LUDUSMAGNUS

A Way Forward for a Pakistani Game Developer

By Muhammad Umair Shabbir NUST201260209MNBS7501F

Supervisor: Zunaira Saqib.

2016
NUST BUSINESS SCHOOL
H-12, Islamabad, Pakistan

Disclaimer: *Muhammad Umair Shabbir, under the supervision of Zunaira Saqib, wrote this case solely to stimulate class discussion. The author does not intend to illustrate either effective or ineffective handling of managerial situations presented in this case. All information enclosed in this document is only to be used as a case study example for teaching purposes. The information contained in the case study is both factual and fictional.*

The vast majority of the financial figures are fictional, as private limited companies are not required by law to disclose their financial data to the general public. Moreover, the timeline of events has been altered to better suit the purpose of this case study. Opinions formulated by the author are solely intended to stimulate class discussion. No information in this document may be used in any way to assess the actual health or financial condition of the companies and organizations mentioned within.

INTRODUCTION

Due to a mutual dislike of working 9 to 5 only to realise someone else's dreams, two undergrad computer engineering students of National University of Science and Technology (NUST), Islamabad, Pakistan, decided to lay the foundations of their own dreams in 2010. Starting off with small technological projects which were met with a lukewarm reception, they were disappointed and desolate. Persistence is the key in any entrepreneurial venture and the two students, Ameed Ansari and Muneeb Ali, soldiered on until they graduated.

Lack of experience in running a business concern and a trail of small failures did not hold the young entrepreneurs back. As the old cliché in the business world goes, "With great risk comes great return." The young entrepreneurs knew, however, that the biggest risk that one can take is taking no risk at all!

Fast-forward to 2012 and the young entrepreneurs graduated. With their graduation, Creatrixe was born with the aim to develop mobile games that were both addictive and innovative. Creatrixe is the Latin word for creativity and the company was officially incorporated with The Securities and Exchange Commission of Pakistan (SECP) in June 2012, before which it ran as a proprietorship.

The beginnings of the company were anything but humble. Due to lack of capital investment, the small organization was operated as a virtual business by the two co-founders with the help of two unpaid interns. Telecommuting was the mode of operations since the business had no brick and mortar premises to operate from and the technology which is requisite for a business of this nature could not be achieved due to a lack of funding. They made-do with the existing computers and devices available at home. Most of the communication was through video chat, emails and IMs over the limited capacity internet connections in the country. At that point in time 3G and 4G had not been introduced in Pakistan, hence using one's smart phone as a Wi-Fi hotspot to substitute an out-of-order broadband connection was not a viable option. The mobile internet options available at that time were slow and unsuitable for heavy usage required by a tech business.

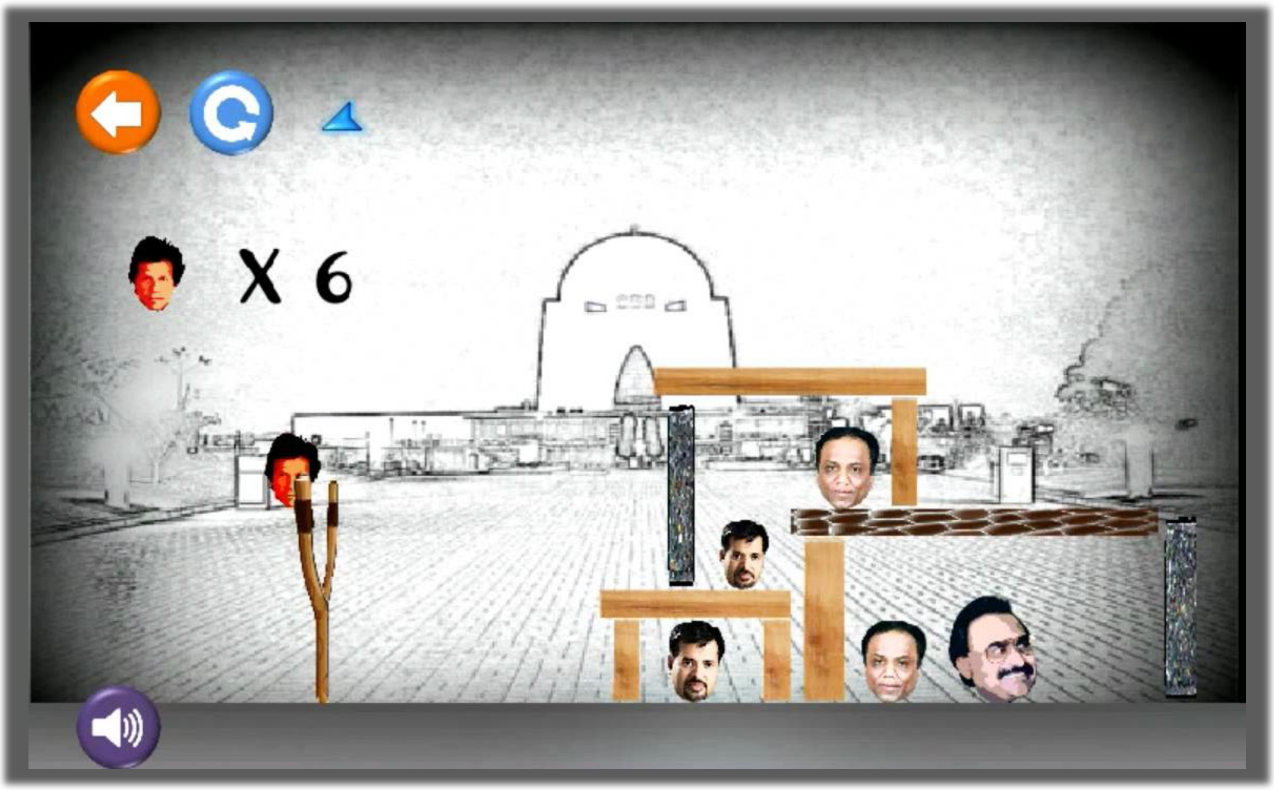
Apart from the communication issues, not having a physical office also meant that the entrepreneurs could not attract potential employees and investors. In a country where the level of trust over online businesses is scarce and potential stakeholders may not be well-acquainted with the true capabilities of the internet, having a brick and mortar setup is a must. Such constraints contributed to the slow growth in the beginning and hindered the attainment of the full potential of the small organization.

Thankfully, along with the incorporation in June, 2012, Creatrixe was able to rent an office space at Technology Incubation Center, NUST (National University of Science and Technology), H-12, Islamabad for a meagre sum of PKR 3,000 a month; the rent went up to PKR 15,000 a month after the six months of incubation and at the time of graduation from the center, it had risen to PKR 18,000 per month. The office was voluminous enough to fulfill the needs of the small team which Creatrixe consisted of.

NUST is a prestigious organization in its own right and the prestige of being based in Technology Incubation Center opens doors for a venture which would not be accessible otherwise. The Technology Incubation Center is one of the various departments housed by NUST Center for Innovation and Entrepreneurship, fittingly located at Innovation Drive in NUST Islamabad Campus, H-12, Islamabad, Pakistan. [1] The purpose-built facility was founded in 2005 by NUST to promote innovation within the university and was the first in Pakistan to introduce the concept of business incubators. The Technology Incubation Center aims to facilitate technological innovation within the university and provide a launching pad to entrepreneurs from which viable research and development ideas can be realised. Moreover, NUST realizes that it is difficult for start-ups to gain funding and form new business relations in the market on their own, so the Technology Incubation Center liaises “with private/public sector funding sources, government agencies, industrial associations, chambers of commerce and industries to provide facilitation and networking for Incubatee (sic) companies.” [2]

Hence, The Technology Incubation Center houses various technology-based companies formed by NUST students and faculty, as well as some by the general public. [1] The center hosts start-ups through the development and growth phases of their lifecycle until they can become independently viable outside of the incubator. On average, that takes three years, after which the business can officially ‘graduate’ and set-up their operations elsewhere. [2] As of today, the center houses twenty-seven start-ups focusing in various areas such as social media marketing, data mining, data analytics, resource-sharing, programming and application development, etc. over an area of 33,000 square feet of office spaces. [2][3]

Breakthrough and Spotlight



Source: LudusMagnus archives

The big breakthrough came in the shape of Angry Imran, a game made available on Google Play Store through the ‘Brainfreeze Studios’ alter ego of Creatrixe, on May 29, 2012, before the incorporation of the company. It was a free game and did not generate any revenues despite being downloaded 75,000 times. However, it did put the game developers on the map. At the time Creatrixe had two unpaid interns and no full-time employees.

Pakistan is a country of people who take the elections very seriously and allegiance to political parties tends to turn into something akin to a cult following. The pre-general election political environment at the time was such that emotions were running high to a point of boiling over. As explained by the co-founder, Mr. Ansari, the Imran Khan fever was flowing in the streets as well as social media and mainstream news, and the tech-savvy youth was fully charged in support of the emerging leader of Pakistan Tehreek-i-Insaf (PTI). According to an International Republican Institute (IRI) survey, PTI topped the popularity poll in Pakistan with 31% votes, with two other parties in tow: Pakistan Muslim League - Nawaz or PML-N gained 21% and Pakistan People's Party (PPP) received 16% votes. [4] Ali K Chishti, a reporter for The Friday Times, claimed that PTI was being seen as an alternative to the two big parties of the time – PML-N and PPP. Coupled with that, the PTI leader Imran Khan's popularity amongst the youth gave a new hope for the young population of Pakistan. [5] Amidst the heightened political awareness and media coverage, the team of Creatrixe came up with the idea to replicate the famous Angry Birds game with Imran Khan replacing the birds and other politicians at the other end of the screen.

As fate would have it, the launch of the game was originally planned one day before the rally by PTI in Rawalpindi on May 27, 2012, the sister city of Islamabad; however due to delays in the finalization stage, it was launched two days after the rally. The delay was a blessing in disguise as the rally had created momentum in the popularity of the political party and was the hot topic in all media outlets, including blogs, social media, print media and electronic media. This heightened state of popularity helped Angry Imran become much more relevant and hence the timing could not have been better. The story about Angry Imran was picked up by small blogs and consequently bigger blogs such as ProPakistani with substantial fan following.

ProPakistani praised the game and stressed upon the potential of local mobile game development, stating, "Games like "Angry Imran" clearly shows the potential that local apps and games have got. The entrepreneurial segment needs to be refined enough to realize the need for the development of content for local market, which is well over 180 million heads." [6]

The online news outlet of print and electronic media giant Express News, named Tribune.com.pk also published the story, which was shared well over 2,000 times on social media. [7] In the grand scheme of things, the British newspaper Telegraph also picked up on the story and reported that the leader of PTI Imran Khan himself said that he found the game "quite funny." [8]

The blog posts went viral on social media and gave birth to the popular hashtag #AngryImran which can still be accessed on Twitter. [9]

Subsequently, electronic media also picked up the story and the game was given air time on various popular news channels on television across Pakistan and brought the game into the spotlight for even those people who were either not active on social media or did not have access to the internet. The free publicity propelled Angry Imran and Creatrixe into the public eye.

Aftermath of the Hype

The two young entrepreneurs felt that it was high time they expanded their business venture and approached some major investors in the country. According to Mr. Ansari, young entrepreneurs are not taken seriously by investors due to their lack of experience and repute. It is common for investors not to even entertain entrepreneurs who have not been in the business for at least half a decade or a whole decade in case of some investors. This is because it takes time for a business venture to form the repute and portfolio in order to gain the investors' trust. Therefore, Creatrixe was unable to raise any major funding at that point in time. However, Creatrixe did manage to raise a small amount of funds, a meagre sum of PKR 200,000, through an acquaintance who believed in their vision and was finally able to truly kickoff with a number of mobile games on the Android, but only considered the iOS platform.

In simple terms, Killian Bell of Cult of Mac, a "news website that follows everything Apple", explained that the basic difference between Google Play Store and Apple App Store was the degree of control. Apple App Store required the developers to abide by "strict App Store guidelines, [so] every title [was] tested by a human before being approved." In contrast, "Google [was] happy to let most things fly" as long as the apps or games were "not offensive or harmful"; hence, Google Play Store contained a wide variety of "things like emulators and file downloaders" not supported by Apple App Store. [10] Moreover, as per App Annie, the metrics company, users made approximately 200 million downloads from Google Play Store in 2015, whereas downloads made from Apple App Store were half of that large figure. Contrariwise, App Store earned twice as much revenue as Google Play Store through these downloads. [11] The difference in number of downloads was the result of the boom in the Android market in developing countries (such as Pakistan). [12]

The technical difference between developing games for Google Play Store and Apple App Store was that Apple's "Mac" machines are prerequisite for writing iOS apps (for Apple App Store), whereas Android apps could be written on machines running various operating systems such as Windows, OS X and Linux. [13] Hence, due to the sheer capital investment required solely to develop iOS games for the Apple App Store prevented the newly formed company from pursuing it.

The hype also helped the company gain an important client in July, 2012 in the shape of Sports View Studios *(name changed for confidentiality)*, the creators of Maximus Cricket *(name changed for confidentiality)*, which was a Facebook game loved by cricket fanatics on the popular social media platform.

Creatrixe was contracted to create the Android and iOS versions of the multiplayer Facebook game and started working on it straight away. A lot of time and resources were put into the development stage, including hiring of two new full-time contract employees and purchasing Mac computers in addition to the personal computers brought in from home. The young entrepreneurs felt that their small company had finally found the holy grail of prosperity and prominence.

However, in September 2012, Creatrixe faced a major setback and lost a lot of the newly acquired investor's money when the sponsors of Maximus Cricket game pulled back on the verbal contract mid-way to completion. All the resources and man hours that Creatrixe had put into the development of the game turned into ashes and dust due to no fault of their own.

The sponsors, Sports View Studios, after review of their forecast felt that Maximus Cricket Android and iOS games were not going to generate as much revenue as they had previously calculated and the scope of multiplayer mobile games was not as much as they had anticipated. Hence, they declare the project financially nonviable and decided to cut their losses. According to Mr. Ansari, for a small company as Creatrixe, it was still a profitable endeavour even though not considered enough by a big company like Sports View Studios. Mr. Ali and himself even considered completing and rebranding the game as their own, but did not possess the resources required at the time.

Financial Breakdown and the Foundation of LudusMagnus

As a result of the Maximus Cricket fiasco, Creatrixe lost precious money and, with it, the investors' trust. This particular incident threatened the going concern status of the company. Quick on their feet and never taken aback by failure, the team at Creatrixe had to think of a way to keep the company going.

Mr. Ansari and Mr. Ali came up with the idea of diversifying the interests of Creatrixe to fund the losses. Hence, a client-centric web-designing and development approach was taken, to finance the losses and keep the game development business afloat. Mr. Ali had an extensive history of experience in the field as a freelance web-designer and developer, staring from when he was only a college student. He was familiar with the nitty-gritties of the business through years of freelancing projects and had the requisite contacts to procure clients for the newly formed entity. Hence, through freelancing in the beginning and procuring larger clients in the long-run, Creatrixe became a viable and profitable businesses within a year and a half. Now Creatrixe boasts a proud portfolio of host of local and international clients such as Pak-Suzuki Motors, Wi-Tribe, Pak-Suzuki Motors and Audi UK, among others.

The money channelled from the straight-forward web-development stream of Creatrixe into the game-development side assured that the company stayed a going concern and the creative team of mobile games aficionados continued to bring out more games into the market. However, most of the focus of Creatrixe turned toward the client-centric web design and development side of the business and the young entrepreneurs felt that it was time to separate the game development into a new business entity. By February, 2014, Creatrixe employed four full-time contract employees.

In September 2014, LudusMagnus (Latin for "The Great Game") was incorporated as a gaming entity with the help of some venture capitalists (VCs)* who injected a million Pakistani Rupees** in exchange for a 20%*** stake, and Creatrixe became solely a web-design and development company.

** The VCs wished to remain anonymous.*

*** Not the actual figure.*

**** Not the actual percentage.*

THE CHRONICLES OF LUDUSMAGNUS

With the incorporation of LudusMagnus, the young entrepreneurs aggressively expanded and hired six more full-time contract employees, bringing the total up to ten, and increasing to fifteen employees a year into operations. However, six months later, in March 2016, the number fell back to the pre-LudusMagnus era of four.

The contracts of one-year were awarded to each new employee with the probation period ranging from three to six months. If the employees survived the probation and went on to complete the year-long tenure, they were given the option to renew the contract for another year and so on. According to Mr. Ansari, most of those who left within the probation period had not been a good fit with the company and some who spent over two years in the sister companies left to pursue greener pastures in bigger companies, as they had outgrown their potential in a start-up.

The aggressive hiring and expansion had failed to reap the results which the young entrepreneurs had anticipated. The short life-span games based on other existing ideas were churned out one after the other, however, as explained by Mr. Ansari, "The Google Play Store and Apple App Store discourage cloned games and apps. A few months after their launch, the algorithms detect the clones and reduce their visibility for the users. Therefore, unless they go viral like Angry Imran for some reason, they disappear into the abyss and tend not to show up high enough in the search results for users to pay any attention to them."

These games, however, were attractive for LudusMagnus, because it took a short time of half a month for development and the total game play was limited to an average of 10 minutes. Those 10 minutes were sufficient to gain some revenue through ads embedded within the games. As soon as the algorithms would reduce their visibility, those games would be pulled out from the stores. The reason for pulling the games instead of letting them stay dormant on the stores was that it took a lot of resources to maintain the security updates to keep up with the operating systems of the mobile devices. Instead, having tapped the advertisement revenues over a period of three to six months, it was much economical to just pull the plug on them, meanwhile creating more short life-span games.

During 2015, LudusMagnus also entered the realm of Facebook games. Facebook, a popular social media website and later mobile app, hosts games which could be played over various platforms, e.g., Personal Computers, Android phones, Apple iPads, Apple iPods, etc. For Facebook Games, the company decided to use its own name (Games by LudusMagnus) rather than another alter ego, which was met with a lot of success.

When the popular social media platform Facebook was launched in 2004, it did not feature any games. It was not until 2009 that the Facebook provided support for games to be published through its platform and game developer Zynga launched Farmville, which changed the dynamics of Facebook use and casual users became crazed with the game What sets Facebook games apart is that they are based in a social platform and gamers get to interact with others during gameplay, giving rise to their popularity. [14]

As of 2016, Facebook claimed having 1.71 billion monthly active users, including 650 million gamers, and encouraged game developers to create more games for its users to engage in. [15]

Consequently, by the fourth quarter of 2015, Creatrixe had become a fully-fledged client-centric web designing and development company and was channelling its revenues to help run LudusMagnus. Therefore, by December 2015, Business Development Executives were added to the team to bring in new clients and projects for the two sister companies. As aforementioned, despite being in a direct marketing role, these employees also had a technical background. However, these were dropped, as the young entrepreneurs felt that they already had enough presence in the market to pull clients without the help of direct marketing. In addition to direct marketing, on a yearly basis, LudusMagnus have spent about PKR 100,000 on social media marketing over Facebook and the likes to promote their games.

Timeline

May, 2012 – Creatrixe was conceived as a proprietorship by Ameed Ansari and Muneeb Ali, who, with the help of two unpaid interns, launched Angry Imran on the 29th. The game was well-received by mobile gamers and its story was picked up by the social and news media. The game was launched under pseudonym of Brainfreeze Studios.

June, 2012 – Creatrixe was incorporated as a game development company with PKR 200,000 funding received from an acquaintance and the newly formed company moved into an office located at NUST TIC. The rent at this time was PKR 3,000 per month.

July, 2012 – Creatrixe won the project of making the android version of Maximus Cricket, a popular Facebook game.

August, 2012 – Angry Imran reached 75,000 downloads and was pulled from the Play Store, as the updates required to keep it on Google Play Store required too many resources and was deemed no longer financially viable by its creators. 2 programmers were also hired full-time.

