



**THE ROLE OF INTELLECTUAL PROPERTY RIGHTS
IN THE DEVELOPMENT AND COMMERCIALIZATION
OF MOBILE APPLICATIONS**

2021

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1. INTRODUCTION AND SETTING THE SCENE

The average business develops approximately eight mobile applications ('apps') to support its business and customer experiences. App developers navigate the complex legal landscape to ensure their compliance with laws, including those related to consumer protection, privacy, advertising and intellectual property (IP). This training module demystifies the issues related to IP. It can serve as a reference for mobile app developers and publishers, including helping them to determine whether and when to seek professional legal advice. It walks the user through issues and strategies relevant to different points of the mobile app life cycle, including the conception, development, commercialization and enforcement phases.

The module explains how intellectual property rights (IPRs) might be used or acquired during each of the life-cycle phases. It follows a hypothetical free-to-play gaming app, one of the most popular categories of mobile app.

The steps taken to protect the competitive advantage of the app through IP and to protect against violations of the rights of others will be explored. Some of the legal frameworks surrounding these rights can vary by jurisdiction. These potential differences will be highlighted, in addition to relevant legal considerations not related to IP, where appropriate.

1.1 Mobile App Life Cycle Phases



The three phases of the life cycle of a mobile app are

1. Conception (including initiation and design) – all mobile apps begin with an idea. At this stage, developers determine their target audience, the overall functionality and whether their concept is unique. Technical requirements and

limitations are identified and investment may be secured. Developers may then move to the design stage, where the idea and functional specifications are given an actual design. Designing the user experience through its Graphic User Interface (GUI) to optimize its functionality, usability and adaptability at this early stage plays an important role in determining an app's potential success.

2. Development – at this stage, developers implement the design, choosing the appropriate programming language and optimal software architecture. Both code and architecture choices may have an impact on the resulting GUI features and may lead to design changes. The final and crucial part of this stage is app testing and debugging, with a view to eliminating any faults and bugs in the code.
3. Commercialization, monitoring and enforcement – after the app is built, it gets deployed and distributed. Apps are most commonly circulated through app stores. Each store uses different procedures and rules that developers must contend with to launch their app. These differences can have an impact on how app developers get paid, and the representations they need to make in relation to their application.

During the lifetime of the app, developers may monitor the activities of third parties and competitors to determine whether others are copying their app in some way and potentially stop or monetize those activities.

1.2 The App: The Supermarket Shopping Spree

As mentioned above, this training module goes through the various phases of a mobile app's life cycle and the significance and role of the different IPRs at each of these phases. The role and significance of IPRs throughout the app life cycle is illustrated by using hypothetical sets of scenarios that involve a hypothetical gaming app. As gaming apps are by far the most popular mobile apps in terms of both downloads and volume in app stores, and since such apps usually involve a plethora of IPRs, using a hypothetical gaming app to demonstrate the type of functions that IPRs may perform, may effectively demonstrate the type of practical considerations that mobile app developers may face, and therefore assist the reader in making informed decisions at strategic junctures during the life cycle.

Our developers met each other at college while studying computer science. They developed a mobile gaming app that is both easy to play and addictive. They even succeeded in attracting a small amount of investment from a local angel investor.

They came up with the idea of creating a supermarket grocery shopping gaming app. The general idea at the basis of the gaming app involves a shopper who strolls down the various aisles of a giant supermarket with a view to completing a shopping trip in the shortest amount of time and at the lowest possible cost. Each shopping trip is carried out in accordance with a brief that is given to the player at the beginning of each game. For example, 'Dinner Party for 6' – spending range \$50-\$70'. The player moves between the different aisles with a view to purchasing relevant items within the overall spending range. The greater the number of relevant items purchased within the prescribed spending range, the more points a player scores. Similarly, the quicker each trip is completed, the more points a player scores. There are various hazards and risks that a player may face and attempt to avoid during such shopping trips, and various weapons and perks they may unlock as performance enhancers while progressing through the various stages of the game. Such weapons and perks may also be purchased outright as in-app purchases. For this business venture (and, potentially, for future ones as well), the developers and the angel investor establish a business named 'Innovation'.

1.3 Gaming App Economies in A Nutshell

As mentioned above, our gaming app is based on a free-to-play model, like most gaming apps available in app stores. This means that players may have the game free of charge by downloading it and may experience it without any payment obligation. It is only after such an experience takes place that monetization options are introduced to the players. These options are ideally introduced at the 'right moments', which are the tension points of the game. Such tension points should not be introduced too early, as there is then a chance of losing the player altogether as they may migrate to another gaming app, and if they are introduced too late the player may have been already sufficiently satisfied by the game and leave without feeling obliged to make a payment in any form. Most free-to-play gaming apps are based on a dual currency mechanism: real currency and virtual currency. This is usually the case in order to offer the player spending flexibility. Ideally, there should be a good balance between players' spending options (i.e. perks purchased for either real or virtual currency) and earning options (i.e. perks earned through game actions and achievements). Finally, revenue may also be generated through in-app advertisements. Of course, the balance and weighting of each of these means of monetization may play a vital role in the success of a gaming app.



Proportion of free apps downloaded in comparison to paid apps

In the case of our Supermarket Shopping Spree (SSS) gaming app, all of the above-mentioned means of monetization are deployed in the game. For example, there are various performance enhancers that can be purchased at an intermediate level of the game. These usually take the form of conspicuous clothing items, such as berets, sunglasses, cowboy boots and so on. Each of these items empowers the player in different ways and sometimes give them additional ‘lives’ (the most obvious risk of losing one’s life is from being run over by an old lady with a supermarket trolley). SSS also has a system of earned perks based on hitting a certain score threshold, with the most valuable perks rewarded for the highest levels of the threshold being met. Such perks take the form of specific food items, such as a ‘magic pizza’, ‘scepter baguette’ and so on. It is very unlikely for a player to reach those highest thresholds and earn the respective perks without purchasing some of the monetized perks earlier. The internal balance and ‘logic’ of the game is therefore such that players will almost always find themselves obliged to make certain in-app purchases in order to progress beyond the game’s early stages. Finally, rewarded ads are usually displayed when a level of the game is completed. A rewarded ad is an advertisement where the player is rewarded for watching a video by being awarded extra lives. In return, the app developer is being rewarded by the advertiser on a cost-per-action basis (i.e. every time a player watches a video the developer is being paid by the advertiser).

1.4 Financing Your App: Challenges in Leveraging Your Intellectual Property to Secure Finance - A Brief Overview

Many large enterprises fund their applications through internal resource allocations alone. They can also obtain external funding more easily, as they usually have a bigger portfolio of tangible and intangible assets to offer as security.

Small business like Innovigation face greater challenges when securing funding. This is owing to several factors. One particular difficulty for small and medium-sized enterprises (SMEs) and micro businesses, especially in their early growth stages, is not only the lack of financial means, but also the lack of tangible assets that could serve as collateral and security for obtaining finance. Despite the increasing prevalence and importance of intangible assets, the finance system is still strongly focused on the economy around traditional tangible assets. As a result, while developing and launching an SSS may not require enormous financial resources, it may still prove challenging to raise the required capital until Innovigation starts seeing returns on this investment as a result of the commercial success of SSS. Unfortunately, Innovigation's ability to rely on some of the IP generated at the early development phase to raise the necessary capital is limited.

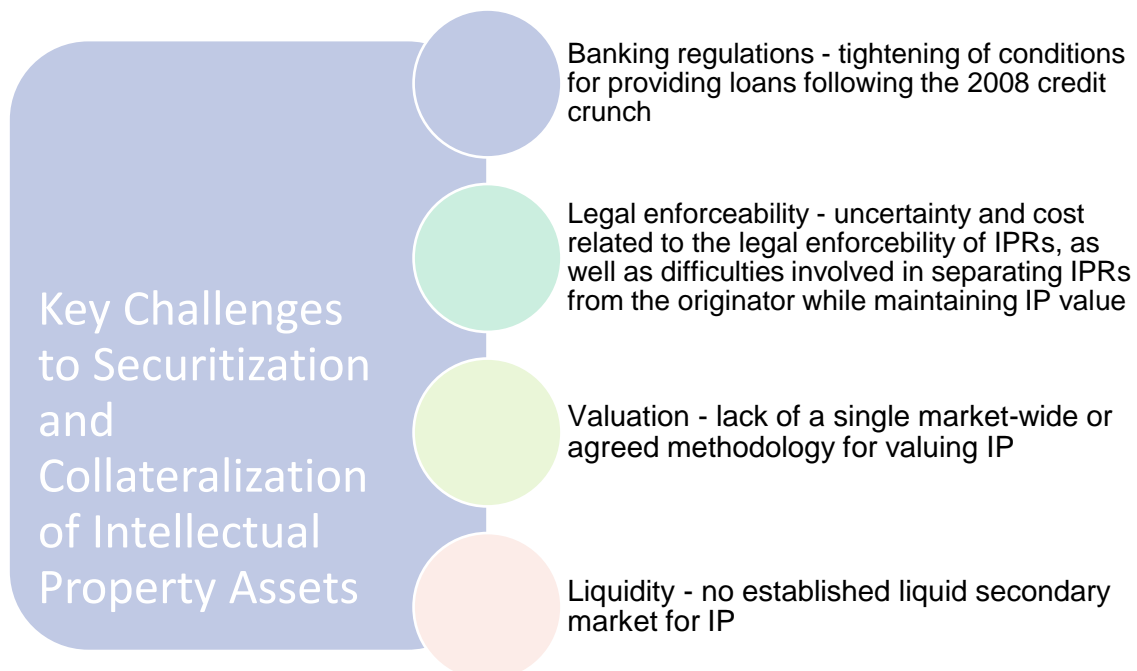
One of the trickiest aspects in this context is that the difficulty involved in IP valuation makes the returns riskier and more uncertain for lenders, as shall be discussed below. Inadequate financial resources in small businesses may also lead to a lower rate of IP asset registration, which in turn results in preventing them building an IP portfolio and decreases their chances of obtaining funding altogether. Recent observational studies found that young and innovative firms preferred to protect their intangible outputs through confidentiality agreements or secrecy, rather through the registration of IPRs. While the former is a fairly low-cost protection mechanism, it should be borne in mind that it offers little in the way of collateral to potential lenders. In the same vein, registered IPRs, such as patents and industrial designs, may involve larger upfront costs, but may prove more attractive as potential collateral. In addition, an IP portfolio with registered IPRs is likely to prove more popular with potential investors than mere confidentiality mechanisms.

IPRs can provide value beyond protecting an app itself. Some cash-strapped yet innovative businesses may leverage their IP assets to open up new funding channels, either by attracting investors or through licensing. However, in attempting to do so there a number of hurdles that are likely to stand in their way, as mentioned below. It may be helpful to have a cursory look at these main hurdles, to the extent that a small business seeking to build an IP portfolio may also have a look when considering both the potential and the difficulties involved in relying on such a portfolio to raise finance in the future.

1.4.1 Key Issues

Despite its potential for funding innovation, IP-based funding is widely believed to be under-exploited, especially by those fledgling SMEs and micro businesses that could benefit from it most. One of the key issues is that such new small businesses do not have the necessary financial resources to either back up securities or invest in their innovations in the first place, unless their owners are prepared to put forward their personal assets as collateral, to the extent that such assets are available. Access to IP-backed funding is limited, as potential revenues streams are difficult to estimate, placing a higher risk on the investor/lender. Moreover, access to IP-backed funding is already restricted by the very nature of the financial system. This is applicable to both debt and equity IP-backed finance.

IP registration costs and IP asset valuation are the first hurdle to overcome, requiring a substantial amount of expertise and, as a result, financial resources. With respect to the measurement and valuation of IP assets, although managers and financial analysts intuitively understand the importance of intangible assets to business success, there is a lack of knowledge about their economic attributes and how their value contributes to economic growth. The lack of available tools for assessing the return on investments in intangible assets is also problematic. At present, there is no international or harmonized standard on IP valuation.



1.4.2 Banking Regulations

The banking sector itself poses another significant barrier to the IP-based funding regime, in particular for access to it for SMEs and micro businesses. This is owing to banking regulations that are designed to regulate security interests for traditional assets, and to internal banking policies. The problem goes back to the global financial crisis of 2007, which ultimately led to a decline in the general availability of loans (or credit), coupled with the tightening of conditions required to take a loan, known as the credit crunch. Despite the initiatives of governments, the financial system still appears resistant to the dramatically increasing value of IP as a percentage of corporate value.

An obstacle for financial institutions themselves is that in order to collateralize an IP asset, they need to understand its function, its relationship with cash flows and its potential value if in isolation from the company. The complexity of these factors makes understanding them more difficult. Moreover, most financial institutions have not developed the necessary methods to streamline the assessment of IP assets, adding to the complexity of the issue. For example, while IP assets qualify as securities and potentially contribute to raising capital adequacy, banks often lack the experience to provide regulators with the necessary risk assessment to meet regulatory standards.

As a result, although IP is a valuable business asset that drives modern technological innovation and creativity, IP-backed debt finance is still underdeveloped in most jurisdictions around the world.

1.4.3 Legal Enforceability

The issue of the legal enforceability of IP security in cases of default also gives rise to uncertainty. Firstly, IP litigation is often very time-consuming and expensive, making it less attractive for either party to pursue. IP insurance can, in such circumstances, mitigate the costs and risks associated with expensive litigation, but it adds another administrative layer to the investment procedure. Moreover, the manner of separating IP from the firm that holds it may prove difficult as IP and other intangible assets are often embedded within the firm that developed them. While this might be more straightforward with registered IP, cases involving trade secrets are less so. If a clear-cut separation is either impossible or proves difficult, the ability of lenders to exercise claims on these assets may be challenging. This may render IP less attractive as a security because if a lender is unable to take possession of the asset and monetize it, they are unable to recover losses through the sale of IP.

1.4.4 Valuation

Research has shown that more than 80 per cent – and rising – of enterprise value can be attributed to intangible assets, proving their great importance to businesses. However, IP, as well as other intangible assets, remains difficult to value. This is particularly true for new technological endeavors that are still untested. For example, how could one assess the value of Innovigation's trademarks associated with SSS? It may therefore be difficult to establish a value for other intangible assets as their value is often context-specific, in that they may only be valuable within the firm where they were developed owing to the way that they interact with the firm's other assets and they may therefore not be as valuable outside that firm. The lack of a single market-wide or agreed methodology for valuing IP contributes to the valuation problem.

