Getting Platform Envelopment Right to Emerge as the Ecosystem Platform Leader - A Case Study on Facebook and LinkedIn - (2006-2013)

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ABSTRACT:

The highly dynamic ICT industry is predominantly ruled by large platform companies such as Google, Apple, Facebook and Amazon. In order to adapt and grow, companies continuously introduce new technological innovations and changes to their business models. As identified by fellow scholars, platform companies often seek growth via means of 'platform envelopment' i.e. entering new markets by bundling and leveraging one's own functionalities and user bases. Hitherto, the academic literature does not offer comprehensive insights as to whether there is a prevailing rationale at platform companies to use envelopment and evolve their business models over time. This paper seeks to start filling this gap and looks at the comparative case study of Facebook and LinkedIn. The companies' new value propositions were analysed in the time period of 2006-2013. This illustrated that they were involved in highly similar growth strategies. Eisenmann's et al. (2010) typology on envelopment attacks and Gawer's (2015) insights on motivations behind certain envelopment moves, allowed the creation of the Envelopment Drivers Model. It grants a more in-depth view of a company's envelopment efforts in terms of type, rationales, and concentrations during different lifecycle stages. In short, this paper analyses and discusses Facebook's and LinkedIn's growth pathways from 2006-2013, presents a tool to plot a company's envelopment moves, and offers some guidance with respect to which growth trajectories are advisable for platform companies.

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Keywords

Business Model Innovation, Platform, Two-sided Market, Envelopment, Value Proposition, ICT Industry, Facebook, LinkedIn.

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1. INTRODUCTION

1.1 Using Envelopment for Growth

A company's business model is used by more and more companies as a source of innovation over products or processes (Amit & Zott, 2012; Martins, Rindova & Greenbaum, 2015). It often portrays an untapped source for future value and competitors may struggle to imitate it, as opposed to a product or process (Amit & Zott, 2012). Since 1984 twenty-six companies were founded which became part of the *Fortune 500* list between 1997 and 2007. These firms innovated via means of their business models, disrupting the status quo or creating new markets (Johnson 2010; Martins et al., 2015). Amongst the most prominent examples are Amazon.com, Google, (Johnson, 2010) and more recently, Uber.

An industry in which many firms have taken up using their business models to innovate are technology firms with abundant knowledge and intellectual assets, who find new ways to market these (Gambardella & McGahan, 2010). The largest and well known technology firms such as Google, Amazon or eBay operate in platform markets (Zhang & Duan, 2012). In essence, platforms are products and services that connect groups from two-sided networks (Eisenmann, Parker & Van Alstyne, 2006). Frequently cited examples of platform markets include credit cards, PC operating systems or video games (Eisenmann et al., 2006; Hagiu & Eisenmann, 2007). Nearly two thirds of the largest 100 corporations earn a majority of their revenue from platform markets (Eisenmann, 2007). Amongst them are the powerful 'big four', i.e. Google, Apple, Facebook and Amazon, often called 'platform leaders' (Gawer & Cusumano, 2002), 'keystone firms' (Iansiti & Levien, 2004) or 'hubs' (Dhanaraj & Parkhe, 2006) due to their ability to push innovation in platform markets (Eisenmann, 2007; Eisenmann, Parker & Van Alstyne, 2010; Visnjic & Cennamo, 2013; Gawer, 2015). Platforms grow with an increasing installed base and number of complementary innovations. Platform enterprises must thus continuously provide sufficient incentives for their ecosystem peers to invest into the platform, whilst at the same time protecting one's own profit sources (Gawer & Cusumano, 2008).

One way in which companies pursue this is in form of evolving their value proposition and expanding their network by using their existing platform markets (Mohagheghzadeh & Svahn, 2015). Academia refers to this platform market strategy as 'platform envelopment' (Visnjic & Cennamo, 2013). It is defined as the act of 'one platform provider [entering] into another's market by bundling its own platform's functionality with that of the target's so as to leverage shared user relationships and common components' (Eisenmann, et al., 2010, p.1). Brief and succinctly, it results in a central platform, bundling smaller yet complementary platforms, to provide a greater value to customers and in being more efficient (Visnjic & Cennamo, 2013). Nowadays, the 'big four' operate in numerous platform markets standing in direct competition with one another. For instance, it did not take long once Google moved into mobile OS that Apple decided to start exploring other options to build proprietary maps and voiced based search engine (Visnjic & Cennamo, 2013). What this leads to is what Visnjic and Cennamo (2013) label as the convergence of markets and the formation of a 'supra-platform market'.

1.2 Problem Statement

The current body of literature has hitherto, despite taking multiple perspectives, viewed platforms as static or narrow (Gawer, 2015). Insinuating that scholars have not sufficiently discussed the movement or evolution of a platform's boundaries (Gawer, 2015). This is imperative when looking at a company's envelopment efforts. Gawer (2015) takes an organisational perspective and argues that platform boundaries continuously shift and evolve. The main drivers identified of these shifts are stated as being innovation and competition. Efficiency, power, competence and identity were described as additional possible rationales (Gawer, 2015). Companies may push for these shifts via business model innovations in form of platform envelopment (Visjnic & Cennamo, 2013). A famously cited typology of platform envelopment was developed by Eisenmann et al. (2010) to describe boundary pushes of companies of a competitive nature (Gawer, 2015). They constitute three distinct targets: (I) complements (II) weak substitutes and (III) unrelated platforms. What academia thus far failed to shed light onto, is the issue of how to actually employ platform envelopment (Müller, 2015; Paramsothy, 2015; Heikkilä, 2015).

Many of the most innovative companies (Fastcompany, 2016), and often largest enterprises of the world (e.g. Amazon, Alphabet or Apple), are not only involved in platform markets, but also in the information communication technology (ICT hereafter) industry. Which gives platform envelopment strategies all the more importance, relevance and weighting in today's times. Platform envelopment is however not exclusive to the ICT industry. Examples of disrupting platform companies in other industries include: Airbnb in the hotel industry, Uber in transportation, or Tesla in the automotive/energy industry. Due to scope and time limitations this paper will however solely focus on two company case studies in the ICT industry.

1.3 Research Question

Having the aforementioned prepositions still open for further exploration, this paper seeks to add to the previous efforts of Müller (2015), Paramsothy (2015) and Heikkilä (2015). Following their notions, this paper aims to give further insight into business model innovations, in terms of a business model's value proposition, at companies in the ICT industry being guided by the following research question: How do digital platform companies evolve their business models value proposition over time to maximize firm performance?

The definition for a platform company is taken from Weiller and Politt (2014, p.7) taking it as a company that competes in 'market[s] where user interactions are mediated by an intermediary, the platform provider, and are subject to network effects. As opposed to a marketplace or trading exchange, a platform intermediary must offer inherent value beyond the simple mediation process for the two sides of the market. This added-value usually comes from ICT and the associated complementary innovation that increases utility and attractiveness of the platform to all user groups.'

The research question was approached by analysing the platform companies Facebook Inc. (Facebook hereafter) and LinkedIn Corporation (LinkedIn hereafter). A structured content analysis was conducted by looking at the companies' press releases and blog posts. From them, a holistic view of their newly introduced and updated products was attained, which illustrates the changes made to their value propositions for the time period of 2006-2013.

1.4 Case Companies: Facebook Inc. and LinkedIn Corporation

Operating in the ICT industry, Facebook and LinkedIn are two of the largest social networks right now. The former has 1.6bn 2016 Q1 monthly active users (Facebook, n.d.) and initially focussed on informal connections, but has become more of an all-rounder network. The latter has 106m 2016 Q1 unique visiting users (LinkedIn, n.d.) and focusses solely on professional connections. Their financial performances and

popularities grew over the years, but at differing speeds. That is why the two make for an interesting case study. The goal is to delve into their business model innovation efforts, in terms of value propositions, and relate these to firm performance. It is assumed to exhibit high internal and external validity.

Moreover, these two companies are a nice addition to the ongoing stream of case study research on platform envelopment that previously investigated for example: Google vs. Yahoo (Müller, 2015), Google vs. Amazon (Paramsothy, 2015) or Apple vs. Samsung (Heikkilä, 2015).

