

Platform as a Social Contract: An Analytical Framework for Studying Social Dynamics in Online Platforms



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Abstract In addition to formal terms of service and contracts between platform owners, users, and other stakeholders, there can be seen an implicit social contract taking place in online platforms, and influencing the social dynamics, such as trust, expectations, and perceived social justice, taking place within platforms, and driving their growth and success in the background. This paper examines the nature of that social contract, to better understand the complex social dynamics taking place in online platforms. To accomplish that objective, we draw from classic Enlightenment thinkers, e.g., Rousseau, Locke, and Hobbes, to analyze key aspects of social contracts, which we define as the alignment of stakeholder interests, stakeholder support, economic and social justice, and transparency of expectations. As our main contribution, we develop a conceptual framework for the analysis of platforms based on social contract theory, the Platforms as a Social Contract framework. The applicability of the framework is illustrated through a case analysis of YouTube, a popular online content platform. The rich understanding provided by the social contract perspective, embodied in our framework, entails many potential advantages to platform owners, including understanding user motivations and reactions so that effective platform governance with maintaining a sustainable solution to the chicken-and-egg problem becomes possible. While individual platforms may come and go, each faces the same fundamental social dynamics that can be explained

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and understood by applying the social contract framework presented in this research. This research shows how the framework can be used for analysis of online platforms, as well as suggests future research avenues for developing deeper understanding of platforms as a social contract.

Keywords Online platforms · Social contract · Trust · Two-sided markets · Chicken-and-egg problem

Introduction

Find a form of association that will bring the whole common force to bear on defending and protecting each associate's person and goods, doing this in such a way that each of them, while uniting himself with all, still obeys only himself and remains as free as before. (Jean-Jacques Rousseau, *Du Contrat Social (Of Social Contract)* (1762), Book 1, Chapter 6)

Motivation

Platforms, defined as places of interaction (Salminen 2014), entities to “build on top of” (Gawer 2011), or two-sided markets¹ with demand- and supply-side actors (Rochet and Tirole 2003), play an important role in modern economy for several reasons. First, economic activity is provided through platforms in large volumes. Second, increasing share of individuals' time and effort is concentrated on activities conducted on platforms. For example, an increasing number of people are driving Uber as an alternative to traditional employment. Consequently, platforms exert considerable economic and social power over their users (Armstrong 2006; Gawer 2011). In this research, we claim that platforms can be understood as structures enabling social contracts and that such understanding will greatly enhance their governance from the platform owner's (i.e., the entity responsible for managing the structure, later referred to as PO) perspective.

As a practical example, consider online advertising; we define it as a form of social contract in which the users give away some parts of their privacy, and accept being shown targeted advertisement, in exchange for free access and use of the platform (see Anderson and Gabszewicz 2006). Even though this exchange is not formally defined as a contract, apart from the terms of service (TOS) of the platform, both the users and POs implicitly consent to it, as evidenced by the millions and millions of interactions carried out in free-to-use online platforms every day. When this implicit agreement is not upheld by either party or in other words when

¹In addition to two-sided markets, which is a concept rooted in economics, other concepts referring to platforms, although more rarely used, include multisided platforms (Hagiu and Wright 2015) and multisided markets (Seamans and Zhu 2013).

the trust framework surrounding the contract is broken (e.g., too frequent, invasive or misplaced use of advertisement), dissident forms of action occur, such as the use of advertisement content blockers, as an answer to the breach of agreement.

Surprisingly, despite the apparent similarities between platforms as structures (i.e., entities organizing systems of interacting and interdependent elements) and social contract theory, the notion of social contract has not received much attention in the platform context. In fact, we were unable to find any research explicitly discussing platforms from the perspective of social contract. As such, the understanding of trust, exchange, and performance in the context of platforms remains limited. While there are existing works that discuss platforms from transaction cost perspective (e.g., Susarla et al. 2009), social contract theory can provide an alternative understanding to dynamics taking place between POs and stakeholders that go beyond the conventional economic reasoning. We intend to address this gap in current literature by conceptualizing platforms as a social contract (PaaS).

In particular, we apply the social contract perspective to find similarities to the challenges of modern online platforms. To clarify, we are not explicitly interested in contracts as legal agreements or formal acceptance from the users – rather, we follow the definition that the social contract is an abstraction dealing with ways of how to organize the society or structure (in our case, the platform). Our endeavor is motivated by the premise that an increased understanding of the social reality of platforms leads to discovering effective solutions to various strategic challenges.

For example, for finding sustainable solutions to the well-known and persistent chicken-and-egg problem,² taking place in two-sided markets and other platforms (Rochet and Tirole 2003; Caillaud and Jullien 2003; Armstrong 2006), a deep understanding of the prevailing social dynamics taking place in the platform is instrumental, as joining and actively using a platform is ultimately a social phenomenon. By social dynamics, we refer to several constructs, including expectations, trust, stakeholder interests, perceived economic and social justice, and support for the social contract. Such issues are scarcely discussed in the extant platform theory. By analyzing them with social contract theory, we provide additional analytical tools for the POs and scholars interested in platforms. Our objective is therefore to introduce conceptual insights from the rich tradition of social contract theory to economics-dominated platform literature.

The PaaS framework represents a novel approach for understanding user-related issues of platforms, an area of research which is currently dominated by theories from economics, and in a considerable need for alternative explanations (Birke 2008; Shy 2011; Salminen 2014). By only applying theories from economics, the POs may overlook important nuances as to why the end users and other stakeholders behave the way they do in the “real world” and in the process risk either foregoing opportunities of value appropriation (Salminen 2014) or becoming vulnerable to negative tipping, i.e., accelerating flight of users (Katz and Shapiro 1985). To prevent these adverse effects, our approach can help explain the social

²The problem is defined as follows: In the absence of others, users and other stakeholders lack the incentive to join or use the platform (see, e.g., Rochet and Tirole 2003; Salminen 2014).

dynamics after the user/other stakeholder joins a platform; such insight can be applied to improve the platform's viability under the intense competition faced by modern online platforms.