In terms of investment, the difficulty of valuing IP also contributes to the informational asymmetry between potential lenders and SMEs. As a result, lenders are faced with uncertainty over the value of IP and the amount that may be recovered in the event of default. Often SMEs do not even attempt to assess the value of their IP because of the costs, time and complexity associated with valuation.

1.4.5 Liquidity

At present, there is no established liquid secondary market for IP, making it difficult for both price discovery and asset disposal. When using IP as security, lenders risk becoming encumbered with an asset that they are unable to sell and that therefore has no immediate liquid cash value. Transactions involving intangible assets are infrequent and not publicly recorded.

1.4.6 Bottom Line: Innovigation's Intellectual Property Portfolio as an Asset

It would be highly desirable for Innovigation to be mindful of the challenging starting point it is likely to have, should it attempt to raise finance in the capital markets by relying on its intangible assets. IP rights that may prove valuable outside the specific context of Innovigation's activity are likely to prove more attractive to potential lenders. For example, utility patents in relation to the technology that underpins SSS tend to be most attractive in this context because such technology may prove valuable regardless of SSS and its potential commercial success, and patents covering such technology may thus be easier to obtain in the marketplace. This rationale also applies

to registered industrial designs, albeit to a lesser extent owing to the nature of the underlying subject matter. On the other hand, unregistered rights, such as copyright and trade secrets, while potentially valuable and effective in protecting against copying and appropriation by competitors, may be less attractive to lenders owing to the uncertainty in their nature and the lack of a presumption of validity associated with registered rights; moreover, their value appears to be linked to the commercial success of SSS. As a result, while it may be possible to rely on them at a later stage of the SSS life cycle in order to raise finance and following the commercial success of SSS, their usefulness to Innovigation as a collateral or security for raising capital at the early stages of the SSS life cycle is limited.

2. CONCEPTION

As mentioned above, the general idea of creating the mobile gaming app was conceived when our three developers were graduating from college. Rather than become employees for one of the large employers in the sector, they decided to establish their own business and work on mobile app development and, in particular, on developing the game, as discussed above. They then conducted market analysis, examining any potentially competing products. This was conducted in this case by simply yet thoroughly browsing the various app stores in order to try to identify mobile gaming apps that may be similar to their idea. At this stage, the exercise was being carried out to identify any competition and establish market space for their product rather than because of any underlying legal concerns. Once the developers were satisfied that their idea and theme for the game was different from what was available on the market, they decided to embark on the project and dedicate all of their available resources to it so that it could succeed. At this point, they mapped out the various features of the app; following that, they listed the technical requirements that could enable the app with said features, the timeline for development and completion and the anticipated costs. In other words, the road map for development, in terms of product features as well as costs and deadlines, was ideally set out at this stage.

It is time for our developers to turn their attention to legal protection even at this early stage. They should investigate ways to protect the idea they came up with, the features and functional specifications they developed on that basis, and the relevant detailed of the accompanying development plan. All of these elements should be considered assets at this point. These rights may help Innovigation to protect and maintain a competitive advantage against third parties who may want to copy their app. These assets could lead to blocking their potential competitors or building additional revenue streams for the company.

When developing IP assets, Innovigation should play close attention to ownership. Will the business or the developers as individuals own what is being created? If the company works with contractors, will the arrangements made with these third parties ensure that Innovigation owns their app and everything within it? How will Innovigation prevent their employees from taking what they developed into a new endeavor? As we shall see, the most effective manner of protecting both the idea and the functional specifications of the app at this early stage of the development cycle is through trade secrecy, and to a lesser extent, copyright law.

2.1 Due Diligence in Relation to Pre-Existing Intellectual Property Rights in Earlier Products, Services or Processes

Using another firm's IPRs without permission, even unintentionally, can have serious consequences for mobile app developers. When the owners of the IPRs discover the use, they may demand payment or require you to pull the application off the market. As a result, in addition to protecting its own development, SSS should ensure its app does not use a third party's IP beyond any permissions that have been granted by its owner. App developers should consider more than just earlier mobile apps when developing this analysis. Certain names, looks, feels and functionalities may also involve these rights, as described below.

2.1.1 Trademarks

In the case of SSS and its overall theme, Innovigation should place particular emphasis on conducting due diligence in relation to the use of existing trademarks within the mobile app. Firstly, it should be ascertained that 'Supermarket Shopping Spree' or a similar trademark is not already registered as a trademark in jurisdictions Innovigation considers key for marketing SSS; an IP lawyer may conduct such a search for Innovigation. Next, particular care should be taken concerning the use in the virtual SSS sphere of trademarks registered in relation to goods and services in the real world. For example, Innovigation should ideally refrain from naming the supermarket in SSS after an existing supermarket chain. Similarly, the use of existing brand names for the products placed on the shelves in the supermarket is best avoided. Products may instead be referred to in generic terms, such as 'organic butter', or through references to 'made-up' brand names that Innovigation may create for the purpose of SSS, such as 'Jolly Farm organic butter'. While the legal position regarding the use in a virtual sphere of trademarks registered in relation to products or services in the 'real' world is not entirely clear and may vary from one jurisdiction to another, the aforementioned approach is likely to prove prudent in safeguarding Innovigation against potential allegations of trademark infringement in some of the jurisdictions in which SSS will be available.

2.1.2 Copyright

Knowing the origin of all aspects of an app's code is crucial to understanding how it can be deployed and how it can ultimately affect its ownership. To save time, developers build their projects using code from others, rather than reinventing an app from scratch. This approach can save significant development time and can result in

a more robust product. However, code developed by third parties sometimes comes with obligations on how it may be used and may have an impact on the proprietary nature of an app's code.

Many apps incorporate open source (OS) code, since they can use it for “free”. However, the licenses under which OS is offered may require the user to publicly share their code or trigger other liabilities. This obligation may vary depending on how the OS is incorporated into the codebase. Before using OS, app developers should evaluate the compatibility of any requirements with their deployment strategy.

Innovation should therefore have a clear policy on the acceptable use of OS code for its developers. Using OS code released under certain types of licenses may clash with a proprietary business model deployed by Innovation. Policies regarding OS should address potential uses of the code. For example, using a code snippet may result in different obligations than using a library.

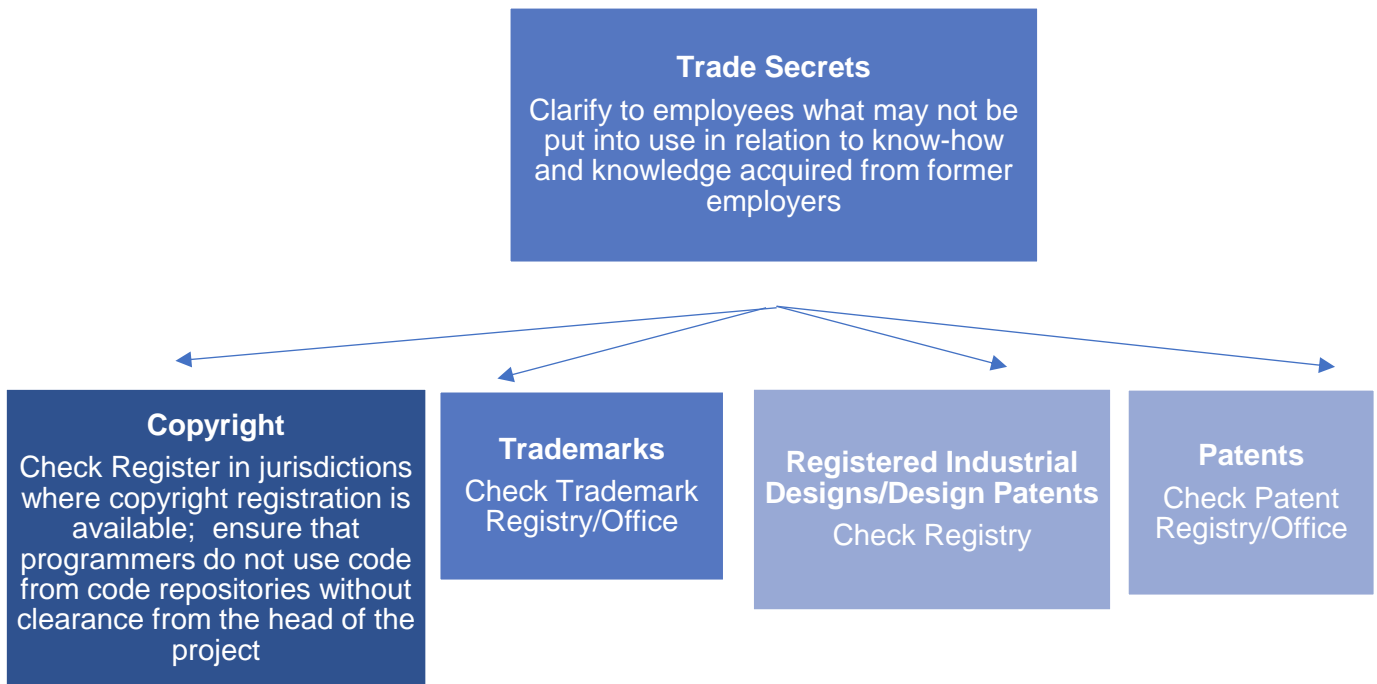
Apart from code, as is the case in relation to trademarks, it is important to ensure that SSS does not import into the virtual world works protected by copyright in the real world (e.g. a depiction of a real-world statue in a virtual app experience), unless clearance for such use has been obtained.

2.1.3 Registered Designs and Design Patents

Similar to the case of trademarks and copyright, it is desirable for Innovation to ascertain that the user interface in SSS does not violate any existing design rights, registered in relation to pre-existing user interfaces in one of the key jurisdictions. Moreover, care should be taken regarding the virtual use of protected designs. Unlike trademarks, the monopoly granted under registered design regimes is quite often vague in terms of goods or services. As a result, once a registered design right is granted, protection may be available regardless of the goods or services in relation to which the alleged defendant has been using the protected design. For example, if a registered design right has been granted in relation to the shape and decoration of the packaging of a specific foodstuff, the use of that packaging in a virtual sense on the virtual shelves of the supermarket in SSS may lead to a violation of the registered design right. It would therefore be advisable for Innovation to refrain from using protected designs altogether.

2.1.4 Patents

Utility patents might protect a functionality included in the app or a process it uses or monetizes. Although fairly unlikely in the case of SSS, Innovigation should check whether SSS uses any patented technology. If it does, Innovigation can decide whether to get a license from the patent’s owner, usually in return for a licensing fee, or to design around it. Patents are only effective in the countries or regions where the owners pay to protect their invention. If Innovigation finds a patent, it may not be an obstacle depending on the markets where SSS is offered.



Due diligence of pre-existing IPRs: identifying and addressing potential obstacles at the start of the process

2.2 Specifications: Underlying Idea, Features and Functionalities

As mentioned above, one of the earlier phases in the development process consists of the development team clearly defining the underlying idea of the app, the features it may contain and the key functionalities it will possess. The admittedly brief description above gives us some general information about the idea behind SSS and

some of the features that it may have. To the extent possible, key functionalities should also be identified in relation to the intuitiveness and usability of SSS. This may be captured in case diagrams, providing graphical representations of interactions between the player and the system. Data flow diagrams are also likely to be used when representing the flow of data in the relevant processes, thereby helping to determine the functionalities of the development project. This may also assist with writing the technical specifications, the latter being designed to ensure that the functional specifications could be achieved and implemented successfully within the target system.

As this point in time, the above-mentioned documentation, as well as the ideas, concepts and processes embedded in it, as well as some of those discussed more broadly within the development team and with employees, are likely to be the project's most valuable assets. This may also include information about the monetization strategy, as explained above. These assets will henceforth be referred to as 'the information'.

2.2.1 Trade Secrecy and Confidentiality

Trade secrets are any business information that

1. Is of commercial value;
2. Is generally not known to the public; or
3. Has been subject to reasonable steps to keep it secret and confidential.

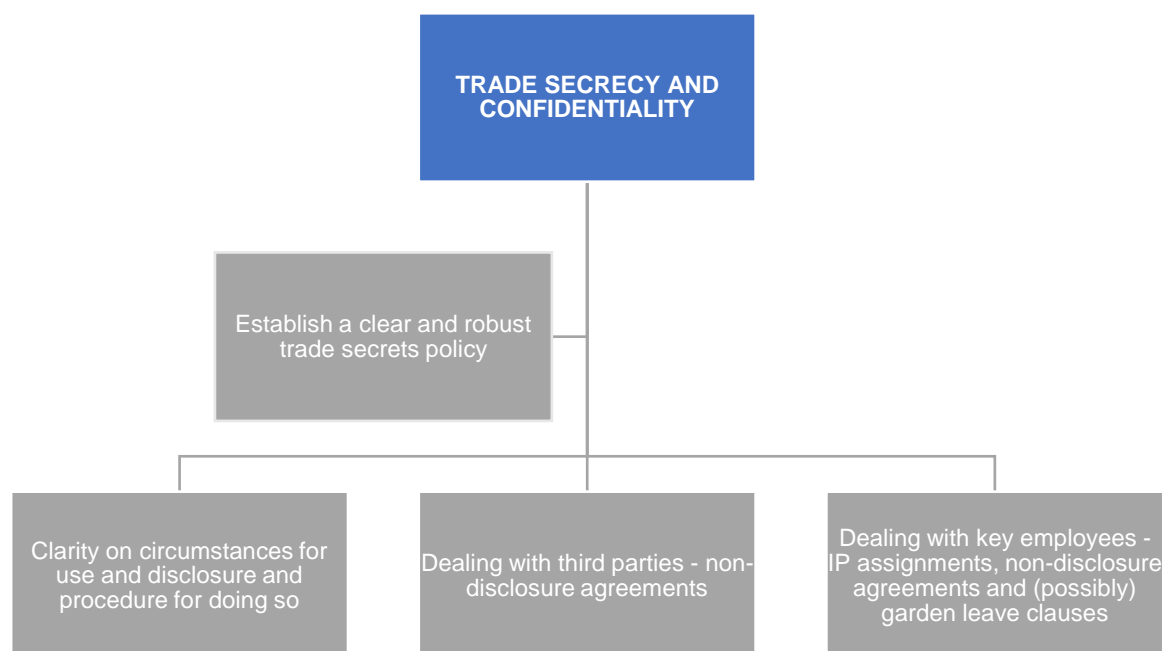
As we may see, those early valuable assets identified above clearly meet the conditions listed in points (1) and (2). It goes without saying that the underlying idea, the features, and the functional and technical specifications are of commercial value. They represent the core of the project and, should they become available to the wider public, may be used by competitors who may wish to either introduce a similar product or preempt the launch of SSS for a variety of reasons. It is therefore also safe to assume that the information is not generally known to the public as it was conceived, devised and included in the aforementioned documentation by the development team and was not public knowledge. It should be noted that the category of information that may amount to trade secrets is extremely wide. It is noteworthy that such information does not have to be particularly innovative or inventive, or the result of a costly exercise.

