

# Subjectivities in Software Development from an STS and Social Institution Perspective, a Riot Games Case Study

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***Abstract.** We are influenced and influence Social Institutions, which shape our subjectivities and, consequently, our actions, such as software engineering. In this work, we use a socio-technical perspective to study and analyze the interrelation between the dimensions of an Information System, Social Institutions, and subjectivities, applied in the software company Riot Games. We develop a perception of co-conducting culture and values between the requirements of an artifact and its other dimensions, for example, through organizational culture, habits, codes of conduct, among others.*

## 1. Introduction

As an Information System, a Software is an Information and Communication Technology (ICT) artifact with human, behavioral aspects; and procedural, organizational dimensions [1]. The same cannot be dissociated from context, e.g., the laws and rules in force; the personality of its developers or users [7]; development culture; and, as a focus of this work, of the social institutions that influence its development process. So, a reverse analysis could be made to relate and generate inferences regarding software developers' subjectivities, e.g., developers behavioral or cultural personas; from the artifact.

Digital games are different from traditional operating software for their objectives, meanings, and success indicators. They are equally software [1]. The main objective of a digital game is associated with voluntary entertainment; a cultural meaning; and its indicators associated with fun, distraction, emotion, among others [9]. As technological artifacts, software has its share of objectivity and subjectivity, as they were idealized, designed, and built by humans [10].

Sociotechnical System (STS) [11], IS multidimensional categorization [1], and Social Institution (SI) construct [13] are used here to present a specific epistemological perception. Considering that the subjectivities of the developers, and the organizations of which they are part, compose the artifact they develop, what is the influence of the hegemonic SIs on software? For example, consider a software whose main functionality is to promote violence to groups of socially marginalized identities, e.g., women, LGBT+, black people; and rewarding the user for that [2, 4, 6], we can perceive and transfer these unethical and immoral values of the artifact to the organization and its parts, like the software developers?

System developers are entities connected to objective reality [3], influenced by the SIs in which they are contained or are part of [13]. Individual behaviors imposed by society are programmed by control standards, institutions [14]. People, as a group, structure, and manage organizations to meet their mission or set of goals; they affect and are affected by their surrounding environment [1].

Common beliefs, values, and decision making constitute the culture of an organization and are not often stated or documented as goals or formal policies [1]. The organizational culture affects and is affected by the surrounding environment; it is not disconnected from external SIs, influencing, even unconsciously, the organization. They shape society before the formation of organizations; these organizations, to a greater or lesser degree, will affect SIs; and its dissipation does not mean that, even symbolically, it does not continue influencing other SIs.

Human subjectivities influence the engineering of an artifact [11], such as software. Culture is a subjective variable that determines this process, materialized from the collectivization of people aiming at a common goal through an organization [26]. We realize that artifacts inherit, directly or indirectly, values and beliefs from those who idealize, design, and build the functional and non-functional requirements.

Teamwork behavior shows highly positive results in several indicators, e.g., safeguard against individual shortcomings, such as underperformance and personal agendas [15], as ethical standards. Ethical businesses employ people from diverse backgrounds, and they have documented principles and standards, such as “charters” or “codes of conduct”. Several organizations, such as research groups or associations, have already developed ethical guidelines, which can be faithfully imported or adapted. An example is the Code of Ethics and Professional Conduct of the Association for Computing Machinery <sup>1</sup>. They serve as a reference and support decision making when members of the organization face difficulties, subject-oriented [15]. In the set-out example, Ethics. It is not enough for the organization to have “charters” or “codes” related to Ethics if a culture is not built and encouraged, as a positive action [12]. Otherwise, this object will only be symbolic of a facade and will not present concrete or socio-material results.

We can trace aspects inherent to SIs between the dimensions of an Information System and perceive the dialogical relationship between them as they influence one another [3]. We analyze, through the Sociomateriality using STS, the organization Riot Games, responsible for the software and digital game League of Legends. Our objective is to associate socio-material influences, considering the circumstances of contemporaneity and concrete events; actions of humans, and non-human actors between Information System dimensions.

An software can be symbolically offensive to social sustainability [2, 4, 6, 16] culminating into conflict with SIs established in a large-scale scenario, affecting actions external to the technical subsystem scrutiny. This case makes us question what the true indicators of a system’s success are. Considering exclusively the success indicators, how to question the given data? Incredibly positive evaluations; affordable price; user engagement; more than two hundred and fifty evaluations; media advertising and spontaneous dissemination. Was not the organization, embedded in the software, selling its ethical and moral values? Promoting the material agency of its organized developers? Opportunistically taking advantage of SIs breeches?

