A Tale of Contend and Conquest: Leveraging Market Presence to Grow the ICT-Ecosystem - Lessons Learned from Google and Yahoo - (2006 - 2011)

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ABSTRACT:

How do large platform companies in the ICT market innovate their business model over time? The pace of growth and innovation of digital platform players such as Google, Facebook or Amazon astonishes communities of researches and practitioners likewise. This paper aims to shed light on the growth trajectories of large players in the two-sided ICT market in which envelopment is assumed to play a vital role. Fellow scientists identified three types of envelopment bestirring such unique industry dynamics yet leaving it unclear how different types of envelopment may be utilised in order to effectuate the augmentation of their respective ICT ecosystem. Neither the existence nor the effectiveness of long-term envelopment schemes have previously been scholarly investigated. Scrutinising envelopment patterns of Google and Yahoo from 2006 to 2011 by analysing their newly launched value propositions has uncovered an envelopment typology comprising two opposing strategies that result in success and failure, respectively. Such typology enabled to derive a matrix that helps to illustrate the envelopment of Google and Yahoo as well as to provide strategic directives for growth and envelopment in the ICT market. This has been accomplished instrumentalising the envelopment typology of Eisenmann et al. (2010) and its three types of envelopment reaching a deeper understanding of how to utilise envelopment in the pursued of growth, accounted for by revenue collection, and financial success, accounted for by return on capital invested. Elaborating upon the element of time also leaves to conclude that 'winner-takes-it-all' dynamics hold true only partially. To 'get big fast' does not entirely cut it. This paper's contribution lies in the instructions of 'how to get big, fast' and – particularly – sustainable.

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1. Introduction

1.1 Current Situation

Platform markets are not a new phenomenon. In fact, they exist for quite some time in the form of e.g. credit cards, shopping malls or real estate agencies. Yet, it has been the emergence of ubiquitous digital information and communication technologies attended by global players who create new markets, disrupt entire industries and exhibit growths rates that by far exceed most brick and mortar organisations shifting academic attention to platform market companies within the last decade (Caillaud & Jullien, 2003; Gawer & Cusumanu, 2008; Cennamo & Santalo, 2013).

New technologies invalidate the economical concept of marginal costs for digital service providers allowing for scalability unmatched by traditional industries.

The increasing reliance on digital information and communication means by the public further constitutes the importance of the digital economy and motivates big platform players to diversify and innovate their business models, often forming an ecosystem that enhances the value of each component as more adopters are drawn towards the platform and its complements (Gawer & Cusumanu, 2008).

Academia labels such happenings 'platform envelopment' referring to 'attackers [that] secure strategic advantage by recombining valuable resources - user bases - into multi-platform bundles' (Eisenmann, Parker & Alstyne, 2010). In other terms, platform envelopment is a widespread occurrence and strong driving force of platform markets as companies frequently attempt to enter each other's sphere in order to seek prosperity as can be observed examining Apple, Google, Amazon and Facebook who initially competed in separate markets (search, online stores, and access to content, operating systems, social networks and hardware). Now, all of these afore mentioned actors compete with each other through supra-platforms, ceasing traditional market boundaries (Visnjic & Cennamo, 2013).

1.2 Problem Statement

Eisenmann et al. (2010) developed a typology useful for the understanding of an attacker's target and motivation naming the envelopment of complements (I), weak substitutes (II) and unrelated platforms (III) to reduce attractiveness of a standalone complement provider thereby strengthening position in the face of core rivals, eliminate potential emerging threats and the yield of economies of scope, respectively. Accordingly, it follows that type I & II envelopment constitute a 'focused' envelopment approach whereas type III yields diversification, thus constitutes a 'dispersed' envelopment strategy. Despite, the only lead offered by academia on how to actually pursue envelopment can be borrowed from notions of 'winner-takes-it-all' dynamics suggesting that swift growth is essential to industry survival (Eocman, Jeho, and Jongseok, 2006).

Given the assumed importance of envelopment in the ICT industry this hardly is sufficient. Not only the question why but also how envelopment actually occurs is fundamental. What is the underlying logic of value creation i.e. when and how do firms decide to envelop which markets? Taking a step back we need to challenge the inherently assumed importance of envelopment and detect if the chunk of growth and success of major platform firms is truly attributed to envelopment or if other mechanisms of diversification are of equal or greater importance. Is envelopment via product bundling actually a best practice for ICT based platform firms or can others be identified? If not, how can focused and dispersed envelopment be utilised to grow sustainably?

1.3 Research Question

In an attempt to gain first, exploratory insights into how business model innovation shapes platform envelopment, being at the heart of the business model, this paper is motivated to generate answers to the following research question: How do digital platform companies innovate their value proposition over time in the pursuit of revenue growth?

In doing so, platform companies are defined as firms competing in 'markets in which one or several platforms enable interactions between end-users and try to get the two (or multiple) sides 'on board' by appropriately charging each side' (Rochet & Tirole, 2006).

The central case of this paper shall be elaborated upon by examining the changing value propositions of Google and Yahoo in light of an inductive comparative case and a structured content analysis over a period from 2006 – 2011. In order to account for growth and firm performance those data will be linked to revenue figures.

1.4 Why Google & Yahoo

Originated under rather similar circumstances, with many contingencies being equal, Google and Yahoo's antithetic development is likely to be accounted for by differences in their approach towards business model innovation. Moreover, both parties are assumed to be representative for firms in the ICT industry. Therefore, selecting the two Internet search organisations for case study is attended by high internal and external validity.

1.5 Research Gap

Answering the research question requires a common understanding on the differentiation between business model, business strategy and tactics as many use these terms interchangeably and thus miss focus (Casadesus-Masanell & Joan Enric Ricart, 2010; Teece, 2010; Magretta, 2002). Existing literature primarily focusing on an outward looking approach by examining how companies can deal with industry characteristics frequently and unconsciously blurs those lines leaving unclear the specific contribution of business model innovation for overall business (d)e(n)velopment thus missing this paper's focus twofold. Among the most prominent examples are publications about general competition in two-sided markets (Armstrong, 2006; Shankar & Bayus, 2003), 'winner takes it all' markets (Schilling, 2002), technological dominance (Suarez, 2003; Schilling, 2002), the 'chicken & egg' dilemma (Caillaud & Jullien, 2003) and direct and indirect network effects (Clements & Ohashi, 2005; Parker, Marshall & Alstyne, 2005; Shankar & Bayus, 2003).

To the best of our knowledge, prevailing literature has not yet addressed what, if any, long-term underlying logic drives value proposition innovation thus shaping platform envelopment for industry specific organisations. Furthermore, scholars have not assessed how certain patterns of envelopment impact firm revenues and measures of financial success, ultimately accounting for growth and performance.

1.6 Significance

The results of this study suggest that in the early stage of corporate life not envelopment but the strengthening of the home market i.e. market of origin needs emphasise. Afterwards, focused envelopment and the build-up of a strong core market is deemed inevitable in order to leverage user-bases and service benefits for unrelated, thus dispersed envelopment to expand the ICT ecosystem. Deriving an envelopment matrix based on real world observations of Google and Yahoo complements the envelopment typology of Eisenmann et al. (2010) contributing when and why different types of envelopment are appropriate means of envelopment. It also extends notions of 'winner-takes-it-all' dynamics adding how to 'get big'. Both, academics and practitioners will benefit from an extended grasp of how envelopment may be pursued to yield sustainable growth that is equally matched by performance in terms of financial success.

In the next section, all briefly introduced theoretical concepts are explained in detail to derive a sound theoretical framework supporting our case.

2. Theoretical Background

2.1 Platform Markets & Envelopment

The unique characteristics of platforms i.e. two-sided markets allow for particular growth trajectories via envelopment. Both phenomena are reviewed in depth subsequently.

