and less problems in recent years.

## 2 INDIE VS. NON-INDIE GAMES AND CREATING OUR DATASET

We adapted the definition of Indie games from Maria B. Garda and Paweł Grabarczyk [3], which has three conditions:

- (1) The game was considered *financially independent* if the developers financed their own game. Crowdfunding and government incentives are “external help” and therefore make the project financially dependent.
- (2) The game was considered *creatively independent* if the developers explicitly reported that their publisher/parent company gave them creative freedom. For small teams and self-published games, we assumed this condition true.
- (3) The game was considered *publisher independent* if it was published on its own.

Maria B. Garda and Paweł Grabarczyk [3] also assumed that if a game was released before 2005, then it was not Indie. We ignored this assumption and analysed games regardless of their release years. For a game to be Indie, all three criteria must be true, as stated by Maria B. Garda and Paweł Grabarczyk [3]: “None of these disjuncts taken in isolation presents a necessary condition for game independence”.

<sup>1</sup>[https://youtu.be/K\\_LZ4EBSgTU](https://youtu.be/K_LZ4EBSgTU)

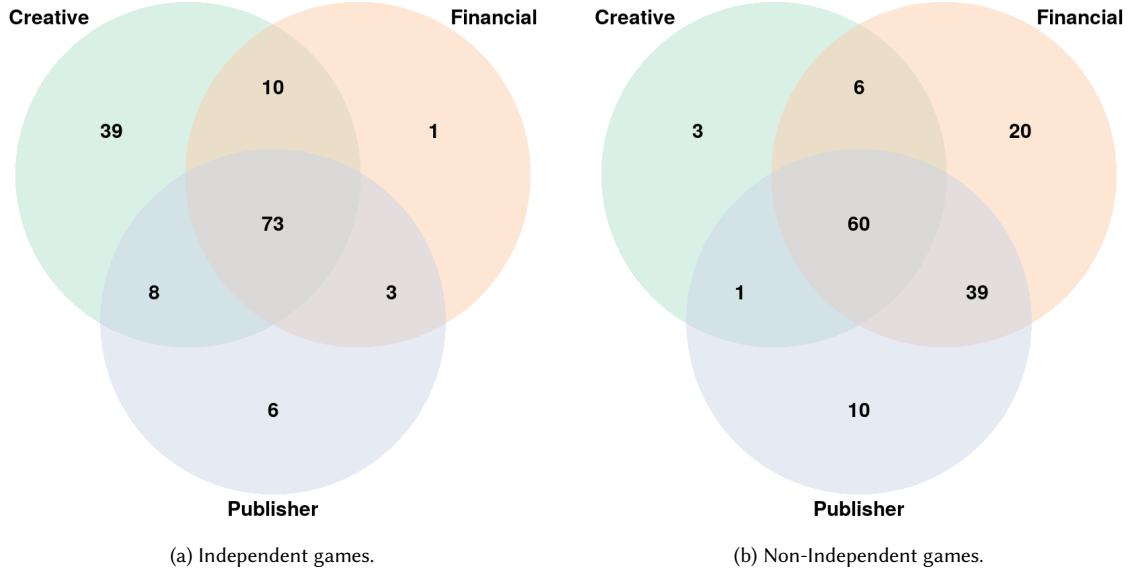


Fig. 1. Venn-Diagrams describing the games in our dataset.

We used the dataset by Politowski et al. [6] and classified all its 200 projects, between 1999 and 2019, based on their postmortems, according to Conditions 1–3. Indie games must have all three conditions true while Non-indie games do not. When we could not find clear information about the financial condition of a game, we assumed Condition 1 true.

We provide the final dataset at: <https://github.com/game-dev-database/indie-projects-classification>. Figure 1 shows the results of our analysis: we identified 73 Indie games and 127 Non-indie games. For Indie games, the creativity freedom is the most predominant while Non-indie games are more related to having a publisher.

### 3 PROBLEMS IN ABSOLUTE AND IN TIME

Once we distinguished Indie from Non-indie games, we merged this data with a dataset of development problems Politowski et al. [6], which contains 1,036 problems for the 200 projects. Table 1 shows the number of games having particular problems, distinguishing between the 128 Indie and Non-indie games, for 653 problems.

In absolute, Figure 2 summarises the problems in Indie and Non-indie games. Indie games suffer mainly from design, multiple-projects, budget, marketing, and monetization problems. Non-indie games face problems with tools, communication, feature creep, planning, documentation, and technical. Some problems happen equally to both Indie and Non-indie games, like delays, security, scope, and team.

In time, Figure 3 shows the evolution of problems per type of games in time: as expected the problems vary greatly for Indie games, because by definition they vary widely, while Non-indie games seem to get better and better in time, illustrating the maturing of the game development processes and developers' experience.

### 4 FINAL REMARKS

We presented two contribution: a dataset of 200 game projects divided between Indie and Non-indie games and related to their development problems.

Table 1. Numbers of games and problems by year for each game type.

