



ROLOCULE GAMES: NEGOTIATING THE MOBILE GAMING WAVE

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It was a cloudy day in Pune, India in July 2016. As Rohit Gupta (Rohit), the CEO of Rolocule drove to work; he was pleasantly surprised to see the sun occasionally peeking from behind the clouds. The weather mirrored the state of his mind. Rohit's mobile gaming company had not done as well as he had hoped it would. Revenues were dwindling and a new game on which he had pinned his hopes had a lackluster opening. However, there were some rays of hope. Rohit had an acquisition offer from a major mobile gaming company, Octro Inc., based in Delhi. Octro had topped charts on Apple iOS and Google Play with blockbuster games. Teaming up with Octro could provide access to the much-needed resources for Rolocule. However, Rohit was still driven about fulfilling his dream of building a gaming company on his own for India and from India. He was not sure if teaming up with another gaming company would help him achieve that goal. To add to this mix, the marketing team of Infosys, a large software services company, had approached Rolocule with a project to gamify their marketing pitch. The business-to-business (B2B) space was new to Rohit, however he wondered if it was a less-risky option with stable revenue streams. He was at a crossroad. Should he stay the course of being a business-to-consumer (B2C) gaming company and continue his quest for a blockbuster game? Would merging with Octro help or hurt this cause? Or, should he switch gears and move towards B2B gamification? Which direction should Rohit take and what would be the ramifications of his decision?

Rohit started Rolocule in 2009, and was an early entrant to the mobile gaming space in India. It had been a roller-coaster ride since then. After a few successes, his company began faltering, owing to changes in industry dynamics and intense competition. He needed to rethink how to steer his company ahead. However, having invested 7 years of his life into building a gaming business, Rohit was sure of one thing – he must succeed – *how?* was the question.

OVERVIEW OF THE MOBILE GAMING INDUSTRY

Gaming refers to playing video games on mobile phones, consoles, computer systems or other media. Mobile gaming refers specifically to games played on mobile devices such as smartphones and tablets (**Exhibit 1**).

In 1997, Nokia launched the game “Snake” on its Nokia 6610 model. Snake and a few other embedded (preloaded) games like Tetris formed the first generation of mobile. Games were limited by low connectivity speeds and monochrome images (dot matrix graphics). Over time with technology, mobile games became more sophisticated but distribution was still a problem. Mobile game developers tied up with mobile network operators to promote their games, but the operators took a major part of the revenue and dictated terms of the distribution contract. The Apple AppStore and Google Play Store released in 2008 made it easier for developers to reach consumers and allowed them to keep a bigger part of the revenue. With lowered cost of reaching consumers and minimal copyright protection, games and their many clones started proliferating on the app stores (**Exhibit 2**).

In the early 2000s, gaming in India was limited to the small population segment that had access to PCs and consoles, and few domestic developers such as Zapak and Games2win developed desktop browser games. Mobile gaming in India rose with the rise of smart phone usage in India in 2010, when smart

phones replaced feature phones. India soon grew in the download of games, to rank fifth globally in 2016 (**Exhibit 3**). Indian game development companies which had been acting as service providers to global producers started end-to-end development of games for the Indian market. The number of Indian gaming companies reached 250 but few of them made it to the top of the charts owing to low investments in the industry (**Exhibit 4**). Few of the top performers in India were Octro (*Teen Patti*) and Nazara (*Chhota Bheem Jungle Run*). Many of the companies had specialized in specific genre of games such as casino games (*Teen Patti Gold* by Moonfrog) and celebrity themed games (*Dhoom 3* by 99Games).

India had 281 million mobile internet users and 252 million smartphone users in 2016. With 200 million mobile gamers, Indians comprised 10.2% of the total 1.97 billion players worldwide. Even though India had one-tenth of the total players in the world, the Indian mobile game revenue share was only 1.1% (USD 466 million)¹ of the global revenue of USD 41.5 billion (**Exhibit 5**); only 23.7 million (11.8%) of the total mobile gamers in India paid for content. The Average Revenue per User (ARPU) per game per year, which was the average revenue, expected from a game installed, in the Indian market was USD 2.32 compared to the global average of USD 29.82. The pay to play concept was yet to catch on in India. The major source of revenue from the Indian mobile gamer was through advertisements displayed in the game; however with more Indians getting comfortable with online payments, better infrastructure to enable billing and increasing disposable incomes, the willingness to pay for content was set to increase. The gaming industry being a trial and error business was similar to the film business in India and the recipe to succeed was in being passionate, getting together a stellar team and working with the right investors.

THE YEARS GONE BY

As most good engineers in India do, after finishing his BE (Bachelor of Engineering) in Pune, India, Rohit joined Infosys in 2005. Within a short while he got tired of his routine, mundane job, and started dabbling in computer graphics in his free time. Soon he realized he needed formal training, if he was to make anything out of it. He applied and secured admission to Columbia University for a Master's in Computer Graphics. After his MS in 2008, he joined EA (Electronic Arts)² as a Software Engineer intern and worked on a popular game called THE SIMS 3. However, he was dissatisfied with the scope of work at EA sports, where he was just programming. He wanted to design and develop games from scratch. Soon, the idea of starting a gaming company took root. With this idea, he returned to India in 2009. He found a lack of native game development companies in India, and his mind began to race with the possibilities open to him. His road map started to take shape.

