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An ecosystem perspective on the emergence of the Law Tech industry

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1. Introduction

The intersection of law and technology has witnessed a remarkable evolution in recent years, reshaping the landscape of the legal and regulatory domains. This transformation has not gone unnoticed by investors, as evidenced by the increasing venture financing in legal tech companies. According to data provided by CrunchBase, the year 2021 shattered records in terms of venture financing. During the year 2022, despite a decrease in the total and average invested amounts (in line with most sectors, especially in tech), there has been a growing number of investors in the legal tech field which signals a rise in interest. In 2022, seed funding accounted for 9% of the total legal tech funding, amounting to USD 303 million, signalling potential growth and innovation for start-ups in 2023. In parallel to the legal tech boom, the Regulatory Technology (RegTech) sector has been gaining traction, driven by the ever-increasing complexity of regulatory requirements across industries, including cross-border compliance and digital data protection. In the RegTech Global Market (2023) report, the global RegTech market, estimated at USD 13.6 billion in 2022, is projected to reach USD 46.2 billion by 2030,

This master's thesis embarks on a journey to explore the multifaceted role of these new players within the legal tech and RegTech sectors. The central premise of this work is to decipher how the emergence of these law tech actors, serving as crucial supportive intermediaries, can foster and sustain entrepreneurial development and growth. Furthermore, it aims to shed light on the broader impacts and effects that the emergence of law tech has on businesses operating within diverse legal and regulatory frameworks.

The significance of these supportive players within the ecosystem, especially those operating at the intersection of law and technology, has received limited attention in existing literature. Consequently, this research adopts a qualitative approach to delve into this relatively uncharted territory (*Edmondson and McManus, 2007*).

Through in-depth qualitative research, employing an inductive approach as advocated by Gioia et al. (2013), this study analyses data derived from interviews. The analysis culminates in the formulation of second-order themes in the formulation of a set of second-order themes, which serve as foundational frameworks for articulating the diverse roles that law tech entities,

encompassing both Legal and Reg Tech, can and do assume in their interactions with businesses. These roles are contingent on the nature and stage of life of these businesses, underlining the dynamic and evolving relationship between law tech and the corporate world.

To illuminate these roles, this thesis bridges the insights from the conducted research with the lens of ecosystem theory, emphasizing how law tech actors shape and influence the way in which business deal with the legal and regulatory landscapes within which they operate. In doing so, this work aspires to contribute to a more comprehensive understanding of the relationship between law tech, businesses, and the ever-evolving regulatory environment.

2. What is an ecosystem?

The ecosystem approach, applied to business research, emphasizes the importance of understanding the broader context in which firms operate by including environmental considerations, different stakeholders, and dynamics that evolve among them that may determine companies success or failure. *Moore* (*1993*) popularized the idea of "ecosystems" by adapting it from biology and applying it to the business context. This analogy was used to illustrate the interdependence and co-evolution that are characteristics of modern business activities (*Hakala et al., 2020; Jacobides et al., 2018; Aarikka-Stenroo & Ritala, 2017*). The key idea of the ecosystem approach is to study the components the research focuses on (e.g., companies and goods) as a part of a larger and interconnected system. The ecosystem literature includes various multidisciplinary (sometimes overlapping) streams – e.g., see the various trends proposed by *Aarikka-Stenroo & Ritala*(*2017*) – among which at least four macro categories can be identified: *business ecosystems, entrepreneurial ecosystems*, platform ecosystems and *innovation ecosystems* (*Hakala et al., 2020; Aarikka-Stenroo & Ritala, 2017*). Therefore, despite partially sharing a common heritage (with an exception for entrepreneurial ecosystems) of the ecosystem concept introduced by Moore, these perspectives are characterized by different themes and lenses used for the analysis.

Jacobides et. al. (2018, p. 2264) provides a general definition of ecosystem describing it as "a set of [collaborative] actors with varying degrees of multilateral, non-generic complementarities that are not fully hierarchically controlled". The reference to "non-generic" complementarities delimits the ecosystem to specific complements which, thanks to the uniqueness derived from their

combination, provide an interest for the parties involved to collaborate as a group. This specificity of complementarities is one of the aspects that reflect the uniqueness of different ecosystems that is also often pointed out in the entrepreneurial ecosystem literature.

- **Business ecosystems** refer to a group of players and their interactions, which are centred around a dominant "hub firm" (*Dahjarna & Parke,* 2006) or "keystone species" (*Iansiti & Levien, 2004*). This central firm, despite the lack of explicit hierarchical authority (*Jacobides et al., 2018*), leads the way in coordinating the dispersed resources and capabilities towards the common goal of innovation, with the final aim of increasing the total value (and capturing the bigger slice).
- **Innovation ecosystems** involve firms collaborating to combine their individual offerings into a unified customer-facing solution (*Adner, 2006*). These ecosystems prioritise a focal innovation as their ultimate goal (*Aarikka-Stenroo & Ritala, 2017*). They do not require (although possible) the presence of large ("hub") firms (*Granstrand & Holgersson, 2020*), instead, they often operate around actors like research institutions, consortia, and other public and societal actors that support innovation (*Aarikka-Stenroo & Ritala, 2017*).
- A **platform ecosystem** is based on a central technology (platform) with a "hub and spoke" structure (*Jacobides et al, 2018*) in which several peripheral firms are linked to the central platform through shared technologies and technical standards (*McIntyre & Srinivasan, 2017*). With the advancement of digital technologies, the focus of the narrative in the recent literature of platform ecosystems has shifted mostly towards digital platforms (*Van Alstyne et al., 2016*).
- The **entrepreneurial ecosystem** approach is more concerned about policy and supportive actors/structures for the raise and flourishing of entrepreneurship (*Hakala et al., 2020,Aarikka-Stenroo & Ritala, 2017*). These support towards entrepreneurship is not limited to material resources, but also involves cultural, environmental, and relational aspects (*Spigel, 2017*). It is an approach that evolved from other concepts like industrial clusters and regional innovation systems (*Wurth et al., 2022; Autio et. al., 2018; Spigel, 2017*).

Members of an ecosystem interact based on the structure and constraints of the ecosystem architecture, which comprises a set of roles, rules of engagement, standards and interfaces (*Jacobides et al, 2018*). This architecture consists of a technological layer that has been extensively analysed in various aspects (e.g., Dattéè et al., 2018, Teece et al., 2022) and a legal/regulatory layer, being inter-firm relationships governed by contractual agreements and firms activities subject to external rules and regulations. While the former has been widely examined, the latter has received less attention in the ecosystem literature – e.g., only a few mentions in the entrepreneurial ecosystem literature (*Wurth et al., 2022;* Van Rijnsoever, 2020; *Spigel, 2017; Auerswald, 2015; Mason & Brown, 2014*) but no significant analysis. The emergence of law tech takes place within the legal/regulatory layer of the ecosystem, with the potential to influence the dynamics among different actors.

The following sections explore these four different types of ecosystems and highlight their main characteristics, in order to provide a framework for the subsequent analysis. These considerations have emerged from a review of 35 articles (Appendix 1) from the ecosystem literature, with the most relevant sources presented in tables right after the corresponding paragraph.

2.1 Business Ecosystems

The "Business ecosystem" concept, directly derived from the original term introduced by *Moore* (*1993*), is presented as an extensive approach and perspective to reposition the strategy of a business (*Adner, 2017; Li, 2009; Moore 1993*) by considering not only its internal dynamics but also the external environment and actors it is surrounded by. Drawing on Moore's original conceptualization, firms are seen as members of an ecosystem that encompasses multiple sectors rather than members of a sole industry. This literature stream tends to point out the necessity for firms to attract resources of all sorts – capital, partners, suppliers, and customers – to create a cooperation-based network (*Hakala et al., 2020; Adner, 2017*) which enables them to face market competition. The momentum for the creation of such an ecosystem originates from the drivers of industrial transformation, which leads to new collaborative arrangements among firms gain an advantage against rivals (*Hakala et al., 2020*).

The main themes are those of co-petition and co-evolution within the ecosystem (*Zahra & Nambisan, 2012; Li, 2009*). Although the ecosystem perspective implies the lack of unilateral hierarchy among the different actors (*Jacobides et al., 2018*), in the business ecosystem literature the viewpoint is the one of a focal central player – "keystone species" (*Iansiti & Levien, 2004*) or "hub firm" (*Dahjarna & Parke, 2006*) – which plays the role of leader inside the network thanks to its superior bargaining power (*Adner, 2017*). This hub firm leads others' dispersed resources and capabilities through a shared innovation effort, in order to expand the total value and to appropriate a bigger slice of the pie (*Dahjarna & Parke, 2006*). This is the case of many large companies (mentioned by the literature as well) that try to build they own private closed network, e.g., Apple, Cisco, Amazon, and others. Many start-ups often play a "Growth and Sell" game, thereby trying to create and scale fast innovation ventures than could be acquired by a corporate ecosystem – phenomenon also mentioned by *Spigel (2017)* from an entrepreneurial ecosystem perspective.

As expressed by *Jacobides et al.* (*2018*), novel value creation is possible thanks to the combination of the different players' specific (i.e., non-general) complementarities which provides the whole network with new customized capabilities for addressing the market. This vision is somehow linked to the notion of co-specialization (*Teece, 2018*) used to describe mutual dependences. In parallel, *Adner (2017)* proposes a vision of the business ecosystem as a structure, rather than an affiliation, arising from the necessity for enterprises to interact in order to create value. Such an interaction calls for the presence of a central actor of the ecosystem, which assumes the role of the "leader" while others act as "followers". This whole framework is a consequence of and a contribute to the single firm strategy.

This emphasis on value creation and appropriation – mostly enjoyed by the central firm at the expense of the rest of the ecosystem – is always present and recursive, thereby underlining the focus of the analysis on the hub firm strategy viewpoint, that consequently involves additional orchestration challenges (*Dahjarna & Parke, 2006*): clearing the way for knowledge mobility among the dispersed actors, building and maintaining the network stability, governing value capture from innovation – e.g., IP rights – (*Teece, 1986*). In contrast, actors with a more peripherical position within the ecosystem are expected to adjust to the managerial practices of the

ecosystem leader (*Nambisan & Baron, 2013*). This literature stream always assumes that the ecosystem is managed as such, which requires the orchestration perspective of the hub firm that leads the network under its supervision by harnessing reciprocal access to their (and other actors) resources (*Hakala et al., 2020*).
Within the literature, there is occasionally an overlap with the concept of platform ecosystems, since the entirety of a business ecosystems may fold the presence of platforms (controlled by the hub firm as a platform leader) that allow cooperation among various players, e.g., Microsoft.

As previously mentioned, the analysis has mostly focused on the viewpoint of the central firm, and how it harnesses its partnerships and relations with peripheral actors. However, little has been said about how more peripheral players – those revolving around the hub firm network – can contribute to the interactions and links that characterize the ecosystem, which is composed of a multiplicity of interactions (*Adner, 2017*). Consequently, an aspect that is poorly investigated is the role of intermediaries that allow such interactions to happen – business relationships are constrained to follow the "rules of the game" belonging to the legal end regulation layers of the ecosystem architecture – and what is their contribution to the ecosystem existence. The emergence of the law tech industry can be observed through the lens of the links that make up the "skeleton" (i.e., an architecture layer) of relationships of the ecosystem.

2.2 Innovation Ecosystems

This collection of studies focuses on a focal innovation and the set of components (upstream) and complements (downstream) that support it (*Jacobides et al., 2018*). An innovation ecosystem is defined as "the collaborative arrangements through which firms combine their individual offerings into a coherent, customer-facing solution" (Adner, 2006, p. 98). Unlike business ecosystems, innovation ecosystems are characterized by innovation-driven goals, with the inherent uncertainties typical of creation (and capture) of the value deriving from innovation (*Dattéè et al., 2018; Aarikka-Stenroo & Ritala, 2017*). *Adner & Kapoor* (2010) identify three fundamental types of risk: initiative risk – the familiar uncertainty of project management –, interdependence risk – coordination with complementary innovators –, and integration risk – uncertainties related to the adoption process across the value chain.

- Table 1 - Business ecosystem: most relevant papers

Reference	*Method*	*Takeaways*
Adner, R. (2017)	Conceptual paper	Business ecosystem represented as a structure, arising from the necessity for businesses to multilaterally interact in order to create value. This interaction, which is the core of value creation, requires a dominant central actor of the ecosystem, which assumes the role of "leader" while the others are defined as "followers". This whole frameworks are a consequence of and contribute to the single firm strategy.
Li, Y. R. (2009)	Case study (qualitative and quantitative)	The business ecosystem concept as a perspective to reposition a company's strategy, which is moved from a single co-work to systematic cooperation, from single growth to co-evolution. The collaborative dimension among different companies is realized through vertical channels. There is an overlapping with the concept of platform ecosystems, since business ecosystems may fold the presence of platforms (controlled by a platform leader) that allow cooperation, thereby moving the value from the product to the network. E.g., Microsoft.
Dhanaraj, C., & Parkhe, A. (2006)	Conceptual paper	Ecosystem (referred to as innovation networks) as a "loosely coupled systems" of autonomous firms. Presence of a "hub firm" orchestrating the activities to ensure the creation and extraction of value, even without the benefit of official hierarchical authority. The three main orchestration processes performed by the hub firm: 1) ensuring knowledge mobility, 2) managing innovation appropriability (capture value from innovation), 3) fostering network stability (choice of partners, i.e., ecosystem members). The focus is on the management of the relationships among actors, considering their heterogeneity and different interests (hub firm's viewpoint).
Iansiti, M., & Levien, R. (2004)	Conceptual paper	Ecosystem characterized by a large number of "loosely interconnected" participants who depend on each other for their mutual effectiveness and survival. There is a loosed network of suppliers, distributors, outsourcing firms, technology providers, makers of related products or services which affect and are all affected by the creation and delivery of the offerings of a company (belonging to the ecosystem). In the case of Microsoft, the performance of the company depends on the health of independent software vendors and system integrators. Definition of a "keystone organization" as central actor.
Moore, J. F. (1993)	Conceptual paper	The business ecosystem concept is used as an extensive approach to business strategy, where firms are seen not as part of an industry, but of a business ecosystem that crosses a variety of industries, which is characterized by the co-evolution among companies of new capabilities through a mixture of cooperation and competition (e.g., Apple and IBM). The author vision of the ecosystem is concentrated on the resource sharing of different actors over the value chain, structured as a community of "supporters" around a central firm. Such a community of suppliers and partners is fundamental for the cooperative creation of new capabilities, which make the ecosystem evolve as a whole.