It is condition (3) that may often prove most challenging when the necessary steps were not taken by the parties involved when setting up relationships within the team. Quite often relationships are formed on a colloquial basis between friends, former

colleagues, family members and so on. Furthermore, the technology and, in particular, the start-up scene is often characterized by a culture of openness and sharing which, generally speaking, is to be commended. However, it is crucial at this stage, especially in the case of a micro business whose real value lies in its intellectual assets, for a trade secrecy policy to be taken into consideration.

Trade secrecy does not protect the documentation as such or the manner in which the information is represented in it. Rather, it protects the information included in this documentation, as well as any information that was disclosed within the development team for the purpose of furthering the objectives of the project. This is an important distinction because, unlike other branches of IP law, for trade secrecy law to be successfully used, it is not necessary to show that the said documentation was copied or removed from one company and used in another. It is sufficient to establish that a person privy to information disclosed in confidence, whether in the aforementioned documentation, team meetings, e-mails or by other means, disclosed that information to third parties for purposes other than the ones for which the information was disclosed to that person.

So how does a business guarantee that its trade secrets will be protected? Firstly, it is important to consider the establishment of a clear trade secrets policy, even for a micro business. The costs involved in doing so are not likely to prove prohibitive and the advantages may be significant in the case of future disputes with members of the development team, employees or even third parties that may have been involved in a specific aspect of development. In establishing such a policy, our developers may consider the following.



2.2.2 Establishing a Trade Secrecy Policy

It is important to identify the types of confidential information that can have an impact on the value of a company and its offerings. As explained above, this may include the detailed idea underlying the app, its features, technical functionalities, monetization strategy and the balance between the various elements within the strategy.

It is necessary to define the circumstances when this information is to be used and potentially disclosed, both internally and to third parties. This can be used to establish when actions were taken outside the policy in the case of a dispute. To be effective, the policy needs to be part of a company's operational culture. It may be helpful to provide a reference policy in a non-disclosure clause in the employment agreement or to describe specific situations when a non-disclosure agreement (NDA) should be used. Violations of the policy should also be included.

Active measures, where possible, must be taken to restrict access to the identified trade secrets to relevant persons only. If the information is widely accessible in a company by individuals who do not need it to perform their job, then it will be harder to enforce protection. Such restricted access levels may often be implemented by granting different access rights to different persons on Innovation's computer system. Similarly, attendance in meetings where the issues pertaining to Innovation's trade secrets are discussed may also be restricted on a need-to-participate basis.

Innovation should help and encourage the small team working on the project to identify trade secrets in their interactions with one another, as well as with external third parties. For example, in both paper and digital communications, our SSS team may become accustomed to using the term 'confidential' when discussing and disclosing issues relating to Innovation's trade secrets.

2.2.3 Dealings with Third Parties – Non-Disclosure Agreements

Mobile app developers often need to deal with third parties, where confidential information must be provided to accomplish the project's objectives. For example, in the preliminary stages of the conception of SSS, it may be necessary to involve and consult external designers, programmers or even financial advisers. When making these disclosures, consider putting in place an NDA and only sharing the information strictly necessary for the performance and the function of the third party in order to protect the trade secret.

The legal framework governing the nature and scope of non-disclosure agreements can vary by country. Engaging a local legal expert to develop an agreement can be helpful in securing adequate protection. Quite often templates for such basic agreements are available at no cost or very little cost from various sources, online or otherwise, and can be customized by Innovigation according to its need. In general, NDAs usually include the effective start date, the timeframe, a definition and description of the confidential information with as many specificities as possible, as well as the purpose for which the information is disclosed, and the outcome of breaking or the likelihood of breaking the clause, where the sanctions that may be sought by Innovigation are stipulated in case of a breach of the agreement.

2.2.4 Dealings with Employees

A company's policy on confidential information should be explained to employees in the very early stages of their employment. In our case, it is important that the founding members of Innovigation first agree between themselves on the policy and express their consent to it in writing. In the early days of a company, the policy might be detailed in an e-mail and later enshrined in a formal agreement as the venture becomes more established.

Expectations related to confidential information should be explained and preferably incorporated into the employment contract. The company's policy is often included as an annex to its employment agreements. Requirements can vary by country, so a local legal expert may provide advice on the preferred format. Most jurisdictions will require employees to keep a company's trade secrets confidential during and after the employment period. Once an employee leaves and begins to work for a competitor, it becomes difficult to determine whether confidential information is used with the new employer. Sometimes employment contracts include a non-compete clause, prohibiting the employee from working for a competitor for a certain period of time for this reason. The enforceability of these clauses varies considerably by jurisdiction. Where they are permissible, their scope must usually be restricted in terms of time, geographical territory and industry or sector. In certain jurisdictions, restrictions on future employability are not enforceable per se, unless accompanied by payment. These clauses may be particularly useful for key employees that had access to a company's crown jewels in terms of its underlying technology, know-how, associated plans and strategy. A local legal expert can provide guidance on what is allowed where a company operates.

It is also advisable to ensure that such employment agreements provide that the employee assigns to Innovigation all IPRs resulting from the employment relationship

and during the employment period. In some countries, employers may be required to provide additional compensation to employees when IP is created.

2.2.5 The Limitations of Trade Secret Protection

It should be stressed that unlike patents, to give one example, trade secrets do not provide a legal monopoly. That is, they are not effective against independent development and cannot, as such, bar reverse engineering. It follows that the protection of trade secrets may be effective against “free riders” that seek to appropriate the assets as developed by the SSS development team, but not against an independent developer that may come up with similar ideas, concepts, features and functionalities. Similarly, it will not be effective against a development team that acquires the gaming app post-launch, studies it and manages to extract from it some of the underlying assets discussed above. This, however, may be different in the case of a valid and enforceable contractual term that prohibits reverse engineering. This will be discussed in further detail below, under the sections on commercialization and enforcement. Finally, most jurisdictions around the world do not treat trade secrets as an IPR per se, and trade secrecy is therefore not effective against the ‘whole world’ as IPRs are. For example, if a party was to come by Innovigation’s trade secrets in circumstances that may not give rise to any suspicion in that regard (i.e. the third party acquired the trade secret(s) in ‘good faith’), the remedies and options available for Innovigation will be more limited than in the case of IPRs under similar circumstances.

2.2.6 Copyright

Copyright law does not involve any formalities and no active steps need to be taken for a work to be eligible for copyright protection. Some jurisdictions allow for copyright registration (e.g. Kenya, the United States of America), but eligibility is not conditional on such registration, even though the latter may offer some advantages in terms of establishing a public record of the copyright holder’s entitlement and the availability of some remedies. As ever, advice should be sought from a local legal expert. In any event, eligibility for copyright protection arises automatically upon the creation of the copyright work so no upfront costs are involved. Even if copyright registration is sought, costs are usually manageable. For example, in Kenya the registration fee at present is 1000 Kenyan shillings per work (equal to 9.20 United States dollars).

It is always desirable, whether or not copyright registration is sought, to have a clearly documented ‘paper trail’ of the process that gave rise to the relevant copyrighted work. This may prove highly important in the future, in the event of a dispute, in order to

establish ownership of a work (the author/creator is usually the first owner, subject to employment relationship exceptions in some jurisdictions) and the date on which the work was created. The former may be useful in the case of a lawsuit against an alleged infringer in order to establish title and thus the right to bring an action, while the latter may be useful in fending off a lawsuit for copyright infringement by establishing the manner and point of time in which the work was created, therefore demonstrating its independent and potentially earlier creation.

It is important to stress at the outset that protection under copyright law extends to expressions and not to ideas, procedures, methods of operation or mathematical concepts. For our purposes, the latter group of exclusions from copyright protection may also include features (in their abstract form) and functionalities. It is a key pillar of copyright law that it may not protect ideas but only the expression of ideas. As a result, divorced from their form of expression, it is likely that many of Innovation's above-mentioned assets may fall onto the 'idea' side of the 'idea-expression' divide.

In essence, this means that Innovation must be prudent in its reliance on copyright law at this early stage. The idea for the mobile gaming app, the objective to be achieved by the players and the different stages of the game, as well as the perks and hazards the players may encounter, on their own are not 'copyrightable', as such; they are likely to be categorized as ideas and be considered non-copyrightable subject matter. Most jurisdictions may provide copyright protection to a combination of all these elements, so that if most, if not all, of those ideas and concepts, together, are copied by a third party Innovation may be able to successfully claim copyright infringement in relation to the copying of the structure and organization of these elements. It is strongly suggested that companies do not place much reliance on such forms of protection at these early stages, and focus instead on trade secrecy. Firstly, its scope is highly dependent on the jurisdiction in question and the outcome may vary from one jurisdiction to another. Secondly, and equally important, it is extremely case-specific. In any event, advice should be sought from a local legal expert if there is any doubt.

It follows that ideas and plans discussed in meetings and, subject to the above, embodied in the relevant documentation, such as case diagrams, data flow diagrams and e-mail correspondence, are not protected under copyright law as such. However, copying the expression itself, for example by reproducing the said diagrams, is likely to lead to copyright infringement. This is because such documents are likely to be considered 'literary' works under copyright law and their 'reproduction' (i.e. copying) is likely to result in copyright infringement.

If an ex-employee takes some documentation with them upon departure, the copyright of these documents would be infringed and the underlying trade secrets may be

violated. Importantly, copyright protection will not protect a company if an ex-employee reused the ideas while employed.

2.3 Preliminary Design Documents

This category of 'assets' includes some of the documentation mentioned above. As a result, case diagrams and data flow diagrams may be regarded as preliminary design documents and the most effective manner for Innovigation to safeguard them against copying are trade secret protection and copyright law.

Apart from this documentation, and prior to the actual coding process, Innovigation and the SSS development team are likely to commence the actual process of designing the app itself. At the center of this design exercise would be the SSS development team's plans for both the user experience and the user interface. While the two concepts are interrelated, they are not the same.

In short, the user experience is all about the functionality and usability of the gaming app. It is about ensuring that SSS would work as intended on the target platform; for example, ascertaining that SSS would function with all its features and intended functionalities on the relevant operating system. This is usually implemented by wireframes and mockups. The former may be fairly rough drawings of various pages of the mobile apps while the latter are a somewhat more detailed version of the former, often adding elements such as font types and color. These will henceforth be referred to as user experience design documentation.

In contrast, the user interface is about the interactive tools and input mechanisms, which may include graphics and schemes that help the user to interface or interact with the mobile gaming app. A good user interface is intuitive and user-friendly, and devising a successful scheme for the interaction of the player with SSS is of paramount importance. In essence, a mobile gaming app that is not intuitive to use requires a lengthy learning curve and is simply not user-friendly, making it unlikely to succeed.

As a result, where something is, for example, esthetically appealing but not intuitive and therefore difficult to interact with, it would score highly on user experience (appealing and pleasing to the user in esthetic terms) but poorly on user interface (not being user-friendly). The reverse also applies, so, for example, where a mobile app is easy to use and intuitive, but is also dreary and boring to look at, it would score highly on user interface, but poorly on user experience. Ideally, for SSS to be successful it should score highly on both user experience and user interface.

It follows that the design documents underpinning both the user experience and user interface are of great importance as they outline Innovigation's plans for creating a successful and popular mobile app. Protecting such documents against copying and misappropriation should therefore be high on Innovigation's list of priorities.

2.2.1 Copyright

The discussion and advice given to Innovigation above, in relation to some of the documentation that captures the key functionalities in the early stages of the conception phase, apply to the protection of the preliminary design documents discussed here.

It follows that Innovigation should be mindful of the elements it wishes to protect and the manner it seeks to obtain such protection. User experience documentation such as wireframes, which are essentially visual representations of various 'pages', and mockups, which are an enhanced version of the latter, are therefore likely to be protectable under copyright law as a visual work in a manner akin to artistic works, such as geographical maps. Namely, the actual reproduction of an entire document or substantial part thereof is likely to result in copyright infringement. However, if someone, whether a third party, a member of the SSS development team or an employee, is, for instance, privy to these documents and decides to 'adopt' the concepts or ideas that underpin such documents in a mobile app that they seek to develop independently, without creating a 'copy' of such a document or a substantial part of it, copyright law may prove much less effective. Under such circumstances, ideas, procedures, methods of operation, functionalities or mathematical concepts, which may have been copied by a person that gleaned them from such documents, may not be considered protectable under copyright law and a person copying them may escape liability as far as copyright law is concerned. In conclusion, copyright law is not likely to protect information as such, and therefore will not be effective against the appropriation of such information by an unauthorized party. Rather, it is likely to protect the manner in which the information is expressed and therefore against the copying of the form of expression embodying the information.

While the effectiveness of copyright protection in the early stages of the conception phase should not be underestimated, we have seen that it is of a somewhat limited scope in this context. As discussed above, Innovigation would be well advised to focus on trade secrecy mechanisms for that purpose.

2.2.2 Trade Secrets

Unlike copyright law, trade secrets may be particularly effective against someone taking information embodied in design documents, e-mails, minutes of meetings and oral exchanges. This may be the most valuable asset a company has at this stage. To use this protection successfully, safeguards must be deployed to protect confidential information. As discussed above, this includes establishing a policy on confidential information and embedding its principles into employment agreements, business operations and arrangements with third parties.