September, 2012 – The verbal contract was annulled on the Maximus Cricket project mid-way due to a financial viability question raised by the finance department of the client company. Creatrixe lost a lot of resources which it had already invested into the project.

November, 2012 – Creatrixe diversified its focus by venturing into client-centric web designing to fund the losses in game development.

January, 2013 – The rent of the office was increased to PKR 15,000.

February, 2013 – 2 more programmers were hired.

March, 2013 to March 2014 – 6 employees were hired, including 2 graphic designers and 4 programmers.

January, 2014 – The monthly rent increased to PKR 18,000

March, 2014 – Creatrixe had a total number of shared employees of 10. They spent their time between game development and web designing.

September, 2014 – LudusMagnus was founded as separate game development company with some a million rupees of funding provided by VCs. 5 more employees were hired; mostly programmers and designers. Creatrixe became a solely client-centric web development and design company. The two companies together now had 15 employees, who had to keep switching between games and websites.

January, 2015 – The aggressive hiring could not be sustained and the lack of initial success of the newly formed company required massive cost-cutting. Hence, the number of employees reduced to 4. Half of the employees were let go during their probation period.

July 1, 2015 to June 30, 2016 – Creatrixe injected a million Pakistani Rupees into LudusMagnus.

December, 2015 – LudusMagnus (along with Creatrixe) moved to COMSATS BIC. Business Development Executives were hired for direct marketing. They were let go in April, 2016.

February, 2016 – LudusMagnus, under the screen name of Beedo Games, launched Slithering Snake on Google Play Store to moderate success.

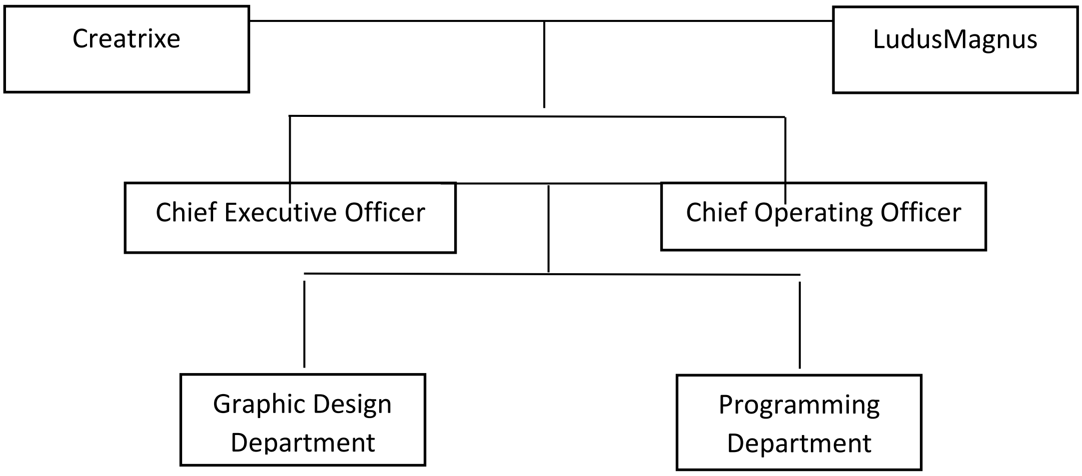
March, 2016 – LudusMagnus launched a game called Color Switch on Facebook, which reached a million users within three months.

May, 2016 – LudusMagnus launched Slithering Dragons under the screen name of Peanut Butter Labs, a game similar to Slithering Snake, which crossed a million downloads within 2 months.

June, 2016 – Massive hiring took place, bringing the total number of employees to 12, 4 of which were graphic designers and the rest were programmers. All of the employees had a technical educational background.

June 30, 2016 –The first accounting year-end since its inception wherein LudusMagnus declared a profit.

Organisational Structure



TRENDS IN THE MOBILE GAMES INDUSTRY

Overview of the Gaming Industry of Pakistan

With the advent of smart phones and mobile devices such as tablets, the gaming industry has had a metamorphosis. Gone are the days when traditional PCs (Personal computers) and consoles (such as Xbox and Play Station) defined real gamers. It takes lesser investment to develop mobile games and apps than for traditional platforms mentioned earlier, which suits Pakistani companies. [16]

According to research, game development will become a $41-billion industry in Pakistan by 2017. Currently, the IT (Information Technology) industry generates $3 billion in revenues per annum. Organisations like PASHA (Pakistan Software Houses Association) are working toward making the IT industry more attractive and accessible for ambitious game developers. Furthermore, Pakistan has now been white-listed by Anti-money Laundering Body Financial Action Task Force (FATF) that supports standardized electronic-payment framework across the globe. [17]

The government of Pakistan has introduced National ICT R&D (Information and Communication Technology & Research and Development) Fund to finance entrepreneurs with viable technology projects. [18]

The Pakistani gaming industry employs approximately 25,000 people and the number is increasing day by day. According to PAS report, Pakistan is adapting the smartphone movement, hence the increase in employment in this field in the country can be in part attributed to the fact that game developers “seem to be very adaptive to the trend” and “modify their approach according to the gamer’s [sic] interests.” [19]

As per the 2013 Global Games Market Report by Newzoo, the ‘Massively Multiplayer Online’ games (MMO), wherein players are engaged in a game collectively as a community, is the up-to-the-minute and most popular type of gaming segment, and is expected to grow exponentially in the coming years. [18] Another recent development that has come into existence is the introduction of a revenue model named “Freemium”, which enables gave developers the option to generate revenue from free apps. According to Apple, “Freemium” entails users not paying a cent to download the apps, however they are “offered optional in-app purchases for premium features, additional content, or digital goods.” [20]

The success of a mobile game or any app in general, however, is a different ball game. As per a report published by Gartner, only 1% of apps launched become a success. Rahul Varshneya, the co-founder of mobile app marketing agency Apprise, deems this 1% figure an opportunity. He stresses that 99.99% of apps that fail do so because they get lost in the abyss of apps available to download. At the time of launch, distribution and marketing strategies, hence, are a must to get an app noticed by potential users. [21] Even once the app has been noticed, engaging and retaining the users is another issue.

The Silicon Valley entrepreneur Andrew Chen theorizes that, on average, a new mobile app loses 77% of its daily mobile users (DAU) within 72 hours of its launch and that only the apps which manage to retain their users for a week can be financially successful. [22] Hence, retention of users is of utmost importance.

Rahul Varshneya of Apprise states that the "Feedback" loop is a concept that app developers need to embrace to make their products a success. He stresses on the importance of data analytics to figure out what features the users of the apps actually like or dislike. Hence, a successful app is dynamic and it grows as per user preferences, according to Rahul Varshneya, citing that "Instagram was a completely different product and so was WhatsApp." [21]

However, not everything is that simple in the gaming industry of Pakistan. Entrepreneurs running game development companies complain that the requisite infrastructure for the gaming industry in the country, such as electricity and telephone lines, tend to be unreliable and defective, forcing them to have back-up and contingencies in place. [17] Moreover, lack of access to funding remains a major setback for start-ups to realise their goals. Pakistan Software Export Board (PSEB) attributes the dearth of investment as a deterrent for Pakistani game developers in entering the international gaming market and also maintains that the local investment in human resource development leaves a lot to be desired. Despite the introduction of the aforementioned National ICT R&D Fund, "the cumbersome process of securing fund approval sometime takes up to a year" and hence, the extensive application process disheartens start-ups from applying for funding through this initiative according to Jehan Ara, who is the President of PASHA. [18]

A game changer in the form of Cybercrime Bill – officially known as Prevention of Electronic Crimes Bill or PECB - was adopted by The Senate Standing Committee on Information Technology in July 2016. It completely alters how the users of the internet act in a different legal environment. Various digital rights groups and IT experts have voiced their concerns over the bill. [23] Though most of the bill deals with offenses such as "cyber terrorism", hacking and identity theft, some of the clauses could be of certain degree of concern for the tech industry and app developers. For instance, publishing an individual's picture without their express consent can lead to a fine of a million Pakistani Rupees, three years in jail or both. [24] Furthermore, up to six months imprisonment, a fine of PKR 50,000 or both can be handed out for "producing, making, generating, adapting, exporting, supplying, offering to supply or importing a device for use in an offence". Similarly, glorification of an offence relating to terrorism, explained as "depiction of any form of praise or celebration in a desirable manner", could result in seven years in jail, a PKR 10,000,000 fine, or both. [25] Hence, launching another game in the same vein as Angry Imran or Gullu Butt could now instigate legal woes for its developers.

Only private limited companies with a share capital of 7.5 million or more are required by law to provide audited financials to SECP [26]. Since the confidentiality of their financial data is protected by law, there is no way to know how many of the game developers incorporated as private limited companies actually have a share capital which meets that minimum requirement to publish audited accounts. However, it does not mean that smaller companies should not maintain proper accounts. According to Standard Chartered Bank, the bank require debt and financial analysis to disburse a business loan even to private limited companies. [27] This would be the banking industry norm. Also, askthevc.com, a blog run by VCs, stresses the importance of having financial statements audited from local but reputable auditors, especially for companies which have outgrown their start-up phase. [28]

A potential legal matter that most game developers overlook is intellectual property laws. Firstly, Copyright laws protect "artistic and literary expression", which translates into the fact that the code of a game is a literary work, whereas its sounds and graphics are artistic works. Closely copying a game can lead to legal troubles if it has been copyrighted, yet having someone copy a game not registered as a copyright would give very limited protection to the original developers. Secondly, the game title and its branding (taglines, etc.) are protected under Trademark laws. Even if a game is named "confusingly similar" to another, it can still lead to legal dire straits. [15]

Business Models in the Industry

In a broad spectrum, there exist three ways a mobile game can generate revenue for its developers:

1. Advertisements

The game is made available for download for free. Ads are set-up within the game while the user is playing and each click or impression (viewing of the ad) generates a small amount of revenue for the developer. It is easy to set up for the developer, and helps bring the ad to a broader audience since the download and gameplay is absolutely free of cost. [29] An innovation in the simple advertisement model is the generation of clicks or viewing of an ad in exchange for gaming currency or other perquisites. The famous game Flappy Bird, for instance, earned an average of $50,000 per day, through this model. [30] A recent study by Unity Technologies indicated that 71% of gamers chose video ads rather than paying money in exchange for content. [31] (See Exhibit 1 for more information about In-app Advertisements)

The limitation of such a model is that the amount generated per click is generally rather low. Moreover, users may become irritated and avoid a game if the advertisements are too invasive. [29] In a stark contrast, 78% of mobile gamers showed openness to reap "rewards" by watching video ads for in-game rewards, 62% claimed regularly watching video ads for in-game rewards, and 46% showed preference for "rewarded video content" over other ads. Furthermore, 52% of mobile game developers pointed out that video ads provided the highest revenue per user compared to other in-game advertising. Merely under 10% of these game developers claimed that their use retention rates fell after introducing rewarded video ads. [32]

2. Paid

Game developers have the option to set a price which the gamers have to pay in order to download the game. This is a one-off amount that the users have to incur and out of the total amount, about 30% royalties are claimed by the platform on which the game is issued, for example Google Play Store and Apple App Store. Moreover, the platform provider may charge a one-time fee in order to set-up a publisher account in this case; for Google this fee is $20. [29] Minecraft, one such paid game, made a million US dollars on Christmas Day alone in 2013. [30]

However, the competition for paid apps and games is intense. Unless the game is "useful, original [and] marketed creatively", gaining enough users willing to download it to gain enough revenue can be very difficult. [29]

Key Average Cost Per Install Statistics:

- iOS app CPI Globally – $1.24
- iOS app CPI in US – $1.64
- iOS app Cost Per Loyal User in US – $2.78
- iOS app CPI in Europe – $1.4
- iOS app CPI in Asia – $0.90
- Android app CPI in US (Google Play market) – $1.91
- Android app CPI in US (Amazon market) – $1.74
- Android app CPI in Europe (Google Play market) – $0.99
- Android app CPI in Europe (Amazon market) – $0.41
- Android app CPI in Asia (Google Play market) – $0.74
- Android app CPI in Asia (Amazon market) – $0.26

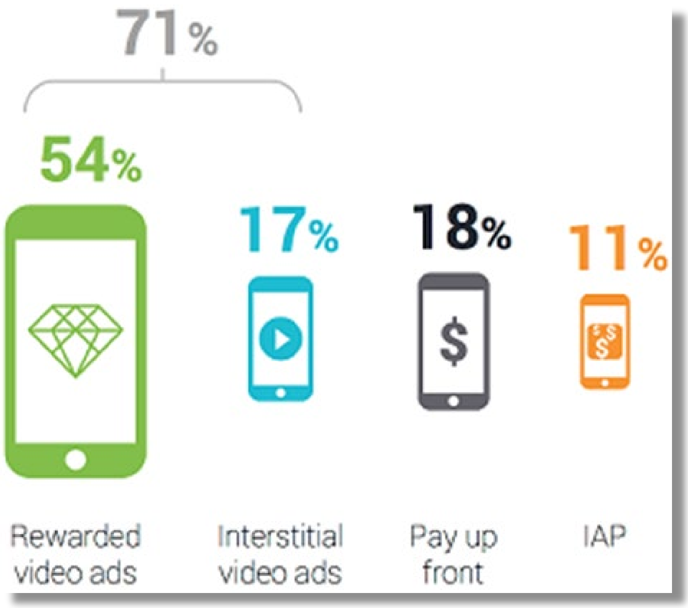
Source: mobyaffiliates [33] - March 14th, 2016

3. Freemium

The portmanteau word "freemium" blends "free" and "premium" to form one term. [30] It basically means that the game itself is free to download, but users have the option to purchase additional features, extended gameplay, virtual goods or extra levels within the game. The freemium model addresses the inhibitions that users might have with paid games; they can play and later decide whether they want to spend any money on the game later on. [29] [30]

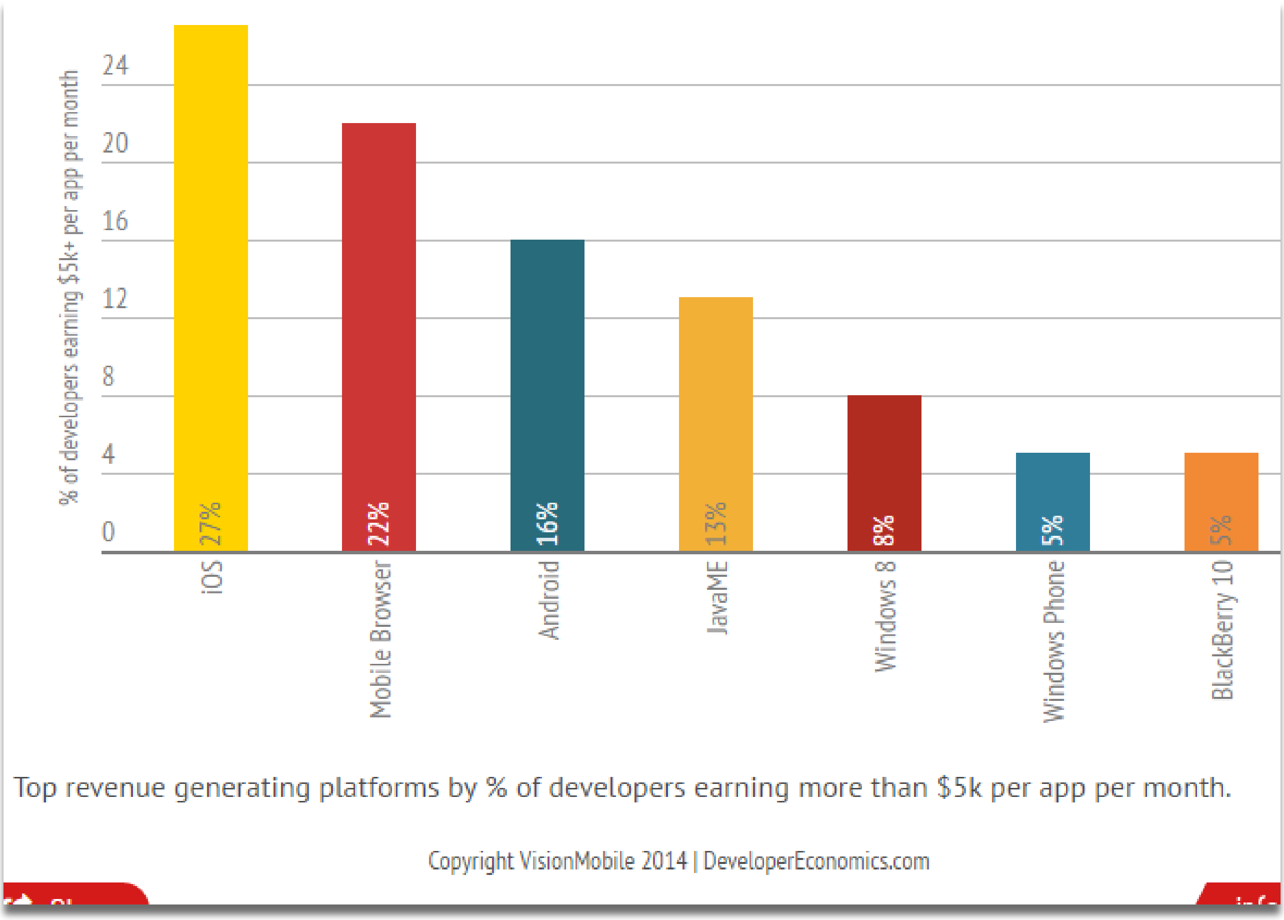
Swrve, a mobile marketing firm, released its "2016 Mobile Monetization Report" on March 23, 2016, wherein it stated that merely 1.9% of mobile gamers make in-app purchases. However, it is not all necessary bad news. In-app purchases priced under 5 USD represented 39% of purchases and 14.5% of revenue generated from freemium apps, whereas purchases costing in excess of 50 USD, though accounted for 2.5% of purchases, brought in over 17% of revenue. Furthermore, out of the sample of gamers studied by Swrve, it found that 64% of gamers made only one purchase, whereas only 6.5% gamers made five or more in-app purchases. [34]

User Preferences in Mobile Games



Source: Unity Technologies – 2016 [32]

Highest Earning Platforms



Source: DeveloperEconomics - 2014 [35]

THE FUTURE OF LUDUSMAGNUS

Screen Names

LudusMagnus, in a similar vain to its predecessor Creatrixe, has used various screen names or alter egos to publish its games. When Angry Imran was launched by Creatrixe, a screen name “Brainfreeze Studios” was used. The rationale behind such screen names was to give an indie game developer ‘feel’ to the games, according to Mr. Ansari. The working of screen names remains, to date, actually quite simple. It is like making multiple e-mail addresses by the same company. In this case, new accounts are created without any extra cost with Google Play Store and Apple App Store and games are launched through those different accounts.

The major advantage of screen names is that if the games published under a particular screen name were to become unsuccessful, a new one could be made without tarnishing the image of LudusMagnus itself. Hence, various alter egos have been used by the young entrepreneurs to launch their games and many have been abandoned along the way.

As of June 2016, LudusMagnus had three active alter egos on Google Play Store, namely Peanut Butter Labs, Free Games by LM (acronym of LudusMagnus) and Beedo Games. Brainfreeze Studios, the first successful screen name, has since been dropped with the incorporation of LudusMagnus, as it had been associated with Creatrixe. For Facebook games, the company uses its own name, Games by LudusMagnus.

The dropping of old screen name and addition of new ones is aimed as a tactic to distance LudusMagnus from its sister concern due to the divergence of interests.

Recent Success

Out of over a hundred games launched by LudusMagnus of various sizes and scopes, a handful have had the impact that the company has always aimed for. Two of their games, ‘Slithering Dragons’ and ‘Color Switch’ have crossed the million user mark; both of these apps follow the in-app advertisement model.