The main emphasis is on the understanding of how interdependent players interact to create and commercialize innovations that benefit the end customer (*Jacobides et al., 2018*). It follows that if coordination within the ecosystem is inadequate, technological innovations will most likely fail since it cannot be achieved by a single firm in isolation (*Adner & Kapoor, 2010; Adner, 2006*). Hence, this constitutes a reason why vertical integration is likely to be more effective after a technology has reached a stage of maturity (*Adner & Kapoor, 2010*).
In *Jones et al. (2021),* it is highlighted how the collaboration aspect – being the primary mechanism for value creation in innovation ecosystems – remains crucial even in cases of conflict
(such as disputes over intellectual property rights). The dynamics of this post-conflict collaboration are influenced by the respective positioning of the companies involved within the network.
Being the innovative customer-facing solution the main goal of the ecosystem, uncertainty due to innovation is a non-negligible presence (*Dattéè et al., 2018*). Such an uncertainty is reduced by reciprocal resource commitment, with the focal firm (the firm under our analysis) building momentum to signal its commitment to the network, thereby reducing the probability that other players may deviate from the innovation trajectory (*Dattéè et al., 2018*).

The presence of a hub firm (*Dahjarna & Parke, 2006*) is no longer strictly necessary, although it is still possible that partner hub firms participate (*Granstrand & Holgersson, 2020*). Instead, this kind of ecosystem poses different orchestration challenges that are typical of actors which attempt to foster a diffused innovation effort of all the members (e.g., research institutions, consortia, regional agencies, venture associations, associations of SMEs, etc.), that can be incapsulated into the concept of "open-system orchestration" (*Giudici et al., 2018*). According to *Giudici et al. 2018*, open-system orchestration seeks to facilitate innovation in networks where there are limited possibilities to identify potential complementarities in advance and members interact autonomously and in a dispersed way. Instead of centrally coordinating the flows of knowledge and resources among actors, open-system orchestration fosters contextual conditions that facilitate spontaneous knowledge sharing and discovery of complementarities. Rather than just vertical, horizontal flows of knowledge are incentivized (*Giudici et al., 2020*). The related orchestration challenges include (*Giudici et al., 2018*): creating awareness of mutual value from collective innovation, building and maintaining engagement, proactive matchmaking, and regular monitoring of compliance against free riding.

This kind of orchestration is different from "closed-system orchestration", which is typical of the presence of a central hub firms that orchestrates its closed network managing the appropriability regime according to its interests (*Giudici et al., 2018*).
In the context of an ecosystem – aimed at producing innovative outputs – that is composed by a network of different SMEs (e.g., with a system of shared governance), the entrance of a big player may cause a failure in co-creating complementary resources as a result of heterogeneity in size, leading to misalignment and undermining the potential for innovation (for a more in-depth analysis, see *Fortwengel & Sydow, 2021*).

Some scholars suggest that innovation ecosystems may rely on technological platforms as a mean to establish a shared set of assets governed by standard interfaces, typically residing upon a layered digital infrastructure (for deep dive, see *Adner & Kapoor, 2010; Dattéè et al., 2018*). However, this may create a confusion by blurring the distinction between platform ecosystems (discussed below) and other types of ecosystems. It is important to note that a platform ecosystem may be part of a broader business or innovation ecosystem (e.g. Apple and the Apple Store). Hence, despite being related, these formulations retain different characteristics and unique definitions.

Collaboration and strong relationships between different actors within the ecosystem are undoubtedly important for fuelling innovative output. Therefore, there is potential for analysing how the role of intermediary players may influence this aspects. The emergence of technological solutions in the legal field, being the ecosystem immersed in legal and regulation layers or architecture, can be positioned between these multiple relationships among dispersed members of the ecosystem, regardless of their central or peripheral position.

2.3 Platform Ecosystems

This group of studies concentrates on a specific category of technologies – platforms – and the mutual reliance between the sponsors of these platforms and their complementors (*Jacobides et al., 2018*), actively interacting within a system of interdependent technologies (*Gawer & Cusumano, 2014*), or "shared architecture" (*McIntyre & Srinivasan, 2017*). Platforms have existed for years (e.g., newspapers connecting advertisers and readers) but, in the current century,

- Table 2 - Innovation ecosystem: most relevant papers

Reference	*Method*	*Takeaways*
Jones, S. L. et al. (2021)	Quantitative negative binomial model	Cooperation is the primary mechanism for value creation in innovation ecosystems. This paper's findings support that in innovation ecosystems, cooperation with adversaries persists despite IP conflict. Technological distance creates conditions for technological complementarities and lower competitive pressure, enhancing potential benefits from cooperation. A central positioning, in contrast, lowers the cost of defection because it enhances the defendant's alternatives for cooperative development.
Fortwengel, J., & Sydow, J. (2020)	Qualitative case study	The inter-organizational network - aimed at producing innovative outputs - hereby analysed is a case of shared governance among different SMEs, facing the entrance of a big player. It is highlighted that managing size differentials in inter-organizational networks may result in failure if formal and informal rules are not adjusted. The study shows the limits of (close) collaboration between small and big firms, depicting how a network may fail to co-create complementary resources over the course of collaboration as a result of heterogeneity in size.
Granstrand, O., & Holgersson, M. (2020)	Systematic literature review	An innovation ecosystem as "the collaborative arrangements through which firms combine their individual offerings into a coherent, customer-facing solution" (Adner, 2006, p. 2). In summary, innovation ecosystem definitions often place emphasis on collaboration/complements and actors, while less commonly so on competition/substitutes and artifacts. An innovation ecosystem could in other words include an actor system with collaborative (complementary) and competitive (substitute) relations with or without a focal firm, and an artifact system with complementary and substitute relation.
Giudici, A. et al. (2018)	Qualitative field study	"open system" orchestration, describing the orchestration mechanisms characterized organizations that seek to support the dispersed entrepreneurial/innovation effort of network members (e.g., business incubators, accelerations, venture associations, national and regional agencies, or associations of small and medium-sized enterprises). Open system orchestration attempts to ease innovation in networks where there are limited possibilities to identify potential complementarities in advance and members interact autonomously and in a dispersed way. It creates conditions that facilitate spontaneous knowledge sharing and discovery of complementarities, rather than centrally coordinating flows of knowledge and resources among actors. Dynamic capabilities are presented as co-created relationally, rather than an attribute thar organizations possess on their own. So the open-system environment, since it stimulates spontaneous collaboration, positively affect network members' sensing capabilities.

- Table 2 - continuation

Reference	*Method*	*Takeaways*
Dattéè, B. et al. (2018)	Qualitative field study	The uncertainty within the ecosystem is reduced by reciprocal resource commitments, with the focal firm (the firm under analysis) building momentum to signal its commitment to the network thereby inducing peripheral actors fully committing their resources to the momentum created by the focal firm - this reduces the probability of other players to deviate the innovation trajectory within the ecosystem (limited possibility of external partnerships). Innovation ecosystems may rely on the use of a technology platform. The author highlights 3 dimensions of dynamic control along the innovative process: the central player (in the case of a big firm) influencing the direction of the ecosystem evolution toward a clarified vision and control points, monitoring the evolution of the ecosystem and likely realization of future control points, update strategies in cases of mismatches or resources for innovative value creation.
Adner, R., & Kapoor, R. (2010)	Regression model	There are asymmetries that arise from the position of different counterparties relative to the focal firm (the firm under analysis). A firm's ability to create value is impacted in very different ways depending on whether it is its upstream or downstream partners that face innovation challenges. The impact of high innovation challenges on the focal firm depends on whether the challenges are confronted by suppliers or by complementors. For the innovative output to be completed, innovation challenges of suppliers and complementors have to be overcome as well. Those innovations cannot be fulfilled by the focal firm alone. This constitutes a reason why vertical integration is likely to be more effective after a technology has reached a stage of maturity, rather than during its emergence.
Adner, R. (2006)	Conceptual paper	Innovation ecosystems focuses on a focal innovation and the set of components (upstream) and complements (downstream) that support it, and views the ecosystem as "the collaborative arrangements through which firms combine their individual offerings into a coherent, customer-facing solution" (p.98). The understanding of the interaction of different players is fundamental to create and commercialize innovations that benefit the end customer. Sound ecosystems allow firms to create value that no single firm could create alone. Innovation ecosystems are characterized by three key types of risk: initiative risks (familiar uncertainty of project management); interdependence risks (coordination with complementary innovators); and integration risks (uncertainties related to the adoption process across the value chain). "The extent of these risks is intimately related to the target market in which the firm hopes to deploy its innovation"

information technology has significantly decreased the necessity for physical infrastructure and assets (*Van Alstyne et al., 2016*). As expressed by *Van Alstyne* et al. (2016), IT simplifies and cheapens the process of scaling up platforms, while also allowing for frictionless participation, which bolsters network effects. Additionally, IT improves the ability to collect, analyse, and share vast amounts of data, thereby increasing the platform's value for all.

In the platform ecosystem there is a "hub and spoke" structure (*Jacobides et al, 2018*) in which several peripheral firms are linked to the central platform through shared or open-source technologies and technical standards (*McIntyre & Srinivasan, 2017*), which, in the case of IT-related platforms, may include programming interfaces (e.g., APIs) or software development kits

(*Jacobides et al, 2018*). Platforms consist of an ecosystem with a uniform recurrent structure, containing four types of participants, who may easily shift from one role to another (*Van Alstyne et al., 2016)*: platform owners, who control intellectual property and governance; providers, who serve as intermediaries between the platform and users; producers, who create the platform's offerings; and consumers, who utilize those offerings.

With the advancement of digital technologies, the focus of the narrative in the recent literature has shifted mostly towards digital platforms (*Van Alstyne et al., 2016*). However, the broad traits of the definition remain unchanged. According to *Teece et al.* (2022), a digital platform is a connected system that establish a standard set of design and governance protocols to simplify interactions between multiple users. Consequently, a multi-sided platform (MSP as called by *Teece et al., 2022*) can be defined as a digital ecosystem that enables collaboration and control through software, hardware, and services, without claiming ownership of the services it folds, but instead facilitating their exchange through various interorganizational interactions (*Teece et al., 2022*).
Digital platforms, by connecting multiple product offerings to provide integrated service solutions (a data hub that channels and integrates information between users and multiple connected products), give rise to digital markets, that, while being a common business model for the IT sector, is gaining incremental popularity also in conventional manufacturing sectors (e.g., Nike), as well as in the government sector with initiatives like e-government and smart cities (*Cennamo, 2021*).

Digital platforms enable peripheral actors to create new value – i.e., innovations – by matching, complementing, or sharing their assets and resources within newly established boundaries (*De Reuver et al., 2018*). As the number of users and suppliers joining the platform's ecosystem increases, strong network effects are created (*Cennamo, 2021; Van Alstyne et al., 2016; Teece et al., 2022*), leading to a rise – or a drop, in case of negative network effects – in the platform's relative value. Therefore, when it comes to platforms, the most important asset is the community of users and the resources they bring to the table.

The community is what drives the platform's success, and as such, the platform's leader role is to orchestrate resources rather than control them (*Cennamo, 2021; Van Alstyne et al., 2016*). Platform leaders must prioritize external interactions and, as a result, the ecosystem governance becomes an essential skill for them (*Cennamo, 2021; Van Alstyne et al., 2016*). Effective governance is crucial to attract valuable intellectual property to the platform, as seen with Zynga's Farmville on Facebook. Nevertheless, for prospective partners to feel confident in contributing to a platform, they must not fear exploitation (*Van Alstyne et al., 2016*). Platform governance and architecture are closely intertwined. Companies must decide on the level of technology functionalities and processing power offered, knowing that complexity can reduce the volume of external contributors (*Cennamo, 2021*). Some platforms deliberately limit technology power to create simpler systems and focus on interfaces (APIs) and dedicated programs for innovators (e.g., innovation contests or start-ups acceleration programs) to elicit engagement by external innovators (*Cennamo, 2021*). Some platforms offer policies of permissionless innovation to encourage high value offerings (e.g., Rovio brought Angry Birds in the App Store without permission). Yet, unfettered access to the platform may result in undesirable outcomes such as misbehaviour, excess, low quality content – as we saw with Chatroulette – that can impede interaction and ultimately erode the platform's value (*Van Alstyne et al., 2016*).

2.4 Entrepreneurial Ecosystems

The word "entrepreneurship", according to the *European Commission (2003*), is defined as a process that involves assuming risks, fostering innovation and creation, and implementing a right and capable management system within an organization to promote economic growth. The notion of "entrepreneurial ecosystem" has gained significant attention in recent years within the academic community, and it has emerged as a promising approach in the field of entrepreneurship research

- Table 3 - Platform ecosystem: most relevant papers

Reference	*Method*	*Takeaways*
Teece, D. J., et al. (2022)	Conceptual paper	An MSP is a digital ecosystem that facilitates collaboration and control through software, hardware, and services, without claiming ownership of the services it manages, but rather governs and facilitates their exchanges through various interorganizational interactions. Platforms generate significant network effects, meaning their value increases as more actors, such as users and suppliers, become part of their ecosystem. Three types of platforms: born-platforms (launched by start-up), platform-born adjacent (launched by Big Tech companies), incumbent-born platform (launched by incumbents in diverse business sectors). At present, the three types of platforms serve as complementary to each other in different areas such as obtaining new technological capabilities, customer bases, and data. As the market becomes increasingly saturated, a dominant platform design may emerge, leading to a narrower "window of opportunity" and fiercer competition between the platform types.
Cennamo, C. (2021)	Conceptual paper	Platforms (a data hub channelling and integrating information from/to users and from/to multiple connected products) give rise to digital markets. Platform competition in digital markets is influenced by the interplay between the platform's network structure elements (size user base and variety of complements, and its technology) and market identity elements (platform technical functionalities to users and scope). Emphasizing platform and network size leads to a winner-take-all competitive logic, whereas focusing on the distinctive technological and market identity elements drives differentiation competitive logics. The architecture configuration of a platform affects its level of differentiation. A high level of technology functionalities (increased system complexity) leads to a reduced number of complementary products and content. Platform owners may choose to limit technology functionalities and instead focus on platform interfaces and dedicated programs to attract external innovators.
McIntyre, D. P., & Srinivasan, A. (2017)	Conceptual paper	Platforms provide value through a shared architecture, which is a conceptual specification of interfaces that allows an ecosystem to be divided into a relatively stable platform and a complementary set of modules and regulates the interactions among these distinct components. Similarly, standards establish the technical specifications of the platform and ensure compatibility among architectural components. Platform companies invest in building an ecosystem of complementors, who, in turn, evaluate and allocate their resources to endorse one or more platforms over time. An essential area of future research in platform settings will be to adopt a complementor point of view to comprehend how complementors' characteristics and structural positions in the platform-complementor ecosystem affect their probability of supporting a platform.