In Section 2 we will present concepts and theoretical foundations; Section 3 deepens the research methodology and method; Section 4 presents the STS case analyzed, the research contribution; Section 5 presents discussion and conclusions.

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<sup>1</sup> <https://www.acm.org/code-of-ethics>. Available at: 04/30/2020

## 2. Theoretical foundations

This Section introduces Riot Games, the analyzed organization; the concept of Social Institutions; the qualitative interpretative methodology used, Socio-technical System.

### 2.1. Riot Games and its core product, League of Legends

It would be a contextual gap to omit League of Legends (LoL) <sup>2</sup> from this work, despite the research object analyzed being Riot Games (RG), the respective development company. Worldwide, LoL is the online game with the largest number of simultaneous online players and the most viewed eSport, with more than 100 million users in both categories; offers US\$ 2.5 million in prizes per world championship; winner of several game awards in international competitions; with several transmedia initiatives, covering areas such as Music (Emmy award winner), Education, Digital Media, Comics, among others. These numbers explicitly show the influence of how this software is perceived through society. RG won several awards and was in the best positions in comparative lists of places to work, considered the “company of the year” by Inc. magazine in 2016.

This software growing relevance is perceived as an object of study by also growing number of interdisciplinary studies, involving areas like Information System, Social Communication, Game Design, Gender Studies, Psychology, Software Engineering, and others [19, 22, 23]. LoL, RG’ core product today, presents gender discriminating elements in its technical dimension as non-functional requirements, mainly aesthetic [19, 22]; and involving its behavioral dimension, an immense plurality of social oppression cases among its users, constituting its software community [23]. These elements are not isolated or passive, non-actant, that do not interact with each other.

Relevant information about the history of the RG is available on Wikipedia <sup>3</sup>, where there is also an excerpt on the accusations of gender discrimination that we will deal with in this work in more depth. The two founders and creators of RG, Merrill and Beck, founded the company realizing a problem in the gaming scenario: “They grew frustrated when it seemed like the developers of the games they loved weren't listening to fans like them” [24]. Their intention in founding his own digital games software company was to cover this problem, without repeating it.

### 2.2. Social Institutions (SIs)

There is no consensual concept in the literature regarding SIs [25], Lakatos & Marconi [13] define as “The set of socially standardized rules and procedures, recognized, accepted and sanctioned by society. Social Institutions serve mainly as a means of managing social demands, that is, they develop to work with the needs of society.”. Ludwig [26] discusses in detail about SIs such as corporations, collectivities. It argues fundamentally that individual intentional behavior can be understood, ultimately, through concepts in play and our understanding of individual agency to collective intentional actions. Avregou [35], before Ludwig [26], discussed the socio-technical aspect and SIs with a focus on Information Systems/ICT.

SIs are established and perceived continuously through generations, constituting the arrangements about how human beings work with each other. Children and youngsters

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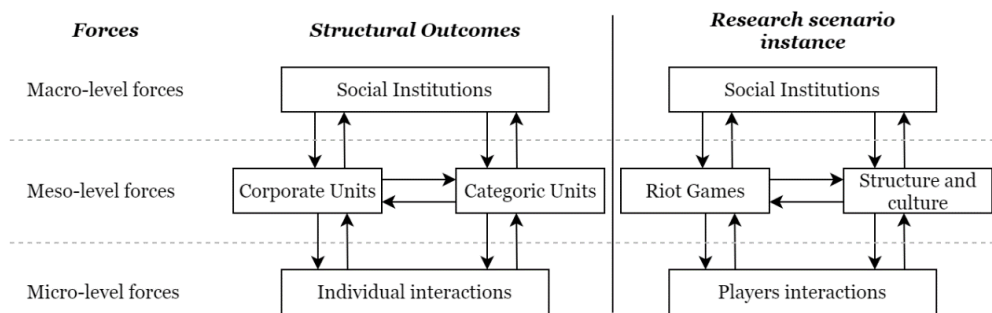
<sup>2</sup> [https://en.wikipedia.org/wiki/League\\_of\\_Legends](https://en.wikipedia.org/wiki/League_of_Legends). Available at: 04/30/2020.

<sup>3</sup> [https://en.wikipedia.org/wiki/Riot\\_Games](https://en.wikipedia.org/wiki/Riot_Games). Available at: 04/30/2020.

are constantly fed images and information from the mass media [27], e.g., from LoL.