ROHIT'S GAMING JOURNEY

Rohit's first idea was to develop a game based on the music featured in a popular Indian film titled "*Rock On*". The music in the film was Hindi rock music, which was gaining popularity. The lead actor and

¹ 1 USD = INR 68 (rounded off) in 2016

² Imitating real-life sports networks by calling themselves the "EA Sports Network" (EASN) with pictures or endorsements with real commentators such as John Madden, it grew to become a sub-label on its own, releasing game series such as FIFA.

musician in the movie, Farhan Akhtar (Farhan), had become a sensation among the youth. Rohit's idea was to create a "rock along music platform" comprising a library of hit songs from various Hindi movies, a music kit that included a plastic guitar and drums, and a PC-based game that would allow users to play along on the music kit. Rohit approached Excel Entertainment (Producer of *Rock On*) with this idea. Though the Excel team liked the idea, they were willing to make only a limited commitment. Rohit recalled:

Excel was willing to lend their name and license out the 'Rock On' brand, but I had to do everything else, which was tough for me then. Most importantly, they were not willing to put money on it and I was bootstrapped!

After this initial excitement and disappointment, Rohit began to critically examine the gaming industry and his own capability to develop and take a game to market. He realized that the game and any associated properties (e.g. music kit) would have to be sold in retail outlets. This meant, Rohit had to identify distributors, stockists, warehouses and set up a distribution network, of which he had no experience. A second challenge was the piracy issue. Piracy was rampant in India, and people assigned a very low value to software and felt that games needed to be free. Finally, Rolocule was a one-man team and any complex games needed considerable amount of resources including skilled man power to publish, which Rolocule did not possess at that point in time. Rohit mulled over these issues and how to overcome them.

Around this time, the iPhone had been launched in the United States with tremendous success. An interesting concept called the AppStore was introduced on the iPhone, which was a digital app market place. It provided better access to end customers for mobile app developers, circumventing the entire process of dealing with multiple network carriers. The Appstore itself was free and came preinstalled on iOS devices and at the time was majorly populated by paid games. This opened up a new opportunity for Rohit and he decided to shift his focus on creating games for the iPhone that were available through the AppStore.

MOVING INTO SPORTS GAMING

After toying with several ideas, Rohit decided to develop a game of Squash for iPhone. His rationale was that Squash was an easy game which could be played by single, two, three, or four players at a time. Though it was not very popular in India yet, it was a unique sport and one which did not have a presence on the PC, Xbox, PlayStation, or the mobile. He chose to develop Touch Squash as a mid-core game (**Exhibit 6**) which would have a reasonable shelf life. Rohit remarked:

If you look at the most successful video game franchises in the world, you will find that they are mostly sports games. So, my idea was to create a game, which if successful, I would be able to extend, upgrade and make bigger.

With a modest startup fund of USD 2,000 that he was loaned from his father, he bought an iMac Desktop and an iPhone, and developed the game single handedly. Rohit quickly launched squash. The speed of launching was critical, according to Rohit.

Time to market should be really fast in the gaming industry. That is when you immediately start getting feedback from customers and that gives you a direction in which you should really be moving forward. That's what squash did for us. The launch started making money for us almost immediately.

Touch Squash was launched in 2009 across the globe in countries where iPhone had its presence. It was a paid game and cost USD 1.99 to download. The number of downloads when it first hit the market was approximately 12,000. This was Rohit's first revenue stream and he was thrilled!

After 6 months of squash being in the market, Dunlop, a German company that manufactured squash rackets, sponsored Touch Squash with a payment of approximately USD 1,000 in return for placing their logo at the start of the game and a ticker stating that they were the sponsors of the game (**Exhibit 7**). This was a defining moment since the sponsorship gave recognition and legitimacy to the game and Rolocule.

The success of Touch Squash stoked Rohit's ambitions. He wanted to create something that was unique yet bigger than squash. It had to be a two-player or multiplayer sport because the social nature of the sport could create a network effect. Tennis was an option but Gameloft, a French game development company, already had a sophisticated and popular version for Tennis on the Appstore. Rohit steered clear of a head-on competition with Gameloft and decided to focus on badminton instead.

THE NEXT FRONTIER

Rohit's next frontier was badminton. He needed artistes and developers to create the game, especially since he wanted to introduce 3D characters. However, he could not afford to hire and pay professionals. He decided to hire students from animation institutes as interns and they could work on his project at the studio. It would, to his mind address the issue of office space as they could use the institute's infrastructure as a makeshift studio. It would also be manageable with the low outflow of finances. An institute called Seamedu³ agreed to Rohit's proposal but with a condition – that Rohit would teach game designing to the students of the institute. He selected three students and fulfilled his side of the bargain.

Around this time, Rohit's former classmate and friend Anuj Tandon, who had been watching Rolocule's progress from the sidelines, showed a keen interest to join the company and help grow it. Rohit and Anuj agreed to a verbal 70:30 equity split, and Anuj joined the company full-time in early 2010. Anuj was to handle operations at Rolocule and Rohit handled game development and production. Anuj also loaned USD 1,000 to cover the stipend amount for the three interns who were developing the game of badminton. This was on the assumption that the game would take three months to develop, like the

³ Seamedu is a media school based in Pune, founded in 2008 to produce talent in Media & Entertainment Digital Filmmaking, Animation, Game Design, Visual Effects, Sound Design, Broadcast Media, and Broadcast Journalism.

timeline dedicated to Touch Squash. However, the game took 6 months to develop and the money ran out mid-way. Rohit convinced the interns to stay on and promised that he would pay them once the game was launched. Super Badminton was launched 6 months later after having invested approximately USD 4,000. The game was a run-away success and Rolocule recovered all the money spent on the game within 2 days of launching it! The game was also noticed by Apple since it was unique and sophisticated, and featured it on the AppStore in the United States (**Exhibit 8**). The game was priced at USD 2.99 that customers paid when they downloaded the game. Downloads in the first week were 1,370 and revenue in the same period was USD 4,110. Rohit said:

It was a turning point for us. We were in the top 20 of the charts.

