Unveiling the Like Button Multiple
Tracing a Black Boxed Technology 'In the Making'

"Mes chers frères, n'oubliez jamais, quand vous entendrez vanter le progrès des lumières, que la plus belle des ruses du diable est de vous persuader qu'il n'existe pas!"
– Charles Baudelaire

I. Introduction

When Time Magazine recently named Facebook founder and CEO Mark Zuckerberg person of the year 2010, stating that his social network would already account for one out of four page views in the United States, growing at a rate of 700,000 people per day, it became quite obvious that there is a new prince in Internet town.[1] But what is it that distinguishes Facebook from other social platforms that have blossomed and withered over the course of the past decade after for a short while putting their stamp on what it means to be a digital native? What is it that makes this company so special that it is even seen as a potential adversary to Google's supremacy?[2] [3] Pure numbers, as impressive as they might be, can't account for this state of affairs. For sure, they are the result rather than the origin of Facebook's success. Pure numbers are also not what makes the platform strong. Today, Facebook has more than 600 million active users with people spending over 700 billion minutes per months tendering their profiles and interacting with their friends.[4] [5] But Friendster and MySpace once where thriving platforms too, a fact that didn't safe these competitors from suffering major breakdowns, thrusting them right into the abysses of irrelevance. So, again, why is Facebook seen to be stronger, why is it expected to be more resilient than those other networks?

To begin with, it is a key argument of the paper at hand that potential answers to the questions posed above can best be identified by thoroughly examining the mechanisms and operations that make up the social network's fabric. But, unfortunately, Facebook is not a homogeneous, easy to track entity that only relies on a limited number of procedures. Quite on the contrary, the platform must be conceived as a highly complex, quickly moving

[1] Grossman, Lev. *Person of the Year 2010: Mark Zuckerberg*, online at: http://goo.gl/SuuN0 (shortened link)
[2] Parr, Ben. *2010: The Year Facebook Dethroned Google as King of the Web [Stats]*, online at: http://goo.gl/bC4Sp (s. l.)
[3] Cashmore, Pete. *How Facebook Eclipsed Google in 2010*, online at http://goo.gl/fQC93 (s.l.)
[4] Facebook Press Room, online at: http://goo.gl/B7l7 (s.l.)
[5] Carlson, Nicholas. *Facebook Has More Than 600 Million Users, Goldman Tells Clients*, online at: http://goo.gl/E6hi0 (s.l.)

changeling[6] that is characterized by a flexibility to embrace new features and technologies rather than a propensity towards conservative safeguarding. Hence, investigating the success of the social network by mapping all its characteristics and features comprehensibly would ask for a lot more than can be accomplished within a short paper such as this. As a consequence, I will seek to go smaller and concentrate on a single technological feature that resides at the very heart of the Facebook complex and – what still remains to be shown – has functioned as a powerful stimulus to the social network's rapid ascension. More precisely, the text will mainly reflect on the 'Like button', a seemingly clear-cut tool that allows for the creation of links between Facebook Fan Pages and individual Facebook profiles and, at a later developmental stage, between potentially any third-party online content, i.e. any content that does not reside on the Facebook servers, and the social network's user profiles. But this inconspicuous button, as is the case with many of the technologies that are constituents of 21st century spaces and places[7], does not give away its secrets easily. From the perspective of the ordinary user it presents itself as a small, bluish or greyish icon that apparently only serves the immediate wish to express and communicate one's sympathy for a certain topic or offering towards friends.[8] A single click and the feeling of affection has found its web-based sediment. At a first glimpse, that's all there seems to be to it and in consequence the Like button is being perceived as an efficient, well-functioning tool that merely does what it is supposed to do. However, more skeptical minds might hesitate to adopt this notion of 'just working' and instead insist on looking into the premises that enable such smooth operation. In fact, such an angle nicely corresponds to the Social Studies of Science-rooted incentive to open up the black boxes of sociotechnical arrangements by reinvestigating punctualized settings that have moved beyond contestation[9]. Needless to say that the subsequent deliberations will adhere to this second, more critical path, seeking to crack open the technology's opaque enclosure in order to look behind its all too slick façade. But how might this be accomplished? How might it be possible to lever up and unravel this particular black box?

In essence, the subsequent considerations will follow three distinct lines of exploration: First, there will be a concise account of the Like button's genesis. In a nutshell, this part is meant to outline how the button developed from a minor, platform-intern

[6] The term 'changeling' refers to the Star Trek Deep Space Nine character Odo and, more academically-backed, to Anni Dugdale's account of this character and its possible utilization as a model for actor-network-informed assemblage-thinking, see Dugdale 2005.
[7] see Livingstone 2003
[8] Facebook 'friends', to be sure.
[9] see Latour 1986; Bijker and Pinch 1989

feature into a widespread plugin that started to populate the web well beyond the boundaries of the social network's servers. Second, a brief breakdown of the technical processes and mechanisms underlying the Like plugin will be given. Thereby, it will be indicated that the plugin clandestinely functions as an elaborate data collection instrument, capable of registering the browsing habits of Facebook users and non-Facebook users alike. In conclusion of these two assessments two points will be made: First, it will be stated that there appears to be a precarious gap between the Like button's public representation and its actual code-based capabilities. As a result, the button has remained black boxed, a status that has decidedly contributed to the technology's largely quick and unchallenged ascension. Second, I will be argued that the lack of awareness with respect to the button's intricacies has allowed for the emergence of distinct imaginaries that perceive and frame the technology in different ways. Finally, I will introduce the notion of the 'Like button multiple' and elaborate on relevance of this concept for the present discussion revolving around Facebook. But let's not get ahead of ourselves and start with a brief historical outline of the Like button's genesis.

