Worker in Video Game Industry

The gap between indie and incorporated video game developers in Indonesia

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***Abstract*—The Indonesian video game industry is gaining good momentum as the national video game market continues to grow. However, the contribution of local video game developers is still very minimal. This study will look at the composition of local video games from the point of view of their human resources, from two entities that often appear, namely incorporated and indie. The results of this study indicate that the striking difference between the two entities is in the utilization of human resources from their educational background. While the most common is the habit of using outsourced labor.**

Keywords— video game; indie; incorporated; game developer

I. INTRODUCTION

While there is a large number of discussion from the government to reduce addiction to games and gadgets, Luhut Binsar Pandjaitan, Coordinating Minister for Maritime Affairs and Investment of the Republic of Indonesia, is one of the leading public officials who sees video games from a different side: the potential for abundant money. "I think the game industry is very important, yesterday we had a meeting. This game has a market of almost IDR 24.4 trillion this year…. The new Indonesian game market is dominated by the local industry with a value of 0.4 percent. This means, there is still a high chance of doing business for domestic game developers" [1].

There is nothing erroneous with that claim. Revenue generated by game products increased from 1.1 billion USD in 2019 to 1.74 billion USD in 2020 [2]. However, the number of developers, although it is a bit difficult to see the number of indie video game developers that is the number is not very satisfying. We believe the number may be above 100 developers but it's difficult to reach 200 developers. Moreover, the number of established video game developers in the form of companies is no more than 50 entities. This shows that the video game developers is rather difficult to meet the domestic video game needs.

On the other hand, the number of video game developers is not only determined by the broad market, but also by the availability of Human Resources (HR) with competence and interest in video game development. But nowadays being a worker in the video game industry has not attracted much interest from many people. This could be due to the complexity of Video Game Developer HR who could be at a "crossroads" between high-tech capabilities and/or a strong sense of creativity and art. Researchers agree that naturally the video game industry can be categorized as a software industry, but more than that, it involves a strong understanding of social science, culture, technology, politics, and economics [3]. In addition, workers in this industry have the characteristics of being easy to adapt to high technology and having a high work culture, and working on projects that take 6 months to 3 years [4]. These specific HR needs may be considered to indirectly filter the number of HR interested in this industry.

The supply of human resources that will enter this industry is usually not formed from special education in the field of video games, although several study programs have emerged that have seen this opportunity. However, it appears to be influenced by the community that interacts and shares knowledge between individuals or corporate entities [5]. This case is like what has been passed by talents who grew up from self-taught or 'bedroom coders' who are greatly influenced by the exchange of information between communities and internet media [6]. Furthermore, these talents have two choices, namely to work in existing video game development companies or become developers themselves or in groups in entities that are more popular as indie developers. The striking difference between corporate and indie entities apart from the number of people involved, usually indie developers do not see the market as a coffer of money that needs to be dredged. They do whatever they like without considering long lead times and unpaid human resources [7].

Therefore, this research will descriptively dissect the composition of human resources in the game industry in Indonesia. First, to describe it, we will start with a macro picture of how the distribution of video game developers. After that, it is needed to conduct a comparison with the main perspectives such as gender, education level, job role, and employment status. In addition, it also mapped out the extent to which these two entities need and utilize resources from outside the company in the form of outsourcing.

II. DATA AND METHOD

This study uses 69 video game developers, both indie and incorporated under the membership of the largest video game developer community in Indonesia, namely the Indonesian Game Association (AGI). The database of incorporated video game developers is much better than those of indie ones. This happens because indie developers come from hobbyists who partly make games for no profit and develop games independently without logging on to a large network. That may affect the population of indie game developers that is unable to be determined precisely. Therefore, this study took a different approach to determine the sample.

For incorporated entities, questionnaires were distributed to all community databases. Some companies that have closed and do not produce games are not included in the respondents. Meanwhile, indie developers are collected through snowball sampling from the main database from AGI. In this process, there are up to four stages of socialization in local communities to collect as many samples as possible from indie developers. In the end, 69 valid respondents were continued at the analysis stage, of which 34 were incorporated developers and the rest were indie developers.