Examples of SIs are the Family, Military, University, Language, Civil Social Movements, Companies, among others [13]. The first SI perceived by human beings, and permeates and influences society the most, is Language [14]. The combination of SIs and their relationships is called the Social Structure [28]. For example, the Patriarchate permeates several SIs [5], its influence resulted in a specific SI to tension the established Social Structure and change it, the Feminist Civil Social Movement [13].

Figure 1 illustrates the relationships between different levels of forces acting on structures, as [30]: “In turn, corporate and categorical units are embedded in an institutional domain of the macro level, and hence, influenced by the structure and culture of this domain and often by the broader culture of the society or system of societies”. The influence of one level on another is not immediate or cascades in the short term; as already said, SIs can cross and influence generations.



**Figure 1: The embeddedness of social forces levels (adapted from [30])**

A market-based institution can be committed to its business and other systems. They can assist in the maintenance and development of these systems through implicit and collective actions to reproduce them [25], e.g., lobby. Behaviors repeated regularly and occurred subconsciously defines a habit [31], as institutional actors necessarily act in large part based on habit, many of their actions unintentionally contribute to institutions' reproduction [25], in any social force level shown in Figure 1.

In STS, the analysis considers not only single users and their tasks but also how to structure and manage relationships between organizational units; furthermore, the definition of ICT requirements should, ideally, support business objectives [11].

### 3. Research methodology and method

As research method, we performed an exploratory documental survey, after saturating the sources with redundant or similar information; selection; then analysis of the content followed. The **formal** data collection took place on *Google Scholar* and *CAPES Journal Portal*, seeking academic works involving RG as a research object; **informal**, in social networks, search engines, wikis, and online media. Informal sources enrich the research socio-material factor, respecting STS principles [33].

We selected content and texts that are critical concerning RG, we understand that all content positively or negatively strongly biased, without demonstrating objective criteria and critical bias, would be advertising, marketing, or self-promotion. Thus, we do not consider the communications produced by RG about itself, as the present speech would present a skewed communication agenda [26], the company will not criticize itself.

The **formal** data collection searched for the STRING “Riot Games” in the first thirty articles from the two databases. Only one paper addressed the company as an object of analysis; others treated it through the “Riot Games product”, “Riot Games costumers/users” bias; or presenting the company as a harbinger, as we did in Section 2.

Weststar & Marie-Josée [36] quickly cite a reported scandal case related to the sexist culture at RG. The respective Section dealt with the working conditions of developers in digital game companies. The diversity of cases presented in other companies, properly, could become other Case Studies like this one. Armed with this information, we proceed to informal data collection.

Google was the search tool for **informal** data collection. We repeated the STRING “Riot Games”; in quotes for better results, preventing pollution from “riot” or “games” results, common and widely used words. We limit the search to the first five pages, due to the ranking algorithm and content saturation, using the anonymous browser mode.

The search results for “Riot Games”, on the first five pages, exposed only neutral or favorable results, with the first page populated by addresses and links controlled by RG. The autocomplete mechanism showed only neutral or favorable results. Searching ““Riot Games” + sexism”, the first five pages showed only critical content, saturated with content not only about the initial complaint, which we will look deeper here, also related to the evolution of the case and how RG has positioned itself about the topic so far. The autocomplete mechanisms, in this case, triggered sentences related to sexism, sexist culture, and lawsuit; from the insertion ““Riot Games” + sex”. Until ““Riot Games” + se”, all options related to game servers’ results, ICT dimension.

On the Brazilian consumer complaints website *Reclame Aqui*, we find the only occurrence of a critical citation to the company RG, even so without content about the company itself, but about its service; products; and, mainly, problems with improper purchases using third party credit cards, none of the complaints have even been answered.

We proceeded to the cue provided in Weststar & Marie-Josée [36], choosing the dialogue between Socio-Technical System (STS) [33] and Case Study qualitative methodology [34], where we will analyze the sexist discrimination case of the company RG. Case Study analysis involves "why?" or "how?"; seek to build a grounded interpretation of reality, not an objective and unique truth; the influence of researchers on behavioral events is little or none; a contemporary phenomenon is studied and not a historical phenomenon, we will approach issues that are approximately distant in a decade and with registered contemporary content; occurrence of only one event in a singular organization with interdisciplinary contemporary theories [34].

#### **4. Riot Games Case Study**

The first complaint related to sexism and gender discrimination was exposed on August 7, 2018 [17], triggering a whole chain of events [18]. We will use [17] and [8] as the main data sources, the others cited them and are redundant in objective information.

