

Wired reputation: the psychophysiology of interpretations

Abstract

In this paper, we focus on the social and emotional aspects of reputation. We elucidate the context of digital publicity as an arena of reputation formation, suggest that human emotions should be considered and studied as factors in reputation formation, and present our research setting, which we hope will accurately measure psychophysiological responses to corporate reputation. This paper describes a work in progress.

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Wired reputation: the psychophysiology of interpretations

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Introduction

While many high-quality studies of reputation and its management exist, few studies explicitly link the macro-level or sociological phenomenon of reputation with the micro-level or psychological phenomenon of emotions. In this paper, we present our psychophysiological research setting, with which we aim to fill this gap. In addition, we define reputation and digital publicity, two concepts we believe are most relevant for the study of reputation formation within the context of the modern, digitally networked society.

We start from the viewpoint that reputation is the overall quality or character of an institution, organization, group of individuals or an individual as seen or judged by a population of individuals. Instead of being the sole property of an organization, reputation is enacted by these people (Dutton, Dukerich & Harquail, 1994), it is a dynamic set of beliefs, evaluations and expectations that is built and modified in communicative actions between different publics over time (see e.g. Aula & Mantere, 2008). We build on the idea that reputation of an organization should be studied as interpretations among stakeholders: their stories, anecdotes, and other discursive elements regarding the organization.

We also stress the importance of linking this interpretative approach of reputation formation to human emotions. In our view, reputation is both a socially processed narrative and a cognitively processed intangible asset, consisting of a collection of stories told about an organization, which contribute to how the organization is *defined* both in the individual and in the collective mind (see e.g. Smythe & al., 1992; Castells, 2009).

We began by defining reputation above and continue with its formation in digital publicity. Next, we trace similarities between the concept of reputation in communication studies and sociology, relating them to the concept of emotion in psychology and cognition studies. We then conclude with the description of our psychophysiological research setting and discussion for further directions of study.

Reputation in digital publicity

In the digital era, reputation formation is increasingly multi-focal, multi-voiced and multimodal. Advances in technology and the emergence of online and open communication environments have made reputation formation processes more elaborate and complex than ever before. Reputation management is no longer an interactive and unilateral process involving an organization sending out messages in the form of its action and stakeholders receiving those messages. Rather, the receivers are stakeholders communicating with one another (de Bussy, Watson, Pitt & Ewing, 2000), and an organization needs to communicate bilaterally with its stakeholders.

In digital publicity, reputation and reputational stories are increasingly built by the publics themselves, in a process called *"collective mass self-communication"* by Castells (2009). The recent forms of communication that are characteristic to digital publicity, e.g. forms of social media, come close to the idea of Grecian public agora. Castells (2009) characterizes communication in digital publicity as the key to shape human minds, executed for example through the use of metaphors and framing issues when stating: *"Since meaning largely determines action, communicating meaning becomes the source of social power by framing the human mind"* (p. 136).

Reputation formation in digital environments is marked by considerable uncertainty. Traditional word-of-mouth communication concentrates on social networks; family, friends, and colleagues. New contexts for digital communication liberate the individual, providing him or her with increased access to large scale word-of-mouth networks (see e.g. Dellarocas, 2003). On one hand, this ability to cross the boundaries of physical social life and connect individuals anonymously, e.g. around a certain topic is one of the most prominent characteristics of new communication networks. The individual, as a subject of communication, is allowed multiple entry points into the communication process. On the other, this process still remains in the control of big media and network corporations acting as service providers (Castells, 2009).

The language in organizational communications and in news media has traditionally aimed for neutrality. This principle is, however, contrasted by the contents created by the different publics of social media services. In anonymous online interactions, people are free to present themselves in many ways, less constrained by the expectations present in traditional communication contexts (see e.g. Calvert, 2002; Huffaker & Calvert, 2005). This, combined with the idea of discursive reputation, means digital reputation can be seen as a developing collection of expressive stories shared and merged online.

We argue that the increasingly personal tone of institutionalized communication arenas should be considered when studying reputation formation in the context of digital publicity. In virtual contexts the distinction between institutionalized and personal communication arenas (Aula & Mantere, 2008) is narrower than within traditional media. The social media exhibit embeddedness of personal communication present even in institutional arenas; links build fast passages between contents and contexts, and readers' commentaries are written below news articles. Besides benefiting from the material provided by these often anonymous content creators, institutionalized media also have novel competition in them; a great deal of the content published in blogs will meet or at least *will appear to meet* journalistic standards. As the open online institutionalized communication arenas welcome personal voices of often anonymous content contributors, traditional neutralized predominant meanings thus give leeway to a multiplicity of voices.