- Table 3 – continuation

Reference	*Method*	*Takeaways*
Van Alstyne, M. W., (2016)	Conceptual paper	IT simplifies and cheapens the process of scaling up platforms, allows for frictionless participation, bolstering network effects, improves the ability to collect, analyse, and share vast amounts of data, (higher platform value). Four types of platform participants: platform owners (intellectual property control and governance); providers (intermediaries between the platform and users); producers (the platform's offerings); and consumers, who utilize offerings. The players in the ecosystem may shift rapidly from one role to another. For platforms, the focus shifts to interactions—value exchange between producers and consumers. The competitive advantage of a platform is related to the quantity of interactions generated (associated network effect). It is wise for platform owners to focus first on the value of the interactions, before concentrating on volumes. The focus of strategy shifts to eliminating barriers to production and consumption in order to maximize value creation, with the related choices about access and governance (control) on participants on the platform. An open governance allows players to access the resources of the platform and created new sources of value, thereby shaping the rules of the game, which must involve a fair reward mechanism to be effective. The degree of openness and the reward systems are key in ensuring the proliferation of the platform (prospecting partners not afraid of exploitation). Excessive openness may turn into low-quality unmonitored offerings, so the role of the platform leader is also to ensure the quality within the platform not to inhibit interaction. Interaction failure may result from negative-feedback loops and bad quality match of producers and consumer's needs, potentially causing negative network effects.

(*Wurth et al., 2022; Spigel 2017; Spigel and Harrison 2018*). Belonging to the ecosystems literature, this perspective offers an insightful viewpoint on the growth of companies by emphasizing the importance of the firm's external environment, rather than only focusing on its internal characteristics and operations (*Mason & Brown 2014*).
It is the interaction of different "attributes" (and actors) that creates the ambience for the ecosystem to arise and flourish by providing resources to new ventures that they could not otherwise access (*Spigel, 2017*). These attributes involve the primary presence of entrepreneurs

immersed in a deep and supportive entrepreneurial culture which enables the formation of a diffused social network dimension allowing the acquisition resources and capabilities that are fundamental for entrepreneurs (*Wurth et al., 2022;* Van Rijnsoever, 2020; *Spigel, 2017; Mason & Brown, 2014*).

Alongside cultural and social aspects at the heart of the ecosystem, this stream of research focuses on the role of certain players that act as a support for the ecosystem. These players are described as providers of basic elements the entire ecosystem draws upon. They are traditionally large companies immersed in the ecosystem, universities, and the government (or other public institutions), which are presented as potential catalysts, coordinators, and customers of the relationships going on within the ecosystem (*Johnson et al., 2022; Auerswald, 2015; Mason and Brown, 2014; Spigel, 2017*).
Recently, attention has also shifted to other key characteristics (i.e., attributes) for the development and subsistence of a flourishing entrepreneurial ecosystem, i.e., the availability of and the connection with a financial support network (*van Rijnsoever, 2022*) – e.g., VCs, business angels – and the so-defined "entrepreneurial support organizations" (ESOS) – also referred to as "intermediaries" – (*Hallen et al., 2020; Bergman & McMullen, 2022; van Rijnsoever, 2020, 2022; Goswami et al., 2018*) such as incubators, accelerators, technology transfer offices and coworking facilities. These intermediaries interpret the important role of core facilitators of entrepreneurial activity and are often a key node of an ecosystem (*van Rijnsoever, 2022, 2020; Bergman & McMullen, 2022; Wurth et al., 2022*).

These supportive players, especially modern incubators and accelerators, play an orchestration role for their own entrepreneurial network, with an approach typical of open system orchestration (*Giudici et al., 2018*), i.e., without the attempt to appropriate the innovation value "peripherally" created by the dispersed entrepreneurs within the network. For instance, *Bush & Barkema* (2022) theorize that, especially in the context of nascent entrepreneurs – i.e., high uncertainty – incubators exercise a community-enabling leadership that create room for unexpected value creation empowering entrepreneurs as well to become supportive actors (brokers) of the network, thus allowing them to realize their ideas without centrally appropriating the gains. The presence of ESOs is also fundamental to establish and reinforce the link between start-ups and the financial support network (*van Rijnsoever, 2022*), also allowing the creation of links outside the ESO's direct network (*van Rijnsoever, 2020*).
The emergence and subsistence of an entrepreneurial ecosystem is further fostered by the presence of other supporting actors who operate over various aspects of the ecosystem. These players provide services and capabilities to the networks, e.g., law firms and practitioners with specific expertise, accountants, marketing services providers and other technical services (*Wurth et al., 2022;* Van Rijnsoever, 2020; *Spigel, 2017; Auerswald, 2015; Mason & Brown, 2014*) that are fundamental for entrepreneurial activity.

Within the entrepreneurial ecosystem framework, most of the actors – with their specific contributions – act as agent of the network itself, thereby contributing to its creation and transformation (*Wurth et al., 2022*), while concurrently being influenced by its evolution (*Spigel & Harrison, 2018*). Scholars agree on the fact that, despite possessing many similarities with the others, each entrepreneurial ecosystem incorporates a wide multitude of aspects, which determine its uniqueness (*Spigel 2017; Spigel & Harrison, 2018*) due to the numerous potential combinations of all the above-mentioned factors.

The set for the analysis of the different attributes interaction is traditionally established around a geographical region (Hakala et al., 2020). However, geographic proximity is no longer considered a requirement for entrepreneurial ecosystems, differently from industrial and regional clusters (*Autio et. al., 2018, Spigel, 2017*), which are literature streams this approach originated from. In *Autio et al. (2018)*, the entrepreneurial ecosystem is described in terms of a particular type of

cluster that is not specific to a single (set of) industry sectors(s) or technological domain(s) or a geographical region, thereby abandoning the need for spatial proximity as an effect of digitalization. Digitalization reduces the interdependency with local intermediaries and markets, depositing the locus of entrepreneurial opportunities outside the traditional boundaries of geography (*Autio et al., 2018*).

Within this literature stream, the point of view is not the one of a single company within the ecosystem (e.g., a hub firm or the chosen focal firm), but that of an external observer, typically a policy maker (*Hakala et al., 2020; Johnson et al., 2022*), which confers to the analysis a high-level perspective with concern about policy and support intervention. Such an interest for the policy perspective is inevitably related to the fact that new ventures created by entrepreneurs have the potential for delivering significant benefits to various constituencies, including employees, customers, companies whose performance is related to such firms, investors (capital providers), and public institutions administrating the infrastructures used by the entrepreneurial ventures (*World economic forum, 2014*).

This body of research has prevalently focused on the action of players with an orchestration role, thereby occupying a central positioning in the context of their network (e.g., prominent firms, incubators, universities). However, the fundamental relationships that allow different businesses and entities to collaborate and interact are delimited by the ecosystem architectural layers (i.e., technological and legal/regulatory), with some players exercising an effect on these aspects. For example, for what concerns the latter layer of architecture, legal service providers play an important supportive role in connecting businesses that have different positioning in the entrepreneurial ecosystem by, for instance, helping them manage contractual relationships. The advancement of the law tech field has the potential to influence the supportive role that legal intermediaries play within the ecosystem.

- Table 4 - Entrepreneurial ecosystem: most relevant papers

Reference	*Method*	*Takeaways*
van Rijnsoever, F. J., (2022)	Agent-based model simulation	ESOs are paramount to the success of sustainable development start-ups. These start-ups would otherwise negatively impact the entrepreneurial community by causing a loss of brokering in the financial support system, hence ESOs are fundamental in linking them to a financial support network. Types of ESOs highlighted: incubators and accelerators - which offer guidance and support to start-ups -, technology transfer offices (TTOs) - that assist knowledge institutions in commercializing their technology with IP rights, academic spinoffs and providing preliminary investments -, as well as co-working spaces that furnish infrastructure to entrepreneurs.
Johnson, E., et al. (2022)	Quantitative database creation	Framework to consider the collaborative relationships among entrepreneurs, firms, government agencies, research institutions. Government emphasized as a catalyst, coordinator, certifier and customer in shaping these relationships. The perspective of the paper is the one of the public sector supporting entrepreneurial and innovative ecosystems. Entrepreneurs are both the products and the producers of their surrounding environment. Interrelated ecosystems may not be geographically proximal, so the interaction of ecosystems is addressed by the measurement mode. This interactions manly takes place through collaborations between large firms (hub firms of different ecosystems) and research institutions/universities (central actors of an innovation network).
Busch, C., & Barkema, H. (2022)	Explorative case study	Incubator: a "planned for luck" approach instead of attempting to predict the needs of emerging entrepreneurs. Targeted networks and specific training are more effective when dealing with experienced entrepreneurs. In the context of uncertainty with nascent entrepreneurs, social interaction and implied serendipity are essential. Community-enabling leadership empowers others to lead and follow-up on unexpected opportunities, which creates room for unexpected value creation. The incubator provided a platform for others to take on leadership roles and take action, thus allowing them to realize their ideas without centrally appropriating the gains. This way, dispersed entrepreneurs became supportive actors in the network, essentially serving as brokers that hedge of it.
Wurth, B., et al. (2022)	Systematic literature review	Ecosystem members act as agents of the network. Entrepreneurial ventures are not confined to a specific area, they can be part of innovation ecosystems and networks. Entrepreneurial ecosystems don't replace clusters, different clusters may exist in the same network. Agents in entrepreneurial ecosystem have diverse entrepreneurial attitudes, knowledge, and ability to collaborate, which influences the success of entrepreneurial activities.

- Table 4 - Entrepreneurial ecosystem: continuation

Reference	*Method*	*Takeaways*
Bergman, B. J., & McMullen, J. S. (2022)	Systematic literature review	ESOs are commonly associated with providing assistance in becoming self-sufficient (develop business models that can survive without their subsidization). Although ESOs help entrepreneurs correct their false beliefs, they also have their own theories-in-use. Many ESOs, assume a laissez-faire approach is preferable to heavy-handed intervention. However, refraining from intervention may allow negative effects like the flawed social comparison among different entrepreneurs to occur. The relationship between ESOs and entrepreneurs involves two-way exchange, also in social, moral, and economic forms.
Van Rijnsoever, F. J., (2020)	Agent-based model simulation	Intermediaries organizations have ties with both start-ups and VCs. A strong network among start-ups is key to overcoming weak network failure in a financial support network. By only supporting 20% of all start-ups, incubators can effectively further this goal, especially when the start-ups network is emerging. Field-building is the most effective support mechanism: deliberately introducing start-ups to their peers outside the incubators direct network. When the network is sufficiently developed, the most effective way is by increasing the mating chances through business learning. When culture of trust and cooperation arises, start-ups are more likely to broker relationships between other start-ups and different actors.
Hallen, B. L., et al. (2020)	Mixed empirical method	Accelerators have a cohort of ventures that start and end together. Ventures in accelerators generally have better long-term outcomes in terms of funding, web traffic, and employee growth. However, not all accelerators have positive effects, and early ventures can also benefit from consultation with external parties to expand their search and prevent exploration of inappropriate opportunities.
Autio, E., et al. (2018)	Conceptual paper	Entrepreneurial ecosystem as a digital economy phenomenon that harnesses digital affordances to facilitate entrepreneurial opportunity pursuit by new ventures. The general effect of digitalization is a reduction of the dependency of new ventures on cluster-specific affordances for entrepreneurial opportunities, while also alleviating some of the spacial constraints related to the cluster. The key affordances (digital) become not intrinsic of the cluster itself, meaning that the locus of entrepreneurial opportunities exploited is largely external to the cluster.
Goswami, K., et al. (2018)	Qualitative exploratory study	Accelerators act as a bridge between startups and broader entrepreneurial resources by forming connections, developing individual startups, coordinating matches, and selecting mentors and founders with appropriate knowledge and motivation. These mechanisms build commitment to the ecosystem, enable success or fast failure of individual startups, and develop the overall entrepreneurial capacity of the ecosystem. The accelerator's expertise can connect and align people outside the ecosystem, such as research labs, with mentors and investors in the ecosystem (accelerators as orchestrators).

- Table 4 - Entrepreneurial ecosystem: continuation

Reference	*Method*	*Takeaways*
Spigel, B., & Harrison, R. (2018)	Conceptual paper	Introducing a process-oriented perspective on entrepreneurial ecosystems: characterized by ongoing development and mobility of resources with the final aim of fostering entrepreneurship. They propose that by looking at the evolution of these resources among various players it is possible to provide a more comprehensive explanation of the ecosystems structure and functioning, thereby providing important guidelines for effective policy intervention. The embeddedness of social networks within the ecosystem – founded on trust and collaboration interconnected actors – have a major influence on its resilience and functionality.
Spigel, B. (2017)	Qualitative case study	Entrepreneurial ecosystems are combinations of social, political, economic, and cultural elements within a region that support the development and growth of innovative startups and encourage nascent entrepreneurs and other actors to take the risks of starting, funding, and otherwise assissting high-risk ventures. An ecosystem's attributes do not exist in isolation but rather develop in tandem, helping to influence and reproduce one another (no hierarchical relationhsip). E.g., the development and success of material attricbutes can reinforce social attributes, in turn strengthening the underlying cultural attributes. For example, ESOs can foster local networks and raise the profile of successful local startups. Ecosystems represent the presence of multiple overlapping sets of attributes and institutions that encourage entrepreneurial activity and provide critical resources that new ventures can draw on as they expand and evolve. The importance of relationships between different attributes demonstrates that new material attributes such as ESOs, state-financed startup investment schemes, or new university technology and knowledge transfer programs are unlikely to succeed if they are not underpinned by complementary social and cultural attributes. Entrepreneurial policy, should focus on building underlying support for these new programs rather than expecting the programs themselves to create entrepreneurial cultures and networks.

2.5 Chapter 2 Final Considerations

The aforementioned bodies of research focus prevalently on the role and impact of players with a central positioning within their ecosystems and networks. Such actors engage in orchestrating activities, regardless of the different kinds of orchestration and the players involved (differences among the various literature streams are exposed in the previous sections). Consequently, it is possible to spot a gap in the literature concerning the role that more peripheral players, and intermediaries may play in fostering innovation and entrepreneurship within an ecosystem. Moreover, the technological layer of the ecosystem architecture has been extensively analysed, whereas aspects concerning the legal and regulatory layer have been less examined. In particular, this thesis work focuses on a specific kind of player that has emerged in recent years as a result of advancements in digital technologies: law (legal and reg) tech providers. This supportive intermediary exercise its action within the less-analysed legal and regulatory layer of the ecosystem architecture. The next chapter provides and overview of the legal tech sector and frames the analysis drawing on concepts and perspectives of the ecosystem literature.