Concerning the speeches of the female employees of RG, including developers, two points are pertinent: (i) Patriarchy is rooted in several SIs, influencing the habit at the different social force levels [5], there is a related social and moral vulnerability how (and which) employees position themselves to their working conditions [29], especially in a predominantly patriarchal and sexist environment such as RG [17]; (ii) identify with the

female gender, i.e., be a woman; does not guarantee the interlocutor a critical identity consciousness or perception of socially instituted oppression [13, 27, 28], so not all female employees have empathized or perceived gender discrimination, which also involves variables such as “with whom you related in the company and how you related”. For example, top female employees said they never noticed any cases of discrimination. This can be explained, in part, by its position in the corporate hierarchy.

The statements related to the objective information perceived to RG are identical to the dysfunctional, masked, and toxic cultural elements of other companies [12], e.g., cafeteria with free food, identification “as a family”, good remote communication. Behind it, a culture of discrimination and oppression.

The loss from the perspective of the company’s creative and productive subjectivity is seen in “One day, Lacy conducted an experiment: After an idea she really believed in fell flat during a meeting, she asked a male colleague to present the same idea to the same group of people days later. [...] [he] went in, presented exactly as I did and the whole room was like, ‘Oh my gosh, this is amazing.’” [17]. How many software ideas and projects have been neglected because of the presenter’s identity?

The company responded to the accusations generically, saying “We have a zero-tolerance policy on discrimination, harassment, retaliation, bullying, and general toxicity” [17]. On December 13, 2018, a top employee was suspended for two months without pay for what they called “additional training”. He was accused by several employees for “repeatedly touched their testicles and made other inappropriate contacts for comedic effect”. Suspension does not fit the concept of a “zero tolerance” attitude.

The hiring process is also discriminatory, especially for development sectors. Whether or not it directly involves the League of Legends software, you should have a “gamer profile”. Several women have gone through embarrassing and shameful interviews, feeling bad after them. This phenomenon anticipates the organizational culture to come and how vulnerable they will be in that environment [12, 13].

Gender discrimination occurs both in the analysis and negative evaluation concerning gender and in the differences in behavior with the groups identified by that gender [13, 27]. For example, male employees praising women for their physical attributes in a disjointed way, which is not the case among men; men criticizing certain women for being “too ambitious” or “emotional”, as if men were not; men farting in the face of other men in official meetings without the presence of women. In a statement, a female employee says “[...] I’ve NEVER seen these sorts of phrases applied to male hires [...]”. These repressions, whether explicit or implicit, undermine a person’s mental and moral health and impair his performance and company perception [12, 27, 29].

Until June 2018, only one woman was part of the senior leadership team, composed of 23 members. Leadership is led and dominated by men. Well-established studies expose the influence that superiors have on organizations, mainly in the organizational culture [1, 11, 15], through active communication, as their messages; as of passive communication, its image, beliefs, and values. Several times Marc Merrill, one of the company's founders and with greater social relevance, responded to e-mails and expounded opinions by being either negative or apathetic about social criticism [17]. These communications, omitting or diverging from the theme, hamper the construction of a progressive debate about social sustainability in the corporate environment, influencing subordinates as a domino effect, teamwork and, indirectly, productivity.

To be employed you need a “gamer background”; women are culturally discriminated against and removed from the Computer universe, e.g., digital games; and that taking a leadership position requires considerable time in the company; and considering [17] and [8], then the probability that more female employees would occupy leadership positions was very low or zero. The status quo of SIs is sustained, reinforcing the patriarchal phenomenon [5, 27]. Without a plural development landscape, there is limited software innovation, repeating the dominant culture.

“Diversity should not be a focal point of the design of Riot Games’ products because gaming culture is the last remaining safe haven for white teen boys” [8], was one of the statements cited by a former female employee in a statement, which she heard of a male supervisor. This sentence demonstrates the beliefs and values of the RG SI; the reinforcing behavior of excluding and conservative SIs; the rejection of progressive phenomena associated with external SIs; and the epistemological cultural focus on the products and services elaboration, dedicated to “male, white and teenagers” public, preserving the SIs, their “safe haven”.

Deepening this sentence, we analyzed the number of sexualized humanized female characters, which is excessive [22]. We chose only one dimension, cleavage. The number of female characters exposing their breasts is more than double that of males [22]. According to an official LoL Wiki <sup>4</sup>, only one character had her project led by a female employee, Lux. Several other female champions had many more men in their art or visual designs than women. Considering that the champions are software products of a company, the SI, which positions itself according to the aforementioned speech, aesthetics will also be directed to please its target audience, “male, white and teenagers”.

