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Title of PhD dissertation: The impact of brand equity on consumer's online brand-related activities

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CONTENTS

INTRODUCTION

The ascent of Web 2.0 and social media platforms have provide opportunities for consumers to engage with brands in a different fashion than traditional media. Social media have changed online consumer behavior, therefore creating a new set of challenges for companies, products, and brands [1]. For instance, consumers are able not only to interact with other peers about products and brands but they also can watch, share, and create social media brand-related content. This new form of consumers' engagement with brands made firms no longer the sole source of brand communication [2].

Brand communication on social media is a topic that has drawn attention of scholars for its relevance [3]. The fast growth in popularity of social media amongst consumers and firms has opened a vast field of research. For the past few years scholars have been investigating the relationships between brands and social media communication by studying topics such as positive and negative electronic word-of-mouth [4, 5], social media advertising [6], online reviews [7], brand communities and fan pages [8], user-generated content [9], among others. Regardless of the growing number of empirical investigation on the topic of social media brand-related communication, this is still considered to be a subject on its early stages of investigation [10]. This dissertation is dedicated to the aforementioned topic, specifically it focus on the relationship between brand equity and the consumer's engagement with social media

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[1] A.M. Kaplan, M. Haenlein, *Users of the world, unite! The challenges and opportunities of social media,* "Business Horizons", 2010, 53, 1, pp. 59-60.

[2] *Ibidem*, pp. 59-60.

[3] M. Yadav, P. Pavlou, *Marketing in computer-mediated environments: Research synthesis and new directions*, "Journal of Marketing", 2014, 78, January, pp. 20–40.

[4] D. Godes, D. Mayzlin, *Firm-Created Word-of-Mouth Communication: Evidence from a Field Test*, "Marketing Science", 2009, 28, 4, pp. 721–739.

[5] S. Bambauer-Sachse, S. Mangold, *Brand equity dilution through negative online word-of-mouth communication,* "Journal of Retailing and Consumer Services", 2011, 18, 1, pp. 38–45.

[6] M. Bruhn, V. Schoenmueller, D.B. Schäfer, *Are social media replacing traditional media in terms of brand equity creation?*, "Management Research Review", 2012, 35, 9, pp. 770–790.

[7] F. Karakaya, N.G. Barnes, *Impact of online reviews of customer care experience on brand or company selection*, "Journal of Consumer Marketing", 2010, 27, 5, pp. 447–457.

[8] R. Algesheimer, U.M. Dholakia, A. Herrmann, *The social influence of brand community: Evidence from European car clubs*, „Journal of Marketing", 2005, 69, July, pp. 19–34.

[9] G. Christodoulides, C. Jevons, J. Bonhomme, *Memo to marketers: Quantitative evidence for change. How user-generated content really affects brands*, "Journal of Advertising Research", 2012, 52, 1, pp. 53–64.

[10] G. Kane, M. Alavi, G. Labianca, S. Borgatti, *What's different about social media networks? A framework and research agenda*, "MIS Quarterly", 2014, 38, 1, pp. 275–304.

brand-related content – a topic of relevance as evidenced by C.R. Taylor [11], G.C. Kane, M. Alavi, G. Labianca, and S.P. Borgatti [12] and many other recent papers [e.g., 13, 14, 15]. Although there are some initial investigation in the relationship between brand equity and the consumers involvement with brand-related content [16], to the best of the author's knowledge, thus far, no study has reported the effects of consumer's perceptions of brand equity on their propensity to engage into the consumption, contribution, and creation of social media brand-related content.

Additionally, the topic is approached in the context of the high-tech industry. Focusing on the brands within this sector rationale on their rapid diffusion of technological information combined with a short product life cycle [17]. Moreover, the high-tech industry characteristics include a high demand for qualified personnel, high capital inputs, and high investment risk [18]. Therefore, making the Internet an appropriate communication channel for the brands in this sector [19] while their social media management a necessity [20].

In summary, this dissertation addresses the topic of social media brand communication, centering on the relationship between the consumers' perceptions of brand equity and their further engagement with brand-related content on social media. Grounded upon an extensive literature review and analysis of previous studies in the fields of social media communication and brand management the expected effects of the study are summarized in the following thesis statement:

TS: *Consumer-based brand equity positively influences the consumer's engagement with social media brand-related content.*

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[11] C.R. Taylor, *Editorial: Hot topics in advertising research*, "International Journal of Advertising, 32, 1, pp. 7-12.

[12] G.C. Kane, M. Alavi, G. Labianca, S. P. Borgatti, *What's different about social media networks? A framework and research agenda,* "MIS Quarterly", 38, 1, pp. 275-304.

[13] G. Christodoulides, C. Jevons, J. Bonhomme, *Memo to marketers: Quantitative evidence for change. How user-generated content really affects brands*, "Journal of Advertising Research", 2012, 52, 1, pp. 53–64.

[14] M. Yadav, P. Pavlou, *Marketing in computer-mediated environments: Research synthesis and new directions*, "Journal of Marketing", 2014, 78, January, pp. 20–40.

[15] S. Cummins, J.W. Peltier, J.A. Schibrowsky, A. Nill, *Consumer behavior in the online context,* "Journal of Research in Interactive Marketing", 2014, 8, 3, pp. 169-202.

[16] G. Christodoulides, C. Jevons, J. Bonhomme, *Memo…*, pp. 53–64.

[17] A. Zakrzewska-Bielawska, *Coopetition? Yes, but who with? The selection of coopetition partners by high-tech firms*, "Journal of American Academy of Business", 2015, 20, 2, pp. 159.

[18] *Ibidem*, pp. 159-160.

[19] S. Nambisan, R. Baron, *Virtual customer environments: Testing a model of voluntary participation in value co-creation activities*, "Journal of Product Innovation Management", 2009, 26, 4, pp. 388–406.

[20] J.H. McAlexander, J.W. Schouten, H.F. Koenig, *Building brand community*, "Journal of Marketing", 2002, 66, 1, pp. 38–55.

Hence, two main theoretical frameworks were used. For brand equity, it was approached a consumer's standpoint. The consumer-based brand equity framework (hereafter, CBBE) is a multidimensional construct that allows the understanding of the consumers' perception of brands from cognitive and behavioral perspectives. On the other hand, to capture the behavior of individuals on social media, it was used the consumer's online brand-related activities framework (hereafter, COBRA). The COBRA concept, similarly to the CBBE framework focuses on the consumer and not on the organizational perspective, while offering a comprehensive range of online brand-related activities.

Deriving from a detailed literature analysis on the topic of CBBE, it is expected that consumers which are highly involved with a brand to engage with an array of activities pertinent to the same brand online. Therefore a research question arises:

RQ: *Does consumer-based brand equity positively influence the consumer's engagement with social media brand-related content?*

To guide answering the outlined research question, it was formulated a research objective, thus:

RO: *To identify the effects of consumer-based brand equity on consumer's engagement with social media brand-related content.*

To answer the research question and achieve the abovementioned research objective, throughout this dissertation is described the development of a conceptual model to investigate the effects of CBBE on COBRA in the high-tech industry context.

Concerning to the methodological approach employed in this dissertation, there were employed a logical scheme of literature analyses followed by a series of empirical studies. A simplified scheme of this dissertation research process is presented in Figure 1. The full scheme is found at Appendix B (Figure B1). The overall structure of the dissertation follows:

The first chapter presents the topic of brand equity. In this initial chapter it is introduced the delimitation and the management of brands. The concept of CBBE is exposed, as well as its conceptualization and empirical measurement. During chapter one, limitations concerning to the measurement of consumer-based brand equity emerge. The limitations are related inter alia to the employment of a single construct

Figure 1. Simplified research process scheme

THEORETICAL BACKGROUND
1. Literature review 2. Research gap 3. Research question 4. Research objective 5. Thesis statement 6. Hypotheses

DEVELOPMENT OF MEASUREMENT INSTRUMENTS
1. To refine and validate a scale to CBBE 2. To develop and validate a scale to COBRA

CONCEPTUAL MODEL
1. Specification of a first-order causal model of effects of CBBE on COBRA 2. Specification of a higher-order causal model of effects of CBBE on COBRA

APPLICATION
1. Application of the CBBE and CESBC scales on selected brands in the high-tech industry 2. Application of the conceptual model on selected brands in the high-tech industry

Source: Own elaboration based on E.R. Babbie, *Badania społeczne w practyce*, Wydawnictwo Naukowe PWN, Warszawa 2004, p. 128.

to measure two distinctive CBBE dimensions (brand awareness and brand associations) [21]; the use of a single item to measure brand awareness [22]; and the need of implementation of additional factors in the model to capture bran associations [23]. Therefore a specific research objective is set:

SO1: *To refine and validate a scale to measure consumer-based brand equity.*

The second chapter introduces the conception of COBRA. The online and social media environments are briefly described to support further understanding on the conceptual framework. The literature review bridges the topics of social media

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[21] B. Yoo, N. Donthu, *Developing and validating a multidimensional consumer-based brand equity scale*, „Journal of Business Research", 2001, 52, 1, pp. 1–14.

[22] R. Pappu, P.G. Quester, R.W. Cooksey, *Consumer-based brand equity: Improving the measurement – empirical evidence*, „Journal of Product & Brand Management", 2005, 14, 3, pp. 143–154.

[23] I. Buil, L. de Chernatony, E. Martínez, *A cross-national validation of the consumer-based brand equity scale,* "Journal of Product & Brand Management", 2008, 17, 6, pp. 384–392.

and branding, while indicating the need of empirical research on the topic of consumer's engagement with social media brand-related content. Literature limitations and a gap concerning the conceptualization and operationalization of the consumer's engagement with the consumption, contribution, and creation of social media brand-related content emerge during this stage. Therefore, a second specific research objective is given:

SO2: *To develop and validate a scale to measure consumer's online brand-related engagement.*

The third chapter describes the empirical research foundation that addresses both first and specific research objectives (SO1 and SO2). The chapter starts with the consumer-based brand equity scale development and validation. CBBE was conceptualized as a four-factor construct consisting of brand awareness, brand associations, perceived quality, and brand loyalty. Three research methods were applied to develop and validate a scale to measure CBBE. As a first step, 15 respondents employed the Best-Worst (WSB) scaling method on a pool of 43 items. The resulting pool of items was later judged for representativeness by five marketing professors with background in measurement and brand management. The next steps were to test and refine the items with quantitative research methods. Three pilot studies followed by a main investigation were undertaken with a total of 1847 Polish consumers. The reliability of the scales was tested with Cronbach's alpha. Exploratory and confirmatory factor analyses (EFA and CFA) were later applied. During the CFA, the constructs were later tested for reliability, convergent, and discriminant validity. The final step consisted of a test for factorial equivalence of the instrument scores. To test for the invariance of the instrument $\Delta\chi^2$ and ΔCFI were applied.

Following in the third chapter, the reader is presented to the procedures for the development and validation of a measurement instrument to consumer's engagement with social media brand-related content - the CESBC scale. The COBRA framework was conceptualized as a three-dimensional construct consisting of consumption, contribution, and creation of brand-related content. To the development and validation of the CESBC, both qualitative and quantitative methodologies were employed. The initial stage of the research aimed to elaborate on the social media brand-related activities previously reported in literature. Two online focus groups (bulletin boards) were conducted with 25 consumers. The outcomes of this stage were

further enhanced with online depth interviews. A total of 32 respondents were interviewed using online instant messages (IM). Additionally, netnography was employed to assure that a full array of online brand-related activities were detected. The results of the three qualitative studies served as basis to the development of a questionnaire. The questionnaire was pretested using a sample of 48 undergraduate business students. Finally, an online survey was undertaken with 2258 Polish consumers to validate the instrument. Similarly to the procedures used to refine and validate the CBBE scale, for the CESBC the reliability of the scales was tested with Cronbach's alpha. EFA and CFA were later applied. Reliability, convergent, and discriminant validity were also assessed during the CFA. The final scale consisted of 3 dimensions and 19 items. In summary, the outcomes of the third chapter are the scales that consist the conceptual model. Summary of findings and study limitations for both studies can be found after each study correspondently.

The fourth chapter addresses to the general research objective (RO) of this dissertation in the high-tech industry context. In this chapter the hypotheses of the study are postulated and further empirically tested. The conceptual model is a combination of the two CBBE and CESBC scales resulted from the previous chapter. The concept of CBBE was based on the theory of reasoned action (TRA); hence the framework was tested as a hierarchical structure, which assumes that attitudes and subjective norms influence the consumer's intentions, consequently stimulating behavior. Moreover, following researches that posit CBBE as a hierarchical structure, causal connections among the CBBE dimensions were postulated.

For the model specification, CBBE consisted of four latent variables (i.e., brand awareness, brand associations, perceived quality, and brand loyalty). On the other hand, the COBRA framework was specified with three latent variables (i.e., consumption, contribution, and creation). Thus, the conceptual model of CBBE effects on COBRA consisted of seven latent variables. The study hypotheses were further developed and specified in the conceptual model as structural paths. The model was therefore estimated with 414 consumers that declared to engage into brand-related activities related to high-tech brands.

The micro-relationships between the 7 latent variables were further extended to a post-hoc analysis that focus on a macro perspective of the phenomena i.e., the identification of possible overall effects of consumer-based brand equity on consumer's engagement with social media brand-related content. A higher-order

conceptual model was used for detecting this relationship. For the higher-order model specification, brand awareness, brand associations, perceived quality, and brand loyalty were loaded into one single higher-order factor named CBBE. Analogously, consumption, contribution, and creation were loaded into one single higher-order factor named COBRA. Finally, COBRA was regressed on CBBE. The chapter ends with a conclusion and summary of findings. Suggestions for further research and the study limitations were also described.

The fifth and final chapter of this dissertation introduces the managerial applicability of study results for brand managers in the high-tech industry. This section is extended not only the implementation of the conceptual model, as well as the application of both CBBE and CESBC scales. For the purpose of practical comparison and applicability of the instruments, three high-tech brands were selected namely, Apple, Nokia, and Samsung. For the applicability of the scales, mean scores were calculated for individual items of CBBE and CESBC. Additionally, mean values of the aggregate scores of items were also calculated. For a comparison of scores across the brands it was employed the Mann-Whitney U test. For the applicability of the conceptual model, the CRDIFF method was used to calculate the differences of parameters across the brands. This chapter concludes with managerial implications based on the analyses outcomes.

The summary and conclusion section highlights the main points covered throughout the previous chapters. For reasons of text clarity, the author opted for a depth discussion of the findings, managerial implications, and research limitations after research step separately. Therefore, the summary and conclusion is concise and focuses on the broad sense of this dissertation i.e., the identification of the effects of consumer-based brand equity on consumer's engagement with social media brand-related content in the high-tech industry. Supplementary material are found at Appendixes A and B.