3. LawTech: Sector Overview

Legal Tech and reg tech – or more in general Law Tech (umbrella terms for various categories of services powered by technology) – refer, in broad terms, to the use of technology to improve and streamline legal-related services.

Products and solutions belonging to the Law Tech space, by leveraging technology to improve legal and regulatory processes, aim to make them more precise, accessible, affordable, and efficient.

The legal tech sector encompasses a wide range of services, including document automation and management, e-discovery of data, practice management (PM) software, virtual law firms, contract management and analysis, and others. The concept of legal tech is not properly a recent trend, as it has been evolving for a couple of decades. However, the recent advancements in technology, such as cloud computing, AI, and blockchain, have significantly accelerated its growth and adoption in the legal industry. It has the potential to disrupt traditional legal services by making them more accessible, efficient, and cost-effective for clients, particularly for start-ups and small businesses.

Over the last years, a global expansion of legal tech has been registered. According to different industry reports and articles (e.g., McKinsey&Co, Verify365) this recent boom is attributable to several factors. First, an increasing demand for streamlined and cost-effective legal services.

Second, regulation is becoming more complex and the volume of related documentation and requirements for companies and institutions increases. Here the sub-category of specific services targeting regulatory compliance comes into play: Reg tech solutions can help firms and companies save time and resources while maintaining regulation compliance with the highest accuracy.

Third, the traditional slowness of the legal sector in adopting technology has created a vast growth potential that seems now unveiled. In addition, the COVID-19 pandemic has accelerated the adoption of legal tech as remote and hybrid work arrangements become more prevalent. E-signature tools, for example, have become increasingly popular as a result of the shift away from in-person meetings and wet signatures.

Some Figures from the industry

According to data provider *CrunchBase*, 2021 was a record-breaking year in terms of venture financing, registering over USD 1 billion of just venture capital investments in legal tech companies just in the first 9 months of the year, surpassing the previous high of USD 989 millions of 2019. In 2021 the legal tech sector generated in Europe revenues of USD 6.07 billion in the B2B market and USD 900 million in the B2C market and boasts a universe of 3,300 start-ups (*Italian Legal Tech Report 2022*). The reported data is largely the result of the activism of the United Kingdom, where TechNation has operated in recent years as a government and private partner joint venture to support the startup sector, which is considered as a virtuous example. As estimated by *Frontier* (2021) in a report for *Lawtech UK*, the legal tech sector generated Gross Value Added (GVA) of between $400 and £650 million in 2020 in the UK, with a growth of 101% of investments in legal tech start-ups and scale-ups in the period 2018-2020. The same report also estimates that by 2026 the GVA generated by the sector could reach a value from £1 billion to £1.5 billion.

Unfortunately, in line with the general global shrink in technological investments, 2022 total capital raised saw a 34% drop, and the number of deals were down 7% (data from a *Legalcomplex*

study). The total funds raised globally amounted to USD 3.4 billion composed of 376 deals in total, raised by 849 investors. The average funding, which amounted to USD 9.1 million in 2022, was also down 30% from the previous year. Despite the decrease in the total (and average) invested amount, there has been a growing number of investors in the legal tech field which signals a rise in interest, especially regarding seed investment in legal tech. Of the USD 3.4 billion in total legal tech funding in 2022, seed funding was responsible for 9%, that is USD 303 million – a higher amount with respect to previous years. This growth in seed funding opens the possibility that more start-ups will be able to acquire early-stage funding in 2023, thereby further pushing the advancements of this already emerging industry. Additionally, an analysis of *Lawtech 365* reports how the legal technology sector is experiencing exponential growth, with new companies and technologies emerging constantly. The global legal tech market is projected to reach USD 20.7 billions by 2026, growing at a CAGR of 14.3% from 2023 to 2026.

For what concerns the Reg Tech space, different reports highlight positive future growth expectations, which is coherent with the ever-increasing regulatory requirements over different industries (e.g., cross-border compliance, digital data protection regulation). In the *RegTech Global Market (2023)* report, the global RegTech market, estimated at US$13.6 billion in 2022, is projected to reach a size of US$46.2 billion is 2030, growing at a CAGR of 16.5% over the analysed period 2022-2030. Other reports showing an analogue growth prospectus have been analysed (*see the reports list in Annex 2).*

Current Themes and Services

Through the examination of various industry reports and articles (refer to *Annex 2*) it has been possible to understand which are the major services that legal tech is currently providing to the market. This analysis focuses mostly on legal tech services provided in a B2B framework, neglecting those that are solely targeted at individuals.

Automation is a recurring theme within the legal tech industry, encompassing various tools and aspects. Digital client intake/onboarding, document management systems (DMS), contract lifecycle management (CLM) software for contract drafting and management – which embeds data analytics tools – are some of the most commonly mentioned tools. The contract drafting

and review process is linked to recent advancements in AI and blockchain technology. For example, AI can predictively rank documents relevance, and AI-powered tailored prediction can aid contract building and review (e.g., identifying clauses lacunas in order to remain up to date with the regulation framework). Blockchain technology is often associated to smart contracts, which typically enables to automate the execution of agreements among different parties. The emergence of such technological tools offers an innovative opportunity for clients and constituents to self-serve in case of legal needs that requires consistent documentation (as also highlighted in *NetDocuments' report, 2023*).

Intuitively, another frequently mentioned theme is the productivity of legal services, as new technological means has the potential to significantly reduce the time wasted on repetitive tasks. Alongside productivity and automation, collaboration enhancement via cloud solutions (applied to the previous-mentioned DMS and CLM as well) and shared workspace platforms are commonly noted. As a natural consequence of the emergence of legal tech solutions, all features related to cybersecurity are of paramount importance.

Governance, particularly concerning regulatory aspects, is another significant topic. Data loss prevention (DLP) and DMS instruments offer data protection and privacy. For instance, geographical segmentation of data and documents within the system is one approach to dealing with different regulations, such as the European GDPR. Cloud document management solutions featured with built-in validation of privacy regulatory standards are one version of the so-called "Compliance as a Service" (CaaS), which is gaining increasing attention given the complex and ever-changing regulatory landscape.

In this regards, Reg Tech solutions are still used in the sector of financial services nowadays (considering the ever-increasing regulatory requirements for financial institution ever since the 2008 crisis). The main aspects addressed by Reg Tech offerings are (*Deloitte, 2021*): regulatory reporting, risk management, identity management and control, compliance and transaction monitoring (AML). Despite the close association of Reg Tech with the financial industry, its application is starting to reach other sectors that are typically characterized by intensive data usage and high level of regulation (*The global city, 2021*; *PwC, 2022*) – e.g., gaming, healthcare, energy.

3.1 An Ecosystem Perspective

Legal services providers operate as actors populating the legal and regulatory layer of an ecosystem. Their positioning between central and more peripheral players inside the ecosystem (i.e., not exercising a central orchestration action) set the condition for potentially representing legal tech providers as "supportive intermediaries", whose contribution – exercised on the legal layer of architecture - may enclose the strengthening of connections among different constituents, other than regulatory aspects companies are subject to. Legal providers traditionally operate by forming business relationships through the provision of legal assistance to actors belonging to various networks. Therefore, the close link with the collaboration aspect – often recurring in the ecosystem literature (e.g., *Adner, 2017*; *Jacobides et al., 2018; Jones et al.; 2021, Hakala et al.; 2020*) – is intrinsic of the role played by these actors. For example, according to a Gartner report (2022), the emergence of legal tech will prompt large organizations to expand their legal portfolio by partnering with four or more legal tech companies by 2025. A portion of legal tech providers will then operate within the orbit of "hub firms" (*Dahjarna & Parke,* 2006) with whom they can partner for the provision of tailored solutions. This expanded portfolio of legal tech partners has the potential to influence not only the internal process of the hub firm (and other firms), but also its ability to collaborate with other players within its ecosystem.

Reducing the cost of legal services is the most intuitive significant benefit of legal tech and is particularly advantageous for entrepreneurial activities with limited budgets that may struggle to afford traditional legal services. According to an article by Artificial Lawyer (2021), UK SMEs had an unmet legal demand of around USD 11.4 billion in 2021, which is one-third of the total legal market for the year. Therefore, the impact that legal tech can have on entrepreneurship is worth considering. The entrepreneurial ecosystem literature provides a framework to analyse legal tech providers' support – in terms of services and capabilities – that they can provide to the diffused entrepreneurial effort (*van Rijnsoever, 2022, 2020; Bergman & McMullen, 2022; Wurth et al., 2022; Spigel, 2017; Mason & Brown, 2015)*. Accordingly, the starting point of this work resides in the attempt to unpack the components of the word "support", i.e., trying to understand how the emergence of law tech actors – intended as a supportive intermediary – can foster and sustain entrepreneurial development and flourishing, alongside with other effects for businesses deriving from law tech emergence.

4. Research Design

This chapter illustrates the way in which the research has been structured in order to investigate the role of law tech emergence from an ecosystem perspective. All the steps from the choice of the research method to the data collection, going through the rationale behind the selection of the data sources and other decisions on the research structure.

This study adopts a qualitative approach to investigate the unexplored potential influence of this supportive players within an ecosystem (*Edmondson & McManus, 2007*). The interviews are designed with an open-ended structure to elicit diverse perspectives and themes from participants, facilitating a comprehensive exploration of the lawtech phenomenon.

The data collection process was characterized by a comprehensive methodology. Thanks to the decision of conducting two rounds of interviews and employing data triangulation, the study gained valuable insights into the perspectives and ideas of lawtech experts. In this regards, the decision to focus solely on the UK as the data collection was proceeding was driven by practical considerations and the city's renowned status as a hub for law tech in Europe

4.1 Method

The role played by supportive players within an ecosystem operating within the regulatory and legal framework has received limited attention in the existing literature. Consequently, this research study adopts a qualitative approach to delve into this unexplored area (*Edmondson & McManus, 2007*). Additionally, the significance of lawtech players' roles has been somewhat overlooked, further justifying the choice of a qualitative approach for this investigation.

To facilitate a comprehensive exploration of the lawtech landscape and the diverse roles it encompasses, the interviews were meticulously designed with an open-ended structure for inductive enquiry (*Langley, 1999*). Each interview had on average a duration of 45 minutes. By employing this approach, participants were not constrained to provide “guided” answers, instead they were encouraged to freely articulate their ideas and thoughts on the law tech field and its multifaceted role. This exploratory nature aligns with the principal aim of eliciting a wide array of themes from the invaluable perspectives shared by the participants.

Following data collection, a comprehensive analysis of interviews was conducted, supplemented by cross-referencing industry reports for an effective data triangulation. This allowed to follow an inductive approach to ease in-depth qualitative research (Gioia et al., 2013), where secondary data were employed to reinforced alignment (or discrepancies) with primary findings. The analysis started open coding to generate a set of open codes, proceeded to derive first-order themes, and culminated in identifying higher-level second-order themes in order to draw a link between the emerged insights and the existing literature on ecosystems.

The analysis was executed iteratively – i.e., involving a continuous process of revisiting different coding stages – to consolidate the codes and enhance coherence of the outcome. Nonetheless, for the sake of clarity, the subsequent paragraphs depict all the analytical progression in a sequential fashion. By employing industry reports (see Appendix 2) on the industry, data triangulation was performed to enhance coherence and consistency in the output.

4.2 Context and Data Sources

The data collection process for this study commenced with a first round of six interviews in April 2023, three of which were conducted with participants from the UK (specifically London) and three with participants from Italy. The initial objective behind this approach was to encompass a broader and diverse geographical area, seeking commonalities or variations in perspectives and ideas among the interviewees. Concurrently, data triangulation was performed by analyzing a list of relevant industry reports and articles (see *Annex 2*) to gain a comprehensive initial understanding of the phenomenon under study.

A second round of interviews, totaling nine participants, was carried out between May and June 2023. This round exclusively comprised participants from the UK, with one exception of a participant residing in Belgium but working for a regtech company with a significant presence in the UK lawtech landscape. This decision to focus solely on the UK was driven by two main factors that emerged during the first round of interviews.

Firstly, the ease of data collection was a decisive driver. Geographical proximity made it more convenient to reach out to and arrange meetings with lawtech experts based in London, UK. Secondly, the diffused consensus among the participants and industry articles pointed to London

as the lawtech hub of Europe, particularly in the domain of legal tech. This characteristic made it an ideal cluster for finding experts with valuable insights into the current state and future prospects of the sector.

The primary aim of the data collection process was to extract diverse themes and perspectives from the interviews. To achieve this goal, careful consideration was given to selecting individuals representing various facets and roles within the lawtech field. Despite all participants being deeply involved with law tech, they exhibited distinct backgrounds and roles, leading to differing views on the evolution and impact of the sector. This approach aligned with the adoption of an "ecosystem lens" as the primary analytical framework, a perspective that intrinsically considers players with different roles and positions within the ecosystem and their relationship/interplay. By examining the potential effects of the technological evolution of supportive intermediaries operating across the legal and regulatory layer of the ecosystem, the study could better understand the dynamics at play.

Each interview participant brought a unique viewpoint to the table, significantly enriching the subsequent analysis with a wider coverage of the “range of actions” performed by the lawtech sector. *Table 5* provides anonymized information about the different types of interviewees, including considerations regarding the relevance of their perspectives to this study.

4.3 Analysis

The data derived from the interviews underwent analysis employing an inductive approach to facilitate an in-depth qualitative research (*Gioia et al., 2013*). The primary objective was to foster an unbiased examination of the interview output, unrestricted by any preconceived notions influenced by existing literature.

To ensure meticulousness, each interview was recorded with participants' consent and subsequently transcribed using NVivo and Otter.ai, thus preserving every valuable insight in written form to aid the subsequent analysis. The analytical process involved two interconnected steps, iteratively repeated multiple times, and is here presented in a sequential manner for sake of simplicity.