This multiplicity of voices may, however, be low on trust as "*the Internet is often regarded as a low trust environment, making the distance between reputation claims and their realization particularly noticeable*" (Scott & Walsham, 2005, p. 315). In fact, the consultant company Edelman's Trust Barometer for 2010 shows a decline in trust for "persons like you" and also notes less confidence for social network sites as information sources when compared to e. g. analyst reports, business magazines and traditional media¹. The trustee at the bottom of the Edelman's list, however, is corporate or product advertising. This explains why many consumers seek information and points of reference from peers, friends and colleagues instead of corporations (see also Read, 2007).

Previous research on reputation and emotion

The connection between emotion and reputation has been operationalized in various reputational metric tools, of which the two most well-known are Reputation Quotient™ and Fortune. Fombrun (1996) states that reputation is about a company's overall *appeal* to all its key constituents when compared with other leading rivals (Fombrun, 1996, p. 72). His reputation meter (RQ, the reputation quotient) is accordingly divided in two broader categories: (a) emotional appeal and (b) rational appeal. Emotional appeal includes trust, admiration and overall feelings concerning the company. In turn, rational appeal is measured based on product or service quality, leadership, workplace environment, responsibility and financial performance (see Fombrun & al., 2000). Others see reputation as constituted by the experience and feelings towards a company, while the intended

¹ Edelman Trust Barometer 2010, <http://www.edelman.com/trust/2010/>. Visited April 9th 2010.

behaviors constitute the consequences of reputation (MacMillian & al., 2005). Organizational reputation has also been operationalized by likening the processes of positive affect evoked by celebrity actors to organizations enjoying similar positive media attention (Rindova et al., 2006).

Dowling (2006) points out that corporate narratives help to explain the behavior of the company in terms of its mission and morality, and thus create an emotional bond with its key stakeholders. This is backed up by a study on organizational adaptation showing that knowledge of individuals' beliefs about an organization's identity and image is crucial for understanding the importance of an issue facing the organization, its meanings, and its emotionality (Dutton & Dukerich, 1991). The role of emotions has also been studied to some extent in the advertising industry, where specific importance has been given to research on commercial communication, and the role of emotions as mediators in advertising (see eg. Holbrook & Batra, 1987).

Nevertheless, definitions of reputation come to agreement in that reputation is about evaluation, about a company being good or bad, trustworthy or untrustworthy in the eyes of its stakeholders (see e.g. Gotsi & Wilson, 2001; Dowling, 2006). These evaluations play an important role when stakeholders are making decisions of buying products or services from certain companies. In return, after customer interaction, the evaluations are intensified or modified. Impressions behind these evaluations can be either direct or mediated. From a psychological point of view, individuals form impressions of a company, thus constructing its reputation, through direct experience of the company or its products and services. Alternatively or in addition, they form opinions mediated by other people's opinions and influence. (see e.g. Bromley, 2000). Bromley differentiates these as *first-order mental representations* and *second-order collective (social) representations*. Goates (2008) likewise distinguishes between these two, naming them *experiential reputation* and *hearsay reputation*, of which experiential reputation is generally regarded as more trustworthy (see also Rosnow & Fine, 1976).

Another concept that associates reputation with emotions is trust. Connection between trust and emotions is clear: research in psychology shows that positive emotions increase the feeling of trust and accordingly negative emotions decrease trust (Dunn & Schweitzer 2005). Fombrun's trust principle holds that *the more trustworthy a company appears to be to its key constituents, the better regarded the company will be* (Fombrun 1996, p. 68). Scott and Walsham (2005, p. 315) emphasize the role of creating trust in reputational relationships as follows:

Reputation is vested with explicit notions of trust, such as confidence, industry standing, and 'good faith' as well as implicit representations of dependability, a fundamental shift in the nature of trust production has significant implications for its management.