Finally, the resulting contributions of this dissertation to literature related to brand management are the following:

First, the refined scale of CBBE showed to be a reliable and parsimonious instrument that captures brand awareness, brand associations, perceived quality, and brand loyalty. The scale rendered results that proved to overcome the limitations of previous studies. Second, the presented instrument to measure COBRA – the CESBC scale yielded reliable and robust results, thus indicating that the framework can be

captured from a three-dimensional perspective i.e., the consumption, contribution, and creation of content. Third, it concerns to the postulated relationship among the CBBE dimensions in the high-tech industry. The results strengthen the stream of research, which postulates that CBBE is a hierarchical structure. Brand awareness positively influenced both brand associations and perceived quality. Those in turn positively impacted brand loyalty. Fourth, the findings of the influence of CBBE on COBRA support the thesis statement (TS) in both micro- and macro-relationship perspectives. From the micro-relationships perspective the results demonstrated that brand associations positively influenced both consumption and contribution of brand-related social media content. Brand loyalty positively influenced the consumption, contribution, and creation of social media brand-related content. From the macro-relationship perspective the post-hoc analysis with higher-order structures for CBBE and COBRA indicated a positive effect among the variables, therefore supporting the thesis statement and answering the postulated research question (RQ).

Lastly, although just as important, the results of the application of the study results for brand management in the high-tech industry, which indicate that both CBBE and CESBC scales are valid, reliable, and parsimonious measurement instruments that quantify consumers' perceptions and behavior. In addition, the conceptual framework provides the basis for empirical studies based on correlational and dependent relationships among CBBE and COBRA; thus playing an important role in the management of brands in the social media environment - an area of increasing importance for marketing.

Acknowledgements

…and for all readers of this dissertation, I hope it will be fruitful and give some new and different insights into the topic of brands in social media.

The author

1. THE MANAGEMENT OF BRAND EQUITY

1.1. Brands and brand equity: delimitation and management

1.1.1. The conceptual delimitation of the brand

Branding has been used for centuries as a means to distinguish the products and services of one producer from those of another [24]. The concept of a brand evolved in the eighteenth century as the names and pictures of animals, places of origin, and famous people replaced the names of producers on their products, with the purpose to strengthen the consumer's associations with a product [25]. Companies wanted to make their products easier for customers to remember and to differentiate their offers from those of competitors [26].

In creating a brand, of great importance is the initial understanding of the contrast between a product and a brand. A product is defined as "anything [that] can be offered to a market for attention, acquisition, use, or consumption that might satisfy a need or want" [27]. Consequently, a product may be a tangible good, a service, a retail outlet, a person, an organization, a place, or even an idea [28]. According to the American Marketing Association (AMA) a brand is defined as "[a] name, term, sign, symbol, or design, or a combination of them, intended to identify the goods and services of one seller or group of sellers and to differentiate them from those of competition" [29]. Thus, the key for a firm to create a brand is the ability to choose an appropriate name, logo, symbol, package design, and/or other features that identifies a product and differentiates it from others [30]. Additionally, by the term 'brand' should be incorporated not only consumer goods, but market offerings, which include people (e.g., politicians, athletes, and pop stars), places (e.g., tourism locations, cities, and countries), companies, industrial products, service products, and others [31].

The brand has magnitudes that allow differentiation in some way from other products designed to satisfy the same need. These differences are related to product

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[24] K.L. Keller, *Strategic brand management: Building, measuring, and managing brand equity,* Pearson Education Limited, Harlow, England 2013, p. 30.
[25] P.H. Farquhar, *Managing brand equity,* "Marketing Research", 1989, 1, 3, p. 24.
[26] *Ibidem*, p. 24.
[27] K.L. Keller, *Strategic…*, p. 31.
[28] *Ibidem*, p. 31.
[29] American Marketing Association, *Dictionary,* http://www.marketingpower.com/_layouts/Dictionary.aspx?dLetter=B (2014.02.03).
[30] K.L. Keller, *Strategic…*, p. 30.
[31] L. de Chernatony, M.H.B. McDonald, *Creating powerful brands in consumer, service and industrial markets*, Chemistry & Amp, Elsevier/Butterworth-Heinemann, Jordan Hill, Oxford 2010, 3rd Edition, p. 12.

performance of the brand (rational and tangible differences), or related to what the brand represents (symbolic, emotional, and intangible differences) [32]. From the consumers' side, a brand is an important part of the purchase; it adds perceived value to a product. It helps buyers to identify products that might benefit them. From the firms' side, branding also gives several advantages. Such advantages can be the brand name, thus generating a basis on which value can be built around the special qualities of a product [33].

A distinction should also be drawn between the terms 'brand' and 'commodity'. Commodity markets are characterized by the lack of perceived differentiation by consumers between competing products. In other words, one product offering in a specific category is similar to another. For instance, products like vegetables or meat, while there may be differences in the quality of the products, the suggestion is that, within a given specification, one tomato is just the same as another tomato [34].

Thus, in such situations the purchase decisions tend to be taken on the basis of variables as price or availability, and not on the basis of the brand [35]. Therefore, one could argue that the consumer's purchase of milk falls into the commodity category. While the dairy companies promote identities, they inevitably end up relying either on price or on promotions to generate purchase/repurchase [36]. However, there are circumstances that a commodity can become a brand. This situation happens when a company implements branding and marketing techniques to sell the product for a price well in excess of the costs of the ingredients [37].

Drawing from these mentioned assumptions, one can assume that practically any product can be branded. Therefore, it emerges a market necessity to rank and evaluate brands regarding to its strength and value [38]. Once the market position of a brand in relation to its competitors has become a key to understanding the influence

[32] L. de Chernatony, M.H.B. McDonald, *Creating powerful brands in consumer, service and industrial markets*, Chemistry & Amp, Elsevier/Butterworth-Heinemann, Jordan Hill, Oxford 2010, 3rd Edition, p. 12.
[33] Ph. Kotler, G. Armstrong, *Principles of marketing – 12th ed.*, Pearson Prentice Hall, NJ 2008, pp. 225-226.
[34] L. de Chernatony, M.H.B. McDonald, *Creating…*, p. 12.
[35] *Ibidem*, p. 12.
[36] *Ibidem*, p. 12.
[37] *Ibidem*, pp. 12-13.
[38] K.L. Keller, *Strategic brand management: Building, measuring, and managing brand equity,* Pearson Education Limited, Harlow, England 2013, p. 48.

of marketing and branding [39], it is not surprising that scholars and practitioners are committed in capturing and efficiently managing brands and their equity.

1.1.2. Brand management as a subject of study

The protection of brand assets is a bond that is recognized in many companies by the organizational concept of brand management [40]. In the conception of management of brands, an executive is given the responsibility for a brand or brands. This brand is therefore considered to be a valuable asset that competes internally in the firm for resources and externally for market position [41]. Additionally, the notion of brand management includes the identification of the net present value of a brand based upon the prospect of future cash inflows compared with outgoings [42]. This approach forces the manager to recognize that money spent on developing the market position of a brand is therefore an investment made to generate future revenues [43]. In other words, whereas the traditional accounting approach considers marketing costs as expenditure in the period in which they are incurred, the brand management approach recognizes such expenditure as investments.

Consistent with the notion that brands are valuable intangible assets, thus – like all assets – their value can fall as well as rise when poorly or properly managed [44]. Issues concerning to the relationship between the management of a brand with its added value can be traced from the year of 1993 with the Marlboro Friday event [45, 46]. This event led scholars and marketing managers to question the health of brands, and to wonder whether companies had too many disjointed brands (brand proliferation), or not enough (giving rise to inadequate market exposure issues) [47].

[39] T.J. Reynolds, C.B. Phillips, *In search of true brand equity metrics: All market share ain't created equally,* "Journal of Advertising Research", 2005, 45, 2, p. 171.
[40] L. de Chernatony, M.H.B. McDonald, *Creating powerful brands in consumer, service and industrial markets*, Chemistry & Amp, Elsevier/Butterworth-Heinemann, Jordan Hill, Oxford 2010, 3rd Edition, p. 16.
[41] *Ibidem*, p. 16.
[42] *Ibidem*, p. 17.
[43] *Ibidem*, p. 17.
[44] J. Altkorn, *Strategia marki,* Polskie Wydawnictwo Ekonomiczne, Warszawa 2001, pp. 24-25.
[45] C. Macrae, M.D. Uncles, *Rethinking brand management: The role of "brand chartering",* Journal of Product & Brand Management, 1997, 6, 1, p. 64.
[46] Marlboro Friday is referred to April 2, 1993, when the firm Philip Morris announced a 20% price reduction to their Marlboro cigarettes as an attempt to fight back against generic competitors. This action resulted in fell of Philip Morris's stock by 26%, as well as drop of the share value of other branded consumer product companies such as Coca-Cola and RJR Nabisco.
[47] C. Macrae, M.D. Uncles, *Rethinking...,* p. 64.

Such managerial issues raised interest of scholars to develop brand change agendas, which included executive actions such as the management of: world-class culture, 'glocal' branding, seeded marking channels, service smart integration, brand architecture, brand organizing, and brand strength [48]. Each type of brand management is briefly discussed as follows:

World-class culture. This type of brand management aims to lever a brand to be the world number one in its category [49]. The world-class culture raises matters such as steady organic growth versus dramatic leaps forward, whereas concerning on the sustainability of the gained position, in the medium term at least [50]. Brand managers focus on the market leadership, by providing vision and by being innovative [51]. Focus is given on creating a corporate environment that gives room for maneuver and where is possible to set an action agenda. Finally, brand managers emphasis on the removal of internal barriers and procedures, which may inhibit the development of a world-class culture [52, 53].

'Glocal' branding. Brand executives focus on balancing the demands of headquarters with those of local managers [54]. Focus is given on taking full advantage of local expertise, knowledge, and information, without compromising global determinations [55]. When setting a 'glocal' agenda, managers aim to be global players, while giving attention to local market conditions and recognizing the expertise of local managers. Managers need to establish strategic partnerships and networks to take advantage of local and international knowledge, foresight, and expertise. Another issue concerning to this managerial action is the creation of flexible and adaptable organizations to respond to new market opportunities [56]. Brand executives also focus on having real added value to offer to local and international consumers, while surpassing/partnering well-targeted indigenous brands [57].

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[48] C. Macrae, M.D. Uncles, *Rethinking brand management: The role of "brand chartering",* Journal of Product & Brand Management, 1997, 6, 1, pp. 64-67.
[49] *Ibidem*, p. 66.
[50] J. Kall, *Silna marka. Istota i kreowanie,* Polskie Wydawnictwo Ekonomiczne, Warszawa 2001, pp. 275-277.
[51] G. Urbanek, *Zarządzanie marką*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2002, pp. 221-225.
[52] *Ibidem*, p. 66.
[53] P. Drucker, *The practice of management*, Harper & Row, New York, NY 1982, pp. 47-49.
[54] J. Kall, *Silna…*, pp. 287-289.
[55] *Ibidem*, pp. 287-289.
[56] G. Urbanek, *Zarządzanie…*, pp. 231-234.
[57] C. Macrae, M.D. Uncles, *Rethinking…*, p. 66.

Seeded marketing channels. Brand executives that implement this type of management use inspired and creative ways to reach the consumers [58]. Managers target opinion leaders and early adopters prior to making use of traditional mass marketing communications [59]. Direct communications in conjunction with mass media advertising and mass distribution play an important role when using seeded marketing channels. Focus is given in the development and exploitation of new means of communication and distribution channels such as interactive media, buying clubs, joint ventures, and co-development of new channels.

Service smart integration. Brand executives target at maintaining long-term relationships with consumers by creating a lifetime focus, implementing two-way feedback loops, and using direct communication tools [60]. Managers ensure that the firm employees understand the importance of customer relations [61]. It is prioritized the creation of a process whereby 'smart service' generates sales and margin growth, which in turn funds 'smarter service' and consequently enhances customer satisfaction [62].

Brand architecture. This type of brand management focuses on the configuration and optimization of brand portfolios. Brand managers opt for using product-branding strategies, for the development of umbrella brands, or for relying on corporate/banner branding [63]. Focus is given on discarding or refocusing brands where there has been excessive market proliferation, whereas emphasizing the corporate brand as a manifestation of the vision, mission, and values of the firm. Thus, when using brand architecture managers exploit corporate reputation. Additionally, direction is provided from the top and there are distinctions of rules for external and internal brand management [64]. The use of brand architecture also

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[58] C. Macrae, M.D. Uncles, *Rethinking brand management: The role of "brand chartering",* Journal of Product & Brand Management, 1997, 6, 1, p. 66.
[59] *Ibidem*, p. 66.
[60] R. Furtak, *Marketing partnerski na rynku usług*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2003, pp. 68-69.
[61] J. Otto, *Marketing relacji. Koncepcja i stosowanie*, Wydawnictwo C.H. Beck, Warszawa 2001, pp. 42-45.
[62] C. Macrae, M.D. Uncles, *Rethinking…*, p. 66.
[63] M. Dębski, *Architektura marek jako narzędzie budowania przewagi konkurencyjnej przedsiębiorstwa*, „Marketing i Rynek", 2007, 5, pp. 14-21.
[64] *Ibidem*, pp. 14-21.

emphasizes brand partnership strategies and co-branding, therefore creating architectures that build bridges between companies and that re-define markets [65].

Brand organizing. Here focus is set on processes for team working and the integration of strategies across functional areas and across divisions [66]. Brand managers aim at exploiting the best from brands and other intangibles, bearing in mind the core competences of the firm and its personnel. Brand executives take the full responsibility for brand organization and are responsible for the implementation of necessary changes and minimize unnecessary disruption [67]. Constant monitoring and review processes are also pertinent to this type of brand management, consequently incorporating a culture that values organizational learning [68].

Brand strength. This type of brand management focuses on the measurement of the strength of a brand, both financially and strategically [69]. Brand executives are responsible to the administration of the correlations between marketing actions and financial measures of strength [70]. This include the measurement of brand performance with the market, as well as planning future scenarios – from steady-state conditions to major incoherence that are set to weaken or threaten a brand [71]. When managing brand strength managers focuses also on the leveraging brand equity through actions such as brand extension, product innovation, and the creation of additional customer value. The brand manager sets priorities among these different options [72].

For the purposes of this dissertation only one managerial issue concerning to the development of brands is considered i.e., the management of brand strength, specifically the management of brand equity. An indication of the importance of brand equity for the business world is the fact that there are currently a substantial number of consulting firms, each with their own methods for measuring brand

[65] M. Dębski, *Architektura marek jako narzędzie budowania przewagi konkurencyjnej przedsiębiorstwa*, „Marketing i Rynek", 2007, 5, pp. 14-21., p. 66.
[66] C. Macrae, M.D. Uncles, *Rethinking brand management: The role of "brand chartering",* Journal of Product & Brand Management, 1997, 6, 1, p. 66
[67] B. de Wit, R. Meyer, *Synteza strategii: Tworzenie przewagi konkurencyjnej przez analizowanie paradoksów,* Polskie Wydawnictwo Ekonomiczne, Warszawa 2007, pp.
[68] *Ibidem*, p. 66.
[69] J. Kall, *Silna marka. Istota i kreowanie,* Polskie Wydawnictwo Ekonomiczne, Warszawa 2001, p. 42.
[70] *Ibidem*, pp. 42-46.
[71] *Ibidem*, pp. 42-46.
[72] C. Macrae, M.D. Uncles, *Rethinking...*, p. 66.

equity [73]. In setting up a research agenda for brand management, K.L. Keller and D. Lehman identified the topic of brand equity and its measurement of theoretical and empirical significance to both marketers and scholars [74].