The influence of the media builds a concern among women about the size of their breasts, leading them to believe that they are “abnormal”, even when there are no aesthetic or health problems related to them <sup>5</sup>. Chauvinism, stemming from the patriarchal phenomenon [5], also fueled an obsession on the part of men in female breasts, whether exposed or hidden <sup>5</sup>. And, coincidentally, the firm, large and symmetrical breasts presented by the LoL female characters are also preferred by most men [21]. To make matters worse, LoL’s characters breasts show many technical drawing errors (e.g., “anti-gravitational” boobs) [20], while the male characters’ do not.

Recently, RG launched a new game, Legends of Runeterra (LoR) <sup>6</sup>, with the same characters present in LoL. Considering the same elements of sexism analyzed in Carvalho & Cappelli [22], the frequency of these elements in both female and male characters is lower, and if they occur, less explicit. We believe that this happened, mainly, because another studio was in charge of the arts and visuals at LoR, with more participation and female influence. As the characters should faithfully respect the art and look inherited from LoL, a new studio cannot, even if it wanted to, to modify them.

## 5. Discussion and conclusion

In this work we analyze the association, using the STS approach, between SIs, subjectivity in software development, and the software itself. The Case Study took place with the company RG, where we interpret the relationship between SIs, internal and

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<sup>4</sup> [https://leagueoflegends.fandom.com/wiki/League\\_of\\_Legends\\_Wiki](https://leagueoflegends.fandom.com/wiki/League_of_Legends_Wiki). Available at: 04/30/2020.

<sup>5</sup> <https://www.007b.com/>. Available at: 04/30/2020.

<sup>6</sup> <https://playruneterra.com/en-us/>. Available at: 04/30/2020.

external, and available data about the company, from the Information System perspective. Related works, such as [32] and [38], associate SIs with software engineering, however without in-depth application or instantiation, in an abstract and shallow level.

There is a problem with the traditional STS approach, which was further elaborated by [34]. It says that economic objectives, or that assist employees in better compliance with them, are the only ends of sociotechnical principles and humanistic objectives. Therefore, if an IS does not have requirements, functional or non-functional, objectively illegal, or objectionable by the dominant SIs, it will not be negatively perceived. Success will be primarily measured by the achievement of its economic objectives [34], regardless of whether any of the three dimensions of the Information System subjectively or implicitly impair any sustainability category. We conjecture that there will be a gradual spread of values and habits between dimensions, until this behavior is discouraged or controlled, e.g., by “charters” or “codes of conduct”.

A phenomenon resulting from the loose or silent position of the companies responsible for digital games is that radical supremacists are targeting teenagers to SI recruitment, and LoL players are an example [37]. A stricter materialistic and ethical stance by RG would undermine this same phenomenon [37].

The hypothesis of consumer behavior, considering all the scandal and content of the accusations and massive media disclosure, would be a boycott of the company and a revenue drop [15]. The company's revenue increased in 2019, compared to the previous year that the discrimination case was exposed, from US\$1.4 billion to US\$1.5 billion [45], contradicting related theories [15]. We suggest two possibilities, which are not mutually exclusive: (i) the case was not so publicized as to reach the public and make them aware of the absurd content of the complaint; (ii) the users/clients is in a state of denial or apathy with the toxic sexism represented in this acute case of gender discrimination, validating the hypothesis in [23], social sustainability is a secondary or lower priority compared to the usability of the company's products, individual entertainment.

After the scandal, RG launched a radical campaign in its organizational culture to end or minimize discrimination, encourage inclusion, and build a socially healthy environment [46]. In a way, publicizing the case prompted the company to make ethical and sustainable positions [15]. Despite this, the sexualized characters remain as they were and the toxicity of the user's community without exposing the results to an explicit commitment of the company in this regard.

After the publicity of the scandal awards and good positions in lists of the “best companies to work for” drastically decreased. And the question remains, how did RG receive these organizational awards in such a toxic and unsustainable environment to work? What would be the indicators for the awards and how were the specific qualitative aspects collected? And, as absurd as it may seem, how does a company with elements like “list getting passed by senior leaders detailing who they'd sleep with” related to its female employees still receive any awards? These are considerations for future work.

As other future work, the STS analysis of other cases associating the three Information System dimensions in other companies; RG case broader and complementary insights; and an STS analysis of the eSports scenario, involving RG and its products.



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