Color Switch, a game playable on the popular social media website, Facebook, which was released under the company’s own name (Screen name: Games by LudusMagnus), has become a blockbuster for LudusMagnus. It is based on an Android game of the same name by Fortafy Games. The original is free and has over a hundred million downloads on Google Play Store. [21]

Slithering Dragons, which is the revamped version of Slithering Snake, has also succeeded to cross the million downloads mark. The less successful Slithering Snake, another game by LudusMagnus released under the alter ego of Beedo Games had less than half a million downloads. Slithering Dragons, however, was launched under the alter ego of Peanut Butter Labs, giving the impression that it was launched by a different game developer. It is important to note that both of the latter are based on a multiplayer arcade game called Slither.io by Developer Steve Howse, which is playable online in any web-browser. [36]

The recent success of these games by LudusMagnus has helped build the company a decent portfolio of apps. Moreover, through in-app banner and interstitial advertisement, they have collectively about two and a half million Pakistani

Rupees of revenue, thus covering the investment of Creatrixe into the company within the year. However, it is important to note that neither game is an official different platform remake in any way.

Growth Potential

Creatrixe (along with LudusMagnus) graduated from NUST Technology Incubation Center in December 2015, which means that it had to vacate the office space. Fortunately, COMSATS Institute of Technology (CIIT) Business Incubation Centre, also located in Islamabad, Pakistan, was willing to house the company for a monthly rent of PKR 30,000. According to Mr. Ansari, LudusMagnus, with its portfolio of games with varying success, was considered by CIIT Incubation Centre a welcome tenant. Even though Punjab Information Technology Board (PTIB) ranks it at number 10 in as opposed to number 2 ranking awarded to NUST Technology Incubation Centre, it suits LudusMagnus due to lower costs as compared to a stand-alone office space acquired in a commercial area and support provided by the incubation centre which would not have been available outside of one. It is also important to note that CIIT Business Incubation Centre, as of June 30, 2015, had "successfully incubated 2 companies and 3 projects." [37]

As of June 2016, LudusMagnus had eight employees; four of them being graphic designers and four programmers. They did previously employ Business Development Executives paid a commission on top of their base salaries for each project they won the sister companies. However, it is important to note that all of the employees had a technical background and none attended any business schools. Mr. Ansari and Mr. Ali, apart from leading the company, also shared financial and management duties themselves. Both co-founders actively took part in the technical aspects of the companies as well. The passionate team of ten shared their time between two companies.

According to Mr. Ansari, with the advent of 3G and 4G since 2013 in Pakistan, the scope of mobile games had increased manifolds. With the passage of time, the cost of using 3G and 4G technologies has also dropping gradually. The potential was also aided by the availability of smartphones at low prices. These factors together culminated in the increased access to 3G and 4G internet of the mobile users, which increased from 16.88 million in June, 2015 to 32.29 million in as of June, 2016 according to PTA (Pakistan Telecommunication Authority) Annual Report 2016. [38] Moreover, 5G technology would be launched in Pakistan by 2020 according to the State Minister for Information Technology, Ms. Anusha Rahman. [39] Hence, the increased access to high speed mobile internet has broadened the horizons of the target market of smart phone games and apps. As per Mr. Parvez Iftikhar, an Information Technology expert, "The availability of low-cost smartphones and aggressive roll-out of apps has made this possible." [40]

Mr. Ansari truly believes that LudusMagnus can become a major player in the market, competing with the likes of we.R.play, Mindstorm Studios, Ketchapp, Orangenose, etc. in the long-run.

Mr. Ansari also believes that LudusMagnus has the potential to make its place in the international market. He maintains that as long as LudusMagnus stays cheaper than similarly sized players in the international market, it will be able to attract contracts from abroad. Public Radio International (PRI), a news organisation based in USA, reported that according to Saad Zaeem, the co-founder of Caramel Tech Studios, a software house based in Lahore, Pakistan, the cost of producing a game in Pakistan can be over six times less than in USA. [16] Moreover, in a piece on mobile gaming industry of Pakistan by Tribune.com.pk, Jazib Zahir, who is the Chief Operations Officer at Tintash, another game development company based in Lahore, Pakistan, stated that "eastern Europe, Pakistan, and the Philippines [have] become prime destinations for software outsourcing" due to "games designed for smartphones need far less start-up capital". [17]

Moreover, since all of the products (games, apps, web design, etc.) are based on the internet, they can truly reap the benefits of globalisation, unlike companies with physical products, which require much more effort and considerably more complex distribution channels to introduce their products in the global markets.

Raw Financial Data

LudusMagnus and Creatrixe do not keep detailed accounts of the finances. However, after scouring through many excel sheets and note books, some scattered financial data was deciphered and jotted down for analysis. ****

The revenue of LudusMagnus for the year ended June 30, 2016 was PKR 4,840,233, whereas its day-to-day running expenses, shared equally with Creatrixe, were PKR 245,012. The equally shared rent was PKR 30,000 per month and the utilities were PKR 242,958 for the whole year.

The Selling, General and Administrative (S, G & A) Expenses, shared between the two, totalled PKR 988,000.00 during the year; this figure includes the Office Supplies (35% of the total) usually consumed within the year. Though expensed out, half of the supplies still remained in the inventory at the year-end.

For their shared employees, the two companies had to pay out PKR 5,480,000 throughout the year, whereas the directors' remuneration was PKR 500,000 from LudusMagnus alone. LudusMagnus owed Creatrixe 1.4 million Pakistani Rupees in loans during the year; the loan is payable in equal instalments over 5 years, starting this year, without interest. No formal contract was drawn for this loan and it is a verbal agreement. The small companies in Pakistan are obligated to pay between 20% to 35% corporate tax. In the specific case of LudusMagnus, this figure is 24%.

Furthermore, the historical cost of the fixed assets of the companies together, all of which were computers and electronic devices at June 30, 2016, was PKR 2,929,889. The accumulated depreciation at June 30, 2015 was PKR 894,950. The companies jointly own and depreciate their fixed assets at the straight-line basis over a useful life of 5 years. Software, falling under the category of Intangible Assets, were valued at PKR 650,000 at the beginning of the year at historical cost. More licensed software was purchased at the cost of PKR 99,000 during the year. The software are amortized at the rate of 25% per annum. Previously, an amortisation of PKR 150,000 had been accumulated jointly by the companies. LudusMagnus also had PKR 366,020 in its corporate bank account at the end of the year.

At its incorporation, LudusMagnus had been Authorised 3 million shares at par value of PKR 1 each. The Issued Share Capital of LudusMagnus, however, was the face value of shares held by VCs of PKR 40,000 rupees invested by VCs and PKR 200,000 invested in the company by the two co-founders/ Directors themselves, resulting in 240,000 Shares with a par value of PKR 1 each. The Deferred Tax Assets for LudusMagnus were PKR 259,980 as at June 30, 2015. No dividends were declared despite the surplus.

***** The scenario and figures are fictitious.*

Partial Financial Statements

The directors of LudusMagnus and Creatrixe sat down to decipher the financial condition of the two companies. Separating the accounting heads of the two companies and dividing the figures between them might seem simple at the fact of it, but it was a tedious task with many complexities. Still, they were able to make sense out of certain straight-forward parts of the financials.

After weeks of deliberation, they were able to only partially complete the financial statements and had certain confusions about the treatment of certain items. For instance, the depreciation and amortisation were of particular concern for them due to the complexity of the calculations involved.

The partial statements have been placed as under:

LudusMagnus

Protect and Loss Statement for the Year ended June 30, 2016

	PKR	**PKR**
Revenue		**4,840,233.00**
Expenses		
Miscellaneous	122,506.00	
Rent	180,000.00	
Utilities	121,479.00	
Salaries	2,740,000.00	
Selling, General and Administrative	988,000.00	
Depreciation		
Amortisation		
Finance Cost	280,000.00	
Total Expenses		
Profit before Interest and Tax		
Interest		
Profit before Tax		
Corporate Tax		
Net Income		

LudusMagnus

Balance Sheet as at June 30, 2016

	PKR	PKR
ASSETS		
Non-Current Assets		
Computers and Devices	1,464,945	
Accumulated Depreciation		
Software	374,500.00	
Accumulated Amortisation		
Deferred Tax		
Total Fixed Assets		
Current Assets		
Cash at Bank		366,020.00
Total Current Assets		**366,020.00**
TOTAL ASSETS		
LIABILITIES		
Non-Current Liabilities		
Long-term Loan		840,000.00
Total Non-Current Liabilities		**840,000.00**
Current Liabilities		
Current Portion of Long-term Debt		280,000.00
Loan Payable		280,000.00
Total Current Liabilities		**560,000.00**
TOTAL LIABILITIES		**1,400,000.00**
CAPITAL		
Authorised Share Capital (3,000,000 Ordinary Shares of Par Value PKR 1 Each)		3,000,000.00
Ordinary Share Capital		240,000.00
Share Premium		960,000.00
Retained Earnings (Accumulated Deficit)		
Total Capital		
TOTAL CAPITAL AND LIABILITIES		

Management Issues and Constraints

The foremost constraint which has been holding LudusMagnus back has been the allocation of labour. The small team of eight has had to share the enormous workload of two companies at the same time. Hence, all the employees have to keep on switching between roles in two organisations with different foci. Creatixe, being a client-centric web development company, and LudusMagnus, being the creative outlet requiring great initiative, require being run in considerably dissimilar ways. In fact, this contrast can be poles apart at times when the workload is rather high. Given the financial constraints to be discussed later, recruitment of new employees for the gaming studio has been out of question. Since LudusMagnus aims to launch a short life-span and short time-play game every fortnight or so, some of the employees had to be consigned merely to focus on the game development, which could prove to be hectic for the employees and could potentially make the client-centric side of Creatrixe suffer. To make-up for this, interns have to be hired occasionally. However, the interns also require training, which is to be provided by the employees of the company, increasing their workload and dispersion of resources further. In short, the frequent shift of employees from one sphere to the other on a regular basis negatively affects the overall efficiency and work productivity of both LudusMagnus and Creatrixe.

As aforementioned, Mr. Ansari and Mr. Ali share the management of the two sister companies. However, neither has any prior management experience or business educational background. Despite having technical prowess, neither is well-versed in administrative or managerial know-how. Apart from active participation in projects, the co-founders often find themselves swamped by administrative workload. From hiring employees and interns to the allocation of resources, the co-finders often find their hands full.

Another managerial issue faced by LudusMagnus is financial in nature. Despite four years having passed, it still has not become completely independent of Creatrixe, as a fourth of its profits have been diverted to LudusMagnus since the inception of the latter. As the employees of both companies are shared, there is no additional employee cost in this regard. Instead, hiring and training of interns is the major cost head taking up a chunk of the money injected from Creatrixe along with capital investment in state-of-the-art computers to keep up with the demanding specifications of programming. As the latter is a customer-centric company, projects come and go; it does not have a continuous stream of cash flows. Hence, there are uncertainties involved in this arrangement. In times of a dearth of projects for Creatrixe, LudusMagnus suffers as well.

Looking Forward

Though LudusMagnus was now in the blue for the first time since its inception, it still had a long path ahead. It would seem that it was high time that LudusMagnus became self-reliant and worked independently of Creatrixe.

A series of decisions need to be made in order to catch the train to success. Not only would it require additional finances, but also completely revamped business models and practices.

QUESTIONS

1. Which entrepreneurial strategy was adopted by Creatrixe at inception?
2. Which business models has LudusMagnus used for its games?
3. How can Creatrixe and LudusMagnus avoid adversities such as the Maximus Cricket fiasco?
4. Though LudusMagnus has started taking flight, it still has a long way to go before becoming completely independent. Discuss how LudusMagnus should adapt its business practices to truly make a mark for itself.
5. Comment on the shared Human Resource Management of Creatrixe and LudusMagnus and state the changes you would like to make to improve it.
6. With the information provided in the case, complete the partial Financial Statements. State any assumptions made.
7. Which Accounting Heads do you think should *not* be divided equally between Creatrixe and LudusMagnus and why?
8. What are the advantages of Audited Financial Statements for companies who are not required by law to have them audited?
9. Building upon your solution to Question 6, comment on the state of Total Capital and calculate the Net worth of LudusMagnus and value of Shareholder's Equity invested by VCs as of June 30, 2016.
10. If you were a banker, would you a loan of PKR 1,000,000 to LudusMagnus? Support your answer with financial analysis. (Hints: Debt, Capital, Assets.)
11. How could the directors have taken a decision earlier on to improve the health of its Total Capital with its existing funding? What can be done now to remedy it? (Note: You cannot make any antedated changes)
    Craft the Financial Statements for the year ended June 30, 2016 showing the effect of the decisions, had they been taken at the beginning of the year. (Hints: SGA, Long-term Loan, Authorised Share Capital)
    Also calculate the Net worth of LudusMagnus and the value of the Shareholders Equity of VCs in this scenario.
12. If you were a Banker, would you approve a PKR 1,000,000 loan for LudusMagnus if the company had made changes discussed in Question 11? Support your answer with financial analysis.

EXHIBIT 1

CAMPAIGN TYPES

Any mobile ad network provides users with several types of ad campaigns, based on what specific action they are charged for. There are 5 major types – CPM, CPC, CPI, CPA and CPV.

With **CPM** (cost-per-mile) type an advertiser is charged each time his ads are shown 1,000 times (so-called 'a mile').

With **CPC** (cost-per-click) an advertiser is charged for each click made on his ads.

CPI (cost-per-instal) is one of the most efficient for mobile app owners, because it implies that they are charged only when a click on their ads resulted into an actual app install.

CPA (cost-per-action) type is more advanced version of CPI, when an advertiser is charged for specific action users take inside an app he advertises on a mobile ad network.

And finally **CPV** (cost-per-view) type is applicable to mobile ad networks that are focused on video ads only. With this model advertisers are charged for each instance their video ad was viewed.

MOBILE AD FORMATS

There are 5 major formats supported by mobile ad networks – interstitial, banner, native, video and offer wall.

Interstitial – is a full screen ad that covers the interface of their host application.

Banner – a classical static or animated image ad, which is placed inside an app interface.

Native – either a banner image or video ad that matches the form and function of the app it's displayed in.

OfferWall – is an ad unit within a mobile app that provides end users with lots of offers to engage in.

REPORTING

Reporting API – One of a mobile ad network dashboard features that provides advertisers with data reporting on various parameters of their ads performance, such as number of impressions, clicks, installs, video ad views, platform, country, ad format and so on.

TARGETING

There are number of parameters that allows to narrow down a mobile ad campaign to a specific audience. These parameters are called targeting options, there are several of such options but the majors are the following:

Geo – it allows to narrow down an ad campaign within a specific country or region

Device – it allows to show ads on specific models of mobile devices only

Carrier – with this option it's possible to show ads only to mobile users who are served by specific mobile carrier

OS – it allows to show ads on mobile devices running specific operating system or even particular versions of OS.

Connection – by applying this targeting option, it's possible to show mobile ads on mobile devices when they are connected to the Internet either via Wifi or 3G/LTE connection.

Source: mobyaffiliates [41]

REFERENCES

1. CENTER FOR INNOVATION & ENTREPRENEURSHIP. (n.d.). Retrieved July 28, 2016, from http://nust.edu.pk/INSTITUTIONS/Directortes/Pages/default.aspx
2. Technology Incubation Center (TIC) - National University of Sciences and Technology (n.d.). Retrieved July 28, 2016, from http://www.nust.edu.pk/INSTITUTIONS/Directortes/TIC/Pages/default.aspx
3. TIC Startups (n.d.). Retrieved July 28, 2016, from http://www.nust.edu.pk/INSTITUTIONS/Directortes/TIC/TIC%20Startups/Pages/default.aspx
4. IRI survey shows PTI on top of popularity list. (2012, May 07). The News. Retrieved August 29, 2016, from https://www.thenews.com.pk/archive/print/622158-iri-survey-shows-pti-on-top-of-popularity-list
5. Chishti, A. K. (2012, January 13). The rise of Imran. The Friday Times. Retrieved August 29, 2016, from http://www.thefridaytimes.com/beta2/tft/article.php?issue=20120113&page=6
6. Attaa, A. (2012, June 01). Meet Brain Freeze, the Developers of Angry Imran. Retrieved August 28, 2016, from https://propakistani.pk/2012/06/01/meet-braine-freeze-the-developers-of-angry-imran/
7. Angry Imran – taking on politicians, bringing change. (2012, May 31). *The Express Tribune*. Retrieved August 29, 2016, from http://tribune.com.pk/story/386812/angry-imran--taking-on-politicians-bringing-change/
8. Shabbir, F. (n.d.). Angry Imran: Angry Birds with a mix of Pakistan politics. Retrieved August 14, 2016, from http://www.playtv.com.pk/news/life-a-style/angry-imran-angry-birds-with-a-mix-of-pakistan-politics.html
9. #angryimran. (n.d.). Retrieved June 15, 2016, from https://twitter.com/hashtag/angryimran
10. Bell, K. (2015, July 17). App Store vs. Google Play: Is it time Apple stopped being a control freak? Retrieved August 24, 2016, from http://www.cultofmac.com/329381/app-store-vs-google-play-is-it-time-apple-stopped-being-a-control-freak/
11. Parrack, D. (2016, January 22). Google Play Vs. Apple's App Store, Netflix Starts Blocking Users. Retrieved May 18, 2016, from http://www.makeuseof.com/tag/google-play-apple-app-store-netflix-blocking-users-tech-news-digest/
12. Appromoters. (2016, March 30). Google Play versus the App Store: The comparison between the app stores. Retrieved August 28, 2016, from http://www.appromoters.com/academy/google-play-versus-app-store-comparison-app-stores/
13. Sims, G. (2015, April 20). Google Play Store vs the Apple App Store: By the numbers (2015). Retrieved August 25, 2016, from http://www.androidauthority.com/google-play-store-vs-the-apple-app-store-601836/
14. Ovsyannykov, I. (2012, June 25). A History of Facebook Gaming. Retrieved August 28, 2016, from http://inspirationfeed.com/articles/social-media-articles/a-history-of-facebook-gaming/
15. Video Games and the law: Copyright, Trademark and Intellectual Property. (2011, February 23). Retrieved July 21, 2016, from http://www.newmediarights.org/guide/legal/Video_Games_law_Copyright_Trademark_Intellectual_Property
16. Syed, R. (2016, January 20). Made in Pakistan: Your next favorite mobile game. Retrieved June 16, 2016, from http://www.pri.org/stories/2016-01-20/made-pakistan-your-next-favorite-mobile-game