2.4 Key Takeaways

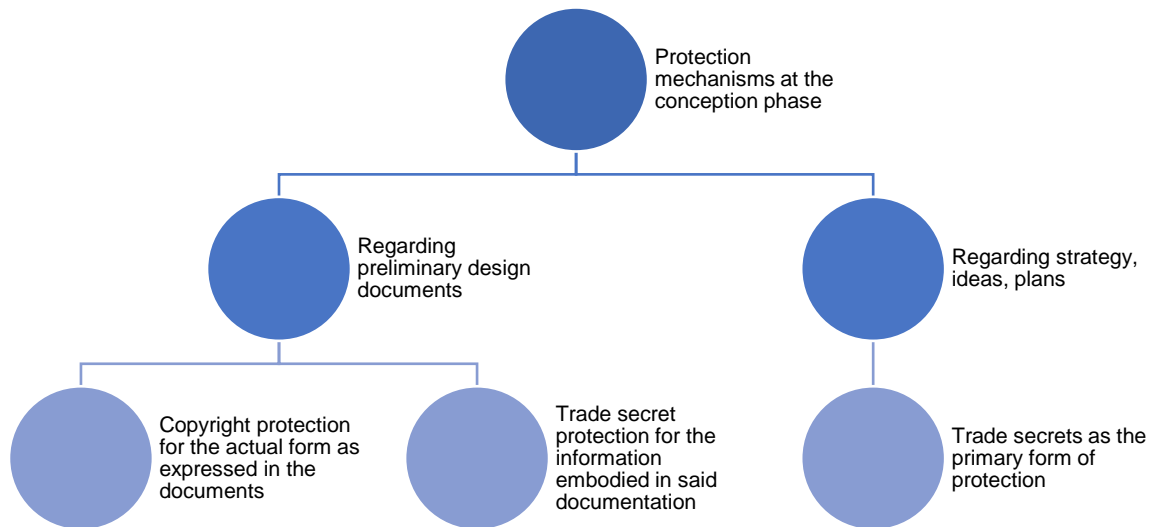
Innovation should consider legal protection for their main assets as early as the conception phase. During this phase, the underlying idea, features, functionalities and the design of the user experience and user interface of SSS take shape. These assets are usually 'captured' in various types of documentation. Innovation can protect these documents against copying or 'theft'. The company should focus on protecting the information available within these documents against a rogue employee, dissatisfied partner or third party that learned about these details as part of its interactions with the company. Trade secrets usually provide the most effective protection at this stage.

Understanding how trade secrets function is critical for Innovation. Trade secret protection happens instantly, without any formal registration or cost. Protection lasts as long as secrecy is maintained. In many countries, a broad range of information may be protected, including information that is specifically excluded from copyright protection, such as ideas, concepts, schemes, methods of operation and functionalities. At the same time, laws governing trade secrets vary significantly between jurisdictions. No protection is offered against independent creation or reverse engineering. Importantly, while there is no registration fee, there may be some costs when developing and implementing a robust trade secret policy.

In conclusion, Innovation should focus its efforts in this phase on trade secret protection and its trade secrets policy, which may also serve it in later phases once the development process commences. When creating its trade secrets policy, Innovation should identify its valuable information and how the company will protect it, including when the information can be disclosed internally and externally. In this context, Innovation should set out: how to implement the policy once it has been decided and educate its employees accordingly; how to monitor compliance; and how to enforce it where necessary. It is important to deploy specific measures in relation to third parties that may become privy to valuable business information as part of their

roles, such as financial advisors, commissioned programmers or designers. It is at least equally important to address the way employees access and use confidential information, both during the employment period and after its termination.

Finally, while copyright law may have a more limited application in the specific context of Innovation’s work during the conception phase, it may still prove useful against the reproduction of some or all of the documentation produced during this phase. Since copyright protection is automatic and does not require an upfront cost in the form of a registration fee, it is a useful addition to the protective toolkit of a micro business in the mobile app sector. As mentioned, having a clear paper trail that documents the creative process both in terms of the subject matter and the timeline of creation may prove highly useful in cases of future litigation. At last, while registration is not obligatory and, in most jurisdictions, not even optional, some jurisdictions provide for the option of registration for a fairly insubstantial fee and without the need to satisfy substantive requirements. Where this is the case, it is advisable to take advantage of such options as registration may be highly effective in establishing a public record of the copyright holder’s ownership and eligibility for certain remedies. As always, it is recommended that advice is sought from a local legal expert.



3. DEVELOPMENT

As mentioned above, the development stage involves the implementation of the various design and planning choices made during the conception phase, culminating in testing and debugging procedures, followed by the actual launch. It is noteworthy that it is at this stage that our development team is to choose the most suitable programming language, based on the technical specifications identified earlier in the conception stage, as well as the functionalities in terms of user experience and user interface.

For the purpose of our analysis of the paths open to Innovigation in providing suitable protection to the project during the development phase, we will consider the two main stages within this phase. The actual creation of the code, including the architecture on which it is based, and the subsequent testing and debugging stage, whether based on beta testing or user acceptance testing.

3.1 Trade Secret Protection Throughout the Development Process

The discussion above explains the desirable course of action for Innovigation in relation to the valuable assets created during the conception phase, embodied in valuable information, and the manner in which this may be safeguarded against misappropriation by either internal (to Innovigation) or external parties. We have seen that the most effective manner of achieving this objective is through trade secret protection.

It remains the case that trade secret protection should be viewed as a vital part of Innovigation's protection strategy, in particular in relation to the pre-launch phases. This is the case as, prior to launch, the capacity for a third party or a competitor to have access to the product or service, study it, analyze it and discern some of the key building blocks used to create it is very limited. This is clearly the case since SSS is not yet 'circulating' in the marketplace, and nor has it been made available to the public in any other way, any availability that may be part of the debugging and testing exercise notwithstanding. This being the case, Innovigation would be well advised to follow the procedure identified above regarding the establishment of a trade secrecy policy, including identifying the valuable information created in the development phase, defining the circumstances under which this information is to be used and disclosed, taking active measures to restrict access to the information and flagging any such information as 'secret' or 'confidential' by the SSS team in their interactions with one another, as well as with external third parties. We have also seen that it is

important to select and implement suitable measures in relation to the interaction of Innovigation with third parties, as well as in relation to the internal working of Innovigation itself.

3.1.1 Identifying Trade Secrets

A key ‘informational’ asset that is likely to be created by Innovigation during development is the actual source code created by the programmers. Source code is a classic example of an asset that may amount to a trade secret and is likely to be recognized as such in most jurisdictions around the world if the necessary steps are taken in order to keep it confidential and secret, as discussed above. This helps to prevent a rogue employee or third party from using the code for purposes other than that for which it was disclosed to them. If the code was used inappropriately, enforcing Innovigation’s trade secrets may help the company to obtain adequate remedies in the form of a court order prohibiting such violations, the award of damages, or both.

Apart from the actual code itself, there are visual ‘assets’ that may be treated as trade secrets prior to launch. As discussed above, functionalities in terms of both the user experience and the user interface are of significant importance to the success of SSS; in fact, they may be the most valuable assets in the present context. The visual effects and “eye appeal” of the various stages of the game, as well as the manner in which the player interacts with the game (through various input and output mechanisms), could make or break SSS. These visual assets go beyond the code itself. Given access to the functionalities of SSS, a skilled programmer can recreate the same functionalities without access to the original code. The protection of these visual assets, in addition to the source code, therefore plays an important role. Identifying these functionalities as trade secrets throughout the development process and making their use subject to Innovigation’s trade secrets policy is critical. Of course, once launched to the public at large such trade secret status would be difficult to maintain; however, until that time, relevant measures should be employed to keep SSS functionalities and features behind a veil of confidentiality.

3.1.2 Debugging and Testing

Apart from automated testing, which is done in private, does not involve a rollout to the public and therefore involves the same considerations as discussed in the section on identifying trade secrets, there are two other popular methods that may be used as part of the testing and debugging processes.

Prior to launch, Innovigation may seek to test SSS in relation to aspects such as functionalities, user interface, user experience, graphic performance, multi-player user features, security and social network integration.

Beta testing and acceptance testing

A number of third party companies provide services that will test some or all aspects of a mobile app. If Innovigation uses this type of service, it is imperative for all assets provided to it for that purpose, whether in documentation or actual versions of SSS, to be subject to the confidentiality measures discussed above.

Beta testing or phased rollout refers to a testing procedure that takes place prior to launching the app to the general public. It involves Innovigation making its app available for a trial period to a selected group or segment of the app's target audience. The users who sign up for the beta test then provide the SSS development team with their observations in relation to any flaws or bugs they have identified. This allows the SSS development team to address any flaws before SSS is released to the wider public and thereby contribute to the likelihood of SSS succeeding.

At earlier stages, Innovigation relied on trade secrets to protect its most valuable assets. Now that the company is moving to the beta testing stage, can this strategy be retained?

When it comes to the code, protection under trade secret law may still prove effective. Even in the case of downloadable beta versions, the SSS source code is not likely to be accessible for third parties' inspection. SSS is likely to be available for download in a machine-readable object code format, rather than as source code. It is technically possible to reverse-engineer and 'decompile' the object code and convert it back to source code format, but this is likely to involve copyright infringement, which is discussed in detail below. Trade secret protection itself, per se, does not provide for protection against reverse engineering in most jurisdictions worldwide. However, a combined use of trade secret law, together with suitable licensing provisions, may prove effective. A contractual prohibition on reverse engineering included in the beta testing license agreement, in combination with protection pertaining to the source code under trade secret law, may therefore safeguard against reverse engineering from a trade secret law perspective. For example, the position in the European Union is such that reverse engineering is generally permissible, unless explicitly prohibited by a contract or other laws; the legal position in many states in the United States may be similar, as it is likely to be in various other jurisdictions around the world. As a result, for trade secret law to provide protection against reverse engineering of its object code

with a view to gaining access to its source code, Innovigation may include a contractual prohibition on reverse engineering in its beta license.

We have seen that it is the features and functionalities of SSS that are likely to be the most valuable assets for Innovigation in the present context and it is these that Innovigation would like to keep confidential as much as possible. Can such features and functionalities be treated as trade secrets when, in general, they become apparent to third parties that lawfully access the beta version released by Innovigation? While in some jurisdictions it may be possible to identify these assets as trade secrets in the beta agreement and further define the limited purpose for which they are disclosed to the user, it may not be possible to do so in other jurisdictions as the assets themselves could not be classified as trade secrets after the beta version was made available to the public (whether the public at large, or a limited section of it). It is recommended for Innovigation to seek legal advice from a local legal expert on this subject. This being the case, it is advisable for Innovigation to plan its testing strategy in such a manner that the testing period would not take longer than is absolutely necessary. In that way the risk of any 'leakage' of valuable information regarding features and functionalities during the beta testing period will be minimized, and the likelihood that Innovigation will launch the final version of SSS before any competitor manages to utilize any information gleaned from the beta version increases.

The analysis above may apply to wider types of rollouts as part of a user acceptance exercise. A user acceptance exercise involves testing by real users/players of SSS in real world scenarios, who then provide feedback to Innovation's development team, who in turn address any flaws or bugs identified by the users and tweak SSS accordingly. While the caveats raised above in relation to protecting parts of the visual elements under trade secret law in the case of a wide public rollout hold whether or not it is conducted in the context of beta testing, it may not necessarily be the case where testing takes place in smaller scale forums, such as focus groups. In such cases, it may be possible to identify all aspects of SSS as trade secrets, including the functionalities, user interface, user experience, graphic performance, multi-player user features, security and social network integration, and require the participants in the testing exercise to keep in confidence all the information disclosed to them as part of testing. This may be achieved by including suitable provisions in the participant acceptance agreement. As always, local legal advice should be sought in relation to the imposition of confidentiality obligations on participants in the testing exercises.

3.2 Software Architecture

The underlying software architecture (hereafter ‘the architecture’) refers to structural choices that the SSS development team make prior to the actual programming. At a higher level of abstraction, it concerns the identification and selection of the relevant computational components and suitable connectors that link such components effectively. Such choices are to be made, among others, on the basis of the functionalities, features and objectives identified in the conception phase.

In general, while some of the above discussion on preliminary design documents may also be considered part of the overall architectural design of SSS; design architecture refers to software structural choices beneath the ‘hood’, on the basis of which programming and coding take place.

Quite likely, it is not necessarily the actual code itself but the ‘structure, sequence and organization’ of the internal organs of SSS, the structural choices made therein, that give it its unique nature and, as such, is of value to the team. As we have seen, it is imperative for Innovation to maintain all information pertaining to the architecture as trade secrets throughout the development cycle. However, we have also seen that trade secret protection has clear limits. Protection available under other branches of IP law may be of great use to Innovation. It may assist it in fending off competing activities where trade secret law is of little use, and may possibly allow it to generate additional streams of revenue from licensing activities should the technological solutions and choices employed in the design of its architecture prove attractive to third parties.

3.2.1 Copyright

As mentioned above, protection under copyright law is not conditional on any formalities and usually does not involve any upfront costs. Some jurisdictions allow for copyright registration (e.g. Kenya), but eligibility is not conditional on such registration, although the latter may offer some advantages, such as establishing a public record of the copyright holder’s ownership. As a result, where possible, it is advisable for Innovation to register its copyright, usually for a small fee. Copyright protection arises automatically upon creation and it is therefore important to keep detailed documentation of the creation process, which should include a clear paper trail that demonstrates, among other things, when was the work created and by whom. This may prove highly useful, in the event of future disputes, in enabling the right holder to establish ownership over the work and the point of time it was created. This is especially important where copyright registration is not an option. Except for the

documentation and clear paper trail, there is very little that can and should be done actively by Innovigation at the development phase in the present context.

As copyright protects forms of expression of ideas rather than ideas, procedures, methods of operation or mathematical concepts, the scope of protection available to the internal architecture of SSS under copyright law should be identified. This would be done in detail during discussions at the commercialization, monitoring and enforcement phase, where the type of architectural elements that may be protected under copyright law and the extent of such protection would be discussed in relation to potential instances of third party copying.

3.2.2 Patents

Patents start their life as trade secrets. If Innovigation plans to file a patent on an aspect of the architecture, the unique aspects should remain confidential until a patent application is filed. An invention must be new and inventive to qualify for patent protection. Before a patent application is filed, any disclosure of such information by Innovigation or any of its employees to a third party should be made under an obligation of confidentiality. Otherwise, the information shared may lead to a refusal of the patent. In some countries, Innovigation may benefit from a short period of time between the disclosure and the filing of the patent application without losing the potential to obtain the rights.

While securing a patent for a mobile gaming application can be a significant challenge, as described below, patents can be a tremendous asset. A patent provides broader protection than is available under copyright or trade secret law despite its shorter term of protection. A patent protects against others making, using or selling the invention, whether through copying or independent creation. Innovigation can use the patent to prevent others from launching or using the invention in their products, or alternatively it can require payment for using the invention through a license. Patents last for up to 20 years, usually well beyond the lifespan of a mobile app.

Patents can protect elements of SSS excluded from copyright protection, such as methods of operation and processes. As explained below, given the complexity of patent protection for apps, a patent professional that specializes in computer-implemented inventions should be consulted to ascertain whether protection is likely for a specific feature. Their availability can vary by country or region.

Unlike copyright, patent rights do not arise automatically upon creation. The application process may take a couple of years on average, but there may be instances where the application is contested at various stages of the process, which

considerably prolongs the process. A patent office will review the format of the patent application, to determine whether it is consistent with local law and practice. Many patent offices also review the technical aspects of the application, to ensure it contains something that is actually new, inventive and consistent with available protections.