Research Questions

When adopting the perspective of social contract theory to understand modern online platforms, several questions emerge. In this research, to achieve our objective, we consider the following questions:

RQ1: What are the constituents of the social contract in the context of modern online platforms?

RQ2: What rights are the users giving up, in exchange for what benefits?

RQ3: How can the users trust in the good will of the PO as a ruler of the platform?

For our inquiry, it is essential to explore the nature of social contract in the context of platforms. This study focuses on establishing this first step, thereby laying ground work for bridging the social contract tradition with modern online platforms. We do not expect to miraculously compress hundreds of years of literature on this topic into one book chapter; instead, our aim is to show useful analogies and open the underlying social reality of platform with the insight from social contract theory. In particular, our framework is based on a rich foundation of classical thinkers and is applicable to the contemporary context of online platforms when platforms are considered as a set of guiding principles for building a structure, i.e., a way to organize elements of a system. Social contract theory applies to designing, building, and sustaining such a structure, hence its applicability to modern online platforms. By considering this rich tradition, we are able to conceptualize platforms as social contracts and better understand the efficient mechanisms for their governance.

We proceed by defining the concept of social contract, as well as introducing the most prominent thinkers in this field. After that, we will compare their ideas with modern reality by giving some examples and elaborations. Then, by synthesizing some prominent concepts from social contract literature, we will create a coherent framework that utilizes the social contract theories' arguments for the examination of online platforms. In the process, we are bridging the modern technology and economics dominant discussion on platforms to the rich philosophical tradition of social contract theory. Through this juxtaposition, we hope to establish a better way of understanding social dynamics in online platforms. Finally, we will demonstrate the application of the framework through a case example. Conclusion and discussion will follow, also opening future research avenues.

Literature Review

Defining the Social Contract and Its Tradition

Social contract is a central concept in moral and political philosophy. It deals with the relationship of government and the people. Historically, the theory of social contract has played an important role, for example, in the French Revolution and the United States Declaration of Independence. Its conceptual roots can be found in the Age of Enlightenment, although, as stated previously, philosophers have a long tradition of analyzing the role of state and the individual, dating back to Plato and beyond. The key tenet is that individuals give up some of their rights in exchange of the protection for their remaining freedoms. One can distinguish three broad categories of writings to be associated with social contract literature: (1) early political/natural science writings by European philosophers, (2) court rulings which have translated the notion of social contract into laws and legal rights, and (3) contract theory which, in conjunction with the “theory of the firm” (Coase 1937; Williamson 1981), analyzes companies as contractual nodes and proposes a convenient bridge for considering the corporate implications of the notion of social contract.

In this research, we focus on the early political writings by European philosophers from the era of Enlightenment (ca. 1650–1800), a historically important period which laid groundwork for modern Western societies. This decision is taken to correctly understand their original message and therefore the root of social contract theory, rather than focusing on later interpretations of it. However, we do acknowledge that there is an abundance of contemporary and modern political science discussing social contract theory (see, e.g., Oakeshott 1991; Gallopín et al. 2001; Colomer 2002). We proceed by briefly summarizing the ideological legacy of three philosophers, namely, Hobbes, Locke, and Rousseau. For brevity, we focus on these three thinkers who are all considered as highly influential in shaping the social contract theory. The purpose of this literature review is to familiarize the reader with the core idea and conceptual foundation of social contracts. Throughout the paper, we continue referring to other works from the social contract tradition, when applicable to explain particular dynamics pertaining to online platforms.

Enlightenment Philosophers and Social Contract

Hobbes’ *Leviathan, or the Matter, Forme and Power of a Commonwealth Ecclesiastical and Civil*, published in 1651, is one of the earliest and most decisive pieces on social contract. Hobbes seeks to give an answer to the following question: Why, although men are created equal, and although this equality (*as in*: identical ability to act and decide for themselves by themselves) is for them a natural right,

they relinquish this right and give to other men power to rule over them? The theory on power structures at Hobbes' era invoked God as the justification for political power; merely refusing this idea was not Hobbes' goal, but he also aimed to explain why political power is legitimated by men as a free choice and why they accept it against an apparent natural order of things (i.e., them being equal). According to Hobbes, in a natural state, man fights man due to his fear of dying and to the fact that the first threat to a man's life are other men, an impulse causing war and destruction. In other words, this is not a case of "destruction by chaos," but rather a natural order of destruction. To solve this problem, men abide among themselves to a contract they shape, which terms delegate power – necessarily absolute power writes Hobbes – to other men to rule them. Absolute power means that the ruler is the only one to preserve his natural right, which is even "augmented" by the delegated rights of his fellow men.

Another prominent philosopher, worthy of mentioning in this context, is John Locke, who touched the idea of social contract throughout his career, among others in his work *Two Treatises of Government*, published in 1690. His ideas were influential for the United States Declaration of Independence. Basically, Locke established two fundamental concepts inherent to the notion of social contract but also to – broadly speaking – liberalism: (1) natural law and (2) property rights. The notion of natural law is interesting, as it was manipulated by Dutch philosopher Spinoza into a concept that can be defined as "whatever seems inexorably applicable to the human condition" – such as the law of gravity, for instance. But this concept has been twisted and misused through time, starting with Adam Smith (1994) in his *The Wealth of Nations* presenting the infamous idea of the Invisible Hand as a natural law, a definition which Rifkin (2014) criticizes as being short of a natural law. Rifkin (2014) also proposes the perspicacious remark that if a paradigm is defined *stricto sensu* by a set of natural laws, and the zero-marginal cost society puts in question these natural laws, then one can legitimately say that the root causes and consequences of the rise of platform plays constitute a paradigm change.

Finally, Jean-Jacques Rousseau can be attributed with the concept of social contract. His main work on social contract theory, *Du contrat social ou Principes du Droit Politique* (*Of the Social Contract or Principles of Political Right*), was published in 1762. As for Locke, it is worth putting this one in perspective with Rousseau's other writings, as it shapes a coherent whole about Rousseau's take on human nature. Rousseau attempted, similarly to Hobbes, to find out why and how can power become legitimate, even though men are born free and equal. Rousseau established the direct relationship between the people's will (the "general will"), which is the only entity that retains actual power, and its translation into law, which expresses this general will and, in the context of a social contract, is the only sovereign power ruling over this contract. Through a social contract, men relinquish their initial freedom – their natural state – and accept to place their private interests behind the public interests. Rousseau also takes the following stance: the consequence of establishing a social contract is leading men to a political state which is fundamentally better than the natural state they were in.

