***Introduction:***

Max Levchin is a Ukrainian born, highly skilled software engineer and entrepreneur, currently CEO and co-founder of Affirm. He is most famous for co-founding PayPal and several other start-ups including Slide and Yelp. The reasons for his success are due the highly innovative software he developed and used in his business ventures.

***Early Life:***

Max Levchin did not have an easy start to life. He was born in Ukraine in 1975. From early childhood, he had severe respiratory problems and was told multiple times it was unlikely that he would live very long. He also lived close to Chernobyl when the disaster happened and was forced to flee to Crimea temporarily with his family (Bloomberg.com, 2015). In 1991, Levchin’s family made the decision to emigrate to the USA under political asylum leaving behind the old Soviet Regime. Coming from a family of scientists and also growing up in the old soviet regime where communication sometimes had to be hidden from authorities, inspired an interest in encryption and puzzles. He launched himself into problem solving and mathematics in the USA, graduating from the University of Illinois in 1997 (Schwartz, 2001). Despite his troubled start to life, he overcame all obstacles to become a renowned software engineer and business man with a net worth of $300 million (Successstory.com, n.d.).

***First successful venture; the beginning of PayPal 1998 - 2002:***

After 4 unsuccessful start-ups, Levchin co-founded the company that would eventually become known as PayPal. Levchin’s main area of interest was encryption. He believed that every business and company would need to protect themselves against hackers or competitors, particularly when it came to financial transactions. Levchin first met Peter Thiel while Thiel was giving a lecture in Stanford. Levchin approached him afterwards and they arranged to have breakfast together where Levchin pitched his unique idea to him. In 1998, Max Levchin and Peter Thiel co-founded a company known as Confinity along with two other software engineers; Ken Howery and Luke Nosek. Launching in 1999, it developed into mainly a money transferring platform. Soon after, it merged with Elon Musk’s company X.com, taking on the name PayPal in 2001 (Mercer, 2015). It was immediately evident that PayPal was a revolutionary idea run by a highly talented team that soon became known as the ‘PayPal mafia’ pictured below. Max Levchin was at the core of the PayPal mafia and attributes part of PayPal’s success to respect and trust of each other’s abilities (Groth, 2016).



***Levchin’s revolutionary software at PayPal***

Levchin was mainly noted for his anti-fraud efforts at PayPal. When the company first started out, losses of as much as $2300 per hour were recorded due to fraud (Allison, 2012). Efforts made to prevent fraud usually involved making the user interface increasingly tedious to use and a more drawn out process for the legitimate customer, hindering the user experience. Levchin made use of his problem solving skills and interest in encryption to come up with 2 solutions to help reduce fraud and ensure that the user interface remained user friendly.

1. Levchin working alongside David Gausebeck began to develop a technology to decipher between humans and computers using an early version of CAPTCHA (Allison, 2012). The idea of CAPTCHA first came about in 1997. It is an algorithm that generates an image that contains text. Computers cannot read this but it is easily read by the human eye.

Levchin and Gausebeck, ahead of their time made use of CAPTCHA. It was one of the earliest commercial uses of CAPTCHA and quickly became known as the ‘Gausebeck-Levchin test’. During a transaction with PayPal, an image is generated which only a human can decrypt. In the case of fraud, if the account was opened by a robot type computer program using a stolen credit/debit card, they would be unable to read the text in the image and unable to proceed with the transaction (Urproblemmysolution.blogspot.ie, 2009).

1. Levchin also built an algorithm known as ‘Igor’. Igor was named tauntingly after a Russian hacker that PayPal had previously encountered.

Igor works by following patterns and behaviours of users of each PayPal account. It can pinpoint accounts that have indications of unusual or abnormal behavior that is potentially fraudulent. Once this suspicious activity is pinpointed, personnel review the situation, react appropriately and decide whether they need to freeze accounts.

Examples of activity that triggers a red flag;

* making multiple transactions at once
* making huge payments
* money transfers to unverified addresses

This innovative fraud monitoring software was described as a possible ‘silver bullet’.

(Schwartz, 2001)

In the early version of Igor, PayPal faced problems with it as the algorithm proceeded to dub legitimate accounts as potentially fraudulent and subsequently would freeze the account, leaving users unable to receive and transfer money. The problem was easily resolved however when Igor was perfected to pinpoint only the most suspicious of behavior and PayPal set up a service department and a call center to enable employees to rapidly unfreeze accounts (Schwartz, 2001).

***Levchin’s impact***

When PayPal was first launched, it was anticipated that it would ‘cut the legs off credit card companies’ (Schwartz, 2001). This huge expectation was due to Levchin’s cutting-edge work in fraud prevention. PayPal is now a reputable company renowned for their anti-fraud techniques and data security, all of which Levchin and his team of 100 employees who became known as the ‘Fraud Squad’ worked tirelessly for (Schwartz, 2001). Levchin had a major impact on all companies involved in online transaction technology. He paved the way for not only PayPal but other companies in online financial transactions. In the early days of PayPal, Citibank, Bank One and eBay launched online financial transaction services but none compared with PayPal’s market share (Review, 2002). PayPal is still highly regarded for their anti-fraud software.