This research was conducted by surveying through two stages, namely pilot testing (May-August 2020) and a final survey (September-November 2020). All of these activities are limited to the conditions and context of the developer in the previous year. We present the results in the form of descriptive statistics, considering the main purpose of this research is to map and discuss the composition of video game developers in Indonesia.

III. Result

A. The distribution of game developers in Indonesia

We consider that incorporated developers are one level above indie although this is not always the case. In some cases, although not many, video game developers prefer the indie status based on the idealism of the culture of freedom that is rife in the creative industries. However, of course, the video game industry is not only a matter of creativity but also a business and sustainability issue that cannot be ruled out in the development process. Therefore, it seems necessary to look at video game developers from the form of their business entity. This is also the emphasis on the extent of the differences in the utilization of human resources between indie and incorporated entities.

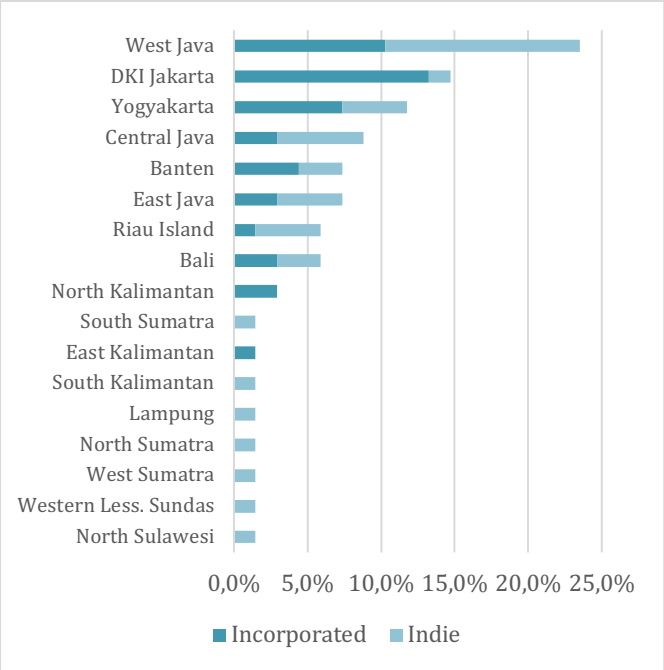

Fig. 1. Distribution of video game developers by province and form of company

The distribution of the two forms of video game developers is the same as most industries in Indonesia, which are very 'java centric', where industry players are gathered in cities that are the economic centers of Indonesia. As the relationship between the city and workers in other technology-based companies, there is a similar trend in which these companies prefer to remain in Jakarta, and are more likely to have branches outside the country to develop their business and technology in a place that is close to the world's economic and technological centers, such as Singapore and Bangalore. [8]. However, in the case of the Video Game Industry which most of them are not yet at the stage of developing their business overseas, many of them have a place with good creativity technology, and business resources in Indonesia. As shown in Figure 1, it can be seen that more than half of video game developers are on the island of Java where the three main provinces that contribute the most developers are West Java, DKI Jakarta, and Jogjakarta. These three areas have become the center of the creative industry in Indonesia and are supported by an adequate supply of resources from several abundant universities and an established creative ecosystem. This choice could be from the indie developers, that emerged from the many bedroom coders in educational centers such as Bandung (West Java) and Jogjakarta.

B. Characteristics of Workers in Industry Game of Indonesia

In the national context, the gender gap is a classic problem for the labor structure in Indonesia. In the fields of Science, Technology, Engineering, and Mathematics (STEM), for example, there is a large gap in almost all industrial sectors [9]. As is the case with general cases in other countries, even though they have STEM education, women are more likely to work in industries that are common to women such as in the education, health, and trade sectors [9][10]. Moreover, the video game industry is closely related to masculine products. A study from Haines showed that the majority of female workers in the video game industry work outside the core in game production [11].