Theory of Platforms and Two-Sided Markets

In the early 2000s, following the success of such platforms such as Amazon, MySpace (now diminished), and Google, platforms emerged as a contemporary topic of scholarly studies. Entering the vocabulary of economics, two-sided markets (Rochet and Tirole 2003) describe the dynamics of platforms, often from economic analysis and pricing perspective. More recently, it has become apparent that alternative explanations are needed to model and understand the complex social phenomena taking place in platforms (Lampinen et al. 2015; Dillahunt et al. 2016; Lampinen and Cheshire 2016). While concepts in industrial economics and network economics, such as network effects (or externalities), critical mass, and equilibrium of supply and demand side participants (Rochet and Tirole 2003; Armstrong 2006; Parker and Van Alstyne 2005; Hagiu 2006; Evans 2011; Eisenmann et al. 2011; Hagiu and Wright 2014), are effective in describing the overall dynamics taking place in a platform (e.g., lack of success can be explained as a consequence of lack of critical mass of users), they are poor in explaining why, apart from economic rationality, individuals take part in and actively keep using a platform.

For example, the theory of network effects explains this so that participants from one market side derive utility or value from the presence of the other market side (cf. Katz and Shapiro 1985). Intuitively, such an explanation makes sense when observing many real-life platforms, such as dating platforms (e.g., Tinder) where the presence of opposite sex directly determines the usefulness of the application. However, such a coarse explanation, while logically sound, is insufficient in explaining the details as to why one platform flourishes and another perishes. For example, MySpace had a “critical mass” of users and considerable network effects; yet, users rapidly abandoned it *en masse*, shifting to users of alternative social networks, such as Twitter and Facebook. Social contract theory can bring deeper understanding to complement already very established economics-based platform theory.

The proliferation of platforms was quickly observed across many industries, and businesses are increasingly adopted the platform strategy and business to follow the market leaders (Hagiu and Wright 2014) that, according to Eisenmann et al. (2011), source a considerable share of their revenue from platform markets. Overall, the platform theory and concepts developed within the economics domain have spread to several other disciplines, e.g., strategic management (Economides and Katsamakas 2006), information systems sciences (Casey and Töyli 2012; Salminen and Teixeira 2013), and marketing (Sawhney et al. 2005). Yet, the most influential works originate from the domain of economics (see, e.g., Rochet and Tirole 2003; Caillaud and Jullien 2003; Armstrong 2006; Shy 2011, for a review), as the scholars in that domain have been very active in studying platforms and their implications.

According to Salminen (2014), there are several limitations of the economic literature explaining platforms. First, little is known about strategic problems faced by POs beyond the notorious chicken-and-egg problem. Despite some extensions to other strategic issues (e.g., Eisenmann et al. 2011), the chicken-and-egg problem is considered as the fundamental focus of concern in the platform growth and success

(Caillaud and Jullien 2003; Rochet and Tirole 2003; Evans 2011). However, there are several other concerns, e.g., monetization dilemma (Salminen 2014), which represent equally important challenges for POs. Second, the extant platform literature primarily focuses on the “big platforms,” such as Amazon, Facebook, and the likes, neglecting start-up companies that have much less maneuvering space for solving the chicken-and-egg problem, e.g., due to small market power (Salminen 2014). Exceptions include Caillaud and Jullien (2003), Evans (2011), and Mas and Radcliffe (2011) who adopt the entrant’s perspective to platform markets.

Third, and most importantly in the light of our study, the strategic contribution of the economics literature tends to focus on pricing (Shy 2011; Salminen 2014). The applicability of pricing in the online environment is curbed by “zero pricing,” i.e., setting the price level to zero, as a default requirement in the industry (Salminen 2014). For example, Rochet and Tirole (2005) show that a platform can implement negative pricing for one market side, yet retain overall profitability by “internalizing the externalities” (Evans 2003). However, there are cases when the pricing has been set zero and negative, and the platforms still fail to succeed (Salminen 2014). Currently, the economics-based theory of platforms is unable to provide satisfactory explanations, and comprehensive solutions, for POs struggling with the social dynamics that drive platform growth and success. Hence, other explanations are needed to try and understand platforms from alternative perspectives. According to our argument, presented in the following sections, social contract theory provides a sound basis for a framework that accomplishes just this: an insightful look into social dynamics taking place within a platform.

Platform as a Social Contract

Adapting the Concept of Social Contract to Online Platforms

A first, simple definition of a social contract is that it is an agreement between those who govern (governments, rulers, even POs) and those who are governed (subjects, the people), of implicit or explicit nature (Hobbes 2010; Locke 1988; Rousseau 2003). Enlightenment philosophers, such as Rousseau, Voltaire, and other classical thinkers, have further defined and refined the notion of social contract.³ Historical trials, such as the French Revolution and United States Declaration of Independence, although not solely motivated by the concept of social contract, have shown the value of their thoughts. While we acknowledge that the political and philosophical theories from which the concept of social contract stems have much deeper and

³For clarity, we point out that Enlightenment philosophers were obviously influenced by earlier thinkers, dating back to Ancient Greek (e.g., Plato’s teachings on the role of the state as a governing body) and Ancient Rome (e.g., the notion of contract which was central in the Roman society).

more ancient roots, dating back to Ancient Greece and Rome and possibly earlier (Johnstone 2011), we focus on the aspect of this notion that designates the guiding principles of the fundamental, binding agreement – in explicit or implicit form – struck between governed and governing people. In this instance, we consider platform as governing structures and platform stakeholders as governed by this structure’s purpose and actions. Much like in ancient kingdoms, which formed the context for the early philosophical discussion on social contracts, platforms involve rulers (PO) and subjects. The “subjects” here refer to the platform’s immediate stakeholders, including end users paying for the access or use of the platform (demand side) and service providers offering their services, such as Uber drivers or Airbnb hosts (supply side). The stakeholders give away some freedoms in exchange for benefits, such as safe interaction within the platform. The PO, in exchange, pledges to govern fairly in this implicit social contract arrangement.