– Table 5 – Interviews participants

First Round: April-May 2023

ID	Role	Relevance
UK_1	tech manager, legal tech expert	Years of experience in the implementation of technology in legal tech start-ups and big law firms. PhD in Law. Able to provide the perspective of both big in house legal departments adopting legal tech and the provider of a new legal tech solution.
UK_2	Law tech executive advisor	TechNation - LawtechUK fundamental executive figure responsible for a portfolio of projects delivering digital transformation in the UK legal sector, including the design and delivery of accelerator programmes. Expert in providing a detailed overview of the development of the whole lawtech UK landscape, being part of the initiative that drove the flourishing of this sector in the UK.
UK_3	legal tech specialist	legal tech specialist working for a company providing document automation solutions. Insightful perspective from within the walls of an affirmed legaltech provider with established market and position
IT_1	law firm lawyer	Lawyers seeing the emergence of legal tech around its company and evaluating the adoption of various tools to help deal with the businesses he/she works with
IT_2	legal tech specialist (tech solutions)	Specialist in legal tech solutions related do document automation. Viewpoint of both the in house departments adopting the legal tech tools and the responsible for the implementation of such tools in the daily operations
IT_3	legal tech specialist (legal design)	Lawyer specializing in legal tech solution related to legal design - an approach that attempts to boost transparency of contractual relationships by leveraging tech tools

Second Round: May-June 2023

ID	Role	Relevance
UK_4	Law tech innovation consultant (founder)	Consultant in legal tech innovation advising companies on the solution to best streamline their legal processes. Former head of digital for a legal tech provider in the contract space. Perspective of both the adoption and the development of legal tech innovative solutions. Broad overview of the different services offered in the whole lawtech landscape
UK_5	Law tech COO	Panel member of Lawtech UK. Former lawtech director of one of the biggest banks in Europe. Previously worked with a game changer legal/reg tech startup. The participant's experience with different types players within the ecosystem allowed to gather considerations about various stakeholders involved in law tech emergence
UK_6	Startup CEO	CEO of an innovative law tech startup which provides services powered by top-class generative AI. Perspective of the innovators that have to interface with the different players that could be touched by their offering.
UK_7	RegTech Consultant	Consultant for the implementation of regtech solution with the viewpoint of the regtech provider interfacing with big financial institutions. Understanding of the regtech requirements of financial institutions and supervisoty bodies (SupTech)
UK_8	LawTech Board, Chief Legal Officer of a Legal tech firm	Vision from within the LawtechUK initiative to foster the development of the lawtech sector. Key decisional role in one of the most players in the legal tech (though being still an SME), thereby having also that viewpoint.
UK_9	in-house legal	Perspective from the point of view of big corporations assessing and potentially adopting legal tech solutions
UK_10	in-house legal	Perspective from the point of view of big corporations assessing and potentially adopting legal tech solutions
UK_11	RegTech Regulatory Affairs	Reg tech expert, with former experience inside a fintech well established company, now working for a regtech firm developing solutions not only for big institutions. Formerly head of compliance for a fintech startup. Able to provide multiple viepoint of various players in influenced by the regtech development
BEL_1	RegTech Specialist	Reg tech specialist, formerly working for a regtech startup and now interfacing with financial institutions to implement regtech tools. Percpective of the regtech provider interfacing with big financial institutions

Step 1: Primary data analysis and Open Coding

The transcripts of the interviews were subjected to a rigorous, fine-grained reading (Strauss & Corbin, 1990), resulting in the development of an initial dataset of "open" codes. Through an iterative approach, redundancies within the dataset were consolidated. The open coding process allowed for the methodological extraction of informants' ideas and impressions considered relevant, independently of any specific reference to existing literature, thereby preserving the natural flow of the analysis. This iterative process of consolidation culminated in the transformation of open codes into representative first-order themes (*Gioia et al., 2013*), reflective of informants' perspective

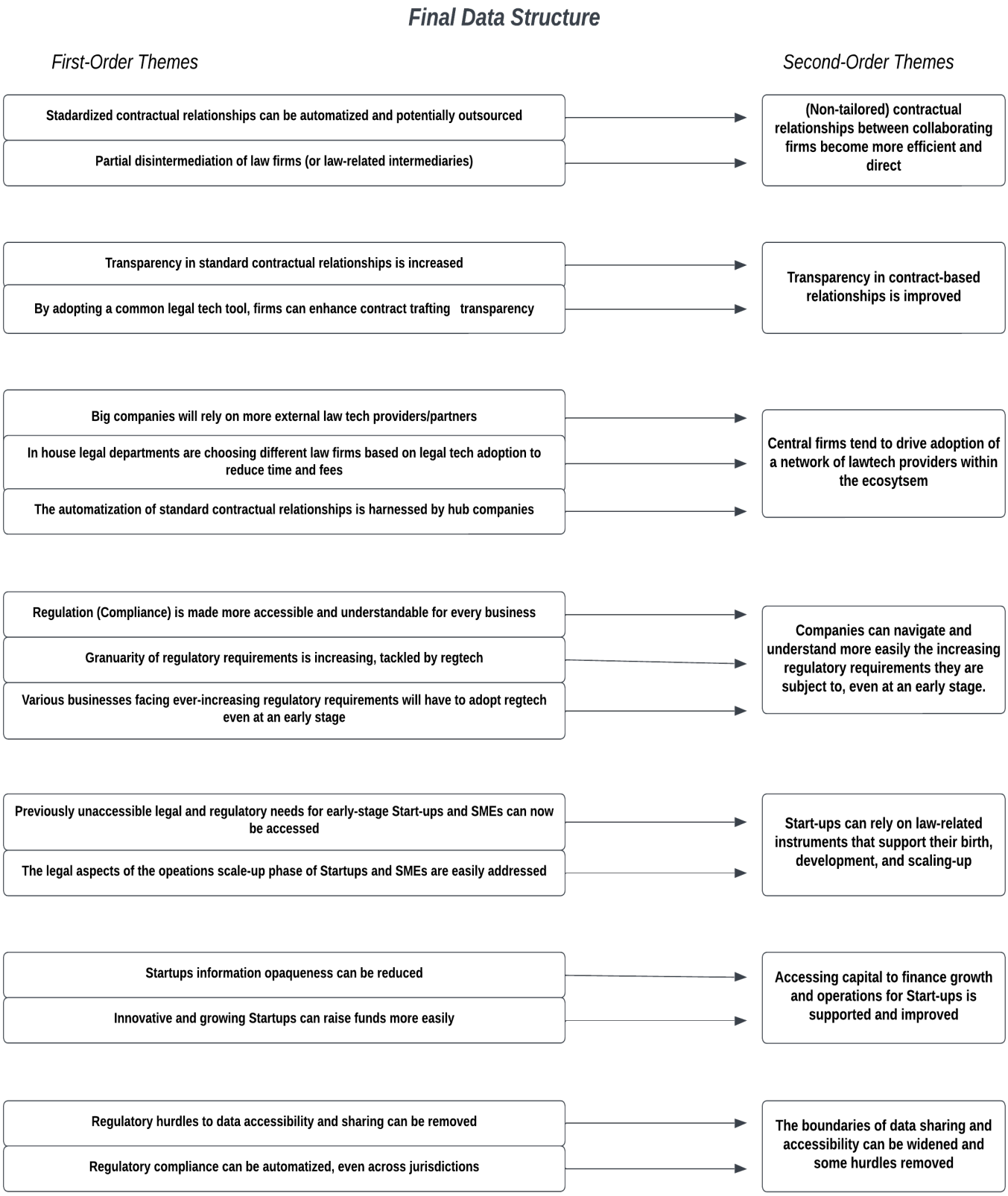
While formulating this list of first-order themes, careful consideration was given to the frequency of appearance of open codes. Although the awareness on the limitations in achieving knowledge saturation due to the finite amount of primary data sources, all open codes appearing just once – and not correlated with other first-order themes – were disregarded to prevent the formulation of themes based solely on the input of a single informant.

In addition to the aforementioned analytical procedure, a meticulous examination of diverse industry reports within the legal tech and reg tech domain provided valuable insights from secondary sources. This process effectively complemented the primary data, contributing to the establishment of the first order themes through data triangulation.

Step 2: Second-Order Themes Generation

During this subsequent analytical phase, our progression was characterized by a gradual shift towards a more theory-driven elucidation (*Strauss & Cobin, 1990)*. Continuously, the initial first-order categories – originated through a process "unbiased" by theoretical preconceptions – were compared with concepts highlighted in previous research, subsequently organizing them into second order themes, corresponding to a more aggregate dimension (*Gioia et al., 2013*). This iteratively process was conducted repeatedly. The final outcome of this phase is illustrated in *Figure 1*, depicting the refined final data structure.

– Figure 1 – Refined final data structure



5. Findings

This section presents the discoveries, that elaborate on the second-order themes, derived through the analysis as detailed in the concluding part of the previous chapter. These second-order themes, corresponding to the headings of the subsequent paragraphs in this chapter, have emerged from a comprehensive process involving 113 open codes. These codes were initially grouped into 17 first-order themes and subsequently organized into 7 second-order themes. The analysis was corroborated by the use of industry reports for data triangulation as well. Such a reorganization from first to second-order themes is represented by the *Final Data Structure* diagram in the following page.

These second-order themes serve as significant frameworks in articulating the multifaceted roles that lawtech (comprising legal and reg tech) entities can assume and are indeed already assuming in connection with businesses with variegate legal and regulatory needs depending on their nature and stage of life.

Theme 1: (Non-tailored) contractual relationships become more efficient and direct

This theme pertains to the widespread utilization of established legal tech tools, primarily manifesting as contract lifecycle management (CLM) and document automation, as highlighted by multiple interviewees.

Companies, thanks to the automation of contractual procedures, can also be able, for instance, to “outsource the management of certain standard legal documents, such as NDAs with business partners”, as emphasized by one participant. “You have a platform that enables you to send out standardized agreements between companies”, as underscored by another informant. This approach can lead to comprehensive automation and even externalization of an entire company's contract department, optimizing the efficacy of collaborations between business entities, thereby allowing them to focus on the core of their interaction.

The adoption of document automation and CLM tools finds consistent corroboration in various industry reports. For example, both *Henchman (2023)* and *Law Ahead (2022)* underscore these tools as driving aspect within the lawtech sector over the past decade. By referencing these reports, data triangulation was facilitated, affirming the significance of the identified second-order theme.

Moreover, it's important to mention another aspect: the growing variety of tools is starting to reduce the need for certain middlemen, intermediaries in legal matters (like certain types of lawyers). This effect could become even stronger in the future, especially as more advanced technologies are used instead of the traditional contract management systems. As one participant pointed out, "Legal Tech can leverage the potential of blockchain and artificial intelligence in industries where intermediaries are present – such as in the real estate market by eliminating the real estate agency as an intermediary – between buyers and sellers, automatically managing the flow of approvals and proposals. The preliminary contract phase and all similar types of relationships can be easily disintermediated."

This would make contractual agreements between parties more "direct", meaning there would be less need for the presence of intermediaries. As emerged in a declaration during an interview, "there's been an increasing trend where people don't go as much to a law firm or just go to an alternative service provider who can do the same thing , but probably for a lot less price".

On this note, interviewees stressed how important this potential reduction of intermediaries is for small companies. This touches on a fundamental question that drives legal tech innovation: "how can they [small companies] use legal services that hopefully are tech enabled to reduce the actual lawyer time needed on a given matter?".

This factor holds evident significance, particularly considering that small businesses (such as start-ups) inherently possess limited financial resources and face challenges when it comes to affording costly experts for addressing various issues.

One emerged tool that may facilitate this process is smart contracts, which are based on the blockchain technology. These contracts work on decentralized blockchain networks and can be used to automate and ensure the negotiation, performance, and settlement of agreements. Smart contracts operate on their own and follow the rules and conditions set in the contract (the terms are directly written into lines of code). This means that there's no need for intermediaries, like lawyers and banks, which cuts down on costs and makes things more efficient. Since smart contracts are automatic, they also reduce the chances of human errors.

Theme 2: Transparency in contract-based relationships is improved

Contractual relationships inherently carry the risk of misinterpretation, potentially leading to complications concerning contractual terms and even escalating to legal disputes, which may prompt changes in business collaborations or even the dissolution of collaborative partnership, as noted by Jones et al. (2021).

The emergence of legal technology (specifically legal tech) has the potential to significantly enhance transparency throughout various stages of the contract lifecycle. A noteworthy instance is the concept of "legal design," as highlighted by a participant. This innovative approach employs visual tools to facilitate communication regarding contracts with entities lacking legal departments, such as small and medium-sized enterprises (SMEs) and entrepreneurs engaging with law firms or in-house legal departments. By adopting this approach, enhanced transparency in contractual clauses can be achieved, particularly in cases where one party lacks legal expertise. The legal design methodology proves particularly effective in standardized contractual relationships with minimal or no negotiation involved.

Furthermore, there exist additional tools of a distinct nature, aimed at enhancing the transparency inherent in contractual engagements between firms. The utilization of Contract Lifecycle Management (CLM) tools, for instance, extends this transparency to the drafting process involving internal departments, thereby fostering enhanced trust between involved parties. However, as articulated by multiple participants, this necessitates the adoption of a shared legal tech tool to streamline contract management within a unified system.

Consistent with the objective of augmenting transparency within contractual relationships, certain tools offer the capacity to evaluate risk and fairness of a contract during its drafting phase. A case in point is the software TermScout, which exemplifies a solution conducive to transparency in contractual agreements, catering to segments of organizations that lack specialized legal proficiency. In this manner, concealed clauses that have the potential to compromise the transparency and fairness of a contract are elucidated.

An intriguing advancement pertaining to heightened transparency in contract lifecycle management is attributed to the rise of smart contracts, i.e., “adding contracts into machine readable self-executing contracts on the blockchain” as aptly expressed by an informant. This blockchain-based technology renders smart contracts openly accessible, consequently bolstering transparency and engendering greater trust. As all entities participating are granted visibility into the contract's terms and its subsequent execution, a framework of accountability is established, ensuring collective responsibility.

Theme 3: Central firms tend to drive adoption of a network of lawtech providers within the ecosystem

As elucidated by the preceding themes, the automation of legal agreements and procedures stands as a distinct advantage for enterprises embracing lawtech solutions. However, the realization of automation necessitates contractual agreements that are standardizable. This, in turn, demands the prevalence of one party endowed with a substantial share of bargaining power, thereby limiting negotiation possibilities for the other party. In essence, the weaker participant finds themselves in a position to either accept or reject the conditions of the contract dictated by the more influential player—the hub firm within the ecosystem (Dahjarna & Parke, 2006).

As affirmed by an informant, “since bigger companies usually have […] higher bargaining power, most likely they have the biggest benefits from [automatization thanks to] legal tech.” Consequently, , “if the bargaining power is evenly distributed, It's unlikely that there may be a legal tech tool kicking in”. Thus, the propensity to embrace legal tech providers specializing in automation tools becomes more pronounced among hub firms endowed with a heightened influential position within the ecosystem.

Simultaneously, within hub companies, in-house legal departments engage in collaborative efforts with external law firms on a frequent basis. The selection of a law firm for engagement is primarily influenced by the technological propensity and adoption demonstrated by the law firm itself. This inclination is a response to the growing demand for enhanced efficiency and cost-effectiveness, particularly in the context of legal procedures that can be standardized to some degree.