2.1.1 Platform Markets

Whereas traditional industries are characterised by linear exchange paths as vendors buy and transform inputs before selling them, platform exchanges are said to have a triangular structure as users interact simultaneously while associating with a certain platform (Eisenmann et al., 2010). Ergo, platform markets can be defined as 'markets in which one or several platforms enable interactions between end-users and try to get the two (or multiple) sides 'on board' by appropriately charging each side' (Rochet & Tirole, 2006). Platforms are two-sided when serving two distinct groups that mutually attract each other – a phenomenon called 'network effect' - and hence are multi-sided when enabling interaction between more than two such user bases (Rochet & Tirole, 2003; Parker & Van Alstyne, 2005; Eisenmann, Parker & Van Alstyne, 2006). As this paper particularly aims for the analysis of digital platform companies it seems reasonable to also introduce a more specific definition developed for software based platforms which have been described as 'the extensible codebase of a software- based system that provides core functionality shared by the modules that interoperate with it and the interfaces through which they interoperate' (e.g., Google's Android and Android apps). A module is thereby 'an add-on software subsystem that connects to the platform to add functionality to it' (Tiwana, Konsynski & Bush, 2010). Combined, the outlined definitions pitch a clear picture about physical but particularly digital platforms. In summary, digital platform companies allow interaction between end-users, or demand and supply sides, mostly but not exclusively (e.g. Google's Nexus) based on varying degrees of extensible software systems that share functionality with add on software.

2.1.2 Envelopment: Leveraging User-Bases and Functionality to Create Ecosystems

A bundle of platform and modules can form an ecosystem that enhances the value of each component as more adopters are drawn towards the platform and its complements and user interaction is depending on network effects as the value for any user increases with an increase in users to interact with as well as functionality offered (Gawer & Cusumanu, 2008; Farrell & Saloner, 1985; Katz & Shapiro, 1994). In fact, harvesting synergies from bundling by entering into another platform provider's market combining 'its own platform's functionality with that of the target's so as to leverage shared user relationships and common components' is the quintessence of envelopment. This is in line with the previously outlined definition that envelopment aims to seize advantage by connecting user bases into 'multi-platform bundles' (Eisenmann et al., 2010).

Such ecosystems can be created within different market segments as well as 'layers' of the ICT industry as demonstrated by Google's operating system Android, their Nexus devices (mobile phones) or GoogleDocs (productivity & sharing – online service). Fransman (2010) developed a taxonomy for ICT products according to such layers enabling scholars to frame and analyse competitive industry dynamics by allowing for more accurate classification of firms' market operations. Fransman's taxonomy originally encompasses four hierarchical layers: 1) Network Elements, 2) Converged Communication and Content Distribution Networks, 3) Platforms, Content and Applications and 4) End Customers. Here, it is within the third layer that platforms are created upon which applications and content can be delivered to the final consumer in the fourth layer. Whereas layer 1) & 2) refer to mainly physically necessary foundations for the ICT ecosystem it is in layer 3) that envelopment plays the most crucial role. Therefore, Platforms, Content and Applications are acknowledged independently. Moreover, as also frequently involved in or affected by envelopment (e.g. Microsoft's envelopment attack against RealNetworks (Real) by bundling its Windows Media Player with its operating system Windows) a new layer for operating systems is added. Table 1 summarises the adapted ICT-Layer model.

Level	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).

Complementary to the classification according to layers – applicable for software products in layer two and four of the

adapted ICT-Layer model - a typology of software products by Zahavie & Lavie (2009) has been developed to derive distinguishable market segments for software products. Zahavie & Lavie's software product classification appears to be one of the most exhaustive available and is outlined in APPENDIX D.

2.1.3 A Typology of Envelopment: Focused vs. Dispersed

The introduced ICT and Software classifications are of further benefit when attempting to understand different types of envelopment as distinguished by Eisenmannn et al. (2010). He unveiled three types of envelopment each driven by different underlying primary motivations. (I) The envelopment of complement platforms or services aims to reduce the attractiveness of standalone providers. (II) The envelopment of weak substitutes intends to eliminate potential emerging threats. Lastly, (III) unrelated envelopment seeks to utilise economies of scope. This typology bears important implications suggesting different ways of envelopment in order to grow revenues.

The envelopment of complement providers and weak substitutes, type I and II, implies striving for the envelopment of functionally related platforms with shared affiliates i.e. user-bases with a likely need for both, the attackers as well as the incumbent's offerings. Contrary, type III envelopment attempts to envelop functionally unrelated platforms with or without shared affiliates i.e. user-bases that may or may not have a need for both, the attackers as well as the incumbent's products or services and is therefore more of an experimental nature (Eisenmann, Parker & Van Alstyne, 2011). Consequently, one may argue that type I and II - or related - envelopment constitutes a 'focused' strategy whereas type III – unrelated - envelopment can be described as 'dispersed' strategy.

Focused envelopment, due to its functional proximity, promises the strengthening of the market from which the attack origins as well as the enveloped market (which can be the same). Dispersed envelopment, however, may or may not yield such results depending on whether user-bases overlap and perceive a need for the extra functionality.

Thus, focused envelopment can lead to the build-up of 'core markets', markets with strong presence in terms of quantity and quality of value propositions offered that are initially adjacent to a firm's home market', its market of origin i.e. the market(s) served with its inception but can become less adjacent to home markets over time.

Examples for the envelopment of complement providers (type I) include Google's attack on Apple's IOS mobile operating system by launching Android to complement and secure access for its online search applications as well as Apple's recent launch of Apple Music integrated into its music player/ store competing with Spotify. Google Talk illustrates the envelopment of a weak substitute by attacking Skype (Eisenmann et al., 2010).

Dispersed envelopment, on the other hand, is likely to seldom lead to the establishment of core markets. It does, however, potentially lead to the quick penetration of a variety of markets. As an example for unrelated i.e. dispersed envelopment consider Google's Gmail enveloping web based e-mail platforms (Eisenmann et al., 2010).

In turn, a corporation may grow beyond its home market by focused envelopment, which arguably involves less risk, gradually building up an ICT ecosystem, dispersed envelopment, taking chances to quickly grow such ecosystem or both. Here, it is worthwhile to point out the distinction this yields between envelopment scope and envelopment strategy. An envelopment strategy may be described as focused or dispersed while both may result in a dispersed envelopment scope eventually.

Eisenmann et al. (2010) argued that unrelated envelopment seeks realisation of economies of scope. Economies of scope, however, is the underlying motivation for bundling in the first place applying to all three types of envelopment. Arguably, besides economies of scope, the intention behind unrelated envelopment may, as suggested, first and foremost be swift growth of the ICT ecosystem by means of diversification using envelopment to overcome barriers to entry.

Theorising thus far one needs to take into account that not only swift growth and associated financial gains may pose incentives for unrelated envelopment but also notions of 'winner-takes-it-all' dynamics pleading for 'get big fast' or cease existing characteristics of the two-sided ICT market (Eocman et al., 2006).

The typology by Eisenmann et al. (2010) satisfies the question of why envelopment is practiced and enables to theorise about the effects of the different envelopment types. It does, however, not address under which circumstances or contingencies which type of envelopment shall be utilised. When and how are these types of envelopment to be conducted. If winner-takes-it-all dynamics hold true in reality how does growth need to be structured? Is the penetration of many new markets more important than the expansion of existing ones or vice versa? How can risks of unrelated envelopment be mitigated?

Envelopment activities constitute changes in a corporation's business model; its underlying logic for value creation leading interested scholars with hints where to look at when attempting to understand more about the envelopment of platform companies and its blueprints for growth, a subject that yet lacks academic attention. The seemingly ad hoc development of companies such as Google and Yahoo, especially by the eye of outsiders, favours such ignorance. Neither the existence or nature of long-term development schemes nor the degrees of effectiveness of such have yet been addressed by the scientific community.

2.2 Business Model & Innovation

Despite a scholarly lack of consensus on the boundaries of business models, three identified, consecutive pillars at its heart are value creation, value delivery and value capturing. Innovation in these respective areas is considered inevitable for competitiveness.