From here, the parallel we can draw to platforms is to study them as structures engineered to benefit the stakeholders involved in activities taking place in the platform. A platform succeeds as a structure when it leverages and steers platform stakeholders’ behavior in order to benefit the structured ecosystem. In some instance, this pattern is characterized as a network effect (Katz and Shapiro 1994). In any case, the governing structure, the PO, provides guidelines to enable governed “subjects,” platform stakeholders, and behavior, in order to simultaneously benefit the ecosystem comprising the PO, stakeholders, and other possible complementors. As such, this requires a long-term trust agreement where each party upholds its promise to contribute to reaching adequate risk/reward ratios for all stakeholders of the platform, including the PO, while not hindering the counterparts’ actions.

Overview of the PaaS Framework

In the following, we build on social contract literature to conceptualize platform as a social contract (PaaS). We synthesize the social contract literature to the framework that can be employed to explain why end users and other stakeholders engage in the platform play. These pillars are (1) alignment of stakeholder interests, (2) stakeholder support to the contract existence, (3) economic and social justice, and (4) transparency on expectations. Alignment of stakeholder interests builds on Rousseau’s general will of the people to guarantee that an actor has an incentive to adhere to the platform rule rather than acting outside the platform. Stakeholder support to the contract existence refers to the approval by the stakeholders. Economic and social justice, referring to Rousseau’s concept of social contract, means the stakeholders are backed up and offered guarantees that defend them against contract violators. Finally, acknowledging the importance of understanding each other’s

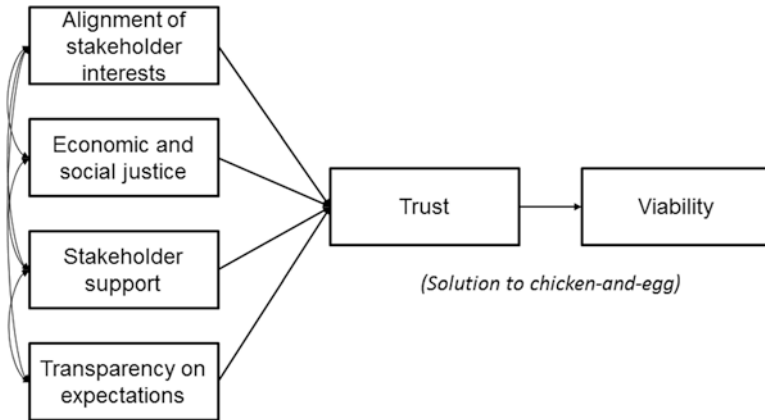


Fig. 1 Conceptual model of the implications of PaaS framework

expectations is essential for social contracts. Therefore, it is necessary to make the expectations of platform stakeholders transparent in terms of expected effort/cost and benefits of participating in the platform play. Figure 1 shows a visualization of the PaaS framework.

Satisfying the conditions following from the above four pillars, POs are able to establish trust which is seen as antecedent to viability of online platforms (Zeng et al. 2013). “Viability,” in our sense of the word, refers to a sustainable solution to the chicken-and-egg problem. As explained by Salminen (2014), even after the initial solution, the chicken-and-egg problem simply does not “go away” but remains a pressing concern throughout the life cycle of a platform; i.e., at any time individual users can abandon the platform, and, due to the threat of mass escape (cf. negative tipping point by Katz and Shapiro 1985), similar to what took place when users abandoned MySpace, the then dominant platform, the governance of a platform, requires attention to multiple strategic and social considerations (Gawer 2011). Our logic here is that adopting the social contract perspective in the platform governance results in delicate and considerate actions from the PO, thereby decreasing the risk of losing the stakeholders’ trust, while resulting in a vibrant, viable platform. It is such actions that can be enhanced by the understanding of the implicit social contract. Note, however, that by viability we refer to the stakeholder interactions in platforms, not financial viability which also has been identified as a critical problem in the platform business model (see Salminen 2014). In brief, portraying platforms as a social contract enables a better understanding of trust in platform markets (which, in turn, is understood as an antecedent to a continuous solution of the chicken-and-egg problem), how each stakeholder’s promise toward one another benefits each of them, the interdependency of actors within the platform, and the platform as a social structure.

Four Pillars of PaaS

Alignment of Stakeholder Interests

First, reflecting Rousseau’s “general will” of the people (users), we can argue the following. Although platforms can generally be regarded as dictatorships by governance, because they make the decisions without asking the users, people may rebel against changes and switch the platform (freedom of choice), so ultimately this threat of disconnecting users keeps abuse of power in line. Thus, the users do have a vote of sorts, indirectly in the decisions made by the PO. In Rousseau’s view, when the state exceeds its legitimacy, the people will rebel against it and start a new form of government. Pettit (1997) goes as far as to say any social contract is legitimate unless rebelled against. However, the aforementioned low switching cost in the online environment yields platforms sensitive for flight. Rather than high tolerance due to lack of alternatives, a more dominant “glue” for keeping online communities and platforms intact is the existence of network effects (Katz and Shapiro 1985) which make it costly to switch, especially if one has made investments in relationships or content creation that are cumbersome to replace in another platform. While it may be much easier to leave from a platform than from a country, there are hidden chains such as established relationships and other forms of sunk costs that hinder switching behavior.

Reflecting on Hobbes’ idea of the state as an impartial judge, we can see it corresponding to the core idea of platforms which is to enable to “build on top of” (Gawer 2011) or enable interaction between its users. The PO remains a neutral party while individual agents negotiate, find each other, and form matches. However, the “natural state” problem of Hobbes emerges if there are no credible threats which would prevent rogue behavior. Therefore, although not directly intervening to interaction between members, the PO needs to provide a trust framework where the members can safely carry out transactions. In practice, this means providing trust features, such as (1) payment mechanisms (e.g., escrow, gateways), (2) evaluation mechanisms (ratings, reviews), (3) penalties (bans, liability, spam detection), and (4) insurance mechanisms (e.g., Airbnb’s host insurance). Without the ability to exert power, the platform risks transforming into a chaotic environment of rogue agents.