In their pursuit of efficient and cost-effective solutions, hub firms proactively establish partnerships with various service providers, thereby expanding their lawtech portfolio. For example, multiple participants have highlighted the incorporation of multiple RegTech solutions to ensure comprehensive coverage across diverse jurisdictions for regulatory reporting, as well as addressing other compliance imperatives such as Anti-Money Laundering (AML) requirements.

Also the seek of "legal tech providers for their legal department to be more cost effective and efficient", "in-house legal departments […], want to be more innovative, […] to be using tech. [big companies] They're driving that when it comes to their engagement with law firms, and they are starting to choose who is using them and kill time".

Consequently, a participant articulated that "[prominent] companies will probably have a dozen or more law tech providers. [...] A large bank, for example, will have probably dozens and dozens of legal tech tools for different things". Another participant observed that "will rely on providers of legal tech solutions just because these providers are, by their nature, experts , and especially if we talk about investment-heavy things like AI-based, often it's not possible for a firm to internalize this because it just requires a lot of data, but what they can do, they can, of course , subscribe to use the algorithms and models that use API to plug into it".

A notable illustration of this dynamic unfolds as many companies interface their in-house legal teams with Harvey.ai. This generative AI-powered solution has the potential to significantly increases the efficiency and precision of routine legal tasks.

The strategic engagement with a diverse repertoire of lawtech solutions within sizable enterprises aligns with the insights presented in the *top 2022 legal trends* report by *Gartner*. This authoritative analysis foresees a landscape where, by the year 2025, prominent organizations are projected to foster affiliations with a minimum of four legal tech providers.

Theme 4: Companies can navigate and understand more easily the increasing regulatory requirements that they're subject to

The landscape of regulatory obligations for firms is undergoing a relentless expansion, spanning from the all-encompassing impact of GDPR on virtually every business, even those with modest data collection processes, to the intricate financial regulations governing institutions within the

financial sector. Accordingly, interview participants underscored a significant shift especially in financial regulatory approach, "what we're seeing now is the regulation is becoming far more granular and the requirements are becoming far more granular", "everything is happening instantaneously, everything is happening cross border, this [granularity] is fuelling the need for regulatory technology".

As a consequence, "All those sectors that have a large amount of regulation can benefit from legal [law] tech tools that streamline the management of documents and compliance-related issues." E.g., "digital start-ups that are exposed to a huge amount of data needing a granular reporting" as clearly highlighted by an interviewee. An exemplary case in point is IUBENDA, a pioneering company that offers turnkey solutions to digital enterprises operating via web platforms. This innovative platform enables such companies to effortlessly automate their GDPR compliance processes, specifically by generating cookies.

The panorama extends further, encompassing a diverse array of businesses that will inevitably confront stringent regulatory obligations related to data management. This emerging reality is a natural outcome of our rapidly digitizing world, where data has assumed the role of a precious resource akin to petrol. The increase in regulatory requirements is also mentioned in various industry reports, e.g*., KPMG* (2022), *the global city* (2021), *FCA - future of RegTech* (2021) foresee a wave of reg tech players that will spread across multiple sectors such as gaming, healthcare, energy, gambling; and The report of *LegalTech Italia* (2020) points out an increasing trend of regulatory inflation as well.

Furthermore, given the intricate interplay of diverse regulatory facets, comprehending the applicable regulations for businesses, particularly smaller ones, is far from trivial. As mentioned by an informant, there exist reg tech solutions that "focuses just on the different kinds of regulations, and helps companies understand which regulations are applicable to their business. […] and then keep you updated whenever a regulation changes". This reg tech contribution regarding the real time monitoring and tracking of current state of compliance and upcoming regulations is spottable in industry reports of recent years, such as the *Deloitte* report (2021).

A notable exemplar in this domain is CUBE, a sophisticated software that employs comprehensive scans of a company's nature to swiftly generate a global regulatory map, encompassing both existing regulations and their dynamic alterations over time. This newfound accessibility to

regulatory insights effectively eliminates a potential hurdle for businesses, mitigating the risk of inadvertent infractions. Consequently, this capability to comprehend and navigate the intricate regulatory layers receives a substantial boost.

Small businesses are on track to conquer the tough challenge of following complex regulations thanks to reg tech technologies. This idea comes across from an interviewee who pointed out, “the complexity of the regulation is so high that even the most sophisticated players, are not fully compliant. There is no perfect compliance. So obviously, the smaller the size of your organization , the harder it is to reach those crazy thresholds of regulation and definitely, you know, tech will produce solutions which just enable compliance basically out of the box. Basically, the tech is the bridge which connects them to the regulation at a very reasonable price".

In a similar vein, another exemplary contributor to this landscape is the company Corlytics, highlighted by a well-informed informant, “what CORLYTICS do is they read the legislation and then attached to that would be like a taxonomy. [….] And Corlytics will kind of ingest all of that using AI and spit it out in sort of simple enough language. this may be applied also not just to financial institutions like also for GDPR requirements or other ".

Theme 5: Start-ups can rely on new law-related instruments during their birth, development, and scale-up

Young companies, by definition, are constantly focused on meeting their commercial and operational goals in order to fuel their growth. This growth is inevitably accompanied by legal requirements and regulations that need to be complied with.

Since start-ups usually lack internal legal expertise, they generally rely on legal service providers. However, these services are typically very expensive, making them unaffordable for most young firms. Consequently, a notable and yet unmet demand for legal services within the SME sector has come to light – a revelation also underscored by findings in the *Access to Justice* report by *Lawtech UK* (2023). Fortunately, this gap is gradually being filled by the emergence of legal and regulatory technology players. The scenario has given rise to a fertile environment conducive to the development of lawtech solutions tailored specifically for SMEs.

This favourable context is articulated by a participant who observed, "I think the smaller you are, definitely the more likely you are to want to use tech solutions because you can't afford a [law] firm". There is an array of services that hold potential benefits for small companies, spanning across both reg tech and legal tech sectors, which was highlighted by an informant, who noted “they [SMEs] need to follow certain regulations and legal rules. They can just plug in and basically, they can outsource their legal work to some sort of legal tech provider and not only tech provider, but legal services provider. I think that [SMEs] would be quite happy to do that”. As written in the SME-focused legal tech report (2021), SMEs usually “do it alone”, which is a sentence that represents the propensity of SMEs to self-serve when possible.

However, the involvement of law tech players extends beyond the initial stages of start-ups or mere reduction of legal expenses. It can prove to be critical during phases pivotal for firm growth, thus facilitating faster and more efficient scaling. This potential was elucidated by an informant who shared insights regarding the integration of legal tech: “For start-ups, legal tech doesn't always reduce legal costs. Specifically […] it can simplify the creation of [legal] content that may need to be generated quickly during critical phases. The legal content requirements, including contracts and administrative documentation, can be streamlined through the use of legal tech, allowing start-ups and scale-ups to keep up with their rapid growth needs. It enables them to meet the demands of fast-paced growth more efficiently”.

An exemplary example of helping the operational legal needs of a business is represented by the platform SeedLegals, which, among various services that will be discussed later, has been “automating employment contracts, or automating tax documents, which is really important because all young companies wanted to pay in tax back right R&D costs and stuff. [SeedLegals tries to] automate as many processes [as possible] that you would normally go to lawyers for”.

A classic illustration of another contribution to help the scale-up phase is observed in web companies that begin to handle substantial volumes of user-generated data. As one interviewee aptly put it, “The scalability and efficiency provided by legal [and reg] tech offer significant advantages. It allows them to effectively manage data compliance and communicate legal requirements to a vast audience, resulting in significant benefits”.

Generally speaking, there is now the rise of new services that allow Start-ups (SMEs in general) to make use of services that were previously inaccessible for them. For instance, the possibility to self-serve that is provided by LegalZoom (other than the aforementioned SeedLegals), a legal tech DIY (do it yourself) platform that allows companies to satisfy different legal needs by accessing a wide range of templates and procedures, e.g., registering the type of business, contracts and licensees to run the business, IP protection.

The case of SeedLegals, particularly in its focus on facilitating fundraising for startups, stands out as a prime example exemplifying the substantial yet unmet demand for legal support among SMEs, a void that can be effectively addressed by lawtech providers. As highlighted by an individual familiar with the matter (regarding SeedLegals), "initially, [the founders of SeedLegals] were trying to replace the concept of a law firm. But [they] recognized actually, [they] occupied space in the legal market, which no one was really servicing. So, it's not that [they] tried to steal these deals from law firms. […] a really clear position in that market, and that's the service of companies that weren't being serviced at all by law firms, because they couldn't access to those services and expensive."

The paradigm of SeedLegals underscores the profound impact lawtech providers can have by catering to an underserved sector, thereby bridging the gap between legal expertise and the needs of SMEs.

Theme 6: Accessing capital to finance growth and operations for Start-ups is supported and improved

For start-ups to thrive in their environment, they need to find money to grow and run their operations. This often means getting funds from investors or forming strong partnerships with larger companies. However, these two key players in the ecosystem may be hurdled by the significant level of information opaqueness that start-ups typically have because of their young age.

The adoption of law tech tools has the potential to reduce the level of this information opaqueness. For instance, as an informant stated, every respectable VC would perform a due diligence to assess the worthiness of the target start-up, and the presence of a contract repository automation platform could dramatically ease the contractual side of the due diligence,

thereby making the start-up contractual situation much more transparent. Quoting the words of the interviewee, “the biggest benefit may be like the increase the bottom-line increase in transparency of the start of the startup itself. So like the VC or the investor can see through the start-ups because all the documents or the data are released".

The digital availability of the contractual situation of a start-up is also an important information for a big company that is considering doing business with the start-up. The big player would think “this is limited due diligence required here because they have everything that we need to see”, as expressed by an informant from a big corporation engaging with a lot of commercial relationships with its own network.

There is an illustration underscoring the assistance that law tech can extend to companies in their pursuit of financing. This particular example resides at the confluence of legal tech, regulatory tech (reg tech), and financial tech (fin tech). Specifically, it involves the pioneering implementation of the first revolving pledge financing that leverages the capabilities of blockchain technology. This ground-breaking initiative was orchestrated by Italy's Credem Bank to facilitate credit provisioning for Latteria Soresina, a producer of Parmigiano cheese.

In this recent endeavour, all requisite legal documentation essential for investors to vigilantly monitor the valuation of the Parmigiano cheese wheels (the pledged asset) has undergone digitization through the blockchain. The outcome of this transformation is the marked enhancement of security for the bank through a substantial reduction in information asymmetry pertaining to the valuation of the pledged assets.

In this regards, Latteria Soresina's official website elaborates, “Carried out with the collaboration of Sopra Steria, this operation will allow the producer to sustain its investments, while reducing operations and costs and guaranteeing the bank the security of the pledged asset, owing to a monitoring of the goods with real-time updates of the pledge countervalue, linked to the value of the Milan Chamber of Commerce”. The wide potential of reg tech in the area of real-time transaction monitoring emerges also in a *Deloitte*’s report (*2021*), specifically mentioning the possibility of leveraging the benefits of distributed ledger via blockchain technology.

When speaking specifically about the early-stage fundraising process of young firms, law tech intermediaries can play (and are already starting to play) a key role in facilitating such a process

for entrepreneurs. One example above all in the legal tech space is the British company SeedLegals, which is offering a platform where entrepreneurs can self-serve on all the documentation and legal procedures that are required to organize and carry out a funding round. Moreover, SeedLegals offers other correlated services, such as the management of cap tables, and the drafting of shareholders agreement and other documents.

It's a way to “connect the capital with the capital requirements” – as stated by an informant – by making the legal aspect of such transactions significantly easier. The company was also able to automate exits, and is moving towards the automatization of more complex operations such as M&As. All this offering has really the potential to remove important (legal) hurdles for entrepreneurs in obtaining capital.

While the previous case involving SeedLegals finds its place within the domain of legal tech, it's important to recognize that the realm of regulatory technology (reg tech) also holds significance in facilitating entrepreneurs' access to financing. A clear example of such support, highlighted by an informed source, revolves around reg tech's capacity to assist crowdfunding platform service providers. By quoting the informant’s words, “reg tech will help a crowdfunding platform service provider, perform their kind of anti-money laundering checks, but also be able to, you know, reconcile how much investments come in when investment is due to be paid".

In addition, the distinctive role that reg tech services can play finds corroboration in a *Finextra* article from 2022, which delves into the context of "financial inclusion" for small and medium enterprises (SMEs). The article posits that the strategic integration of reg tech tools by fintech service providers can streamline the onboarding process for SMEs that might otherwise struggle to furnish the comprehensive array of documentation required to adhere to onboarding regulations (e.g., KYC, AML, KYB).

Through this collaborative synergy between financial technology (fin tech) and reg tech, a powerful mechanism is set in motion to enhance the "financial inclusion" of SMEs actively seeking avenues for financing. By collectively addressing compliance barriers, these technological players set a favourable path toward a more inclusive financial landscape, one that nurtures the growth and sustainability of small and medium enterprises.

Theme 7: The boundaries of data accessibility and sharing can be widened, and some regulatory hurdles removed

As previously elucidated within the context of theme 4, "*Companies can navigate and understand more easily the increasing regulatory requirements that they're subject to",* the realm of regulatory requisites, particularly those concerning data utilization, continues to experience a steady expansion. Moreover, these regulations exhibit disparities across various countries, thereby amplifying the complexity faced by businesses engaged in cross-border activities, as well as endeavours to harness data streams emanating from diverse corners of the globe.

For instance, from the point of view of a big player in the financial industry trying to technologically innovate various aspects of its business, an informant stated, "because of those equally-debated data regulatory requirements and data privacy issues just make it a little bit more challenging to be able to fully deploy what we need to at the pace we would want to be able to innovate effectively". This encapsulates a relevant obstacle introduced by the regulatory layer, particularly in the realm of data utilization, which often poses as a significant hurdle to unfettered innovation.

Managing the intricate demands associated with data usage can be not only time-intensive but also exposes businesses to potential compliance breaches. This is precisely where the dominions of regulatory technology (reg tech) and legal technology (legal tech) originated to provide assistance. A notable example of such a tool is OneTrust, a privacy management software that streamlines compliance processes with privacy regulations. This technology serves as a safeguard, ensuring both the legal and secure accessibility and usage of data. Another solution is Iubenda, a software that functions as a comprehensive compliance instrument generator tailored for websites and applications. By neatly crafting elements such as cookies policies, terms and conditions, data handling activity registers, and content databases, Iubenda ensures the alignment of forms with key regulations like GDPR, CCPA, and LGPD. By using these technological solutions, businesses can automate the intricate compliance tasks linked to gathering and storing data. This crucial action sets the groundwork for companies to make the best use of data, unlocking its potential while staying firmly aligned with regulatory rules.