1.5 Academic Significance

Scholars have frequently drawn on the perspectives of the economics or engineering literature when discussing this topic (Gawer, 2015). These efforts have however mainly focussed on platform competition or innovation and not addressed elements that potentially drive companies to evolve their platforms (Gawer, 2015). This paper intends to start filling this gap in the literature and offer insights into business model innovation's benefaction to boundary shifts in- or outwards. Most notable streams in the economic literature have been on 'winner-take-all' battles (Eisenmann et al., 2006; Schilling, 2002; Lee, Lee & Lee, 2006; Noe & Parker, 2005; Hill, 1997) leading to 'get-big-fast' advances (Lee et al., 2006), the 'chicken and egg' problem (Gawer & Cusumano, 2002; Caillaud & Jullien, 2003; Eisenmann & Hagiu, 2007**)**, two-sided markets (often also labelled as multi-sided markets or multi-sided platforms) (Armstrong, 2006; Rochet & Tirole, 2003, 2006; Shankar & Bayus, 2003; Rysman, 2009; Evans, 2003; Evans & Schmalensee, 2008), and network effects (Clements & Ohashi, 2005; Parker & Van Alstyne 2005; Shankor & Bayus, 2003). Furthermore, the design architecture literature looked at platforms as being stable, where 'innovation happens on modules, within stable system architectures, and facilitated by stable interfaces' (Gawer, 2015, p.5). In all cases however, it is still not clear how exactly the value propositions of platform companies themselves, being at the core of the business model, innovate over time (Gawer, 2015). Specifically, a long-term view has yet not been taken to investigate if there is a prevailing rationale at platform companies that drive their value propositions of their business models. Lastly, relating these special bundling strategies, i.e. envelopment (Visnjic & Cennamo, 2013), to firm performance of ICT companies will unveil where, if or how value is created and captured.

The next section will critically discuss the current and relevant literature on key concepts and lay the theoretical groundwork.

2. THEORETICAL BACKGROUND

2.1 Platform Markets & Platform Envelopment

2.1.1 Platform Markets

The terms multi-sided platforms, multi or two-sided markets have been used quite liberally and often interchangeable in literature. Rochet and Tirole (2003) state that a market is two-sided if the platform can affect the number of transactions by subsidising one side and charging that portion as a premium to the other side. A few authors however, make a clear distinction in their definition. Weiller and Politt (2014), for example, state that not all platforms are necessarily two-sided markets and vice versa. Giving the example of PDF they argue, against Rochet and Tirole (2003), that it is a one-sided market with only one customer group willing to pay for the service. Free PDF software solves this by sourcing its earnings from advertisers (Weiller & Politt, 2014). The same thing could be said when looking at free ZIP compression and extraction software or freeware software. One could however argue that this still is a two-sided market, but where one side (users) has been subsidised and a premium is charged to the other (marketers).

Most authors agree, in order for a platform to be present two conditions must be fulfilled (Weiller & Politt, 2014) (I) one or more user groups are connected via an intermediary and (II) the presence of network externalities (e.g. Eisenmann, et al., 2006, 2010; Rochet & Tirole, 2003; Evans, 2003; Armstrong, 2006; Katz & Shapiro, 1994). Salazar (2015) categorises markets into two broad types, namely: multi-sided markets (e.g. Amazon's Marketplace) and industry platforms (e.g. Apple's app developer ecosystem). Salazar (2015) refers to Rochet and Tirole's (2003) definition for multi-sided markets. Industry platforms, on the other hand, are 'essentially [an] innovation ecosystem where customers and complementor firms co-create new product and services around a core technology infrastructure with modular architecture' (Salazar, 2015, p.5). Gawer (2015) however says that the literature has thus far blurred the lines between market and platform boundaries. Moreover, Gawer (2014, 2015) goes a step further and mixes the economic and the engineering design view on platforms and establishes a common organisational view; 'which combines a specification of structure with a focus on agency, yet does not impose a priori a fixed organizational form, recognizing the multiplicity of organizational contexts within which platforms can be found' (Gawer, 2014, p.1240). From this conceptualisation one finds that platforms are not just types of markets or technological architectures, but that they can be seen as evolving organisations (Gawer, 2014). This becomes imperative when investigating the evolving business models of the case companies by looking at their value propositions.

In light of this paper, special attention needs to be given to the digital nature of the case companies. Mohagheghzadeh and Svahn (2015) describe a digital platform as an 'instrument' with finite digital resources, but that enables an infinite amount of product variations (Yoo, 2013). Moreover, a digital platform 'refers to an extensible technological foundation and the interfaces used by extensions that interoperate with it (Tiwana et al. 2010). An extension — synonymous with add-ins, modules, and apps — is a complementary subsystem that augments a platform's native functionality' (Tiwana, 2015, p.267). From these definitions one finds that a digital platform facilitates, and possibly mediates, the interactions between two or more groups, by using a foundation of digital resources, which's functionality can be enhanced by software modules.

2.1.2 Envelopment in Complex ICT Ecosystems

Eisenmann et al. (2010) suggest that innovation does not always need to originate from the classical Schumpeterian innovation, but can be achieved via repackaging products and services in a new way (Weiller & Politt, 2014). This is what Eisenmann, et al. (2010) label 'envelopment' or economists call bundling (e.g. Nalebuff, 2004). This strategy can act as a great barrier to entry, due to switching costs, whilst strengthening weaker platforms by bundling, due to network effects (Eisenmann et al., 2010). For example, Netscape Navigator became obsolete to Windows users once Microsoft added Internet Explorer to their OS for free (Suarez & Kirtley, 2012). Eisenmann et al. (2010) note that with envelopment, a firm uses user bases as a resource i.e. leveraging them into multi-market platforms to gain a strategic advantage. Moreover, managing platform envelopment can be seen as a dynamic capability, because a reconfiguration of products and services occurs for value creation, increasing the customer's utility (Eisenmann et al., 2010).

Platform companies, which often use envelopment as a bundling strategy (Visnjic & Cennamo, 2013), do not operate as

sole merchant firms, but in larger ecosystems (Hoelck, Bleyen & Ballon, 2015). They exhibit a triangular transaction structure (two user groups and one mediator) (Eisenmann et al., 2006, 2010) and have multiple interface points in their ecosystem. Meaning that they do not operate alone, but interact in complex networks involving multiple multi-sided intermediaries (Hoelck et al., 2015).

These platform company ecosystems are present throughout numerous market branches, segments or 'layers' in the ICT industry (Müller, 2015). Fransman (2010) developed a six and shortened four –layer ICT framework for a categorisation of layers, namely: the 'Ecosystem Layer Model' (ELM). The 4-layer ELM constitutes (1) networked elements, (2) network operating, (3), contents, applications, services, innovation platforms, search, navigation and middleware and (4) final consumption. Layers 1 and 2 comprise telecoms equipment, computer hardware and software and the parties operating these, thus making up the foundation for the ICT ecosystems. In terms of envelopment, layer 3 is in which it has its biggest impact. Layer 4 makes up the final consumer and respective consumption of the goods provided by layers 1-3. In order to make a clearer distinction between envelopment attacks on various layers, it makes sense to consult the software classification outlined by Zahavi and Lavie (2009). From it, one finds reason to split the layer 3 from the ELM into three separate parts: platform, content and application. Furthermore, a last addition is made in form of an operating systems layer because of numerous cases where these are involved or affected by envelopment attacks. For instance, Apple incorporates PDF software as a standard feature to their OS rendering Adobe PDF virtually obsolete (Eisenmann et al., 2010).

In summary, when taking Fransman's (2010) 4-layer ELM, adding an OS layer and splitting layer 3 into separate parts, one is left with the adapted ICT Layer model suggested by Müller (2015), Paramsothy (2015) and Heikkilä (2015).

Layer	1	2	3	4A	4B	4C	5
Description	Device	OS	Network	Platform	Content	Application	Final Consumer

Table 1: ICT Layer Model Adapted from Fransman (2010)

2.1.3 The Innovation and Competition View on Platform Envelopment

The ICT-layer classification becomes especially useful when examining the envelopment of ICT companies. Thus being able to pin-point on which layers a company may have enveloped. Taking parallels from economics, Nalebuff (2004) points out that bundling (or envelopment in strategy terms), particularly when it comes to software, is especially powerful because the marginal cost is zero. Moreover, synergies play an important role. For instance, on the consumption side the value of products and services are greater when combined, as opposed to when added together separately (Nalebuff, 2004). Take for example Windows Explorer which's value would be virtually zero without the enabling operating system Windows (Nalebuff, 2004). In the context of fierce competition between two firms, Visnjic and Cennamo (2013) argue that they may envelop into neighbouring markets and thus blur market boundaries and create a supra-platform market. In this space companies can then compete, collaborate, and innovate their business models (Visnjic & Cennamo, 2013). As a result, numerous local 'winner-takes-all' battles take place to 'get-big-fast' (Lee et al., 2006) until counter-moves stabilise and each party acknowledges one another's 'sphere of influence' (Visnjic & Cennamo, 2013).