1.1.3. The concept of brand equity

Brand equity is a key marketing asset, which can create a relationship differentiating the links between the firm and its stakeholders [75], in addition to nurturing long-term buying behavior [76]. The understanding of the dimensions of brand equity as well as the implementation of techniques that aim at levering this intangible asset increases brand wealth and raises competitive barriers [77]. For companies, the continuous growth of brand equity is a key objective that should be achieved through gaining favorable associations and feelings among consumers [78, 79].

Although extensive research has been conducted on brand equity during the last two decades, the literature on this subject is fragmented and inconclusive [80]. Several definitions of brand equity have been suggested from both the consumer perspective and the financial perspective.

P.H. Farquhar defined brand equity as "the value added to the product" [81], however, his definition is vague and does precisely cover the phenomena. R. Srivastava and A. Shocker introduced a more precise definition of brand equity, as "a set of associations and behaviors on the part of a brand's consumers, channel members and parent corporation that enables a brand to earn greater volume or greater margins than it could without the brand name and, in addition, provides a strong,

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[73] G. Christodoulides, L. de Chernatony, *Consumer-based brand equity conceptualization and measurement: A literature review,* "International Journal of Marketing Research", 2010, 52, 1, p. 43.
[74] K.L. Keller, D.R. Lehmann, *Brands and branding: Research findings and future priorities,* "Marketing Science", 2006, 25, 6, p. 740.
[75] S.D. Hunt, R.M. Morgan, *The comparative advantage theory of competition,* "Journal of Marketing", 1995, 59, 2, p. 1.
[76] G. Christodoulides, L. de Chernatony, *Consumer-based brand equity conceptualization and measurement: A literature review,* "International Journal of Marketing Research", 2010, 52, 1, p. 43.
[77] M. Dębski, *Kreowanie silnej marki,* Polskie Wydawnictwo Ekonomiczne, Warszawa 2009, p. 34
[78] A.W. Falkenberg, *Marketing and the wealth of firms,* "Journal of Macromarketing", 1996, 16, 4, p. 4
[79] J. Kall, B. Sojkin, *Zarządzanie produktem – wyzwania przyszłości,* Wydawnictwo AE w Poznaniu, Poznań 2006, p. 516.
[80] G. Christodoulides, L. de Chernatony, *Consumer-based...,* pp. 43-65.
[81] P.H. Farquhar, *Managing brand equity,* "Marketing Research", 1989, 1, 3, p. 24.

sustainable and differential advantage" [82]. Their collaboration introduces brand equity as derivate of actors' experience with the brand, resulting in competitive advantage.

A different approach to brand equity were suggested by M.B. Holbrook [83] and C.J. Simon and M.W. Sullivan [84], whose investigated the association of brand equity to products or services, and in turn endorsed the construct as a difference of cash flows from the sales of branded and unbranded products. On the other hand, W. Lassar, B. Mittal, and A. Sharma emphasized the role of perceived utility and desirability a brand confers on a product [85]; whereas S. Fournier incorporate into the definition of brand equity the relationship between the firm's product and its customers [86]. Although the authors M.B Holbrook; C.J. Simon and M.W. Sullivan; W. Lassar, B. Mittal, and A. Sharma; and S. Fournier assimilated another dimensions to the definition of brand equity, they have failed in precisely describe the construct.

B. Yoo, N. Donthu, and S. Lee introduced a more complex definition of the phenomenon, therefore brand equity should be understood as "the difference in consumer choice between a branded and unbranded product, given the same level of features; in other words brand equity is the extra value embedded in a brand's name, as perceived by customers, compared with an equal product without a name" [87]. In their concept, the authors highlight the role of customers giving a psychological value to an identifiable product in comparison to a similar unknown product.

Ph. Kotler and K.L. Keller introduced a different approach to the definition of brand equity. The authors made a bridge between marketing investments in the firm's products and the psychological aspects of consumers' brand knowledge [88].

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[82] R. Srivastava, A. Shocker, *Brand equity: A perspective on its meaning and measurement*, Marketing Science Institute, Boston, MA 1991, p. 3.

[83] M.B. Holbrook, *Product quality, attributes, and brand names as determinants of price: The case of consumer electronics*, "Marketing Letters", 1992, 3, 1, p. 72.

[84] C.J. Simon, M.W. Sullivan, *The measurement and determinants of brand equity: A financial approach*, "Marketing Science", 1993, 12, November, p. 29.

[85] W. Lassar, B. Mittal, A. Sharma, *Measuring customer-based brand equity*, „Journal of Consumer Marketing", 1995, 12, 1995, p. 13.

[86] S. Fournier, *Consumers and their brands: Developing relationship theory in consumer research,* "Journal of Consumer Research", 1998, 24, 4, p. 343.

[87] B. Yoo, N. Donthu, S. Lee, *An examination of selected marketing mix elements and brand equity*, "Journal of the Academy of Marketing Science", 2000, 28, 2, p. 195.

[88] Ph. Kotler, K.L. Keller, *Marketing management,* Pearson Education, Upper Saddle River, NJ 2006, p. 27.

Advancing the concept of brand equity introduced by B. Yoo, N. Donthu, and S. Lee [89], L.G. Schifmann and L.L. Kanuk incremented the delineation of brand equity with dimensions such as perceived quality, social esteem, trust, and consumer self-identification with the brand [90]. In their turn, N.M. Yasin, M.N. Noor, and O. Mohamad summarized this conception by claiming that brand equity "is the result of consumer's perceptions" [91]. Similarly, C.F. Chen and Y. Chang denoted brand equity to be "the incremental utility or added value which brand adds to the product" [92]. In parallel with the definitions presented by the previous authors N.M. Yasin, M.N. Noor, and O. Mohamad; and C.F. Chen and Y. Chang did not precisely cover the conception of brand equity.

Finally, C. Burmann, M. Jost-Benz, and N. Riley gave the most recent definition of brand equity. Although short, their definition includes three important categories i.e., psychological brand equity, behavioral brand equity, and financial brand equity [93].

Therefore, independently from the perspective of research, there is an agreement that brand equity describes the value of a well-known brand name, and that the owner of a well-known brand name generates more profit from products with a less well-known name [94]. Additionally, brand equity generates value for organizations by increasing the effectiveness of marketing activities, while generating a higher degree of brand preference among consumers [95]. Throughout this dissertation, brand equity should be understood as defined by B. Yoo, N. Donthu and S. Lee [96], therefore, having a consumer approach and delimitation. A summary of definitions of brand equity is presented in Table 1.

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[89] B. Yoo, N. Donthu, S. Lee, *An examination of selected marketing mix elements and brand equity*, "Journal of the Academy of Marketing Science", 2000, 28, 2, pp. 195-211.

[90] L.G. Shifmann, L.L. Kanuk, *Consumer behavior: 9th edition*, Prentice Hall, New Jersey, NY 2007, p. 18.

[91] N.M. Yasin, M.N. Noor, O. Mohamad, *Does image of country-of-origin matter to brand equity?*, "Journal of Product & Brand Management", 2007, 16, 1, p. 38.

[92] C.F. Chen, Y. Chang, *Airline brand equity, brand preference, and purchase intentions – The moderating effects of switching costs*, "Journal of Air Transport Management", 2008, 14, p. 40.

[93] C. Burmann, M. Jost-Benz, N. Riley, *Towards an identity-based brand equity model*, „Journal of Business Research", 2009, 62, 3, p. 390.

[94] American Marketing Association, *Dictionary,*
http://www.marketingpower.com/_layouts/Dictionary.aspx?dLetter=B (2014.02.03).

[95] D.A. Aaker, *Measuring brand equity across products and markets,* "California Management Review", 1996, 38, 3, pp. 102–103.

[96] B. Yoo, N. Donthu, S. Lee, *An examination of selected marketing mix elements and brand equity*, "Journal of the Academy of Marketing Science", 2000, 28, 2, p. 195.

Table 1. Definitions of brand equity

DEFINITION	AUTHORS
"…is the value added to the product"	P.H. Farquhar, 1989, p. 24
"…is a set of associations and behaviors on the part of a brand's consumers, channel members and parent corporation that enables a brand to earn greater volume or greater margins than it"	R. Srivastava, A. Shocker, 1991, p. 3
"…[is] the financial impact associated with an increase in a product's value accounted for by its brand name above and beyond the level justified by its quality (as determined by its configuration of brand attributes, product features, or physical characteristics)"	M.B. Holbrook, 1992, p. 72
"…is the incremental cash flows which accrue to branded products over and above the cash flows which would result from the sale of unbranded products"	C.J. Simon, M.W. Sullivan, 1993, p. 29
"…is the enhancement in the perceived utility and desirability a brand name confers on a product"	W. Lassar, B. Mittal, A. Sharma, 1995, p. 13
"…is an expression of the relationship between the organization's offerings and its customers"	S. Fournier, 1998, p. 345
"…is the difference in consumer choice between a branded and unbranded product, given the same level of features; in other words brand equity is the extra value embedded in a brand's name, as perceived by customers, compared with an equal product without a name"	B. Yoo, N. Donthu, S. Lee, 2000, p. 195
"…is a bridge between the marketing investments in the company's products to create the brands and the customers' brand knowledge"	Ph. Kotler, K.L. Keller, 2006, p. 27
"…is the value for the brand is created in consumers' mind through superior quality in the product and service, social esteem the brand provides for users, trust in the brand, and consumer self-identification with the brand"	L.G. Schifmann, L.L. Kanuk, 2007, p. 18
"…is the result of consumer's perceptions"	N.M. Yasin, M.N. Noor, O. Mohamad, 2007, p. 38
"…refers to the incremental utility or added value which brand adds to the product"	C.F. Chen, Y. Chang, 2008, p. 40
"…is [the] present and future valorization derived from internal and external brand-induced performance"	C. Burmann, M. Jost-Benz, N. Riley, 2009, p. 391

Source: Own elaboration.

Previous studies established a positive relationship of brand equity on variables such as profitability of companies and sustainability of cash flows [97]; consumer perceptions of product [98]; consumer evaluations of brand

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[97] R. Srivastava, A. Shocker, *Brand equity: A perspective on its meaning and measurement*, Marketing Science Institute, Boston, MA 1991, p. 07.

[98] W.B. Dodds, K.B. Monroe, D. Grewal, *Effects of price, brand, and store information on buyers' product evaluations,* "Journal of Marketing Research", 1991, 28, 3, pp. 307–319.

extensions [99, 100]; sustainability of competitive advantages [101]; stock prices and market stability [102]; company's higher revenue; consumer tendency to see new distribution channels; marketing communication effectiveness; further brand development [103]; consumer willingness to pay price premium [e.g., 104, 105]; consumer preference and brand purchase intention [106, 107]; consumer responses [108]; consumer price insensitivity [e.g., 109, 110]; consumer brand preferences [111]; selling licensing opportunities [112]; consumer brand differentiation [113]; brand credibility [114]; online brand experience [115, 116]; market share [117]; shareholder value [118]; resilience to product-harm crisis [119]; and consumer

[99] A. Rangaswamy, R.R.Burke, T.A. Oliva, *Brand equity and the extendibility of brand names,* "International Journal of Research in Marketing", 1993, 10, 1, pp. 61–75.

[100] I. Buil, E. Martínez, L. de Chernatony, *The influence of brand equity on consumer responses*, „Journal of Consumer Marketing", 2013, 30, 1, pp. 62–74.

[101] D. Szymanski, S. Bharadwaj, P. Varadarajan, *An analysis of the market share-profitability relationship,* "The Journal of Marketing", 1993, 57, July, pp. 1–18.

[102] C.J. Simon, M.W. Sullivan, *The measurement and determinants of brand equity: A financial approach*, "Marketing Science", 1993, 12, November, pp. 28-52.

[103] KL. Keller, *Conceptualizing, measuring, and managing customer-based brand equity*, „Journal of Marketing", 1993, 57, January, pp. 1–22.

[104] *Ibidem*, pp. 1–22.

[105] W. Lassar, B. Mittal, A. Sharma, *Measuring customer-based brand equity*, „Journal of Consumer Marketing", 1995, 12, 1995, pp. 11–19.

[106] C.J. Cobb-Walgren, C.A. Ruble, N. Donthu, *Brand equity, brand preference, and purchase intention*, "Journal of Advertising", 1995, 24, 3, pp. 25–40.

[107] A.F. Tolba, S.S. Hassan, *Linking customer-based brand equity with brand market performance: A managerial approach*, „Journal of Product & Brand Management", 2009, 18, 5, pp. 356–366.

[108] C.J. Cobb-Walgren, C.A. Ruble, N. Donthu, ..., pp. 25–40.

[109] T. Erdem, J. Swait, J. Louviere, *The impact of brand credibility on consumer price sensitivity,* "International Journal of Research in Marketing", 2002, 19, 1, pp. 1–19.

[110] S. Hoeffler, K.L. Keller, *The marketing advantages of strong brands*, "Journal of Brand Management", 2003, 10, 6, pp. 421-445.

[111] *Ibidem*, pp. 421-445.

[112] E. Atilgan, S. Aksoy, S. Akinci, *Determinants of the brand equity: A verification approach in the beverage industry in Turkey*, „Marketing Intelligence & Planning", 2005, 23, 3, pp. 237–248.

[113] R. Pappu, P.G. Quester, R.W. Cooksey, *Consumer-based brand equity: Improving the measurement – empirical evidence*, „Journal of Product & Brand Management", 2005, 14, 3, pp. 143–154.

[114] I. Papasolomou, D. Vrontis, *Using internal marketing to ignite the corporate brand: The case of the UK retail bank industry*, "Journal of Brand Management", 2006, 14, 1/2, pp. 177-195.

[115] T. Tan, D. Rasiah, *A review of online trust branding strategies of financial services industries in Malaysia and Australia*, „Advances in Management & Applied Economics", 2011, 1, 1, pp. 125–150.

[116] G. Christodoulides, L. de Chernatony, O. Furrer, E. Shiu, T. Abimbola, *Conceptualising and measuring the equity of online brands*, „Journal of Marketing Management", 2006, 22, 7–8, pp. 799–825.

[117] M.K. Agarwal, V.R. Rao, *An empirical comparison of consumer-based measures of brand equity,* "Marketing Letters", 1996, 7, 3, pp. 237–247.

[118] R.A. Kerin, R. Sethuraman, *Exploring the brand value–shareholder value nexus for consumer goods companies,* "Journal of the Academy of Marketing Science", 1998, 26, 4, pp. 260–273.

[119] N. Dawar, M.M. Pillutla, *Impact of product-harm crises on brand equity: The moderating role of consumer expectations,* "Journal of Marketing Research", 2000, 37, 2, pp. 215–226.

brand loyalty [120]. An extended list of the most important researches on brand equity and its outcomes is presented in Table 2.