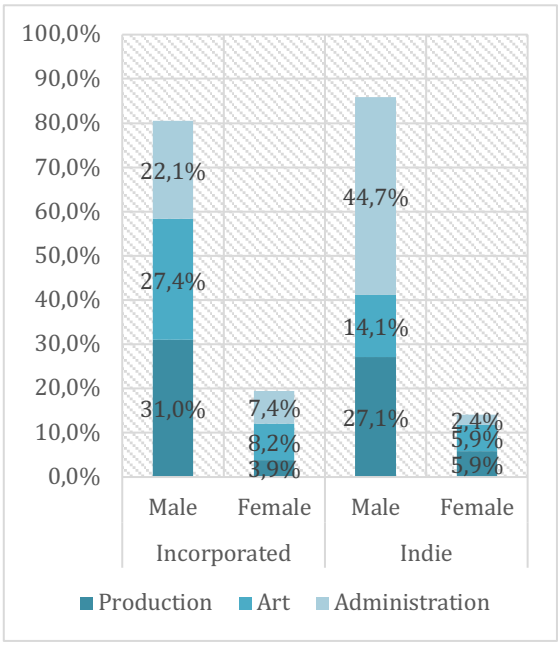

Fig. 2. The charasteristics of worker in game industry by gender and role

This can be seen from the 815 workers involved in the video game industry, 81% are male. As shown in Figure 2, almost all work functions, be it the function production

(including programming and testing), Art (including audio and design), and administration (including marketing and other support workers) are almost dominated by male workers. In general, the most contributions from women workers are in the Art and Administration functions. On the other hand, that is very few indie developers use female workers which is only 14.2 % of total indie workers. This is because the indie usually uses multiple roles in one or two people such as the developer also doing design, marketing, and administrative task.

On the other hand, the undergraduate level of education is the backbone of the operational sustainability of developers, especially for developers in the incorporated entities where 57.8 % of the composition of human resources are undergraduate graduates (Figure 3). While the interesting phenomenon of this composition is the entry of workers from high school/vocational backgrounds where the indie developer group has a proportion of 9.9 % of total workers while 40.9 % of them are High School or Vocational School Graduates. This happens especially among vocational education graduates who have competence in developing video games in specific It could be that this lack of human resources absorption in video game developers in the incorporated form encourages them to produce video games independently. Another thing is workers with a diploma background which is a type of applied education that should have an attractive alternative to be an option for companies but still has a minimal proportion which only contributes 6.6% for incorporated and 5.9% for indie entities.