17. Pakistan's mobile gaming industry breaks culture barriers. (2014, March 27). *The Express Tribune*. Retrieved May 23, 2016, from http://tribune.com.pk/story/680015/gaming-industry-breaks-culture-barriers/
18. Saeedi, T. A. (2016, September 26). The untapped gaming industry. *The News*. Retrieved September 28, 2016.
19. Games An emerging market in Pakistan. (2015, December 28). *TechMag*. Retrieved June 16, 2016, from http://techmag.pk/games-an-emerging-market-in-pakistan/
20. Using the Freemium Business Model. (n.d.). Retrieved July 29, 2016, from https://developer.apple.com/app-store/freemium-business-model/
21. (n.d.). Retrieved June 15, 2016, from https://play.google.com/store/apps/details?id=com.fortafygames.colorswitch&hl=en
22. Bolton, D. (2015, January 23). The Average App Loses 77% Of Its Users In The First Three Days. Retrieved July 28, 2016, from https://arc.applause.com/2015/06/23/app-retention-rates-2015/
23. Cybercrime Bill. (2016, July 28). *Dawn*. Retrieved August 12, 2016, from http://www.dawn.com/news/1273556
24. Dodhy, M. (2016, August 15). First offender of the Cyber Crime Bill arrested in KPK. Retrieved August 18, 2016, from https://www.techjuice.pk/first-offender-of-the-cyber-crime-bill-arrested-in-kpk/
25. Khan, R. (2016, August 11). Cyber crime bill passed by NA: 13 reasons Pakistanis should be worried. *Dawn*. Retrieved August 29, 2016, from http://www.dawn.com/news/1276662
26. Annual Audited Accounts. (n.d.). Retrieved August 22, 2016, from https://www.secp.gov.pk/company-formation/running-a-company/accounts/
27. Business Instalment Loan. (n.d.). Retrieved July 2, 2016, from https://www.sc.com/in/business-banking-sme/business-expansion-loan-business-instalment-loan.html
28. Wand, C. (2008, February 1). Do Venture Capitalists Demand Audited Financials? Retrieved June 8, 2016, from http://www.askthevc.com/archives/2008/02/do-venture-capitalists-demand-audited-financials.html
29. Rakestraw, T. L., Eunni, R. V., & Kasuganti, R. R. (2013, September). The mobile apps industry: A case study. *Journal of Business Cases and Applications, 9*, 10-11. Retrieved July 29, 2016, from http://www.aabri.com/manuscripts/131583.pdf
30. Tang, A. K. (2016, October). Mobile App Monetization: App Business Models in the Digital Era. *International Journal of Innovation, Management and Technology, 7*[5], 225-226. Retrieved October 22, 2016, from http://www.ijimt.org/vol7/677-MB00017.pdf
31. Kobialka, D. (2016, April 29). Mobile game devs see higher revenue from in-game ads, says Unity Technologies. Retrieved June 21, 2016, from http://www.fiercewireless.com/developer/mobile-game-devs-see-higher-revenue-from-game-ads-says-unity-technologies
32. THE FUTURE OF MOBILE GAME MONETIZATION REVEALED IN UNITY'S REPORT. (2016, April 7). Retrieved May 8, 2016, from https://80.lv/articles/the-future-of-mobile-game-monetization-revealed-in-unitys-report/
33. Dogtiev, A. (2016, March 14). What is the average cost per install for different types of apps? - Mobile Advertising & App Marketing. Retrieved July 28, 2016, from http://www.mobyaffiliates.com/blog/average-cost-per-install-apps/

34. Keating, L. (2016, March 25). Report Finds That Only 1.9 Percent Of Mobile Gamers Make In-App Purchases. *Tech Times*. Retrieved June 9, 2016, from http://www.techtimes.com/articles/144329/20160325/report-finds-1-9-percent-mobile-gamers-make-app-purchases.htm
35. Wilcox, M. (2014, November 17). How to make money with apps. Retrieved June 2, 2016, from https://www.developereconomics.com/how-to-make-money-with-apps
36. Slither.io. (n.d.). Retrieved August 4, 2016, from http://slither.io/
37. Top 10 Incubation Centers of Pakistan. (2015, June 30). Retrieved August 8, 2016, from http://plan9.pitb.gov.pk/top-10-incubation-centers-of-pakistan/
38. Siddiqui, S. (2016, October 8). PTA annual report 2016: Telecom sector revenue remains flat. *The Express Tribune*. Retrieved October 9, 2016, from http://tribune.com.pk/story/1195294/pta-annual-report-2016-telecom-sector-revenue-remains-flat/
39. 5G technology to be introduced in Pakistan by 2020. (2016, July 20). *The Express Tribune*. Retrieved July 26, 2016, from http://tribune.com.pk/story/1145648/5g-technology-introduced-pakistan-2020/
40. Pakistan's 3G, 4G user base rises to 32 million. (2016, August 26). *The Express Tribune*. Retrieved September 29, 2016.
41. Dogtiev, A. (2016, June 27). Top Mobile Ad Networks 2016 - Mobile Advertising & App Marketing. Retrieved July 10, 2016, from http://www.mobyaffiliates.com/blog/top-mobile-ad-networks-2016/
42. Mobile Ad Networks Interstitial eCPM Report. (n.d.). Retrieved October 22, 2016, from http://ecpm.adtapsy.com/

ANSWERS

1. Creatrixe adopted a "Boot-strapping" strategy wherein the newly formed organisation cut costs in every way possible. Instead of renting an office space initially, it operated as a virtual company. When it did rent a space, it was in one of the cheapest possible alternatives available in an incubation centre.

   The young entrepreneurs worked with the existing technology available, laptop computers and desktop computers at home, to save costs. Moreover, they did not initially draw a salary themselves and hired unpaid interns instead of paid employees. Therefore, for the first few months, they worked exclusively with the existing infrastructure and used the low-cost alternatives to save money. Even after they received funding from an acquaintance, they did not invest heavily in technology or human resources until they won a contract which warranted more injection of finances.

   Lastly, the games that they launched were small, simple and required little investment. Their useful life was also short (three to six months), so instead of using up more money to update them to stay on the app stores, they were pulled out and new small games were published, most of which were clones, hence no money was spent on market research.

2. The first game of Creatrixe was free to download and had no advertisements, hence it did not bring in any revenues. It did, however, brought free publicity. Later on in the timeline of events, LudusMagnus (and Creatrixe before that) had to think of a way to bring in revenues. The most prevalent way was through in-app advertising, in which banner ads were added to games.

   This model has brought in millions of rupees over the course of two years. At first, small games with short useful lives were launched to minimise the costs and reap advertising revenue while they were there. Two of the games, Slithering Dragons and Color Switch, have become very successful and collectively brought in about 2.5 million in advertising revenues.

3. Maximus Cricket was a huge setback for the new and small organisation. The foremost way to avoid such failures is to sign a written contract rather than rely on a verbal one. That way, it will be legally binding on the client and a breach can be contested in a court of law.

   No investment in the project should be made prior to signing of a contract and if the client wishes to annul the contract, a clause covering the amount spent on the project until that point in time should explicitly make the client liable for it or face litigation.

4. It is about time that LudusMagnus started working on original ideas rather than cloning, which suffers from issues such as potential legal repercussions and limited visibility on the app stores. Like Angry Imran, the company should strive to develop games which have the potential to go viral due to being relevant to what gamers want. Unlike Angry Imran, however, it should be careful about using the pictures or likeness with any individual.

   Moreover, the small game/ short-term life model used by LudusMagnus to this point has limited advantages. A portfolio of more original games would help its repute and attractiveness to potential investors. It would also prolong the time frame within which advertising revenues can be reaped.

   Secondly, rather than using various screen names, LudusMagnus should start using its own name. This would reinforce the branding of the company and bring the same advantages as the ones aforementioned in the previous paragraph.

Thirdly, as diversifying the interests by entering Facebook game development has brought in more revenue, LudusMagnus should also seriously look into Apple App Store. They already have the required infrastructure to start at a smaller level and the expertise to make use of it as well. As per Page 8, Paragraph 3, Apple App Store, though constituting half the number of downloads as Google Play Store, generates twice the revenue. It is a big opportunity which should not be overlooked any longer. Most famous Android apps such as Angry Birds and Instagram, also have an iOS version; doing that would decrease the initial planning phase than what it would be if a completely different game was to be developed for Apple App Store.

Lastly, LudusMagnus should continue with the advertising revenue model of games. However, rather than banner ads which can be intrusive, off-putting and less likely to generate clicks, rewarded and interstitial ads should be pursued. Setting up these ads does not require any additional expertise or training, yet are preferred by mobile gamers. Majority of users (71%) prefer these two modes of advertising. In contrast, 18% prefer paid apps and 11% prefer in-app purchases. The latter two can be very lucrative, but mostly users of enterprise solutions and utility apps rather than games make most money out of it. Hence, instead of going with the fad of “Freemium”, rewarded video ads should be focused on, which basically serves the same purpose as in-app purchases for the gamers, albeit through different ways.

5. Unlike shared resources like rent and utilities, which are cost-effective as well as time-saving and easy to account for, human resource should not be shared. Rather than sending employees back and forth between projects completely different in nature and expecting them to be jack of all trades, the employees should be divided into specific departments in LudusMagnus such as “Game Development and Programming” and “Game Graphics Design”.

Such a division of the workforce would increase the overall efficiency and creativity of the employees and prevent role conflict wherein the employees are conflicted between time-sensitive client-centric projects and creative gaming projects. I am also of the view that LudusMagnus should hire business graduates in marketing and financial management roles order to run the business in a way that technical education does not groom one to.

LudusMagnus.

6. The completed Financial Statements along with the calculations of missing figures are as under:

LudusMagnus

Profit and Loss Statement for the year ended June 30, 2016

	PKR	PKR
Revenue		4,840,233.00
Expenses		
Miscellaneous	122,506.00	
Rent	180,000.00	
Utilities	121,479.00	
Salaries	2,740,000.00	
Selling, General and Administrative	988,000.00	
Depreciation	292,988.00	
Amortisation	93,625.00	
Finance Cost	280,000.00	
Total Expenses		4,324,598.90
Profit before Interest and Tax		515,634.10
Interest		0.00
Profit before Tax		515,634.10
Corporate Tax		123,752.18
Net Profit		391,881.92

Calculations:

Depreciation: (Cost of Computers and Devices/5)/2 = (2, 929,889/5)/2 = **PKR 292,998**

Amortisation: [(Cost of Software at the beginning of the year + Cost of Software bought during the year)*Amortisation Rate]/2 = [(650,000+99,000))*0.25]/2 = **PKR 93.625**

Total Expenses: Sum of all Expenses = PKR **4,324,598.90**

Profit before Interest and Tax: Revenue - Total Expenses = **PKR 515,634.10**

Interest: Zero, because the Long-term loan is interest-free.

Corporate Tax: Profit before Tax * Tax Rate = 515,634.10 * 0.25 = **PKR 123,752.18**

Net Income: Profit before Tax - Corporate Tax = **PKR 391,881.92**

LudusMagnus

Balance Sheet as at June 30, 2016

	PKR	PKR
ASSETS		
Non-Current Assets		
Computers and Devices	1,464,944.50	
Accumulated Depreciation	740,463.90	724,480.60
Software	374,500.00	
Accumulated Amortisation	168,625.00	205,875.00
Deferred Tax		136,227.82
Total Fixed Assets		**1,066,583.42**
Current Assets		
Cash at Bank		366,020.00
Total Current Assets		**366,020.00**
TOTAL ASSETS		**1,432,603.42**
CAPITAL AND LIABILITIES		
LIABILITIES		
Non-Current Liabilities		
Long-term Loan		840,000.00
Total Non-Current Liabilities		**840,000.00**
Current Liabilities		
Current Portion of Long-term Debt		280,000.00
Loan Payable		280,000.00
Total Current Liabilities		**560,000.00**
TOTAL LIABILITIES		**1,400,000.00**
CAPITAL		
Authorised Share Capital (3,000,000 Ordinary Shares of Par Value PKR 1 Each)		3,000,000.00
Issued Ordinary Share Capital		240,000.00
Share Premium		960,000.00
Retained Earnings (Accumulated Deficit)		(1,167,396.58)
Total Capital		**32,603.42**
TOTAL CAPITAL AND LIABILITIES		**1,432,603.42**

Calculations:

Accumulated Depreciation: (Accumulated depreciation at the end of last year/2) + Depreciation for the current year = (894850/2) + 292,988 = **PKR 740,463.90**

Accumulated Amortisation: (Amortisation at the end of last year/2) + Amortisation for the current year = (150,000/2) + 93,625 = **PKR 161,625**

Deferred Tax = Deferred Tax Assets at the end of last year - Corporate Tax for the year = 259,980 - 123,752.18 = **PKR 136,227.82**. This means that even though LudusMagnus owed tax this year, it has been offset by the tax credits received in the previous years.

Total Non-current Assets: Sum of all the Non-current assets.

Total Assets = Sum of Total Non-current Assets and Total Current Assets

Total Capital and Liabilities: This value is always the same as Total Assets in double-entry accounting.

Total Capital: This is the missing figure required to balance the Balance Sheet and should always equal Total Capital and Liabilities - Total Liabilities = **PKR 32,603.42**

Retained Earnings/ Accumulated Deficit: Total Capital - (Issued Ordinary Share Capital + Share Premium) = 32,603.42 – (240,000.00 + 960,000.00) = **PKR -1,167,396.58**. This negative figure denotes that, even though LudusMagnus made a profit this year, it was not enough to cover the Accumulated Deficit at the previous year end.

7. Profit and Loss Statement Heads:

Now that LudusMagnus is a separate company, it should be divided into departments with their own employees and assets. Hence, Salaries expense would have to be calculated for LudusMagnus only. Moreover, LudusMagnus should buy off some of the 'Computers and Devices' and 'Software' that it needs specifically for game development (including Mac computers) from Creatrixe and depreciate them on its own. Both of these changes would completely change the Profit and Loss Statement of the company, consequently giving a more accurate view of profitability. It will also make profitability ratios such as 'Asset Turnover', 'Return on Assets', 'Net Profit Margin', etc. more precise and help the stakeholders judge the company's profitability more properly.

Balance Sheet Heads:

As aforementioned, Fixed Assets would change if LudusMagnus bought the assets off Creatrixe specifically for its use, consequently changing the 'Accumulated Depreciation' and 'Accumulated Amortisation' heads. This will give a more accurate view of the assets of the company. It will also improve the accuracy of key ratios such as 'Asset Turnover', 'Return on Assets', 'Capital to Assets', 'Debt to Total Assets', etc.

8. Audited Financial Statements improve the credibility of a private limited company in the eyes of its stakeholders. Most importantly, investors such as banks and VCs require audited financial statements before investing in a company. Therefore, it increases the chances of a private limited company to gain additional funding, should it need some.

The existing VCs who have invested in the company may also want more precise financial information to know how their investment is being utilised, which would be more likely if an audit has taken place.

9. When LudusMagnus was founded, its Shareholder's Equity was the same as its Issued Ordinary Share Capital and Share Premium, i.e. 1,200,000. However, due to losses, the Accumulated Deficit eroded the Shareholder's Equity over time.

As at June 30, 2016, the Total Shareholder's Equity or Net worth of LudusMagnus was 32,603.42. This is the figure that would be left for the shareholders after paying off the liabilities if the company was liquidated. Hence, the shareholders, who originally paid in 1.2 million rupees would be left with less than 3% of their original investment, which is alarming. Stern measures need to be taken by LudusMagnus to address its net worth if it wants to look attractive to investors.

The VCs hold a 20% stake in LudusMagnus. By that logic, their worth would now be **PKR 6,520.68**.

10. *Debt Ratio* = (Long Term Debt + Current Portion of Long-term Debt)/ Total Assets = (840,000 + 280,000)/ 1,432,603.42 = 0.78 or 78.18%.

This rather high Debt Ratio denotes that the company has only about a quarter more assets than debt, which makes it risky.

Debt to Equity Ratio = Total Debt/ Total Equity = (840,000 + 280,000)/ 32,603.42 = 34.35 or 3435.22%.

This extremely high ratio, by any standards or comparison, makes LudusMagnus a risky company because it signifies that the company has been taking on debt excessively.

Equity Ratio = Equity/ Assets = 32,603.42/ 1,432,603.42 = 0.023 or 2.27%.

The extremely low ratio of Equity compared to the company's Assets also denotes that the company is too dependent on debt and owes a lot of money.

On the face of it, the company is very unattractive. It is drowning in debt. Without industry averages of these ratios, a comparison cannot be made. However, any more debt would mean making these ratios worse and, hence, there is a high risk that the company will not be able to meet all of its obligations. Therefore, I will reject the loan.

11. The foremost and basic thing that LudusMagnus could have done is separation of Office Supplies and S, G & A. This would have decreased its expenses and augmented its current assets. However, this can be done in the coming year, assuming the Office Supplies in the current year as zero, as they have already been expensed out.

When the co-founders injected the money from Creatrixe into LudusMagnus, they could have made use of the residual Authorised Ordinary Share Capital of 2,760,000 shares of par value of PKR 1 each by issuing 1,400,000 shares to Creatrixe or themselves (after drawing the required amount out of Creatrixe). Doing so would have brought the debt down to nil and increased the shareholder's equity. Also, the finance cost would have come down to zero, hence increasing the profitability of the company. In a nutshell, the profitability and gearing ratios of LudusMagnus would have improved manifolds.

Now that the loan has been issued, its residual amount of PKR 840,000 (or 1,120,000 if the current portion of long-term debt is included, which would make the accounting more complicated) can be converted into equity. Since the loan is taken from a sister concern with same directors, it will not require much paperwork.

Revised Financial Statements assuming that the directors had made these changes last year are as under:

LudusMagnus

Profit and Loss Statement for the year ended June 30, 2016

	PKR	**PKR**
Revenue		4,840,233.00
Expenses		
Miscellaneous	122,506.00	
Rent	180,000.00	
Utilities	121,479.00	
Salaries	2,740,000.00	
Selling, General and Administrative	407,550.00	
Depreciation	292,988.00	
Amortisation	93,625.00	
Total Expenses		3,958,148.90
Profit before Interest and Tax		882,084.10
Interest		0.00
Profit before Tax		882,084.10
Corporate Tax		211,700.18
Net Profit		670,383.92

Calculations:

S, G & A: [S, G & A* (1-0.35)] + [(S, G & A* 0.35)/2] = {[988000* (1-0.35)] + [(988000*0.35)/2}/2 = (642200 + 172900)/2 = 815,100/2 = **PKR 407,550.00**

S, G & A* (1-0.35) is the portion of the total S, G & A which is *not* Office Supplies.

(S, G & A* 0.35)/2 is the amount of Office Supplies within total S, G & A which was consumed within the year, hence expensed out.

Adding the two would give us the real figure of S, G & A including the Office Supplies used during the year shared by Creatrixe and LudusMagnus. Dividing the total by 2 would leave us with the figure specific to LudusMagnus.

Finance Cost: The amount is now zero, as a loan was never recorded.

Total Expenses: Total of all the expenses with changes in S, G & A and Finance Cost eliminated.

Profit before Interest and Tax, Profit before Tax, Corporate Tax and Net Profit: Figures changed due to reduction in expenses.

LudusMagnus

Balance Sheet as at June 30, 2016

	PKR	**PKR**
ASSETS		
Non-Current Assets		
Computers and Devices	1,464,944.50	
Accumulated Depreciation	740,463.90	724,480.60
Software	374,500.00	
Accumulated Amortisation	168,625.00	205,875.00
Deferred Tax		48,279.82
Total Fixed Assets		**978,635.42**
Current Assets		
Cash at Bank		366,020.00
Office Supplies		86,450.00
Total Current Assets		452,470.00
TOTAL ASSETS		**1,431,105.42**
CAPITAL AND LIABILITIES		
LIABILITIES		
TOTAL LIABILITIES		**00.00**
CAPITAL		
Authorised Share Capital (3,000,000 Ordinary Shares of Par Value PKR 1 Each)		3,000,000.00
Issued Ordinary Share Capital		1,640,000.00
Share Premium		960,000.00
Retained Earnings (Accumulated Deficit)		(208,894.58)
Total Capital		**1,431,105.42**
TOTAL CAPITAL AND LIABILITIES		**1,431,105.42**

Calculations:

Deferred Tax = Deferred Tax Assets at the end of last year - Corporate Tax for the year = 259,980 - 211,700.18 = **PKR 48,279.82**. Impact of changes in Profit and Loss Statement.

Office Supplies: [(S, G & A* 0.35)/2]/2 = [(988000*0.35)/2]/2 = 172900/ 2 = **PKR 86,450.00**

Total Non-current Assets: Sum of all the Non-current assets. Figure changed because of Deferred Tax, which has decreased.

Total Current Assets: Sum of all the current assets. Figure changed due to Office Supplies.

Total Assets = Sum of Total Non-current Assets and Total Current Assets. As you can see this figure is less than what it would have been if a loan had been taken, despite an increase in Total Non-current Assets.

Total Liabilities: Value nullified.

Total Capital and Liabilities: This value is always the same as Total Assets in double-entry accounting.

Total Capital: Same as the above because liabilities are zero.