Table 2. Brand equity research outcomes

FINDINGS	AUTHORS
Positive effect on profitability of companies, sustainability of cash flows	R. Srivastava, A. Shocker, 1991
Influence the consumer perceptions of product	W.B. Dodds, K.B. Monroe, D. Grewal, 1991
Firms with higher brand equity can also extend their brands more successfully	A. Rangaswamy, R.R. Burke, T.A. Oliva, 1993; I. Buil, E. Martínez, L. de Chernatony, 2013
Brand equity affects the sustainability of competitive advantages	D. Szymanski, S. Bharadwaj, P. Varadarajan, 1993
Brand equity affects the growth and stability of stock prices, firms' performances successfulness of marketing efforts	C.J. Simon, M.W. Sullivan, 1993
Brands with high equity lead to more revenue, tending customer to seek new distribution channels, levers marketing communication effectiveness, leads to success in developing brand	K.L. Keller, 1993
Positively influence on consumer's willing to pay a higher price (i.e., price premium)	K.L. Keller, 1993; W. Lassar, B. Mittal, A. Sharma, 1995; A. Chaudhuri, 1995; R.G. Netemeyer, B. Krishnan, C. Pullig, G. Wang, M. Yagci, D. Dean, J. Ricks, F. Wirth, 2004; H. Kim, W.G. Kim, 2005; V. Seitz, N. Razzouk, D.M. Wells, 2010
Brands with higher equity generated greater brand preferences and purchase intentions	C.J. Cobb-Walgren, C.A. Ruble, N. Donthu, 1995; A.H. Tolba, S.S. Hassan, 2009
Brand equity has positive effects on consumer responses	C.J. Cobb-Walgren, C.A. Ruble, N. Donthu, 1995
Brand equity affects market share	M.K. Agarwal, V.R. Rao, 1996
Brand equity makes consumers less sensitive to price increases	T. Erdem, J. Swait, J. Louviere, 2002; S. Hoeffler, K.L. Keller, 2003; K.L. Keller, D. Lehmann, 2003
Positively influence on consumers' brand preferences	S. Hoeffler, K.L. Keller, 2003
Brand equity increase selling licensing opportunities	E. Atilgan, S. Aksoy, S. Akinci, 2005

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[120] H. Moradi, A. Zarei, *Creating consumer-based brand equity for young Iranian consumers via country of origin sub-components effects*, „Asia Pacific Journal of Marketing and Logistics", 2012, 24, 3, pp. 394–413.

FINDINGS	AUTHORS
Brand equity provides a reason for customers to differentiate a brand from its competitors	R. Pappu, P.G. Quester, R.W. Cooksey, 2005
Stronger brand equity prevails for those brands that exhibit higher brand credibility	I. Papasolomou, D. Vrontis, 2006
Brands with high equity deliver to the consumer a greater online brand experience	T. Tan, D. Rasiah, 2011
Brand equity generates brand loyalty	H. Moradi, A. Zarei, 2012

Source: Own elaboration.

As evidenced by research, brand equity has become a key to understanding the objectives, mechanisms, and net impact of the holistic influences of marketing [121]. Therefore, scholars have acknowledged brand equity and its measurement as a significant research field [122].

1.2. The conceptualization and measurement of brand equity

1.2.1. Firm-based versus consumer-based brand equity approaches

The lack of agreement for a definition of brand equity has spawned different methodologies for measuring the phenomenon [123]. Brand equity has been researched from two major perspectives in the literature. Some scholars aimed at the financial perspective of brand equity [124], whereas other researchers on the consumer-based perspective [125, 126].

The first perspective introduces the financial value brand equity creates to the business. This approach is referred to as firm-based brand equity (FBBE) and it uses the financial market value of the company as a basis for estimating the value of

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[121] T.J. Reynolds, C.B. Phillips, *In search of true brand equity metrics: All market share ain't created equally,* "Journal of Advertising Research", 2005, 45, 2, p. 171.
[122] K.L. Keller, D.R. Lehmann, *Brands and branding: Research findings and future priorities,* "Marketing Science", 2006, 25, 6, p. 740.
[123] G. Christodoulides, L. de Chernatony, *Consumer-based brand equity conceptualization and measurement: A literature review,* "International Journal of Marketing Research", 2010, 52, 1, pp. 43-65.
[124] C.J. Simon, M.W. Sullivan, *The measurement and determinants of brand equity: A financial approach*, "Marketing Science", 1993, 12, November, pp. 28-52.
[125] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, New York, NY 1991, pp. 1-33.
[126] K.L. Keller, *Conceptualizing, measuring, and managing customer-based brand equity*, „Journal of Marketing", 1993, 57, January, pp. 1–22.

brands [127]. The FBBE methodology has two main advantages. First, it assigns an objective value to a firm's brands and links this value to the determinants of brand equity. Second, it isolates changes in brand equity at the individual brand level by assessing the response of brand equity to marketing decisions [128]. Consequently, the macro approach measures brand equity at the firm level, allowing a company to compare the efficiency of its portfolio to other firms in the same industry; whereas the micro approach isolates brand equity at the brand level, permitting the evaluation of the impact of specific marketing decisions made by the company and its competitors [129].

A first attempt to measure FBBE was developed by V. Mahajan, V.R. Rao, and R.K. Srivastava in the early 1990's [130]. The authors measured brand equity under conditions of acquisition and divestment. Their methodology is based on the assumption that value of brands is dependent on the ability of the owning firm to utilize the brand assets.

A second alternative proposition is grounded upon the price premium of a product. Therefore, this technique can result in biased estimates of brand equity. The first problem that could cause a biased estimation is that price premium captures only one dimension of brand equity. A second problem is that price premium often results from high quality physical attributes of a product; thus, estimates of brand equity should be adjusted for the differential production costs. The third cause of a biased estimative is that price premium also does not consider expected future profits from the brand name [131].

A third technique to measure FBBE is based on the influence of a brand's name on the consumer's evaluation. This technique makes use of employs surveys of preference, attitude, or purchase intention. Two problems emerge from this approach. First is that there is no metric for translating consumer ratings into estimates of profits for the firm. Second, similarly to the price premium approach, it excludes expected

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[127] C.J. Simon, M.W. Sullivan, *The measurement and determinants of brand equity: A financial approach*, "Marketing Science", 1993, 12, November, pp. 28-52.
[128] C.J. Simon, M.W. Sullivan, *The measurement and determinants of brand equity: A financial approach*, "Marketing Science", 1993, 12, November, pp. 28-52.
[129] *Ibidem*, pp. 28-52.
[130] V. Mahajan, V.R. Rao, R.K. Srivastava, *Development, testing, and validation of brand equity under conditions of acquisition and divestment*, in E. Maltz (Ed.), *Managing brand equity: A conference summary report*, No. 91-110, Marketing Science Institute, Cambridge, MA, pp. 14-15.
[131] C.J. Simon, M.W. Sullivan, *The measurement…*, pp. 28-52.

future brand-related profits, while fails to control for differences in the costs of manufacturing products that carry a brand name [132].

The fourth technique measures brand replacement cost, i.e., the cost of establishing a product with a new brand name. This approach measures only one dimension of brand equity; there is its value in launching new products. Therefore, this method fails on providing information about the value of brand equity from existing branded products [133].

The fifth alternative method is established on a brand-earnings multiplier. This technique requires brand weights to be multiplied by the average of the past three years of the brand's profits. The brand weights are understood as a combination of both historical data, such as advertising expenditures and brand market share, and individual's judgments of factors, for instance the stability of a product category, brand stability, and brand internationality [134]. This method is also considered to influence the estimation of brand equity, as historical data do not translate into future earnings of a brand [135].

To overcome the limitations inherent in the previous measurement methods, C.J. Simon and M.W. Sullivan introduced a technique to measure FBBE that uses objective market-based measures, and therefore permits comparisons over different periods of time and across firms [136]. Moreover, it incorporates the effect of market size, growth, and factors that influence future income, whereas, accounting for capabilities of brand equity such as revenue-enhancing and cost-reducing. Although the author could resolve limitation problems of the previous methodologies, the measurement of FBBE was not widely researched and implemented among scholars.

The second perspective of the measurement of brand equity focuses on the consumer perceptions of brands. In literature, this perspective is denoted as consumer-based brand equity (CBBE). In an attempt to understand interpretations of brand equity, P. Feldwick identified three ways in which the term brand equity has been

[132] *Ibidem*, p. 30.
[133] C.J. Simon, M.W. Sullivan, *The measurement and determinants of brand equity: A financial approach*, "Marketing Science", 1993, 12, November, pp. 28-52.
[134] L. Wentz, G. Martin, *How experts value brands*, "Advertising Age", 1989, January, 16, p. 24.
[135] C.J. Simon, M.W. Sullivan, *The measurement...*, pp. 28-52.
[136] *Ibidem*, pp. 28-52.

used in literature [137]: (a) to signify the total value of a brand as a separate asset (i.e., when the brand is sold or included on a balance sheet); (b) as a measure of the strength of individual's attachment to the brand; and (c) as a description of the beliefs and associations the customer has about the brand. Although the first application of the term is related with the conception of firm-based brand equity, the other two applications are associated with CBBE.

Researchers have attempted to connect both perspectives of brand equity. F. Verbeeten and P. Vijn found that there is a connection between some CBBE measures and contemporaneous, along with future, business-unit financial performance [138]. Yet, to achieve financial performance and competitive advantage over competitors, companies need to secure positive customer perceptions and attitudes. Therefore, the necessity to understand the consumers' mindset led scholars to extensible study the CBBE perspective.

1.2.2. Consumer-based brand equity and its dimensions

The conceptualizations of consumer-based brand equity have originated from psychology and information economics [139]. The main stream of research on CBBE has been grounded in cognitive psychology, concentrating on memory structure [140, 141]. A very first attempt to define the construct was introduced by P.H. Farquhar, which argues "consumer-based brand equity refers to the value that a brand adds to a product from a consumer stand point" [142]. P.H. Farquhar emphasizes that CBBE stands from the individual's perspective; however, the definition is vague and fails to delimit the phenomenon. The author suggested that brand equity is managed in three distinct stages i.e., introduction, elaboration, and fortification [143].

[137] P. Feldwick, *What is brand equity anyway, and how do you measure it?*, "Journal of the Market Research Society", 1996, 38, 2, pp. 86-87.
[138] F. Verbeeten, P. Vijn, *Are brand-equity measures associated with business-unit financial performance? Empirical evidence from the Netherlands*, "Journal of Accounting, Auditing & Finance", 2010, 25, 4, pp. 645-671.
[139] G. Christodoulides, L. de Chernatony, *Consumer-based brand equity conceptualization and measurement: A literature review,* "International Journal of Marketing Research", 2010, 52, 1, pp. 43-65.
[140] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, New York, NY 1991, pp. 04-25.
[141] K.L. Keller, *Conceptualizing, measuring, and managing customer-based brand equity*, „Journal of Marketing", 1993, 57, January, pp. 1–22.
[142] Farquhar P.H., *Managing brand equity,* "Marketing Research", 1989, 1, 3, p. 24.
[143] *Ibidem*, p. 24.

Although the advances in the brand equity literature, hence, P.H. Farquhar did not developed a framework to measure CBBE.

According to D.A. Aaker, CBBE is defined as "a set of brand assets and liabilities linked to a brand, its name and symbol that add to or subtract from the value provided by a product or service to a firm and/or to that firm's customers" [144]. In this context, the conceptual dimensions of consumer-based brand equity are brand awareness, brand associations, perceived quality, brand loyalty, and other proprietary assets, such as patents, trademarks and channel relationships [145]. The framework introduced by D.A. Aaker is a five dimensional construct of brand equity, where four of these constructs are linked to the consumer and one is related to the firm.

K.L. Keller introduced an alternative approach to CBBE, which was defined as "the differential effect of brand knowledge on consumer response to the marketing of the brand" [146]. The author emphasized that CBBE should be measured in terms of brand awareness and in the strength, favorability, and uniqueness of the brand associations that consumers hold in their memories [147]. According to K.L. Keller, brand knowledge is an antecedent of CBBE and should be conceptualized as a brand node in the consumer's memory. Thus, brand equity was conceptualized as consisting of brand knowledge, which includes brand awareness and brand image [148].

B. Sharp introduced a rival three-dimensional framework of consumer-based brand equity. Although the author did not operationalize a definition to the construct, he pointed out that CBBE occurs primarily through consumers seeking to reduce cognitive effort or though the addition of symbolic value. Thus, in his conception, dimensions such as company/brand awareness, brand image, and relationships with customers/existing customer franchise could capture CBBE [149].

W. Lassar, B. Mittal, and A. Sharma extended the studies on CBBE measurement by presenting a measurement instrument based on five underlying dimensions of brand equity. According to the authors, two main components are

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[144] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, New York, NY 1991, p. 15.
[145] *Ibidem*, pp. 15-18.
[146] K.L. Keller, *Conceptualizing, measuring, and managing customer-based brand equity*, „Journal of Marketing", 1993, 57, January, p. 2.
[147] *Ibidem*, pp. 1–22.
[148] *Ibidem*, pp. 1–22.
[149] B. Sharp, *Brand equity and market-based assets of professional service firms*, „Services Marketing Quarterly", 1995, 13, 1, pp. 3–13.

responsible for the growth of brand equity i.e., perceived utility and desirability of a product. In their framework, consumer-based brand equity is captured by performance, social image, value, trustworthiness, and attachment (commitment factors) [150].

Based on primary research with high-performance service companies, L. Berry makes a case for service branding equity. The author presented a service-branding model that underscores the salient role of customers' service experiences in brand formation. For the service CBBE two dimensions have emerged, i.e., brand awareness and brand meaning. Therefore, the author highlights four primary strategies that service firms use to cultivate brand equity to be brand internalization, connection emotions, differentiation, and brand identity [151].

Based upon the D.A. Aaker's CBBE framework [152], B. Yoo, and N. Donthu defined CBBE as "[the] consumer's different response between a focal brand and an unbranded product when both have the same level of marketing stimuli and product attributes" [153]. Hence, the authors suggested the difference in consumer response to be attributed to the brand name. Additionally, the definition of the author reflects the effects of the long-term marketing invested into the brand [154]. In their framework, B. Yoo and N. Donthu empirically tested D.A. Aaker's four consumer-based dimensions of brand equity and noticed that was possible to link together brand awareness and brand associations in one single dimension, namely brand awareness/associations [155].

A different approach was proposed by R. Vazquez, A.B. del Rio, and V. Iglesias. The authors developed a measurement instrument for the utilities obtained by the customer from the brand following its purchase (ex-post utilities) [156]. In this study, CBBE was defined as "the overall utility that the consumer associates to the use and consumption of the brand; including associations expressing both functional

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[150] W. Lassar, B. Mittal, and A. Sharma, *Measuring customer-based brand equity*, „Journal of Consumer marketing", 1995, 12, 1995, pp. 11–19.

[151] L.L. Berry, *Cultivating service brand equity*, „Journal of the Academy of Marketing Science", 2000, 28, 1, pp. 128–137.

[152] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, New York, NY 1991*, p. 15.

[153] B. Yoo, N. Donthu, *Developing and validating a multidimensional consumer-based brand equity scale*, „Journal of Business Research", 2001, 52, 1, p. 1.

[154] *Ibidem*, pp. 1–14.

[155] *Ibidem*, pp. 1–14.

[156] R. Vazquez, A.B. del Rio, V. Iglesias, *Consumer-based brand equity: development and validation of a measurement instrument*, „Journal of Marketing Management", 2002, 18, 1/2, pp. 27–48.

and symbolic utilities" [157]. The authors indicated the existence of four dimensions of brand utilities: product functional utility, product symbolic utility, brand name functional utility, and brand name symbolic utility [158].