Most mobile applications are not likely to involve patentable subject matter. When an aspect of an app appears to qualify for protection, a developer must carefully consider pursuing protection. The costs can be significant. Fees will need to be paid upon application and on a regular basis to each patent office where an invention is protected. Engaging a patent expert is strongly recommended for applications related to mobile apps, which can be particularly difficult to draft in a way that qualifies for protection. Costs will be incurred during the drafting process and when responding to queries made by a patent office during the examination process.

Apart from costs, a patent application must describe an invention in a significant amount of detail. It must be described in such a way that other programmers could understand how it works and would be able to replicate the invention. This disclosure is part of the bargain of the patent system, where inventors get to control the destiny of their inventions in exchange for telling the public how it works. This requirement means that innovation would need to describe potentially valuable information pertaining to its app. Regardless of whether a patent is granted, most patent applications eventually become public, usually around 18 months after their filing date.

For patent applications related to architecture, the invention in question must include something significantly different from existing technology to qualify for protection. In a number of countries, applicants must also demonstrate a 'further technical effect' that requires the invention to go beyond the 'normal' physical interactions between the software and hardware on which it is run. For example, if the internal architecture of SSS is computationally more efficient than other similar applications in that it requires less time and fewer internal resources, it might involve patentable subject matter. It should, however, be noted that this is far from decisive. In general, a small minority of mobile gaming apps, or most other apps for that matter, are likely to involve such software architectural features.

Patenting the functional features of a mobile app is challenging but not impossible. A good example may be United Kingdom Patent No. 2515096 on the "Methods and apparatus for allowing a mobile computing device to interact with an online portal". The invention claimed in this patent relates to allowing a mobile computing device to interact with an online portal for an entity; for example, allowing the mobile computing device to "check-in" at an online portal for a store. The successful patent application in this case was drafted by a patent attorney in a technical language that fleshed out the technical contribution made by this invention, rather than the effect that it may have had on the user's (improved) ability to select a nearby entity (based on the user's

location), such as a bar or a restaurant. Whether or not the requisite technical contribution may be identified in the case of a mobile gaming app will depend on the specific circumstances of the app in question and is likely to vary from one jurisdiction to another.

In conclusion, Innovigation must decide whether the cost and risk are worth the potential benefit. Such an assessment may benefit from advice from a patent professional who specializes in computer implemented inventions.

3.3 Underlying Code

The development phase includes coding or programming, where the SSS development team produces the actual code that facilitates the features and functionalities decided on during the conception phase. Code is a basic building block of software, and irrespective of whether SSS is designed to be downloadable or available for use over the internet, and cloud-based or not, when creating SSS the most basic building material is likely to be computer code

Source code may be protected against copying and improper use by trade secrets, especially during the pre-launch phase. Copyright law also provides significant protection against copying.

As mentioned earlier, copyright protection arises automatically upon creation and does not depend on any formalities. In jurisdictions where it is possible to register copyright, it is advisable to do so, although trade secret protection should be taken into consideration as registration in an open public register may negate any pre-existing trade secrets. In any event, the creation processes should be clearly documented, which may prove useful in the case of future disputes with third parties. As regards eligibility, code created by the SSS development team is likely to be eligible for copyright protection, regardless of the type of programming language involved or the quality of the code, as long as the code originated from the development team and was not copied by them from another source. In this context, it is noteworthy that there are some excellent mobile app development tools available, some of which are 'no code' or 'low code' tools. Namely, such tools may enable developers to create mobile apps within a very short period of time, while involving no or very little coding in the process. The use of such tools may have an impact on some claims to copyright ownership over these portions of code and architecture, when these resulted from the use of such tools rather than from choices exercised by the developer. Innovigation should not necessarily view the use of such tools as problematic, as there are clear upsides to such use in terms of speed, efficiency and quality, to name but a few

aspects. It is sensible that any code that was not created by the SSS development team could not be owned by Innovigation.

Innovigation should pay close attention to the use of code created by others and made available under a Free and Open Source Software (FOSS) license. While there are clear practical advantages in using such code, it may have far-reaching repercussions in terms of copyright ownership over the whole underlying program. Unlike low code or no code tools, embedding FOSS code into the SSS development team's own code may render the entire program subject to a FOSS license. This may require Innovigation to make the app's source code available for inspection and copying by third parties. Such code 'contamination' may occur in the case of some FOSS licenses but not in the case of others. It is therefore imperative for Innovigation to have a clear policy on using code from OS code repositories. While working with FOSS should not necessarily be viewed as objectionable, Innovigation must be mindful of the ramifications of doing so and tailor its business model accordingly. In any event, obtaining legal advice from a local legal expert on the implications of using FOSS in Innovigation, and, in particular, FOSS available under different types of licenses, such as permissive, weak copyleft and strong copyleft licenses, would be highly desirable. Generally speaking, OS licenses fall broadly into two main categories: copyleft and permissive. 'Copyleft' licenses grant licensees the right to use, modify and distribute the IP-protected work, provided that any works derived therefrom are made available under the same license conditions. The GNU General Public License, for instance, is a widely used example of such a license. 'Permissive' licenses, on the other hand, may allow for code released under such licenses to be used, modified, distributed and incorporated into other pieces of code without having to make the resulting code freely available, as in the case of code released under copyleft licenses, including in closed source projects. The MIT License is a simple permissive license that requires licensees to include copyright and license notices but does not impose conditions under which the derived work needs to be made available.

Of course, Innovigation must also be vigilant and ensure that, in developing SSS, the development team does not copy any portion of proprietary code belonging to a third party, no matter how small, as this may result in copyright infringement.

Innovigation should also be mindful of ownership aspects in relation to its own employees and commissioned third parties. As a default option, in most cases copyright provides that the creator of the work is the first owner of it. While many jurisdictions provide for an exception for this rule in the case of work created as part of an employment relationship, this is not always the case. A not insignificant number of jurisdictions would therefore still allocate ownership to employees even where the work is created in the course of employment. Innovigation should ensure that its employment agreement clearly stipulates that the title to any work/code created while

working for Innovigation will belong to Innovigation. Similarly, when tasks are delegated to third parties the contracts should include a provision that gives ownership of the work to Innovigation. In the absence of this kind of provision, code created by third parties as part of their commission would be owned by the contractor even when Innovigation pays for the work.

3.4 Developing and Finalizing Graphic User Interface Design

Innovigation conceived and devised the planned user interface for SSS during the conception phase. The user interface manifests itself primarily through a mobile gaming app's GUI. We have seen that such aspects of SSS may be of significant importance to its success and that, as a result, all information and plans regarding the GUI of SSS should be protected at such early stages through a variety of means.

During the earlier stages of the development phase, and prior to the GUI gaining its final form and nature, Innovigation would be advised to rely on the means of protection identified above in the section on the conception stage. The present part aims to discuss and explain the available vehicles for protecting a mobile gaming app GUI, while the latter has been finalized and completed, prior to the launch of SSS in the marketplace.

3.4.1 Copyright

It is important to distinguish the actual code and software architecture that underpins the GUI of SSS from the GUI as viewed and experienced by the player in its visual form. While elements pertaining to the protection of the former are discussed in the section above, the present discussion concerns the latter: protecting the 'look and feel' elements of SSS as made manifest through the GUI.

As far as copyright law is concerned, visual creations can be being protected under copyright law in the same way that a work of art is. While some legal systems provide for protection for code and GUIs under different legal instruments, it is nevertheless the case that both are eligible for protection and should be treated in a similar fashion by a business that seeks to ensure copyright protection in this context during the development stage. For example, while the European Union provides for copyright protection for computer code under its Software Directive, GUIs are not considered part of a computer program for that purpose and are therefore protected under the European Union Information Society Directive. This may have some implications in terms of the overall circumstances of protection, but should not make a difference for

Innovation during the development phase when it considers its overall strategy, and aims to follow the best available practices in order to protect the assets that it creates during the development stage in the most effective manner.

Innovation may heed the advice given above in relation to the code and apply it in relation to the GUI. As a result, as far as copyright law is concerned, Innovation's strategy may include, in particular, registration of copyright where such an option is available, as well as a well-documented and dated paper trail that shows the creation process, the timeline of this process and the persons that took part in it.

Innovation should ensure that all employment agreements contain a clause where any employee assigns to Innovation any copyright resulting from the work done in developing SSS. A provision with a similar effect should be included in any agreement commissioning a third party to carry out work for Innovation as part of the development process. This, however, may not be straightforward as in the case of employees. This is owing to the fact that such third parties are likely to use and 're-package' the same portions of code for a variety of commissions with numerous clients. Assigning such portions of code to Innovation may therefore stop such third parties from reutilizing it in other commissioned work, which is something they may not be prepared to do. In such a case, a license would be in order, which would grant Innovation the necessary permissions to use the said portions of code. It is in Innovation's interest for such a license to have a wide remit and to restrict the commissioned third party from reutilizing the said portions of code in various circumstances. For example, where no agreement in relation to the assignment could be reached, Innovation may seek a license of an exclusive nature in at least the key jurisdiction(s) identified by it. Similarly, a license where the commissioned third party may not use the said portions of code in a commissioned work with one of Innovation's competitors may also be of value, while Innovation may be more relaxed in relation to using such portions of code in work to be carried out for other non-competing app developers.

Since a GUI is specific to a particular app, Innovation should expect to own the copyright to the visual aspects of the GUI it commissions. A requirement to assign ownership should be part of the agreement with a third party. This treatment may be different from the treatment of ownership of the underlying code. Innovation should seek the advice of a local legal expert to decide on the best course of action on the basis of the local legal rules in the jurisdiction in which the actual development takes place.

3.4.2 Trademarks

Trademarks primarily protect business signs that serve as an indication of origin. Two separate aspects of SSS should be considered independently in this context.

Firstly, it may be possible to register the more traditional business insignia that may serve as trademarks, such as the name of the app ('Supermarket Shopping Spree'), the initials SSS, or any logo that may be used by Innovation, in relation to categories such as computer game software, toys, games and related services. For example, the name "DUNGEONS & DRAGONS" is registered with the European Union Intellectual Property Office for similar goods and services. While it is of significant importance to have one's trademarks properly registered and protected, such registration has little to do with the GUI and should be treated under the general rules for trademark registration in the jurisdictions in which Innovation intends to launch SSS. Legal advice regarding the registration of the traditional business insignia of SSS should be sought from a local legal expert prior to launching the game and preferably while such insignia is still maintained as a trade secret.

It may be possible to register the visual appearance of the product with a trademark. This might include certain elements of the GUI of SSS. For example, the most obvious candidates for trademark registration in this context may be icons. Similarly, it may also be the visual appearance of certain characters in SSS and the internal organization of the supermarket, as well as dynamic (i.e. 'moving') elements, such as the theatrical manner in which the shopper is knocked down by an old woman charging down an aisle with a shopping trolley. While icons are likely to be registerable as trademarks in most jurisdictions, as long as they satisfy registration criteria, dynamic elements may prove somewhat more problematic and their registration will depend primarily on the rules of the territory in which Innovation seeks to apply for registration. It should also be noted that, in some jurisdictions, the entire GUI may be protected as a trademark (see document SCT/36/2 Rev. 2: "Compilation of the replies to the questionnaire on graphical user interface (GUI), icon and typeface/type font designs":¹

In any case, whether or not the jurisdiction in which Innovation seeks to register elements as trademarks allows for the registration of some or all of the elements mentioned above, it is noteworthy that, unlike the more traditional business signs, an application for the registration of GUI elements is unlikely to prove successful prior to launch and use. This is because such elements are not likely to be viewed by the relevant trademark office as inherently distinctive and would therefore require proof of a distinctive character acquired through use. Such 'acquired distinctiveness' may only be established after SSS has been launched and used fairly extensively in the

¹ https://www.wipo.int/edocs/mdocs/geoind/en/sct_36/sct_36_2_rev_2.pdf

marketplace by users, who therefore view the GUI element in question, be it an icon, a screen display or a dynamic element, as indicating the game's commercial origin rather than as merely a feature of the game. This is sometimes referred to as acquiring a 'secondary meaning'; in our case, the icon in question is no longer viewed simply as a game feature but as an indicator of origin.

The registration procedure is not as costly as in the case of patents and it is well worthwhile pursuing it. This may be carried out by a local lawyer or a trademark attorney, if available in the relevant jurisdictions. The legal representative will draft the application and where the relevant trademark will be depicted and the classes of goods and services in relation to which registration is sought will be specified (e.g. 'insurance and financial services'). As mentioned above, it is likely that in most cases, as in the case of SSS, more than one registration will be sought. The number of trademarks to be registered, and the jurisdictions in which registration is sought, should be decided in consultation with a local legal expert.

3.4.3 Industrial Designs

As mentioned earlier, ornamental or esthetic designs, which in the case of a mobile app are in its GUI, benefit from a tailor-made IPR that grants protection to such design features.

It is at the end of the development phase, and prior to the launch of SSS, that Innovigation needs to consider the registration of an industrial design right, or any available right akin to it in its effect. Innovigation should be mindful of the fact that the existence of IP regimes protecting product design is not uniform worldwide. For example, while the European Union provides for a two-tier regime of unregistered and registered community design rights with different scopes and durations, both the United States and China have design patent regimes where, subject to certain variations, the applicant must establish that the design in question satisfies similar requirements to those under utility patents; i.e. novelty and non-obviousness.

While it would be advisable for Innovigation to seek the registration of a design or a design patent where possible, it should be borne in mind that protection for unregistered designs may also be available in some jurisdictions. Although by simply being 'unregistered' it does not require Innovigation to engage in an application and registration procedure and may only be 'engaged' after launch while enforcing its rights against a third party, it is nevertheless important to be mindful of this and aim to ensure that, should the relevant circumstances arise, Innovigation may be able to fall back on its unregistered design right.

It is significant in this context that Innovigation may seek legal advice about industrial design protection in relation to key jurisdictions, including unregistered designs, prior to the launch and disclosure of SSS so as to ensure that its course of action does not prove detrimental to any future prospects of using an unregistered design right in a given jurisdiction. For example, a design that is first published (disclosed to the public) outside a European Union member state, may not benefit from a European Union unregistered design regime. Should Innovigation identify the European Union as one of its key jurisdictions for SSS, it may be useful to contemplate the launch or any earlier form of disclosure (i.e. a trade show) in the European Union, so that Innovigation may benefit from the European Union rights regime for unregistered designs. As always, seeking the advice of an IP expert at an early stage may prove highly beneficial in shaping Innovigation's strategy in this context.