II. Retracing the History of the Like Button

Assessing the history of the Like button is not an entirely easy task since Facebook Inc., a highly competitive and quickly moving software company, issues updates and revisions to its platform regularly without providing a publicly accessible version history that would map these changes in detail. Thus, tracking the development of a single software feature – such as the Like button – asks for the rather meticulous examination of blog post entries, the mass media coverage, the spare official press releases as well as other, semi-official announcements or comments issued by members of the Facebook staff. In addition, some characteristics further hamper the drawing of a clear-cut chronology: On the one hand, the sheer quantity of reports commenting on the development of the Like feature is immense. For example, searching the sedulous Facebook resource *Inside Facebook* for 'Like Button' leads to more than 1,200 results, and even though many of these news entries deal with statistics and usage scenarios rather than mere update chronologies, it quickly becomes evident that working through these chunks of information is the only feasible way to arrive at a somewhat proper timeline. On the other hand, the Like feature can still only be conceived as work in progress for its appearance, its possibilities concerning third-party implementation, as well as its functional range are still undergoing modifications frequently.

As a result, the following outline should not be regarded as a comprehensive portrayal of the tool's genesis but rather as a fragmentary account that is supposed to allow for a first approximation to the given matter of concern.

To begin with, there is an entry on the question and answer platform Quora by Facebook's director of engineering Andrew 'Boz' Bosworth that sheds some light onto the very early stages of the Like button's development.[10] Initially, in July 2007, there was an email discussion between several Facebook engineers (including Bosworth) who pondered over ways to express affection for specific content on the Facebook platform. As an preliminary outcome they had settled on three possible symbols – a star-based system, a plus sign, and a thumbs up icon – as well as several language-based solutions of which the designation 'awesome' was their favorite. Throughout the following weeks they developed a prototype of the 'Awesome button' which quickly attracted the interest of the other Facebook programming teams. Subsequently, a variety of different design and implementation possibilities were being discussed but nothing was released on the platform at that point. Sometime around August 2007 the term 'like' was introduced as a potential candidate but soon dismissed as a somewhat lukewarm response in comparison to the more enthusiastic 'awesome' – for "nothing is more awesome than awesome"[11]. Work on design and interface implementation of the Awesome button further progressed, but the final review with Mark Zuckerberg in November 2007 didn't go well and all plans for a speedy release were being laid on ice. At some point, the News Feed and Ads teams launched small-scale versions of the Awesome button, allowing the user to give negative or positive feedback privately without sharing it amongst a larger social group. But, again, these attempts proved to be ineffective and were shut down after a short trail period. For several months nothing happened, but then, in February 2009, the feature got approved, launched and made available to the wider Facebook community under the label 'like'. Unfortunately, Bosworth is rather tight-lipped with regards to what ultimately triggered this launch, but a look into the commentary section of his entry, where colleagues added additional details, points towards two probable explanations: On the one hand, the revival of the Like button seems to lead back to the initiative of a few employees who recognized the potential of the feature and persistently fostered its development. On the other hand, the button was meant to replace and unify some similar social features – such as the thumbs up sign or, at least prospectively,

[10] Bosworth, Andrew. *What's the History of the Awesome Button (that eventually became the Like button) on Facebook?* online at: http://goo.gl/lrojR (s.l.)
[11] see Tom Whitnah's response to Bosworth's posting at http://goo.gl/lrojR (s.l.).

the Beacon system – under one common banner.[12] In terms of wording the Like button seems to have beaten the formerly preferred Awesome button mostly for reasons of simplicity and the personal intervention of Mark Zuckerberg who did not think that the attribute 'awesome' would be a good choice and that the notion of 'liking' something would function better as an aggregation term.[13] With the implementation of the Like option on the Facebook website in February 2009 ends the first phase of the feature's victory march. What is essential to recognize is that this early stage only covers the usage of the button as a way to react upon one's friends' News Feeds and Status Updates that are presented directly on Facebook. By contrast, the second phase deals with another type of Like button which was only introduced more than a year later in April 2010. However, it was necessary to outline the buttons origins since the simplicity of its idea plays into the perceptions that accompany the later, widely distributed Like button.

The second phase of the story commences when around March 2010 news got out that Facebook was planning to launch a new content-sharing feature that would allow for the creation of linkages between third-party websites and the individual profiles of Facebook users.[14] [15] Little later, at the f8 conference on April 21st, the official presentation on the part of Facebook followed suit, instituting the extended Like feature as part of a series of new technologies which the company had decided to subsume under the label 'Social plugins'. [16] From there on, webmasters were able to deploy Like buttons on their own websites, thereby allowing Facebook-registered visitors to draw connections between the promoted content and individual Facebook profiles with just a single click. As a consequence, the Like feature started to transcend the boundaries of the Facebook platform and quickly became disseminated throughout the entire web. Within a week of the release Facebook announced that the number of websites using their new Social plugins had already surpassed 50.000[17], after three weeks that number had risen to more than 100.000, including prominent and traffic-rich websites such as CNN, The New York Times, or the IMDB.[18] But with that the

[12] see Josh Pritchard's and Andrew Whitnah's response at http://goo.gl/lrojR (s.l.).
[13] see Tom Whitnah's response to Bosworth's posting at http://goo.gl/lrojR (s.l.).
[14] see Arrington, Michael. *Facebook To Release a "Like" Button For the Whole Darn Internet*, online at: http://goo.gl/ZGID (s.l.); O'Neill, Nick. *Facebook Wants You to "Like" Everything On The Web*, online at: http://goo.gl/nEhxc (s.l.)
[15] At this point the new Like button also replaced the 'Become a Fan' feature that previously allowed users to express their sympathy for Facebook-based fan pages.
[16] Facebook Keynote Speech at f8 conference 2010, online at: http://goo.gl/qJ3C (s.l.)
[17] see Kincaid, Jason. *50,000 Websites Have Already Integrated Facebook's New Social Plugins*, online at: http://goo.gl/qgaA (s.l.)
[18] see Facebook Developers, online at: http://goo.gl/VOXm (s.l.)