Let us further illustrate the issue of stakeholder interests. Platforms are built in such a way that the presence or absence of various categories of stakeholders from the platform directly influences the marginal utility of a stakeholder’s behavior on the platform. The diversity of demand and supply are bridged by the platform. The services delivered by the platform cannot be perceived as being part of a predetermined set of value chain, in which finality can be anticipated. All things being equal, few hurdles stand in the way of Uber driver who would decide to create his/her own food delivery service, competing with Uber Eat, for example. He would have constituted the first assets of his company through Uber and would cannibalize part of Uber’s revenue. Aligning stakeholders’ interests, then, is about guaranteeing that

they have the incentive of adhering to the platform rule rather than leveraging the platform benefits or functionalities outside of the platform. In our example, Uber would do it by imposing various levels of control on drivers' behavior and capabilities: car models, attitude when welcoming a customer, and derived services at the expense of the driver which the customer would come to expect as part of the driver's value proposition. All of this constitute switching costs which are balancing the betterment of the driver's best interest and that of the platform while he pursues his/her activity.

Stakeholder Support to the Contract Existence

Support takes place when stakeholders take upon themselves to enforce the constraints and preserve the rights given by the social contract of the platform. Stakeholder support is a consequence of the fact stakeholders have digested the rules of the platform and therefore are able to enforce them efficiently. Stakeholder support to contract existence raises several critical objections relating to the platform's value proposition. As long as a stakeholder believes that platform is enforcing the social contract to his/her own benefit, the value proposition encourages him to push the rules of the platform as his/her own. A relevant example to this fact is moderation on any media broadcasting platform. The primary goal of the platform is to transfer as fast and as efficiently as possible the content moderation and curation activities to the content consumer or the content producer side of the platform. For example, YouTube embodies this logic in the "YouTube Heroes" program. The live-streaming video platform Twitch has a similar system whereby moderation can occur within but also across communities, and actually respects both the explicit moderation rules given by the law and by the platform, and implicit rules given by the content producer to his/her own community (which of course do not take precedence on the former).

The issue of moderation is in line with Proudhon (1969), whose view of social contract was based on the idea that individuals retain their personal sovereignty. Applying his view, the social contract does not take place between stakeholders and the PO, but instead between the individuals that refrain from mutual control by giving it to a third party. As shown above, peer moderation is an example of stakeholders internalizing platform rules, and promoting them as their own. However, in the other extreme, where stakeholder support is lacking or negative, there is a risk for revolt. Again, we can draw insight from social contract, recalling the French Revolution. The starting state is a feudal structure that relies on accepting what would be today considered as unfair terms, under rarity of resources. The feudal structure breaks when the scarce resources became more common with the apparition of mercantilism and when the paradigm around protection/security shifted. The initial social contract is broken because the paradigm changes, the stakeholders do not support the contract any longer as it goes against their best interest, hence a revolution to shape a new social contract. Although this is agreeably a broad-stroke painting of this historical event, it lets us draw the following parallel: while the

existence of a social contract can be strong enough for the stakeholders to prefer platforms over other contractual agreements (e.g., Uber over a stable employment), once established, the stakeholders expect the PO to respect the social contract and treat them fairly; otherwise, a revolution may take place. A recent phenomenon that could be understood through this logic is the emergence of platform co-ops as an alternative for platforms led by the PO (Scholz 2016). In addition, the press has reported discontent among Uber drivers in several countries. Because the legitimacy of a social contract is contingent upon voluntarism, while any form of coercion delegitimizes it (cf., Spooner 1973), the PO can face hard times in reversing the dynamics of discontent.

Economic and Social Justice

The third pillar, economic and social justice, builds on Locke's idea of the central authority defending the individual against those who seek to do them harm, so that the people can live under the protection of their basic rights. We can easily see the parallels of this idea in the various trust mechanisms employed by modern platforms, backing up and offering guarantees (e.g., Airbnb's apartment insurance) that defend platform stakeholders against violators. Applying Rousseau's thesis, man must "be forced to be free" also in platform context. This justifies the need for certain actions to ensure economic and social justice. It is important to have moderation of spam and quality control in social platforms, where the vocal minority with toxic intents may destroy the quality of discussion and prevent a goodwilling majority to participate, thus threatening the viability of the platform. Unlike government, a platform is not sovereign but in fact a governance system within a broader institutional framework (society). Consequently, information platforms must yield to local laws regulating the acceptable content, for instance, YouTube removing copyright-violating content, Google censoring local results in China, Facebook removing an iconic photo of Vietnam War, and Twitter banning the conservative personage Milo Yiannopoulos.

For example, Reddit has recently censored one of its subgroups, namely, the conservative group, "The_Donald," through introducing algorithmic rules for content visibility. When such control is applied selectively, the fairness of the rule system may erode, and even members of the majority may reject it albeit disagreeing with the minority group. There is a thin red line between censorship and healthy control, most easily identified with discrimination of groups. In the aforementioned case of Reddit, however, one could argue that the discrimination is justified if and only if the group is consistently breaking the rules (laws) of the platform, thereby forming a type of tyranny of minority. Such an effect, in particular, is noted due to Reddit's mechanism of assigning more visibility of its "/all" subdirectory based on votes, which enables coordinated efforts by groups to push forward content of their liking, even to the majority who disagrees with it. Yet, even in this thinking, we may question whether it is justifiable to change the tyranny of minority to the tyranny of majority. Many open questions remain for further analysis of issues of this nature.