Rolocule won the “Power of Ideas” competition at IIM Ahmedabad, which gave them a seed funding of approximately USD 29,000 (INR 20 lakhs), Rohit said:

That was the time (November 2010) we finally registered the company as we needed to open an account in the bank to encash our cheque!

With modest revenues and the seed funding in place, Rolocule rented office space and hired a few key people. Fueled by success and ambition, they were ready to take on Gameloft’s Real Tennis with their own mobile tennis offering, Flick Tennis. However, in the early stages of development, an interesting episode changed the direction of game design. Rohit, while visiting his father, introduced him to Super Badminton on his iPhone. Finding it difficult to play, he had switched to another game. Though he told Rohit that it was one of the best games he had played, Rohit knew he was saying it just to please him. However, it was an eye opener for Rohit. He realized that though he himself found the controls of Super Badminton easy, he needed to keep in mind that he was a seasoned mobile gamer. To drive mass adoption of a mobile game, he would need to create a game that was easy to pick up and was simple to play which would drive engagement with people less fluent with mobile controls. This would be the USP (unique selling proposition) of Flick Tennis, to beat Real Tennis. The idea was to make Flick Tennis as simple as it could get. The game was completely redesigned with a new control scheme with absolutely no buttons on the screen (**Exhibit 9**). During the development phase, they asked several people to play the game and the Rolocule team watched the behavior of the players. After several iterations over 9 months, the game was launched in September 2011.

Flick Tennis performed much better than badminton. With virtually no controls, the game was a hit with players and Rohit’s hypothesis of mass adoption proved correct. The game gained traction across players of all age groups to become one of the most played sports games on the Appstore. With time, the game was updated to a multiplayer format which could be recorded and posted online. Many people watched the game while being played online, just to get better at the game. In a later version of the game, players were ranked according to the Association of Tennis Professionals (ATP) scheme and tournaments were hosted in the game, synchronized with real tournaments, like the US Open or French Open. The winners of these tournaments were awarded extra points in comparison to those winning in lesser tournaments, as followed in real world tennis.

As Flick Tennis gained traction, the company was noticed by the VC community. Several VC firms including Sequoia approached Rolocule. Finally, Mumbai Angels and Blume Ventures jointly made an investment of USD 221,487 (INR 1.50 crores) in Rolocule, making a beginning in Rolocule's funding history (**Exhibit 10**).

Rolocule now had three successful games in a row, all doing well on the AppStore. Flick Tennis got Rolocule their first international recognition, with the People's choice award at the 8th annual International Mobile Gaming Awards (IMGA)⁴ in Barcelona in 2012. Akin to the Oscars in films, the IMGA awards was coveted by many gaming companies.⁵ In competition were thousands of developers who nominated their games. A select jury evaluated the games and five from each category were selected as the winners.

SHIFT FROM PAID TO FREE GAMES

Around 2013-2014, mobile game monetization underwent a sea change. Until then, most of the games on the app stores were paid games where people would pay upfront to download and play the game. With the increasing influx of mobile games on the app stores, the industry saw the advent of free-to-play model. In the free-to-play model, the game was free to download and play, but had restrictions to play up to a certain level, after which the game would increase the difficulty drastically such that progressing faster in the game would be possible only by either purchasing an in-game item that would enable players to complete the difficult level or players would have to grind away hours at the game to get the same item.

The free-to-play model drastically increased the number of downloads for mobile games and increased the total industry revenue due to the repetitive nature of the in-game monetary transactions, as opposed to the earlier paid model system where a single payment would be charged upfront for downloading the game at the Appstore. A negative effect of the trend towards free-to-play games was that only the most popular games benefited from the increase in downloads and hence took away a majority share of the increase in revenue (**Exhibit 11**). This decreased the average revenue per game since with the large and continuous increase in free games; players had little incentive to stick to a particular game and an even lesser incentive to spend money on a mobile game. A game required high investments in marketing and advertising and had to be engaging enough for the user to make a purchase or else an alternative was readily available for the player to switch to. The percentage of people who converted from being a free-to-play gamer to a paid gamer in India was 11.8%. With rising development costs, high user acquisition costs and falling revenue, the paid business model for mobile games was turning unprofitable for a majority of game developers. Further, as the free-to-play model became more sophisticated at retaining and engaging players, the download number for paid games dwindled further.

⁴ The International Mobile Gaming Awards (IMGA) is an annual competition and awards ceremony that honors outstanding games made for mobile devices. It is the longest standing international competition for mobile games. It is the only competition that celebrates excellence and innovation in games. It takes place in various cities across the United States and Asia.

⁵ Winners and nominees list: <http://www.imgawards.com/winners-nominees/8th-imga/>

For Rolocule, the revenues from all three paid games eroded. To counter this category disruption, Rolocule started working on a free-to-play version of tennis called “Tennis Social League” (TSL). The shift towards a free-to-play version required a complete rethink and overhaul of the game (**Exhibit 12**). Rolocule needed to move fast. They tripled the number of developers on TSL so they could build the first version quickly. However, despite investing USD 73,675 (INR 50 lakhs), and spending 9 months of development effort, the game remained unlaunched. The main reason was that the company could not figure out the monetization scheme as Rolocule had little experience in designing free-to-play games and literature on the model was unavailable.