spreading hadn't come to an end: In August the count had risen to 350.000 websites[19] and by October the 2 million mark had been breached.[20] Presently, Facebook claims that more than 2,5 million websites have integrated their Social plugins.[21] The amount of users interacting with these features is even higher, back in July 2010 word was of 65 million clicks per day[22], a number that by now should have increased markedly.[23] In short, the Social plugins and the Like button as their most widespread technology can, at least from the perspective of the company, be deemed a grandiose success. But sheer numbers don't suffice in portraying the full significance of this development: What happened when Facebook started to roll out their Social plugins to other websites transcends the relevance of growth rates for the button allowed the platform to expand well beyond its own borders, colonizing and plastering the web to a stunning degree. From then on, the activity of facebooking[24] was not reduced to the domain facebook.com anymore but started to take place all over the web. Insofar, the company's services began to "Facebookize" the web, making it so that even if you'd navigate away from the social network's platform to visit another website Facebook would follow you there, ultimately turning the World Wide Web into a Facebook-Enhanced Web.[25] To be clear, this terminology is not supposed to evoke visions of some dystopic Internet future but mainly tries to render a process that is currently taking place at an unimaginable rate on a plethora of websites and online portals. Making a short stroll through the web immediately confirms this reading: Regardless of whether one heads to the web domain of *AlJazeera*, browses through the Internet presence of the German newsmagazine *Der Spiegel*, listens to music on *last.fm*, or dips into almost any blog – no matter if it fiddles with with politics, technology or cooking –, the Like system will already be there, ready to mark down and convey any sign of appreciation for the sites content. Recently, the omnipresence of the Like request has become more immediate as the ties between Facebook and a myriad of third-party websites have been drawn closer and closer. Following a word or two on the technical realization of this development:

First, what up until now has consistently been called 'Like button' may in fact materialize on websites in two different ways, namely under the denotation 'like' or, and

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[19] Facebookbiz. *350.000 Websites nutzen Facebooks Like-Button*, online at: http://goo.gl/WPae8 (s.l.)
[20] Facebookbiz. *2 Millionen Websites nutzen Facebooks Social Plugins*, online at: http://goo.gl/0XaaF (s.l.)
[21] see Facebook Press Room, online at: http://goo.gl/B7l7 (s.l.)
[22] O'Neill, Nick. *Almost 65 Million Facebook Users "Like" Things Daily*, online at: http://goo.gl/BLTv5 (s.l.)
[23] Time Video. *One Minute on Facebook,* online at: http://goo.gl/70uio (s.l.)
[24] Urban Dictionary. Search Term: "Facebooking", online at: http://goo.gl/sZd2n (s.l.)
[25] Rifkin, Adam. *What Facebook Can Give Back To The Web*, online at: http://goo.gl/WKFP7 (s.l.)

that's the second possibility, carrying the label 'recommend'. In terms of source code the two versions are similar to each other but Facebook has included the alternative wording in order to prevent awkward connotations.[26] For instance, if someone would like to suggest an article to friends that discusses a sensitive topic, it might just be a better idea to recommend this article instead of liking it. Accordingly, most news sites have adopted the 'recommend' version of the button instead of its 'like' counterpart.[27] Insofar, the possibility to choose between a 'like' and a 'recommend' name tag has most certainly improved the plugin's applicability and thus further propelled its speedy dissemination.

Second, when generating the code for the button on the Facebook homepage[28], developers have a few options with regards to how the feature will be presented on their website. Amongst these options there are some that primarily allow for the modification of aesthetical attributes such as the layout style, the font, or the color scheme; but there are also some other, more decisive settings, for instance concerning the verb being pictured – i.e. the choice between 'like' or 'recommend' as mentioned before – or whether the button should be presented together with the profile pictures of people who have already clicked on the button previously. The latter decision is actually a rather weighty one for it may change the perception of a website and its contents completely. If a webmaster chooses to present the profile pictures of people beneath the Like button and a logged-in Facebook user comes across the site, she may not be greeted by just any unfamiliar faces but chances are that if this user has 'friends' that have visited and liked the site before, she will see those friend's profile icons when the site is being loaded. Thus, to give a simple example, when Mary visits a blog that teaches how to do somersaults, she possibly might be welcomed by the profile pictures of her friends Martha, Marla and Max who have been on the site before and, becoming experts in doing somersaults, liked the content that was provided to them. That way, an utterly unknown site that has not been visited before can instantly become much more personalized through the implementation of the Social plugins. What is essential to grasp is that this interlinkage goes both ways: Not only does the Like tool link a third-party website to a specific Facebook profile, it also brings other profiles to the website, thereby further increasing the scope and capabilities of the service. All in all, there are a number of choices to be made when incorporating the Like button on a website and some of them might lastingly affect how a site is being experienced by a visitor. In essence, this possibilities

[26] Quora. *What's the difference between the Facebook "Like" button and their "Recommend" button*, online at: http://goo.gl/Uq31c (s.l.)
[27] Benton, Joshua. *"Like", "share", and "recommend": How the warring verbs of social media will influence the new' future*, online at: http://goo.gl/rxScA (s.l.)
[28] Facebook Developers. *Like Button*, online at: http://goo.gl/dlcq2 (s.l.)

for slight customizations have given web administrators some leeway in adapting the technology to a specific platform, thereby again strengthening the feature's versatility and applicability.