But how can one describe these competitive moves by companies and identify lucrative targets? A first attempt was made by Eisenmann et al. (2010) to distinguish between three envelopment 'attacks' with which companies leverage user bases and common components. To establish a fundamental understanding of envelopment (attacks) the following will take a closer look at this typology. A type (I) envelopment attack of complements will be most likely to succeed given that (1) user bases overlap, (2) there is an opportunity for price discrimination for the attacker and (3) there are high economies of scope (Eisenmann et al., 2010). A type (II) attack of weak substitutes shares similar success conditions, due to some overlap in functionality, however emphasising the need for economies of scope and the prevailing need for deep discounting to sell the bundle when the the functionality is not distinct enough (Eisenmann et al., 2010). Lastly, a type (III) attack of unrelated platforms will be most successful when there is a strong overlap of user bases, between the platform and the unrelated one, along with a high degree of economies of scope (Eisenmann et al., 2010).

Gawer (2015) argues that the envelopment of type (I) can be a mere power-play in light of a competitive rivalry to gain market share or maintain one's 'platform leadership' (Gawer & Cusumano, 2002) position. Considering Gawer's (2015) modular industries analogy, with a low degree of integration and actors on multiple layers, companies can perform 'cross-layer envelopment' (Eisenmann, Parker & Van Alstyne, 2008). This enables them to 'absorb complements in order to extract a greater share of the industry rent' (Gawer, 2015, p.15) thus using 'strategic tying of complementary products' (Carlton & Waldman, 2002) to preserve an existing or entering a new market. This shows parallels with the 'coring' strategy Gawer and Cusumano (2008) describe. The authors argue that companies should keep intellectual property away from prying eyes, ensure interdependencies between the platform and complements and further enhance the company's core in order to establish a previously non-existent platform. Take for example Microsoft's envelopment attack on RealNetworks' (Real) streaming media service by adding their Windows Media Player to their operating system as a standard feature for free for both private and commercial consumers (Eisenmann et al., 2010). Another famous example is the uprising of highly capable smartphones which meant the downfall for PDAs (Eisenmann et al., 2010).

Type II and III are primarily driven by a 'production efficiency-logic' as Gawer (2015) specifies it. Companies stand to gain boosts in efficiency when enveloping substitutes or unrelated platforms (Gawer, 2015). This will however only be the case if high economies of scope in production are present in the case of substitutes, and high economies of scope along with a high overlap of the current and unrelated platforms' user bases (Gawer, 2015). Moreover, in a larger ecosystem context, type II and III attacks do not crush ecosystem peer's incentives to innovate and are thus considered to be largely innovation-driven (Gawer, 2015). The efficiency notion is most applicable to industries with heavy price competitions but exhibit stable structures (Santos & Eisenhardt, 2005). Stability here, is given by the 'stable patterns of transactions between the two-sides of the platforms' (Gawer, 2015, p.11). Similarly, this exhibits elements of Gawer and Cusumano's (2008) 'tipping' strategy on winning platform wars. It entails 'tipping' across markets; meaning that one should bundle features from substitute and unrelated markets and introduce them to one's core. Gawer (2015) furthermore notes that companies may also shift their boundaries for reasons of their own or complementors' capabilities (type I & III), or, from a more benevolent motivation, they may decide not to envelop at all.

Examples of a weak substitute (type II) envelopment includes Facebook's chat function on AOL's IM or Windows Mobile on

Symbian (Eisenmann et al., 2010). A simple, yet powerful, example of type III envelopment would be the numerous functionalities and platforms bundled into for Apple's iPhone, which include: mobile phone, gaming device, media players, PCs, credit cards, and ebook readers (Eisenmann et al., 2010).

Despite Gawer's (2015) and Eisenmann's et al. (2010) offered insights as to why envelopment may be used as a competitive strategy, the question of how and which type should be used given which conditions is still left unanswered (Müller, 2015; Paramsothy, 2015). In essence, how should practitioners employ which envelopment type in a strategic manner? Does a firm's power and influence motivations trump efficiency ones when it comes to firm performance or vice versa? What about other envelopment motivations?

When looking at platform market envelopment the concepts of value creation and capture for firms are closely linked, which is pivotal to business models and their innovation (Visnjic & Cennamo, 2013). Therefore, the concept of business model innovation is essential when looking into possible strategies for long term firm success (Visnjic & Cennamo, 2013; Müller, 2015).

2.2 Business Models and Business Model Innovation

2.2.1 Business Models

Literature on business models is still in a 'nascent' stage, despite a considerable amount of research being conducted especially since the early 2000s (George & Bock, 2010). The central streams of literature on business models can be categorised into the following three: (1) e-business and uses of information technologies in organisations, (2) strategic issues and (3) innovation and technology management (Zott, Amit & Massa, 2011; Morris, Schindehutte & Allen, 2005; Boons & Lüdeke-Freund, 2013)[1]. Hitherto, scholars have not come to a common understanding of the business model, often adopting a definition to fit their studies (e.g. Zott et al., 2011; DaSilva & Trkman, 2013; Shafer, Smith & Linder, 2005). Further confusion arises when terms like business model, strategy, business concept, revenue model and economic model are used interchangeably (Morris et al., 2005; Magretta, 2002; DaSilva & Trckman, 2013). In an attempt to bring clarity to the discussion, Casadesus-Masanell and Ricart (2010), in their widely cited paper, formulate a clear distinction between business model, strategy and tactics. The authors state that a business model refers to the way the firm operates and how it creates value, strategy to 'the choice of business model' to compete with and tactics as the 'residual choices' a firm may make based on their business model choice. The authors strongly emphasise that a business model comprises concrete choices made by the company and the consequences of these (Casadesus-Masanell & Ricart, 2010). Moreover, Shafer et al. (2005) comment that business models prove to be an invaluable way to communicate the strategic choices firms make and increase chances of success when its core elements of value creation and capture are well defined.

The majority of the literature agrees on the fact that a business model captures a firm's value proposition, revenue streams, resources and governance mechanisms (Zott & Amit, 2010). In other words, business models involve elements of value creation, value capture and value delivery (Casadesus-Masanell & Ricart, 2010; Teece, 2010; Winterhalter, Zeschky & Gassmann et al., 2015).

[1] See Zott, Amit and Massa (2011) for a literature review.

The following will further detail the comprehension of business models as value creator, capturer and deliverer and introduce the notion of using the business model not only to create a competitive advantage (Magretta, 2002), but also as source of innovation (e.g. Chesbrough, 2010).

2.2.2 Business Models: Creating, Capturing, and Delivering Value

Despite the activeness in the literature on the concept of business models, using differing definitions, some common ground needs to be found to move forth and no longer hamstring progress in the field (Zott et al., 2011). Therefore, in accord with Teece (2010, p. 173), a business model is defined here as 'how the enterprise creates and delivers value to customers, and then converts payments received to profits'. As previously indicated, scholars broadly agree that business models include components of value creation, capture and delivery (see e.g. Casadesus-Masanell & Ricart, 2010). Each aspect will be briefly touched upon in the following.

Zott & Amit (2010) explain that value creation means to 'fulfil a customers' need' by taking up a business opportunity which in essence, is a firm's value proposition to the customer. Teece (2010) states that a firm must first create value for a customer by incorporating technologies and features into one's product/service and learn what the added benefit for the customer is by consuming or using the product/service. Following Teece's (2010) conceptualisation the firm must next deliver the product/service to the customer. This is done by recognising opportunities in suitable markets to target and by verifying revenue streams (Teece, 2010). Lastly, value is captured by designing suitable mechanisms to do so (Teece, 2010). This is required to then make a profit off of the revenue gained from the previously value-providing product/service which was delivered to the customer (Teece, 2010; Chesbrough & Rosenbloom, 2002; Amit & Zott, 2015).

This paper however, primarily focusses on value creation and capture of a firm. This is in line with Visnjic & Cennamo's (2013) focus arguing that these two logics are imperative when looking at envelopment and the creation of supra-platform markets. Value creation is accounted for by looking at the companies' evolving value propositions by analysing their press releases and blog posts. The companies' ability to capture value is broadly interpreted by considering its firm performance in terms of revenue.