Retained Earnings/ Accumulated Deficit: Total Capital - (Issued Ordinary Share Capital + Share Premium) = 1,431,105.42 – (1,640,000.00 + 960,000.00) = **PKR -1,168,894.58**. This negative figure denotes that, even though LudusMagnus made a profit this year, it was not enough to cover the Accumulated Deficit at the previous year end.

Net Worth: Total Capital - Total Liabilities = 1,431,105.42 – 0 = **PKR 1,431,105.42**

Value of VCs Equity: Total Equity * Stake Percentage = 1,431,105.42 * 0.20 = **PKR 286,221.08.** As evident, this is over 43 times more than what it was in the original scenario, i.e. **PKR 6,520.68.**

12. *Debt Ratio* = (Long Term Debt + Current Portion of Long-term Debt)/ Total Assets = 0/ 1,431,105.42 = 0

Debt to Equity Ratio cannot be calculated because the debt is zero.

Equity Ratio = Equity/ Assets = 1,432,603.42 / 1,432,603.42 = 1 or 100%

All of the ratios, including the one that cannot be calculated, tell us that LudusMagnus has zero debt, hence it is ripe for the taking. As a banker, I would approve a loan right away. However, I will look into its profitability and liquidity in order to determine the interest rate to be offered.

LudusMagnus

Profit and Loss Statement for Year Ended June 30, 2016

Revenue		**4,840,233.00**
Expenses		
Miscellaneous	122,506.00	
Rent	180,000.00	
Utilities	121,479.00	
SG&A*	3,240,000.00	
Depreciation and Ammortisation	386,613.90	
Finance Cost	280,000.00	
Total Expenses		**4,330,598.90**
PBIT		**509,634.10**
Interest		0.00
Profit/ Loss before Tax		**509,634.10**
Tax		122,312.18
Retained Earnings		**387,321.92**

* Selling, General & Administrative Expenses

LudusMagnus

Balance Sheet as at June 30, 2016

Assets		
Fixes Assets		
Computers and Electronic Devices	1,462,944.50	
Accumulated Depreciation	740,063.90	722,880.60
Software	434,500.00	
Accumulated Ammortisation	183,625.00	250,875.00
Total Fixed Assets		**973,755.60**
Current Assets		
Cash at Bank		66020
Defferred Tax		137,667.82
Total Current Assets		**203,687.82**
Total Assets		**1,177,443.42**
Liabilities		
Long-term Loan		1,120,000.00
Total Liabilities		**1,120,000.00**
Capital		
Share Capital		1,200,000.00
Accumulated Deficit		(1,142,556.58)
Total Capital		**57,443.42**
Total Liabilities and Capital		**1177443.416**

Working of Profit and Loss

TOTAL	Creatrixe
245,012	122,506
360,000	180,000
242,958	121,479
773,228	386,614

Turnitin Originality Report

LudusMagnus: A way forward for a Pakistani Game Developer by MUHAMMAD UMAIR SHABBIR

From Plagiarism Detection Part 1 (Moodle TT) (NUST Public Plagiarism Detection (Moodle TT))

- Processed on 02-Nov-2016 19:05 PKT
- ID: 730812318
- Word Count: 12337

Similarity Index
9%
Similarity by Source

Internet Sources:
6%
Publications:
1%
Student Papers:
5%

sources:

1 < 1% match (Internet from 18-Apr-2016)
http://shahtahir.blogspot.com/2012/06/meet-brain-freeze-developers-of-angry.html

2 < 1% match (Internet from 07-Mar-2015)
http://www.regentinsurance.co.za/images/finan/pdf/RegentLR20OCT_with%20links.pdf

3 < 1% match (Internet from 01-Sep-2016)
http://tribune.com.pk/story/1170448/pakistans-3g4g-user-base-rises-32-million/

4 < 1% match (student papers from 21-May-2016)
Submitted to Korea Advanced Institute of Science and Technology on 2016-05-21

5 < 1% match (student papers from 25-Oct-2016)
Submitted to Tennessee Technological University on 2016-10-25

6 < 1% match (student papers from 15-Jun-2016)
Submitted to Indian School of Business on 2016-06-15

7 < 1% match (Internet from 12-Aug-2016)
http://www.dawn.com/news/1276662/

8 < 1% match (Internet from 10-Jul-2015)
http://tribune.com.pk/story/680015/gaming-industry-/

9 < 1% match (student papers from 30-Apr-2016)
Submitted to American University of the Middle East on 2016-04-30

< 1% match (student papers from 27-May-2014)

10 Submitted to University of Auckland on 2014-05-27

11 < 1% match (Internet from 17-Mar-2014)
http://nust.edu.pk/INSTITUTIONS/ORIC/CIE/Pages/default.aspx

12 < 1% match (Internet from 02-Nov-2016)
http://www.makeuseof.com/tag/google-play-apple-app-store-netflix-blocking-users-tech-news-digest/

13 < 1% match (Internet from 02-Nov-2016)
https://80.lv/articles/the-future-of-mobile-game-monetization-revealed-in-unitys-report/

14 < 1% match (student papers from 15-Apr-2016)
Submitted to Nanyang Technological University, Singapore on 2016-04-15

15 < 1% match (student papers from 07-Oct-2016)
Submitted to Carnegie Mellon University on 2016-10-07

16 < 1% match (student papers from 25-Nov-2012)
Submitted to British School of Commerce - Colombo on 2012-11-25

17 < 1% match (student papers from 01-Apr-2015)
Submitted to AUT University on 2015-04-01

18 < 1% match (Internet from 01-Nov-2016)
https://pt.scribd.com/doc/84915675/Annual-Report-2011-Gul-Ahmed

19 < 1% match (Internet from 05-May-2016)
http://www.fiercedeveloper.com/

20 < 1% match (Internet from 14-Mar-2016)
https://42matters.com/api/top-google-charts

21 < 1% match (Internet from 02-Nov-2016)
http://www.cultofmac.com/329381/app-store-vs-google-play-is-it-time-apple-stopped-being-a-control-freak/

22 < 1% match (student papers from 11-Apr-2016)
Submitted to University of Wales Swansea on 2016-04-11

23 < 1% match (student papers from 05-Oct-2016)
Submitted to Western Governors University on 2016-10-05

24 < 1% match (Internet from 24-Mar-2010)
http://www.frbatlanta.org/filelegacydocs/wp0505.pdf

25 < 1% match (Internet from 08-Jan-2016)
http://impulsepk.blogspot.co.uk/

26 < 1% match (Internet from 04-Jul-2014)
http://www.playtv.com.pk/news/life-a-style/1327-angry-imran-angry-birds-with-a-mix-of-pakistan-politics.html

27 < 1% match (Internet from 27-May-2016)
http://www.studymode.com/essays/Bp-Csr-756179.html

28 < 1% match (student papers from 12-Oct-2015)
Submitted to University of Auckland on 2015-10-12

29 < 1% match (Internet from 04-Jul-2016)
http://www.dawn.com/news/1083543/newspaper/column

30 < 1% match (publications)
Bhatti, A., J. Ashraf, and M. F. Akhtar. "Shaukat Khanum Memorial Cancer Hospital and Research Centre Endowment Fund", Asian Journal of Management Cases, 2014.

31 < 1% match (student papers from 16-Jun-2013)
Submitted to Bahrain Polytechnic on 2013-06-16

32 < 1% match (Internet from 10-Jun-2016)
http://documents.mx/documents/complete-eng.html

33 < 1% match (Internet from 30-Aug-2016)
https://www.coursehero.com/file/p7t6u8p/Allowance-for-uncollectible-account-290000-350000-Bal-60000-Allowance-for/

34 < 1% match (Internet from 02-Nov-2016)
http://www.mobyaffiliates.com/blog/average-cost-per-install-apps/

35 < 1% match (student papers from 19-Oct-2016)
Submitted to Asia Pacific University College of Technology and Innovation (UCTI) on 2016-10-19

36 < 1% match (student papers from 31-Aug-2016)
Submitted to University of Durham on 2016-08-31

37 < 1% match (Internet from 28-May-2016)
http://scholarlycommons.law.wlu.edu/cgi/viewcontent.cgi?article=4427&context=wlulr

38 < 1% match (student papers from 23-May-2016)
Submitted to Nanyang Technological University, Singapore on 2016-05-23

39 < 1% match (Internet from 18-Jul-2016)
http://peru.com/epic/epic-mobile/pokemon-go-10-juegos-igual-adictivos-android-fotos-noticia-464897-1467103

< 1% match (student papers from 04-Sep-2016)

40

Submitted to California Virtual Campus Region IV on 2016-09-04

41 < 1% match (publications)

"New Industry Study Reveals More Than Half of Game Developers Identify Video Ads as Providing Highest", Internet Wire, April 6 2016 Issue

42 < 1% match (student papers from 11-Oct-2016)

Submitted to Higher Education Commission Pakistan on 2016-10-11

43 < 1% match (student papers from 10-Jul-2015)

Submitted to Kaplan International Colleges on 2015-07-10

44 < 1% match (student papers from 20-Mar-2016)

Submitted to King's College on 2016-03-20

45 < 1% match (student papers from 06-Dec-2011)

Submitted to Majan College on 2011-12-06

46 < 1% match (student papers from 25-Aug-2016)

Submitted to University of Auckland on 2016-08-25

47 < 1% match (Internet from 05-Jan-2015)

http://www.polpred.com/?cat=5&cnt=119

48 < 1% match (Internet from 19-Sep-2014)

http://nust.edu.pk/INSTITUTIONS/Directortes/TIC/Pages/default.aspx

49 < 1% match (Internet from 20-Jul-2015)

http://www.cultofmac.com/

50 < 1% match (Internet from 24-Jun-2016)

http://ir.ayalaland.com.ph/uploads/files/SEC%2017-A%20FY%202015.pdf

51 < 1% match (Internet from 22-Mar-2013)

http://m.androidauthority.com/google-play-vs-apple-app-store-2012-76566/

52 < 1% match (Internet from 14-Nov-2006)

http://www.xbrl.org/ca/fr/gaap/pfs/2004-11-20/ca-gaap-pfs-2004-11-20-calculation.xls

53 < 1% match (Internet from 18-Apr-2016)

http://www.sci-bono.com/assets/grade-12-accounting-sessions-1-4-learner%28ch%29-2015.pdf

54 < 1% match (Internet from 18-Mar-2015)

http://img.gaodun.cn/uploads/201212/Level%202%20Book%202.pdf

55 < 1% match (Internet from 10-Mar-2016)

http://www.sminvestments.com/sites/default/files/reports/SMIC%20SEC%2017A%20Dec2009.pdf

56 < 1% match (Internet from 30-Nov-2015)
http://en.wikipedia.org/wiki/Madventures_(ARY_Digital_show)

57 < 1% match (Internet from 08-Jul-2003)
http://www.wafersystems.com/waferinvestor/info/Wafer_E.pdf

58 < 1% match (publications)
Nawaz, Tasleem. "Senate body approves controversial cybercrime bill.", Technology Times, July 3 2016 Issue

59 < 1% match (student papers from 26-Nov-2012)
Submitted to University of Keele on 2012-11-26

60 < 1% match (publications)
"Incubation centre to start functioning in three months.", Pakistan Observer (Islamabad, Pakistan), July 14 2016 Issue

paper text:

LUDUSMAGNUS A Way Forward for a Pakistani Game Developer 2016 NUST BUSINESS SCHOOL H-12, Islamabad, Pakistan Disclaimer: Muhammad Umair Shabbir, under the supervision of Zunaira Saqib,

27**wrote this case solely to** stimulate **class discussion. The author does not intend to illustrate either effective or ineffective handling of managerial**

situations presented in this case. All information enclosed in this document is only to

6**be used as a case study example for teaching purposes. The information** contained **in the case study is both factual and fictional. The**

vast majority of the financial figures are fictional, as private limited companies are not required by law to disclose their financial data to the general public. Moreover, the timeline of events has been altered to better suit the purpose of this case study.

6**Opinions formulated by the author are** solely **intended to stimulate class discussion.** No information in **this**

document may be used in any way to assess the actual health or financial condition of the companies and organizations mentioned within.

 INTRODUCTION Due to a mutual dislike of working 9 to 5 only to realise someone else's dreams, two undergrad computer engineering students of

> 32**National University of** Science **and Technology (NUST), Islamabad, Pakistan,**

decided to lay the foundations of their own dreams in 2010. Starting off with small technological projects which were met with a lukewarm reception, they were disappointed and desolate. Persistence is the key in any entrepreneurial venture and the two students, Ameed Ansari and Muneeb Ali, soldiered on until they graduated. Lack of experience in running a business concern and a trail of small failures did not hold the young entrepreneurs back. As the old cliché in the business world goes, "With great risk comes great return." The young entrepreneurs knew, however, that the biggest risk that one can take is taking no risk at all! Fast-forward to 2012 and the young entrepreneurs graduated. With their graduation, Creatrixe was born with the aim to develop mobile games that were both addictive and innovative. Creatrixe is the Latin word for creativity and the

> 50**company was** officially **incorporated with The Securities and Exchange Commission**

of Pakistan (SECP) in June 2012, before which it ran as a proprietorship. The beginnings of the company were anything but humble. Due to lack of capital investment, the small organization was operated as a virtual business by the two co-founders with the help of two unpaid interns. Telecommuting was the mode of operations since the business had no brick and mortar premises to operate from and the technology which is requisite for a business of this nature could not be achieved due to a lack of funding. They made-do with the existing computers and devices available at home. Most of the communication was through video chat, emails and IMs over the limited capacity internet connections in the country. At that point in time 3G and 4G had not been introduced in Pakistan, hence using one's smart phone as a Wi-Fi hotspot to substitute an out-of-order broadband connection was not a viable option. The mobile internet options available at that time were slow and unsuitable for heavy usage required by a tech business. Apart from the communication issues, not having a physical office also meant that the entrepreneurs could not attract potential employees and investors. In a country where the level of trust over online businesses is scarce and potential stakeholders may not be well-acquainted with the true capabilities of the internet, having a brick and mortar setup is a must. Such constraints contributed to the slow growth in the beginning and hindered the attainment of the full potential of the small organization. Thankfully, along with the incorporation in June, 2012, Creatrixe was able to rent an office space at Technology Incubation Center, NUST

32**(National University of** Science **and Technology), H-12, Islamabad for**

a meagre sum of PKR 3,000 a month; the rent went up to PKR 15,000 a month after the six months of incubation and at the time of graduation from the center, it had risen to PKR 18,000 per month. The office was voluminous enough to fulfill the needs of the small team which Creatrixe consisted of. NUST is a prestigious organization in its own right and the prestige of being based in Technology Incubation Center opens doors for a venture which would not be accessible otherwise. The Technology Incubation Center is one of the various departments housed by NUST Center for Innovation and Entrepreneurship, fittingly

11**located at Innovation Drive in NUST** Islamabad **Campus,** H-12, **Islamabad,**

Pakistan. [1] The purpose-built facility was founded in 2005 by NUST to promote innovation within the university and was the first in Pakistan to introduce the concept of business incubators. The Technology Incubation Center aims to facilitate technological innovation within the university and provide a launching pad to entrepreneurs from which viable research and development ideas can be realised. Moreover, NUST realizes that it is difficult for start-ups to gain funding and form new business relations in the market on their own, so the Technology Incubation Center liaises

11**"with private/public sector funding sources, government agencies, industrial associations, chambers of commerce and industries to provide facilitation and networking for Incubatee** (sic) **companies."** [2] Hence, **The**

Technology Incubation Center houses various technology-based companies formed by NUST students and faculty, as well as some by the general public. [1] The center hosts start-ups through the development and growth phases of their lifecycle until they can become independently viable outside of the incubator. On average, that takes three years, after which the business can officially 'graduate' and set-up their operations elsewhere. [2] As of today, the center houses twenty-seven start-ups focusing in various areas such as social media marketing, data mining, data analytics, resource-sharing, programming and application development, etc. over an area of 33,000 square feet of office spaces. [2][3] Breakthrough and Spotlight Source: LudusMagnus archives The big breakthrough came in the shape of Angry Imran, a game made available on Google Play Store through the 'Brainfreeze Studios' alter ego of Creatrixe, on May 29, 2012, before the incorporation of the company. It was a free game and did not generate any revenues despite being downloaded 75,000 times. However, it did put the game developers on the map. At the time Creatrixe had two unpaid interns and no full-time employees. Pakistan is a country of people who take the elections very seriously and allegiance to political parties tends to turn into something akin to a cult following. The pre-general election political environment at the time was such that emotions were running high to a point of boiling over. As explained by the co-founder, Mr. Ansari, the Imran Khan fever was flowing in the streets as well as social media and mainstream news, and the tech-savvy youth was fully charged in support of the emerging leader of Pakistan Tehreek-i-Insaf (PTI). According to an International Republican Institute (IRI) survey, PTI topped the popularity poll in Pakistan with 31% votes, with two other parties in tow: Pakistan Muslim League - Nawaz or PML-N gained 21% and Pakistan People's Party (PPP) received 16% votes. [4] Ali K Chishti, a reporter for The Friday Times, claimed that PTI was being seen as an alternative to the two big parties of the time – PML-N and PPP. Coupled with that, the PTI leader Imran Khan's popularity amongst the youth gave a new hope for the young population of Pakistan. [5] Amidst the heightened political awareness and media coverage, the team of Creatrixe came up with the idea to replicate the famous Angry Birds game with Imran Khan replacing the birds and other politicians at the other end of the screen. As fate would have it, the launch of the game was originally planned one day before the rally by PTI in Rawalpindi on May 27, 2012, the sister city of Islamabad; however due to delays in the finalization stage, it was launched two days after the rally. The delay was a blessing in disguise as the rally had created momentum in the popularity of the political party and was the hot topic in all media outlets, including blogs, social media, print media and electronic media. This heightened state of popularity helped Angry Imran become much more relevant and hence the timing could not have been better. The story about Angry Imran was picked up by small blogs and consequently bigger blogs such as ProPakistani with substantial fan following. ProPakistani praised the game and stressed upon the potential of local mobile game development, stating,

> 1**"Games like "Angry Imran" clearly shows the potential that local apps and games have got. The entrepreneurial segment needs to be refined enough to realize the need for the development of content for local market, which is well over 180 million heads."**

[6] The online news outlet of print and electronic media giant Express News, named Tribune.com.pk also published the story, which was shared well over 2,000 times on social media. [7] In the grand scheme of things, the British newspaper Telegraph also picked up on the story and reported that the leader of PTI Imran Khan himself said that he found the game "quite funny." [8] The blog posts went viral on social media and gave birth to the popular hashtag #AngryImran which can still be accessed on Twitter. [9] Subsequently, electronic media also picked up the story and the game was given air time on various popular news channels on television across Pakistan and brought the game into the spotlight for even those people who were either not active on social media or did not have access to the internet. The free publicity propelled Angry Imran and Creatrixe into the public eye. Aftermath of the Hype The two young entrepreneurs felt that it was high time they expanded their business venture and approached some major investors in the country. According to Mr. Ansari, young entrepreneurs are not taken seriously by investors due to their lack of experience and repute. It is common for investors not to even entertain entrepreneurs who have not been in the business for at least half a decade or a whole decade in case of some investors. This is because it takes time for a business venture to form the repute and portfolio in order to gain the investors' trust. Therefore, Creatrixe was unable to raise any major funding at that point in time. However, Creatrixe did manage to raise a small amount of funds, a meagre sum of PKR 200,000, through an acquaintance who believed in their vision and was finally able to truly kickoff with a number of mobile games on the Android, but only considered the iOS platform. In simple terms, Killian Bell of