Third, over the course of the past 12 months Facebook has repeatedly modified, readjusted and extended the Like buttons appearance and capabilities. For example, while initially hitting the button on a third-party website would result in a brief, easy to overlook statement appearing in the 'Recent Activity' section of a profile's wall, updates have been made to reinforce the prominence of liked content. As a result, since February 2011, clicks on a Like or Recommend button trigger a more extended post with headline, blurb and thumbnail image, which is also ranked substantially higher in the News Feed Stream.[29] Undoubtedly, these changes represent a significant upgrade of the Like button and a looming fade-out of its former bigger brother the 'Share button'. The higher click rate and its often stressed ability to increase traffic on websites[30] seem to have been the main driving factors behind the Like buttons upward reevaluation. Once again, Facebook , by making its most-used linkage tool convey more data, strengthened the ties between third-party content and its user's profiles. Presently, after a year of testing, Facebook seems to embrace the Like button as its most pivotal linkage tool, stating that while the Share feature has still not been phased out completely the Like plugin would be the "recommended solution moving forward".[31]

At first it may seem that the chronicle presented above has little to contribute to the initial call to thoroughly investigate the intricacies of the Like button. How does it effectively help in opening up the black box? At a second glance, however, one might realize that many of the details mentioned above may in fact serve as vital pieces to a complicated puzzle. In particular there are three thoughts that deserve further consideration:

First and foremost, the historical assessment should have fostered the thought that the Like button cannot be conceived as just any random tool, but must be understood as a key technology that has become integral to the ways Facebook aspires to increase the appeal of its platform now and, most likely, in days to come. Furthermore, it has been highlighted that the issue of the Like button doesn't confine itself to the realm of Facebook. Since the button's source code has started to populate large parts of the Web the question

[29] Lavrusik, Vadim. *Facebook Like Button Takes Over Share Button Functionality*, online at: http://goo.gl/FTeqp (s.l.)
[30] O'Dell, Donald. *What the 'Like' button means for web traffic*, online at: http://goo.gl/XN1Gz (s.l.)
[31] ibid.

of 'How does Facebook work?' has been rewritten to 'How does the Web work?'. Thus, above all, the previous outline intended to emphasize the importance and scope of what is at stake. It should have become clear that looking into the specificities of the Like button means nothing less than concerning oneself with the future of the World Wide Web as a whole. Thus, if there has ever been any doubt as to the relevance of this research approach, it should now have been lastingly eradicated.

Secondly, the outline above should have pointed out how well the genesis of the Like button translates into a story of impeccable success. In this respect the statistics really speak for themselves. What I would like to argue is that this success allowed for the emergence of an aura of accomplishment that seems to have outweighed any critique that was brought forth over the course of the last year. The users adopted the tool willingly and without hesitation and the webmasters were swept off their feet by a drastic increase in traffic. A telling example for how such a prospect of profit can wash away any reservations can be found when accessing a Cnet article called *Facebook 'Like' button draws scrutiny.*[32] In June 2010, this article was one of the few well-researched, in-depth articles pointing towards privacy issues concerning the Like button. What strikes though is a Recommend button at the top of the page that has been clicked nearly 900 times. Moreover, at the bottom of the site there is an extra field featuring the author's profile, and this field includes another Like button, providing readers with the opportunity to click 'like' not just once but twice when visiting the site. Similar maladjustments between the framing and the content can be found all over the web. Thus, despite the occasional wagging finger, the Like button seems to have proven to be just too good of a marketing tool to simply refrain from its usage – a logic that supports the process of black boxing rather than the one of opening up.

Thirdly and finally, it has been emphasized that the button does not only allow for the conveyance of data from a third-party site to the News Stream of a Facebook profile, but also, vice versa, from the profile to the external website, as showcased by the profile pictures that may accompany the button's appearance. While we shall elaborate more on the button's technical capabilities in a moment, this example already clearly suggests that the technology is more complex than one might initially suspect.

As a preliminary conclusion, the Like button can be described as a technology that started out as a vague idea that couldn't even make it through it's first referendum. It got dismissed and tucked away in some drawers. But it came back, proved beneficial, evolved, spread onto other websites, and can now be considered a pivotal actor in an ongoing

[32] McCullagh, Declan. *Facebook 'Like' button draws privacy scrutiny*, online at: http://goo.gl/kQkm0 (s.l.)

metamorphosis of the World Wide Web. It is an outcome of this development as well as its propulsion. This introduction was primarily meant to convey a feeling for the significance of the issue, but should furthermore have succeeded in providing some details as to why the Like button may have been treated with so much leniency and why it nevertheless still might prove prudent to investigate the technology more thoroughly, which is what we shall attend to right away.

III. Beneath the Surface

To be sure, this article does not intend to engage in a hard-core technical debate, but in order to highlight the implications of using the Like plugin it seems necessary to comment on the mechanisms that are at play a little bit more extensively.

As stated before, there aren't many articles around that deal with the issue of the Like button in a profound and comprehensive manner. The mass media coverage mostly treats Facebook as a business, showing much more interest for numbers than for technical details, privacy concerns, or possible social repercussions. Thus, at least within the mainstream press, critical journalism appears to be the exception rather than the rule.[33] Furthermore, if there ever so often pops up an article that takes a more skeptical stance, any criticism will almost certainly target Facebook at a very general level, not fiddling with the Like feature in particular. As a result, most objections will remain superficial, insufficient in opening up the black boxed mechanisms. In academia, the situation appears to be even more desperate. With the exception of Arnold Roosendaal's article *Facebook Tracks and Traces Everyone: Like this!* (2011), no other scholarly papers exclusively concerning the Like button were found.[34] As a consequence, Roosendaal's article, which investigates the intricacies of the Like Button at length, will constitute the basis of the following considerations.