In the meantime, Rohit had traveled to the United States to attend Apple’s worldwide developers’ conference⁶ to gain insights on free to play games. When in Cupertino, he was exposed to Apple TV. Apple TV was an entertainment device similar to Amazon Fire that could stream audio visual data from a source like a mobile phone to a smart television. It struck him that there was the possibility of creating a Nintendo Wii⁷ like motion gaming experience, (basically a game played with gestures) using the iPhone and Apple TV. This gave birth to the idea of Rolomotion.⁸ Rohit also decided that though it was a difficult decision, Tennis Social League needed to be shut down and he needed to move on.

ROLOMOTION AND APPLE TV

Designing a prototype for Rolomotion began almost immediately with feverish intensity. The aim was to gain Apple’s attention and support it as a platform owner. After figuring out that they would create Tennis around Rolomotion, they made a video and sent it to Apple stating that they would like to engage with them to take it forward. Rohit recalled:

It was Friday night in India; Apple called us and asked if we could meet them on Monday morning. We had told them that we were in the US! We immediately booked our tickets and flew to the US to Apple’s headquarters in Cupertino. We showcased our Rolomotion and they really liked it. In fact, we had created several small demos for them. They liked the pipeline and decided to engage Apple TV’s development team with us to provide us the feedback on how the game should look on Apple TV from Apple’s design perspective. It was a great learning experience for us.

For Apple, promoting Apple TV was the focus and to have a portfolio of interesting games would strengthen the ecosystem for Apple TV.

Rolomotion technology garnered much media attention, owing to the partnership with Apple. When Rolocule Beta launched their tennis game on Rolomotion, the media provided good coverage and it

⁶ The Apple Worldwide Developers Conference is a conference held annually in California by Apple Inc., primarily in San Jose, in Silicon Valley. The event is used by Apple to showcase its new software and technologies for software developers.

⁷ Nintendo Wii is a gaming console which allows players to play games with gestures, as there is a motion controller that the player can swing around. The computer detects the swinging and the same is replicated on the screen.

⁸ Rolomotion is a technology that uses the gyroscope, magnetometer, and accelerometer in the iPhone to precisely track its various movements and allows users to play games using natural motion gestures on television. It makes the Apple TV a complete portable living room console using iPhone.

created a buzz and raised consumer anticipation. In June 2013, Motion Tennis, the first game on Rolomotion, was launched. It was priced at USD 8.99 and, was one of the most expensive games created by Rolocule. The game generated close to around 10,000 downloads on the AppStore worldwide and it was a success. Apple TV had sold approximately 20 million in 2013.

Soon after, several investors started approaching Rolocule to offer them the next round of funding. In 2014, Blume ventures led a round of funding for Rolocule, infusing a capital of USD 366,810 (INR 2.50 crores). The investment was towards aggressively expanding the portfolio of games on Rolomotion, riding on the popularity of Apple TV.

With the infusion of funds, Rolocule went all out and hired stellar people, and began production for their next game, Dance Party (**Exhibit 13**). Dance Party was a mobile game for iPhone which when connected to Apple TV would allow players to dance along with characters shown on the television on groovy pop songs. It took a year and USD 116,880 (INR 80 lakhs) to develop, and was one of the most challenging games developed by Rolocule. It was designed as a free-to-play game to increase the reach of the game and ensure that the company was not caught off-guard by a wave of free-to-play games on Apple TV. Dance Party was soft launched in Australia first in the beginning of 2014; and in mid-2014 it was extended worldwide. Simultaneously, Rolocule was building a pipeline of games based on Rolomotion – Bowling Central, Dead Among Us – with the intention of releasing a new game every year. However, two serious problems cropped up. Dance Party did not gain much traction as the playlist in the game was limited due to high royalties charged by music producers, and Apple TV sales did not pick up as anticipated. This was a big blow!

Rolocule once again looked to change their product development strategy. Their next offering for Apple TV, Bowling Central (**Exhibit 14**), was in the development stage at that point. Learning from the failure of Dance Party, they decided there was no point in making it solely playable on Apple TV and decided to make the game work on tablets and smartphones as well. Bowling Central was first launched as a paid game in January 2015 and then re-launched as a free-to-play game in mid-2015. Two months later, Dead Among Us was launched after similar changes in product strategy. Dead Among Us was an ambitious project for Rolocule as it was extremely complex with different kinds of animation and 3D effects. However, none of the games became the runaway success that were Badminton and Flick Tennis, though their launch attracted much media attention (**Exhibit 15**) and the geographic spread of download was good (**Exhibit 16**).

AN UNCERTAIN FUTURE

Rolocule Games was in an unstable condition and finances were running out at a fast pace. Around this time, they got an acquisition offer from Octro, the gaming company of Teen Patti, Indian Rummy, and Tambola fame (**Exhibit 17**). This was the second acquisition offer in a span of one year, the earlier one being an offer from Moonfrog Labs, a gaming studio that was backed by Sequoia Capital and Tiger Global. The interest in Rolocule was because they had a strong technical team and were well-respected in the gaming community. Both the offers had an attractive cash component for the founders but valued

Rolocule at less than half the valuation it had received in the most recent round of funding. Rohit and Anuj also differed in their opinions of how to move ahead with the acquisition offers.