Notwithstanding any availability of a rights regime for unregistered designs, it is registered designs or design patents that Innovigation should have as its main focal point for protecting aspects of its GUI. Even where unregistered design protection is available and feasible, it may be advisable to seek registered design protection. This is usually superior to any unregistered design regime, both in terms of the length of the protection period and, often more importantly, the breadth of protection available. For example, in the European Union, unregistered design protection lasts for three years from the date of first publication, while registered design protection could last up to twenty-five years, as long as registration is renewed every five years. Similarly, while unregistered design protection may be effective against the copying of such designs by third parties, registered design protection may prevent a third party from using a design that does not produce a different overall impression on the informed user, regardless of whether or not such a design was copied from Innovigation.

Both static (e.g. an 'icon') and dynamic (e.g. an animated feature) elements of the SSS GUI may be eligible for registered design or design patent protection. Prior to launch, and before disclosing the SSS GUI or parts of it to the public, Innovigation should seek the advice of a local legal expert. It should identify elements of the GUI that may be eligible for design protection owing to their appearance/ornamental aspects, as well as to their role in the SSS user experience. Other aspects that are primarily functional or technical are not eligible for design protection but may be protected under patent law.

However, the fact that an aspect of the SSS GUI may be protected under design law does not mean that registration should automatically be sought as it may be the case that a large number of aspects of the SSS GUI are potentially eligible for protection. Innovigation should decide if there is considerable value in gaining protection over such aspects and pursue registration only in suitable cases as some may be fairly inconsequential to the overall playing experience. Innovigation should prioritize

aspects of the SSS GUI that it considers to be key to user experience and focus on their registration in key jurisdiction(s). This may safeguard against third parties adopting similar aspects or features in their mobile apps, rendering such features no longer unique to the user experience involved in playing SSS.

The registration process and associated costs vary from one jurisdiction to another. For example, in the European Union registration may be speedy and completed within a couple of days as there is no substantive examination prior to registration. In terms of cost, the application fee is generally not prohibitively expensive. However, it should be borne in mind that a large number of design registrations, all of which should be periodically renewed, may overall have a not inconsiderable total cost. The aforementioned prioritization of key user interface features of the SSS GUI considered worthy of registration therefore has a clear benefit. Innovigation's local legal counsel should be able to assist in the process by preparing the application documentation and supporting the registration process until its successful conclusion. The costs of attorney fees should also be taken into account by Innovigation and factored into its decision to proceed with a specific number of design applications.

3.4.4 Patents

The general challenges relating to successfully obtaining a patent for a mobile app are explained above in the 'Software Architecture' section. This explanation applies to the state of affairs concerning GUIs.

Patent protection relates to the technical elements rather than the esthetic and ornamental aspects of a product or a process. In rare cases, a GUI may provide this type of advance. In the past, patent office's often allowed GUI features somewhat liberally.

Can the GUI of SSS or any other mobile gaming apps possess a technical character rendering them eligible for patent protection? While not outright excluded, patent protection for GUIs is becoming rarer. In the past, the European Patent Office's Board of Appeal found in case No. T 0928/03 that a graphical marker in the user interface of a football video game was patentable. The Board decided that this GUI element solved a problem that contributed to the technical function of the display as it lowered the cognitive burden of the player. However, this fairly liberal approach no longer represents the current legal position. At present, it is safe to say that in certain jurisdictions around the world, for a GUI feature to stand a reasonable chance of success it would require there to be a more objectively defined technical effect on the user (e.g. physiological) than a rather subjective effect (e.g. psychological) in order to establish a technical contribution to the manner in which the device operates internally.

As a result, while a GUI feature that renders a game more intuitive, user friendly, enjoyable or visually appealing may have a significant impact on the commercial popularity of such a mobile gaming app, such an impact is not likely to meet the requisite threshold for patentability (whether technical, non-abstract or otherwise).

Patents related to GUI features are likely to be available only if they improve the internal working of the device, or have a physiological impact on the manner in which the player interacts with the game, or another significant impact on the physical world. For example, if the design of the GUI reduces the burden on the user's eye or arm, it may be patentable. In practice, this is a difficult bar to meet. If Innovigation is of the view that the SSS GUI may meet such criteria, it should seek the advice of a local patent expert with expertise in computer-implemented inventions.

3.5 Key Takeaways

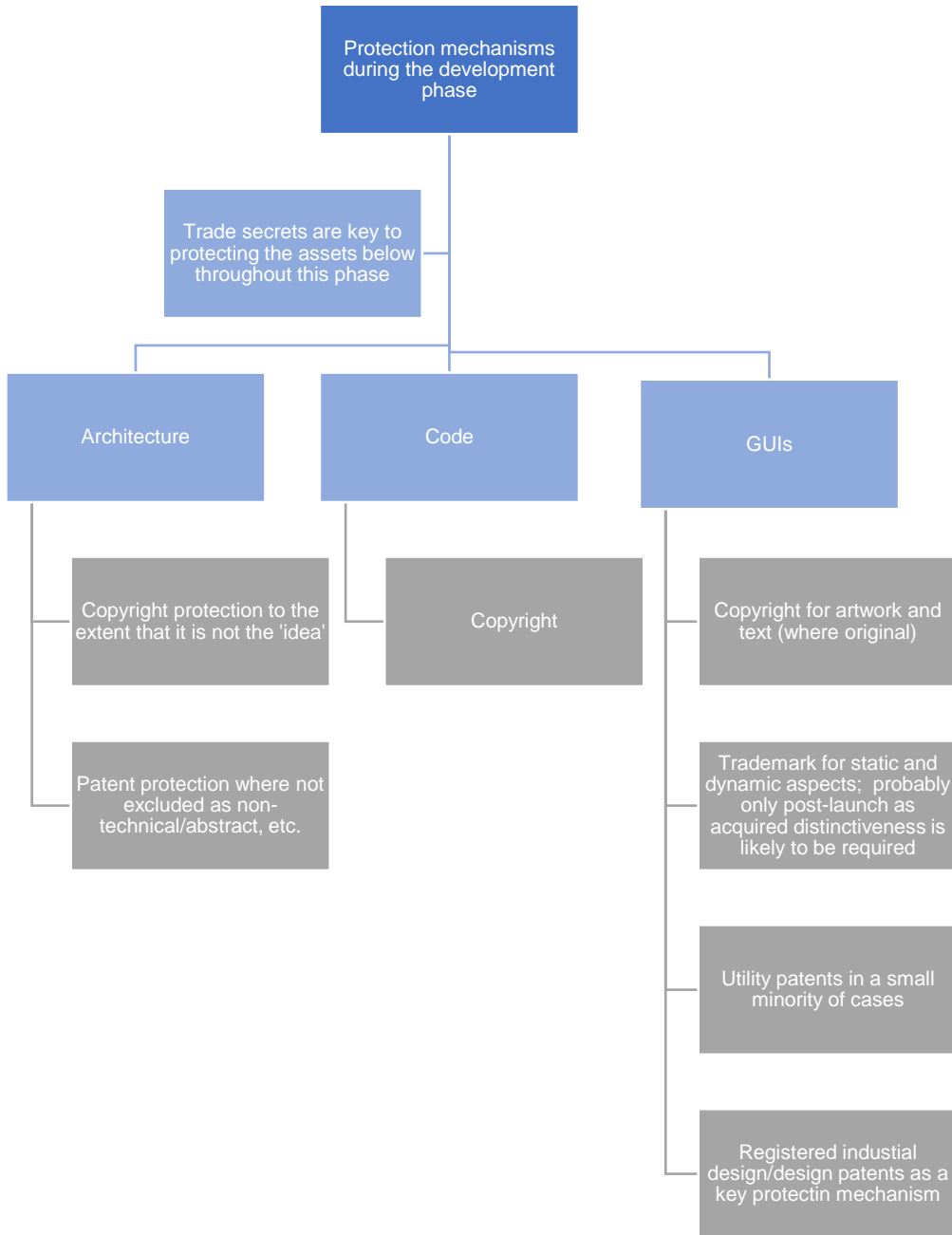
We have seen that a key pillar for protecting all intellectual assets (e.g. code, architecture, user interface and user experience designs, etc.) during the development phase is trade secret law. Trade secrets are of particular significance during this phase, as SSS has not yet been launched and, therefore, most if not all intellectual assets generated during this phase have the potential to be treated as protectable trade secrets, at least until some of those assets can no longer be treated as 'secret' owing to their disclosure to the public following the launch of SSS. We have seen in the section on the conception phase that such protection does not necessarily involve considerable upfront costs, but does require a simple yet clear trade secret policy implemented within Innovigation, as well as in relation to its employees and commissioned third parties. Such a policy should cover the identification by Innovigation of the relevant trade secrets pertaining to SSS, including code, architecture and, importantly, functionalities, features and GUI designs. Toward the last stages of the development phase, and prior to its launch, SSS may likely be tested and debugged. Where this is carried out by third parties, Innovigation should ensure that robust measures are in place in order to maintain the trade secrecy of the intellectual assets that may be disclosed to the third party as part of their acceptance of the testing and debugging service.

As mentioned above, the underlying software architecture of SSS can be maintained as a trade secret throughout the entire life cycle of SSS where possible. Some architecture elements can be protected under copyright law (highly dependent on the jurisdiction in question).

When it comes to the app's code, copyright and trade secrets can offer important protection for the developers. While copyright arises automatically upon creation and

does not require any formalities for protection to come into effect, it is advisable to seek copyright registration where possible, subject to the caveat that this may negate trade secret protection; advice from a local legal expert should be sought in this regard. In addition, keeping a clear paper trail of the creation process, with the relevant dates and the persons involved is always a good idea as it may matters easier for Innovigation should a dispute regarding ownership or infringement arise at a later date. In addition, the code created for SSS could and should be maintained as a trade secret.

The SSS GUI and its functionalities deserve special attention. This refers to both static and dynamic aspects of the GUI, whether individual items or a combination of items, and the user experience they facilitate. As explained, it is a key asset of SSS and is likely to make a difference in the game's success or failure. The user experience, which is derived primarily from the GUI and functionalities, could be replicated by skilled programmers without copying the underlying code. It is therefore essential that the GUI and elements of the user experience are protected as thoroughly as possible. First and foremost, until SSS is launched, its GUI and related functionalities can be maintained as a trade secret throughout the development phase. In addition, copyright law may protect some visual aspects of the SSS GUI (e.g. a drawing representing a character in the game) and trademark law may protect both static and dynamic elements of the SSS GUI (e.g. an icon, an animation, etc.). However, it is registered industrial designs or design patents that are likely to prove most effective in protecting the SSS GUI. We have seen that in many jurisdictions, subject to the registration criteria, industrial design registration may be a fairly quick and cost-effective manner of protecting the SSS GUI or elements of it. It should be remembered that for Innovigation to successfully utilize industrial design law for this purpose, it is essential to seek local advice before the game is launched. Considering the protection of design rights after launching SSS and having disclosed the design may prove to be too late and thus futile, as the launch may be incompatible with novelty requirements under some registered design regimes. Finally, while patents may be available to protect GUI elements and related functionalities in principle, these rights can be difficult to obtain in practice. However, owing to the relative strength of patents, protection should be considered if the GUI proves relevant in a small minority of cases, such as if Innovigation is of the view that it has a technical impact on the internal operation of the mobile device or on the physiology of the player. As always, legal advice from a local patent expert specializing in computer-implemented inventions would be desirable.



4. COMMERCIALIZATION AND ENFORCEMENT

4.1 Commercialization and The App Economy: Advertisements, In-App Purchases (Including the Special Case of Loot Boxes) and Pro-Editions

Innovation should ensure that various regulatory regimes, such as privacy and advertising laws, are adhered to at the commercialization stage and in tandem with the launch of SSS. It is therefore important to consult a local legal expert regarding regulatory compliance, as well as the rules of the relevant platform. If Innovation perceives children to be part of the target audience of SSS, additional regulatory considerations may need to be taken into account. It should be noted that the fact that Innovation does not actively target children as SSS customers does not make a difference as long as Innovation is aware that children are likely to be a part of the potential customer base. As a result, while SSS does not necessarily target children, it may not exclude the fact that it may be played by underage players. Should this be the case, specific regulations that are applicable to children should be taken into consideration when SSS is put on the market. The list below provides an example of some of the key considerations that may be taken into account in this regard.

Local data protection rules must be considered in relation to mobile gaming apps that target children, over and above regular considerations pertaining to local data protection regimes. For instance, in the European Union, SSS may be considered to be collecting personal data under the General Data Protection Regulation (GDPR) of 2018, or in the United States, under the Children's Online Privacy Protection Act (COPPA). Examples of potential violations may include scenarios where SSS may be considered to be collecting children's information without permission from their parents or guardians, sharing such information in relation to aspects such as location and targeted advertising. As a matter of good practice, Innovation should have a clear data privacy policy in place, which stipulates, among other things, whether and how data is shared, stored and deleted, as well as which data is collected and how. As mentioned above, while SSS may not specifically target children, it may nevertheless prove attractive to some of them owing to the graphics and its general theme. Under such circumstances, both COPPA and GDPR may be applicable. This being the case, one mechanism for addressing this situation from a data privacy perspective is to have a dual version of SSS: one with a 'zero data' environment for users who do not sign-in, and an 'age gate' version with an assigned username for users who do sign-in (this may occur either via a social network that enables verification of the user's age or through a verified e-mail account).

Special attention should be given to monetization strategies in the case of randomized loot boxes. The European ratings board, Pan European Game Information, defines paid random items as “all in-game offers to purchase digital goods or premiums where players don’t know exactly what they are getting prior to the purchase (e.g. loot boxes, card packs, prize wheels)”. Such items may be purely ornamental or have an actual function; the latter may not only better equip the player to face some hazards with various performance upgrades, but may also unlock extra levels. Should SSS implement an app economy that includes in-app purchases using a loot box model, consideration should be given to various regulatory frameworks, such as adequate labelling, as well as to specific local gambling laws. For example, in July 2020 the House of Lords Gambling Committee in the United Kingdom stated that video game loot boxes should be regulated under gambling laws. In addition, this is also likely to impact the manner in which games with such in-app purchasing mechanisms are to be advertised (e.g. they may be subject to advertising codes pertaining to issues such as clarity of information at the point of purchase, responsibility of advertising messages and truthfulness in the advertising of games containing purchasing). It is predicted that such a regulatory move is likely to take place in the near future and is likely to be echoed in various jurisdictions around the world. Innovigation would therefore be well advised to take into account the costs and burden of compliance with such regulatory regimes when determining from the outset whether or not to use a loot box model for monetizing in-app purchases.