Year	Indie		Non-indie	
	# Games	# Problems	# Games	# Problems
2019	2	11	2	10
2018	3	15	1	2
2017	7	29	5	29
2016	6	32	4	30
2015	10	50	5	20
2014	1	3	5	32
2013	3	15	8	40
2012	5	21	5	31
2011	3	23	5	23
2010	4	20	7	37
2009	5	24	4	24
2008	1	5	6	31
2007	1	4	6	28
2006	6	29	5	27
2005	2	8	4	16
2004	1	5	3	14
2003	4	19	7	34
2002	–	–	9	47
2001	2	9	11	59
2000	4	21	9	50
1999	2	10	12	68
1998	–	–	3	17
1997	1	8	1	5
Total	73	361	127	674

The second contribution is an analysis in absolute and in time of the development problems faced by Indie and Non-indie games. This analysis showed that Non-indie games seem to be maturing, with less problems as time pass while, as expected, Indie games vary widely.

Although the independence of the game does affect the problems developers will face during the development, specially Marketing and Monetization, in general, the same problems – like Design, Technical, and Team – happens regardless if the game is Indie or not.

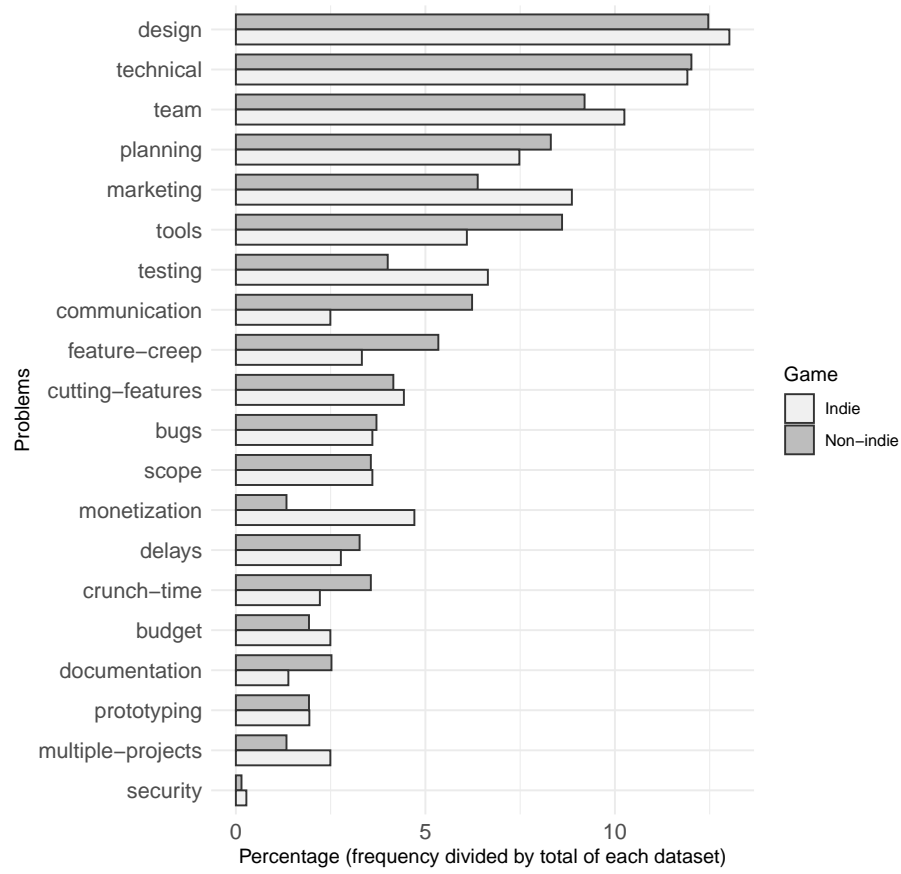


Fig. 2. Development problems in Indie and Non-indie projects.

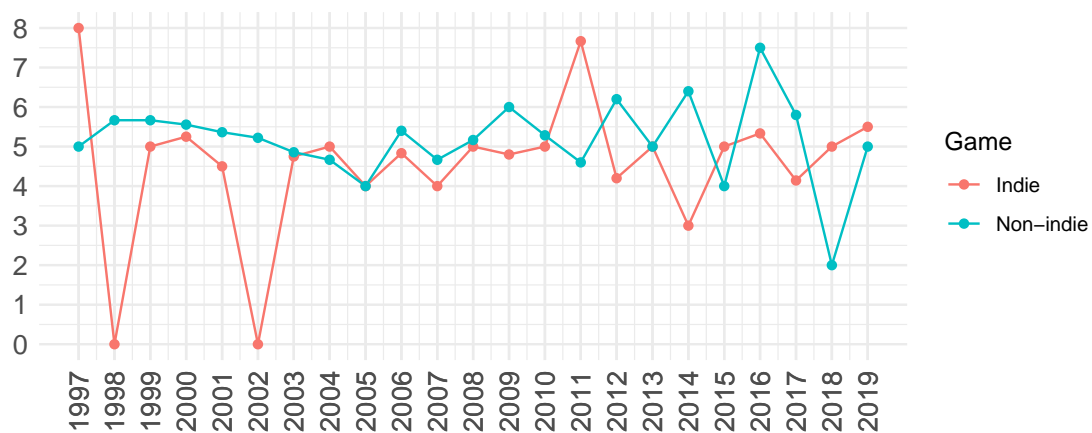


Fig. 3. Time series of 20 years, from 1999 to 2019, containing the number of problems related to each type of games.

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