In summary, a business model must offer an answer and design solution to the questions of how a company will create, deliver and capture value in the marketplace. (e.g. Teece, 2010; Zott, Amit & Massa, 2011).

2.2.3 Business Models Develop in Perpetuity

Demil and Lecocq (2010) note that the term business model is used in two forms, namely: a static and a transformational form. The former portraying the term as a 'blueprint' meaning it looks at the fit and interplay of the business model components. The latter, on the other hand, looks at the crucial question of how to change the business model and innovate (Demil & Lecocq, 2010). Weiller and Neely (2013) for example approach the dynamic view by introducing the dynamic business model into an ecosystem context. Both views have their merit and place in literature as they address different issues (Demil & Lecocq, 2010). The static view enables managers to study the interplay of business model components whilst relating them to firm performance, but does not offer any insight in respect to a business model's evolution trajectory (Demil & Lecocq, 2010). In light of this paper focussing on the evolution of business models, in form of their value propositions, the dynamic

characterisation appears highly applicable. Via means of dynamic development of their business models companies may use them as another way to compete with the competition (Mitchell & Coles, 2003).

Business models are often the source of innovation, competitive advantage or wealth for a company (e.g. Demil & Lecocq, 2010; Zott & Amit, 2007; Amit & Zott, 2012; Mitchell & Coles, 2003; Chesbrough, 2010; Teece, 2010). These industry-disrupting business models are usually perfected and honed over a longer time horizon and rarely attained at first try, insinuating the importance and value of looking at the evolution of business models (Demil & Lecocq, 2010). As Winter and Szulanski (2001, p.731) comment, a business model is not something that is invented or perfected in an instance, but is a 'set of interdependent routines' which are developed, 'discovered' and refined over time. Similarly, Shafer et al. (2005, p.207) repeat 'an organization's business model is never complete as the process of making strategic choices and testing business models should be ongoing and iterative'. In conclusion, 'the exercise of designing new business models is closer to an art than to a science' (Casadesus-Masanell & Ricart, 2010, p.213)

The next section will delve deeper into business models. Specifically, how they may be used as a source of innovation.

2.2.4 Business Model Innovation

Business model innovation is said to be very important nowadays, but often times difficult to execute on (Chesbrough, 2010; Casadesus-Masanell, 2007). A reason may be because corporations are unwilling to pour large sums into developing a product and thus turn to business models as a source of innovation (Amit & Zott, 2012). Martins et al. (2015, p.112) explain that the literature on business model innovation 'analyzes it as either a response to exogenous technological and regulatory shocks (e.g. Amit and Zott, 2001; Teece, 2010) or as a result of trial and error experimentation in response to changes in the environment (e.g., Chesbrough, 2010; McGrath, 2010)'. This paper intends to add to these literature streams.

A straightforward definition is offered by Amit & Zott (2010) who state that central to business model innovation is the recombination of resources and partners to alter the current, or create a new, activity system. Companies can thus take advantage of new opportunities in current markets or create new markets entirely (Amit & Zott, 2012). In line with the dynamic or transformational view, business models here are used as a concept or tool to address innovation on the business model or organisational level (Demil & Lecocq, 2010). Based on Amit and Zott's (2010, 2012) conceptualisation of business models as activity systems, they explain that a competitor may find it more challenging to copy an entire activity system as opposed to a single product or service. Chesbrough (2010) goes as far as suggesting that an inferior technology product or service backed by an excellent business model may be superior to an extraordinary technology with a sub-par business model. This may have parallels with e.g. the concept of 'blue ocean strategy', where it is argued that one may not require an overall superior product, but must serve the customers' needs better than the competition (Suarez & Kirtley, 2012). Business model innovation may in itself pose as a competitive advantage if it is differentiated enough and considerable barriers, preventing imitators, are in place (Teece, 2010). Companies should focus on continuously improving their products/services, being a sub-set of their business model, but also their business models as a whole (Chesbrough, 2010); specifically considering the value propositions.

Teece (2010) brings the idea forward that a concise and well-developed business model is imperative for ICT companies, to capture and deliver value, as these deal with customers demanding services to be free. This requires, as previously mentioned, the continuous improvement and update of the firm's value proposition to effectively create, deliver and capture value (e.g. Casadesus-Masanell & Ricart, 2010) by recombining one's resources and partners (Amit & Zott, 2010). This is similar as to how ICT companies bundle functionalities and leverage existing user bases whilst entering new markets via platform envelopment. They essentially evolve or innovate their value propositions which is an integral part of a business model (Müller, 2015; Zott & Amit, 2010). Consequently, this paper looks at the evolution of the business models, by looking at the value propositions of two platform companies in the ICT industry namely: Facebook and LinkedIn. The next section outlines the study's methodology and gives some background information on the examined companies.

3. METHODOLOGY

This paper seeks to show how ICT companies innovate their value propositions in highly competitive markets. Facebook Inc. and LinkedIn Corporation were chosen for a comparative case study. A structured content analysis was conducted to illustrate the companies' efforts and offerings in their respective markets based on their press releases and blog posts. The research papers of Heikkilä (2015), Paramsothy (2015) and Müller (2015) were used as benchmarks, in terms of their approach to ensure that parallels and comparisons may be drawn.

A brief overview of the companies, an outline of the data collection and an explanation of how the data was analysed is given in the following.

3.1 A Brief Overview: Facebook and LinkedIn

Facebook and LinkedIn are both considered 'social network sites', but with different focal points. Facebook and LinkedIn were both founded in the early-mid 2000s, 2004 and 2002 respectively. Both provide users with options and tools to create profiles and either befriend or connect with other users (Savulescu & Milhalcea, 2013; Papacharissi, 2009). Facebook is said to be open-for-all and for all types of users, whilst LinkedIn caters to professionally-oriented people (e.g. Papacharissi, 2009; Sorensen, 2009; Sjöberg, 2012). Both platforms brought 'mass self communication' to a whole dimension via their platform and tools provided for their users (Van Dijk, 2013). Most recent reports for Q1 2016 (Facebook, n.d.; LinkedIn, n.d.) state that Facebook has 1.6bn monthly active users and LinkedIn has 106m, respectively. User number have grown continuously since the companies' conception. When looking at revenue growth one finds that Facebook has grown 163x and LinkedIn 154x for the time period of 2006-2013. Approximately 45-60% of revenues originate from the companies' primary market, the US. Over 90% of Facebook's revenue comes from advertising, whilst LinkedIn's largest source, with nearly 60%, are talent solutions and only 20% account for marketing solutions (Marketline, 2016 a,b). Further firm performance metrics for the span of the study will be showcased and interpreted in section 3.4.

Both companies started off with a highly similar product and market, focussing however on different consumer needs. LinkedIn nowadays offers talent solutions, marketing solutions and premium subscriptions (Marketline, 2016b). Similarly, Facebook offers its users a space to share opinions, ideas, photos, etc. Whilst offering its marketing customers tools to target consumers based on user-provided demographics, and its

developers services to help them build and monetise applications that integrate with the Facebook platform (Marketline, 2016a). Nonetheless, considering the differing growth rates and financial successes, the companies perform quite differently making them interesting subjects for a comparative case study. Therefore, an in-depth analysis was done looking at their value propositions based on product introductions in the time frame from 2006 to 2013.

High internal validity is assumed given their related internal underlying product offering. Therefore, business model innovation may likely have played a significant role throughout each company's development over the years resulting in their dissimilar financial performances and present standings. Facebook and LinkedIn can be considered front-runners in the social networking sphere, large players in the ICT industry and exemplary digital platform companies bringing together numerous customer groups. External validity can therefore be assumed. One should keep in mind that generalizability may be at risk to a certain extent, because both companies originate from the same market space. A brief tabular overview of the two companies is given in appendix 3.

3.2 Data Collection

The analyses are based on press releases and blog posts for both companies in the period of 2006 to 2013. 154 press releases were analysed for Facebook and 141 press releases and 439 blog posts for LinkedIn. From them new product introductions and version updates were recorded and analysed; 66 for Facebook and 129 for LinkedIn. The data was retrieved from official company sources (i.e. press releases and articles) or, if not available or to complement these, the Factiva database was used. Factiva is a news database suitable for gathering articles that were sent to news agencies (e.g. Reuters, Dow Jones etc.). News articles that were website-only - meaning not sent to newswires - and not available at the time of this paper could not be accounted for.