Next comes the phase where existing data, theoretically ready for analysis and innovative outcomes, are put to practical use. However, often a challenge arises concerning the accessibility of this data without running afoul of regulations safeguarding personal and private information within. This is where reg tech re-enters the scene, offering a solution that enables insightful data utilization while respecting legal parameters. An exemplary case in point is RegulAItion, a platform that introduces a pivotal algorithmic feature. This algorithm provides a means to access data and generate insights without direct data access. The AI produces these essential insights while ensuring the confidentiality of the data's sensitive details. According to an interviewee closely tied to the project, "[the algorithm allows to] return the insights without any personal or private information being shared, so you maintain integrity and security around your data, but are still able to learn from it. So it overcomes that problem of having to deal with data requirements, data regulation. Like a facilitator in an innovation context". This methodology empowers various stakeholders to collaboratively contribute data, all the while ensuring their security and the confidentiality of any sensitive information inherent in the dataset.

In the financial industry, as illuminated by an informant, "the financial crime side is where a lot of reg tech players are coming up, because, right, the reg tech that's used for financial crime prevention is used on a daily basis". However, despite being the sector that has witnessed the most substantial development of reg tech, there remain significant challenges concerning data sharing. An informant provided a concrete example of this complexity, stating that "the regulated company, business in general, has to comply with certain requirements. So in order to do that, it creates kind of a network of outsource companies that perform those regulatory requirements. […] therefore, they have to share data with one another and […] legal tech and reg tech technologies [will have to] kick in, to make sure that these data sharing is safe and compliant. I think people are still doing it […] with lawyers in house or external legal counsel. But it takes so much time, and it's very costly." This tendence to outsourcing compliance is present also in re tech reports, such as the one of *KPMG* (2022).

To fuel innovative endeavours, "there needs to be a way to share data and collaborate without breaching data privacy of different jurisdictions, and then the reg tech will come in to provide the tools by which data can be shared securely and safely".

On a global scale, businesses are actively “trying to innovate the way in which they share data. And so reg tech can kick in, in helping this process of data sharing that allow them to innovate the way in which they communicate and make business". Consequently, “another area where reg tech can prosper [is] around data restrictions, sharing data across different jurisdictions by […] moving towards that cloud-based system where you can have a cloud that is hosted in one jurisdiction”. The topic of data restrictions highlights a prime arena where “blockchain and digital distributed ledger technology can work because it's decentralised. It's not tied down by any data privacy restrictions. One industry like the trade finance (import exports and shipping of physical goods). That industry is now starting to use block trade blockchain and distributed Ledger's in order to share data about the goods being imported”.

In summary, the expansion of regulatory requirements, especially concerning data usage, poses challenges for (particularly cross-border) businesses. Data sharing complexity persists, driving the need for reg tech (and legal tech) development to empower data-driven innovation within evolving regulations, shaping a future where data is harnessed securely and effectively, even across diverse jurisdictions.

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6. Discussion

This research work seeks to explore the impact of emerging law tech players, resulting from the fusion of legal services and technology, on businesses within an ecosystem framework. This ecosystem lens places the phenomenon within a context where interactions between diverse stakeholders and influences external to the single company hold paramount importance.

The whole work started with a structured literature review on ecosystems from which four different categories of literature streams, corresponding to four types of ecosystems, have been identified. In pursuit of comprehending the role of lawtech within an ecosystem context, a qualitative study was conducted. This aimed to delve deeper into the dynamics of this novel technological entity, unpacking its multifaceted contributions resulting from the convergence of technology and legal services.

This section seeks to amalgamate the theoretical foundation of ecosystems with insights originated from the qualitative study. The theoretical underpinnings of these insights are expounded, and their transferability to the ecosystem literature is explored (*Lincoln & Guba, 1985*). This amalgamation is expressed in terms of models – depicting the potential existence causal correlations – that are discussed below.

Model 1: Driven by the hub firm, the adoption of law tech facilitates the orchestration effort and stimulates collaboration within the business ecosystem

Interconnection and collaboration among participants within an ecosystem stand as pivotal elements across various ecosystem literature streams (*Hakala et al., 2020; Jacobides et al., 2018; Aarikka-Stenroo & Ritala, 2017*), irrespective of specific categories. Within the context of businesses, this collaboration inherently entails the establishment of contractual relationships, aligning operations with the regulatory framework that defines the "rules of the game." Legal and regulatory layers govern these dynamics. In this framework, legal service providers function as intermediaries, structuring contracts either from within firms (in-house legal departments) or through external engagements. Essentially, they contribute to shaping the necessary contractual structures for collaborative arrangements.

Rooted in the second-order themes 1 and 2, the impact of law tech diffusion (specifically legal tech in contract domains) is evident in the contractual ties that bind ecosystem members. These ties, in turn, directly influence the intrinsic collaboration within the ecosystem – e.g., regarding value appropriation of innovations (*Teece, 1986,2018*).

Themes 1 and 2 shed light on how legal tech can streamline the contractual foundations underpinning inter-business collaboration. Theme 1 highlights that legal tech solutions mitigate reliance on legal intermediaries, leading to more direct interactions between firms. This enhances efficiency, allowing players to focus on critical aspects beyond contractual clauses. Furthermore, theme 2 accentuates that law tech adoption heightens transparency in contractual arrangements, minimizing the risk of misinterpretation and misalignment. Consequently, a trustworthy environment is nurtured among firms due to increased transparency in contract drafting, spanning from in-house departments to standard contractual agreements with end customers. This enhanced transparency and directedness reduces transaction costs (*Williamson, 1979*), thereby bolstering trust and fostering collaboration among ecosystem players.

As previously noted, collaboration is a recurring theme in ecosystem literature. However, for the positive outcomes of law tech adoption in the contract space (themes 1 and 2) to materialize, a significant degree of standardization in interactions is imperative. Standardization implies that the terms of interaction are primarily determined and managed by one player who shapes collaborative arrangements according to its interests. As elucidated by an informant, "If bargaining power is evenly distributed, it's unlikely that a legal tech tool will be effective." This is where theme 3 enters the discussion, indicating that legal tech adoption in the contract domain is driven by firms in central positions. The introduction of this theme places the discourse on the benefits of law tech into the realm of business ecosystems, characterized by central "hub" firms. (*Dahjarna & Parke, 2006; Iansiti & Levien, 2004).*

These hub firms adeptly orchestrate resources across diverse ecosystem constituents, aiming to capture the majority of the associated value—akin to a closed-system orchestration (Giudici et al. 2018)—through capitalizing on their prominent position. It is, however, vital to bear in mind that business ecosystems lack explicit hierarchical authority (*Jacobides et al., 2018*), and each member is inclined to pursue their individual interests. Consequently, while the hub firm possesses stronger bargaining power (*Adner, 2017*), it must strategically manage its connections with various members to uphold network stability (Dahjarna & Parke, 2006) and instil a willingness to sustain collaboration for mutual evolution (*Zahra & Nambisan, 2012; Li, 2009*).

Furthermore, the scope of ecosystem literature has transcended regional boundaries, extending across global scales (e.g., Apple, Microsoft). This presents an additional challenge for members, involving the management of relations that traverse multiple jurisdictions, each governed by intricate and differing regulations. Enter theme 4, offering a solution. Thanks to the progression of regulatory technology (reg tech), enterprises of all kinds can seamlessly bridge the gap between their business and regulatory requirements. This empowers companies to comprehensively understand and navigate the regulations they are subject to, in turn facilitating the orchestration efforts of hub companies when spanning various jurisdictions and regulatory frameworks that might otherwise complicate the ease of collaboration with network constituents.

Fundamentally, the integration of law tech by hub firms operating within a business ecosystem context serves as a means to facilitate the orchestration of their interactions with ecosystem members bound by legal agreements and potentially affected by diverse regulations. Given the

diverse nature of the network, central firms are inclined to establish a network of law tech providers, leveraging heightened efficiency and transparency across these multifaceted connections, as evidenced in interviews (theme 3) and industry reports (e.g., 2022 legal trends report by Gartner). Crafting such a law tech provider network empowers the proficient handling of legal and regulatory prerequisites inherent in various segments of the ecosystem, such as with suppliers, financial entities, partners, and regulatory compliance. In this representation, law tech players (especially legal tech in the contract space) assume a role positioned between the hub company and other constituents within its business ecosystem. This positioning facilitates efficient orchestration by the central player while concurrently nurturing collaboration with peripheral members.

Model 2: The diffusion of law tech providers supports the proliferation of Start-ups

Within the entrepreneurial ecosystem literature, a well-established concept underscores the paramount importance of interactions among diverse attributes and actors, particularly the role played by specific entities as supporters of the ecosystem. This dynamic creates the fertile ground for an ecosystem to emerge and thrive by providing vital resources to new ventures that would otherwise be inaccessible (*Spigel, 2017*). Theme 5 seamlessly aligns with this perspective, as the involvement of legal tech and reg tech enables small enterprises to effectively sustain their growth by granting access to legal services that were previously out of reach due to being unaffordable or simply unavailable. Let's delve deeper into this notion.

In the literature on entrepreneurial ecosystems, it is commonly known that the emergence and subsistence of an entrepreneurial ecosystem is further fostered by the presence of specific supporting actors who operate over various aspects of the ecosystem. These actors contribute valuable services and capabilities to the network, and among them, law firms and practitioners occupy a critical niche as supporting actors in areas essential for entrepreneurial endeavours (Wurth et al., 2022; Van Rijnsoever, 2020; Spigel, 2017; Auerswald, 2015; Mason & Brown, 2014). However, as interviews have revealed, the services provided by these legal entities have not always been accessible to small and medium-sized enterprises (SMEs), often due to their exorbitant costs or lack of alignment with the unique needs of such businesses. This has given rise to a notable unmet demand for legal services among SMEs, as also highlighted by the Access to Justice report of Lawtech UK in 2023.

As outlined in Theme 5, the integration of legal services with technology, or law tech, effectively establishes a novel supporting player within the ecosystem. This participant serves to assist small firms in achieving their growth objectives by addressing legal requirements that were previously unmet within the market. This fusion of technological innovation and legal expertise generates an unprecedented means of support for small enterprises, delivering affordability and simplicity in a manner that was previously unattainable. Unlike some contexts where the ascent of law tech, particularly legal tech, may lead to the partial displacement of traditional legal practitioners, in the realm of small businesses law tech has carved out a new market segment that was previously unattended. As an added layer of support, it's worth noting that informants have also highlighted the traditional tendency of start-ups to overlook legal necessities during initial growth stages. This oversight can later pose challenges as these companies expand, often because critical aspects associated with the company evolution, such as shareholder agreements, regulatory compliance, NDAs, employment agreements, and compliance to all regulations were neglected. In the context of regulatory compliance, Theme 4 elucidates how reg tech services enhance the accessibility of regulatory comprehension. This enhancement proves advantageous for small businesses undergoing growth phases. Start-ups now possess a streamlined means of managing regulations while reducing reliance on legal professionals, a factor that often entails significant costs. In many cases, start-ups are either unaware of or neglect their regulatory obligations, which could subsequently result in complications. Law tech is transforming this approach by making all these essential services easily accessible at the click of a button and at a reasonable cost.

Drawing on concepts from the entrepreneurial ecosystem literature, law tech providers are effectively embodying the role of intermediate (i.e., not exercising a central orchestrating function) supportive players, significantly enhancing the availability of legal services for small enterprises—a key factor in fostering their business growth. In this capacity, they bridge the gap between the legal and regulatory layers and the unique needs of small businesses, thereby contributing to their thriving.

In recent discussions within the entrepreneurial ecosystem literature, there has been a notable shift of focus towards a specific pivotal characteristic essential for nurturing a thriving entrepreneurial ecosystem: the availability of and connections within a financial support network

(van Rijnsoever, 2022). The interconnection with such networks, encompassing venture capitalists, business angels, and other capital providers, has been thoroughly examined by studying the role of "entrepreneurial support organizations" (ESOs), also referred to as "intermediaries" (Hallen et al., 2020; Bergman & McMullen, 2022; van Rijnsoever, 2020, 2022; Goswami et al., 2018). These ESOs include entities like incubators, accelerators, technology transfer offices, and coworking facilities, which play a pivotal role in facilitating entrepreneurial endeavours by linking entrepreneurs with capital (van Rijnsoever, 2022, 2020; Bergman & McMullen, 2022; Wurth et al., 2022). ESOs are instrumental in establishing and strengthening the ties between start-ups and the financial support network. However, as the trajectory advances, law tech, by mostly positioning itself in between the capital (investors) and the capital requirements (firms), emerges to lend further assistance to start-ups aiming to secure funding. It addresses the legal requisites crucial to transforming these connections into tangible investments. Theme 6 elucidates two key contributions of legal tech in this realm.

Firstly, the adoption of legal tech tools holds the potential to diminish the opaqueness of information existing between potential investors and small firms. For instance, it eases the complexities of legal (other than financial, and tax) due diligence, rendering the contractual landscape of start-ups more transparent to potential investors. This digital accessibility to a start-up's contractual status is also valuable to larger companies considering partnerships or acquisitions, enabling start-ups to engage in the "grow and sell game". These positive impact of enhanced transparency in reducing the transaction costs (*Williamson, 1979*) of the investment facilitates its realization. Start-ups can then more easily seize opportunities coming from the so-called "financial support network" in raising financing, since their transparency in increased in the eyes of investors.

Secondly, law tech's substantial contribution lies in the early-stage fundraising process for fledgling companies. In particular, legal tech intermediaries, exemplified by companies like SeedLegals, offer ways that enable entrepreneurs to independently navigate the documentation and legal procedures required for funding rounds. This streamlined process extends to managing cap tables, drafting shareholder agreements, and related documents. It effectively "connects the capital with the capital requirements," as emphasized by one informant, simplifying the legal aspects of transactions. This contribution has the potential to remove crucial legal barriers for

entrepreneurs seeking capital. Notably, Theme 6 also underscores the role of reg tech in supporting young firms' access to financing. These services particularly aid crowdfunding platforms and various fintech services in enhancing onboarding procedures to address compliance hurdles, thus facilitating SMEs' access to financial services. This heightened accessibility to financing, facilitated by reg tech integrated with fintech services, might call for further exploration within the literature examining the repercussions of financial inclusion on economic development (Levine, 2005). Ultimately, given that funding forms a pivotal moment in the growth trajectory of small enterprises, the contribution of law tech stands as a supportive actor, significantly enhancing the growth of start-ups (and SMEs overall) by directly or indirectly aiding them in the multifaceted landscape of fundraising.