2.2.1 The Lack of Consensus on the Business Model

Reckoning the prevailing literature on business models it appears that both concepts, platform companies and

business models, share characteristics of a lack of scholarly attention. As with platform markets and their participants the business model gained increasing consideration being the subject of study only from the end of the 90s onwards, albeit ubiquitous use (Demil & Lecocq, 2010; Gambardella & McGahan, 2010; Casadesus-Masanell & Ricart, 2010; Teece, 2010). Reasons are rooted within the limited heterogeneity of business models before the advent of the Internet; enabling a new variety of diverging business models (McGrath, 2010; Timmers, 1998; Casadesus-Mansanell & Ricart, 2010; Teece, 2010).

Despite growing interest, at current state, it appears to be illusive to arrive at one conceptualisation of the term 'business model' that will universally be agreed upon in the near future as numerous papers fail in an attempt to do so (Zott, Amit & Massa, 2011; Al-Debei & Avison, 2010) leading to confusion regarding the use of the concept among practitioners (Shafer, Smith & Linder, 2005, p. 200). In the absence of a common understanding and consensus about such matter ambiguity may flourish, too among academics resulting in the published, interchangeable use of concepts such as business model, business strategy and tactics (Casadesus-Masanell & Joan Enric Ricart, 2010; Teece, 2010; Magretta, 2002). Therefore, the most prominent ideas regarding the concept of a business model shall be outlined in order to derive common ground and a clear distinction from other popular notions within the realm of strategic management.

2.2.2 The Business Model as Value Creator, Capturer & Deliverer

The rather loose utilisation of the business model concept is not exclusively due to misleading usage of the concept but also based on broad definitions that limit the potential for beneficial, practical use. Definitions such as the one provided by DaSilva and Trkman (2013) arguing that a business model captures a particular set of choices resulting in corresponding consequences which ultimately create value are too broad and thus offer little value for theorists as well as practitioners. We consider 'the content, structure, and governance of transactions designed so as to create value through the exploitation of business opportunities' (Amit &, Zott 2010) to be a more adequate definition.

With respect to the conceptualisation of the business model idea, it appears that studies disagree on the scope or emphasise of the concept. In order to outline an example one may review Amit & Zott (2010) who claim a business model focuses on 'how' rather than 'what', 'when' or 'where' whereas others (see for instance Markides, 2000) explain that a sound business model should equally address the 'who', 'what' and 'why' in terms of value creation. However, the majority of studies agree that a business model is holistic in nature i.e. it is a multi-level design construct not involving specific functional roles e.g. marketing or sales (Al-Debei & Avison, 2010; Zott et al., 2011) and, more importantly, concerned with the creation of value (Casadesus-Masanell & Ricart, 2010; Zott et al., 2011; Demil & Lecocq, 2010; Tongur & Engwall, 2014; Johnson, Christensen & Kagermann, 2008; Zott & Amit, 2008; Arend, 2013; Sosna, Trevinyo-Rodríguez & Velamuri, 2010; Chesbrough & Rosenbloom, 2002).

Here one must notice that, in accordance with Freeman's Stakeholder Theory, value needs to be created for all stakeholders of a company to be successful (Freeman, Harrison, Wicks, Parmar & De Colle, 2010). Thinking practical this means that not only value for customers need to be created but also captured for the benefit of shareholders, employees and other business affiliates as suggested by a number of scholars (Zott & Amit, 2013; Sosna et al., 2010: Demil & Lecocq, 2010).

Demil and Lecocq (2010) elaborate on another dimension crucial for the holistic understanding of business models by making a plea for value delivery. The underlying logic is appealing and it follows that the central element of a business model is value creation which then needs to be delivered in order to capture value for all stakeholders e.g. in the form of profits.

Thus, a business model entails a consecutive triple focus on value creation, value delivery and value capturing.

2.2.3 Business Model, Strategy & Tactics

After elucidating the main idea of a business model, this section shall be devoted to briefly segregate the business model from related concepts such as business strategy and tactics in order to complete this paper. In the face of the ill explored business model literature such distinction is not an easy one. For the sake of simplicity, the framework of Casadesus-Masanell & Ricart (2010) who reckon that a business model is derived from an organisation's business strategy which in turn sets the scope for tactics to employ within the chosen business model will be adopted. Consequently, they generate a 'generic two-stage competitive process framework'. The Strategy Stage (stage 1) is concerned with the choosing of a business model through which to compete in the market place. The Tactics Stage (stage 2) refers to tactical choices available based on the elected business model. Tactics help in the realisation of business models for instance by means of partnering. In another paper, the authors introduced a fitting and succinct analogy to epitomise their supposition: 'The design and building of [a] car is strategy; the car itself is the business model; and driving the car is tactics' (Casadesus-Masanell & Ricart, 2007). This paper is concerned with the business model, the car itself. More precisely, with the innovation of business models over time.

2.2.4 Business Model Innovation

Having covered the fundamentals of business models as well as sketched its position among familiar management terms we now turn towards business model innovation to point out that business models are best used in a dynamic rather than a static fashion.

Business model innovation is becoming one of the strongest impetus for strategic development (Casadesus-Masanell & Ricart, 2007). The most convincing and utilitarian definition of business model innovation stems from Amit & Zott (2010) as they describe the phenomenon as 'recombining existing resources from firm or partners to design new activity systems without heavy investment in R&D'. At this point the careful reader will have realised that this definition comes close to the one provided for platform envelopment with respect to its core features; the

recombination of valuable resources. In consequence, one may conclude that envelopment is a form of business model innovation strengthening our case for the analysis of envelopment patterns among platform companies in order to shed light on the functioning of business model innovation in such markets.

Referring to the previously outlined definition of business models one may put its innovation succinctly in other terms such as the innovation or rearrangement of one or multiple of its elements content, structure and governance (Amit & Zott, 2010).

Other studies regard business model 'evolution' as a process of planned and emerging alterations within as well as between the linked building blocks of an existing business model. Such evolution may be driven by environmental changes, unintended consequences of planned decisions or the effects of the business model itself (Demil & Lecocq, 2010). This explanation implies, for the most part, a passive role of management in business model development resulting in ad hoc innovation by chance or accident; a notion that this study attempts to very- or falsify by analysing innovation patterns i.e. value proposition changes over time.

Auxiliary studies yield that business model innovation is inevitable not only due to environmental changes but also because of a 'permanent disequilibrium' referring to a state in which available resources are never utilised in an optimum manner and efficiency is never fully maximised among market participants resulting in perpetual opportunities for innovation i.e. value creation (Demil & Lecocq, 2010). Innovation, in turn enhances the disequilibrium thus paving the way for further innovation (Mahadevan, 2004). Hence, reading across various studies leads one to conclude that business model innovation needs to be companion of the successful firm.

Innovation that is not escorted by a well-developed business model runs risk of failure to deliver or capture value from such innovation. This particularly affects Internet companies who operate in a market in which many services are expected to be delivered free of charge (Teece, 2010). Such outlined conditions demand organisations to reassess and continuously update the value proposition they have in place (Teece, 2010) in order to fulfil the focal firm's primary objective – to create value for the organisation and its stakeholders; reflected in its value proposition (Amit & Zott, 2010).

In consequence, changes in Google's and Yahoo's value proposition will be analysed in order to explore their business model innovation approach. In the following the research design of this paper is outlined.

3. Methodology

In an attempt to paint a real world picture of how ICT platform players innovate their business model in a highly dynamic market two inductive case studies and structured content analysis were conducted. The exemplary showcases chosen are Google Inc. and Yahoo Inc.

Subsequently, reasons for the sampling of the case companies are explained.