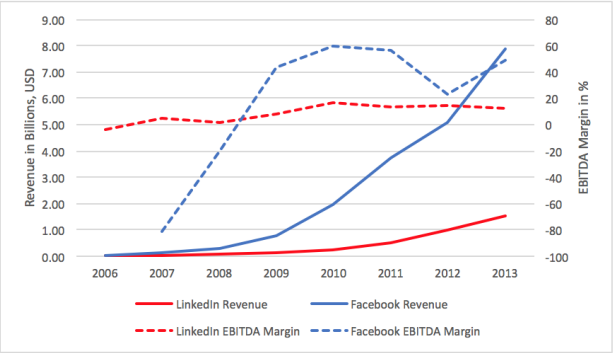
3.3 Data Analysis

The data was categorised and filtered for analysis based on four central pillars: (I) Basic Data, (II) Product/Service Category, (III) Software Classification and (IV) ICT-Layer.

The first pillar, (I) Basic Data, lays the foundation for the analysis and includes basic information on: launch date, company, product name, product version, product type and customer (see appendix 1). Second, (II) Product/Service Category, differentiates between the innovations and determines whether they are a product launch, a new version, launched with partners, a form of bundling or a platform (see appendix 1). The third of four pillars, (III) Software Classification, distinguishes amongst the product innovations based on the extensive software taxonomy previously introduced by Zahavi and Lavie (2009) (see appendix 2). It was used to track in which markets the companies' operated and enveloped into. Lastly, (IV) ICT-Layer, sorts the product innovation into one of the seven layers of the adapted ICT-Layer model introduced in section 2.1.2. The adapted model is based and built on the 4-Layer ELM by Fransman (2010) (see table 1). This was used to determine which layers and how concentrated the companies' operated on certain ones.

3.4 Firm Performance

In addition to the analysis done on the press releases and blog posts the companies' growth and financial was taken into consideration. Similar to previous studies (e.g. Heikkilä 2015; Paramsothy, 2015; Müller, 2015), a company's revenue is taken as an indicator of growth. Furthermore, the companies' EBITDA margins were analysed to measure their profitability. This was deemed suitable because it gives a quick and solid overview of a company's profitability without distorting the results due to differences in company size (see graph 1).



Graph 1: EBITDA Margins and Revenue Figures for Facebook and LinkedIn from 2006-2013

Graph 1 illustrates Facebook's and LinkedIn's growth paths in terms of revenue. Facebook's revenue figures were always greater than their competitors, but truly gained momentum in 2008/2009 which did not show any signs to deceleration. Looking at the EBITDA margins for the two companies yields that Facebook underwent a more dramatic improvement from (81.05)% in 2007 up to 48.46% in 2013. LinkedIn, on the other hand, showed more stable margins that, except for minor fluctuations, consistently improved from (4.04)% in 2006 to 11.93% in 2013. In summary, Facebook seems to have taken the lead throughout this time period both in terms of EBITDA margin and revenues, but LinkedIn too, exhibited a positive upwards trend in its financials.

The following sections will detail the companies' efforts with respect to platform envelopment. Specifically, concerning their business model innovation and relating that to their financial performances.

4. ENVELOPMENT FOR THE MASSES

The aim of this paper was to delve deeper into the rationales of evolving value propositions of digital platform companies in their pursuit of growth and success. Specifically, the notions of value creation and capture were analysed to grasp the motivations of companies' envelopment logics.

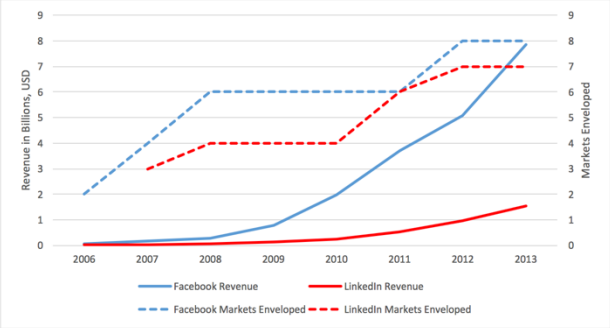
A total of 154 press releases for Facebook and 580 press releases and blogposts for LinkedIn were analysed from the time period of 2006-2013. One found that overall, the two digital platform companies engaged in similar envelopment strategies, but with slightly different financial outcomes. As anticipated, both companies made significant investments, in terms of new value propositions (NVPs hereafter), towards honing their applications and building their respective platforms. Interestingly, the companies did not make a notable use of bundling, other than offering their platforms and features on multiple applications and devices.

In the years of 2006-2011 Facebook introduced 32 NVPs, of which 16 could be attributed to new versions. LinkedIn, on the other hand, introduced 51 NVPs, of which a mere 12 were new versions. Over the course of these six years, using the software product classification of Zahavi and Lavie (2009), Facebook and LinkedIn were involved in 2-8 markets. Overall, both companies were active in a similar amount of markets with minor deviations of up to 2 markets (see graph 2).

With respect to the ICT layers, again, both companies painted a similar picture. The companies were involved in a maximum of 2-3 layers and solely in a form of layer 4 (platforms, content & applications) of the adapted Fransman (2010) model (for a full

overview see appendix 4). Due to the fact that a vast amount of NVPs involved adding features to the overall platforms *and* applications, the denotation of 4c was deemed most suitable for these cases.

Despite observing highly similar trends for the two companies in terms of number of markets enveloped and ICT layer activity, their respective financial performances tell a slightly different story. As of 2007 Facebook's revenue numbers grew rapidly and left LinkedIn behind. Year over year revenue growth numbers showed impressive 78% up to 219% growths. LinkedIn too, managed to grow its revenue year over year reaching rates between 52% and 230%. In absolute figures however, Facebook was vastly superior. For instance, Facebook accrued 3.71bn in revenues in 2011, whilst LinkedIn achieved a comparably smaller 0.52Bn in revenues that same year.



Graph 2: Number of Markets Enveloped and Revenue Figures for Facebook and LinkedIn from 2006-2013

The next two sections will take a more detailed look at the particular years and companies themselves in pursuit of making sense of the yet unrefined findings.

4.1 Focussing on Core Markets (2006-2011)

Throughout the 2006-2011 time period Facebook and LinkedIn both devoted their continuous efforts to strengthening their core markets. A core market here is defined as one with greater than or equal to five value propositions following the Zahavi and Lavie (2009) classification (Müller, 2015). Facebook attributed 67%-100% of their NVPs to, current or soon-to-be, core markets. Similarly, 91%-100% of LinkedIn's NVPs were launched in core or soon-to-be core markets. Moreover, both companies in general focussed on a fairly small count of markets. The companies predominantly concentrated on improving their respective social networking platforms and related applications. Therefore, it follows that they were mainly active in markets labelled as 'internet communications' and 'lifestyle' according to the Zahavi and Lavie (2009) classification. Facebook started off with two markets in 2006 and finished with a total of six in 2011; only two of which become core markets in 2008. LinkedIn started off with three markets and also ended up with six in 2011; two became core markets in 2009 and a third one followed in 2011. In short, both companies, with their inception in 2002 (LinkedIn) and 2004 (Facebook), started out with one ground-laying platform i.e. their respective social networks. In the following years both firms heavily invested in these and decided to enhance them via new features and improved versions over diving into unknown waters. Resulting in a low number of core and overall involved markets.

Facebook followed this strategy by introducing countless features to their platform like Facebook Ads, Beacon and Mobile in 2007 or the chat function along with platform improvements such as a German and Spanish version in 2008. LinkedIn did the same and introduced features such as the professional profile picture feature along with the mobile version of the platform in 2007 or the business targeted hiring solution 'LinkedIn Recruiter' as well as a Spanish version of the platform in 2008.

When following the typology by Eisenmann et al. (2010) it becomes clear that the case companies primarily focussed their NVPs efforts on type I envelopment attacks nurturing their core market(s) and strengthening their market presence. As shown by the seemingly high investment of NVPs in the core markets of often in the range of close to 100%. Additionally, the high investment into the platform reminds of the previously introduced 'coring' strategy in which a company at first aims at creating a new platform (Gawer & Cusumano, 2008). Envelopment attacks of type II were rare and type III virtually non-existent. Consecutively, according to Gawer's (2015) interpretation one could argue that the companies were predominantly motivated by power-rationales to strengthen their core market presence and to be more appealing to their customer base. The few type II attacks could be reasoned for by efficiency-driven logics. This makes sense considering the considerable amount of features and added functionalities introduced to the platforms making sure that competitor's value proposition seems sub-par and theirs more compelling as it includes e.g. a social profile *and* a chat function. Moreover, Facebook for example sought to promote innovation in its ecosystem by allowing developers to access certain Facebook resources and giving them tools to build full social applications.