> 49**Cult of Mac, a "news** website **that follows everything Apple",**

explained that the basic

> 12**difference between Google Play** Store **and Apple App Store** was **the**

degree of control. Apple App Store required the developers to abide by

21**"strict App Store guidelines,** [so] **every title** [was] **tested by a human before being approved." In** contrast, **"Google** [was] **happy to let most things fly"** as **long as**

the apps or games were "not offensive or harmful"; hence, Google Play Store contained a wide variety of "things like emulators and file downloaders" not supported by Apple App Store. [10] Moreover, as per App Annie, the metrics company, users made approximately 200 million downloads from Google Play Store in 2015, whereas downloads made from Apple App Store were half of that large figure. Contrariwise, App Store earned twice as much revenue as Google Play Store through these downloads. [11] The difference in number of downloads was the result of the boom in the Android market in developing countries (such as Pakistan). [12] The technical difference between developing games for

51**Google Play Store and Apple App Store** was that **Apple's**

"Mac" machines are prerequisite for writing iOS apps (for Apple App Store), whereas Android apps could be written on machines running various operating systems such as Windows, OS X and Linux. [13] Hence, due to the sheer capital investment required solely to develop iOS games for the Apple App Store prevented the newly formed company from pursuing it. The hype also helped the company gain an important client in July, 2012 in the shape of Sports View Studios (name changed for confidentiality), the creators of Maximus Cricket (name changed for confidentiality), which was a Facebook game loved by cricket fanatics on the popular social media platform. Creatrixe was contracted to create the Android and iOS versions of the multiplayer Facebook game and started working on it straight away. A lot of time and resources were put into the development stage, including hiring of two new full-time contract employees and purchasing Mac computers in addition to the personal computers brought in from home. The young entrepreneurs felt that their small company had finally found the holy grail of prosperity and prominence. However, in September 2012, Creatrixe faced a major setback and lost a lot of the newly acquired investor's money when the sponsors of Maximus Cricket game pulled back on the verbal contract mid-way to completion. All the resources and man hours that Creatrixe had put into the development of the game turned into ashes and dust due to no fault of their own. The sponsors, Sports View Studios, after review of their forecast felt that Maximus Cricket Android and iOS games were not going to generate as much revenue as they had previously calculated and the scope of multiplayer mobile games was not as much as they had anticipated. Hence, they declare the project financially nonviable and decided to cut their losses. According to Mr. Ansari, for a small company as Creatrixe, it was still a profitable endeavour even though not considered enough by a big company like Sports View Studios. Mr. Ali and himself even considered completing and rebranding the game as their own, but did not possess the resources required at the time. Financial Breakdown and the Foundation of LudusMagnus As a result of the Maximus Cricket fiasco, Creatrixe lost precious money and, with it, the investors' trust. This particular incident threatened the going concern status of the company. Quick on their feet and never taken aback by failure, the team at Creatrixe had to think of a way to keep the company going. Mr. Ansari and Mr. Ali came up with the idea of diversifying the interests of Creatrixe to fund the losses. Hence, a client-centric web-designing and development approach was taken, to finance the losses and keep the game development business afloat. Mr. Ali had an extensive history of experience in the field as a freelance web-designer and developer, staring from when he was only a college student. He was familiar with the nitty-gritties of the business through years of freelancing projects and had the requisite contacts to procure clients for the newly formed entity. Hence, through freelancing in the beginning and procuring larger clients in the long-run, Creatrixe became a viable and profitable businesses within a year and a half. Now Creatrixe boasts a proud portfolio of host of local and international clients such as Pak-Suzuki Motors, Wi-Tribe, Pak-Suzuki Motors and Audi UK, among others. The money channelled from the straight-forward web-development stream of Creatrixe into the game-development side assured that the company stayed a going concern and the creative team of mobile games aficionados continued to bring out more games into the market. However, most of the focus of Creatrixe turned toward the client-centric web design and development side of the business and the young entrepreneurs felt that it was time to separate the game development into a new business entity. By February, 2014, Creatrixe employed four full-time contract employees. In September 2014, LudusMagnus (Latin for "The Great Game") was incorporated as a gaming entity with the help of some venture capitalists (VCs)* who injected a million Pakistani Rupees** in exchange for a 20%*** stake, and Creatrixe became solely a web-design and development company. * The VCs wished to remain anonymous. ** Not the actual figure. *** Not the actual percentage. THE CHRONICLES OF LUDUSMAGNUS With the incorporation of LudusMagnus, the young entrepreneurs aggressively expanded and hired six more full-time contract employees, bringing the total up to ten, and increasing to fifteen employees a year into operations. However, six months later, in March 2016, the number fell back to the pre-LudusMagnus era of four. The contracts of one-year were awarded to each new employee with the probation period ranging from three to six months. If the employees survived the probation and went on to complete the year-long tenure, they were given the option to renew the contract for another year and so on. According to Mr. Ansari, most of those who left within the probation period had not been a good fit with the company and some who spent over two years in the sister companies left to pursue greener pastures in bigger companies, as they had outgrown their potential in a start-up. The aggressive hiring and expansion had failed to reap the results which the young entrepreneurs had anticipated. The short life-span games based on other existing ideas were churned out one after the other, however, as explained by Mr. Ansari, "The

20**Google Play Store and Apple App Store** discourage cloned games **and**

apps. A few months after their launch, the algorithms detect the clones and reduce their visibility for the users. Therefore, unless they go viral like Angry Imran for some reason, they disappear into the abyss and tend not to show up high enough in the search results for users to pay any attention to them." These games, however, were attractive for LudusMagnus, because it took a short time of half a month for development and the total game play was limited to an average of 10 minutes. Those 10 minutes were sufficient to gain some revenue through ads embedded within the games. As soon as the algorithms would reduce their visibility, those games would be pulled out from the stores. The reason for pulling the games instead of letting them stay dormant on the stores was that it took a lot of resources to maintain the security updates to keep up with the operating systems of the mobile devices. Instead, having tapped the advertisement revenues over a period of three to six months, it was much economical to just pull the plug on them, meanwhile creating more short life-span games. During 2015, LudusMagnus also entered the realm of Facebook games. Facebook, a popular social media website and later mobile app, hosts games which could be played over various platforms, e.g., Personal Computers, Android phones, Apple iPads, Apple iPods, etc. For Facebook Games, the company decided to use its own name (Games by LudusMagnus) rather than another alter ego, which was met with a lot of success. When the popular social media platform Facebook was launched in 2004, it did not feature any games. It was not until 2009 that the Facebook provided support for games to be published through its platform and game developer Zynga launched Farmville, which changed the dynamics of Facebook use and casual users became crazed with the game What sets Facebook games apart is that they are based in a social platform and gamers get to interact with others during gameplay, giving rise to their popularity. [14] As of 2016, Facebook claimed having 1.71 billion monthly active users, including 650 million gamers, and encouraged game developers to create more games for its users to engage in. [15] Consequently, by the fourth quarter of 2015, Creatrixe had become a fully-fledged client-centric web designing and development company and was channelling its revenues to help run LudusMagnus. Therefore, by December 2015, Business Development Executives were added to the team to bring in new clients and projects for the two sister companies. As aforementioned, despite being in a direct marketing role, these employees also had a technical background. However, these were dropped, as the young entrepreneurs felt that they already had enough presence in the market to pull clients without the help of direct marketing. In addition to direct marketing, on a yearly basis, LudusMagnus have spent about PKR 100,000 on social media marketing over Facebook and the likes to promote their games. Timeline May, 2012 – Creatrixe was conceived as a proprietorship by Ameed Ansari and Muneeb Ali, who, with the help of two unpaid interns, launched Angry Imran on the 29th. The game was well-received by mobile gamers and its story was picked up by the social and news media. The game was launched under pseudonym of Brainfreeze Studios. June, 2012 – Creatrixe was incorporated as a game development company with PKR 200,000 funding received from an acquaintance and the newly formed company moved into an office located at NUST TIC. The rent at this time was PKR 3,000 per month. July, 2012 – Creatrixe won the project of making the android version of Maximus Cricket, a popular Facebook game. August, 2012 – Angry Imran reached 75,000 downloads and was pulled from the Play Store, as the updates required to keep it on Google Play Store required too many resources and was deemed no longer financially viable by its creators. 2 programmers were also hired full-time. September, 2012 – The verbal contract was annulled on the Maximus Cricket project mid-way due to a financial viability question raised by the finance department of the client company. Creatrixe lost a lot of resources which it had already invested into the project. November, 2012 – Creatrixe diversified its focus by venturing into client-centric web designing to fund the losses in game development. January, 2013 – The rent of the office was increased to PKR 15,000. February, 2013 – 2 more programmers were hired. March, 2013 to March 2014 – 6 employees were hired, including 2 graphic designers and 4 programmers. January, 2014 – The monthly rent increased to PKR 18,000 March, 2014 – Creatrixe had a total number of shared employees of 10. They spent their time between game development and web designing. September, 2014 – LudusMagnus was founded as separate game development company with some a million rupees of funding provided by VCs. 5 more employees were hired; mostly programmers and designers. Creatrixe became a solely client-centric web development and design company. The two companies together now had 15 employees, who had to keep switching between games and websites. January, 2015 – The aggressive hiring could not be sustained and the lack of initial success of the newly formed company required massive cost-cutting. Hence, the number of employees reduced to 4. Half of the employees were let go during their probation period. July 1, 2015 to June 30, 2016 – Creatrixe injected a million Pakistani Rupees into LudusMagnus. December, 2015 – LudusMagnus (along with Creatrixe) moved to COMSATS BIC. Business Development Executives were hired for direct marketing. They were let go in April, 2016. February, 2016 – LudusMagnus, under the screen name of Beedo Games, launched Slithering Snake on Google Play Store to moderate success. March, 2016 – LudusMagnus launched a game called Color Switch on Facebook, which reached a million users within three months. May, 2016 – LudusMagnus launched Slithering Dragons under the screen name of Peanut Butter Labs, a game similar to Slithering Snake, which crossed a million downloads within 2 months. June, 2016 – Massive hiring took place, bringing the total number of employees to 12, 4 of which were graphic designers and the rest were programmers. All of the employees had a technical educational background. June 30, 2016 –The first accounting year-end since its inception wherein LudusMagnus declared a profit. Organisational Structure Creatrixe LudusMagnus Chief Executive Officer Chief Operating Officer Graphic Design Programming Department Department TRENDS IN THE MOBILE GAMES INDUSTRY Overview of the Gaming Industry of Pakistan With the advent of smart phones and mobile devices such as tablets, the gaming industry has had a metamorphosis. Gone are the days when traditional PCs (Personal computers) and consoles (such as Xbox and Play Station) defined real gamers. It takes lesser investment to develop mobile games and apps than for traditional platforms mentioned earlier, which suits Pakistani companies. [16] According to research, game development will become a $41-billion industry in Pakistan by 2017. Currently, the IT (Information Technology) industry generates $3 billion in revenues per annum. Organisations

25**like PASHA (Pakistan Software Houses Association) are working** toward making **the**

IT industry more attractive and accessible for ambitious game developers. Furthermore, Pakistan has now been white-listed by

25**Anti-money Laundering Body Financial Action Task Force (FATF) that supports standardized** electronic **-payment**

framework across the globe. [17] The government of Pakistan has introduced National ICT R&D

60**(Information and** Communication **Technology & Research and Development)**

Fund

to finance entrepreneurs with viable technology projects. [18] The Pakistani gaming industry employs approximately 25,000 people and the number is increasing day by day. According to PAS report, Pakistan is adapting the smartphone movement, hence the increase in employment in this field in the country can be in part attributed to the fact that game developers "seem to be very adaptive to the trend" and "modify their approach according to the gamer's [sic] interests." [19] As per the 2013 Global Games Market Report by Newzoo, the 'Massively Multiplayer Online' games (MMO), wherein players are engaged in a game collectively as a community, is the up-to-the-minute and most popular type of gaming segment, and is expected to grow exponentially in the coming years. [18] Another recent development that has come into existence is the introduction of a revenue model named "Freemium", which enables gave developers the option to generate revenue from free apps. According to Apple, "Freemium" entails users not paying a cent to download the apps, however they are "offered optional in-app purchases for premium features, additional content, or digital goods." [20] The success of a mobile game or any app in general, however, is a different ball game. As per a report published by Gartner, only 1% of apps launched become a success. Rahul Varshneya, the co-founder of mobile app marketing agency Apprise, deems this 1% figure an opportunity. He stresses that 99.99% of apps that fail do so because they get lost in the abyss of apps available to download. At the time of launch, distribution and marketing strategies, hence, are a must to get an app noticed by potential users. [21] Even once the app has been noticed, engaging and retaining the users is another issue. The Silicon Valley entrepreneur Andrew Chen theorizes that, on average, a new mobile app loses 77% of its daily mobile users (DAU) within 72 hours of its launch and that only the apps which manage to retain their users for a week can be financially successful. [22] Hence, retention of users is of utmost importance. Rahul Varshneya of Apprise states that the "Feedback" loop is a concept that app developers need to embrace to make their products a success. He stresses on the importance of data analytics to figure out what features the users of the apps actually like or dislike. Hence, a successful app is dynamic and it grows as per user preferences, according to Rahul Varshneya, citing that "Instagram was a completely different product and so was WhatsApp." [21] However, not everything is that simple in the gaming industry of Pakistan. Entrepreneurs running game development companies complain that the requisite infrastructure for the gaming industry in the country, such as electricity and telephone lines, tend to be unreliable and defective, forcing them to have back-up and contingencies in place. [17] Moreover, lack of access to funding remains a major setback for start-ups to realise their goals. Pakistan Software Export Board (PSEB) attributes the dearth of investment as a deterrent for Pakistani game developers in entering the international gaming market and also maintains that the local investment in human resource development leaves a lot to be desired. Despite the introduction of the aforementioned National ICT R&D Fund, "the cumbersome process of securing fund approval sometime takes up to a year" and hence, the extensive application process disheartens start-ups from applying for funding through this initiative according to Jehan Ara, who is the President of PASHA. [18] A game changer in the form of Cybercrime Bill – officially known as Prevention of Electronic Crimes Bill or PECB - was adopted

58**by The Senate Standing Committee on Information Technology**

in July 2016. It completely alters how the users of the internet act in a different legal environment. Various digital rights groups and IT experts have voiced their concerns over the bill. [23] Though most of the bill deals with offenses such as "cyber terrorism", hacking and identity theft, some of the clauses could be of certain degree of concern for the tech industry and app developers. For instance, publishing an individual's picture without their express consent can lead to a fine of a million Pakistani Rupees, three years in jail or both. [24] Furthermore, up to six months imprisonment, a fine of PKR 50,000 or both can be handed out

7**for "producing, making, generating, adapting, exporting, supplying, offering to supply or importing a device for use in an offence".**

Similarly, glorification of an offence relating to terrorism,

> 7**explained as "depiction of any form of praise or celebration in a desirable manner",**

could result in seven years in jail, a PKR 10,000,000 fine, or both. [25] Hence, launching another game in the same vein as Angry Imran or Gullu Butt could now instigate legal woes for its developers. Only private limited companies with a share capital of 7.5 million or more are required by law to provide audited financials to SECP [26]. Since the confidentiality of their financial data is protected by law, there is no way to know how many of the game developers incorporated as private limited companies actually have a share capital which meets that minimum requirement to publish audited accounts. However, it does not mean that smaller companies should not maintain proper accounts. According to Standard Chartered Bank, the bank require debt and financial analysis to disburse a business loan even to private limited companies. [27] This would be the banking industry norm. Also, askthevc.com, a blog run by VCs, stresses the importance of having financial statements audited from local but reputable auditors, especially for companies which have outgrown their start-up phase. [28] A potential legal matter that most game developers overlook is intellectual property laws. Firstly, Copyright laws protect "artistic and literary expression", which translates into the fact that the code of a game is a literary work, whereas its sounds and graphics are artistic works. Closely copying a game can lead to legal troubles if it has been copyrighted, yet having someone copy a game not registered as a copyright would give very limited protection to the original developers. Secondly, the game title and its branding (taglines, etc.) are protected under Trademark laws. Even if a game is named "confusingly similar" to another, it can still lead to legal dire straits. [15] Business Models in the Industry In a broad spectrum, there exist three ways a mobile game can generate revenue for its developers: 1. Advertisements The game is made available for download for free. Ads are set-up within the game while the user is playing and each click or impression (viewing of the ad) generates a small amount of revenue for the developer. It is easy to set up for the developer, and helps bring the ad to a broader audience since the download and gameplay is absolutely free of cost. [29] An innovation in the simple advertisement model is the generation of clicks or viewing of an ad in exchange for gaming currency or other perquisites. The famous game Flappy Bird, for instance, earned an average of $50,000 per day, through this model. [30] A recent study by Unity Technologies indicated that 71% of gamers chose video ads rather than paying money in exchange for content. [31] (See Exhibit 1 for more information about In-app Advertisements) The limitation of such a model is that the amount generated per click is generally rather low. Moreover, users may become irritated and avoid a game if the advertisements are too invasive. [29] In a stark contrast, 78% of mobile gamers showed openness to reap "rewards" by watching

> 41**video ads for in-game rewards,**

62% claimed regularly watching

> 41**video ads for in-game rewards,**

and 46% showed preference for "rewarded video content" over other ads. Furthermore, 52% of mobile game developers pointed out that video ads provided the

> 13**highest revenue per user compared to other in-game advertising.**

Merely under 10% of these game developers claimed that their use retention rates fell after introducing rewarded video ads. [32] 2. Paid Game developers have the option to set a price which the gamers have to pay in order to download the game. This is a one-off amount that the users have to incur and out of the total amount, about 30% royalties are claimed by the platform on which the game is issued, for example

20**Google Play Store and Apple App Store.** Moreover, **the**

platform provider may charge a one-time fee in order to set-up a publisher account in this case; for Google this fee is $20. [29] Minecraft, one such paid game, made a million US dollars on Christmas Day alone in 2013. [30] However, the competition for paid apps and games is intense. Unless the game is “useful, original [and] marketed creatively”, gaining enough users willing to download it to gain enough revenue can be very difficult. [29] Source: mobyaffiliates [33] - March 14th, 2016 3. Freemium The portmanteau word “freemium” blends “free” and “premium” to form one term. [30] It basically means that the game itself is free to download, but users have the option to purchase additional features, extended gameplay, virtual goods or extra levels within the game. The freemium model addresses the inhibitions that users might have with paid games; they can play and later decide whether they want to spend any money on the game later on. [29] [30] Swrve, a mobile marketing firm, released its “2016 Mobile Monetization Report” on March 23, 2016, wherein it stated that merely 1.9% of mobile gamers make in-app purchases. However, it is not all necessary bad news. In-app purchases priced under 5 USD represented 39% of purchases and 14.5% of revenue generated from freemium apps, whereas purchases costing in excess of 50 USD, though accounted for 2.5% of purchases, brought in over 17% of revenue. Furthermore, out of the sample of gamers studied by Swrve, it found that 64% of gamers made only one purchase, whereas only 6.5% gamers made five or more in-app purchases. [34] User Preferences in Mobile Games Source: Unity Technologies – 2016 [32] Highest Earning Platforms Source: DeveloperEconomics - 2014 [35] THE FUTURE OF LUDUSMAGNUS Screen Names LudusMagnus, in a similar vain to its predecessor Creatrixe, has used various screen names or alter egos to publish its games. When Angry Imran was launched by Creatrixe, a screen name “Brainfreeze Studios” was used. The rationale behind such screen names was to give an indie game developer ‘feel’ to the games, according to Mr. Ansari. The working of screen names remains, to date, actually quite simple. It is like making multiple e-mail addresses by the same company. In this case, new accounts are created without any extra cost with