3.1 Case Companies: Google vs. Yahoo

Both corporations came to rise operating digital platforms exhibiting rapid growth rates shortly after their inception. Coming to existents in order to revolutionise the Internet search market both players dominated their market sphere at different times. Now, more than a decade has passed since Google emerged as the dominant search engine supplier (Rindova, Yeow, Martins & Faraj, 2012). Examining financial data for both case companies their subsequent development is antithetic with Yahoo displaying a revenue growth of – 22,44% while Google has a revenue growth of 257,43% to show for in the period from 2006 to 2011; the span of study. For the same period, accounting for financial success rather than growth, Google's return on capital ranged from a minimum of 15,49% in 2008 to a maximum of 20,87% in 2006. Yahoo's return on capital, indicating weak performance, ranged from 3,40% in 2008 to 9,60% in 2010.

Consequently, it is captivating what developments have constituted the decline of one and contrary the prosperity of the other firm in terms of business model innovation and value creation. Thus, it was studied how value propositions were introduced by Google and Yahoo in the period from 2006 to 2011.

Doing so is assumed to have high internal validity as for one Google and Yahoo both benefitted quite similar founding conditions manifested in the same market for entry, founder's human capital, geographical location and access to funding each affecting access to resources and opportunities for partnering and growth (Rindova et al., 2012; Delmar, Davidsson, and Gartner, 2003; Helfat and Lieberman, 2002; Helfat and Peteraf, 2003) making their different developments likely to be accounted for by internal determinants rather than environmental factors. Furthermore, altering developments cannot be explained by path dependency or radically divergent strategies as both organisations started in the Internet search market and nowadays generate about 96% (Google) and 80% (Yahoo) of their revenues through advertising. It follows that the companies' approach towards business model innovation has likely shaped their oppositional development.

Turning towards external validity Google as well as Yahoo represent significant industry participants whose actions may be considered exemplary and representative for digital platform corporations. On the other hand, originating from the very same market domain – in the light of path dependency - may slightly reduce generalizability. Key figures for both companies are summaries in APPENDIX B.

3.2 Data Collection

To capture value creation by Google and Yahoo a total of 138 and 90 new product introductions as well as new versions of existing products brought to market in the period from 2006 to 2011 were analysed respectively. Necessary information was extracted from 1791 blog posts and 96 press releases regarding Google and 685 blog posts as well as 920 press releases from Yahoo. The sourcing of new value propositions was conducted as follows:

Three sources of information have been used for this study namely official company website articles (containing press releases shared with news wires as well as company website-only news articles) as they reveal all the launch dates in the most efficient way and - in case official website articles were not available for all the years of our study period - Factiva as a second source of information was used. Factiva is an appropriate source providing all the press releases sent to wires (though not all the website-only news articles).

Furthermore, drawing on research from fellow scholars Rindova, Yeow, Martins & Faraj (2012) who studied the value creation logic of Google and Yahoo from a different angle enabled us to understand the gross, previous development paths of both firms before this paper's study period from 2006 to 2011 and thus allowed to see the bigger picture where necessary.

3.3 Data Analysis

The analysing scheme for the press releases and blog posts from Google and Yahoo is composed of four parts (see Table 1 and APPENDIX A, C & D).

Basic information with no need for further analysis was directly extracted from the press releases and blog posts such as Launch Date, Company name, Product Name, Product Version, Product Type and Customer Classification.

Additionally, it was chosen to distinguish between new products and new versions as well as to filter such new value propositions developed in partnerships. Naturally, it had to be investigated to what extent bundling and platforms have been utilised and launched to verify that in fact envelopment is the main means by which Google and Yahoo attempt to pursue revenue growth. Moreover, extracted value propositions were analysed according to the adapted ICT-Layer model from Fransman (2010) (see table 1) to examine the extent to which Google and Yahoo form ICT ecosystems beyond their layers of origin, layer four. Besides, Zahavie & Lavie's (2009) software product classification enabled to identify and retrace the corporations' envelopment into different markets (Appendix A).

Lastly, it is noteworthy that two coders tested the reliability of the analysing scheme and agreed upon the ex- as well as inclusion of various types of new value propositions. In general, all offerings such as messengers, e-mail services, search services, most websites, sharing-, collaborative- and productivity or organising tools etc. have been classified as eligible. However, websites, services or polls regarding special events and occurrences such as the Olympic Games, political elections and others that were introduced for a planned, rather limited timeframe were not included in this study. Moreover, there has been a clear-cut distinction between new versions and product enhancements, the latter not being considered as relevant information for this study.

3.4 Testing for Reliability

Identifying new value propositions and their analysis according to the presented scheme has been tested for reliability using two coders and the calculation of Cohen's Kappa as opposed to simple percentage agreement in order to account for inter-rater agreement by chance (Cohen, 1968; Weber, 1990). A sample size of 300 Google articles (15,9% of a total of 1887) were used to first determine Cohen's Kappa for the amount of articles identified as relevant for the purpose of this study i.e. as containing new product or new version releases as defined in the period from 2006 to 2011. After an initial round of coding followed by a refinement of the definitions for new products both coders detected 42 relevant articles. In the following Cohen's Kappa for all coding categories were calculated. The sample size for the coding categories is thus 42 and represents 30,43% of the 138 in total detected, relevant articles. Due to minor disagreements in some categories another refinement of the coders' understanding of the respective categories has been conducted.

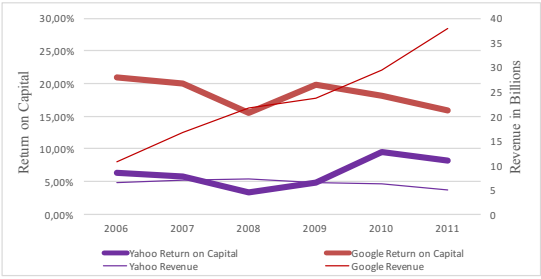
	Round 1	**Round 2**	**Round 2**	**Round 2**
Round 1	Kappa	Kappa	95% CI	N
Article Selection	0,95	1,00	[1.0, 1.0]	300
New Product vs. New Version	0,85	0,85	[0.64, 1.05]	42
Bundling / No Bundling	0,64	0,66	[-0.01, 1.32]	42
Platform / No Platform	0,63	0,90	[0.77, 1.03]	42
ICT Layer	0,72	0,87	[0.73, 1.01]	42
Software classification	0,79	0,84	[0.72, 0.96]	42

Table 3: Inter-rater Reliability; Cohen's Kappa

We define a Kappa score of 0.67 – 0.8 as sufficient and >0.8 as good inter-rater agreement (Carletta, 1996). Therefore, as evident from Table 2, the coding scheme proves to be reliable. The categorisation with respect to bundling depicts a minor exception. Here, the high Po value (0.98 = very high agreement rate) which is set off by an almost equally high Pe score (0.93), indicating high inter-rater agreement by chance due to a rather unequal marginal distribution in the contingency table, leads to a relatively low Kappa score. Given this prevalence, here too reliability is assumed.

3.5 Testing for Growth and Success

As indicated briefly, to examine the extent to which certain envelopment i.e. value proposition innovation patterns may be labelled successful, revenues serve as a measure for growth while return on capital poses the measure for financial success. Looking at return on invested capital appears appropriate as it gives an accurate view on the performance and competitiveness of a corporation providing a before tax profitability figure. Graph X displays the development of Google and Yahoo's revenue and return on capital over the span of study (2006-2011).



Graphic 1: Return on Capital and Revenue Collection for Google and Yahoo from 2006 to 2011

As evident and mentioned in 3.1, with respect to both measures, the development of Google and Yahoo is oppositional making for an interesting case study. It strikes that while constantly growing revenues Google manages to be very profitable with return on capital rates between 15 and 20%. Yahoo, on the other hand, cannot show significant revenue growth over time and exhibits inferior performance reflected in low profitability with return on capital rates between 3 and 9%.

With Google being profitable and Yahoo being unprofitable throughout the main period of this study, for the sake of simplicity and conciseness, the following analysis will exclusively compare envelopment in terms of business model innovation with revenue as financial figure; hereafter accounting for both, firm growth and performance.