The issues highlighted above merely illustrate some of the non-IP regulatory regimes that should be taken into account when putting a mobile gaming app on the market. Compliance from the outset is clearly of the utmost importance and may serve to avoid complications down the line that may have an effect on the availability of the mobile app in key markets, as well as having potentially significant retrospective compliance cost implications.

4.2 Enforcement Against Competitors and Third Parties

Once SSS has been launched and is available in the marketplace, Innovigation should be vigilant against any potential infringements by competitors or third parties in general, who may seek to appropriate, either intentionally or otherwise, some of the valuable intellectual assets of SSS; the more popular SSS becomes, the more likely it is that others will want to copy it. Below we examine some instances of potential infringement scenarios in relation to SSS concerning each of the key IPRs involved, and the ways in which they may manifest.

It is important to clarify from the outset that fake or counterfeit apps do not raise significant questions in terms of IP infringement and are fairly straightforward in that regard; they are usually used as instruments of deception designed to defraud users. Once identified, they should report to the relevant authorities.

4.2.1 Reproduction and Utilization of the Underlying Idea/Concept and/or the Manner in Which the Idea/Concept Is Being Put into Use

While copying the underlying code or parts thereof may trigger liability under copyright law, things become a bit less clear if Innovigation realizes, for example, that a competing mobile game app has been launched. While such an app may not involve any actual copying of the code, it may ‘borrow’ many of the themes of SSS. It may even reproduce the overall theme in its entirety; namely, serve as a de facto clone. An SSS clone could be created without reproducing any of the actual code or any of the imagery and screen displays (the latter will be discussed below in detail). In other words, what the competitor has ‘taken’ in our hypothetical example is akin to the general ‘plot’ of SSS, and some of the user experience that accompanies it. What options could be open to Innovigation under such circumstances and to what extent could IPRs play a role in safeguarding against such cloning activity?

4.2.2 Copyright

Let us assume that Innovigation becomes aware that a competing app developer is launching a supermarket shopping mobile gaming app of its own: ‘Shopping Idol’ (SI). Can Innovigation stop its competitor from doing so? The answer depends on all the circumstances in the case. Even if it was Innovigation that first came up with the concept of a mobile game based on supermarket shopping (unlikely to be the case), there can be no copyright over a general concept, no matter which jurisdiction is involved. Competitors and third parties would be within their rights to ‘copy’ the idea or general theme of SSS. The question is whether and what else was copied from SSS. Leaving aside aspects of the user interface, which will be discussed below in relation to GUIs, the thorny question in the present context is whether the copying of non-visual and non-textual elements of SSS may give rise to liability under copyright law; in particular, whether copying elements akin to the more detailed ‘plot’ of SSS may be sanctioned by copyright law.

As a general rule, the more detailed the copied elements of the theme are, the more likely it is that liability under copyright law will arise. However, this is subject to a number of important caveats. If the theme element at issue is commonplace, or

inherent to the relevant circumstances, copying such elements in detail may still not amount to copyright infringement. In the case of SSS, for example, if SI also has as the overarching general goal the accomplishment of a shopping experience in the most cost-effective and least time-consuming manner, it is unlikely that it may give rise to copyright infringement as such goals could be said to be inherent to a successful supermarket shopping trip. In contrast, similar to SSS, SI may also include a shopping brief pertaining to the nature of an event and its number of guests, similar hazards that the player must watch out for (e.g. old ladies storming down the aisle with supermarket trollies), and similar perks and performance enhancers that could be unlocked in a similar fashion (e.g. hats, sunglasses, boots). In this hypothetical scenario, SI has reproduced quite a number of the theme elements of SSS. Assuming that none of these elements has been reproduced visually, namely that the elements were copied in terms of concept but not overall appearance, copyright infringement may be established once a certain threshold has been crossed in regard to the level of conceptual details that have been copied. How much detail must be copied to trigger copyright infringement is a highly case-specific determination, whose outcome may vary from one jurisdiction to another. As always, Innovigation should consult a legal expert in the territory in which SI was developed in order to assess the likelihood of a successful copyright infringement suit.

Another caveat that should be borne in mind is that a feature of SSS, no matter how innovative, original or unique it may be, is not likely to be protected under copyright law. This may be illustrated with a real-life example with which we are all likely to be familiar: the 'stories' feature on Snapchat and Instagram. It was Snapchat that first came up with its 'stories' feature as we know it today and it quickly became highly popular with users. It took Instagram a couple of years to introduce a 'stories' feature on its platform, which was functionally very similar to Snapchat's feature. Irrespective of the fact that until that time this feature was unique to the Snapchat platform and highly popular with its users (and therefore of great value to Snapchat), there was little that Snapchat could do to stop Instagram 'cloning' this feature. As long as the implementation of the stories feature was visually different, liability under copyright law was highly unlikely owing to the distinction between the ideas and the expression: copyright law protects the form in which ideas are expressed rather than the ideas themselves.

In conclusion, unless a combination of features, concepts and sub-themes are copied by a competitor, liability under copyright law is not likely to arise. Imitating a single element, a feature or a small number of either, regardless of how unique or innovative they may be, is not likely to involve copyright infringement. Of course, this works both ways. Should the developers of SSS be inspired by a feature they first experienced on another mobile app, and wish to incorporate it into SSS in functional terms, they may be able to do so without attracting copyright liability as long as they visually

implement such features differently from the original. Before SSS developers embark on such a course of action, they should seek advice from a local legal expert.

4.2.3 Patents

Plots or story themes cannot be protected by patents. Patents protect technical inventions and not abstract aspects of products or processes. If a mobile app possesses a technical character that enables it to be successfully patented, such a patent is likely to cover the technical aspects of the invention and not any of the themes and sub-plots involved. Incorporating all of the elements into SI as described above is not likely to lead to liability under patent law where a patent was awarded in relation to a technical invention regarding SSS.

The legal position is similar, but not identical, in relation to features and their functionalities, as of the type seen in the aforementioned 'stories' example. Generally speaking, it is unlikely but possible that a functional feature of a mobile gaming app will be covered by a patent grant. Of course, before considering any potential liability under patent law, Innovation must first hold a patent in relation to SSS in the first place; the relevant questions in this context have been discussed above in the sections on conception and development.

4.2.4 Copying the Graphic User Interface or Elements Thereof

As previously explained, it may very well be the case that the most valuable asset of SSS is its GUI, its component parts and the manner in which they support the user experience. An attractive and intuitive user interface can make or break a mobile app, irrespective of the underlying code or the software architecture that underpin the mobile app. We have seen that, since it is possible to replicate the GUI without copying any part of the underlying code, it is largely necessary to view the GUI as a standalone asset of SSS, consider its protection separately and enforce the relevant IPRs accordingly. Such protection depends, firstly, on registering the relevant IPRs where registration is required and, secondly, on successfully monitoring the mobile gaming app sphere and identifying instances where elements of the SSS GUI were appropriated by a competitor; the latter may be carried out by Innovation or by third party entities that provide such monitoring services.

4.2.5 Trademarks and Unfair Competition

The fine lines delineating the actual scope of protection in relation to registered trademarks vary from one jurisdiction to another and a determination of whether a registered trademark has been infringed will require consultation with a local legal expert. However, there are a number of points that Innovigation would be well-advised to bear in mind in the context of trademark infringement.

Firstly, as was mentioned earlier, trademark protection does not arise automatically and is conditional on registration. It follows that Innovigation should have registered the relevant trademarks during the development phase, prior to launching SSS, or, in some instances, following the launch of SSS in the case of signs that require the public to become familiar with them to indicate a commercial origin (e.g. this may be the case with signs initially viewed by the public as purely ornamental, but that, through use, may come to be viewed as an indicator of origin).

Simply registering one's trademark is of limited use if there is no proper monitoring of the use of that mark or similar marks in the market place. In addition, it is advisable to monitor trademark applications in key jurisdictions in case a party seeks to register an identical or similar trademark (as opposed to simply using one). Conducting such monitoring exercises may prove burdensome, in which case Innovigation may focus on the activities of its competitors and be mindful of products and services launched by its competitors. Should SSS become popular and Innovigation be able to afford the costs involved, it may choose to use trademark monitoring services offered by third parties. Upon identifying instances where identical or similar trademarks are being used by unauthorized third parties, even in relation to goods or services that have little to do with SSS or mobile apps in general, it should seek the advice of a trademark law expert regarding the most appropriate course of action.

Trademarks may be enforceable in the territories in which they were registered. On the other hand, if a mobile app is available for download in a jurisdiction in which SSS trademarks were registered, liability for infringement may be established in that jurisdiction. However, it should be borne in mind that some of those potentially infringing activities may take place on the other side of the world and enforcement may therefore prove challenging. In this context, the dispute resolution mechanisms offered by the popular mobile app platforms may prove to be highly attractive, as they may bypass the need to initiate legal proceedings in far flung jurisdictions, while bringing the dispute to a satisfactory conclusion; enforcement via the dispute resolution mechanisms of distribution platforms is discussed below.

If, however, elements of SSS that potentially denote its commercial origin were not registered as trademarks, either as a result of an omission or an informed decision

owing to limited resources, and Innovigation becomes aware of a party that uses such insignia in a manner that may cause confusion, it may still be possible for Innovigation to legally challenge such practices. This may be addressed by initiating proceedings for unfair competition in the jurisdiction in which the objectionable behavior takes place (to the extent that an unfair competition regime that covers such scenarios is available). As in case of trademarks, making mobile apps available for download in a specific jurisdiction may be enough for instigating legal proceedings in this jurisdiction. It should be noted that, as a general rule, proceedings for unfair competition are likely to be more time-consuming and costly than those for trademark infringement; it is therefore advisable to register them, where possible, rather than rely on unfair competition law. As always, early consultation with a local legal expert is desirable in this context.

4.2.6 Copyright

Unlike trademarks, copyright protection may arise automatically upon creation and does not require prior registration or compliance with any formalities, although we have seen that where possible, registration may be beneficial for evidential purposes in the case of disputes. In terms of the subject matter relevant to copyright law, Innovigation should pay attention to either text or visual elements that may have been copied from SSS. Such copying does not have to take place only in relation to a competing mobile app, as copyright protection is not limited by references to types of products or services.

Regarding text, copyright protection may only be available to original works that originate from the SSS team and have not been copied from third parties. In addition, such works should not be commonplace. Mundane text inside the supermarket, such as 'Entrance', 'Special Offers' and so on, is therefore not likely to be protected under copyright law. Single words or short combinations of words are similarly unlikely to be protected under copyright law (e.g. 'Supermarket Shopping Spree'; trademark law would be the appropriate vehicle for protection in such a case). Longer texts, such as player rules and instructions, may be subject to copyright protection, but only if a competitor engaged in verbatim copying. It follows that a competitor may choose to copy the information in the SSS rules and instructions without copying the actual form of expression (e.g. the text itself), and express it in their own words without infringing the copyright in the said instructions and rules.

Copyright may also affect some of the artwork in SSS. Features such as the depiction of certain characters in SSS, the 'look' of the supermarket's interior and so on may therefore be subject to copyright protection. Again, such protection may be available

in relation to any copying of the actual form in which these features are expressed or depicted, rather than in relation to the idea or concept that underpins them. For instance, artwork depicting a wet spill on the floor next to the dairy aisle on which an unobservant player may slip may be subject to copyright protection. However, such protection may extend only to any actual copying of the artwork, rather than to the idea of having such a spillage on which a player may slip next to the dairy aisle; a competitor may choose to incorporate the latter concept into their mobile app without attracting liability under copyright law where no copying of the actual depiction took place.

In general, enforcing one's copyright should take place in the jurisdiction in which infringement took place, which in our case would be the territory in which the infringing game may be downloaded. As in the case of trademarks, the dispute resolution mechanisms of distribution platforms may prove highly efficient both in terms of costs and expediency.

4.2.7 Patents

Enforcing patents requires proof that every element of the claimed invention is included in the third party's implementation of an app. This analysis can be highly technical. If Innovation becomes aware that someone is using identical or highly similar patented technology, the company should seek the advice of a patent expert. Like all registered IPRs, patents are territorial in nature and are valid only in the jurisdictions in which they were granted. If the infringing activity takes place somewhere else, then Innovation has no recourse. Unfortunately, most distribution platforms' dispute mechanisms do not cover patent disputes, but in general are limited to content rather than technology. As a result, in a case of potential patent infringement, enforcement may need to take place in the relevant jurisdiction by issuing a cease and desist letter and, if necessary, instigating legal proceedings in that jurisdiction.

4.2.8 Industrial Designs

Similar to trademarks and patents, enforcing one's industrial design is conditional upon prior registration of such a design, although some jurisdictions may offer protection against copying unregistered designs for short periods of time. In general, the scope of the right pertains to the ornamental aspects of the item in question. As we have seen, in the case of SSS, it may be elements of the GUI, whether pictorial, text-based or a combination thereof, that may be protected under design law. Should

Innovation become aware of mobile apps that use identical or similar elements, it should seek the advice of a legal expert. It should be noted that, although less likely, the use of such elements in environments other than mobile apps (e.g. unique shelf arrangements in real-life supermarkets) may also give rise to liability under design law in certain jurisdictions.

As mentioned below, the dispute resolution mechanisms of distribution platforms do not appear to cover design law disputes, which effectively means that resolving such disputes may require steps to be taken in the relevant jurisdiction. However, it should be borne in mind that some aspects covered under registered designs may also attract copyright protection independently (e.g. as in the case of artwork). In such a case, it may be more expedient to use the dispute resolution mechanism in relation to copyright disputes. As always, such steps should be considered in consultation with an expert in IP law.