As a quick reminder: In short, the Like button is a small icon that allows for the creation of links between third-party content and individual Facebook profiles. Publishers can simply

[33] Granted, in terms of the special interest media and blogs this verdict would have to be reconsidered. Also, the generalized notion of 'mass media coverage' seems problematic as there appear to be major differences between individual states and nationhoods. For example, the question of privacy is debated very differently in the United States and Europe, leaving aside that those two regions can't be considered homogeneous realms either.

[34] This lack of literature might be explained by the rather short period of time the Like button has been available. As the body of literature on Facebook in general as well as on previous features like the Beacon system is strong, it can be assumed that more article will get published before long.

put Like buttons next to their offerings, may that be written text, video clips, or acquirable products. In principle, anything that is pictured on a website can be tagged and equipped with such a button, be that bands[35], clothes[36], or burgers[37]. If a user is signed into Facebook and presses this button, a News Feed entry will be published on the user's profile, potentially motivating other users to follow that link, therewith increasing the site's traffic. The Like button is a convenient, easy-to-us tool that has been endorsed by users and entrepreneurs alike. So far, so good.[38] Now, before digging deeper and posing the really nasty questions, we must learn a little bit more about the technical framework that enables the Like button to function:

For starters, it is crucial to understand that the button is not implemented directly on a content provider's website, but integrated via a piece of code (iframe or JavaScript), which can be generated at the Facebook homepage[39] and then embedded into the external website's HTML framework. This code includes a request to the Facebook servers to provide the image when the site is being loaded.[40] Thus, whenever a site carrying the Like button is being accessed, the button's code communicates with the Facebook servers, regardless whether the Button is being pressed or not. This is also the reason why, even when visiting a site for the very first time, users may be greeted by the profile images of their friends. Everything within the button's framework belongs to the territory of Facebook, apart from the design, webmasters have few possibilities to influence its behavior. In that sense, the Like button can be considered a beacon that has been deployed on foreign soil, at all times keeping in touch with the homeland.[41]

Secondly, as stated before, the Like button is part of a larger suite of tools that is called Social plugins.[42] What hasn't been mentioned so far is that these plugins are meant to work together with the 'Open Graph protocol'.[43] In a nutshell, this protocol allows Facebook to understand what it is that their users like. How does this work? In principle, it's pretty easy: Via a series of meta tags, which are being embedded into the <head> section of the HTML code, publishers can specify, i.e. 'describe', their content. According to Facebook, the

[35] last.fm. Artist: "Radiohead", online at: http://goo.gl/MxcD (s.l.)
[36] Levis 501 Jeans, online at: http://goo.gl/oKBwM (s.l.)
[37] DerStandard. *Ein Burger für ein Gefällt mir*, online at: http://goo.gl/s7bkZ (s.l.)
[38] For a more comprehensive account see the German white paper *Der Facebook Like Button*, online at: http://goo.gl/6VU5c (s.l.)
[39] Facebook Developers. *Like Button*, online at: http://goo.gl/rDB8t (s.l.)
[40] see Roosendaal 2011, 4
[41] Fittingly, the Like button's heavily criticised predecessor, which was abolished ingloriously after a long controversy in September 2009, was named 'Facebook Beacon'. For more information see: Wikiepdia. Search Term: "Facebook Beacon", online at: http://goo.gl/rZNL (s.l.)
[42] Facebook Developers. *Social Plugins*, online at: http://goo.gl/GYgZB (s.l.)
[43] Facebook Developers. *Open Graph protocol*, online at: http://goo.gl/hPimV (s.l.)

protocol is at the moment designed for "Web pages representing profiles of real-world things"[44]. This somewhat fuzzy notion of 'real-world things' actually entails a rather long list of entities users can like. Amongst others, it is possible to like activities (e.g. sport), businesses (e.g. bars, companies, hotels), organizations (e.g. bands, universities, non-profit or governmental organizations), individual people (e.g. actors, athletes, politicians), places (e.g. cities, countries, special landmarks), products (e.g. music albums, books, movies, games, food), or entire websites.[45] Again according to Facebook, if a webmaster implements a Like button into his page and designates the content by using the Open Graph tag possibilities outlined above, the website will become "the equivalent of a Facebook Page"[46]. Accordingly, the liked content will appear in the 'Activities and Interests' section of a user's profile and the content provider will be able to publish updates to the user's News Stream. Insofar, the Open Graph protocol allows third-party websites to become part of Facebook's social graph, i.e. the entirety of the social network's "people and the connections they have to everything they care about"[47]. The result of this is a graph that does not merely comprise the relations between people and their friends, but between people, their interests, and the entirety of things they like. Thus, by clicking the Like button, users incrementally augment their profiles, which are henceforth not only part of a social network but pivotal hubs in networks of interest that are made up of a multitude of heterogeneous entities.[48] [49] [50] We shall come back to this matter when addressing the future prospects of Facebook, but for now it must suffice to emphasize that the Like button is merely the spearhead of a much larger ecosystem and that clicking that button entails more than one might have expected in the first place.