4. From Focused to Dispersed Envelopment - Leveraging Market Presence

This paper set out to address the question of how business model innovation takes place for actors in the ICT platform market. More precisely, the underlying logic of value creation i.e. how platform envelopment occurs ought to be explored.

Google and Yahoo satisfied the assumptions with respect to suitability for this case study as they relied on platform introductions (69% and 61% of total NVP respectively) and the utilisation of bundling (84% and 91% of total NVP) to a great extent; indicating envelopment to be a central element of their business model innovation approach for the period of study, 2006 to 2011.

The analysis of 1887 and 1605 new value propositions introduced over the course from 2006 to 2011 by Google and Yahoo respectively, uncovered two virtually opposing envelopment strategies. Putting the players' envelopment in relation to their individual financial development led to insights as to which envelopment logic may yield long-term success.

The presentation of findings is divided into two analytical time frames as data from the main period of study (2006 – 2011) is set in context with information from the corporations' previous growth trajectories.

Phase one (hereafter p1 or adolescent phase) ranges from the firms' inception to 2004/2005 whereas phase two (hereafter p2 or mature phase) covers the time from end of p1 to 2011. The cut-off point has been selected as it depicts a major turnaround in the organisations' respective evolution with Google taking the lead in revenue collection reflecting the results of different envelopment strategies that become explicit to their full scale as time proceeds. P1 and P2, in turn, are subdivided into sections dealing with the scope of envelopment and market presence.

4.1 Adolescent Phase

Yahoo, in its adolescent phase, pursued dispersed and swift envelopment (type III) employing a licensing and 'one product per market' tactic. This lead to an overemphasise of unrelated envelopment in the absence of strong market presence and attractive functionality for leverage yielding only short-term growth.

Google, on the other hand, concentrated on its home market before focusing envelopment efforts on adjacent markets (type I and II) with multiple products per market sphere.

4.1 Focused Envelopment in the Medium-Term Yields Sustainable Medium-Term Growth

Yahoo and Google originated under similar circumstances in the Internet search market. Within their first decade of existence they also released a similar amount of new value propositions with 93 and 88 respectively. Yet, it is the velocity and scope of envelopment that sets their growth trajectories apart.

After entering the online search market, Yahoo, supported by an extensive set of 70 partnerships, quickly moved into six other markets during its first three years of existence. Two years later, in 2000, Yahoo maintained a partnering portfolio of 172. The company embarked on swift and large scale growth ejecting revenues of $3.6 billion owed to its fast envelopment and operating of 29 diverse markets including games, job listings, Internet storage, video streaming, e-commerce, personal productivity tools and travel in 2004 (Rindova et al. 2012).

In contrast, antagonist Google solely operated the Internet search market building up its home market and developing its innovative search algorithm. No envelopment took place on the part of Google for the first two years after the foundation of Google. After four years, the firm conducted business in only four markets. After ten years, the company had entered 14 different market domains (Rindova et al. 2012). Thus, Google moved from no to a focused envelopment strategy. Google formed partnering ties with 47 organisations after three years. In line with its focused envelopment partner firms represented a narrower range of industries as opposed to Yahoo's partnering portfolio.

Comparing financial data of Google and Yahoo for it appears accordingly that Yahoo's revenues grew faster initially. Yet, Google overtook its competitor in revenue collection in 2005. Previewing future developments, Google accumulated twice as much revenue as Yahoo in 2007 (Rindova et al. 2012). Yahoo were not able to sustain its quick and broad envelopment strategy not being able to benefit from it financially whereas Google's slow movement from no towards moderately paced, focused envelopment yielded favourable results in the medium-term.

Hypothesis I: *Focused envelopment i.e. the envelopment of complements and weak substitutes initiates sustainable growth and medium-term success.*

Both corporation's opposing departure regarding envelopment attended unlike market presences.

4.1.2 Leveraging Market Presence

Yahoo, in order to sustain its dispersed envelopment strategy, frequently launched a single, standalone product in its markets by licensing core technology from partners to bundle with its own services aiming for the utilisation of leveraged user-bases and data-traffic. This allowed for resource efficient market penetration yet prevented Yahoo to establish a strong presence in any of its markets as well as the capacity to learn and develop competitive technology themselves. Exemplary for this is the licensing of Google's search-keyword technology by Yahoo until 2004 in which the latter organisation brought its own service to market – the same year in which Google overtook Yahoo in search market share (Rindova et al. 2012). Seeking access to leading technology by means of partnering ties on the part of Yahoo implies a lack of self-determination with respect to envelopment i.e. which markets to envelop hinting at the absence of blueprints for business model innovation, opportunism and a rather ad hoc envelopment approach. In turn, the medley of standalone market entries, lack of self-determination regarding which market to envelop and will to grow rapidly drove Yahoo to engage in too much unrelated (type III) envelopment without any strong market from which to leverage user-bases and product benefits to overcome market barriers.

Google, on the other hand, initially did not envelop channelling resources towards its home market Internet search to strengthen its capabilities and presence. When Google started focused envelopment into adjacent markets, after circa two years of improving its search market, the company was able to leverage strong functionality and quickly launched multiple products per market, again emphasising market presence. With assistance of partners and joint development or product adaptation facilitating learning capabilities Google managed to grow not only in quantity but quality as well. Consistent with Google's focused envelopment strategy the company engaged in fewer partnerships than its rival Yahoo and entered mainly related industries utilising type I and II envelopment; complementary platforms and weak substitutes. Google exercised more control over products created in partnerships enabling learning opportunities to grow in quantity and quality in its market domains creating strong market presence in its home market and in a set of adjacent markets. Exemplary, one may consider Yahoo's weak presence in 29 highly diverse markets contrary to 14 market domains operated by Google of which most were related to its core competence in search frequently penetrated with multiple value propositions in each segment (Rindova et al. 2012). Google's envelopment approach, shaped by control over value proposition innovation i.e. which markets to attack by envelopment indicates the existence of a clear envelopment strategy. They successfully engaged in focused envelopment.

Therefore, this further supports H1 as strong market presences result from focused i.e. type I and II envelopment.

In the following it is outlined how Yahoo and Google's envelopment and market presence is affected by increasing mutual competition and the latter firm's growing success.

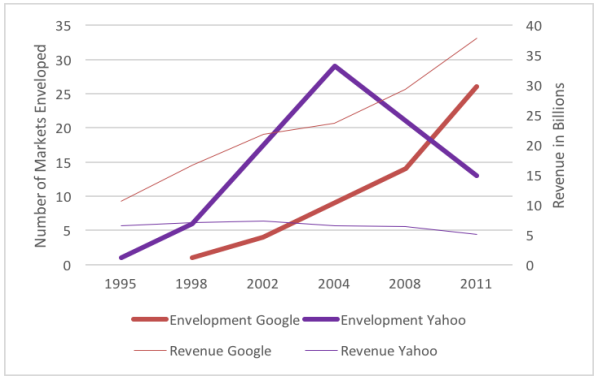
4.2 Mature Phase

Yahoo, in its mature phase, cut back its number of markets served by about 50% rapidly aiming for a more focused value portfolio and stronger market presence now employing a focused envelopment strategy characterised by type I&II envelopment. This was attended by initial success in revenue collection. However, with the stagnation of market presence, particularly in core markets one can observe revenue decline.

In p2, Google's revenue growth accelerated creating a growing number of core markets from which to leverage functionality and users to envelop in neighbouring markets, ultimately entering new ICT layers via type I, the envelopment of complements. Google's envelopment scope became increasingly dispersed. It appears Google is avoiding unrelated envelopment (type III) for strategic important markets or layers; those who can constitute a supra-platform. In other respects, Google employs unrelated envelopment in an experimental fashion not necessarily relying on profits from these markets.