L. de Chernatony, F.J. Harris, and G. Christodoulides developed a framework to measure CBBE for corporate financial services brands. In their study, brand loyalty, consumer satisfaction, and reputation have emerged as indicators of brand performance [159]. Although the authors reported a valid instrument to measure brand performance for financial services brands, the scales and dimensions were not tested for quantifying CBBE.

Drawing from previous studies, R.G. Netemeyer and colleagues introduced four facets to measure CBBE. The authors argued that consumer-based brand equity should be captured by perceived quality, perceived value for the cost, uniqueness, and the willingness to pay a price premium for a brand [160].

To cover the characteristics of the Internet that were not considered on the former conceptualizations of CBBE, G. Christodoulides, L. de Chernatony, O. Furrer, E. Shiu, and T. Ambiola developed a framework to measure the dimensions of online retail/service brand equity. The framework was found to be a second order construct with five dimensions i.e., emotional connection, online experience, responsive service nature, trust, and fulfillment [161].

Approaching the sources of brand equity from both internal and external perspectives at the behavioral and financial level, C. Burmann, M. Jost-Benz, and N. Riley advanced that the quantification of the consumer's perception of brand strength (value) could be classified into three brand strength measures: preference-, benefit-, and knowledge-oriented measures. The preference-oriented measure consisted of two dimensions: brand sympathy and brand trust; the benefit-oriented measure included facets such as brand benefit uniqueness, perceived quality, and

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[157] *Ibidem*, p. 28.

[158] R. Vazquez, A.B. del Rio, V. Iglesias, *Consumer-based brand equity: development and validation of a measurement instrument*, „Journal of Marketing Management", 2002, 18, 1/2, pp. 27–48.

[159] L. de Chernatony, F.J. Harris, G. Christodoulides, *Developing a brand performance measure for financial services brands*, „The Service Industries Journal", 2004, 24, 2, pp. 15–33.

[160] R.G. Netemeyer, B. Krishnan, C. Pullig, G. Wang, M. Yagci, D. Dean, J. Ricks, F. Wirth, *Developing and validating measures of facets of customer-based brand equity*, „Journal of Business Research", 2004, 57, 2, pp. 209–224.

[161] G. Christodoulides, L. de Chernatony, O. Furrer, E. Shiu, T. Abimbola, *Conceptualising and measuring the equity of online brands*, „Journal of Marketing Management", 2006, 22, 7–8, pp. 799–825.

brand benefit clarity; finally the knowledge-oriented measure comprised brand awareness [162].

Based upon the studies of airline brand equity, brand preference, and consumers' brand purchase intention [163], the authors C.F. Cheng and W. Tseng introduced a model to quantify CBBE within the airline industry [164]. Their model was based on the advances of B. Yoo and N. Donthu [165] and accounted for the D.A. Aaker's four consumer driven dimensions of brand equity [166].

G. Christodoulides and L. de Chernatony introduced the most recent definition of consumer-based brand equity. Combining the psycho-cognitive and information economics perspective of brand equity, the authors defined CBBE "a set of perceptions, attitudes, knowledge, and behaviors on the part of consumers that results in increased utility and allows a brand to earn greater volume or greater margins than it could without the brand name" [167]. In line with D.A. Aaker's framework, this definition of CBBE is therefore used in this dissertation for the understanding of brand equity from the consumers' standpoint.

S. Ahmad and M.M. Butt attempted to empirically expand the D.A. Aaker's CBBE framework model in hybrid business firms. The authors incorporated the after sales service dimension to brand awareness, brand associations, perceived quality, and brand loyalty [168].

Finally, based on semi-structured interviews with practitioners, C. Veloutsou, G. Christodoulides, and L. de Chernatony suggested a classification of brand equity measures, consisting of four distinct dimensions, i.e., consumers' understanding of brand characteristics, consumers' brand evaluation, consumers' affective response

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[162] C. Burmann, M. Jost-Benz, N. Riley, *Towards an identity-based brand equity model*, „Journal of Business Research", 2009, 62, 3, pp. 390–397.

[163] C.F. Chen, Y. Chang, *Airline brand equity, brand preference, and purchase intentions – The moderating effects of switching costs*, "Journal of Air Transport Management", 2008, 14, pp. 40-42.

[164] C.F. Chen, W. Tseng, *Exploring customer-based airline brand equity: Evidence from Taiwan*, "Transportation Journal", 2010, 14, 1, pp. 25–34.

[165] B. Yoo, N. Donthu, *Developing and validating a multidimensional consumer-based brand equity scale*, „Journal of Business Research", 2001, 52, 1, pp. 1-14.

[166] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, New York, NY 1991, pp. 15-18.

[167] G. Christodoulides, L. de Chernatony, *Consumer-based brand equity conceptualization and measurement: A literature review*, "International Journal of Marketing Research", 2010, 52, 1, p. 48.

[168] S. Ahmad, M.M. Butt, *Can after sale service generate brand equity?*, „Marketing Intelligence & Planning", 2012, 30, 3, pp. 307–323.

towards the brand, and consumers' behavior towards the brand [169]. Table 3 summarizes the definitions and dimensions of CBBE.

Table 3. Definitions and dimensions of consumer-based brand equity

DEFINITION	DIMENSIONS	AUTHORS
"…refers to the value that a brand adds to a product from a consumer stand point"	Not described	P.H. Farquhar, 1989, p. 24
"[is] a set of brand assets and liabilities linked to a brand, its name and symbol that add to or subtract from the value provided by a product or service to a firm and/or to that firm's customers"	Brand awareness Brand associations Perceived quality Brand loyalty Other proprietary assets	D.A. Aaker, 1991, p. 15
"[is] the differential effect of brand knowledge on consumer response to the marketing of the brand"	Brand knowledge (brand awareness and brand image)	K.L. Keller, 1993, p. 02
Not defined	Company/brand awareness Brand image Relationships with the customers/existing customer franchise	B. Sharp, 1995
"[is] the enhancement in the perceived utility and desirability a brand name confers on a product"	Performance Social image Value Trustworthiness Attachment	W. Lassar, B. Mittal, and A. Sharma, 1995 Page 13
Not defined	Brand awareness Brand meaning	L. Berry, 2000
"[the] consumer's different response between a focal brand and an unbranded product when both have the same level of marketing stimuli and product attributes"	Brand awareness/associations Perceived quality Brand loyalty	B. Yoo, N. Donthu, 2001, p. 1
"the overall utility that the consumer associates to the use and consumption of the brand; including associations expressing both functional and symbolic utilities"	Product functional utility Product symbolic utility Brand name functional utility Brand name symbolic utility	R. Vazquez, A.B. del Rio, and V. Iglesias, 2002, p. 28
Not defined	Brand loyalty Consumer satisfaction Reputation	L. de Chernatony, F.J. Harris, G. Christodoulides, 2004

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[169] C. Veloutsou, G. Christodoulides, L. de Chernatony, *A Taxonomy of measures for consumer-based brand equity: Drawing on the views of managers in Europe*, „Journal of Product & Brand Management", 2013, 22, 3, pp. 1–18.

DEFINITION	DIMENSIONS	AUTHORS
Not defined	Perceived quality Perceived value for the cost Uniqueness Willingness to pay a price premium	R.G. Netemeyer, B. Krishnan, C. Pullig, G. Wang, M. Yagci, D. Dean, J. Ricks, F. Wirth, 2004
Not defined	Emotional connection Online experience Responsive service nature Trust Fulfillment	G. Christodoulides, L. de Chernatony, O. Furrer, E. Shiu, T. Ambiola, 2006
Not defined	Preference (brand sympathy and brand trust) Benefit (brand benefit uniqueness, perceived quality, and brand benefit clarity) Knowledge (brand awareness)	C. Burmann, M. Jost-Benz, N. Riley, 2009
Not defined	Brand awareness Brand image Perceived quality Brand loyalty	C.F. Chen, W. Tseng, 2010
"[is] a set of perceptions, attitudes, knowledge, and behaviors on the part of consumers that results in increased utility and allows a brand to earn greater volume or greater margins than it could without the brand name"	Not described	G. Christodoulides, L. de Chernatony, 2010, p. 48

Source: Own elaboration.

In summary, the literature review on CBBE is fragmented and the lack of consensus to a measurement model has originated several different methodologies to quantify the phenomenon. Hence, there are two distinguished approaches to capture CBBE - the direct and the indirect measurement.

1.2.3. The direct measurement of consumer-based brand equity

The direct measurement of CBBE is based upon the statistical resources of conjoint analysis introduced by V. Srinivasan [170] and further extended by C.S. Park and V. Srinivasan [171]; and on the measurement of the preference or/of the consumer's choices using models derived from the Logit Probability model presented by

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[170] V. Srinivasan, *Network models for estimating brand-specific effects in multi-attribute marketing models*, „Management Science", 1979, 25, 1, pp. 11–21.
[171] C.S. Park, V. Srinivasan, *A survey-based method for measuring and understanding brand equity and its extendibility*, „Journal of marketing research", 1994, XXXI, May, pp. 271–288.

W. Kamakura and G. Russel [172], J. Swait and colleagues [173], and P. Jourdan [174]. These studies intended to achieve a separation of the value of the brand from the value of the product by using a multi-attribute model [175]. Therefore, this approach has proved to be conceptually and methodologically challenging as consumers have problems in objectively differentiate brands from products [176].

The direct measurement of brand equity introduced by V. Srinivasan compares observed preferences based on actual choice with consumer preferences resultant from a multi-attribute conjoint analysis. The difference between overall preference and the preference estimated by the multi-attribute model is afterwards quantified using a monetary scale [177].

Using consumer data from a scanner panel, W. Kamakura and G. Russell attempted to directly measure brand equity with two measures of brand value (i.e., perceived quality and brand intangible value) [178]. In this context, perceived quality measures the value assigned by consumers to the brand, after discounting for recent advertising contact and current price. Brand intangible value isolates the component of brand value that is not directly attributed to the physical product, therefore, measuring the value generated by factors such as brand name associations and perceptual distortions [179].

Building upon information economics and market signaling theory, J. Swait, T. Erdem, J. Louviere, and C. Dubelaar introduced a framework by developing a method for the direct measurement of brand equity called Equalization Price (EP) [180]. This method, thus, accounted for the brand name, product attributes, brand image, and consumer heterogeneity effects. The authors suggested that the proposed measure could be used for both existing products and proposed brand name extensions. The

[172] W. Kamakura, G. Russel, *Measuring brand value with scanner data*, „International Journal of Research in Marketing", 1993, 10, pp. 9–22.
[173] J. Swait, E. Tulin, L. Jordan, C. Dubelaar, *The equalization price: A measure of consumer-perceived brand equity*, "International Journal of Research in Marketing", 1993, 10, 1, pp. 23-45.
[174] P. Jourdan, *Measuring brand equity: Proposal for conceptual and methodological improvements*, „Advances in Consumer Research", 2002, 29, 1, pp. 290–298.
[175] G. Christodoulides, L. de Chernatony, *Consumer-based...*, pp. 43-65.
[176] W. Grassl, *The reality of brands: towards an ontology of marketing*, "American Journal of Economics and Sociology", 1999, 58, 2, pp. 313–359.
[177] V. Srinivasan, *Network...*, pp. 11–21.
[178] W. Kamakura, G. Russell, *Measuring...*, pp. 9–22.
[179] *Ibidem*, pp. 9–22.
[180] J. Swait, E. Tulin, L. Jordan, C. Dubelaar, *The Equalization Price: A measure of consumer-perceived brand equity*, "International Journal of Research in Marketing", 1993, 10, 1, pp. 23-45.

Equalization Price is estimated by means of a multinomial logit model based on a hypothetical choice task and information regarding the consumers' product usage and purchases, product image, and socio-demographics [181]. The instrument allows isolating the sources of brand associations and defining importance weights in the function of consumer utility. Moreover, this framework incorporates qualitative variables linked to symbolic associations, and it allows the measurement of CBBE at the individual level. However, scholars have agreed that this framework fails to fully capture CBBE, as the specification of the model assumes that the consumers have identical preferences, thus, making this methodology unsuitable for inhomogeneous markets [182].

C.S. Park and V. Srinivasan achieved measurement of brand equity at the individual level. According to the authors, objective preferences of consumer's overall brand preference can be obtained by laboratory tests, blind tests or surveys with experts. Additionally, C.S. Park and V. Srinivasan disaggregated CBBE into two parts, i.e., an attribute component, based on the evaluations of consumers of the physical characteristics of a brand; and a non-(product) attribute component, grounded on symbolic associations linked to the brand [183]. Even though this direct method provides insights into the perceptual distortions caused by a specific product attribute, it does not break down the non-attribute- based component of brand equity [184].

The next approach to directly measure CBBE was presented by L. Leuthesser, C.S. Kohli, and K.R. Harich [185]. The authors based their methodology on the halo effect (halo error), a phenomenon that was first described in the psychology literature. This assumption claims that the personal evaluation of a given brand on a number of attributes is biased caused by the fact that individuals are predisposed towards brands they already know. In other words, the halo effect results from the

[181] J. Swait, E. Tulin, L. Jordan, C. Dubelaar, *The Equalization Price: A measure of consumer-perceived brand equity*, "International Journal of Research in Marketing", 1993, 10, 1, pp. 23-45.

[182] G. Christodoulides, L. de Chernatony, *Consumer-based brand equity conceptualization and measurement: A literature review,* "International Journal of Marketing Research", 2010, 52, 1, pp. 43-65.

[183] C.S. Park, V. Srinivasan, *A survey-based method for measuring and understanding brand equity and its extendibility*, „Journal of marketing research", 1994, XXXI, May, pp. 271–288.

[184] G. Christodoulides, L. de Chernatony, *Consumer-based…,* "International Journal of Marketing Research", 2010, 52, 1, pp. 43-65.

[185] L. Leuthesser, C.S. Kohli, K.R. Harich, *Brand equity: the halo effect measure,* "European Journal of Marketing", 1995, 29, 4, pp. 57–66.

consumer's global attitude towards the brand, and causes specific attribute ratings to show greater co-variance than they would in the lack of this influence. Hence, it is this perceptual consumer's distortion that creates the basis of brand equity. Additionally, the authors postulate that the halo effect corresponds to the aggregate value of the brand. To isolate the halo effect, L. Leuthesser, C.S. Kohli, and K.R. Harich suggested two statistical procedures, namely 'partialling out' and 'double centering' [186]. Although the methodology is an alternative to measure CBBE, it does not deliver any indication of the sources of CBBE nor takes into account the part of the construct that hinges on associations linked to the brand name [187]. Additionally, the method is suited to the measurement at the aggregate level rather than the individual level. Finally, the authors did not overcome the limitations of previous methods, which rely heavily on statistics, making it difficult to use by practitioners [188].

Based on an information economics perspective, T. Erdem and J. Swait suggested that CBBE could be measured by a signaling perspective, which considers the asymmetrical and imperfect information structure of the market [189]. Their methodology motivates that the role of credibility, determined endogenously by the interactions between companies and individuals is the primary determinant of CBBE. Those interactions arise when consumers are uncertain about certain product attributes; therefore, companies may use brands to inform them about product positioning, ensuring product credibility. In this context, brands work as market signals to improve consumer's product perceptions about attribute levels and to increase their confidence in brands' claims [190].