4.2.9 Role of Intermediaries in Intellectual Property Enforcement: The Dispute Resolution Mechanisms of Platforms

While the prospects of successfully bringing an action against an infringing party on the other side of world may appear daunting for a micro business with limited resources, it should be recalled that, unlike a product circulating freely in the marketplace, most mobile apps aimed at the general public are mainly offered via two global platforms: Apple Store and Google Play. Both platforms have a complaints procedure that may enable the proprietors of IPRs to enforce their rights and prevent infringing apps being offered on the platform. This may prove immensely useful in pursuing one's IPRs in a borderless web-based landscape by avoiding costly and complex legal process in foreign jurisdictions. Their dispute resolution mechanism currently covers IP disputes related to mobile app content, and not the underlying technology. It may therefore not cover underlying code and architecture, trade secrets and utility patents, but, for some reason, it also appears to exclude industrial designs and design patents even though both may concern the appearance of a GUI. The dispute resolution process on both platforms is briefly explained below.

a. [Apple Store Content Disputes](#)

The Apple Store procedure appears to be fairly straightforward. It enables you to submit a form to the Apple Store where you may report a violation of an intellectual right in relation to an app on the Apple

Store. The form is straightforward and requires the complainant to specify the name of the rights holder, details of their representative, a link to the allegedly infringing app and a short explanation of the alleged violation. The complaint is usually processed within a couple of weeks and the proprietor of the allegedly infringing app is requested to remove the app or provide evidence and an explanation as to why their app does not infringe the IPRs of the complainant's app. In most cases, the procedure proves to be quite effective, with the offensive app being promptly removed. Otherwise, the developer behind the offensive app risks having their rights as a programmer on the Apple Store rescinded, thereby denying them access to one of the most popular and effective channels for making their apps available to the general public.

b. [Google Play Procedure](#)

The Google Play policy center clearly stipulates: "We don't allow apps or developer accounts that infringe on the intellectual property rights of others (including trademark, copyright, patent, trade secret and other proprietary rights). We also don't allow apps that encourage or induce infringement of intellectual property rights."

While not condoning IP infringements by app developers on its platform, Google Play provides, among other things, a complaint form specifically for copyright and trademark infringement. As a result, not unlike the scope of the dispute resolution procedure available on the Apple Store, the procedure on Google Play focuses on content. It does not provide for a specific procedure in the case of violations of utility patents or industrial designs, or in the case of trade secrets. Similar to the procedure in the Apple Store, the proprietor of the offending app will be contacted and asked either to remove the said app or to explain why it does not infringe the complainant's IPRs. Repeat offenders may have their accounts terminated by Google.

4.3 Some Issues Pertaining to Ex-Employees

As mentioned above in the discussion of the conception phase in the section on trade secrets, Innovigation should consider employment agreements that create obligations

to protect its confidential information. In general terms, employees can be prevented from using or disclosing the trade secrets that they acquired during their employment even after their employment is terminated. Such an agreement may require employees not to use or disclose trade secrets for either their own personal benefit or the benefit of any other person (legal or natural) during the employee's employment or at any time thereafter. A legal expert in the country of employment can best advise Innovigation on the way such clauses can be incorporated and their scope. These agreements do not limit the ability of an ex-employee to work for a competitor, but instead restrict a former employee from disclosing confidential information.

If Innovigation considers it important to limit the capacity of some of its ex-employees to work for its competitors, it can incorporate non-compete clauses in its employment agreements. Such clauses may limit the capacity of ex-employees to work for competitors after their employment is terminated, with such restrictions being limited by time (i.e. specified period), geography (i.e. specified territory) and line of business (e.g. 'software development for mobile apps'); in principle, the narrower the non-compete commitment is, the more likely it is to be upheld by the courts and vice versa. It is of utmost importance to consider the use of such a clause and its exact scope following a consultation with a local legal expert; the validity of such a clause and its permissible scope may vary greatly from one jurisdiction to another and local knowledge is therefore key for ensuring that, if necessary, such a clause may be successfully enforced. As mentioned above, in certain jurisdictions restrictions on future employability may not be enforceable per se, unless accompanied by payment. It is generally advisable to refrain from wide use of non-compete clauses and reserve such use, if at all, to employment of key employees that may have had access to valuable trade secrets during their employment.

4.4 A Brief Note on the Independent Creation of Similar Apps, or Parts Thereof, As Opposed to Copying

While some IPRs, such as patents, may be engaged on the basis of the nature and scope of a competitor's use of the patented product or process, other rights, such as copyright, may only come into play where a competitor has engaged in an activity that pertains to copying. For example, should Innovigation realize that a competitor launched a mobile app that utilizes a patented technology covered by a patent granted in relation to SSS, they may initiate legal proceedings and establish liability irrespective of whether that competitor copied or appropriated that technology from SSS. As a result, even where the competitor reached a similar technological solution independent of SSS and no copying took place, liability may nevertheless be established. This may be contrasted with copyright. Let us assume that Innovigation

identifies similar looking artwork in the mobile app of a competitor. Should that competitor succeed in establishing that the said artwork resulted from independent creation rather than copying, infringement under copyright law may not be proven.

In conclusion, while monitoring the activities of competitors, Innovigation may be alerted to instances where competitors utilize identical or similar trademarks (potential trademark liability), products or services or technology embodied therein (potential patent liability), or designs (potential liability for a violation of protectable industrial designs). In these cases, the mere use of an identical or somewhat similar subject matter may lead to infringement and expert advice should be sought in this regard. In the case of potential liability for copyright, unfair competition, trade secrets and, where it exists, unregistered designs, only activities pertaining to copying or misappropriation may give rise to liability and evidence as to independent creation may therefore exempt a competitor from it.

4.5 Key Takeaways

Apart from any aspects of IP that the commercialization phase may involve, we have seen that it is of the utmost importance for Innovigation to ensure that various regulatory regimes, such as privacy and advertising laws, are adhered to when SSS is launched.

After preparatory and development work has been completed, and Innovigation is of the view that SSS is ready to be marketed, the commercialization phase of SSS will commence where Innovigation hopes to be rewarded for the effort and investment it put into planning, developing and perfecting SSS.

Before commercialization, Innovigation should strive to register its IPRs. The act of commercialization, by providing SSS to the public, may actually prevent the registration of patents or industrial designs at a later stage. While trademarks may be registered after commercialization commences, securing this protection earlier, where possible, can safeguard against potential disputes with third parties.

When it comes to enforcing its IPRs against third parties, it is, of course, important for Innovigation to become aware of potentially infringing activities. It goes without saying that counterfeit or unauthorized copies of SSS involve the infringement of all relevant IPRs. In such a case, the challenge may not be in establishing the infringement, but in effectively enforcing the IPRs. Aside from straightforward cases of counterfeiting, scenarios involving infringement by a third party may be classified in two main groups: one involving the copying or utilization of the ideas and concepts that underpin SSS, and another concerning the copying or utilization of the SSS user interface and the user experience as reflected in its GUI.

Regarding the first group, copyright is unlikely to be of much assistance except for in the most exceptional circumstances. Ideas and concepts per se are not protected under copyright law and Innovigation is unlikely to safeguard such ideas and concepts against use by competitors by relying on copyright law. When it comes to patents, to the extent that Innovigation was awarded a patent in relation to a process or a method that underpins all or part of SSS, expert advice may be sought if Innovigation identifies the same or a similar technology, process or method being used by a third party.

Regarding IP violations relating to the copying or utilization of the SSS GUI or parts thereof, a distinction may be made between rights that require registration and those that do not. To the extent that trademarks, industrial design rights and utility patents have been successfully registered in relation to elements of the SSS GUI, the use of such elements by a third party, regardless of whether or not copying took place, may trigger infringement. Concerning copyright, unfair competition and unregistered design rights (where the latter are available), the use of protectable elements of the SSS GUI by a third party may notify Innovigation that infringement of these rights may have occurred; in this case, infringement is likely to be triggered in relation to scenarios that involve copying rather than mere use. Again, consulting an IP expert is likely to be of benefit in this context.

Identifying potential instances of infringement by third parties is likely to be of little benefit for Innovigation if enforcement is not practical. This may be the case where the potentially infringing party is situated on the other side of the world, and may therefore require the initiation of legal proceedings in that territory; this is not likely to be feasible for the micro business in our case. However, we have seen that the dispute resolution procedures offered by the most popular mobile app distribution platforms, Google Play and Apple Store, may effectively overcome this hurdle by offering expedient cost-effective mechanisms for removing infringing mobile apps from these platforms.

Finally, we have examined the importance of imposing non-disclosure obligations on Innovigation employees. Such obligations are effective against the disclosure of trade secrets including after the employment relationship ends, and without any specific time limitations. Matters may be more complex should Innovigation seek to prevent some of its key employees from working for its competitors once their employment for Innovigation ends. In such a case great care must be taken so that the scope of the non-compete clause is not viewed as excessive and therefore unenforceable. A local legal expert may be engaged in order to advise on the scope and nature of any NDAs that Innovigation may require its employees to sign, including the agreement of its employees to non-compete clauses should Innovigation be of the view they are needed.



Mind map of compliance and IP enforcement considerations

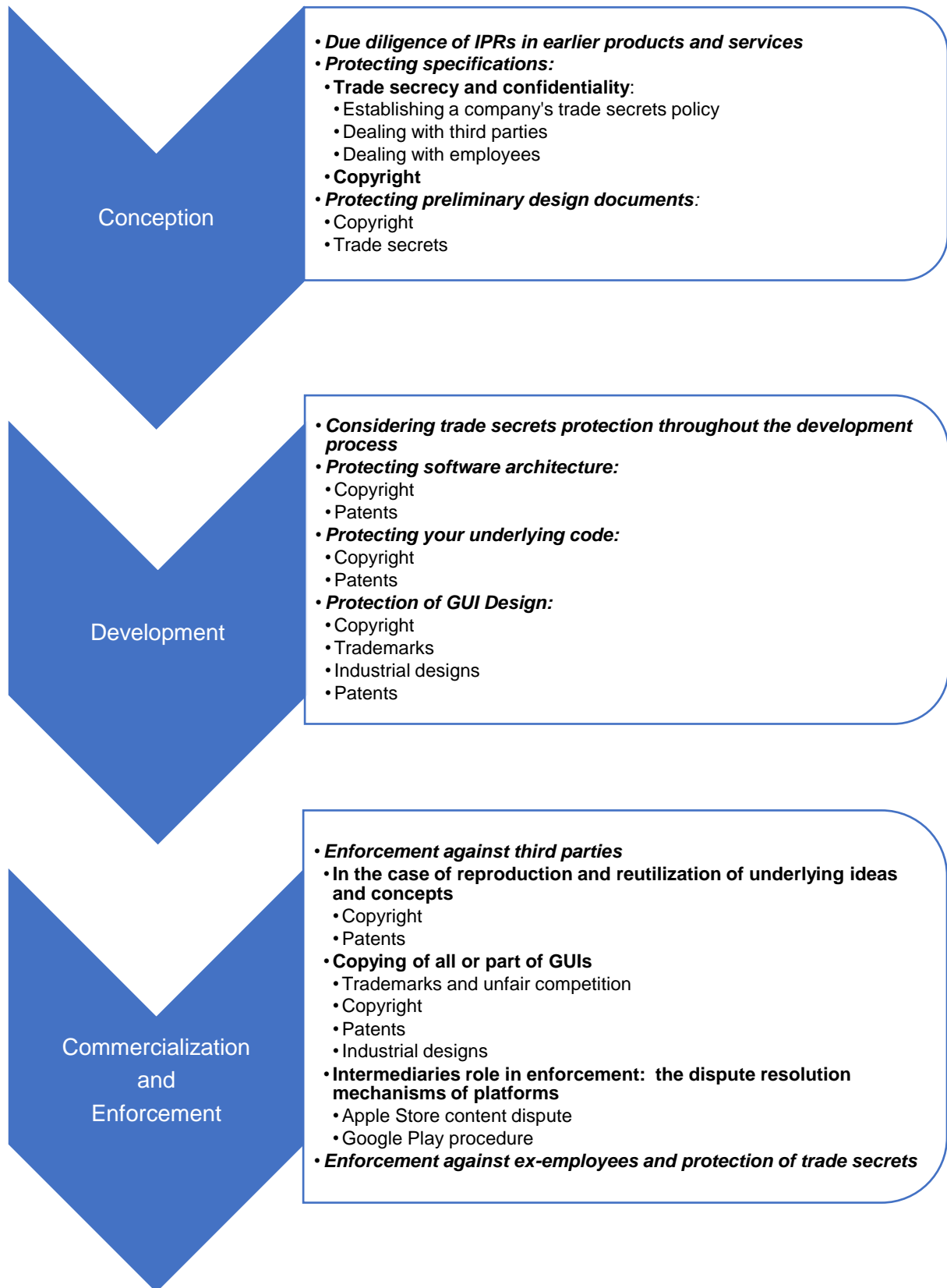
Alternative Dispute Resolution

Although mobile application disputes can be brought before national courts, litigation is not always well suited to dealing with the particularities of this type of dispute because such disputes can often be complex and require specialized expertise. As an alternative, parties may choose out-of-court dispute resolution methods, such as mediation and arbitration. The WIPO Arbitration and Mediation Center offers alternative dispute resolution (ADR) options, including mediation, arbitration, and expert determination model contract clauses and submission agreements (<https://www.wipo.int/amc/en/clauses/index.html>) to enable private parties to settle their commercial disputes, including mobile application disputes. WIPO also makes a Guide on ADR for Mobile Application Disputes available at: https://www.wipo.int/export/sites/www/ip-development/en/agenda/pdf/wipo_disputes_guide_mobile_apps.pdf.

5. SUMMARY

The module explained how IPRs may be used or acquired through each phase of a mobile app's life cycle. It unpacks the complexities related to the IP landscape as a whole, by examining the acquisition, usability and significance of each IPR in relation to the key life cycle phases of mobile apps.

We have seen that, as early as the initial conception stage, IPRs may play a significant role in protecting the main assets of mobile app designers. As explained, while all IPRs should be taken into consideration, it is likely that the protection of trade secrets, as well as copyright, may play a leading role in this phase. Moving on to the development phase, it was demonstrated that the protection of trade secrets continues to play an important role in protecting the key intellectual assets (e.g. code, architecture, user interface and user experience designs) of a mobile app business, while copyright, trademarks, industrial designs and patents also prove significant. The latter two deserve special consideration at this pre-launch stage since, once the app has been launched and disclosed to the public, any registration of either industrial designs or utility patents may no longer be possible as they are not likely to satisfy the novelty requirement under design and patent law regimes. Apart from any aspects of IP that the commercialization phase may involve, we have seen that it is of great importance for a mobile app business to ensure that various regulatory regimes, such as privacy and advertising laws, are adhered to when their app is launched. As mentioned above, the importance of registering the relevant IPRs prior to commercialization cannot be overstated. The timely enforcement of IPRs is essential, whether against straightforward counterfeiters or against competitors that 'borrow' attractive elements from a pre-existing mobile app; monitoring usage by both types of 'actors' is therefore vital to the efficient and successful enforcement of IPRs. Identifying potential instances of infringement by third parties is likely to be of little benefit where enforcement is not practical for reasons such as geographical location, costs and so on. We have seen that the dispute resolution procedures offered by the most popular mobile app distribution platforms, Google Play and Apple Store, may effectively overcome such difficulties by offering expedient cost-effective mechanisms for removing infringing mobile apps from their platforms.



The acquisition and utilization of IPRs throughout a mobile app's life cycle

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