A key component of social contract is the ability it gives to platform to arbitrate between various risk/reward ratios proposed to various categories of stakeholders, and how this resonates with the platform's business model. Participation in each platform can be considered as a risk/reward decision. As a result, the platform makes the following promise to platform stakeholders: the investments that stakeholders make in order to abide by the rules will at some point be rewarded by future profits (e.g., through revenue sharing), and the risk/reward associated with belonging to the platform will be adapted to each stakeholder's expectations. Moreover, regardless of the scale of the investment that a stakeholder makes into the platform, this risk/reward ratio will be maintained for him. The violation may originate from other stakeholders or the platform itself, and the risk/reward ratios may remain relatively implicit to an individual. But implicitness exists also at the PO's end. In fact, the level of implicitness may be even a greater problem in the platform setting than in other political contexts, because the power exerted by platforms is hidden behind the algorithm, so that even the PO may be unaware of the exact decision-making taken by its algorithm, when applying complex neural network models (Bose and Liang 1996). At the very granular level of decision-making, therefore, platforms are amoral and cannot be morally judged. Readily available examples of morally adverse outcomes include social injustice and discrimination within Google, Airbnb, and Uber (Bolukbasi et al. 2016; Dillahunt et al. 2016; Malin and Chandler 2016).

Transparency on Expectations

A critical success factor for platforms is their ability to maintain an adequate level of control over stakeholder involvement in the platform play, in direct relation with the quality of services delivered through the platform. As a result, the fourth pillar of a PaaS framework is about making explicit the expectations for each sides of the platform play in that matter. The POs propose both an operational and a business model which are made available to stakeholders. In return, they define their expectations for a certain degree of involvement in the platform play. Platform stakeholders, in turn, then expect in exchange a certain reward related to the risk (investment) that this involvement represents.

In social contract theory, the rules (expectations for proper behavior) set by the government are translated into laws, which are the guiding principles of social contract. Laws are necessary as people and government, and as a parallel the various sides of a platform play, need to know what they can expect from each other in order to let their relationship be structured through the social contract. In other words, people need to understand the rules (general will of expected behavior) before they support a system. In today's democracies people understand that they are expected to pay taxes, and the representatives know that they are expected to use the tax revenue in a manner that benefits the taxpayers directly or indirectly. Social contract is in force as long as these expectations are explicit and met. When issues arise, the

meaningfulness of social contract is questioned, leading to political apathy (“Politikverdrossenheit” in Germany and “ras-le-bol politique” in France) with an increased disrespect toward governments and lack of support to the system.

Issues also emerge when implicit contract is so strong that the platform stakeholders do not bother to read the TOS. Instead, they rely on the benevolence of the PO. That represents the risk that the TOS and the implicit assumptions of the social contract by the stakeholders may be in conflict. Similarly, as in the lack of better information, the POs may misunderstand the expectations laid by the users. Therefore, the solution for an effective social contract is to make the expectations explicit and transparent. The effort goes beyond the definition of TOS, as it needs to echo in the everyday usage of the platform by the stakeholders. In the everyday usage, expectations are not only directed from the government (PO) to citizens (platform stakeholders) or from citizens to the government but from citizens to citizens. In this respect, platform can be seen be more like a modern community than a traditional nation-state. The community has its own expectations for proper behavior, and the members of the community make these expectations transparent in the everyday usage of the platform.

Case Example: YouTube as a Social Contract

Overview of YouTube

YouTube is a media publishing and monetization platform where content producers benefit from a large freedom of publication and content consumers from a variety of content ranging from rebroadcast of evening news to video game walkthroughs. According to criteria defined by Salminen (2014), YouTube may be defined as a two-sided content platform (consumers-producers) or as a two-sided advertising platform (advertisers-producers). The underlying media monetization is advertisement-based, under a variety of formats primarily consisting of advertisement placed in the videos. In the recent years, YouTube has faced major challenges pertaining to its business model: content diversification, war against copyright infringement, community management, and content curation. While content producers have diversified their skills and breadth of coverage to more professional-looking videos spanning topics such as news, music, movies, comedy, video games, and sometimes any combination of the above and more, the users of the community have proved to be one of the most active consumer communities on the Internet. YouTube’s business model hence relies, on one hand, on maintaining the vibrancy of content producers while avoiding legal disputes with large franchise or copyright owners such as Walt Disney, Nintendo, Universal Music, and the likes and on the other hand satisfying the expectations of a consumer base which seldom distinguishes YouTube’s errors from those of content producers.

Analyzing YouTube's Business Model Challenges Through PaaS Framework

Alignment of Stakeholder Interests: High

Initially, YouTube, as many media platforms, bet on freedom of speech to federate its community. It was and to a very large extent still is the platform where anyone can publish almost anything not legally reprehensible and reactions can thrive. Recently however it started to act more directly over the externalities at play within its business model. For instance, YouTube has been promoting since a couple of years the champions among the content producers (most prolific, most viewed, etc.) and addressing directly with them the idea that one can make a living out of publishing content on YouTube. They pushed for better formatted content, increasing the average revenue per minute of content produced for the content producers – and thus that of the platform. YouTube also emphasized user ratings by giving to this measurement an increased importance in search results qualification. Thus, this catered for the emergence of content producer champions by content category (such as the famous YouTuber PewDiePie), the quality or notoriety of their content acting as a gravity well inside their respective category or combination of categories – which we might as well refer to as their own value proposition. While this has somewhat come to the expense of content discovery and the emergence of new content producers, it gave the platform more credibility and installed an adequate basis for an ecosystem life cycle where each stakeholder could satisfy its own interest: consuming content appropriate to its taste and quality expectations, producing content that would be pushed through a somewhat fair system allowing the content to meet its audience, and for content producers and content consumers alike, the ability to interact with each other, etc.

Stakeholder Support to the Contract Existence: Somewhat Good

YouTube remains the leading video publishing and monetization platform and as such remains very attractive for any content producer willing to distribute its content to a wide audience and build a sustainable revenue stream from its activity. On the content consumer side, YouTube still represents the best aggregation of media content available on the market, and it is worth noting that both categories of users remain very implicated in testing and assessing the relevance of the choices of YouTube. Even though the attempts of YouTube at implicating them directly into the inner workings of its business model, such as the YouTube Heroes initiative, are still nascent, their support to establishing a robust and viable trust framework for the platform is undeniable and at this point remains one of YouTube's biggest strengths. YouTube has made attempts at producing derived services from its core assets – which obviously are the content search and matching functionalities associated to the media platform. For instance, the short-lived attempt at setting a streaming

service potentially competing with Twitch, now a service called YouTube Gaming with lingering activity, seems to have demonstrated that YouTube’s brand strength does not bear enough weight to appeal to the content consumer.