Rohit was hopeful of scripting a turnaround. Based on the game development stages he used to develop and design a game, he was very driven about going back to the drawing board and creating a game for India (**Exhibit 18**). His view at the time was:

We need to focus on the Indian market and start taking the Indian market seriously. We need to create a product so appealing that no one in the Indian gaming industry has created so far and take that as a base and go to investors and pitch to them that we are the best. With our quality foundation and proven track record we can create quality products for global audiences, so India would be easy and that needs to be what we get across to investors.

Rohit's idea was to develop a game based on superheroes. The response from prospective investors was tepid. They felt that the Indian gaming market was still in a nascent stage and the project was too ambitious. However, existing investors supported Rolocule with a bridge funding of USD 186,201 (INR 1.26 crores). Eventually, when funds ran out, Rohit had to let go of his team, except for two colleagues who agreed to stay back and help Rohit revive the business. Rohit wondered if it was time for a fresh start, the way he had done 7 years earlier. Only, this time he would have a wealth of experience of game development under his belt.

B2B GAMIFICATION OPPORTUNITY

As the pruned team deliberated on the next steps, the Infosys marketing team approached Rolocule. They were looking for the gamification⁹ of the marketing proposals they made to their clients, using the data analytics generated by Infosys. In other words, instead of just making mere presentations on a PowerPoint, Infosys wanted to gamify their proposals to clients. They were very impressed with the Rolocule team and their quality of work. This was a completely new space for Rolocule.

Gamification had been in use by companies for multiple purposes from employee motivation to recruitment to training. However, they usually revolved around easy to implement applications where the basic concepts of gamification would be applied, for example, local leaderboard. Only a few companies were starting to create a wholesome gaming experience of their services, complete with audio visual cues and controls. However, this could become a fast-growing space in the years to come. There was a possibility that the B2B space would offer Rolocule a steady stream of business and revenue and would possibly breathe fresh life into the B2C business.

⁹ Gamification was applying game-like elements and techniques to real world business problems. Large organizations used gamification to boost business performance.

THE ROAD AHEAD

After the massive rollercoaster ride that Rolocule went through, they were again at a crossroad – if they were to continue as a B2C gaming company, they would have to sustain themselves until they hit it big with a blockbuster game, which was unpredictable. Alternatively, they could cut their losses, accept the acquisition offer and pursue their passion for developing games within a larger organization. Another option was to take the B2B route, which could give them a steady stream of revenue. However, they were currently not playing in the B2B space, so they would be on an uncharted path if they attempted it. How should Rohit steer Rolocule ahead? There were far too many unknowns at this juncture, especially for Rohit who had just turned the corner, in more ways than one, and had a narrow escape of not crashing into the curb.