Reputation as an emotional experience

Previous research indicates that people who are in a positive frame of mind tend to take more positive actions with more positive perceptions in general while those with more negative framework tend to be more negative in their actions (Loewenstein et. al, 2001; Goates, 2008). If an individual is feeling happy (for any reason), they are more likely to make positive judgments about others. Loewenstein & al. (2001) also argue that emotions have a strong impact on the actions people take. This is also in line with the reputation in relationships model suggested by MacMillian & al. (2005); the consequences of reputation are defined in terms of stakeholder behavioral intentions, mediated by commitment and trust.

We adopt the view that emotions guide decision making, and that *reputation as an emotional experience* is a powerful influencer underlying this process. Good reputation has decisive impact in decision making processes from purchasing products and services to recruitment and investment decisions, and on the judgments made by mass media and financial analysts (e.g. Fombrun & van

Riel, 2004). We assume that emotions, even if often short-lived experiences, also influence the perceived reputation of a product or the company itself. Emotions can then be seen as further guides to decision making when purchasing goods from one manufacturer instead of another. Our research team aims to find out whether this assumption holds and if it does, what kind of longer-term influences it has.

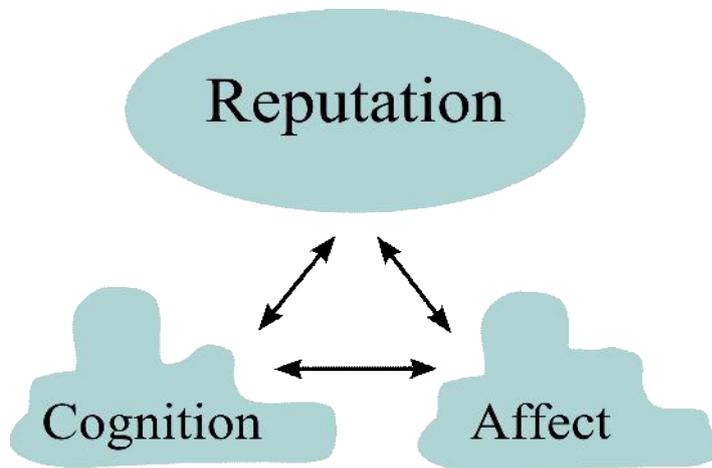


Figure 1 describes the relationship of reputation, cognition and affect.

Psychological research also suggests that in risky, ambiguous situations people are overpowered by their emotions, which lead them to make decisions less based on rational reasoning (LeDoux, 1996; see also Read, 2007). This is why the plural-voiced, low-trust digital publicity context we described earlier actually amplifies the significance of emotions. Thus we argue that reputation is a set of beliefs within an individual that both affects and is affected by cognitive and emotional processes in decision making. Figure 1 describes the relationship between reputation, cognition and affect. As seen in the figure, we posit a two-way relationship, where reputation influences emotions and rational decision making and vice versa.

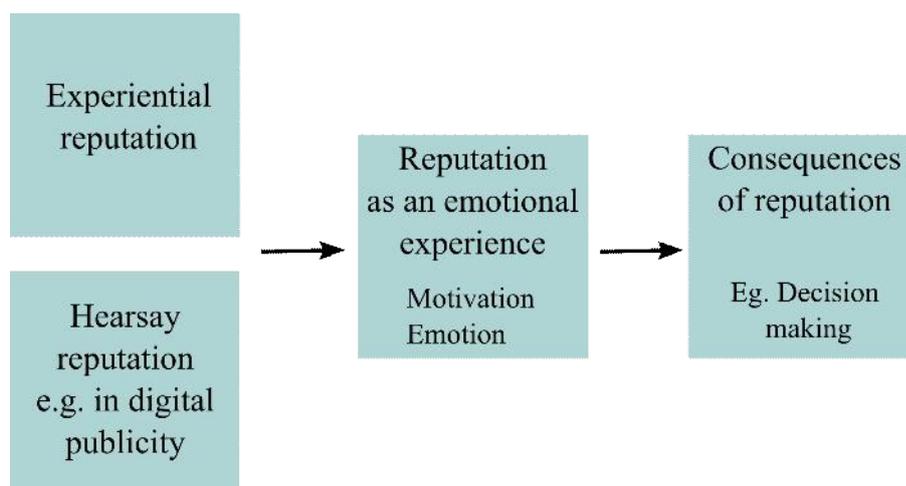


Figure 2. Reputation forms from perceptions, experiences and discourses. Digital publicity is one of the arenas that mediate reputational information, influencing experienced emotions and motivational processes and thus also processes related to reputation, eg. decision making.