Economic and Social Justice: Low

Traditionally, YouTube has given an opportunity for anyone to become famous. The platform has allowed content generators to become professional YouTubers. However, when one takes a look at the increased backlash following YouTube’s recent decisions, and in particular the vast unpopularity of the YouTube Heroes initiative, where YouTube is perceived by its community as siding always more with the media giants and large copyright owners rather than the smaller creators abounding on the platform, and giving way to increased censorship on the platform, one can reasonably ask itself whether this strength will last or will in the midterm cease to be one of YouTube’s differentiators. Again, it comes down to algorithms and the hectic topic of video demonetization. If the algorithms are set to favor content from certain YouTube celebrities, well-paying sponsors, and established media brands, YouTube is in danger to lose its grip on economic and social justice. When a video is flagged as infringing a copyright owned by a third party, either one of two things can happen: the video gets demonetized or the revenue gets reallocated to the rightful owner of the copyrighted material. Either way, the revenue stream is cut for the content creator. While this seems like a fair situation, it does not consider, for instance, to what extent does the “entertainment” dimension added on top of an existing copyrighted content constitute a fair use of said content. Overall, there needs to be more actions and structures that back up and offer guarantees for content creators that defend them against social contract violators.

Transparency on Expectations: Low

YouTube maintains a trust framework between content creators and content consumers on one hand, and between YouTube (the platform) and content creators on the other hand. The trust relationship between the platform and the content consumer is not emphasized, and one of the major challenges YouTube is facing is that the real heralds of its business model toward content consumers are the content creators. While YouTube has made sizable efforts regarding the transparency on its terms and conditions, on its definition of “fair use” of copyrighted content, or even on explaining the risk and rewards associated to maintaining a sustainable activity as a content producer, a real opacity remains as it leverages proprietary algorithms. More than the content of these algorithms, used for practices such as content ID which are core to YouTube’s business model, it is the method through which they are tested and improved that add yet another level of complexity and obscures their nature. For instance, a certain level of automation seems to be in the way algorithms improve their qualification of what is and what is not copyright infringement.

Despite the aforementioned challenges, it is undeniable that YouTube's potential remains tremendous, specifically because in spite of the feud between the platform and the content creators, the ecosystem is more professionalized and vibrant than ever. Amateurs are learning from their experience, increasing their media production skills and professionalizing their use of the platform. In addition, established media brands are leveraging the platform as a broadcasting channel.

Conclusion and Discussion

Overview and Theoretical Contribution

In this research, we introduced a conceptual framework for the analysis of online platforms through the lens of social contract, namely, platforms as a social contract (PaaS). We built on the works of Enlightenment philosophers to define four pillars of PaaS that explain trust between platform and its stakeholders. We also demonstrated how this PaaS framework can be employed to analyze a platform business case by both practitioners and scholars interested in in-depth analysis of platforms. As a consequence, we contribute to the platform literature by deviating from the currently dominant techno-economic perspective to the socio-philosophical view that we see capable in providing answer to the acute problems of POs, such as maintaining a sustainable solution to the chicken-and-egg problem which has been shown to have a persistent nature, taking new shapes beyond user's registration to the online platform (Salminen 2014) and is of high strategic importance to online platforms across all verticals (Rochet and Tirole 2003; Caillaud and Jullien 2003).

In particular, the PaaS framework introduces novel conceptual angles to analysis of platforms, including (1) alignment of stakeholder interests, (2) stakeholder support to the implicit contract, (3) economic and social justice, and (4) transparency of expectations. Through these concepts, the multidimensional nature of active use of a platform can be better understood than by simply assuming economic rationality or utility derived from the existence of network effects – which, as shown by Salminen (2014), remain theoretical for many unsuccessful online platform startups. In addition, understanding these dimensions results in the logical conclusion of devising practical strategies and actions that correspond with the “real” social dynamics that drive the success and growth of a platform, from an “enlightened” perspective. For example, prior theory on platforms excludes from its analysis the existence of social justice, i.e., perceived fairness of a PO's actions by the stakeholders. Yet, such a social dimension evidently influences based on what is generally known of human behavior: if the platform is considered by the users to operate unfairly, it may reach its demise regardless of efficient pricing strategies and a large extant user base (network effects). If using merely economic explanations, POs and scholars may be left puzzled when this kind of seemingly unexpected events take

place – yet, recent history, for example, the case of MySpace, has shown that no platform is protected by the mere existence of network effects. To capture the multitude of factors driving the growth and success of platforms, not due to its limited scope (Shy 2011; Salminen 2014), the PaaS framework adds a novel approach in understanding modern online platforms. In brief, the contribution of our framework is that it enables the orchestration of all trust-related stakes, which, above and beyond the immediate analysis proposed in the PaaS framework, also indirectly impact a platform’s revenue and margin, in a single framework which integrates with the platform’s governance and overall business model in Osterwalder et al.’s (1998) sense of the concept (i.e., strategic decision making for revenue generation, partner choices, key resources, and other means for execution).

Answers to Research Questions

We posed three research questions dealing with the constituents of online platforms as social contracts, description of rights given away by the users, and the stability of good will as an antecedent of mutual trust between stakeholders and POs. The answers to our research questions are summarized as follows. Regarding RQ1, we have identified constituents of the social contract in the context of online platforms. These four pillars of PaaS include alignment of stakeholder interests, support to the contract existence, economic and social justice, as well as transparency on expectations, which we see as essential constituents of social contracts for online platforms.