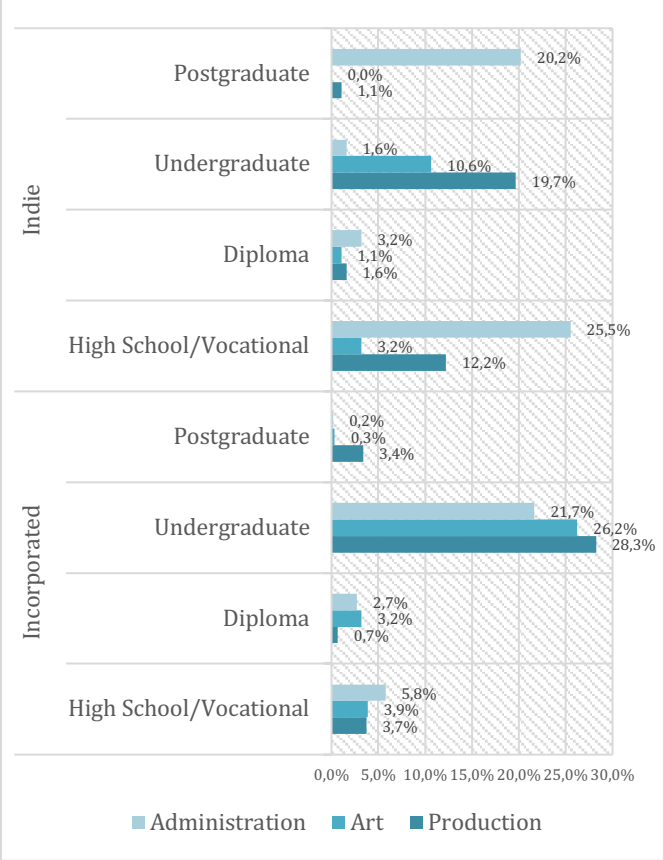

Fig. 3. Characteristics of worker in game industry by level education and role

Meanwhile, in terms of the type of work, the proportion of work is generally 35:30:35 of which 35% is production, 35%, 30% is art and design, and 35% is administration. The macro data pattern is slightly different if we reduce it to incorporated and indie entities. For incorporated entities, the proportion is 36:34:30, of which 70% are in production and design activities. On the other hand, in indie entities, most of their activities are in administrative and marketing activities with a proportion of 35:15:50. Most of the administrative and marketing activities are mostly contributed by high school and vocational graduates.

In indie developers, it is difficult to classify between permanent and contract because most hobby developers are not bound by a work contract. However, in this study, what can be interpreted between permanent and contract workers in the indie type is the extent to which the workforce is attached to the company [12]. Contract workers are usually only temporary based on certain projects and permanent are more involved in the overall project in game development. Meanwhile, the internship workforce is mostly involved in work that involves students and students as part of the teaching and learning process.

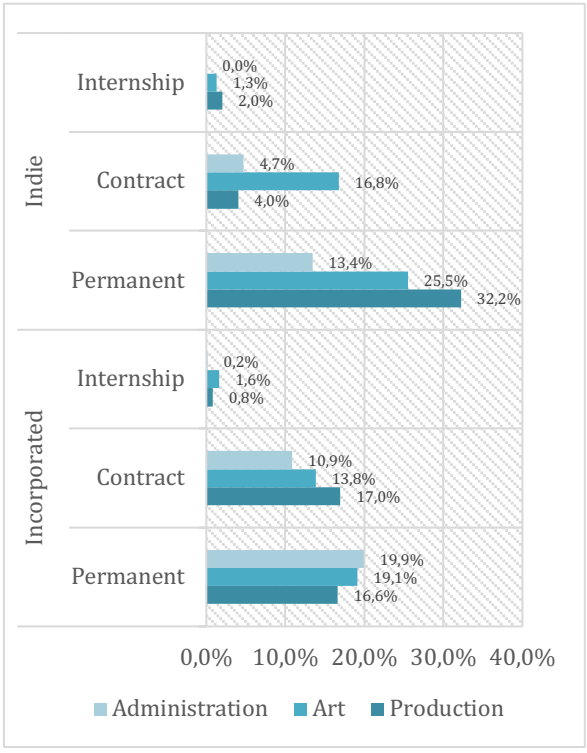

Fig. 4. Characteristics of worker in game industry by working status and role

Starting from an understanding of permanent, contracts, and internship workers, this paper can break down the characteristics of incorporated and indie entities based on that point of view. In the incorporated entity, the majority of the workforce is permanent and contract wherein the proportion of permanent and contractual workers is 55.68% and 41.68%, respectively. In the permanent workforce, most of them have an administrative function which is almost 30%. Meanwhile, of the contract workers, most of them are workers who function as 17.0%.

On the other hand, in indie entities, 71.14% are permanent workers, consisting of owners and other functions that are bound from the beginning to the end of production. Only 25.5% and 3.36% are contract and internship workers. Most

of them, as many as 32.2%, are workers who have a permanent production function. Meanwhile, the contract workforce, which mostly contributed to the art and design workforce is about 16.8%

C. Competencies of Workers in Industry Game of Indonesia

The competence and function of the work do not have the same meaning between entities. Especially in indie developers, where each entity has competencies that are 'forced' to double or even triple. Table 1 below is the top competencies that are listed by both indie and incorporated companies and are not interpreted as the number of people. There are dozens of types of so-called jobs, most of which are even and very specific, but the table below is the 15 (fifteen) most owned by either companies or gaming entities.