These observations made for Facebook and LinkedIn in the time period of 2006-2011 hint at possible parallels with the similar conclusions from Müller (2015) and Paramsothy (2015) on Google's growth phase between the company's inception and 2004/2005. Müller (2015) and Paramsothy (2015) hypothesised that digital platform companies that engage in type I and II i.e. 'focused envelopment' sets up sustainable growth and medium-term success. Based on the data it appears reasonable that the years from 2006 to 2011 could be considered Facebook's and LinkedIn's 'adolescent phase' or 'P1' as Müller (2015) labelled it. This being backed by the related financial performances of the companies, which unequivocally showed the companies' medium-term success, giving strength to Müller's (2015) and Paramsothy's (2015) hypothesis.

Taking the period of 2006-2011 as the cases' P1, one stands to question whether and how the consecutive phase, namely 'mature phase' or 'P2' (Müller, 2015) played out. For this reason, the years 2012 and 2013 were additionally analysed to illustrate and hint whether the P1 ended in 2011 and if P2 followed swiftly after.

The following section will give more insight into Facebook's and LinkedIn's envelopment strategies from 2011 onwards.

4.2 Slowly Pushing Boundaries (2011-2013)

In the two consecutive years, following the P1 time period, Facebook introduced another 34 NVPs of which 16 were new versions. LinkedIn in the same years introduced another 78 NVPs of which 33 were new versions. Thus totalling the NVPs for Facebook at 66 and LinkedIn at 129 for the time period of 2006-2013. One may notice that a considerable amount of NVPs were *not* in P1, but in P2, 51.52% and 60.47% respectively of the total NVPs.

These results back up the idea that the case companies entered their mature phases around 2011. Facebook, along with pushing additional features and making improvements to its core product, focussed primarily on type II (weak substitutes) envelopment making sure that some relation is upheld to its

core knowledge domain. For instance, in 2012 Facebook acquired the photo-sharing app Instagram for approximately 1Bn USD. Facebook was now able to leverage its vast user base of its core platform to popularise Instagram. LinkedIn too, decided to improve its core via type I envelopment, but also pushed for type II envelopment attacks in P2. LinkedIn decided to acquire SlideShare, a professional content sharing community, in 2012. Thus still staying in its overarching professional sphere.

The same conclusions can be drawn for Facebook and LinkedIn when looking at their ICT layer activity. Again, both stayed within the bounds of the platform, content, and application layer 4. LinkedIn made one small exception, for an instance in 2012 when acting on layer 5 (final consumer). Operating on these deep layers enables companies to proclaim and create their own spaces ('blue oceans') in which they are not directly competing with others on e.g. price with identical products. Layers 4 (platform, content and applications) – 5 (final consumer) exhibit to have low levels of competition (Müller, 2015), giving ample space for the creation of these 'blue oceans'. This suggest parallels with the 'tipping' strategy where a company tries to win a platform war by creating exceptional user functionalities and bundle across markets. What is more, both companies kept 'experimental activity' i.e. one value proposition per market in e.g. unrelated markets on the low side. Instead, they meticulously honed their core platforms whilst expanding organically and gradually. These movements following Gawer (2015) may again be considered primarily power-driven. However, considering improvements to LinkedIn's developer-support and tools could be viewed as efficiency/innovation-driven. The rare experimental activity could be motivated by achieving further competences for the core platform and additional capabilities. The companies may achieve boosts in efficiency as a result of pooling resources and in the interest of building economies of scope. Using the previous example of SlideShare, users were then able to use their LinkedIn accounts to access SlideShare's functionalities; thus making additional profile creations or account management redundant. Facebook and LinkedIn both managed to more than triple their revenue figures between 2011-2013 whilst operating in increasingly more markets (see graph 2 for a full overview). These usually feed back into their core market therefore elevating and strengthening it.

The companies were able to build a sustainable and strong foundation due to their core focus in P1. Consecutively, in P2 they built upon this via more dispersed envelopment seen by the increase of markets enveloped. Thus overcoming the threshold to engage in dispersed envelopment by having established a strong market presence. Judging based on the companies' financial performance and envelopment trends, one finds reason to support Müller's (2015) and Paramsothy's (2015) second hypothesis. It states that focussing on the envelopment of type II may yield sustainable growth and long-term success.

Discovering that Facebook and LinkedIn engaged in highly similar envelopment strategies, it stands to question why this has not fully been accounted for in their financial results. Some degree of success undoubtedly shows in their revenue growth, but Facebook's has seemingly grown at a faster rate than LinkedIn's. Furthermore, Facebook's EBITDA margins have comparably improved more and have stayed at constant healthier levels than LinkedIn's (see graph 1).

There may be numerous possible reasons for these slight discrepancies, for which envelopment may *not* account for. The most straightforward reason simply is because the firms are managed differently. A firm can simply be more efficient and therefore become more profitable. But other reasons may also prevail. For instance, in each companies' prospectus (Facebook Inc., 2012; LinkedIn Corp., 2011) that was filed for their IPO's it enumerates risks that the companies will have to deal with in the future. One of these was for example the imminent transition from PC to mobile. One could theorise that Facebook managed this transition, including the porting of their platform and apps, in a superior fashion compared to LinkedIn. This could then ultimately result in better engagement rates and user counts, which again amplifies their attractiveness for marketers due to network effects. One obvious advantage Facebook has over LinkedIn is their degree of freedom concerning their target group. At first, this too was narrow and focussed solely on college students, then high schoolers and so on. But quickly became open to everyone. LinkedIn on the other hand, focusses on professionals and users in need of their services i.e. finding a job or businesses looking for new hires. Understandably this hamstrings user growth rates even though LinkedIn is currently dedicated to getting a younger demographic to join the network, by actively advertising college graduates and putting out a lot of valuable content (layer 4b) for job seekers in landing their gigs.

The next section summarises and further discusses the results from this paper's analysis on the two digital platform companies Facebook and LinkedIn.

5. THE ENVELOPMENT DRIVERS MODEL

Considerable support was found for the hypotheses set out in previous works by Müller (2015) and Paramsothy (2015). Furthermore, using Gawer's (2015) organisational perspective on platform envelopment, based on the propositions from Santos and Eisenhardt (2005), it was possible to theorise as to what motivation the companies may have had for their boundary pushes. This comprehension inspired the creation of the 'Envelopment Drivers Model' (EDM hereafter) (see figure 1). It enables researchers and practitioners not only to follow a company's envelopment moves, but also plot the envelopment attacks enabling them to use it as an analysis tool.

The following details an elaboration on the EDM. An enlarged and blank version is given in appendix 5. Additionally, a reflection is given on the Facebook's and LinkedIn's plot on the model (see figure 1).

Companies envelop to defend themselves against a competitor's actions and/or to develop their power in confrontations with competitors (competition-driven) (Gawer, 2015). Alternatively, they could also use envelopment for the reason to encourage ecosystem innovation from peers and/or stand to gain efficiency building capabilities (innovation-driven) (Gawer, 2015). Therefore, the EDM plots a company's envelopment attacks based on two fundamental logics, namely them being competition or innovation inspired. These can range from a low to high degree. The comparative size of the plotted attacks indicates their respective concentration level. An attack that exhibits a high degree of competitive play and a low upside for attaining additional efficiency-improving capabilities is considered to be power-driven. Google and Microsoft are often put on the spotlight for their frequent power-driven moves (Gawer, 2015). A famous example is the alleged power-abuse Microsoft was accused of when bundling their Internet Explorer with their Windows OS (Gawer, 2015). The opposite i.e. low degree of competition pressure, but a high potential for gaining innovative capabilities is labelled as an efficiency-driven move. This is a rather basic argument for enveloping into markets as often times envelopers aim at achieving economies of scope. It is considered to be be high on innovation because, unlike a power-driven move, it does not negatively impact the

ecosystem peers' innovation motivations. Moreover, an attack that aims at attaining new capabilities (high on innovation) in strategically important markets (high on competition) can be described as competence-driven. Santos and Eisenhardt (2005) feature the case of Intel (Gawer & Cusumano, 2002) and how they acquired capabilities in complementary chipset markets, but were able to apply these to their central microprocessor markets (Gawer, 2015). When no innovative or competitive relevant markets are acquired companies can be said to operate in the 'No Man's Land'. It thus is highly unattractive for companies and simply sets them up for failure. A reason that may trump all others and should therefore be seen as an elevated field to the rest of the matrix is the one of identity; asking the 'who we are' question (Santos & Eisenhardt, 2005). It is however, a justification to *not* execute an envelopment attack. A company may seek to boost their credibility as a 'benevolent custodian' in their platform ecosystem' by not enveloping (Gawer, 2015). In essence, a particular company that is the platform ecosystem leader aims to convince its peers that their actions and actuality is motivated by the common good of the ecosystem (Gawer, 2015). A simple example is again Intel, which actively refrained from wiping out complementors and tries to seem 'fair' and 'trustworthy' (Gawer & Cusumano, 2002; Gawer, 2015).