The two points stressed above should have made clear that the Like button isn't as simple a tool as it might seem when considering its mousy appearance. But, in fact, there is even more that roams beneath the surface. Arnold Roosendaal (2011) has taken a close look into the mechanisms of the button and comes to the conclusion that the script underlying the plugin allows for much more than the mere linkage of external content and Facebook

[44] ibid.
[45] ibid.
[46] ibid.
[47] Facebook Developers. *Graph API*, online at: http://goo.gl/RO6jO (s.l.)
[48] MacManus, Richard. *Facebook & The Semantic Web*, online at: http://goo.gl/7IlmH (s.l.)
[49] Palsule, Mahendra. *The Age Of Relevance*, online at: http://goo.gl/hrAy1 (s.l.)
[50] Empson, Rip. *Levchin and Gurley Say That Next Big Company Will Capture The Interest Graph*, online at: http://goo.gl/GoiU4 (s.l.)

profiles. All in all, he has pointed out three scenarios that shed a somewhat disconcerting light onto the feature and its data-collecting capabilities:

The first scenario assumes that the Internet user visiting a Like button-enhanced website already has an account with Facebook. In that case, loading the site will automatically trigger the transferal of a cookie from the user's computer to the Facebook servers. This cookie, i.e. a piece of text that is stored on a computer by the web browser, has been deposited on the user's computer when registering with Facebook. Such cookies may be used to record personal data, for example, Facebook users who visit their profiles frequently don't have to log on manually at each visit but are being logged in automatically via the user information stored in the cookie. What may be a feature when logging on becomes questionable with regards to the Like button. As each cookie contains a unique user identification and this ID is transmitted by default when visiting a Like button-carrying website, Facebook becomes able to track and the trace the movements of their users without their knowledge or explicit consent. To reemphasize this point: What is at issue is not that clicking the button triggers the conveyance of data but that not clicking the button does so as well, since the cookie will communicate with the Facebook servers regardless whether the button has been pressed or not. Also, through the unique user ID, Facebook is able to pinpoint this data to real-life people – people they already know a lot of since they have given the company their data when setting up their profiles. While one might find that this potential monitoring of users is at least partly covered by their willingness to open up a Facebook account and agreeing to the company's terms of service, let's have a look how this plays out in the case of users that don't have such an account.

The second scenario Roosendaal describes presupposes that the Internet user visiting a website carrying the Like button does not own a Facebook profile yet. In that case, he argues, no user-bound data will be transmitted to the Facebook servers. If, however, the same non-Facebook user ever stumbles across a site which has decided to implement the API 'Facebook Connect' – another convenient tool that allows users to log onto third-party websites using their Facebook identity[51] [52] –, this widget will issue a cookie that henceforth resides on the user's computer, just like after registering with Facebook. The only difference is that in this case the cookie does not contain a user ID that is directly related to a certain

[51] McCarthy, Caroline. *Facebook to open gates with 'Facebook connect'*, online at: http://goo.gl/gxr3c (s.l.)

[52] The chances of inadvertently visiting such a site are considerable as the API has disseminated quickly – populating over 1 million sites including major American news portals – and was in April 2010 used by almost 5.5% of all websites, see Jaeger, Timothy. *Facebook Connect statistics*, online at: http://goo.gl/voXCc (s.l.)

Facebook profile, but rather an unspecified, anonymous ID that isn't linked to a concrete name or person. Still, as the identification number is stable, Facebook will be able to trace the movements of this cookie across the web, compiling a behavior pattern that is quiet similar to the one assembled with the profile-bound cookie. Again, the key actor allowing for the establishment of these data sets is the Like button, as each request for the button issues the transferal of the cookie, regardless whether it contains anonymous or user-specific data. As stated, the sole difference is that in the one case this data set possess a name tag that relates to a particular real-life person while in the other case such a linkage has not been drawn – yet. But let's take a look at the third setting Roosendaal describes.

The third and last scenario comments on what happens when a non-Facebook user, whose computer has become a carrier of the cookie via Facebook Connect, eventually decides to create a Facebook account. In that case, all of the data that has previously been collected and stored within the anonymous cookie is being attributed to the novel user profile, i.e. a new cookie with a unique, person-specific ID is being issued and automatically takes over all the information accumulated prior to the registration process. Thus, if you have been surfing the Web and at some point decide to set up a brand new Facebook profile, chances are that this profile won't start at zero but might already comprise a lot of data from earlier ventures into the Internet realm. In that sense, Facebook does not only track its own users or collects data by issuing anonymous cookies, the company also seeks to correlate datasets whenever possible. That data mining has become a key competence for thriving Internet businesses can be considered common knowledge – suffice to say that Facebook Inc. has mastered this proficiency unlike many others.

Roosendaal concludes his investigation by stating that "individuals who consciously choose not to participate in Facebook are still tracked and traced by Facebook. When someone does not connect to Facebook himself, Facebook makes the connection" (Roosendaal 2011, 7). He than considers the implications of this state of affairs for the question of privacy. Relating to Helen Nissenbaum (2004), he argues that even though it is difficult to give a clear-cut definition of privacy, two concepts, i.e. informational self-determination and contextual integrity, have been broadly recognized as essential in this respect. While the notion of informational self-determination stresses that "the individual should be able to decide which data are disclosed to whom and for what purpose" (ibid., 8), the concept of contextual integrity entails that "data have to be treated according to the norms applicable to the context in which the data is disclosed" (ibid., 8). According to Rossendaal, Facebook falls

short in terms of both these requirements: First, informational self-determination seems unrealistic since the user does not even know that data collection takes place. Hence, there cannot be any consent. Second, the exact purposes for the collection of data are not clear either. Hence, contextual integrity is not ensured. All in all, Roosendaal's examination of the data collection mechanisms underlying the Like button contributes significantly to the necessary task of opening up this black boxed technology and debating it in terms of privacy. However, the paper at hand does not intent to plunge into the matter of privacy but rather seeks to drive a quite different argument. But let's take some time to build this argument carefully by recapitulating the first two chapters within a preliminary conclusion. For now, as an outcome of the technical assessment, it can be stated that there indeed appear to be a lot of unanswered questions with regard to the Like button and its functionality. Moreover, if Roosendaal's analysis turns out to be accurate and the button's hunger for data is as extensive as it seems, there can be no doubt that the issue of the Like button is worthy of increased public attention. As the button has turned into a feature that stretches well beyond the boundaries of the Facebook servers, the implications and repercussions of using that technology transcend the scope of the social network too. Thus, investigating the Like button entails more than just accounting for a spatially limited service, since, as outlined above, the technologies of Facebook are capable of tracing and tracking any Internet user, regardless of whether she owns a Facebook account or not.