V. Shankar, P. Azar, and M. Fuller develop a model for estimating, tracking, and managing CBBE for multi-category brands grounded on customer surveys and financial measures [191]. The proposed framework is composed of two mainly

[186] L. Leuthesser, C.S. Kohli, K.R. Harich, *Brand equity: the halo effect measure,* "European Journal of Marketing", 1995, 29, 4, pp. 57–66.
[187] G. Christodoulides, L. de Chernatony, *Consumer-based brand equity conceptualization and measurement: A literature review,* "International Journal of Marketing Research", 2010, 52, 1, pp. 43-65.
[188] *Ibidem*, pp. 43-65.
[189] T. Erdem, J. Swait, *Brand Equity as a Signaling Phenomenon*, "Journal of Consumer Psychology", 1998, 7, 2, pp. 131–157.
[190] *Ibidem*, pp. 131–157.
[191] V. Shankar, P. Azar, M. Fuller, *Practice prize paper — BRAN*EQT : A multicategory brand equity model and its application at allstate*, „Marketing Science", 2008, 27, 4, pp. 567–584.

components of brand equity i.e., offering value and relative brand importance. The first element is estimated using discounted cash flow analysis. The factor offering value is the net present value of a product or product range which carries the name of the brand, and can be assessed through financial measures such as margin ratios and forecast revenues. The second element - relative brand importance is a measure that aims to insulate the influence of brand image on consumer utility from other factors that also affect consumer's choice. The relative brand importance is calculated from brand choice models (multinomial logit, heteroscedastic extreme value, and mixed logit). The consumer survey was tailored to identify drivers of brand image (i.e., brand reputation, brand uniqueness, brand fit, brand associations, brand trust, brand innovation, brand regard, and brand fame) [192]. An advantage of this methodology is that it allows estimating CBBE for multi-category brands. Therefore, it is difficult to use for comparison with rival brands due to competitor financial measures frequently being inaccessible at the brand level [193].

Summarizing, the direct approach to measure CBBE that are based on conjoint analysis offer three advantages [194]. First, they allow one to obtain an individual measure of the construct, and not only aggregate-level or segmented-level measures [195]. Second, this method distinguishes the utility perceived from the product and from the brand [196]. Third, it discriminates the influence of the brand, according to whether this impact exerts on the consumers' perception of the characteristics of the product (halo effect or inferential effect) or on their overall preference (heuristic effect) [197]. However, due to its statistical complexity, the direct approaches of

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[192] V. Shankar, P. Azar, M. Fuller, *Practice prize paper — BRAN*EQT : A multicategory brand equity model and its application at allstate*, „Marketing Science", 2008, 27, 4, pp. 567–584.

[193] G. Christodoulides, L. de Chernatony, *Consumer-based brand equity conceptualization and measurement: A literature review,* "International Journal of Marketing Research", 2010, 52, 1, pp. 43-65.

[194] P. Jourdan, *Measuring Brand Equity: Proposal for conceptual and methodological improvements*, „Advances in Consumer Research", 2002, 29, 1, pp. 290–298.

[195] W. Kamakura, G. Russell, *Measuring brand value with scanner data*, „International Journal of Research in Marketing", 1993, 10, pp. 9–22.

[196] C.S. Park, V. Srinivasan, *A survey-based method for measuring and understanding brand equity and its extendibility*, „Journal of marketing research", 1994, XXXI, May, pp. 271–288.

[197] P. Jourdan, *Measuring brand equity: Proposal for conceptual and methodological improvements*, „Advances in Consumer Research", 2002, 29, 1, pp. 290–298.

measuring CBBE are difficult to implement by practitioners in their daily business routine [198].

1.2.4. The indirect measurement of consumer-based brand equity

Differently from the direct measurement, the indirect approach to quantify CBBE adopts a holistic view of the brand and focuses on capturing brand equity either through its dimensions or through an outcome variable such as a price premium [199].

The study and conceptualization of the indirect approach of measuring CBBE can be dated from 1995, when W. Lassar, B. Mittal, and A. Sharma based on a previous study conducted by Martin and Brown in 1990 [200] introduced a five dimensional framework of CBBE [201]. The authors addressed in their study the complexity of previous CBBE measurement techniques, therefore, creating a paper and pencil instrument that allowed practitioners to easily observe the equity of brands. W. Lassar, B. Mittal, and A. Sharma identified to be dimensions of CBBE performance, value, social image, trustworthiness, and commitment. To verify the five dimensional CBBE framework, four studies were undertaken with consumers across two product categories were included in the study (i.e., TV monitors and watches). The model yielded adequate levels of internal scale consistency and discriminant validity [202]. However, despite that the scale can be implemented to different product fields, deficiency remained. The scale was tailored to focus mainly on associations and ignores behavioral components of brand equity such as consumer's loyalty.

Drawing from the theoretical assumptions of D.A. Aaker [203], and K.L. Keller [204], B. Yoo and N. Donthu reported at the 1997's American Marketing

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[198] G. Christodoulides, L. de Chernatony, *Consumer-based brand equity conceptualization and measurement: A literature review,* "International Journal of Marketing Research", 2010, 52, 1, pp. 43-65.
[199] *Ibidem*, pp. 43-65.
[200] G.S. Martin, T.J. Brown, *In search of brand equity: The conceptualization and measurement of the brand impression construct,* In T.L. Childers et al. (eds) "Marketing Theory and Applications", 1990, 2. Chicago, IL: American Marketing Association, pp. 431– 438.
[201] W. Lassar, B. Mittal, A. Sharma, Measuring *customer-based brand equity,* „Journal of Consumer Marketing", 1995, 12, 1995, pp. 11–19.
[202] *Ibidem*, pp. 11–19.
[203] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, New York, NY 1991, pp. 130-152.

Association Summer Educators Conference the results of a multistep study to develop and validate a multidimensional CBBE scale [205]. This article was made visible in 2001 to a larger public when published at the Journal of Business Research [206]. In this article, the authors evaluated 12 brands from three product categories across American, Korean American, and Korean respondents. The study of B. Yoo and N. Donthu was the first to empirically test the D.A. Aaker's four dimensions of CBBE (i.e., brand awareness, brand associations, perceived quality, and brand loyalty); however, during the statistical analysis of the data, the correlation between brand awareness and brand associations suggested the inseparability of the two dimensions. The high factors correlation led the authors to integrate the two latent variables in one, namely brand awareness/associations. The three construct scale of CBBE was driven by exploratory statistics, thus resulting in a scale that does not differentiate between the consumer's knowledge about the existence of a brand with associations derived from contact and experience with the same. In addition to the three-factor scale, the authors presented a set of items to measure CBBE by one single latent variable. This single scale was coined as 'Overall brand equity' scale (OBE).

Addressing to the cavities mentioned above, J. Washburn and R. Plank [207] employed a modified set of items in a different context in the attempt to verify the robustness of B. Yoo and N. Donthu's scale [208]. A total of 242 data entries were analyzed across different brands and combinations of brands in a co-branding setting [209]. From analyzing their data, the authors concluded that the original scale was not psychometrically sound for theory testing researches and emphasized the need of improvement on the measures.

In the same year that J. Washburn and R. Plank tested the validation of the three dimensional scale of CBBE; R. Vazquez, A.B. del Rio, and V. Iglesias introduced a challenging scale to measure the construct. Their empirical research

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[204] K.L. Keller, *Conceptualizing, measuring, and managing customer-based brand equity*, „Journal of Marketing", 1993, 57, January, pp. 1–22.
[205] B. Yoo, N. Donthu, *Developing and validating a consumer-based overall brand equity scale for American and Koreans: An extension of Aaker's and Keller's conceptualizations*, paper presented at the 1997 AMA Summer Educators Conference, Chicago.
[206] B. Yoo, N. Donthu, *Developing and validating a multidimensional consumer-based brand equity scale*, „Journal of Business Research", 2001, 52, 1, pp. 1–14.
[207] J. Washburn, R. Plank, *Measuring brand equity: An evaluation of a consumer-based brand equity scale,* "Journal of Marketing Theory and Practice", 2002, winter, pp. 46–61.
[208] B. Yoo, N. Donthu, *Developing...*, pp. 1–14.
[209] J. Washburn, R. Plank, *Measuring...*, pp. 46–61.

involved consumer evaluations of athletic shoe brands to validate the existence of four dimensions of brand utilities, namely product functional utility, product symbolic utility, brand name functional utility, and brand name symbolic utility. The data was analyzed with confirmatory factor analysis (CFA) technique, which supported the psychometric properties of the scale [210]. Although the resulting scale has advantages over preceding methods of brand equity measurement, such as: (a) the scale and methodological procedures are relatively easy to administrate; (b) the developed scale includes on the sources of CBBE four dimensions; and (c) the scale allows measurement at the individual level, nevertheless, the instrument was calibrated solely in the athletic shoes sector, requiring further adaptations when administered in other contexts [211]. Additionally, two dimensions (product symbolic utility and brand name functional utility) were captured by only one item each, what is not advisable for a CFA analysis, which requires a minimum of three indicators per latent variable [212].

R.G. Netemeyer and colleagues introduced a competing study trying to assess the indirect measurement of CBBE. The authors presented a summary of four studies that develop measures of distinguished CBBE dimensions. Drawing from previous CBBE frameworks, the authors included chose perceived quality, perceived value for the cost, uniqueness, and the willingness to pay a price premium for a brand to be the CBBE dimensions. The scale was tested on 16 different brands in six product categories and yielded evidence of internal consistency and validity. Additionally, the authors also reported that perceived quality, perceived value for the cost, and brand uniqueness are antecedents of the willingness to pay a price premium for a brand, and subsequently the consumer's willingness to pay a price premium impacts brand purchase behavior [213]. Despite the effort of the authors to address limitations of the previous studies, their measurement fails to fully explain the CBBE phenomenon.

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[210] R. Vazquez, A.B. del Rio, V. Iglesias, *Consumer-based brand equity: Development and validation of a measurement instrument*, „Journal of Marketing Management", 2002, 18, 1/2, pp. 27–48.
[211] G. Christodoulides, L. de Chernatony, *Consumer-based brand equity conceptualization and measurement: A literature review,* "International Journal of Marketing Research", 2010, 52, 1, pp. 43-6.
[212] W. Chin, B. Marcolin, P. Newsted, *Partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and voice mail emotion/adoption,* "Information Systems Research", 2003, 14, 2, pp. 189–217.
[213] R.G. Netemeyer, B. Krishnan, C. Pullig, G. Wang, M. Yagci, D. Dean, J. Ricks, F. Wirth, *Developing and validating measures of facets of customer-based brand equity*, „Journal of Business Research", 2004, 57, 2, pp. 209–224.

Although the scale is based on a traditional paper and pencil base and easy to administrate, the authors incorporated perceived quality and perceived value for the cost as one single latent variable, making it difficult to researches and/or practitioners to assess these dimensions isolated. Additionally, the authors included willingness to pay a price premium as a facet of CBBE, what is contestable, as a brand with high equity can benefit from price premium but not necessarily this facet will be used by brands in a general sense.

L. de Chernatony, F.J. Harris, and G. Christodoulides undertook the next step to the conceptualization of CBBE by introducing a CBBE measure for corporate financial services brands [214]. To develop the instrument, the authors conducted 20 depth interviews with practitioners. The results of the qualitative study suggested that the brand performance measure consist of three dimensions, namely brand loyalty, consumer satisfaction, and reputation. The authors tested the dimensions with data gather from 600 questionnaires across ten financial services. The data was verified through principal components analysis to identify the CBBE measure. The results of the analysis revealed the scale to be a valid and reliable brand performance measure.

Addressing the lack of distinction between the dimensions brand awareness and brand associations resulting from the studies of B. Yoo and N. Donthu [215] and J. Washburn and R. Plank [216]; R. Pappu, P.G. Quester, and R.W. Cooksey proposed a different set of indicators to measure CBBE [217]. The authors applied the scale in two product categories across six different brands with Australian consumers. To analyze the data CFA procedures were employed. Additionally, the authors also enriched the CBBE measurement with the addition of brand personality measures, as suggested by B. Yoo and N. Donthu [218]. The result of the analysis supported the four-dimension CBBE framework; however, the authors did not achieve a final scale that could be fully endorsed by other researchers. First, the authors could not present a set of measures to capture brand awareness, instead it was used a single dichotomous scale

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[214] L. de Chernatony, F.J. Harris, G. Christodoulides, *Developing a brand performance measure for financial services brands*, „The Service Industries Journal", 2004, 24, 2, pp. 15–33.

[215] B. Yoo, N. Donthu, *Developing and validating a multidimensional consumer-based brand equity scale*, „Journal of Business Research", 2001, 52, 1, pp. 1–14.

[216] J. Washburn, R. Plank, *Measuring brand equity: An evaluation of a consumer-based brand equity scale,* "Journal of Marketing Theory and Practice", 2002, winter, pp. 46–61.

[217] R. Pappu, P.G. Quester, R.W. Cooksey, *Consumer-based brand equity: Improving the measurement – empirical evidence*, „Journal of Product & Brand Management", 2005, 14, 3, pp. 143–154.

[218] B. Yoo, N. Donthu, *Developing…*, pp. 1–14.

to measure the construct, which might have biased the results. Second, to measure brand associations, the authors used only items related to brand personality and organizational associations. According to K.L. Keller, three types of brand associations should be considered, i.e., attributes-based, benefits-based, and attitudes-based associations [219].

G. Christodoulides and colleagues extended the literature on the measurement of CBBE by presenting a conceptualization that covered the characteristics of the Internet, which render consumer co-creators of brand value. To identify the dimensions of online retail/service (ORS) brand equity, the authors executed a three-step research program across Internet users. A twelve-item scale was developed and the dimensions, namely emotional connection, online experience, responsive service nature, trust, and fulfillment originated a second order CFA model [220].

Five years after the conceptualization of CBBE by R. Vazquez, A.B. del Rio, and V. Iglesias [221], their study was replicated to determine whether their scale could be implemented to a different cultural setting by A. Koçak, T. Abimbola, and A. Özer [222]. To achieve scale validation, the authors replicated the four dimensions of the original scale (i.e., product, functional utility, product symbolic utility, brand name functional utility, and brand name symbolic utility) [223]; and identified the similarities and differences of the use of the measurement in Turkey [224]. The authors used CFA technique to uncover that the scale was suitable for the Turkish culture after the elimination of items with low factor loadings; however, A. Koçak, T. Abimbola, and A. Özer reported that the instrument needed further refinement [225].

Addressing to the limitations of previous researches on the quantification of D.A. Aaker's four dimensions CBBE framework [226], I. Buil, L. de Chernatony, and

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[219] K.L. Keller, *Conceptualizing, measuring, and managing customer-based brand equity*, „Journal of Marketing", 1993, 57, January, pp. 1–22.

[220] G. Christodoulides, L. de Chernatony, O. Furrer, E. Shiu, T. Abimbola, *Conceptualising and measuring the equity of online brands*, „Journal of Marketing Management", 2006, 22, 7–8, pp. 799–825.