4.2.1 Dispersed Envelopment in the Long-Term Yields Long-Term Success

In the mature phase (p2), 2006 to 2011, Yahoo introduced a total of 68 new products (22 new versions) with no peculiar trend towards in- or decrease whereas Google launched 101 products (37 new versions) with a slight tendency towards an increase in overall value propositions. Conducting a software product classification analysis this information becomes significant as Google not only released more value propositions in p2 but also served a greater variety of markets than rival Yahoo with 26 and 13 respectively. Graphic 2 illustrates envelopment dynamics plotted against revenue collection of Google and Yahoo over time.



Graphic 2: Number of Markets Enveloped and Revenue Collection for Google and Yahoo from 1995 to 2011

One year into p2, in 2007, Google managed to gain twice as much revenue as Yahoo while operating less market domains. By 2011, Google had entered twice as many

markets than its competitor while earning nearly six times the amount of Yahoo's revenues once again indicating that the amount of markets served does not by itself result in financial success. As suggested in the previous section one may find a strong market presence in terms of quantity and quality to be a threshold for dispersed envelopment to be successful since unrelated envelopment without a potent fundament may not be sustainable.

Looking at graph 2 one can observe that the year 2004 depicts a turning point for Yahoo rapidly cutting back the variety of markets served that followed its broad envelopment in the face of growing competition by Google. In 2004, Yahoo was active in 29 markets. Yet, from 2006 to 2011 steadily introduced products in only 13 diverse market domains whilst revenues were increasing from $5.3 billion in 2005 to $7.2 billion in 2008 before declining to $5.0 billion in 2011. Yahoo changed its envelopment strategy between 2004 and 2006 aiming for a more focused value portfolio reducing its envelopment scope. In consequence one can observe unstable financial results with an initial rise but later drop in revenues even below levels of 2005. Ergo, not only the reduction of envelopment activities but also strengthening presence in markets already entered led to temporary financial success but did not benefit Yahoo eventually. Yahoo's development in p2, as a response to unsustainable growth, supports HI.

The company attempted to return to ascending growth slopes of its early days. However, failure to achieve prosperity again might be explained by borrowing from 'winner takes it all' dynamics as this theory comprises a time component when suggesting to 'get big fast' (Eocman, Jeho, and Jongseok, 2006). Yet, Yahoo desired to get big too fast focusing on dispersed (type III) envelopment which appears to have caused the loss of core competences preventing the successful imitation of rival Google's growth paths despite efforts to create greater quantitative market presence. Furthermore, competition might have become too dominant at this point further increasing the leverage-threshold needed to successfully grow Yahoo's ecosystem and to to gain foothold in profitable markets.

For Google, graph 2 shows accelerated envelopment becoming increasingly dispersed. In 2005 Google was active in 14 markets, in p2, Google operated 26. Accordingly, the amount as well as range of industries of business partners increased (Rindova et al. 2012). The corporation's acceleration from focused to dispersed envelopment induced Google to thrive and report revenues of $37,9 billion compared to Yahoo's $5.0 billion in 2011.

When attempting to understand such large differences in financial attainments ultimately stemming from envelopment success yet another lens has to be applied in order to fully grasp the companies' antithetic development analysing the respective players' envelopment from an ICT-Layer point of view.

Starting with a snapshot in 2006, one can observe that Yahoo is exclusively focusing on layer four offering value propositions in form of platforms (8 x 4A), Content (4 x 4B) and Applications (5 x 4C). The data for Google forms a similar picture with operations only in layer four (8 x 4A, 2 x 4B, 7 x 4C). Over the course of p2, however, Google's ICT ecosystem evolved further by enveloping not only markets within layer four but different layers according to the adapted ICT-Layer model by Fransman (2010). Google began expanding its activities towards layer two, Operating Systems, in 2008 by launching Android for mobile devices which the company acquired in 2005 fearing exclusion from a growing business in mobile search (Technology giants at war, 2012). Later, a commercial version of Chrome OS was developed to support the company's movement into layer one in 2010, Devices (Access Points), entered via the offering of its Chromebooks and co-branded mobile phones (Nexus series). Leveraging layer two, operating systems, to envelop layer one (devices) depicts the envelopment of a complementary platform (type I) and illustrates how Google uses one layer to envelop into another, deeper layer avoiding unrelated (type III) envelopment and associated risks of finding shared affiliates. Moving from a software layer (OS) towards a hardware layer Google further mitigates risk by forming partnering ties. In the case of Android, Google mitigated risks by buying in technology from a third party thereby enveloping the platform necessary for its online search applications in layer four.

Moving into deeper ICT layers is associated with lower levels of competition and by providing the infrastructure for its own as well as competitors' value propositions, related to layer four or five, reduces third party dependency. Moreover, it allows controlling for the openness and accessibility of infrastructure for competitors. This partially reflects Google's underlying business model logic identified earlier; developing internal capabilities in order to control envelopment and proactively shape the markets it enters as opposed to the quick way to envelopment led by opportunism. Entering deeper ICT layer enables Google to create supra-platforms that offer superior functionality and tap profit pools across markets and layers.

Opponent Yahoo appears to be 'stuck' in layer four lacking resources, primarily core competences to leverage functionality to envelop into deeper, potentially more profitable ICT layers. Yahoo, whose main niche is Entertainment (1.4 Software Classification) - Content (4B) is threatened by winner takes it all dynamics as competitors i.e. Google build-up supra-platforms strengthening its competitive position in the face of rivals offering value propositions associated only in fewer, higher layers.

In summary, investigating envelopment patterns for Google and Yahoo from 2006 to 2011 shows support for hypothesis one as Yahoo is shifting back its diverse market presences in response to failure. Furthermore, Google illustrates that increasing the envelopment scope over time entering new markets and ICT layers to form supra-platforms successive a focused strategy may lead to significant long-term success.

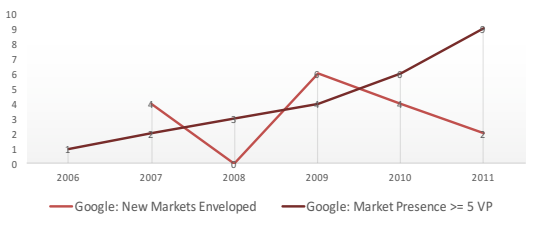
Hypothesis II: *Dispersed envelopment, emphasising the envelopment of weak substitutes and –particularly- complement providers over time, yields sustainable growth and long-term success.*

The next paragraph contains an outline of Google and Yahoo's market presence in p2 two.

4.2.2 Market Presence as Threshold for Envelopment Success

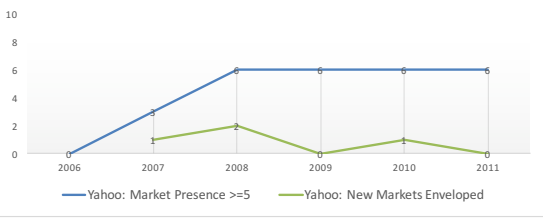
Yahoo sacrificed the variety of its value proposition reducing its number of markets served in order to strengthen its quantitative presence in its remaining ones building up core markets and attempting to follow successful rival Google's envelopment path. This may be interpreted as support for H1&2. In P2 one can observe core markets for both platform players. Yet, while Google gradually developed its core markets through a focused envelopment strategy beginning in p1, Yahoo did so since the outset of P2 reacting to barriers to growth. In the face of strong competition and a lack of core competences Yahoo grew few core markets, enveloped few new markets and no other ICT layer, accordingly.

Moreover, looking at graph 3, shows that Google gradually expanded its core market base (five or more NVP in one market according to Zahvi & Lavie (2009) determine a core market here) while increasingly broadening its envelopment scope. At the same time, the line representing new market i.e. unrelated market envelopment goes up and down reflecting an envelopment approach that one may call 'experimental'. Backed by its core markets Google is able to engage in unrelated envelopment successfully as it can leverage its large user-base and sufficient value for bundling when enveloping in such unrelated terrain.