It was not the intention of this chapter to come down with a verdict whether the doings of Facebook – or of any of the company's technologies for that matter – should be considered good or bad; instead, it was the primary objective to point out that there seems to be an immediate need to consider and reflect on the platform and, even more so, its technologies.

IV. A Black Boxed Success and the Like Button Multiple

Let's take a step back for a moment and briefly recapitulate what has been argued so far. In a nutshell, the introductory chapter as well as the historical breakdown were meant to highlight the significance of the issue by throwing the spotlight onto the button's uncanny success and its current omnipresence. It was argued that the button can be regarded as a key technology behind the social network's ongoing triumphal march, and that it furthermore should be conceived as a technology that is on the verge of lastingly altering the World Wide Web in its very foundations. However, while the first two chapters primarily

sought to emphasize the significance of the phenomenon by stressing its monstrous scale, there also came up some first doubts as to the tool's ostensible innocence. Is it really possible that a technology this pervasive serves no other purpose than pure user convenience? Isn't Facebook Inc. a smartly steered business venture that has allegedly generated over 2 billion Dollars of revenue in 2010[53] rather than a philanthropic do-good organization? Surely, the Like button as their most widespread platform-external feature must fit in their business strategies somehow? With that, the direction of our little investigation took a different spin: Henceforth, the Like button was not considered an issue of interest solely because of the extent of its dissemination, but it had become a matter of concern for a quite different reason, namely that there could be more to it than meets the eye. Opening up the black box and looking into the intricacies underlying and accompanying the Like button was then the objective of the third chapter. It was worked out that the technology is indeed highly complex and entails a lot more than could be expected from a cursory glance. Following Arnold Roosendaal's analysis it was revealed that the Like button features an insatiable hunger for data that must not only concern Facebook members but as a matter of fact anyone who accesses the Web. Thus, it was argued that despite its impeccable success the Like button should be regarded with caution.

Intriguingly, public awareness concerning this issue seems to have remained remarkably low. In terms of the mass media, the Like button was not subjected to any considerable amount of criticism, nor was the technology found to be a noteworthy matter of interest at all. As a result, the media coverage remained scarce and public awareness didn't develop. The reasons for this absence of critique are manifold: Firstly, there is the straightforward appearance of the button that frames it as an unambiguous, convenient, easy-to-use tool. Secondly, there is the public relations work of Facebook fostering a narration that depicts the button as a highly efficient tool for marketers and a quick and comfortable way of sharing content amongst friends.[54] [55] Thirdly, there is the staggering success of the service – not only in view of dissemination but also in terms of actual results[56] – that seems to have shielded it against all sorts of allegations. In that sense, the Like button was able to create an aura of accomplishment that helped in washing away any potential concerns. Fourthly, the complexity and sneakiness of the tool has certainly decreased its vulnerability towards criticism, especially with regards to the mass media. As we have seen

[53] Womack, Brian. *Facebook 2010 Sales Said Likely to Reach $2 Billion, More than Estimated*, online at: http://goo.gl/ISC7Z (s.l.)
[54] Facebook. *The value of a Liker*, online at: http://goo.gl/vOdIE (s.l.)
[55] Facebook. *Like Button*, online at: http://goo.gl/dlcq2 (s.l.)
[56] Facebook. *The value of a Liker*, online at: http://goo.gl/vOdIE (s.l.)

when digging into the technical details of the button's data collection capabilities, accounting for such a multilayered entity that roams in an intricate but well-coordinated ecosystem might ask for some thorough probing before any conclusions can be drawn. Thus, opening up this particular black box requires a level of detail that is almost impossible to achieve within mainstream press articles. For example, Cnet's *Facebook 'Like' button draws privacy scrutiny*[57] has clearly been one of the few better-researched, more in-depth articles that have commented on this issue over the course of the last year. Still, in terms of detail, the article doesn't even scratch the surface of the Like button's opaque enclosure. Fifthly and finally, the fact that the Like button does not operate on its own but rather represents one cog in a larger wheel – albeit a very important one – makes it much more difficult to pinpoint a culprit. Who's to blame for the misery – the Like button, Facebook Connect, the servers that store the data and ultimately draw the connections? In the end, all of these aspects contribute to the current state of affairs: While a critical stance towards Facebook in general appears to be in vogue, criticism with respect to a single service has been difficult to achieve. Hence, for all the reasons mentioned above, the Like button remained unchallenged and black boxed, successfully eluding any watchdog's grasp. But what does all this mean with respect to the Like button's current status?

In essence, there are two ideas to be stressed: For starters, it is important to realize that in the case of the Like button there appears to be a major gap between the technology's public representation and it's actual code-based capabilities, i.e. between how the button is being perceived and what it effectively does. But, and this is a pivotal argument of the paper at hand, this segregation has not worked as a hindrance but as a stimulus to the button's success, eventually enabling the technology to become as pervading and widespread as it is today. If the narration would have been different, if the button would have been subjected to a more substantial amount of criticism, if it wouldn't have been black boxed as neatly, chances are that the technology never would have skyrocketed as it did. Mere speculation? Not the least! Let's remember, Facebook Beacon[58], a service that in many ways behaved similar to the Like Button, got shut down after heavy protests including a class action lawsuit. But why has the Like button never attracted such a level of scrutiny, why has it never been hit by such a wave of protest? The answer is as simple as it is telling: While with regard to their purpose both technologies were presented similarly – i.e. as a possibility to conveniently share information from third-party websites with one's friends –,