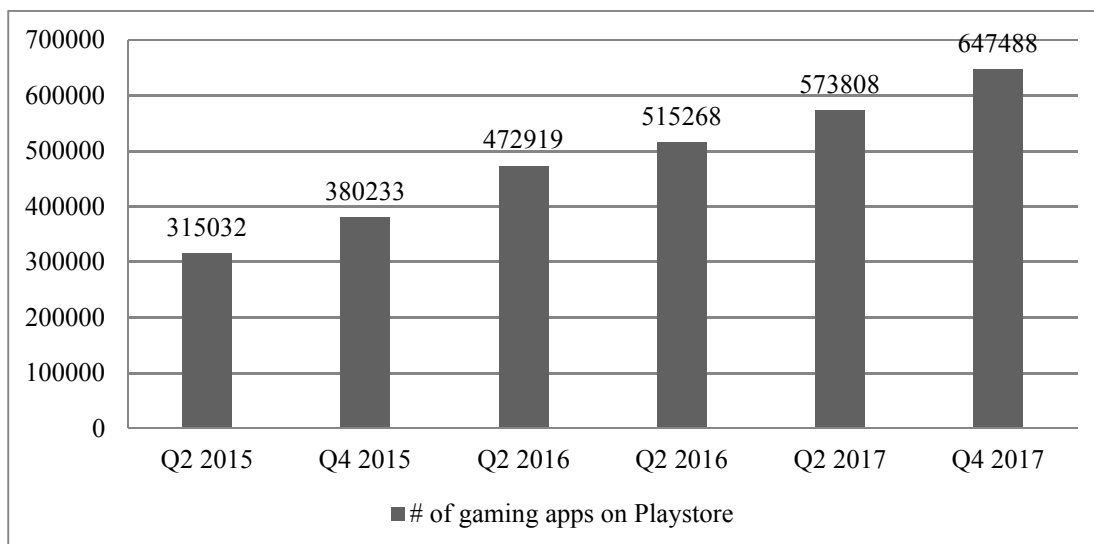
Exhibit 1

Global gaming industry, 2016



Exhibit 2

Total number of games on the Google Play Store



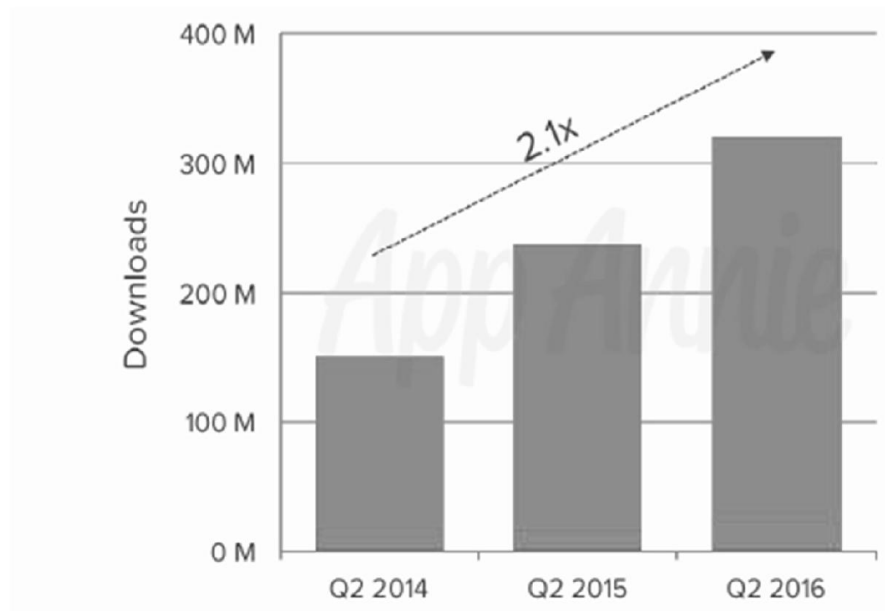
Source: Statista Number of available gaming apps at Google Play from 2015 to 2017 (<https://www.statista.com/statistics/780229/number-of-available-gaming-apps-in-the-google-play-store-quarter/>)

Exhibit 3

Top countries by game downloads, Q2 2016

Rank	Category	Rank Change vs. Q2 2015
1	United States	-
2	China	▲ 2
3	Brazil	▼ 1
4	Russia	▼ 1
5	India	▲ 2

Game downloads (iOS and Google Play combined), India



Source: Mobile Gaming on the rise in India, App Annie

Exhibit 4

Top games by revenue, India, Q2 2016

Rank	Game	Company	Genre	Company HQ
1	Candy Crush Saga	King	Casual	US
2	Subway Surfers	Kiloo	Arcade	Denmark
3	Temple Run 2	Imangi	Action	US
4	Train Simulator	Timuz	Simulation	India
5	Doodle Army 2	Appsomniacs	Action	US
6	My Talking Tom	Outfit7	Casual	Cyprus
7	Racing in Car	Fast Free Games	Racing	Turkey
8	Traffic Rider	Soner Kara	Racing	Turkey
9	Hill Climb Racing	Fingersoft	Racing	Finland
10	Clash of Clans	Supercell	Strategy	Finland

Source: Mobile Gaming on the rise in India, App Annie

Exhibit 5

Mobile gaming industry, 2016

Country	Mobile gamers (Million)	ARPU* (US \$)	Revenue (Million US \$)	Cost per install** (US \$)
China	283.8	25.17	7144.3	0.86
India	201.1	2.32	466.3	0.38
USA	104.7	41.20	4304.3	2.49
Japan	68.5	89.88	6153.9	2.81
Indonesia	50.9	10.09	514.3	0.55
Brazil	42.5	5.96	253.0	0.58
Mexico	31.1	17.58	546.2	0.69
Russia	30.4	4.90	149.0	0.23
Germany	16.8	21.66	363.8	1.82
UK	16.3	59.92	977.1	2.04

*ARPU: Average Revenue per User per game per year

**Cost per install: Average cost to company to get one install of game

Source: <https://allcorrectgames.com/insights/mobile-game-market-index/?data-year=2016>

Exhibit 6

Game Types
Different types of games based on player engagement level

Type	Description	Example
Casual	Designed to be played in an ad hoc fashion and in short bursts. Easy to pick up and learn with simplistic experience	Piano Tiles, Fruit Ninja
Midcore	Offers higher level of content than Casual games. They are easy to learn and meant to be played in short bursts, but offer long-term engagement content as well.	Candy Crush Saga, Clash of Clans
Hardcore	Designed to offer hours of gameplay and need time investment to get full experience. Skill and mastery are rewarded.	Vain Glory, Asphalt

Source: Compiled by the authors

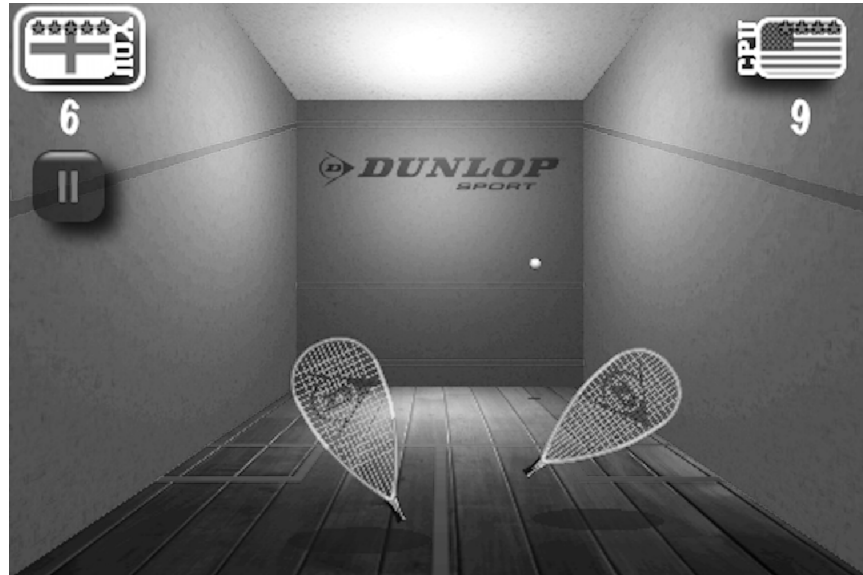
Different types of games based on game mechanics