Levchin’s anti-fraud techniques were ahead of their time. It is known that the FBI and the US Secret Service ‘routinely drop by PayPal’s offices to check cases against Igor’s data to learn some of the crime patterns it reveals’ (Schwartz, 2004). The FBI also makes regular use of Igor to combat wire fraud and has been used in the past to uncover organised crime rings in Chicago, Houston and Nigeria. One time in particular, Levchin’s Igor picked up on suspicious behavior of one account that was receiving a high number of transactions all of the same quantity. PayPal were then able to trace the account to a fraudulent website selling Play Stations. Subsequently PayPal immediately froze the account and is now working along side the FBI and police to build a case (Stone, 2001).

***Brief timeline:***

* **2002 -** eBay acquired PayPal for $1.5 billion (Mercer, 2015).
* **2003 -** Leaving PayPal in 2003, Levchin found himself in a rut between projects (Robinson, 2014).
* **2004 -** Taking his $34 million from PayPal, he founded another start-up known as Slide (Parrish, 2014). Slide was a company that made software applications for media-sharing on social media sites such as Facebook and Myspace (Green, 2013).
* **2004 -** Became chairman of Yelp until 2015 (Levchin, n.d.).
* **2008 -** Max Levchin married long term girlfriend Nellie Minkova, later having 2 children.
* **2010 -** Slide was a successful company but Levchin couldn’t help but measure his success against the phenomenal success of PayPal. He was relieved when Google bought Slide in 2010 and became an engineer there for 1 year (Robinson, 2014).
* **2011 -** Levchin started a ‘data-as-commodity’ project called HVF in which his companies Affirm and Glow originated from (Levchin, n.d.).
* **2012 -** Sat on the board of Directors at Yahoo until 2015 (Levchin, n.d.).
* **2013 -** Levchin founded Glow, an app that helps women conceive. Levchin developed machine learning software to fine tune the app to the individual woman (Metz, 2013).

***Affirm 2012 – Present:***

Levchin’s latest venture is the payments technology company, Affirm founded in 2012. Levchin currently has the titles of co-founder and CEO at Affirm. Levchin’s vision for Affirm was to reinvent and redefine consumer finance. He wanted to build from the ground up rather than build on top of what was already developed in payments technology (Salyers, 2016).

In today’s world, consumers are hit with hidden charges and interest when borrowing or making credit purchases, accompanied by hard credit rating checks. Affirm on the other hand, shows the entire cost of the loan upfront and uses revolutionary ways of calculating credit scores, making credit purchases possible for everyone (Salyers, 2016).

Affirm differentiates itself from other credit card companies by offering loans as the consumer is checking out of the online shopping site and enabling them to connect Affirm to their debit card where they can pay off purchases over a period of time. The loan is offered clearly stating the total cost of the loan and most suitable payback period (Salyers, 2016). With Levchin bringing his software engineering experience and other new ideas, Affirm is on track to be a huge success, already being described as ‘the next credit card killer’ (Friedman, 2017).

***Software:***

The newest software Levchin has developed is key to Affirm’s success. In setting up Affirm, he has combined his experience at PayPal and Slide with his newest idea; using big data in consumer finance (Salyers, 2016). There are two key elements in the future success of Affirm;

1. Levchin has developed increasingly complex security systems to tackle fraud (Salyers, 2016).
2. Developing algorithms using big data to rewrite how credit worthiness is calculated (Salyers, 2016).

Affirm’s way of lending has been described as ‘Lending backed by big data’ (Lawler, 2014). Levchin’s algorithms calculated a consumer’s credit worthiness and most suitable payback option by looking at the consumer’s data like that of on their social media. It performs multiple other checks; one example is checking to see if the individual has submitted software code to the online site GitHub. The innovative software then makes an attempt to judge the credit worthiness of the consumer using their individual data and comparing it to big data (Reisinger, 2015). Affirm describe their process as running a ‘soft credit check’, one that ‘does not affect a customer’s credit score’ (Affirm Merchant Help, n.d.).

***Impact:***

The new software that Levchin’s company Affirm uses has made a significant impact on the financial transaction industry and has made credit purchases possible for consumers without a credit history such as graduates and immigrants (Reisinger, 2015). In today’s world, credit cards are difficult to acquire and interest rates are usually high (Somerville, 2016). Thanks to Levchin’s newest transparent technology and innovative ways of using big data, Facebook profiles are now replacing credit scores (Reisinger, 2015). Levchin is leading the way to a future where credit purchases are possible for everyone, credit scores are obsolete and credit cards are eliminated.

***Conclusion:***

Max Levchin is multimillionaire, member of the PayPal mafia, co-founder of multiple start ups and currently CEO and co-founder of the innovative company Affirm.

With his passion for problem solving, software engineering and his admirable entrepreneurial skills, he has made an incredible impact primarily in field of secure financial transactions. The ground-breaking software he developed for the prevention of fraud has paved the way for multiple other companies.

His software engineering skills have also revolutionised the future of online payments and credit purchases. He is one of the most influential software engineers of the millennium initially having a difficult start in life to become ‘one of the tech industry’s most sought-after advisors and investors’ (Carr, 2014). Levchin will continue to impact industries with his drive to constantly innovate and develop new technologies.

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