We posit that digital publicity acts as a high-emotion, high-risk arena for various discursive performances, amplifying positive and negative opinions and discourses that are difficult to control and monitor. We assume the view, shown in Figure 2 above, that reputation exerts an effect on various stakeholder emotions (e.g., trust, distrust, admiration, contempt, irritation, anger) and motivations (e.g., approach or withdrawal) that, in turn, influence stakeholder behavior (e.g., buying decisions; see e.g., Shiv and Fedorikhin, 1999). Over time, there is co-evolution between emotions, beliefs, motivations, and behavior.

Our project will use a new methodological approach to study cognitive, emotional, and motivational processes associated with digital reputation. That is, we will examine the relationship of reputation with emotions and motivation by using advanced psychophysiological methods, discussed in detail in the next chapter.

Emotions and psychophysiology

In psychological research emotions can be seen as biologically based action dispositions that have an important role in the determination of human behavior (e.g., Lang, 1995). Emotions can be considered to be constituted of three separate but related reactive systems: (a) expressive and evaluative language, (b) physiological response, and (c) behavioral response (Lang, 1995). According to the dimensional theory of emotion, all emotions can be placed in a two-dimensional space, defined by valence and arousal (e.g. Lang, 1995). The valence dimension varies from unpleasant to pleasant and the arousal dimension defines the level of bodily activation related to the current emotional experience and ranges from calm to excited state.

Another approach classifies the range of emotions with the negative activation (NA) and positive activation (PA) axes (Watson & Tellegen, 1985). The NA axis ranges from high-arousal negative emotions (e.g., fear) to low-arousal positive emotion (e.g. pleasant relaxation), and the PA axis ranges from high-arousal positive emotion (e.g. joy) to low-arousal negative emotion (e.g. depression). It has been suggested that the self-reported NA and PA dimensions represent the subjective components of the two primary brain motivational systems, that is, the behavioral inhibition system (BIS) related to withdrawal behavior, and the behavioral activation system (BAS) that is related to approach behavior (e.g. Watson et al., 1999). Interestingly, Castells (2009) has linked the BIS and BAS to political behavior and communication. Also a good reputation is seen to affect the likelihood of supportive behaviors from all stakeholders (see e.g. Fombrun & van Riel, 2004), offering a clear connection with reputation, emotional appeal and approachability. To simplify, the approach system directs an individual to experiences that produce positive feelings, pleasure and reward. The avoidance system, on the other hand, links to experiences triggering negative emotions.

In this paper, we describe an experimental protocol for studying reputation and emotions with psychophysiological methods. The psychophysiological method uses physiological signals, such as facial electromyography (EMG), electrodermal activity (EDA), electrocardiography (ECG) and electroencephalography (EEG) for investigating different psychological processes (Cacioppo et al. 2000). By measuring bodily activities, inferences about emotions, attention, and motivation can be made. Psychophysiological measurements provide several benefits when compared to self-report, for example. Psychophysiological data can be collected continuously during the whole experiment (e.g., when interacting with a service) without the need to interrupt the subject to fill in questionnaire items. This also implies that psychophysiological signals have a good temporal accuracy throughout the whole experimental situation under study. Thus, inferences about processing changes during the task can be made. This would not be possible using solely self-reported responses collected at the end of the situation; after all, responses could be heavily affected by the very last moments of a long-duration experimental task. In addition, self-reported

data may be affected by the subject's tendency to answer in a socially acceptable way, whereas with psychophysiological methods also unconscious processing may be studied.

Facial EMG has often been used to study the hedonic valence (e.g. Cacioppo et al. 1986). Increases in the activation of the cheek (zygomaticus major) muscle area have been associated with positive emotions, whereas increases in the activation of the brow (corrugator supercilii) muscle region have been associated with negative emotions (Witvliet & Vrana, 1995). Periocular (orbicularis oculi) muscle area activity appears to be particularly high during positive-valenced high-arousal emotions (see for example Ravaja, 2004). For the measurement of arousal, electrodermal activity (EDA) is an important index. EDA has been shown to correlate with self-reported emotional arousal in studies where affective pictures have been used as stimuli (e.g., Lang, et al., 1993).