From the table, it is can be seen that macro-way there is no noticeable difference between competence between incorporated and indie entities. However, we can see from the statistics in the previous sub-chapters that in incorporated entities, although indeed production is the most widely used, the art workforce works more on incorporated entities (25.6% compared to indie companies by 20%). It is clear that competencies in incorporated entities appear as art competencies on the top list, such as 2D Artist, Animator, Concept Artist, and Art Director. While in the indie form, programming competencies appear more often, such as lead programmers, project managers, and producers.

TABLE I. TOP COMPETENCIES IN INCORPORATED AND INDIE GAME DEVELOPERS

Form	Competencies	Percentage
Incorporated	Game 2D Artist	4,9%
	Animator	4,2%
	Project Manager	4,2%
	Administration	4,0%
	Concept Artist	3,9%
	UI Artist	3,9%
	Lead Programmer	3,9%
	Art Director	3,7%
	Lead Artist	3,5%
	Creative Director	3,5%
	Lead Designer	3,5%
	Producer	3,3%
	Designer Level	3,2%
	Graphics Programmer	3,0%
	Texture Artist	2,8%
Indie	Lead Programmer	6,0%
	Game 2D Artist	5,7%
	UI Artist	4,9%
	Project Manager	4,3%
	Producer	4,1%
	Designer Level	4,1%
	Art Director	3,8%
	Animator	3,8%
	Administration	3,8%
	Engine Programmer	3,5%
	Interface Programmer	3,5%
	Composer	3,5%
	Concept Artist	3,3%
	Lead Designer	3,3%
	Designer Interface	3,3%
	Tester/Quality Assurance	3,3%

D. The Outsourcing Needs

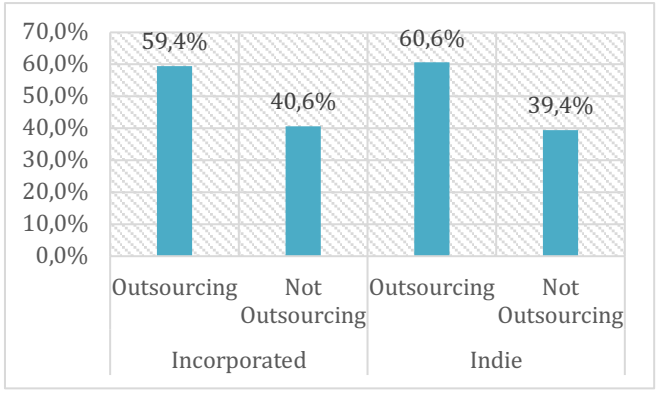

Fig. 5. The outsourcing needs of workers in game industry

The use of outsourcing is a common thing in the digital product production process. The needs are broad and sometimes require a diverse workforce but are needed on a seasonal basis. The emergence of HR talents that currently exist in Indonesia arises because of sub-contract jobs from large overseas game industries that indirectly transfer technology from abroad [13]. This habit is now happening to domestic industries by subcontracting the work to parties both domestically and overseas.

Figure 5 shows that both indie entities and incorporated have the same habits in utilizing outsourced resources. The proportions are very similar where about 60% of them use outsourcing. However, the difference lies in the general reasons for how companies decide to use outsourcing. At the incorporated level, the most common reasons are that the workforce is cheaper (50%) than the reason of more competent (35%) and that the resource is not available domestically (25%).