In conclusion, Themes 5, 6 and 4, when viewed through the lens of the entrepreneurial ecosystem, underscore how law tech providers, acting as supportive players within the ecosystem, while not exercising any orchestration or personal-interconnection function, offer significant contributions to small companies, especially start-ups. Law tech enables these companies to access critical legal services that are essential for their growth, services that were previously inaccessible and often overlooked. Additionally, law tech reinforces the linkage between capital and capital requirements by simplifying the materialization of the connection between the financial support network and entrepreneurs' capital needs.

Model 3: Law (reg) tech can remove regulatory hurdles to boost data-driven innovation

Theme 7 introduces a promising trajectory for regulatory technology (reg tech), offering services designed to tackle not only regulatory obstacles but also other challenges hindering the sharing and utilization of data for innovation. As we delve into the realm of fostering innovative outcomes, we turn to the perspective of innovation ecosystems to comprehend the role that reg tech can play in this arena.

Innovation ecosystems are collaborative arrangements of various players that combine their individual offerings towards innovation-driven goals (*Adner, 2006*), all while navigating the inherent uncertainties that are typical of innovative creation (*Dattéè et al., 2018; Aarikka-Stenroo & Ritala, 2017*). Scholars primarily emphasize the interactions among ecosystem participants

since insufficient cooperation often leads to innovation's failure, as it cannot be successfully achieved by firms in isolation (*Jacobides et al., 2018; Adner & Kapoor, 2010; Adner, 2006*).

In today's digital era, innovation thrives on the effective utilization of data. Consequently, shared data usage has become a pivotal factor for collaborative innovation efforts by multiple firms. However, this collaborative use of data often faces challenges:

1) Concerns about breaching regulations, such as data inaccessibility due to privacy regulations (e.g., medical data protected for privacy, Chat-GPT's ban by the Italian regulator in early 2023) and cross-jurisdictional barriers that impede the flow of certain data across borders (e.g., stringent policies in India and the Middle East regarding cross-border data outflows).

2) Self-interest of individual organizations unwilling to share their data entirely, as they seek to protect sensitive information they view as advantageous for their competitive edge.

3) Concerns related to cybersecurity breaches; allowing others access to data may lead to unauthorized intrusions through the channels used by ecosystem members to access data.

This is where reg tech steps into the picture, exemplified by solutions like the one proposed by RegulAItion (refer to Theme 7 in the Findings chapter). Through such regulatory technology, various ecosystem constituents can access each other's data without direct access but by extracting relevant insights. This innovative solution has the potential to eliminate regulatory barriers and significantly reduce cybersecurity risks. An algorithm empowers a consortium of collaborating entities, focusing on a specific innovative use case, to navigate through all data within their respective entities and jurisdictions. This allows them to compare aggregated ecosystem data with their own internal ones, effectively eliminating previously mentioned regulatory obstacles and other perceived risks that hinder collective data-driven innovation among companies. This breakthrough has the potential to enhance collaboration by addressing these challenges, particularly by removing regulatory barriers and reducing cybersecurity risks.

As a result, it can increase the overall commitment within the innovation ecosystem, accelerating the innovation process by providing improved data accessibility to all participants. This heightened accessibility in the context of data utilization, being data the asset upon which our digital era is based, can reduce some uncertainties about their use.

From this perspective, reg tech solutions in the realm of data usage can position themselves as connectors that overcome specific data-sharing obstacles and serve as facilitators for collaborative commitment among entities striving to yield innovative outcomes—a fundamental requirement within innovation ecosystems (Jacobides et al., 2018; Adner & Kapoor, 2010; Adner, 2006).

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7. Conclusion

This thesis endeavours to explore the roles that emerging firms at the intersection of law and technology (legal tech and reg tech) can assume within ecosystems, along with the broader implications of their presence. The qualitative field study has yielded several contributions, which are analysed in conjunction with pertinent literature on ecosystems.

In the context of business ecosystems, characterized by a central hub firm, the introduction of law tech players (prompted by the hub firm) equips the central player with enhanced capabilities in managing the legal and regulatory aspects inherent to its relationships with ecosystem members. Law tech, in this scenario, assumes a supportive role between the hub firm and other ecosystem constituents, streamlining the orchestration efforts of the central player while fostering collaboration with peripheral members. These findings suggest avenues for future research, such as investigating the dynamics by which hub firms integrate law tech players into the ecosystem (e.g., establishing common tools among members), or exploring how the presence of law tech influences the inclusion of new members from various previously restrictive jurisdictions.

Within entrepreneurial ecosystems, law tech providers serve as supportive entities, offering valuable assistance to small businesses, particularly start-ups. While not involved in orchestration or personal connections, law tech contributes significantly by granting these companies access to crucial legal services vital for their growth, services that were previously inaccessible and often overlooked. Furthermore, law tech enhances the connection between capital and capital requirements, simplifying the conversion of financial support network connections into

investments that meet entrepreneurs' capital needs. Further research opportunities lie in delving deeper into this correlation, examining how law tech adoption impacts the flourishing of start-ups in entrepreneurial ecosystems where law tech is already prevalent (e.g., London, Singapore), compared to ecosystems where such adoption is yet to occur, or analysing a potential integration between ESOs and law tech alongside the benefits that they can create for entrepreneurial ventures.

In the context of innovation ecosystems, reg tech solutions in the domain of data usage can serve as bridges that overcome specific data-sharing challenges and act as facilitators for collaborative commitment among entities striving to achieve innovative outcomes, a fundamental necessity within innovation ecosystems. This calls for comparative studies of innovative initiatives utilizing these instruments and those that do not, with the aim of identifying dynamics that the presence of such instruments can generate in relation to collective innovation.

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8. Limitations

This work comes with certain limitations that are important to acknowledge. During the data collection phase, a decision was made to proceed with the interviews exclusively in the UK. While this approach facilitated the acquisition of insights more efficiently within a well-developed context, it also restricted the pool of informants to a single geographical area, temporarily precluding the possibility of cross-country comparisons.

Furthermore, although the number of interviews conducted was adequate for gathering reliable insights, it did not reach a point of saturation in terms of responses from participants. This suggests the need for subsequent data collection efforts to validate and further enrich the findings presented in this thesis

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Annex 1: Articles for Literature Review

Category	Title	Authors	Year
Entrepreneurial Ecos.	Toward an entrepreneurial ecosystem research program	Wurth, B., Stam, E., & Spigel, B.	2022
Entrepreneurial Ecos.	Intermediaries for the greater good: how entrepreneurial support organitazions can embed constrained sustainable development startups in entrepreneurial ecosystems	Frank J. van Rijnsoever	2022
Entrepreneurial Ecos.	A framework and databases for measuring entrepreneurial ecosystems	Johnson E., Hemmatian I., Lanahan L., Joshi A. M.	2022
Entrepreneurial Ecos.	Planned Luck: How Incubators Can Facilitate Serendipity for Nascent Entrepreneurs Through Fostering Network Embeddedness	Busch, C., & Barkema, H.	2022
Entrepreneurial Ecos.	Helping Entrepreneurs Help Themselves: A Review and Relational Research Agenda on Entrepreneurial Support Organizations	Bergman, B. J., & McMullen, J. S.	2022
Platform Ecos.	Managing Multi-Sided Platforms: Platform Origins and Go-to-Market Strategy	Teece, D. J., Pundziene, A., Heaton, S., & Vadi, M.	2022
Innovation Ecos.	The evolution of cooperation in the face of conflict: evidence from the innovation ecosystem for mobile telecom standards development	Jones S. L., Leiponen A., Vasudeva G.	2021
Platform Ecos.	Competing in digital markets: A platform-based perspective	Cennamo, C.	2021
Innovation Ecos.	Successful scaling in social franchising: the case of Impact Hub	Giudici, Combs, Cannatelli, Smith	2020
Entrepreneurial Ecos.	Meeting, mating, and intermediating: How incubators can overcome weak network problems in entrepreneurial ecosystems	van Rijnsoever, F. J.	2020
Ecosystems	Re-storying the Business, Innovation and Entrepreneurial Ecosystem Concepts: The Model-Narrative Review Method	Hakala, H., O'Shea, G., Farny, S., & Luoto, S.	2020
Entrepreneurial Ecos.	Entrepreneurial Workaround Practices in Severe Institutional Voids: Evidence From Kenya	Sydow, A., Cannatelli, B. L., Giudici, A., & Molteni, M.	2020
Innovation Ecos.	When many Davids collaborate with one Goliath: How inter-organizational networks (fail to) manage size differentials	Fortwengel, J., & Sydow, J.	2020
Entrepreneurial Ecos.	Do Accelerators Work? If So, How?	Benjamin L. Hallen, Susan L. Cohen, Christopher B. Bingham	2020
Innovation Ecos.	Innovation ecosystems: a conceptual review and new definition	Granstrand, O., & Holgersson, M.	2020
Innovation Ecos.	Open-system orchestration as a relational source of sensing capabilities: evidence from a venture association	Giudici, Reinmoeller, Ravasi	2018
Ecosystems	Towards a theory of ecosystems	Jacobides M., Cennamo C. & Annabelle G.	2018

Entrepreneurial Ecos.	Digital affordances, spatial affordances, and the genesis of entrepreneurial ecosystems	Autio, E., Nambisan, S., Thomas, L. D., & Wright, M.	2018
Entrepreneurial Ecos.	Accelerator expertise: Understanding the intermediary role of accelerators in the development of the Bangalore entrepreneurial ecosystem	Goswami, K., Mitchell, J. R., & Bhagavatula, S.	2018
Entrepreneurial Ecos.	Toward a process theory of entrepreneurial ecosystems	Spigel, B., & Harrison, R.	2018
Innovation Ecos.	Maneuvering in poor visibility: How firms play the ecosystem game when uncertainty is high	Dattéè, B., Alexy, O., & Autio, E.	2018
Ecosystems	Network management in the era of ecosystems: Systematic review and management framework.	Aarikka-Stenroos, L., & Ritala	2017
Business Ecos.	Ecosystem as structure: An actionable construct for strategy	Adner, R.	2017
Entrepreneurial Ecos.	The Relational Organization of Entrepreneurial Ecosystems	Spigel, B.	2017
Platform Ecos.	Networks, platforms, and strategy: Emerging views and next steps	McIntyre, D. P., & Srinivasan, A.	2017
Platform Ecos.	Pipelines, platforms and the new rules of strategy	Van Alstyne, M. W., Parker, G. G., & Choudary, S. P.	2016
Entrepreneurial Ecos.	Enabling Entrepreneurial Ecosystems	Auerswald P.	2015
Entrepreneurial Ecos.	Entrepreneurial Ecosystems and Growth Oriented Entrepreneurship	Mason P.C., & Brown D.R.	2014
Entrepreneurial Ecos.	Entrepreneurial Ecosystems Around the Globe and Early – Stage Company Growth Dynamics	World Economic Forum	2014
Innovation Ecos.	Value creation in innovation ecosystems: How the structure of technological interdependence affects firm performance in new technology generations	Adner, R., & Kapoor, R.	2010
Business Ecos.	The technological roadmap of Cisco's business ecosystem	Li, Y. R.	2009
Business Ecos.	Orchestrating Innovation Networks	Dharanaje, Parke	2006
Innovation Ecos.	Match your innovation strategy to your innovation ecosystem	Adner, R.	2006
Business Ecos.	Strategy as ecology	Iansiti, M., & Levien, R.	2004
Business Ecos.	Predators and prey: A new ecology of competition.	Moore, J. F.	1993

Annex 2: Industry Reports

Year	Author	Title
2023	Henchman	Legal Tech trends of 2023 by 8 experts
2023	UK Finance	Deriving value from the evolution of regtech 2.0
2023	Fintech magazine	RegTech is growing, but what's next for the sector?
2023	Thomson Reuters	Fintech, RegTech, and the role of compliance in 2023
2023	NetDocuments	23 LEGAL TECH INSIGHTS FOR 2023 — NEW REPORT WITH INPUT FROM INDUSTRY EXPERTS
2023	Verify 365	Legal Technology Boom: Global Expansion of Legal Tech Companies
2023	My Law.com	Legal Tech Investments Dropped in 2022—But the Number of Investors Spiked
2023	Altalex	Legal tech made in Italy: meno costituzioni ma giro d'affari raddoppiato grazie alla legal automation
2023	Research and Markets	RegTech Global Global Market Report 2023: Increases in Fraudulent Activities in the Financial Sector Boosts Adoption
2022	Gartner	Gartner - Top 2022 Legal Tech Predictions
2022	The Wolters Kluwer	Future Ready Lawyer - Leading change
2022	Law Ahead	10 Trends in the Legal Tech Sector for 2022
2022	Oxford business law blog	RegTech: What it is and why it matters
2022	The Cover	RegTech could support SME growth, but barriers remain
2022	Apiax	The ultimate RegTech guide
2022	Finextra	How RegTech powers SME financial inclusion in Southeast Asia
2022	KPMG	A user's guide to RegTech: navigating the challenges and what success looks like
2022	Deloitte	Open Innovation in RegTech
2022	Apperio	13 Legal tech statistics that summarize 2022 nicely
2022	Tresorit	10 Legal Technology Trends
2022	Business Wire	Reg Tech Global Market Report 2022
2021	Artificial Lawyer	Huge Opportunity For SME-Focused Legal Tech – Report
2021	Minerva	LEGAL SECTOR REPORT- DIGITALLY CONNECTING WITH CLIENTS
2021	The Law Society	Legaltech in 2021: an evolving landscape
2021	FCA	The future of regtech
2021	Deloitte	RegTech business cases 2021 - explore the tangible value of regtech solutions
2021	The Global City	2021: a critical year for regtech
2021	McKinsey & Company	Legal operations on a global scale
2021	Artificial Lawyer	The Evolution of APIs: From Nice to Have to Necessity in the Legal Industry
2021	Frontier	The contribution of lawtech to the UK economy
2020	Medium	The Best Legal Tech Tools to Help Entrepreneurs to Manage Legal Processes
2020	LegalTech Italia	Cos'è la RegTec
2019	EY	Regulatory Technology (RegTech)

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Annex 4: Interviews Questions

1 Main aspects in which law tech is establishing itself: most impactful services currently offered (not just to purely law firms), technologies it leverages

2 Where is the industry going: future trends (and obstacles). What stage are we at in the evolution of the sector? Which technologies are the most promising?

3 Categories of companies (beyond legal/financial ones) that could benefit from these services (which services in particular?). May these benefits affect their network of partners or companies they invest in?

4 Ways in which law tech could facilitate entrepreneurial and innovative activities, for example by solving some of the obstacles that characterize new businesses.

5 Types of start-ups/SMEs that could be benefited the most and how. Are there particular types of young firms that may be more (directly or indirectly) impacted?