Types	Description	Example
Action – Fast-paced games.	Require sharp reflexes and hand-eye coordination. Focus on competition.	Modern Combat, Injustice: Gods Among Us
Adventure – Moderately paced immersive games.	Require problem solving skills. Focus on entertainment.	The Wolf Among Us, Red Ball
Card games	Chance and skill-based games.	29 Card Game, Teen Patti
Role playing games	Engages player in storyline by providing choices on how game will proceed. Focus on game content	Pokémon Go, Shadow Fight
Sports games	Sport simulation games. Focus on particular part of game, for example, batting in cricket	8 Ball Pool, Real Cricket
Strategy games	Player builds his base and engages in turn-based combat. Focus on planning and execution	Clash of Clans, Plants vs. Zombies, Chess

Source: Compiled by the authors

Exhibit 7

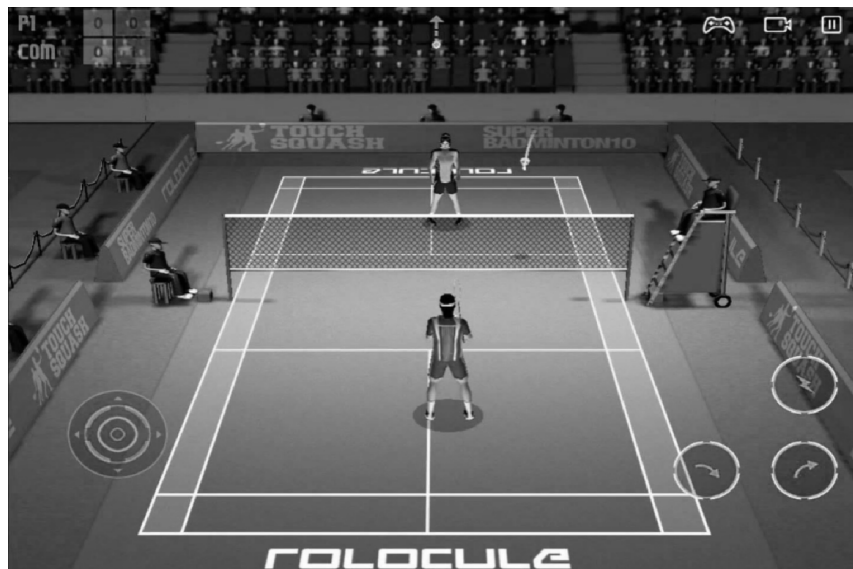
Screenshot of Touch Squash



Source: Video: <https://www.youtube.com/watch?v=KyVAGoYmHbE>

Exhibit 8

Screenshot of Super Badminton



Source: Video: <https://www.youtube.com/watch?v=BVboLk9qG8I>

Exhibit 9

Screenshot of Flick Tennis



Source: Video: <https://www.youtube.com/watch?v=Arf2vYnyRio>

Exhibit 10

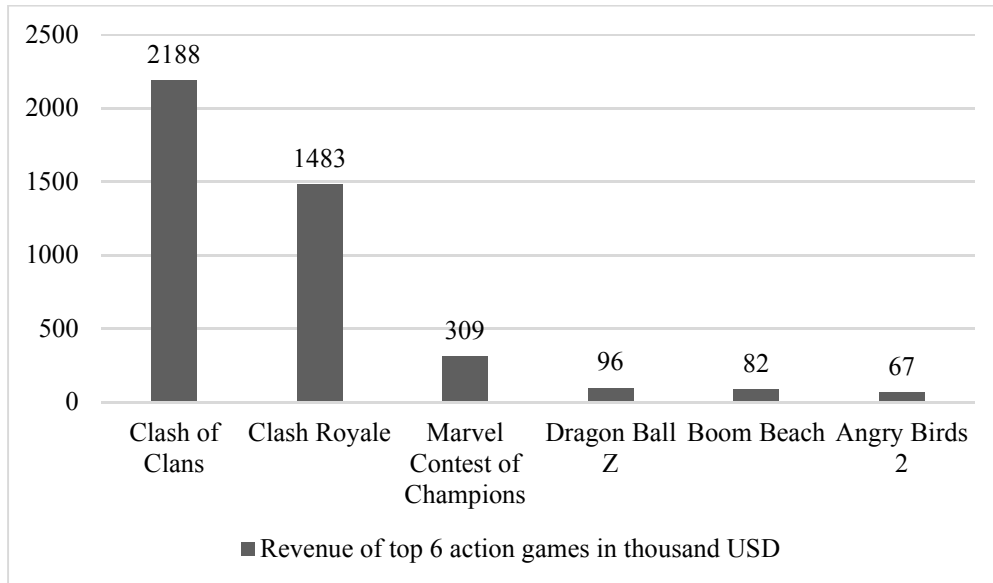
Rolocule's Funding History

Date	Amount		Investors
	INR	USD	
14.02.2011	20,00,000	29,344	CIIE Initiatives(IIM Ahmedabad)
27.03.2012	1,50.95,506	221486	1.Mumbai Angels(Lead) 2.Blume Ventures 3. Pranay Gupta
08.01.2014	2,49.99.442	366810	1.Blume Ventures(Lead) 2. Mumbai Angels
10.07.2015	1,26,90,640	136201	1, Blume Ventures 2.Mumbai Angels 3.Sumit Gupta
Total	5,47,85,588	803,832	