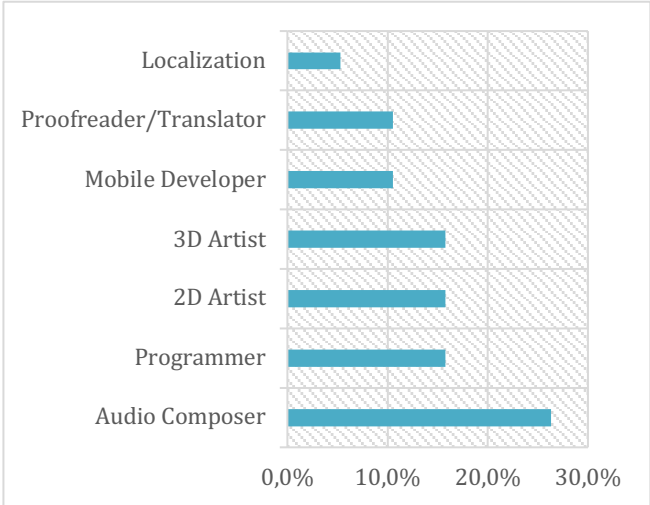

Fig. 6. The demand of outsourcing worker by incorporated game-dev

Meanwhile, indie entities take outsourcing with the aim of finding more competent resources (55.6%) and the lack of such competence in the country (33.33%), rather than looking for cheap sources (11.1%). This can be very reasonable because, unlike incorporated that have many HR choices in their companies, indie entities have limited capabilities in certain areas that are considered specific.

From a competency point of view, the competency requirements for outsourcing by incorporated entities are similar to their competencies in general, mostly to fill the needs in terms of art and design, such as audio composers, 2D/3D artists, and Proofreader/Translator (Figure 6). However, some production competencies have also emerged such as programmers and mobile developers.

Likewise, from the point of view of indie entities, most of them are outsourcing to the art and design workforce such as audio composers, 2D/3D Artists, Video Trailers, Concept Artists, and Story Editors. Several production functions also appeared such as Game Tester, Programmer, and UI/UX Researcher (Figure 7).

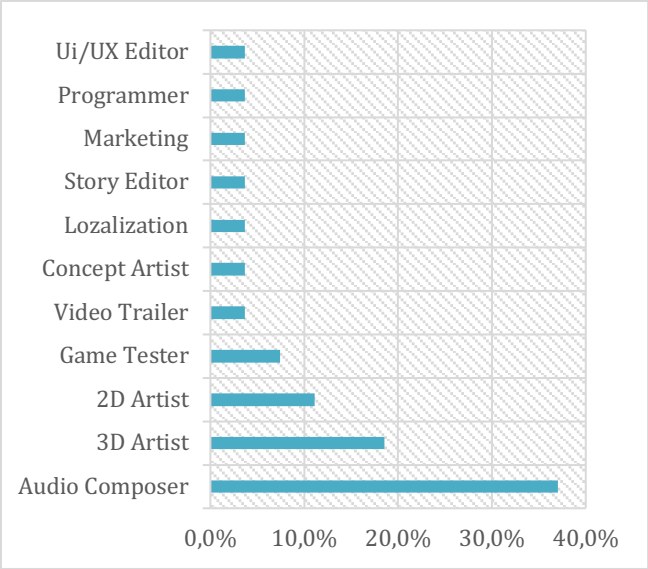

Fig. 7. The demand of outsourcing worker by indie game-dev

Thus, in both cases incorporated and indie entities show strong similarities in terms of their outsourced workforce requirements. The two functions that are often outsourced are the function of design and art. Some functions also appear in terms of production. But very little is required of the marketing and administrative functions.

IV. Conclusion

This paper has broken down the composition of HR between video game developers based on their two entities, namely indie and incorporated. The two entities have interesting similarities and differences. First, incorporated entities make more use of a very dominant undergraduate workforce. Meanwhile, indie entities are more friendly to lower-class workers, such as high school/vocational. A large number of high school/vocational human resources occurs because many resources from that level of education are not absorbed by incorporated entities that affect encourage them to develop themselves in indie entities.

Second, Most of the composition of the company has the same meaning between the two entities, most are permanent, then contract. Very small composition which is an internship. The striking difference in the composition of the employment status of the two entities is their work function, where the incorporated entity is more in the administration and art functions, while the indie is more in the arts and production.

Third, the need for outsourced workers in the two entities is similar, where nearly 60% require outsourced workers. Incorporated entities choose outsourcing because of efficiency, while indie entities because of the need for competencies that are difficult to find. The competencies required for the two entities are almost the same where most of them are art and design workers.

Therefore, this study sees that the workforce needs in the game industry involve a lot of complex resources, not only those who have hard science competencies but also art and design. A challenge for the government is to be able to provide education programs that are in accordance with the needs of the industry, not merely to meet the needs of incorporated entities but also to encourage the production of more indie entities.

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