Graph 3: Core Markets & Unrelated Envelopment by Google (2006-2011)

Contrary, reckoning the same analysis for Yahoo it strikes that in line with its reduction in value variety the firm swiftly aimed for the establishment of a core market. Yet, from 2008 onwards the core market base for Yahoo stagnates, the very same year in which Yahoo's revenue peaked before declining from $7.2 Billion to $5.0 Billion in 2011. This further upholds H1&2. Consequently, in p2, Yahoo's approach towards unrelated envelopment may at best be described as 'hoping for the lucky punch' reflected by few, scattered attempts to do so.



Graph 4: Market Presence & Unrelated Envelopment by Yahoo (2006-2011)

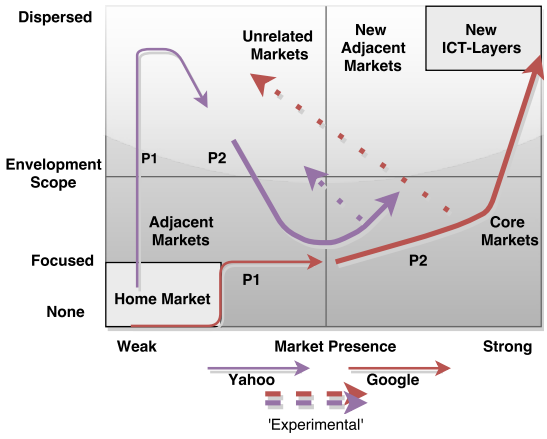
Thus, Google and Yahoo's market presence in p2 fit into the overall picture that has evolved from the previous sections by upholding the idea of market presence i.e. core markets being a threshold for envelopment, particularly dispersed envelopment.

The findings from this part are summarized and discussed in the subsequent section.

5. The Envelopment Matrix

Attempting to explore envelopment patterns and strategies in the two-sided ICT market two players who each have shaped the Internet search industry have been compared.

The observations made inspired two main hypotheses whose applicability held true over the entire course of the investigation. Harnessing these hypotheses into variables enables the creation of an envelopment matrix that can be utilised to retrace the development of Google and Yahoo as well as to extract generalizable instructions for industry participants.



Graph 5: Envelopment Matrix – Illustrating Growth Trajectories of Google and Yahoo from Their Foundation to 2011

In the following the journeys of Google and Yahoo are reflected before turning towards the discussion of a generic envelopment matrix.

Analysing Yahoo's growth trajectories a flamboyant approach towards swift and diversified envelopment has been identified. Partnering by means of licensing core technology facilitated the rapid penetration of multiple, unrelated markets. Intending to 'get big fast' the search company entered numerous markets with single products. Its licensing tactic supported its diverse envelopment strategy yet prevented learning capabilities. Releasing standalone products in its markets further constituted weak market presences.

Thus, in p1 Yahoo's value portfolio is dispersed and characterised by weak market presence.

Seeking access to core technology to envelop respective markets enforced a lack of self-determination upon Yahoo, opportunism and ad hoc envelopment. This, in turn, implies absence of strategically planned envelopment. The medley of weak market presence i.e. neither strong home market nor core market and rapid diversification through envelopment lead to organisational failure in the medium and long-term. Presumably, due to weak market presences, user-bases and benefits of existing services did not suffice to envelop unrelated platforms and realise economies of scope on a grand scale. Too much unrelated envelopment without a strong fundament yielded only short-term growth.

Contrary, no envelopment for the first two company years on the part of Google were observed. They emphasised their home market online search and developed internal capabilities to improve product quality. When starting envelopment activities Google initially entered related markets gradually building up a strong home and adjacent markets utilising type I and II envelopment according to Eisenmann et al. (2010) – envelopment of complements and weak substitutes.

In p1, Google's value portfolio is focused and characterised by increasing market presence.

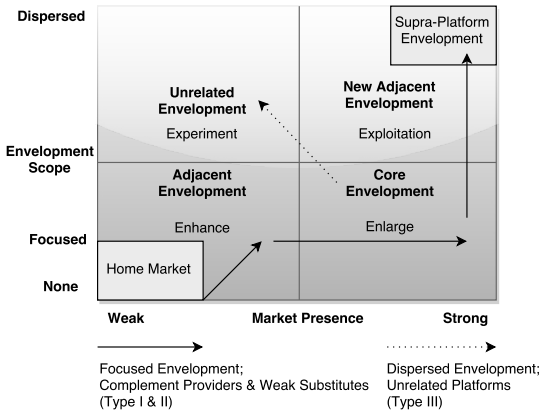
Yahoo, overtaken in revenue collection by rival Google in the beginning of p2, responded by reducing envelopment activities and cutting back on its product-market portfolio moving from a dispersed towards a focused envelopment scope swiftly creating core markets and employing envelopment of complements and weak substitutes (type I&II). Core markets for Yahoo stagnated with six from 2008 onwards, though, the same year in which revenues began declining. Yahoo did not expand its core market base enveloping into 'New Adjacent Markets'. Moreover, with sporadic exceptions, did not envelop into unrelated markets. In consequence, revenue growth ceased supporting the assumed threshold role of core markets for the successful envelopment of unrelated platforms.

In p2, Yahoo's value portfolio is focused and for the most part characterised by relatively strong market presence.

According to this logic something must have prevented Yahoo from enlarging its core markets by entering new adjacent markets further following its successful competitor Google. Here the dimension of time i.e. significance of 'get big fast' or as observed 'get big right AND faster than competition' might play a meaningful role thereby extending 'winner-takes-it-all' dynamics by pleading for what makes a winner – too fast envelopment may yield the opposite result. As seen with Google, no, focused and eventually dispersed envelopment while creating strong core markets appears to be sustainable. In p2, Google adopts a dispersed envelopment focus leveraging its strong market presence in core markets to experiment with unrelated markets and envelop new adjacent markets which then are exploited to enter (two) new ICT layers growing Google's ecosystem. Here it is observable that Google's envelopment strategy aims to create supra-platforms to harvest associated benefits of control and profitability strengthening the own position in the face of rivals. Google's envelopment strategy is accompanied with substantial revenue growth.

In p2, Google value portfolio is dispersed and characterised by strong market presence.

In fact, it is recognised that Google's envelopment strategy can be considered as role model in the ICT platform market ultimately trying to create supra-platforms. Therefore, studying Google and Yahoo's envelopment paths allows to derive a generic envelopment matrix.



Graph 6: Generic Envelopment Matrix – Guiding Towards Growth and Supra-Platforms in the ICT Market

The underlying logic is briefly explained in the final section of the discussion.

Home Market & Adjacent Envelopment: In the early life of a digital platform company the way to go seems to be concentration on the strengthening of core capabilities and overall market presence in the home market before engaging in envelopment.

Once market presence i.e. functionality and user-bases are strong and large enough to offer sufficient benefits for bundling a focused strategy into adjacent markets via the envelopment of complements and weak substitutes (type I&II) proved to yield sustainable growth. This envelopment approach enhances home and adjacent markets likewise thereby gradually building up core-markets. The rationale is enhancement.

Core Envelopment: The importance of strong market presence to leverage functionality and platform affiliates i.e. threshold role of market presence suggests to grow the core market base. The underlying rationale for this quadrant is therefore to enlarge by entering into markets that came into functional proximity through the gradual growth of the ICT ecosystem. The envelopment of complements and weak substitutes, ergo a focused envelopment strategy shall be employed.

New Adjacent & Supra-Platform Envelopment: Leveraging markets with strong presence to further expand the core market base through focused envelopment (type I&II) will lead to accelerated growth of the ecosystem and – based on the idea of shared affiliates of complementary platforms – even enable to enter deeper ICT layer allowing the creation of supra-platforms, as observed for Google. The rationale is to exploit markets that come into functional proximity due to previous envelopment efforts and eventually establish supra-platforms.

Unrelated Envelopment: While emphasising a focused envelopment strategy, the resulting market presence can be leveraged to 'experiment' with unrelated envelopment (type III) in order to explore new markets or potential future value for supra-platform creation as for instance Google's experiments with self-driving cars. Avoiding risks in the envelopment and growth of core markets i.e. the core business makes room for such explorations.