Source: Company

Exhibit 11

Global revenue of top 6 action games, 2016



Source: Survey Monkey Intelligence: https://medium.com/@sm_app_intel/a-bunch-of-average-app-revenue-data-and-why-you-should-ignore-it-2bea283d37fc

Exhibit 12

Differences between Flick Tennis: College Wars and Flick Tennis Online

Flick Tennis: College Wars	Flick Tennis: Online
Paid Game	Free to Play with in app purchase (Freemium)
Story-based game where player is put in the role of young tennis prodigy and has to climb up his tennis career ladder.	Online multiplayer game in which players from all over the world play tennis matches online against each other. The game also contains an offline mode with the story.
Available on Apple App Store, Google Play Store	Available on Apple App Store, Google Play Store
App size: 146 MB	App size: 110 MB
<ol style="list-style-type: none"> One-time payment to download and play the game Different game modes like Multiplayer and Exhibition unlocked by default Primary monetization focus on getting player to download the game 	<ol style="list-style-type: none"> Free to download Playing matches consume in-game item called tickets which can be bought with real money or replenishes over time Different game modes needed to be unlocked using real money Displayed ads between matches Primary monetization focus on player engagement in game

Source: Company

Exhibit 13

Screenshot of Dance Party for Rolomotion



Source: Video: <https://vimeo.com/138175701>

Exhibit 14

Screenshot of Bowling Central for phone and with Rolomotion



Source: Video: <https://www.youtube.com/watch?v=-qvb4NDP1bM>

Exhibit 15

Snapshot of Rolocule games

	Downloads	Revenues (USD)	Approx. Cost USD	Time	Start	Released
Touch Squash	369,051	19,915	2,200	3 months	Apr-09	Jun-09
Super Badminton	1,424,966	212,696	3,120	6 months	Dec-09	Jun-10
Flick Tennis	3,715,679	160,236	13,202	1 year 3 months	Nov- 10	Oct-11
Motion Tennis	691,176	101,077	29,337	9 months	Jul-12	Jun-13
Dance Party	409,668	9,396	117,349	1 year 2 months	May-13	Jul-14
Bowling Central	1,148,726	80,175	36,672	1 year 11 months	Jul-13	Jun-15
Dead Among Us	1,425,255	43,154	73,343	2 years 2 months	May-13	Jun-15
Total	9,184,521	626,649	275,223			

Source: Company

Exhibit 16

Geographic spread of downloads of Rolocule games

Geography	Touch Squash	Super Badminton	Flick Tennis	Motion Tennis	Bowling Central	Dance Party	Dead Among Us
North America	82219	247664	657497	126643	259822	82219	136967
South America	42406	2918	196233	109208	85591	42406	134154
Europe	157107	370098	1559100	171663	267786	157107	326314
Asia	92892	764698	1129999	261877	479387	92892	770317
Australia	6993	28008	130825	10049	12260	6993	19864
Africa	2110	1000	44048	9849	38311	2110	19045

Exhibit 17

Games from Octro

The game of Teen Patti: <https://www.youtube.com/watch?v=C1ucieD1wWc>

Indian Rummy: <https://www.youtube.com/watch?v=xITB8vVSJzU>

Octro Carrom Live! TVC: <https://www.youtube.com/watch?v=Uu1uHmVwYWM>

Games from Moonfrog:

Baahubali the game: <https://www.youtube.com/watch?v=2CpJcXA0Iq8&frags=pl%2Cwn>

Teen patti gold: <https://www.youtube.com/watch?v=VpGGcNxy8s&frags=pl%2Cwn>

Alia Bhatt Star Life:

https://www.youtube.com/watch?v=dVwfZQpk020&frags=pl%2Cwn&ab_channel=MoonfrogLabs

Exhibit 18

Mobile game development stages

1. Ideation
 - a. Study popular game genres in the market
 - b. Study existing games in that genre
 - c. Decide on a game which can be improved
 - d. Develop a game mechanism that improves the existing mechanics by either building upon existing ones or by developing an entirely different and new mechanic
2. Prototyping
 - a. Decide upon a technology to build the game (native Android, iOS code, etc.).
 - b. Develop a prototype using basic art. This should essentially allow players to play the game.
 - c. Validate the engagement of the new game mechanic with a small cohort of players, iterate upon mechanic if invalidated.
3. Finalize the platforms and device range on which the game will be launched. The technology would be upgraded or downgraded accordingly.
4. Decide the look and feel of the game, i.e. the artwork, music, environment. Validate the ambience from players and finalize it.
5. Decide the scope and long-term engagement of the game. Answer the following questions:
 - a. How long will the player gaming sessions typically last?
 - b. How will the level of difficulty adjust with player progress?
 - c. If, when and how will the game end?
 - d. What will bring the player back to the game?
6. Develop a monetization model tailored to the engagement elements in the game.
7. Release the game in sequential launches of Alpha, Beta. Alpha launch is done when the basic skeleton of the game is ready to be played. It is released to small groups of players given special access and their feedback is considered into further developing the game. When the game shows satisfactory player engagement, it is passed into the Beta phase. Beta is launched to a large group of players usually in a small geographic area. Here, majority of bugs are removed, and the game is given cosmetic changes and polished.
8. Simultaneously, with the beta launches develop a marketing strategy for the official release of the game (includes developing marketing material to be sent to app stores, game review websites and channels)
9. After Beta, the game is launched as production release. Now, the game is live and is making money. Now, the game has started gathering a player base, and any future changes made to the game needs extra care.

Source: Compiled by the authors