Gawer (2015) made a number of linkages between these concepts and Eisenmann's et al. (2010) envelopment attack typology. Following these yields that the power field holds type I attacks because they seek to leverage user-bases to block the competitors' access to customers (Eisenmann, et al., 2010; Gawer, 2015), The efficiency-driven argument on the other hand holds type II and III classed attacks because their success is balanced on the gain of production efficiencies i.e. economies of scope (Eisenmann et al., 2010; Gawer, 2015). Lastly, the competence quadrant holds type I and also III attacks because they combine the two approaches to gain strategically important capabilities to leverage across markets. In essence, aiming to win a platform war by using the 'tipping' strategy (Gawer & Cusumano, 2008).

Analysing Facebook's data for P1 shows that when the company pushed its boundaries it was largely with type I attacks making sure to expand its competitive space and enhance internal capabilities. LinkedIn paints a similar picture in P1 by also sticking to strengthening its core markets, indicated by even higher percentage of NVPs invested into core markets (88%-100%) than Facebook (67%-100%). Consequently, one could characterise the companies' moves as principally power-driven with few efficiency-driven ones. For example, Facebook introduced Facebook Chat in 2008 making AOL IM obsolete if you already are a user of the Facebook platform. This could be arguably seen as either type I or II making it power or efficiency-driven. As for LinkedIn, they introduced for instance the 'LinkedIn Audience Network' which enabled marketers to specifically target its customers making vastly superior to conventional advertising channels such as television or print. This can be considered a type II envelopment attack by making use of its targeting functionalities and is therefore efficiency-driven. This strategy was rewarded by reasonable medium-term financial results.

Moving on to P2, starting in 2011/2012, illustrates that the companies' envelopment activities were again mainly motivated by power and efficiency rationales. Interestingly, an increase in the pursuit of type III envelopment shifts were observed indicating that they were becoming borderline competence-driven. Once the companies felt that certain thresholds of core market fortification were reached, attention increasingly shifted towards new horizons (see graph 2). Thus seeking to leverage their user bases to conquer shares in new markets. This was demonstrated by a small spurt of envelopment attacks into new non-core markets and a thus far underutilized layer 4b. The core-markets were however never threatened or dropped to a lower tier priority, which can be seen by the numerous core NVP additions. Both companies were able to leverage their solidified core markets to offset potential minor missteps in adjacent markets. Again, the companies saw their revenue numbers further soar, albeit Facebook achieving higher figures than competitor LinkedIn.

In conclusion, it appears that both companies' envelopment strategies were grossly similar and as a whole played out in their favour. Keeping limitations of broad generalizability in mind, it seems that their actions are advisable for digital platform companies in the ICT industry. These findings support the conclusions from Müller (2015) on Google's envelopment trajectory and gives reason to formulate likewise recommendations explained in the following.

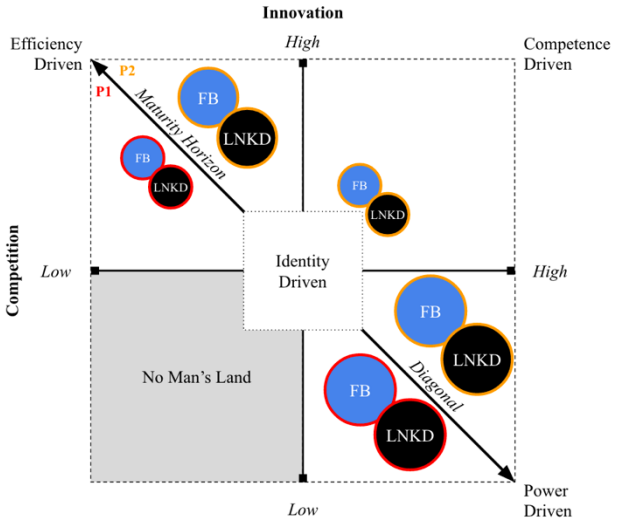


Figure 1: The Envelopment Drivers Model – Plotting Facebook's (FB) and LinkedIn's (LNKD) Envelopment Activity from 2006-2013

After a company's inception it is best for a digital platform company to focus on establishing and sharpening their core competencies for their core markets adopting a 'coring' strategy (Gawer & Cusumano, 2008). Thus seeking to build a respectable user base and functionalities. Consequently, companies may aim to start enveloping via type I or II attacks for means of attaining efficiency gains or an improved competitive position vis-à-vis their competitors. Core markets should however never be neglected and continuously strengthened. This ensures that the backbone on which companies rely on is continuously enhanced. This enables movements into experimental markets or holding economically unattractive ones for competitive reasons. In short, a digital platform company is advised to stay below the 'maturity horizon diagonal' of the EDM (see 'maturity horizon diagonal' on figure 1) in early stages of its life, without falling into the detrimental 'No Man's Land'. The maturity horizon diagonal in essence marks the cut-off point for companies for which reasons it is feasible and desirable to envelop in their early stages (below the diagonal) and more mature stages (above the diagonal) of their lifecycles.

Once having reached a sufficient size and strength, a company may seek to increasingly diversify its efforts out into new adjacent and unrelated markets leveraging their strong user bases and functionalities assuming more of a 'tipping' strategy

(Gawer & Cusumano, 2008). This is typically done via type I and III attacks which are motivated by efficiency improvements, but now more importantly, capability building in strategic important areas. Therefore, crossing and increasingly operating on the upper side of the maturity horizon border. As a result, a company will continuously grow and increasingly blur the lines of individual markets establishing themselves a supra-platform.

Lastly, one must not forget the ever-present option of acting on an identity or legitimacy building rationale and *not* envelop. This may however seem more relevant and more of a luxury alternative in instances when companies have already established their platform leadership position in their ICT ecosystem in later maturity stages.

6. CONCLUSION

A dominant successful envelopment strategy was observed at the two case companies. The companies' envelopment strategies were described following the envelopment attack typology of Eisenmann et al. (2010) and Müller's (2015) characterisation of a focussed or dispersed view. Lastly, the paper theorised on the companies' motivations behind their moves using Gawer's (2015) envelopment attack rationales.

Based on the data, both companies seemed to be involved in largely similar envelopment strategies during the same maturity stages. A strong focus was laid on building and strengthening their core markets in early years (P1) after the companies' inception i.e. following a focussed strategy. Their envelopment moves can be generally considered to be of a power driven rationale with some minor efficiency-fuelled ones (shown by their strong type I and weaker type II focus). Once the companies matured (now entering P2) they were able to leverage their now strong core functionalities and established user bases to envelop more unrelated (via experimentations) and weak substitute platforms (dispersing the envelopment scope). The companies sought to build further strategically important competences (via type I and III attacks), but continuously upgraded their core (via type I and some type II). One must however note that type III attacks were rare as a large amount of NVPs were continuously devoted to core markets. These strategies allowed the companies to steadily grow and flourish illustrated by their progressive revenue figures. Similar observations were made by Müller (2015) looking at Google's trajectory and ensuing success in its ICT ecosystem.

In conclusion it was derived that digital platform companies are advised to initially focus on their core market and then envelopment either by a competitive or innovation-seeking motive. Once a certain sophistication in terms of functionality and user base size is accrued is it feasible and advisable to move towards more unrelated platforms. These will then enhance the companies' overall capabilities which can be widely applied and leveraged.