Electroencephalography (EEG) offers a good time resolution and a moderate spatial resolution for studying brain activation. Different EEG frequency bands have been associated with various processes: post-movement beta synchronization has been associated with motor functions (Pfurtscheller et al., 1998), increased alpha power has been associated with cortical idling or inactivity (Pfurtscheller et al., 1996), various oscillatory responses have been reported during tasks requiring memory processes (Basar, 2005), and emotion-related oscillatory responses have also been reported (Aftanas, et al., 2004; Coan & Allen, 2004).

Frontal alpha asymmetry is probably the most studied EEG measure of emotion and motivation. Studies that have examined relationships between different individual difference measures and resting EEG activity have shown that asymmetrical activation of the anterior cortical regions seems to influence emotional responding (Allen et al., 2001). According to Davidson (1998), left frontal activity, either as a state or a trait, indicates a propensity to approach a stimulus, whereas relatively greater right frontal activity indicates a propensity to withdraw from a stimulus. The underlying assumption in frontal asymmetry studies is that activity in the alpha range (8-13 Hz) is inversely related to underlying cortical processing; it is typical that alpha power decreases when the underlying cortical systems engage in active processing (Coan & Allen, 2004). It must be emphasized that these frontal asymmetries are not measures of positive or negative affects per se, but they tap a broader motivational tendency towards approach-related or withdrawal-related behaviors and emotions (Allen et al., 2001; Davidson, 1998). In addition, traditionally the right hemisphere has been considered to be more dominant in the processing of emotional information in general, although a meta-analysis by Wager et al. (2003) found no support for this hypothesis.

Research setting

Next we outline two experimental setups that can be used in studying digital reputation and, especially, how it is perceived and processed in an individual. We are currently in the process of preparing the stimulus material for the experiment and recruiting subjects. We plan to have all the data collected by the beginning of fall 2010 and the analyses would be ready by the end of year 2010.

Companies for our research have been selected from a longitudinal study of Finnish public listed companies, spanning eight years (2001-2008)². The study operationalizes and measures reputation with RepMap, a reputation meter consisting of six dimensions, each of which is defined by four sub-attributes. RepMap covers Corporate Culture and Management, Products and Services, Financial Excellence, Community Responsibility, Public Image, and Operational Dynamics (Aula & Heinonen, 2002; see also Aula & Mantere, 2008).

² The study is conducted yearly in cooperation with Finnish consultant company Pohjoisranta and Arvopaperi magazine.

In choosing companies for our study, we used the entire dataset spanning from 2001 to 2008. To evaluate the advantages of good reputation and accordingly the disadvantages of bad reputation, our selection criteria was to choose the best and worst performers as indicated by "overall reputation index", calculated as the arithmetic, unweighted mean of each of the six reputation sub-dimensions for each year of the longitudinal setting. While each of the six dimensions is its own and unique component, the dimensions share plenty (67%) of common variance as well, indicating that there is a clear common basis shared by the six dimensions; we label this common basis "overall reputation". Overall reputation is a good summary index in this first phase, useful in screening and sampling organizations for further analysis.

Experiment 1 – Psychophysiological reactions to company names and logos during reputation appraisal

The first experimental procedure is our contribution to basic research. The idea of Experiment 1 is to study psychophysiological responses during a reputation appraisal process where differing, good- and bad-reputed companies are evaluated by the subject. The companies (N = 30) are visualized both with their official logos and company names. The logos and company names (written with plain text) are shown individually in a randomized order while the subject is asked to rate the reputation of each company. Each stimulus (company logo or name) is presented for 6 seconds, and after this, a rating is asked for several reputation-related questionnaire items. After the rating, the next stimulus is presented and this sequence is repeated until each stimulus is presented 5 times. Psychophysiological data is collected continuously during the whole session. After data collection, analyses will be conducted for each of the 6 second segments during which the subject viewed a company logo or a name.

This procedure is similar to ones used when studying emotions evoked by different types of visual stimuli and it is widely used in psychophysiological basic research (e.g. Aftanas et al., 2004). Our main interest with this experiment is to establish and validate psychophysiological responses related to reputation processing. Our hypotheses are:

H1: Companies with a priori good reputation elicit positive emotion-related psychophysiological responses.

H2: Companies with a priori bad reputation elicit negative emotion related psychophysiological responses.

H3: Companies with good reputation elicit approach behavior-related psychophysiological responses, and companies with bad reputation elicit withdrawal behavior-related psychophysiological responses.

This first experiment serves to validate the physiological responses related to the psychological processing of reputation of companies. The obtained results will be used to form hypothesis for the following, more targeted, research settings.