6. Conclusion

In theory, based on the envelopment typology of Eisenmann et al. (2010), three types of envelopment that can be compiled to realise opposing (focused – dispersed) or hybrid (both) strategies have been identified. Observing value propositions introduced by Google and Yahoo over the course from 2006 to 2011 and plotting their respective envelopment patterns against their previous growth trajectories uncovered precisely those strategies. Initially, Yahoo sought revenue growth via a dispersed strategy. Contrary, Google employed a focused approach later engaging in unrelated envelopment in an experimental (hybrid). Comparing firm performance by accounting for return on capital invested and revenue growth over time it becomes clear that Google had employed the 'winning' strategy that enabled the company to successfully create supra-platforms positively influencing its competitive position in the face of rivals with fewer ICT-layer presence.

Sustainable envelopment can be achieved leveraging market presence via related i.e. the envelopment of complements and weak substitutes to gradually move into adjacent markets. Strong enough, in terms of functionality and user-base, these markets may be labelled core markets and allow to envelop into new adjacent markets 'available' due to the growth of the ecosystem. Logically, when growing the core market base from which effective envelopment may take place growth of the ICT ecosystem accelerates and the envelopment focus becomes increasingly dispersed.

Furthermore, core market presence may mitigate the risks associated with unrelated envelopment by offering great functionality increasing the likeliness of creating mutual needs and affiliates with respect to the focal and the target platform. Thus, market presence takes on a threshold role for sustainable focused but particularly dispersed envelopment. It follows that effective growth trajectories are developed emphasising a focused strategy.

As learned from Yahoo's development, the absence of strong market presence, especially when seeking growth through dispersed envelopment yields only short-term prosperity and can lead to the loss of core competences which in turn can prevent the successful reorientation towards a focused strategy, particularly if competition became too strong while meandering in too many unrelated markets further raising the necessary attractiveness for the focal platform to envelop into a strong rival's market.

The lessons learned from Google and Yahoo led to the development of the Envelopment Matrix guiding ICT platform players towards growth and the creation of supra-platforms.

6.1 Contribution

The Envelopment matrix provides strategic advice and direction on how to pursue growth via envelopment balancing envelopment scope and market presence. The envelopment typology of Eisenmann et al. (2010) is instrumentalised as it is illustrated that a focused strategy (type I&II) leads to sustainable growth and supra-platform envelopment whereas a dispersed strategy (unrelated, type III envelopment) may be pursued additionally in an experimental fashion under circumstance of strong market presence to leverage associated benefits of functionality and user-bases. The 'winner-takes-it-all' rationale to 'get big fast' cannot be assumed blindly but how to get big (fast) is deemed to be of greater importance.

6.2 Practical Implications

Practitioners are well advised to emphasise focused envelopment in order to establish strong market presences and facilitate the creation of core capabilities in order to avoid 'getting stuck' like Yahoo in its mature phase. Core markets allow to 'try-out' new, unrelated markets and over time, focused envelopment accelerates and pays-off. The derived Envelopment Matrix provides a strategic map for envelopment containing instructions on how to copy the successful journey of Google towards the creation of supra-platforms. Moreover, making the mechanisms of sustainable envelopment explicit managers may be able to steer envelopment efforts more lineal towards supra-platforms.

7. Limitations

Choosing a comparative case study as a research design suits the explorative nature of the case at hand. Issue of reliability and internal validity have been dealt with extensively. Selecting two case companies with similar founding conditions, market of origin, revenue model (advertising based), access to partnering and capital make for great internal validity as contrasting developments are likely to be caused by differences in business model innovation. On the other hand, having many similarities may decrease external validity. As path-dependency suggests, historical and past contingencies shape future developments of companies. Thus, here one may encounter a trade-off between internal and external validity, which is, however, still assumed to be decent. Furthermore, for the exploratory manner of this paper it is argued that internal validity is more important in order to accurately extract the essence of the underlying phenomena of envelopment. Generalizability of the findings may then be tested in further studies.

8. Further Research

As described, to test generalizability of the results derived in this paper this study could well be conducted choosing case companies from different home or core markets such as Facebook, Amazon, Microsoft or Samsung and Apple, the latter being of particular interest being principally known for their devices, products in layer one according to the adapted ICT-Layer model, as opposed to software in layer two or four.

Moreover, it may be attempted to quantify the Envelopment Matrix, especially market presence as threshold for dispersed envelopment i.e. quantifying the balance between type I & II and type III envelopment that results in sustainable growth. If this, in turn, is dependent on certain market or layer contingencies as some might be harder to envelop, these may be explored as well.

Furthermore, if multiple parties envelop into each others' markets creating supra-platforms, market boundaries will cease to exist. How will competition and business model

innovation look like in the future i.e. how can growth be perpetuated in such case?

Lastly, it may be worthwhile to explore how identified envelopment patterns and strategies ingest coopetition.

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APPENDIX

Appendix A:

Software Product Classification by Zahvie & Lavie (2009)
*Level of Detail used in Paper: x.x (Original x.x.x)

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 productivity170
1.8 Personal productivity utilities 180
1.7 Personal multimedia productivity170
1.8 Personal productivity utilities 180
1.9 Business productivity 190
1.10 Utilitysystems 200
1.11 Operating systemen hancements 210
1.12 Internet communications 220

2 System infrastructure
2.1 Network management (logical) 230
2.2 Network management 240
2.3 Data structuring, acc. & manipulation
2.4 Integrated development environment
2.5 Software application design270
2.6 Software application development 280
2.7 System-levelapplication 290
2.8 Storage 300
2.9 Security 310
2.10 Distributed computing 320
2.11 Middleware 340
2.12 IT systemmanagementsoftware 350

3 Vertical applications
3.1 Banking 360
3.2 Government 370
3.3 Healthcareservicesandmedicine 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 Agricultureandfarming 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 Telecommunications520
3.18 Energy/utilities 530
3.19 Retail & wholesale 540
3.20 Science&engineering 550

4 Business applications
4.1 Enterprise resource planning
4.2 Accounting560
4.3 Factory/facilitymanagement 580
4.4 Financialanalysis&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
4.11 Data analysis 660
4.12 Decision support systems(DSS)

5 Packages
5.1 Integrated development environment
5.2 Enterprise resource planning
5.3 OfficeSuite1700
5.4 Integratedaccounting7900
5.5 Manufacturingresourceplanning
5.6 Customerrelationshipmanagement
5.7 Supplychainmanagement
5.8 Humanresourcemanagement

Appendix A: Element of the Analysing Scheme for Press Releases and Blog Posts for Google and Yahoo.

Appendix B:

	Google	Yahoo!
Founders	Larry Page & Sergey Brin, Stanford University, PhD candidates in computer science	David Filo & Jerry Yang, Stanford University, PhD candidates in electrical engineering
Year of Foundation	1998	1995
Company HQ	Mountain View, CA	Sunnyvale, CA
Employees 2014	53.600	12.500
Revenue (2006 in millions)	10.605	6.426
Revenue (2011 in millions)	37.905	4.984
Return on Capital Invested in % (Min. - Max., 2006 - 2011)	15.49 - 20.87	3.40 - 9.60
Key competitors	Yahoo, AOL, Monster, Facebook, Ebay, Microsoft, LinkedIn, Oracle	AOL, Google, Microsoft, MSN, Ebay, LinkedIn, Twitter

Appendix B: Comparison of Key Figures for Different Years, Google & Yahoo.

Appendix C:

Direct Extraction					
Launch Date	Company	Product Name	Product Version	Product Type	Customer Classification

Appendix C: Elements of the Analysing Scheme for Press Releases and Blog Posts for Google and Yahoo.

Appendix D:

Category Choice				
Product Launch	New Version	Launch w Partners	Bundling	Platform

Appendix D: Elements of the Analysing Scheme for Press Releases and Blog Posts for Google and Yahoo.