[57] McCullagh, Declan. *Facebook 'Like' button draws privacy scrutiny*, online at: http://goo.gl/kQkm0 (s.l.)
[58] Wikipedia. Search Term: *Facebook Beacon*, online at: http://goo.gl/OotPJ (s.l.)

the Beacon system lacked the Like plugin's neat, button-like appearance. In fact, it didn't come with a visual appearance at all but operated largely in the background. But staying out of the spotlight didn't make the technology less explicit, quite on the contrary, in terms of data collection it was even more explicit since it lacked an entire layer of cover-up, a disadvantage that made the system amenable towards critique and ultimately triggered its demise. But the people at Facebook didn't fail to learn from their mistakes. When they eventually shut down the Beacon system in September 2009, it didn't take them long to find a replacement – as early as April 2010 the Like button left the social network's servers and started to colonize external webpages. But what they had learned didn't affect their philosophies with regards to the handling of data, it merely altered their product strategies. As a result, the Like button featured a sleek surface that fostered a feeling of control, a sentiment the Beacon system never could provide. Insofar, the key difference between the two products is not to be found in their agenda or their actual behavior but in their design, their packaging. With the Like button Facebook succeeded in creating a perfect black box that at least for some time proved impermeable as opposed to large-scale criticism. In conclusion of this first argument and as a reference to the quote that lanced this paper it can be stated that 'the greatest trick Facebook ever pulled was convincing the world that data collection didn't exist. And like that – puff – it was gone.'[59]

The second and final point that shall be stressed also builds upon the assumption that the Like button's impressive success can best be understood as an immediate result of its simplistic, closed-off appearance. As stated before, the button's black boxed status has helped tremendously in evading any incoming controversy. But, as a matter of fact, avoidance of critique is presumably not the only quality that is necessary for achieving sustained success. In that sense, the like button's secret must go deeper than its impermeability towards criticism, and I would like to conclude this paper by offering a final hypothesis: In essence, the fact that the intricacies of the Like button's functioning have remained implicit rather than explicit, i.e. hidden beyond the user's awareness, has effectively allowed for the emergence of distinct imaginaries that run side by side, successfully keeping out of each other's way. This might sound more complicated than it really is. The idea to be stressed is simply that miscellaneous stakeholders – e.g. users, entrepreneurs, or the Facebook company – carry different concepts of what the Like button actually does, i.e. they adhere to contrasting imaginations of what this technology involves

[59] Also see *The Usual Suspect* (1995)

and what it may be used for.[60] You call shenanigans? Reconsider: While the users mostly seem to perceive the Like button as a convenient, easy to use technology that saves time and allows for a quick and hassle-free communication with one's friends, publisher and entrepreneurs conceive the button as a marketing tool that increases the traffic on their websites and allows them to pointedly target groups of people with their advertisements. Facebook, however, seeks to satisfy the needs of the users as well as the one's of the developers, but furthermore has several other agendas in mind. To them, the Social plugins are a way into ad marketing[61], into the search game[62], into the shopping game[63], into the age of relevance[64] and the semantic web[65], eventually making the platform the Internet's white pages[66]. The Like button carries a script, both in the literal and the figurative sense. However, this script is being interpreted differently by various stakeholders, and it has been the nebulous status of the technology that has allowed the narrations to drift apart so widely, eventually turning the Like button into a 'Like button multiple'[67].

V. Conclusions

At the outset of this paper the question was posed why Facebook seems to be a stronger, more resilient competitor than previous social network's that have reached for the stars but failed. The answers seems clear now: Facebook is on the verge of becoming more powerful and robust than prior platforms because it possess a set of tools – the Social plugins – that has allowed them to grow far beyond their own servers, eventually transforming the network from a service 'of' the Web into the World Wide Web itself.

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[60] In terms of theoretical backing this assumption builds on the notion of social imaginaries (see Anderson 2006 [1983], Taylor 2004, Felt 2009), following the idea that the Like button should not be understood as an ontologically fixed entity but as a flexible sociotechnical hybrid (see Latour 2005) that is constantly being performed as a technology 'in the making' (see Oudshoorn 2003). Such an approach eventually leads to the conclusion that it may prove worthwhile not to think in terms of one single Like button, but to embrace the notion of a multitude of diverging buttons that are continuously being (re-)negotiated within networks of action that are populated by human and non-human actors alike, i.e. a 'Like button multiple' (see Mol 2002).

[61] Cheng, Jacqui. *Facebook wants to turn Web "likes" into dollars*, online at: http://goo.gl/0HIsw (s.l.)

[62] Arrington, Michael. *Google's Wizar Of Oz Search Algorithm And The Threat Of Facebook Search*, online at: http://goo.gl/x6KnE (s.l.)

[63] Owyang, Jeremiah. *Social Commerce Breakdown: How Levi's and Facebook Prompt Your Friends To Improve Your Buying Experience*, online at: http://goo.gl/xFsa (s.l.)

[64] Palsule, Mahendra. *The Age Of Relevance*, online at: http://goo.gl/hrAy1 (s.l.)

[65] Iskold, Alex. *Facebook Open Graph: The Definitive Guide For Publishers, Users and Competitors – Page 3*, online at: http://goo.gl/ce6q (s.l.)

[66] Empson, Rip. *The Interest Graph – Simple Idea Big Money*, online at: http://goo.gl/qP7c4 (s.l.)

[67] see Mol 2002

Why has the Like button despite existing evidence that it collects data in an excessive manner not been as strongly contested as similar services? Because it functions as a well closed-off black box that for several reasons has proven difficult to open. Facebook and the Like button make a strong team that won't go away anytime soon. The rumor is true: There is a new prince of the Internet and one can currently observe by what means he intends to take his kingdom.

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