As a response to RQ2, we observe that users partially give away some liberties, such as freedom of speech due to moderation (and in exchange receive safe environment) and privacy (in exchange for free access and use of platforms). There are several reasons why the POs are interested in these rights, depending on the business model applied; at the general level, the PO should identify the rights given out by their users and understand the meaning and importance of those rights to the users, so that the PO is able to treat them with according care. In a similar vein, there needs to be understanding of basic rights to guarantee for all users, including safety, freedom from discrimination and harassment, freedom of expression, and other conventional rights that the users implicitly derive from the larger institutional contract. On top of that, there are also internal, acquired, non-explicit rules that guide PO and platform stakeholders’ behavior. Both sides have expectations in the matter toward one another, which are described and can be analyzed through the framework proposed above. These expectations differ from the usual relationship a company maintains with consumers, as both PO and platform stakeholders are operationally involved in the platform’s business model, hence making the issue of trust and social contract analysis all the more critical for the platform play at every level: strategy, brand, operations, technology, etc. Naturally, we also herein take into account rights

and obligations which relate to ground rules or foundations for interaction – those being more common in consumer businesses, such as safety, protection of property (data), and guaranteeing safe transactions and interactions between the users, so that trust can be established, both in the direction of the platform as the institution and toward other users.

Regarding RQ3, we note that the trust in the benevolence of the PO is a logical consequence of the voluntary relationship between it and the stakeholders. In other words, the rule of the PO is accepted as a legitimate control only as long as it protects the basic rights of the stakeholders (which are not defined by the TOS, but by the implicit social contract), while not going too far in its exploitation of the rights given by the users (e.g., some loss of privacy). Therefore, we contend that walking this line constitutes a fine balance; trust in PO is described as a continuum rather than a binary choice, as the PO wants some rights (e.g., private information for ad targeting) which the users will provide, *up to a point*. Determining that point, as said, requires careful maneuvering. Moreover, the protection of the basic rights may not be enough for getting the users to barter away their other rights, because the users also require an additional benefit for their use of the platform. That is, it follows from the logic of embeddedness that, given the surrounding rights are satisfied, whatever basic rights there are in the platform, they are secondary to the surrounding rights. In conclusion, the implications for the PO are threefold: (1) protect the basic rights, (2) do not overexploit the rights given in exchange, and (3) provide additional benefit. Satisfying these constraints, the PO may rest assured the social contract will be kept both sides.

Managerial Implications

Our inquiry is especially relevant for situations where the PO has seemingly solved the chicken-and-egg problem, i.e., there is critical mass of users to allow liquidity, but is now facing the challenge of sustaining the user satisfaction and engagement in the long run. As noted by Salminen (2014), the chicken-and-egg problem is of dynamic nature, meaning that even after initially solving it, the PO must maintain the level of activity taking place in the platform. This feature requires its solutions to be dynamic as well, i.e., creating adaptive and creative approaches to maintain fairness and trust perceived by platform stakeholders. The continuous, day-to-day engagement of the stakeholders is a requisite for accomplishing the business goals of a platform. However, some parts of the literature and also POs in practice may ignore that condition, resulting in short-sighted decisions. At times, there is too high reliance in network effects magically keeping the stakeholders engaged. Envisioning the platform as a social contract, where the parties have benefits in exchange for some rights, may help POs strategically plan mechanisms that are compatible with the social contract. This is particularly important because such a contract tends to be

implicit and delegate (e.g., users may not be vocal, but revolt and leave the platform). In the cases where users are vocal, it makes sense to listen to them and understand where their concerns originate. For example, changing the user interface may constitute a violation of the contract from the user's perspective, but the PO who is unaware of the nature of this implicit contract is clueless in the face of rants and flight from the platform. There is a risk of becoming a dictator instead of being Voltaire's benevolent dictator.

According to Locke, individuals from a state provide a "neutral judge" that acts in protection of lives, freedoms, and property rights of those who live in it. But the notion of neutrality requires critical examination, as there is room for contradiction. For example, should the PO remain neutral and enhance freedom, while simultaneously allowing the spread of disinformation or "fake news," or should it seek to protect its users from such disinformation? This "neutrality dilemma" is central in the treatise of platforms as social contracts. The degree of control is an important question for maintaining a healthy culture of participation. Too loose application of rules results in lack of etiquette and degrades content sharing and creation of quality content, whereas too strict applications awake questions of censorship and authoritarianism. Finally, we believe the PaaS framework can be further developed as a managerial tool to improve the governance of platforms. By applying it in their private analyses, POs can strategize for internal threats but also for external threats such as platform cooperatives.

Policy Implications

Regarding policy implications of our work, as we move toward the "Age of Platforms," the concept of property rights is criticized as its importance is somehow faded out by that of what can be called "control right." In a recent report of the French "National Council,"⁴ the lawyer and international expert on property rights Alain Bensoussan claimed that property rights in a digital age, and when it comes to platforms, have to be revised. He claimed that it has basically no legal ground upon which to be based when it comes to personal data, for instance. Instead, he proposed to design a "digital dignity" right which would serve as some kind of constitutional principle to design a proper property right in a virtual world, that would not be enforced by companies (as it today via platforms, such as Facebook or Twitter) but by actual legislative bodies. The future of platforms as societies embedded in societies is an open question, as well as their relationship to the wider institutional framework. Scholars and other stakeholders interested in platforms are gearing up for interesting times.

⁴"Conseil d'Etat," a nonexecutive consultative body providing guidance or advice to the state in economic and social matters among other topics

Future Research Directions

As postulated in this research, the PaaS framework provides a practical and theoretically sound framework of analysis for social phenomena taking place in platforms. However, the development and validation of the framework can benefit from further research, e.g., inspecting the awareness of POs and stakeholders of the four pillars of the PaaS and showing its value in real decision-making situations faced by POs. Through an empirical research, we could also see to what extent the four pillars of PaaS define the amount of trust between the platform and its stakeholders, e.g., by defining a scale to measure its dimensions through a survey-based study. This study also encourages scholars to study the more concrete legal arrangements and economic aspects and discuss what role they play in strengthening the four pillars of PaaS. This would further validate the use of social contract as an abstraction dealing with ways of how to organize the platform against more simple techno-economic transactional models. We encourage future studies to analyze the effect of structurally different compositions of social contracts on platforms' viability and performance. We acknowledge that there may be cultural and geographic variation in how POs and platform stakeholders formulate and interpret social contracts vis-à-vis formal contracts. While analyzing such variables was beyond the scope of this research, cultural contextualization provides an interesting avenue for future research on platforms.

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