20**Google Play Store and Apple App Store and**

games are launched through those different accounts. The major advantage of screen names is that if the games published under a particular screen name were to become unsuccessful, a new one could be made without tarnishing the image of LudusMagnus itself. Hence, various alter egos have been used by the young entrepreneurs to launch their games and many have been abandoned along the way. As of June 2016, LudusMagnus had three active alter egos on Google Play Store, namely Peanut Butter Labs, Free Games by LM (acronym of LudusMagnus) and Beedo Games. Brainfreeze Studios, the first successful screen name, has since been dropped with the incorporation of LudusMagnus, as it had been associated with Creatrixe. For Facebook games, the company uses its own name, Games by LudusMagnus. The dropping of old screen name and addition of new ones is aimed as a tactic to distance LudusMagnus from its sister concern due to the divergence of interests. Recent Success Out of over a hundred games launched by LudusMagnus of various sizes and scopes, a handful have had the impact that the company has always aimed for. Two of their games, ‘Slithering Dragons’ and ‘Color Switch’ have crossed the million user mark; both of these apps follow the in-app advertisement model. Color Switch, a game playable on the popular social media website, Facebook, which was released under the company’s own name (Screen name: Games by LudusMagnus), has become a blockbuster for LudusMagnus. It is based on an Android game of the same name by Fortafy Games. The original is free and has over a hundred million downloads on Google Play Store. [21] Slithering Dragons, which is the revamped version of Slithering Snake, has also succeeded to cross the million downloads mark. The less successful Slithering Snake, another game by LudusMagnus released under the alter ego of Beedo Games had less than half a million downloads. Slithering Dragons, however, was launched under the alter ego of Peanut Butter Labs, giving the impression that it was launched by a different game developer. It is important to note that both of the latter are based on a multiplayer arcade game called Slither.io by Developer Steve Howse, which is playable online in any web-browser. [36] The recent success of these games by LudusMagnus has helped build the company a decent portfolio of apps. Moreover, through in-app banner and interstitial advertisement, they have collectively about two and a half million Pakistani Rupees of revenue, thus covering the investment of Creatrixe into the company within the year. However, it is important to note that neither game is an official different platform remake in any way. Growth Potential Creatrixe (along with LudusMagnus) graduated from NUST Technology Incubation Center in December 2015, which means that it had to vacate the office space. Fortunately, COMSATS Institute of Technology (CIIT) Business Incubation Centre, also located in Islamabad, Pakistan, was willing to house the company for a monthly rent of PKR 30,000. According to Mr. Ansari, LudusMagnus, with its portfolio of games with varying success, was considered by CIIT Incubation Centre a welcome tenant. Even though Punjab Information Technology Board (PTIB) ranks it at number 10 in as opposed to number 2 ranking awarded to NUST Technology Incubation Centre, it suits LudusMagnus due to lower costs as compared to a stand-alone office space acquired in a commercial area and support provided by the incubation centre which would not have been available outside of one. It is also important to note that CIIT Business Incubation Centre, as of June 30, 2015, had "successfully incubated 2 companies and 3 projects." [37] As of June 2016, LudusMagnus had eight employees; four of them being graphic designers and four programmers. They did previously employ Business Development Executives paid a commission on top of their base salaries for each project they won the sister companies. However, it is important to note that all of the employees had a technical background and none attended any business schools. Mr. Ansari and Mr. Ali, apart from leading the company, also shared financial and management duties themselves. Both co-founders actively took part in the technical aspects of the companies as well. The passionate team of ten shared their time between two companies. According to Mr. Ansari, with the advent of 3G and 4G since 2013 in Pakistan, the scope of mobile games had increased manifolds. With the passage of time, the cost of using 3G and 4G technologies has also dropping gradually. The potential was also aided by the availability of smartphones at low prices. These factors together culminated in the increased access to 3G and 4G internet of the mobile users, which increased from 16.88 million in June, 2015 to 32.29 million in as of June, 2016 according to PTA (Pakistan Telecommunication Authority) Annual Report 2016. [38] Moreover,

3**5G technology** would **be** launched **in Pakistan by 2020** according **to**

the State Minister for Information Technology, Ms. Anusha Rahman. [39] Hence, the increased access to high speed mobile internet has broadened the horizons of the target market of smart phone games and apps. As per Mr. Parvez Iftikhar, an Information Technology expert, "The

3**availability of low-cost smartphones and aggressive roll-out of apps has made this possible."**

[40] Mr. Ansari truly believes that LudusMagnus can become a major player in the market, competing with the likes of we.R.play, Mindstorm Studios, Ketchapp, Orangenose, etc. in the long-run. Mr. Ansari also believes that LudusMagnus has the potential to make its place in the international market. He maintains that as long as LudusMagnus stays cheaper than similarly sized players in the international market, it will be able to attract contracts from abroad. Public Radio International (PRI), a news organisation based in USA, reported that according to Saad Zaeem, the co-founder of Caramel Tech Studios, a software house based in Lahore, Pakistan, the cost of producing a game in Pakistan can be over six times less than in USA. [16] Moreover, in a piece on mobile gaming industry of Pakistan by Tribune.com.pk, Jazib Zahir, who is the Chief Operations Officer at Tintash, another game development company based in Lahore, Pakistan, stated that

8**"eastern Europe, Pakistan, and the Philippines** [have] **become prime destinations for software outsourcing"** due to

8“**games designed for smartphones need far less start-up capital”.**

[17] Moreover, since all of the products (games, apps, web design, etc.) are based on the internet, they can truly reap the benefits of globalisation, unlike companies with physical products, which require much more effort and considerably more complex distribution channels to introduce their products in the global markets. Raw Financial Data LudusMagnus and Creatrixe do not keep detailed accounts of the finances. However, after scouring through many excel sheets and note books, some scattered financial data was deciphered and jotted down for analysis. **** The revenue of LudusMagnus for the year ended June 30, 2016 was PKR 4,840,233, whereas its day-to-day running expenses, shared equally with Creatrixe, were PKR 245,012. The equally shared rent was PKR 30,000 per month and the utilities were PKR 242,958 for the whole year. The Selling, General and Administrative (S, G & A) Expenses, shared between the two, totalled PKR 988,000.00 during the year; this figure includes the Office Supplies (35% of the total) usually consumed within the year. Though expensed out, half of the supplies still remained in the inventory at the year-end. For their shared employees, the two companies had to pay out PKR 5,480,000 throughout the year, whereas the directors' remuneration was PKR 500,000 from LudusMagnus alone. LudusMagnus owed Creatrixe 1.4 million Pakistani Rupees in loans during the year; the loan is payable in equal instalments over 5 years, starting this year, without interest. No formal contract was drawn for this loan and it is a verbal agreement. The small companies in Pakistan are obligated to pay between 20% to 35% corporate tax. In the specific case of LudusMagnus, this figure is 24%. Furthermore, the historical cost of the fixed assets of the companies together, all of which were computers and electronic devices at June 30, 2016, was PKR 2,929,889. The accumulated depreciation at June 30, 2015 was PKR 894,950. The companies jointly own and depreciate their fixed assets at the

54**straight-line basis** over **a useful life of** 5 **years.**

Software, falling under the category of Intangible Assets, were valued at PKR 650,000 at the beginning of the year at historical cost. More licensed software was purchased at the cost of PKR 99,000 during the year. The software are amortized at the rate of 25% per annum. Previously, an amortisation of PKR 150,000 had been accumulated jointly by the companies. LudusMagnus also had PKR 366,020 in its corporate bank account at the end of the year. At its incorporation, LudusMagnus had been Authorised 3 million shares at par value of PKR 1 each. The Issued Share Capital of LudusMagnus, however, was the face value of shares held by VCs of PKR 40,000 rupees invested by VCs and PKR 200,000 invested in the company by the two co-founders/ Directors themselves, resulting in 240,000

57**Shares with a par value of** PKR 1 **each. The**

Deferred Tax Assets for LudusMagnus were PKR 259,980 as at June 30, 2015. No dividends were declared despite the surplus. **** The scenario and figures are fictitious. Partial Financial Statements The directors of LudusMagnus and Creatrixe sat down to decipher the financial condition of the two companies. Separating the accounting heads of the two companies and dividing the figures between them might seem simple at the fact of it, but it was a tedious task with many complexities. Still, they were able to make sense out of certain straight-forward parts of the financials. After weeks of deliberation, they were able to only partially complete the financial statements and had certain confusions about the treatment of certain items. For instance, the depreciation and amortisation were of particular concern for them due to the complexity of the calculations involved. The partial statements have been placed as under: LudusMagnus Protect and Loss Statement for the Year ended June 30, 2016 PKR PKR Revenue 4,840,233.00 Expenses Miscellaneous 122,506.00 Rent 180,000.00 Utilities 121,479.00 Salaries 2,740,000.00 Selling, General and Administrative 988,000.00 Depreciation Amortisation Finance Cost 280,000.00

45**Total Expenses Profit before Interest and Tax Interest Profit before Tax**

Corporate **Tax**

Net Income LudusMagnus Balance Sheet as at June 30, 2016 PKR PKR ASSETS Non-Current Assets Computers and Devices 1,464,945 Accumulated Depreciation Software 374,500.00 Accumulated Amortisation Deferred Tax Total Fixed Assets Current Assets Cash at Bank 366,020

59**.00 Total Current Assets** 366,020 **.00 TOTAL ASSETS LIABILITIES**

16**Non-Current Liabilities Long-term Loan** 840,000 **.00 Total Non-Current Liabilities** 840,000 **.00 Current Liabilities**

Current Portion of Long-term Debt 280,000.00 Loan Payable 280

33**,000.00 Total Current Liabilities 560,000.00**

TOTAL LIABILITIES 1,400,000.00 CAPITAL

2**Authorised Share Capital (3,000,000 Ordinary Shares of**

Par Value PKR 1 Each) 3,000,000.00 Ordinary Share Capital 240,000.00 Share Premium 960,000.00 Retained Earnings (Accumulated Deficit) Total Capital TOTAL CAPITAL AND LIABILITIES Management Issues and Constraints The foremost constraint which has been holding LudusMagnus back has been the allocation of labour. The small team of eight has had to share the enormous workload of two companies at the same time. Hence, all the employees have to keep on switching between roles in two organisations with different foci. Creatixe, being a client-centric web development company, and LudusMagnus, being the creative outlet requiring great initiative, require being run in considerably dissimilar ways. In fact, this contrast can be poles apart at times when the workload is rather high. Given the financial constraints to be discussed later, recruitment of new employees for the gaming studio has been out of question. Since LudusMagnus aims to launch a short life-span and short time-play game every fortnight or so, some of the employees had to be consigned merely to focus on the game development, which could prove to be hectic for the employees and could potentially make the client-centric side of Creatrixe suffer. To make-up for this, interns have to be hired occasionally. However, the interns also require training, which is to be provided by the employees of the company, increasing their workload and dispersion of resources further. In short, the frequent shift of employees from one sphere to the other on a regular basis negatively affects the overall efficiency and work productivity of both LudusMagnus and Creatrixe. As aforementioned, Mr. Ansari and Mr. Ali share the management of the two sister companies. However, neither has any prior management experience or business educational background. Despite having technical prowess, neither is well-versed in administrative or managerial know-how. Apart from active participation in projects, the co-founders often find themselves swamped by administrative workload. From hiring employees and interns to the allocation of resources, the co-finders often find their hands full. Another managerial issue faced by LudusMagnus is financial in nature. Despite four years having passed, it still has not become completely independent of Creatrixe, as a fourth of its profits have been diverted to LudusMagnus since the inception of the latter. As the employees of both companies are shared, there is no additional employee cost in this regard. Instead, hiring and training of interns is the major cost head taking up a chunk of the money injected from Creatrixe along with capital investment in state-of-the-art computers to keep up with the demanding specifications of programming. As the latter is a customer-centric company, projects come and go; it does not have a continuous stream of cash flows. Hence, there are uncertainties involved in this arrangement. In times of a dearth of projects for Creatrixe, LudusMagnus suffers as well. Looking Forward Though LudusMagnus was now in the blue for the first time since its inception, it still had a long path ahead. It would seem that it was high time that LudusMagnus became self-reliant and worked independently of Creatrixe. A series of decisions need to be made in order to catch the train to success. Not only would it require additional finances, but also completely revamped business models and practices. QUESTIONS 1. Which entrepreneurial strategy was adopted by Creatrixe at inception? 2. Which business models has LudusMagnus used for its games? 3. How can Creatrixe and LudusMagnus avoid adversities such as the Maximus Cricket fiasco? 4. Though LudusMagnus has started taking flight, it still has a long way to go before becoming completely independent. Discuss how LudusMagnus should adapt its business practices to truly make a mark for itself. 5. Comment on the shared Human Resource Management of Creatrixe and LudusMagnus and state the changes you would like to make to improve it. 6. With the information provided in the case, complete the partial Financial Statements. State any assumptions made. 7. Which Accounting Heads do you think should not be divided equally between Creatrixe and LudusMagnus and why? 8. What are the advantages of Audited Financial Statements for companies who are not required by law to have them audited? 9. Building upon your solution to Question 6, comment on the state of Total Capital and calculate the Net worth of LudusMagnus and value of Shareholder's Equity invested by VCs as of June 30, 2016. 10. If you were a banker, would you a loan of PKR 1,000,000 to LudusMagnus? Support your answer with financial analysis. (Hints: Debt, Capital, Assets.) 11. How could the directors have taken a decision earlier on to improve the health of its Total Capital with its existing funding? What can be done now to remedy it? (Note: You cannot make any antedated changes) Craft the

> 2**Financial Statements for the year ended June** 30, 2016 showing **the** effect of **the**

decisions, had they been taken at the beginning of the year. (Hints: SGA, Long-term Loan, Authorised Share Capital) Also calculate the Net worth of LudusMagnus and the value of the Shareholders Equity of VCs in this scenario. 12. If you were a Banker, would you approve a PKR 1,000,000 loan for LudusMagnus if the company had made changes discussed in Question 11? Support your answer with financial analysis. EXHIBIT 1 Source: mobyaffiliates [41] REFERENCES 1. CENTER FOR INNOVATION & ENTREPRENEURSHIP. (n.d.). Retrieved July 28, 2016, from http

> 29**://nust.edu.pk/INSTITUTIONS/Directortes/Pages/default.aspx 2.**

> 48**Technology Incubation Center (TIC) - National University of Sciences and Technology**

(n.d.). Retrieved July 28, 2016, from http://www

> 29**.nust.edu.pk/INSTITUTIONS/Directortes/TIC/Pages/default.aspx** 3. TIC **Startups**

(n.d.). Retrieved July 28, 2016, from http

> 47**://www.nust.edu.pk/INSTITUTIONS/Directortes/TIC/** TIC Startups **/Pages/default.aspx**

4.

30**IRI survey shows PTI on top of popularity list.**

(2012, May 07). The News. Retrieved August 29, 2016, from https://www.thenews.com.pk/archive/print/622158

30**-iri-survey-shows-pti-on-top-of-popularity-list 5.**

Chishti, A. K. (2012, January 13). The rise of Imran. The Friday Times. Retrieved August 29,

44**2016, from http://www.thefridaytimes.com/beta2/tft/article.php?issue=** 20120113 **&page=**

6 6. Attaa, A. (2012, June 01).

1**Meet Brain Freeze, the Developers of Angry Imran.**

Retrieved August 28, 2016, from https://propakistani.pk/2012/06/01/meet-braine-freeze-the-developers-of-angry-imran/ 7. Angry Imran – taking on politicians, bringing change. (2012, May 31). The Express Tribune. Retrieved August 29, 2016, from http://tribune.com.pk/story/386812/angry-imran--taking-on-politicians-bringing-change/ 8. Shabbir, F. (n.d.).

26**Angry Imran: Angry Birds with a mix of Pakistan politics.**

Retrieved August 14, 2016, from

56**http://www.playtv.com.pk/news/life-a-**

26**style/angry-imran-angry-birds-with-a-mix-of-pakistan-politics.**

html 9. #angryimran. (n.d.). Retrieved June 15, 2016, from https://twitter.com/hashtag/angryimran 10.

4**Bell, K. (2015, July 17). App Store vs. Google Play: Is it time Apple stopped being a control freak? Retrieved** August 24, **2016, from http://www.cultofmac.com/329381/app-store-vs-google-play-is-it-time-apple-stopped- being-a-control-freak/**

11. Parrack, D. (2016, January 22).

12**Google Play Vs. Apple's App Store, Netflix Starts Blocking Users.**

Retrieved May 18, 2016, from http://www.makeuseof.com/tag

12/**google-play-apple-app-store-netflix-blocking-users-tech-news- digest/**

12. Appromoters. (2016, March 30).

15**Google Play versus the App Store: The comparison between the app stores. Retrieved** August 28, **2016, from http://www.appromoters.com/academy/google-play-versus-app-store-comparison-app-stores/**

13.

9**Sims, G. (2015, April 20). Google Play Store vs the Apple App Store: By the numbers (2015). Retrieved** August 25, **2016, from http://www.androidauthority.com/google-play-store-vs-the-apple-app-store-601836/**

14.

22**Ovsyannykov, I. (2012, June 25). A History of Facebook Gaming. Retrieved** August 28, 2016, **from** http **://inspirationfeed.com/articles/social-media-articles/a-history-of-facebook-gaming/**

15.

17**Video Games and the law: Copyright, Trademark and Intellectual Property. (2011, February 23). Retrieved** July 21, 2016, **from http://www.newmediarights.org/guide/legal/Video_Games_law_Copyright_Trademark_Intellectual_Property**

16. Syed, R. (2016, January 20). Made in Pakistan: Your next favorite mobile game. Retrieved June 16, 2016, from http://www.pri.org/stories/2016-01-20/made-pakistan-your-next-favorite-mobile-game 17.

8**Pakistan's mobile gaming industry breaks culture barriers.** (2014, March 27). **The Express Tribune.**

Retrieved May 23, 2016,

43**from http://tribune.com.pk/story/680015/gaming-industry-breaks-culture-barriers/**

18. Saeedi, T. A. (2016, September 26). The untapped gaming industry. The News. Retrieved September 28, 2016. 19. Games An emerging market in Pakistan. (2015, December 28). TechMag. Retrieved June 16,

2016, from http://techmag.pk/games-an-emerging-market-in-pakistan/ 20. Using the Freemium Business Model. (n.d.). Retrieved July 29, 2016, from https://developer.apple.com/app- store/freemium-business-model/ 21. (n.d.). Retrieved June 15, 2016, from

39**https://play.google.com/store/apps/details?id=com.fortafygames.colorswitch&hl=en**

22.

14**Bolton, D. (2015,** January **23). The Average App Loses 77% Of Its Users In The First Three Days. Retrieved** July 28, **2016, from** https **://arc.applause.com/2015/06/23/app-retention-rates-2015/**

23. Cybercrime Bill. (2016, July 28). Dawn. Retrieved August 12, 2016, from http://www.dawn.com/news/1273556 24. Dodhy, M. (2016, August 15). First offender of the Cyber Crime Bill arrested in KPK. Retrieved August 18, 2016, from https://www.techjuice.pk/first-offender-of-the-cyber-crime-bill-arrested-in-kpk/ 25.

36**Khan, R. (2016,** August 11). **Cyber crime bill passed by NA: 13 reasons Pakistanis should be worried.**

Dawn. Retrieved August 29, 2016, from http://www.dawn.com/news/1276662 26. Annual Audited Accounts. (n.d.). Retrieved August 22, 2016, from https://www.secp.gov.pk/company- formation/running-a-company/accounts/ 27. Business Instalment Loan. (n.d.). Retrieved July 2, 2016, from

35**https://www.sc.com/in/business-banking- sme/business-expansion-loan-business-instalment-loan.html**

28. Wand, C. (2008, February 1). Do Venture Capitalists Demand Audited Financials? Retrieved June 8, 2016, from

37**http://www.askthevc.com/archives/2008/02/do-venture-capitalists-demand-audited-financials.html**

29.

10**Rakestraw, T. L., Eunni, R. V., & Kasuganti, R. R. (2013,** September). **The mobile apps industry: A case study. Journal of Business Cases and Applications, 9,** 10-11. **Retrieved** July 29, 2016, **from http://www.aabri.com/manuscripts/131583.pdf**

30.

23**Tang, A. K. (2016,** October). **Mobile App Monetization: App Business Models** in the Digital Era. International Journal of Innovation, Management and Technology, 7[5],

225-226. Retrieved October 22, 2016, from http://www.ijimt.org/vol7/677-MB00017.pdf 31. Kobialka, D. (2016, April 29).