[221] R. Vazquez, A.B. del Rio, V. Iglesias, *Consumer-based brand equity: development and validation of a measurement instrument*, „Journal of Marketing Management", 2002, 18, 1/2, pp. 27–48.

[222] A. Koçak, T. Abimbola, A. Özer, *Consumer brand equity in a cross-cultural replication: An evaluation of a scale,* "Journal of Marketing Management", 2007, 23, 1-2, pp. 157–173.

[223] R. Vazquez, A.B. del Rio, V. Iglesias, *Consumer-based…*, pp. 27–48.

[224] A. Koçak, T. Abimbola, A. Özer, *Consumer…*, pp. 157–173.

[225] *Ibidem*, pp. 157–173.

[226] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, New York, NY 1991, pp. 130-152.

E. Martínez investigated the measurement invariance of the scale across two samples of UK and Spanish consumers. Their results demonstrated that the scale was invariant across the two samples. Additionally, the CBBE scale yielded similar dimensionality and factor structure across the countries [227]. This scale presented advantages over the scales introduced by B. Yoo and N. Donthu [228] which was contested by J. Washburn and R. Plank [229], and R. Pappu, P.G. Quester, and R.W. Cooksey [230]. The authors fixed the combined construct brand awareness/associations and achieved a minimum of three items per dimensions. Therefore, limitations remained. Instead of building the subscales from the definitions of the constructs, the authors operationalized them by compiling the best sounding items from previous CBBE measurement research. Consequently, three individual dimensions, namely perceived value, brand personality, and organization associations, measured brand associations. Although the scale is simple and easy to be used by practitioners, to assess the brand associations' dimension, it is required advanced statistical and modeling knowledge.

Finally, the last to date attempt to capture CBBE was presented by C. Veloutsou, G. Christodoulides, and L. de Chernatony [231]. In their study, the authors used semi-structured interviews with senior brand managers and consultants across the United Kingdom, Germany, and Greece. Their findings suggested four dimensions to measure CBBE, i.e., the consumers' understanding of brand characteristics, consumers' brand evaluation, consumers' affective response towards the brand, and consumers' behavior towards the brand. However, this study was not validated with quantitative methods. The authors introduced solely a new perspective on how to indirectly measure CBBE, thus, no scale or empirical validation of the findings was reported.

In summary, several authors through the past decades have interpreted the conception of consumer-based brand equity differently; there are noticeable

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[227] I. Buil, L. de Chernatony, E. Martínez, *A cross-national validation of the consumer-based brand equity scale,* "Journal of Product & Brand Management", 2008, 17, 6, pp. 384–392.
[228] B. Yoo, N. Donthu, *Developing and validating a multidimensional consumer-based brand equity scale*, „Journal of Business Research", 2001, 52, 1, pp. 1–14.
[229] J. Washburn, R. Plank, *Measuring brand equity: An evaluation of a consumer-based brand equity scale,* "Journal of Marketing Theory and Practice", 2002, winter, pp. 46–61.
[230] R. Pappu, P.G. Quester, R.W. Cooksey, *Consumer-based brand equity: Improving the measurement – empirical evidence*, „Journal of Product & Brand Management", 2005, 14, 3, pp. 143–154.
[231] C. Veloutsou, G. Christodoulides, L. de Chernatony, *A taxonomy of measures for consumer-based brand equity: Drawing on the views of managers in Europe*, „Journal of Product & Brand Management", 2013, 22, 3, pp. 1–18.

similarities across the studies. There is a consensus that the first step of building brand equity is to create brand awareness. First, the individual must be aware of the brand and therefore associations with the product will be created. Consequently, when brand associations emerge it will trigger behavioral comportment changes, resulting in strong brand preferences and sales. Following this rationale, it is expected that the consumers' perception of brand equity to influence their online behavior towards brands. The next chapter approaches this topic.

2. CONSUMER'S ONLINE BRAND-RELATED ACTIVITIES: ENVIRONMENT, DELIMITATION, AND FRAMEWORK

2.1. The online environment and the forms of brand-related content

2.1.1. Social media and social network sites

By 1979 at Duke University, T. Truscott and J. Ellis had developed a worldwide discussion system that allowed Internet users to post public messages - the Usenet [232]. This new Internet system is considered to be the first step into the era of social media. Although, the modern social media is assumed to have its advent in the year of 1998 with the creation of an early social media system that gathered online diary writers into one community called Open Diary [233]. The emergent accessibility of high-speed Internet further added to the popularity of the concept, leading to the creation and proliferation of social media platforms across the Internet [234]. Social media in the modern understanding is therefore defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of user-generated content" [235]. This definition is further used in this dissertation for the understanding of social media.

Although social media is an umbrella term that encompasses Internet applications, which allow consumers to communicate and express their selves [236], to comprehend the role of brands on social media, of great importance is the understanding of social network sites (hereafter, SNS) [237]. SNSs are defined as "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system" [238]. Therefore, SNSs allow consumers to have a personalized profile and communicative with other members within the same system.

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[232] A.M. Kaplan, M. Haenlein, *Users of the world, unite! The challenges and opportunities of social media,* "Business Horizons", 2010, 53, 1, p. 60.
[233] *Ibidem*, p. 60.
[234] d.m. boyd, N. Ellison, *Social network sites: Definition, history, and scholarship,* "Journal of Computer-Mediated Communication", 2010, 13, 1, pp. 210-230.
[235] A.M. Kaplan, M. Haenlein, *Users of..*, p. 61.
[236] *Ibidem*, p. 61.
[237] G. Tsimonis, S. Dimitriadis, *Brand strategies in social media,* "Marketing Intelligence & Planning", 2014, 32, 3, p. 329.
[238] d.m. boyd, N. Ellison, *Social network sites: Definition, history, and scholarship,* "Journal of Computer-Mediated Communication", 2010, 13, 1, p. 211.

It is estimated that in the year of 2013 one in four people globally was using at least one SNS channel, i.e., about 1.73 billion people [239]. This number is expected to rise to 2.55 billion people in 2017 [240]. With the growing number of consumers using SNSs, social media has drawn the attention of managers and brand scholars [241]. Additionally, such an interest of consumers for SNSs has contributed to the engagement of companies into social media [242]. Upon the advent of companies and brands to social media, the traditional one-way communication has changed to a multi-dimensional, two-way and peer-to-peer communication [243]. Thus, consumers are gradually shaping marketing communication that were previously controlled and administered by marketers.

Granting the short period of time of modern social media [244] scholars consider SNSs to have a major impact on business [245, 246]; thus changing consumer behavior, relationships, and traditional brand practice [247, 248]. With the advances of Web 2.0 technology, consumers have opportunities to engage with brands in ways that were not possible with traditional media [249, 250]. Hence, this increased brand access mandate changes in branding strategies towards interactive channels [251].

[239] eMarketer, *Social networking reaches one in four around the world,* http://www.emarketer.com/Article/Social-Networking-Reaches-Nearly-One-Four-Around-World/1009976#sthash.Ko8PQmYP.dpuf (2014.09.16).

[240] *Ibidem,* (2014.09.16).

[241] A.M. Kaplan, M. Haenlein, *Users of the world, unite! The challenges and opportunities of social media,* "Business Horizons", 2010, 53, 1, p. 59.

[242] R.V. Kozinets, *E-tribalized marketing? The strategic implications of virtual communities of consumption,* "European Management Journal", 1999, 17, pp. 252-264.

[243] P. Berthon, L. Pitt, C. Campbell, *Ad lib: When customers create the ad*, "California Management Review", 2008, 50, 4, pp. 6–31.

[244] d.m. boyd, N. Ellison, *Social...*, p. 211.

[245] S. Sands, E. Harper, C. Ferraro, *Customer-to-noncustomer interactions: Extending the 'social' dimension of the store environment,* "Journal of Retailing and Consumer Services", 2011, 18, 5, pp. 438-447.

[246] M. Corstjens, A. Umblijs, *The power of evil: the damage of negative social media strongly outweigh positive contributions,* "Journal of Adverting Research", 2012, 52, 4, pp. 433–449.

[247] T. Hennig-Thurau, E.C. Malthouse, C. Friege, S. Gensler, L. Lobschat, A. Rangaswamy, B. Skiera, *The impact of new media on customer relationships*, "Journal of Service Research", 2010, 13, 3, pp. 311–330.

[248] A.M. Kaplan, M. Haenlein, *Users of...*, pp. 59-68.

[249] G. Christodoulides, C. Jevons, J. Bonhomme, *Memo to marketers: Quantitative evidence for change. How user-generated content really affects brands*, "Journal of Advertising Research", 2012, 52, 1, pp. 53–64.

[250] G. Christodoulides, C. Jevons, *The voice of the consumer speaks forcefully in brand identity: User-generated content forces smart marketers to listen*, "Journal of Advertising Research", 2011, 51, 1, pp. 101–108.

[251] M. Yadav, P. Pavlou, *Marketing in computer-mediated environments: Research synthesis and new directions*, "Journal of Marketing", 2014, 78, January, pp. 20–40.

2.1.2. The management of brands online

The Internet is considered to be a direct response medium [252]; however, such a position overlooks the potential of branding in computer-mediated environments [253]. E-commerce has changed the traditional business model and brand managers have adapted their strategies to migrate their brands, therefore having both offline and online presences [254]. To manage an integrated brand strategy that accounts for offline and online strategies, it is necessary to acknowledge the need to develop brands beyond the classical models, recognizing the new roles consumes have taken [255]. When using online brand communication, brand managers are able to accomplish almost any marketing communication objective while benefiting in terms of consumer's relationship building [256], low costs, and the level of detail and degree of customization that online branding offers in comparison to its traditional form [257].

Although there is an agreement by brand scholars and practitioners about the relevance of the management of brands online [258], the academic literature is limited, fragmented, and still is in its early stage [259, 260, 261, 262, 263]. Additionally, the literature on the topic of management of brands online spawns different terms for online branding, such as e-branding, digital branding, Internet branding, or i-branding; thus making it difficult for the development of a common definition [264]. In this context, online brand should be understood as defined by J. Rowley, thus "a brand that has an online presence" [265]. For the purposes of this dissertation the definition of J. Rowley

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[252] G. Christodoulides, L. de Chernatony, *Dimensionalising on- and offline brands' composite equity*, "Journal of Product & Brand Management", 2004, 13, 3, pp. 168–179.
[253] L. de Chernatony, *Succeeding with brands on the Internet*, "The Journal of Brand Management", 2001, 8, 3, pp. 186–195.
[254] *Ibidem*, p. 186.
[255] *Ibidem*, pp. 186-187.
[256] *Ibidem*, p. 236.
[257] K.L. Keller, *Strategic brand management: Building, measuring, and managing brand equity,* Pearson Education Limited, Harlow, England 2013, p. 236.
[258] *Ibidem*, p. 236.
[259] K.I.N. Ibeh, Y. Luo, K. Dinnie, *E-branding strategies of internet companies: Some preliminary insights from the UK*, "Journal of Brand Management", 2005, 12, 5, pp. 355-373.
[260] M. Merisavo, M. Raulas, *The impact of e-mail marketing on brand loyalty*, "Journal of Product & Brand Management", 2004, 13, 7, pp. 498-505.
[261] J. Murphy, L. Rafa, R. Mizerski, *The use of domain names in e-branding by the world's top brands*, "Electronic Markets", 2003, 13, 3, pp. 222-232.
[262] G.J. Simmons, *I-branding: Developing the internet as a branding tool*, "Marketing Intelligence & Planning", 2007, 25, 6, pp. 544-562.
[263] J. Rowley, *Online branding strategies of UK fashion retailers*, "Internet Research", 2009, 19, 3, pp. 348–369.
[264] *Ibidem,* p. 349.
[265] *Ibidem*, p. 349.

is articulated with AMA's brand definition (see page 17) originating then a new definition of online brand. Therefore the proposition of the author to define online brand as *a name, term, sign, symbol, or design, or a combination of them, intended to identify the goods and services over the Internet of one seller or group of sellers and to differentiate them from those of competition.*

Following this rationale, online branding is delimitated as "how online channels are used to support brands, which in essence are the sum of the characteristics of a product, service or organization as perceived and experienced by a user, customer or other stakeholder" [266].

In literature, there were identified two possible reasons for the limited theoretical investigation of the management of online brands and online branding [267]. The first reason is the inconsistency concerning the role and significance of brands in the online environment. Some dispute that in the era of Web 2.0, with consumers overloaded with information, brands are becoming ever more important, mainly because they save the consumer time by reducing search costs and by helping into the decision process [268, 269]. On the other hand, an alternative point of view is that with a wealth of information consumers may use search engines and comparison sites, therefore search engines act as a facilitator instead of a brand [270]. Other researchers also have suggested that web experience of consumers, brand market share, and product category influence the significance of online brands[271, 272].

The second reason for the limited theoretical investigation of brands on Internet arises from the fact that online branding requires reviewing of established principles of branding combined with an understanding of the opportunities offered by the Web 2.0 environment [273]. Summarizing the discussions of online branding, whether involving practical advice or academic analysis they have a tendency to be

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[266] J. Rowley, *Online branding strategies of UK fashion retailers*, "Internet Research", 2009, 19, 3, p. 349.
[267] *Ibidem*, p. 349.
[268] H. Rubenstein, C. Griffiths, *Branding matters more on the Internet*, "Brand Management", 2001, 8, 6, pp. 394-404.
[269] M. Ward, M. Lee, *Internet shopping, consumer search and product branding*, "Journal of Product & Brand Management", 2000, 9, 1, pp. 6-20.
[270] J. Rowley, *Online branding,* "Online Information Review", 2004, 28, 2, pp. 131-138.
[271] M. Ward, M. Lee, *Internet...*, pp. 6-20.
[272] P.J. Danaher, I.W. Wilson, R.A. Davis, *A comparison of online and offline consumer brand loyalty*, "Marketing Science", 2003, 22, 4, pp. 461-76.
[273] J. Rowley, *Online...*, p. 349.

fusions of branding concepts [274, 275], practice and strategy [276], and the implementation of e-service and e-commerce experiences [277, 278].

Reviewing the guidelines for the management of online brands and online branding is beyond the scope of this dissertation. Focus will be given on two particular brand-building types of online content i.e., firm-created and user-generated content.

2.1.3. Firm-created online brand communication

To examine brand communication on the Internet, it is necessary to distinguish amid two different forms of them: (a) firm-created and (b) user-generated social media communication [279]. This discrepancy between the sources of brand communication is relevant as firm-created online brand communication is under the management of companies, while user-generated online brand communication is independent of the firm's control [280].