Inspired by these insights the EDM was developed which enables one to plot a companies' envelopment attacks and use it as an analytical tool by being able to see their envelopment 'concentrations' based on their degree of being competition or innovation fuelled.

6.1 Academic Contribution

The central contribution by the EDM is the advisory and analytical functionalities it offers, which can be used to plot a companies' envelopment attacks according to Eisenmann's et al. (2010) typology. Furthermore, it helps denote and unveil a company's rationales of their envelopment activity based on Gawer's (2015) logics of competition and innovation. It helps 'map' out a companies' envelopment concentrations which are portrayed by the size of the circles. This paper also adds two additional companies to the line of research on envelopment at platform companies in the ICT industry. Support was found for Müller's (2015) and Paramsothy's (2015) hypotheses on advisable trajectory paths for platform companies on their way to becoming a platform leader in their ecosystem. Lastly, the identified drivers of platform boundary pushes introduced by Gawer (2015) were applied and seemed suitable to typify the cases' envelopment moves.

6.2 Managerial Implications

Practitioners are advised to stay below the maturity horizon diagonal when their companies are in an early stage of their life-cycle and steadily move across it while maturing. Thus maximising the returns on their envelopment investments. It appears promising to first employ a coring strategy to build one's platform focussing on the internal, before waging platform wars with others following a tipping strategies once one's company has the necessary resources to do so. Furthermore, the EDM helps map-out their historical and current envelopment activity aiding them to navigate towards their goals by making well-informed strategic future moves.

7. LIMITATIONS

Due to the fact that this paper constitutes a comparative case study it bears the ubiquitous case study limitations. Albeit offering an in-depth look into the problem in question, generalizability is to be taken with caution. Moreover, both companies originated from the same market origins, era, country etc. making the comparison internally valid, but results may vary when observing companies in other markets, industries or segments. It is assumed that the added-value of the gained insights in this explorative study outweighs the downside of generalising the findings on a large scale. Additionally, it was not feasible to check for intercoder reliability when the assessment of press releases and blog was made. Lastly, it is important to note that due to availability limitations more press releases/blog posts were analysed for LinkedIn (439) than Facebook (154). This may explain the higher number of recorded NVPs by the analysis for the one company over the other. These reasons may explain differences in the respective number of NVPs identified for the companies in possible future replication studies.

8. FURTHER RESEARCH

A basic, yet crucial avenue for future research may be analysing, in a similar fashion, the evolving value propositions at additional companies over the course of longer timespans. In other words, a large scale study across multiple companies and industries over greater time horizons could be performed and also quantitatively test the soundness of the EDM.

Furthermore, it is interesting to see what happens after P2; meaning if companies enter a P3 or P4 stage or extend P2 and what these entail. These could for example constitute another (rapid-) growth or a plateauing phase. How did the case companies perform after 2013? Also, with respect to the phases the question stands how long each one is and if external influences such as the dot.com bubble in the late 1990s shorten or extend them. Facebook and LinkedIn operated during the subprime mortgage crisis of 2007-2009 and their P1 phase in this paper was estimated at around seven to nine years.

Lastly, this paper focussed on ICT players that could be considered leaders in their ecosystems. It would be insightful to uncover whether and how the implications for business model innovation found in this paper are different for tier two or three players. Especially, since they are in direct competition with an ecosystem-leading company.

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APPENDIX

Appendix 1:

Pillar one and two used in the Analysis of Facebook's and LinkedIn's Press Releases and Blog Posts.

Basic Data and Product/Service categories used to categorise products or services launched by Facebook and LinkedIn.

Basic Data	Product / Service Category
Launch Date	Product Launch
Company	New Version
Product Name	Launch w/ Partners
Product Version	Bundling
Product Type	Platform
Customer Classification	

Appendix 2:

Third Pillar used in the Analysis of Facebook's and LinkedIn's Press Releases and Blog Posts.

Software Product Classification by Zahavi and Lavie (2009) Portrayed to the level of detail used in this paper.

1 Personal applications
1.1 Educational/training 110
1.2 Reference 120
1.3 Games 130
1.4 Entertainment 140
1.5 Life style 150
1.6 Personal productivity 160
1.7 Personal multimedia productivity 170
1.8 Personal productivity utilities 180
1.9 Business productivity 190
1.10 Utility systems 200
1.11 Operating system enhancements 210
1.12 Internet communications 220

3 Vertical applications
3.1 Banking 360
3.2 Government 370
3.3 Healthcare services and medicine 380
3.4 Insurance 390
3.5 Legal 400
3.6 Entertainment and media communications 410
3.7 Real estate 420
3.8 Aerospace and aviation 430
3.9 Agriculture and farming 440
3.10 Apparel and fashion 450
3.11 Automotive 460
3.12 E-learning/education 470
3.13 Food service and beverage 480
3.14 Hospitality/travel 490
3.15 Mapping 500
3.16 Not-for-profit 510
3.17 Telecommunications 520
3.18 Energy/utilities 530
3.19 Retail & wholesale 540
3.20 Science & engineering 550

2 System infrastructure
2.1 Network management (logical) 230
2.2 Network management (physical) 240
2.3 Data structuring, access, and manipulation 250
2.4 Integrated development environment (IDE) (Package) 275
2.5 Software application design270
2.6 Software application development 280
2.7 System-level application 290
2.8 Storage 300
2.9 Security 310
2.10 Distributed computing 320
2.11 Middleware 340
2.12 IT system management software 350

4 Business applications
4.1 Enterprise resource planning (ERP) (Package) 555
4.2 Accounting 560
4.3 Factory/facility management 580
4.4 Financial analysis & management 590
4.5 Manufacturing 600
4.6 Sales & marketing 610
4.7 Product design & development 620
4.8 Logistics 630
4.9 Collaborative applications 640
4.10 Human resource management 650
4.11 Data analysis 660
4.12 Decision support systems (DSS) 670

5 Packages
5.1 Integrated development environment (IDE) 275
5.2 Enterprise resource planning (ERP) 555
5.3 OfficeSuite1700
5.4 Integrated accounting 7900
5.5 Manufacturing resource planning (MRPII) 8600
5.6 Customer relationship management (CRM) 8900
5.7 Supply chain management (SCM) 9380
5.8 Humanresourcemanagement9700

Appendix 3:

Tabular Overview of Key Data on Facebook and LinkedIn.

Name	Facebook Inc.	LinkedIn Corporation
Founders	Mark Zuckerberg, Eduardo Saverin, Andrew McCollum, Dustin Muskowitz, Chris Hughes	Reid Hoffman, Allen Blue, Konstantin Guericke, Eric Ly, Jean-Luc Vaillant
Founded	2004	2002
Company HQ	Menlo Park, CA, USA	Mountain View, CA, USA
Employees (2014)	9,199	6,897
Revenue (2006, USD, in Bn)	0.05	0.1
Revenue (2011, USD, in Bn)	3.71	0.52
EBITDA Margin % (Min. - Max., 2006-2011)	(81.05) - 59.27	(4.04) - 16.1
Key Competitors	Alphabet Inc.	Alphabet Inc., Facebook Inc., Microsoft Corporation

Appendix 4

Number of NVPs categorised by the adapted ICT Layer Model of Fransman (2010) from 2006-2013.

Facebook

	ICT Layers						
Launch Date	1 Device	2 OS	3 Network	4a Platform	4b Content	4c Application	5 Final Consumer
2006	0	0	0	0	0	4	0
2007	0	0	0	2	0	4	0
2008	0	0	0	3	0	6	0
2009	0	0	0	0	0	1	0
2010	0	0	0	0	0	4	0
2011	0	0	0	0	0	8	0
2012	0	0	0	0	2	21	0
2013	0	0	0	0	1	10	0
Total (2006-2011)	0	0	0	5	0	27	0
Total (ALL)	0	0	0	5	3	58	0

LinkedIn

	ICT Layers						
Launch Date	1 Device	2 OS	3 Network	4a Platform	4b Content	4c Application	5 Final Consumer
2006	0	0	0	0	0	0	0
2007	0	0	0	2	0	3	0
2008	0	0	0	4	0	4	0
2009	0	0	0	1	0	2	0
2010	0	0	0	2	0	1	0
2011	0	0	0	4	1	27	0
2012	0	0	0	5	4	30	1
2013	0	1	0	0	3	34	0
Total (2006-2011)	0	0	0	13	1	37	0
Total (ALL)	0	1	0	18	8	101	1

Appendix 5

The Envelopment Drivers Model (Blank Version)