19Mobile game devs see higher revenue from in-game ads, says Unity Technologies. Retrieved June 21, 2016,

from http://www.fiercewireless.com/developer

19/mobile-game-devs-see-higher-revenue- from-game-ads-says-unity-technologies

32.

13THE FUTURE OF MOBILE GAME MONETIZATION REVEALED IN UNITY'S REPORT. (2016, April

7). Retrieved May 8, 2016, from https://80.lv/articles/the

13-future-of-mobile-game-monetization-revealed-in- unitys- report/ 33. Dogtiev, A. (2016,

March 14).

34What is the average cost per install for different types of apps? - Mobile Advertising & App Marketing.

Retrieved July 28, 2016,

46from http://www.mobyaffiliates.com/blog/average-cost- per-install-apps/

34.

5Keating, L. (2016, March 25). Report Finds That Only 1.9 Percent Of Mobile Gamers Make In-App Purchases. Tech Times. Retrieved June 9, 2016, from http://www.techtimes.com/articles/144329/20160325/report-finds-1-9-percent-mobile-gamers-make-app-purchases.htm

35.

28**Wilcox, M. (2014,** November 17). **How to make money with apps. Retrieved** June 2, 2016, **from** https **://www.developereconomics.com/how-to-make-money-with-apps**

36. Slither.io. (n.d.). Retrieved August 4, 2016, from http://slither.io/ 37. Top 10 Incubation Centers of Pakistan. (2015, June 30). Retrieved August 8, 2016, from http://plan9.pitb.gov.pk/top-10-incubation-centers-of-pakistan/ 38. Siddiqui, S. (2016, October 8). PTA annual report 2016: Telecom sector revenue remains flat. The Express Tribune. Retrieved October 9, 2016, from http://tribune.com.pk/story/1195294/pta-annual-report-2016-telecom- sector-revenue-remains-flat/ 39.

3**5G technology to be introduced in Pakistan by 2020.**

(2016, July 20). The Express Tribune. Retrieved July 26, 2016, from http://tribune.com.pk/story/1145648/5g-technology-introduced-pakistan-2020/ 40.

3**Pakistan's 3G, 4G user base rises to 32 million.** (2016, August 26). **The Express Tribune.**

Retrieved September 29, 2016. 41. Dogtiev, A. (2016, June 27). Top Mobile Ad Networks 2016 -

40**Mobile Advertising & App Marketing. Retrieved** July 10, **2016, from http://www.mobyaffiliates.com/blog/** top **-mobile-**

ad-networks-2016/ 42.

38**Mobile Ad Networks Interstitial eCPM Report.** (n.d.). **Retrieved** October **22, 2016, from http://ecpm.adtapsy.com/**

ANSWERS 1. Creatrixe adopted a "Boot-strapping" strategy wherein the newly formed organisation cut costs in every way possible. Instead of renting an office space initially, it operated as a virtual company. When it did rent a space, it was in one of the cheapest possible alternatives available in an incubation centre. The young entrepreneurs worked with the existing technology available, laptop computers and desktop computers at home, to save costs. Moreover, they did not initially draw a salary themselves and hired unpaid interns instead of paid employees. Therefore, for the first few months, they worked exclusively with the existing infrastructure and used the low-cost alternatives to save money. Even after they received funding from an acquaintance, they did not invest heavily in technology or human resources until they won a contract which warranted more injection of finances. Lastly, the games that they launched were small, simple and required little investment. Their useful life was also short (three to six months), so instead of using up more money to update them to stay on the app stores, they were pulled out and new small games were published, most of which were clones, hence no money was spent on market research. 2. The first game of Creatrixe was free to download and had no advertisements, hence it did not bring in any revenues. It did, however, brought free publicity. Later on in the timeline of events, LudusMagnus (and Creatrixe before that) had to think of a way to bring in revenues. The most prevalent way was through in-app advertising, in which banner ads were added to games. This model has brought in millions of rupees over the course of two years. At first, small games with short useful lives were launched to minimise the costs and reap advertising revenue while they were there. Two of the games, Slithering Dragons and Color Switch, have become very successful and collectively brought in about 2.5 million in advertising revenues. 3. Maximus Cricket was a huge setback for the new and small organisation. The foremost way to avoid such failures is to sign a written contract rather than rely on a verbal one. That way, it will be legally binding on the client and a breach can be contested in a court of law. No investment in the project should be made prior to signing of a contract and if the client wishes to annul the contract, a clause covering the amount spent on the project until that point in time should explicitly make the client liable for it or face litigation. 4. It is about time that LudusMagnus started working on original ideas rather than cloning, which suffers from issues such as potential legal repercussions and limited visibility on the app stores. Like Angry Imran, the company should strive to develop games which have the potential to go viral due to being relevant to what gamers want. Unlike Angry Imran, however, it should be careful about using the pictures or likeness with any individual. Moreover, the small game/ short-term life model used by LudusMagnus to this point has limited advantages. A portfolio of more original games would help its repute and attractiveness to potential investors. It would also prolong the time frame within which advertising revenues can be reaped. Secondly, rather than using various screen names, LudusMagnus should start using its own name. This would reinforce the branding of the company and bring the same advantages as the ones aforementioned in the previous paragraph. Thirdly, as diversifying the interests by entering Facebook game development has brought in more revenue, LudusMagnus should also seriously look into Apple App Store. They already have the required infrastructure to start at a smaller level and the expertise to make use of it as well. As per Page 8, Paragraph 3, Apple App Store, though constituting half the number of downloads as Google Play Store, generates twice the revenue. It is a big opportunity which should not be overlooked any longer. Most famous Android apps such as Angry Birds and Instagram, also have an iOS version; doing that would decrease the initial planning phase than what it would be if a completely different game was to be developed for Apple App Store. Lastly, LudusMagnus should continue with the advertising revenue model of games. However, rather than banner ads which can be intrusive, off-putting and less likely to generate clicks, rewarded and interstitial ads should be pursued. Setting up these ads does not require any additional expertise or training, yet are preferred by mobile gamers. Majority of users (71%) prefer these two modes of advertising. In contrast, 18% prefer paid apps and 11% prefer in-app purchases. The latter two can be very lucrative, but mostly users of enterprise solutions and utility apps rather than games make most money out of it. Hence, instead of going with the fad of “Freemium”, rewarded video ads should be focused on, which basically serves the same purpose as in-app purchases for the gamers, albeit through different ways. 5. Unlike shared resources like rent and utilities, which are cost-effective as well as time-saving and easy to account for, human resource should not be shared. Rather than sending employees back and forth between projects completely different in nature and expecting them to be jack of all trades, the employees should be divided into specific departments in LudusMagnus such as “Game Development and Programming” and “Game Graphics Design”. Such a division of the workforce would increase the overall efficiency and creativity of the employees and prevent role conflict wherein the employees are conflicted between time-sensitive client-centric projects and creative gaming projects. I am also of the view that LudusMagnus should hire business graduates in marketing and financial management roles order to run the business in a way that technical education does not groom one to. LudusMagnus. 6. The completed Financial Statements along with the calculations of missing figures are as under: LudusMagnus

18**Profit and Loss** Statement **for the year ended June 30,**

2016 PKR PKR Revenue 4,840,233.00 Expenses Miscellaneous 122,506.00 Rent 180,000.00 Utilities 121,479.00 Salaries 2,740,000.00 Selling, General and Administrative 988,000.00 Depreciation 292,988.00 Amortisation 93,625.00 Finance Cost 280,000.00 Total Expenses 4,324,598.90 Profit before Interest and Tax 515,634.10 Interest 0.00 Profit before Tax 515,634.10 Corporate Tax 123,752.18 Net Profit 391,881.92 Calculations: Depreciation: (Cost of Computers and Devices/5)/2 = (2, 929,889/5)/2 = PKR 292,998 Amortisation: [(Cost of Software at the beginning of the year + Cost of Software bought during the year)*Amortisation Rate]/2 = [(650,000+99,000))*0.25]/2 = PKR 93.625 Total Expenses: Sum of all Expenses = PKR 4,324,598.90 Profit before Interest and Tax: Revenue - Total Expenses = PKR 515,634.10 Interest: Zero, because the Long-term loan is interest-free. Corporate Tax: Profit before Tax * Tax Rate = 515,634.10 * 0.25 = PKR 123,752.18 Net Income: Profit before Tax - Corporate Tax = PKR 391,881.92 LudusMagnus Balance Sheet as at June 30, 2016 PKR PKR ASSETS Non-Current Assets Computers and

Devices 1,464,944.50 Accumulated Depreciation 740,463.90 724,480.60 Software 374,500.00 Accumulated Amortisation 168,625.00 205,875.00 Deferred Tax 136,227.82 Total Fixed Assets 1,066,583.42 Current Assets Cash at Bank 366,020.00 Total Current Assets 366,020.00 TOTAL ASSETS 1,432,603.42 CAPITAL AND LIABILITIES LIABILITIES

16**Non-Current Liabilities Long-term Loan** 840,000 **.00 Total Non-Current Liabilities** 840,000 **.00 Current Liabilities**

Current Portion of Long-term Debt 280,000.00 Loan Payable 280

33**,000.00 Total Current Liabilities 560,000.00**

TOTAL LIABILITIES 1,400,000.00 CAPITAL

2**Authorised Share Capital (3,000,000 Ordinary Shares of**

Par Value PKR 1 Each) 3,000,000.00 Issued Ordinary Share Capital 240,000.00 Share Premium 960,000.00 Retained Earnings (Accumulated Deficit) (1,167,396.58) Total Capital 32,603.42 TOTAL CAPITAL AND LIABILITIES 1,432,603.42 Calculations: Accumulated Depreciation: (Accumulated depreciation at the end of last year/2) + Depreciation for the current year = (894850/2) + 292,988 = PKR 740,463.90 Accumulated Amortisation: (Amortisation at the end of last year/2) + Amortisation for the current year = (150,000/2) + 93,625 = PKR 161,625 Deferred Tax = Deferred Tax Assets at the end of last year - Corporate Tax for the year = 259,980 - 123,752.18 = PKR 136,227.82. This means that even though LudusMagnus owed tax this year, it has been offset by the tax credits received in the previous years. Total Non

31**-current Assets: Sum of all** the Non **-current assets. Total Assets** = Sum of **Total Non-current Assets** and **Total Current Assets** Total Capital **and Liabilities:**

This value is always the same as Total Assets in double-entry accounting. Total Capital: This is the missing figure required to balance the Balance Sheet and should always equal Total Capital and Liabilities - Total Liabilities = PKR 32,603.42 Retained Earnings/ Accumulated Deficit: Total Capital - (Issued Ordinary Share Capital + Share Premium) = 32,603.42 – (240,000.00 + 960,000.00) = PKR -1,167,396.58. This negative figure denotes that, even though LudusMagnus made a profit this year, it was not enough to cover the Accumulated Deficit at the previous year end. 7. Profit and Loss Statement Heads: Now that LudusMagnus is a separate company, it should be divided into departments with their own employees and assets. Hence, Salaries expense would have to be calculated for LudusMagnus only. Moreover, LudusMagnus should buy off some of the ‘Computers and Devices’ and ‘Software’ that it needs specifically for game development (including Mac computers) from Creatrixe and depreciate them on its own. Both of these changes would completely change the Profit and Loss Statement of the company, consequently giving a more accurate view of profitability. It will also make profitability ratios such as ‘Asset Turnover’, ‘Return on Assets’, ‘Net Profit Margin’, etc. more precise and help the stakeholders judge the company’s profitability more properly. Balance Sheet Heads: As aforementioned, Fixed Assets would change if LudusMagnus bought the assets off Creatrixe specifically for its use, consequently changing the ‘Accumulated Depreciation’ and ‘Accumulated Amortisation’ heads. This will give a more accurate view of the assets of the company. It will also improve the accuracy of key ratios such as ‘Asset Turnover’, ‘Return on Assets’, ‘Capital to Assets’, ‘Debt to Total Assets’, etc. 8. Audited Financial Statements improve the credibility of a private limited company in the eyes of its stakeholders. Most importantly, investors such as banks and VCs require audited financial statements before investing in a company. Therefore, it increases the chances of a private limited company to gain additional funding, should it need some. The existing VCs who have invested in the company may also want more precise financial information to know how their investment is being utilised, which would be more likely if an audit has taken place. 9. When LudusMagnus was founded, its Shareholder's Equity was the same as its Issued Ordinary Share Capital and Share Premium, i.e. 1,200,000. However, due to losses, the Accumulated Deficit eroded the Shareholder's Equity over time. As at June 30, 2016, the Total Shareholder's Equity or Net worth of LudusMagnus was 32,603.42. This is the figure that would be left for the shareholders after paying off the liabilities if the company was liquidated. Hence, the shareholders, who originally paid in 1.2 million rupees would be left with less than 3% of their original investment, which is alarming. Stern measures need to be taken by LudusMagnus to address its net worth if it wants to look attractive to investors. The VCs hold a 20% stake in LudusMagnus. By that logic, their worth would now be PKR 6,520.68. 10. Debt Ratio =

24**(Long Term Debt + Current Portion of Long-term Debt)/ Total Assets**

= (840,000 + 280,000)/ 1,432,603.42 = 0.78 or 78.18%. This rather high Debt Ratio denotes that the company has only about a quarter more assets than debt, which makes it risky. Debt to Equity Ratio = Total Debt/ Total Equity = (840,000 + 280,000)/ 32,603.42 = 34.35 or 3435.22%. This extremely high ratio, by any standards or comparison, makes LudusMagnus a risky company because it signifies that the company has been taking on debt excessively. Equity Ratio = Equity/ Assets = 32,603.42/ 1,432,603.42 = 0.023 or 2.27%. The extremely low ratio of Equity compared to the company's Assets also denotes that the company is too dependent on debt and owes a lot of money. On the face of it, the company is very unattractive. It is drowning in debt. Without industry averages of these ratios, a comparison cannot be made. However, any more debt would mean making these ratios worse and, hence, there is a high risk

2**that the** company **will** not **be able to meet all** of **its obligations.**

Therefore, I will reject the loan. 11. The foremost and basic thing that LudusMagnus could have done is separation of Office Supplies and S, G & A. This would have decreased its expenses and augmented its current assets. However, this can be done in the coming year, assuming the Office Supplies in the current year as zero, as they have already been expensed out. When the co-founders injected the money from Creatrixe into LudusMagnus, they could have made use of the residual Authorised Ordinary Share Capital of 2,760,000 shares of par value of PKR 1 each by issuing 1,400,000 shares to Creatrixe or themselves (after drawing the required amount out of Creatrixe). Doing so would have brought the debt down to nil and increased the shareholder's equity. Also, the finance cost would have come down to zero, hence increasing the profitability of the company. In a nutshell, the profitability and gearing ratios of LudusMagnus would have improved manifolds. Now that the loan has been issued, its residual amount of PKR 840,000 (or 1,120,000 if the

55**current portion of long-term debt** is included, **which** would make **the**

accounting more complicated) can be converted into equity. Since the loan is taken from a sister concern with same directors, it will not require much paperwork. Revised Financial Statements assuming that the directors had made these changes last year are as under: LudusMagnus

18**Profit and Loss** Statement **for the year ended June 30,**

2016 PKR PKR Revenue 4,840,233.00 Expenses Miscellaneous 122,506.00 Rent 180,000.00 Utilities 121,479.00 Salaries 2,740,000.00 Selling, General and Administrative 407,550.00 Depreciation 292,988.00 Amortisation 93,625.00 Total Expenses 3,958,148.90 Profit before Interest and Tax 882,084.10 Interest 0.00

Profit before Tax 882,084.10 Corporate Tax 211,700.18 Net Profit 670,383.92 Calculations: S, G & A: [S, G & A* (1-0.35)] + [(S, G & A* 0.35)/2] = {[988000* (1-0.35)] + [(988000*0.35)/2}/2 = (642200 + 172900)/2 = 815,100/2 = PKR 407,550.00 S, G & A* (1-0.35) is the portion of the total S, G & A which is not Office Supplies. (S, G & A* 0.35)/2 is the amount of Office Supplies within total S, G & A which was consumed within the year, hence expensed out. Adding the two would give us the real figure of S, G & A including the Office Supplies used during the year shared by Creatrixe and LudusMagnus. Dividing the total by 2 would leave us with the figure specific to LudusMagnus. Finance Cost: The amount is now zero, as a loan was never recorded. Total Expenses: Total of all the expenses with changes in S, G & A and Finance Cost eliminated. Profit before Interest and Tax, Profit before Tax, Corporate Tax and Net Profit: Figures changed due to reduction in expenses. LudusMagnus Balance Sheet as at June 30, 2016 PKR PKR ASSETS Non-Current Assets Computers and Devices 1,464,944.50 Accumulated Depreciation 740,463.90 724,480.60 Software 374,500.00 Accumulated Amortisation 168,625.00 205,875.00 Deferred Tax 48,279.82 Total Fixed Assets 978,635.42 Current Assets Cash at Bank 366,020.00 Office Supplies 86,450.00 Total Current Assets 452,470.00 TOTAL ASSETS 1,431,105.42 CAPITAL AND LIABILITIES LIABILITIES TOTAL LIABILITIES 00.00 CAPITAL

2**Authorised Share Capital (3,000,000 Ordinary Shares of**

Par Value PKR 1 Each) 3,000,000.00 Issued

53**Ordinary Share Capital 1,** 640 **,000.** 00 **Share Premium** 960,000.00 **Retained**

Earnings (Accumulated Deficit) (208,894.58) Total Capital 1,431,105.42 TOTAL CAPITAL AND LIABILITIES 1,431,105.42 Calculations: Deferred Tax = Deferred Tax Assets at the end of last year - Corporate Tax for the year = 259,980 - 211,700.18 = PKR 48,279.82. Impact of changes in Profit and Loss Statement. Office Supplies: [(S, G & A* 0.35)/2]/2 = [(988000*0.35)/2]/2 = 172900/ 2 = PKR 86,450.00

42**Total Non-current Assets: Sum of all the Non-current assets.** Figure changed because **of**

Deferred Tax, which has decreased.

52**Total Current Assets: Sum of all** the **current assets.**

Figure changed due to Office Supplies. Total Assets = Sum of Total Non-current Assets and Total Current Assets. As you can see this figure is less than what it would have been if a loan had been taken, despite an increase in

18**Total Non-current** Assets. **Total Liabilities:** Value nullified. **Total** Capital **and Liabilities:**

This value is always the same as Total Assets in double-entry accounting. Total Capital: Same as the above because liabilities are zero. Retained Earnings/ Accumulated Deficit: Total Capital - (Issued Ordinary Share Capital + Share Premium) = 1,431,105.42 – (1,640,000.00 + 960,000.00) = PKR -1,168,894.58. This negative figure denotes that, even though LudusMagnus made a profit this year, it was not enough to cover the Accumulated Deficit at the previous year end. Net Worth: Total Capital - Total Liabilities = 1,431,105.42 – 0 = PKR 1,431,105.42 Value of VCs Equity: Total Equity * Stake Percentage = 1,431,105.42 * 0.20 = PKR 286,221.08. As evident, this is over 43 times more than what it was in the original scenario, i.e. PKR

6,520.68. 12. Debt Ratio =

24**(Long Term Debt + Current Portion of Long-term Debt)/ Total Assets**

= 0/ 1,431,105.42 = 0 Debt to Equity Ratio cannot be calculated because the debt is zero. Equity Ratio = Equity/ Assets = 1,432,603.42 / 1,432,603.42 = 1 or 100% All of the ratios, including the one that cannot be calculated, tell us that LudusMagnus has zero debt, hence it is ripe for the taking. As a banker, I would approve a loan right away. However, I will look into its profitability and liquidity in order to determine the interest rate to be offered. 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33