Experiment 2 – Psychophysiological responses to news messages about companies

In the second experiment, the main aim is to study how positive and negative news messages on good- and bad-reputation companies affect the subject's perception of the reputation of these companies and his or her emotion- and motivation-related psychophysiological responses. We will use a 2 X 2 X 2 within-subject design, which involves a priori positive or negative news messages of companies with good or bad reputation, and these will be accompanied by ratings (positive or negative) allegedly made by other readers. The context would resemble a web page of a newspaper and the news messages would be rated by thumbs up or down and also by text comments. The messages would be modified from real and existing news messages and the (fake) ratings by other readers would be made up by the researchers. Prior to the actual data collection the emotional

valence of the news messages and the accompanying comments will be validated by a group of at least 30 persons to ensure that they represent the intended categories.

Our hypothesis, in addition to the previously presented, are:

H4: A positive news message elicits more positive reputation ratings for a company (when compared to a rating obtained prior to the experiment) and also psychophysiological activity that is related to positive emotions.

H5: A negative news message elicits more negative reputation ratings for a company (when compared to a rating obtained prior to the experiment) and also psychophysiological activity that is related to negative emotions.

H6: The emotional valence of the other reader's ratings and comments is contagious to the subject. That is, a positive news message followed by negative comments will be perceived more negative than a positive news message followed by positive comments, for example.

This research setting enables us to study not only the effect of (digital) media messages on the company reputation but also the effects of accompanying comments by other readers. This novel approach makes it possible to study the social aspects of the recent development of online media.

Risks, limitations and future directions

A potential risk is that we will not get any, or get only few and scattered, psychophysiological responses. In the first experiment, there are basically just two manipulated things: the a priori reputation of the company and the type of visual stimulus (company logo or name on plain text). Thus, it is possible that the reputation of a company evokes such weak emotional responses that they are not visible reliably in the physiological signals. However, recent interest in using company logos to study brands with the functional magnetic resonance imaging (fMRI; see for example Schaefer, 2009; Schaefer & Rotte, 2010) is encouraging, and we feel that also the more classical psychophysiological methods are applicable in this field.

What comes to the second experiment, we have already reported of physiological responses evoked by news messages (Ravaja et al., 2006). In addition we have found that the fake emotional status of other group is contagious to the subject while performing knowledge work tasks (Salminen et al., submitted) and this effect was also present in the physiological signals. Thus, we feel confident that also this experiment will increase our understanding of the psychological processing of company reputation.

Earlier in this paper we discussed the role of reputation and emotion in decision making. In the future we are aiming to clarify this connection by a third experiment in which we present economical decision tasks to subjects. In this experiment the subject would have to make decisions of buying or not buying stocks of given companies with varying a priori reputation. We are hoping this setting will help to clarify the connection between reputation, emotional experiences and actual behavior in the marketplace.

Discussion and further orientations

The main objective of our research team is to examine why and how different dimensions of digital reputation or reputation in wired, open and online environments are associated with various positive or negative emotional and motivational processes. We are also interested in whether the evaluation of reputation by individual test persons is connected to psychophysiological responses to the organizations (and/or their products, services and brands).

During our research project, we will study the emotional and motivational responses to web services of companies with either a good or bad reputation, using psychophysiological recordings. One of our assumptions is that organizations with good reputation will elicit greater approach motivation as indexed by frontal EEG asymmetry (Harmon-Jones, 2003), while organizations with bad reputation will elicit greater avoidance motivation. Related to these assumptions, we will also examine how different dimensions of digital reputation are associated with emotional and motivational processes as indexed by psychophysiological measures.

Ultimately, we are hoping to gain a better understanding of how different emotional experiences within digital environments (news articles, blogs, opinion boards) influence individual perceptions of the reputation of a certain company. Further on, we build new understanding that helps to describe and explain influences that can be evidenced between emotional experiences of individuals and their decision making processes concerning particular organizations and their reputations. Over time, we will be able to leverage our knowledge of reputation as connected emotions to propose why and how to study the extent to which individuals are interested in particular business organizations.

Our approach thus hopefully provides groundbreaking findings on emotional, motivational, and brain processes related to digital reputation, working towards providing effective methods and an approach to better understand and predict customer buying behavior, as well as client attitudes and willingness and ability to co-develop service offerings.

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Project blog: <http://reputationproject.wordpress.com/>

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