One of the earliest and best-established forms of firm-created online brand communication are websites of a brand and/or a product [281]. By taking advantages on the interactive nature of the Internet, brand managers can use tailored websites that allow any type of consumer to choose the brand-related content relevant to their desires [282]. A well-tailored website effectively communicates to consumers regardless of their individual brand or communications history, even though different market segments may have diverse levels of knowledge and interest about a brand or product [283]. On the other hand, the Web 2.0 expended the collaborative effort between

[274] L. de Chernatony, *Succeeding with brands on the Internet*, "The Journal of Brand Management", 2001, 8, 3, pp. 186–195.
[275] J. Rowley, *Online branding*, "Online Information Review", 2004, 28, 2, pp. 131-138.
[276] K.L. Keller, *Strategic brand management: Building, measuring, and managing brand equity,* Pearson Education Limited, Harlow, England 2013, pp. 236-239.
[277] K.L. Aliawadi, K.L. Keller, *Understanding retail branding: conceptual insights and research priorities*, "Journal of Retailing", 2004, 80, 4, pp. 331-342.
[278] C.J. Ashworth, R.A. Schmidt, E.A. Pioch, A. Hallsworth, *An approach to sustainable fashion e-retail: a five stage evolutionary strategy for clicks-and-mortar and pure-play enterprises,* "Journal of Retailing and Consumer Services", 2006, 13, 4, pp. 289-299.
[279] D. Godes, D. Mayzlin, *Firm-created word-of-mouth communication: Evidence from a field test*, "Marketing Science", 2009, 28, 4, pp. 721–739.
[280] B.G. Vanden Bergh, M. Lee, E.T. Quilliam, T. Hove, *The multidimensional nature and brand impact of user-generated ad parodies in social media*, "International Journal of Advertising", 2011, 30, 1, pp. 103–131.
[281] L. de Chernatony, *Succeeding...*, p. 187.
[282] K.L. Keller, *Strategic...*, p. 236.
[283] *Ibidem*, p. 236.

consumers and brand managers [284]. For instance, consumers interact with brands online by ratings, giving reviews and feedbacks, posting opinions and reviews, or seeking advice and feedback from other peers [285]. This issue is developed in details in section 2.1.4.

Another form of firm-created online brand communication are online ads and videos [286]. Advertising on the Internet varies in forms; for instance companies may use banner ads, rich media ads, and other type of ads designed for a specific Internet application [287]. Some of the most widespread advantages for using Internet advertising are the following [288]: (a) online ads are accountable, for instance executives can track which ads converted to sales; (b) they are nondisruptive, thus online ads do not interrupt consumers when using the Internet; and (c) they can target consumers, hence only the most promising prospects enter in contact with the ads. Companies also can implement online ads and videos as an extension of their traditional branding to communicate positioning and elicit positive brand associations [289, 290, 291]. On the other hand, the consumers tend to ignore banner ads and screen them out with web-browser filters [292]; thus such a rational behavior from the part of the consumers is considered to be a disadvantage of using online brand ads [293].

Increasingly, streaming ads are drawing closer to traditional forms of television advertising [294]. The SNS YouTube, a video-sharing service has become an important channel for distributing videos and initiating dialogue around a brand [295].

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[284] R.V. Kozinets, *E-tribalized marketing? The strategic implications of virtual communities of consumption,* "European Management Journal", 1999, 17, p. 252-264.

[285] M. Yadav, P. Pavlou, *Marketing in computer-mediated environments: Research synthesis and new directions*, "Journal of Marketing", 2014, 78, January, pp. 20–40.

[286] K.L. Keller, *Strategic…*, pp. 236-237.

[287] L. de Chernatony, *Succeeding with brands on the Internet*, "The Journal of Brand Management", 2001, 8, 3, pp. 186–195.

[288] K.L. Keller, *Strategic…*, p. 237.

[289] M. Bruhn, V. Schoenmueller, D.B. Schäfer, *Are social media replacing traditional media in terms of brand equity creation?*, "Management Research Review", 2012, 35, 9, pp. 770–790.

[290] B. Schivinski, D. Dabrowski, *The effect of social media communication on consumer perceptions of brands*, "Journal of Marketing Communications", 2014, 1–26.

[291] B. Schivinski, D. Dabrowski, *The impact of brand communication of brand equity through Facebook*, "Journal of Research in Interactive Marketing", 2014, pp. 31–53.

[292] K.L. Keller, *Strategic…*, p. 237.

[293] *Ibidem*, p. 237.

[294] A.N. Smith, E. Fischer, C. Yongjian, *How does brand-related user-generated content differ across YouTube, Facebook, and Twitter?*, "Journal of Interactive Marketing", 2012, 26, 2, pp. 102–113.

[295] K.L. Keller, *Strategic brand management: Building, measuring, and managing brand equity,* Pearson Education Limited, Harlow, England 2013, p. 237.

Companies do not only benefit from using YouTube on its basic web channel, but also from technology that embedded the SNS on HDTV and mobile/portable devices [296]. Such an integration of social media across different types of devices made video advertising a very effective way of companies to reach consumers, independently of the size of the brand [297]. A benchmark advertising campaign that illustrates this issue is the 'A hunter shoots a bear' campaign by the brand Tipp-Ex [298]. In this online video advertising campaign the brand Tipp-Ex had a global reach of millions of consumers. This is the first YouTube brand video that went viral [299], and consequently drew the attention of brand scholars and managers to the reach of this new type of marketing communication [300].

E-mail ads are also considered to be a form of firm-created online brand communication [301]. When using e-mail ads managers are able to include features such as personalized audio messages, streaming video, and color pictures. Similar to banner ads, here it is also possible to track response rates [302].

Search advertising is another alternative to banner ads that has growing in popularity amongst marketers [303]. Using this form of advertising, consumers are presented with sponsored links relevant to their previous search words alongside unsponsored results [304]. Brand marketers are able to target consumers more effectively than banner ads and generate higher response rates, since these ads are linked to specific keywords [305].

Although those forms of firm-created online brand communication are under the management of a firm, they are not free of the intervention of consumers [306]. The next section aborts the topic of user-generated online brand communication, which

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[296] A.N. Smith, E. Fischer, C. Yongjian, *How does brand-related user-generated content differ across YouTube, Facebook, and Twitter?*, "Journal of Interactive Marketing", 2012, 26, 2, pp. 102–113.
[297] *Ibidem*, pp. 102–113.
[298] B. Schivinski, *The concept of AIDA applied to online interactive advertisement: A YouTube case study,* "PhD Interdisciplinary Journal", 2012, 1, pp. 64-69.
[299] A viral video is a piece of movie content that consumers share with their family and friends after watching. Such videos are known for reaching millions of views in a very short period of time
[300] B. Schivinski, *The concept...,* pp. 64-69.
[301] K.L. Keller, *Strategic...*, p. 238.
[302] *Ibidem*, p. 238.
[303] M. Yadav, P. Pavlou, *Marketing in computer-mediated environments: Research synthesis and new directions*, "Journal of Marketing", 2014, 78, January, pp. 20–40.
[304] K.L. Keller, *Strategic...*, p. 238.
[305] *Ibidem*, p. 238.
[306] D. Godes, D. Mayzlin, *Firm-created word-of-mouth communication: Evidence from a field test*, "Marketing Science", 2009, 28, 4, pp. 721–739.

differently from firm-created online brand communication, this source of communication influences brands both positively [307] and negatively [308].

2.1.4. The development of user-generated online brand communication

Among all the new media channels, SNSs such as Facebook, Twitter and YouTube have drawn attention of both brand scholars and communication managers [309]. The development and growing popularity of SNSs has led to the notion that user-generated content (hereafter, UGC) creates communities that facilitate the interactions of consumers with common interests [310]. Additionally, social media channels facilitate consumer-to-consumer interaction and accelerate communication amid consumers [311]. Web 2.0 has empowered proactive consumer behavior in the search for information and purchase process, i.e., customers make use of social media to access information of their desired product and brand [312].

UGC is a rapidly growing vehicle for brand conversations and consumer insights [313, 314]. Because of its primary stage of research, there is still no accepted definition for UGC [315]. T. Daugherty, M. Eastin, and L. Bright classified UGC according to the type of created online content [316]. According to the authors UGC is "focused on the consumer dimension, is created by the general public rather than by marketing professionals and is primarily distributed on the Internet" [317]. A more

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[307] G. Christodoulides, C. Jevons, J. Bonhomme, *Memo to marketers: Quantitative evidence for change. How user-generated content really affects brands*, "Journal of Advertising Research", 2012, 52, 1, pp. 53–64.

[308] B. Cova, S. Pace, *Brand community of convenience products: New forms of customer empowerment – the case 'my Nutella The Community'*, "European Journal of Marketing", 2006, 40, 9/10, pp. 1087–1105.

[309] M. Yadav, P. Pavlou, *Marketing in computer-mediated environments: Research synthesis and new directions*, "Journal of Marketing", 2014, 78, January, pp. 20–40.

[310] R.S. Winer, *New communications approaches in marketing: Issues and research directions,* "Journal of Interactive Marketing", 2009, 23, 2, pp. 108–117.

[311] W. Duan, B. Gu, A.B. Whinston, *Do online reviews matter? An empirical investigation of panel data,* "Decision Support Systems", 2008, 45, 4, pp. 1007–1016.

[312] G. Christodoulides, N. Michaelidou, N.T. Siamagka, *A typology of internet users based on comparative affective states: Evidence from eight countries*, "European Journal of Marketing", 2013, 47, 1, pp. 153–173.

[313] G. Christodoulides, C. Jevons, J. Bonhomme, *Memo…*, pp. 53–64.

[314] H. Gangadharbatla, *Facebook me: Collective self-esteem, need to belong, and internet self-efficacy as predictors of the iGeneration's attitudes toward social networking sites*, "Journal of Interactive Advertising", 2008, 8, 6, pp. 3–28.

[315] OECD, *Participative web and user-created content: Web 2.0 wikis and social networking,* Organisation for Economic Co-operation and Development, Paris, 2007, p. 9.

[316] T. Daugherty, M. Eastin, L. Bright, *Exploring consumer motivations for creating user-generated content*, "Journal of Interactive Advertising", 2008, 8, 2, pp. 16–25.

[317] *Ibidem*, p. 16.

comprehensive definition of UGC is delineated by the Organization for Economic Co-Operation and Development: "(i) content that is made publicly available over the Internet, (ii) content that reflects a certain amount of creative effort, and (iii) content created outside professional routines and practices" [318]. In the context of social media, content is defined as "a special value of information which is displayed by means of representation such as text, audio and video, editorial styles and formats" [319].

Therefore, the idea of UGC is based on creation of online media (such as text, audio, video, and visual graphics) and not on content dissemination as conceptualized in a similar way to electronic word-of-mouth (e-WOM) [320, 321, 322]. In spite of similarities, the concepts of UGC and e-WOM diverge in terms of whether the content is created or only conveyed by the consumers [323]. Nevertheless, in the literature there is an agreement that both UGC and e-WOM are types of social media communication related to consumers and brands, with no commercially oriented purposes and not controlled by firms [324, 325]. Moreover, consumers are adept at implementing and impersonating the styles, tropes, logic, and grammar of marketing and brand communications [326].

Brand scholars and managers who wish to keep pace with the consumers' empowerment on social media face the challenge of developing a good understanding of the appeal that brand-related interactions have for their target consumers [327, 328].

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[318] OECD, *Participative web and user-created content: Web 2.0 wikis and social networking*, Organisation for Economic Co-operation and Development, Paris, 2007, p. 9.
[319] C. Burmann, U. Arnhold, *User generated branding: State of the art of research,* Transaction Publishers, Piscataway, NJ 2008, p. 13.
[320] R.V. Kozinets, K. De Valck, A.C. Wojnicki, S.J.S. Wilner, *Networked narratives: Understanding word-of-mouth marketing in online communities,* "Journal of Marketing", 2010, 74, March, pp. 71–89.
[321] G. Christodoulides, N. Michaelidou, E. Argyriou, *Cross-national differences in e-WOM influence*, "European Journal of Marketing", 2012, 46, 11, pp. 1689–1707.
[322] eWOM is defined as "any positive or negative statement made by ... [an individual] ... which is made available to a multitude of people and institutions via Internet" in T. Hennig-Thurau, G. Walsh, *Electronic word-of-mouth: motives for and consequences of reading customer articulations on the Internet*, "International Journal of Electronic Commerce", 2004, 8, 2, p. 39.
[323] A.N. Smith, E. Fischer, C. Yongjian, *How does brand-related user-generated content differ across YouTube, Facebook, and Twitter?*, "Journal of Interactive Marketing", 2012, 26, 2, pp. 102–113.
[324] P. Berthon, L. Pitt, C. Campbell, *Ad lib: When customers create the ad*, "California Management Review", 2008, 50, 4, pp. 6–31.
[325] J. Brown, A.J. Broderick, N. Lee., *Word of mouth communication within online communities: Conceptualizing the online social network*, "Journal of Interactive Marketing" 2007, 21, 3, pp. 2–20.
326 A.M. Muñiz, H.J. Schau, *How to inspire value-laden collaborative consumer-generated content*, "Business Horizons", 2011, 54, 3, pp. 209–217.
[327] B. Cova, S. Pace, *Brand community of convenience products: New forms of customer empowerment – the case 'my Nutella The Community'*, "European Journal of Marketing", 2006, 40, 9/10, pp. 1087–1105.

Although the topics of firm-created and user-generated social media brand-related communication might be investigated separately, a new framework approaches both types of social media brand-related communication in a holistic construct i.e., the consumer's online brand-related activities – the COBRA framework. This topic is discussed in detail in the following section.

2.2. The consumer's online brand-related activities framework
2.2.1. The conception of the COBRA framework

Regardless of the fact that much of the role of social media in marketing communication remains to be explored and clarified [329, 330], it is clear that for brands wishing to benefit from social media, one of the main objectives of brand managers becomes to encourage their customers to get involved in online brand-related activities [331].

The interest of consumers in brands on the Internet had its beginning in the1990s, when Internet users started to use bulletin boards on sites such as Yahoo! and AOL to share their preferences about products [332]. The advances of the Internet technology originate a new dimension of consumer's engagement with brands on social media [333]. Social media environments have extended significantly the ways and depth of consumer-brand interactions [334].

On social media, consumers use several different tools and resources to engage with brands. However, different brand-related activities may entail different levels of consumer's engagement [335]. For example, when an individual watches a picture or a movie displaying a product or brand, he or she consumes brand-related media. On the other hand, when the consumer interacts with the media by

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[328] D.G. Muntinga, M. Moorman, E.G. Smit, *Introducing COBRAs: Exploring motivations for brand-related social media use*, „International Journal of Advertising", 2011, 30, 1, pp. 13–46.

[329] M. Yadav, P. Pavlou, *Marketing in computer-mediated environments: Research synthesis and new directions*, "Journal of Marketing", 2014, 78, January, pp. 20–40.

[330] C. Burmann, *A Call for 'user-generated branding*, "Journal of Brand Management", 2010, 18, 1, pp. 1–4.

[331] M. Brzozowska-Woś, *Inbound marketing a skuteczna komunikacja marketingowa*, "Marketing i Rynek" 2014, Sierpień, 8, s. 39-45.

[332] R.V. Kozinets, *Utopian enterprise: Articulating the meanings of Star Trek's culture of consumption*, „Journal of Consumer Research", 2001, 28, June, pp. 67–88.

[333] C. Li, J. Bernoff, *Groundswell: Winning in a world transformed by social technologies*, Harvard Business Review Press, Boston, MA 2011, pp. 3–5.

[334] G. Christodoulides, *Branding in the post-internet era*, „Marketing Theory", 2009, 9, 1, pp. 141–144.

[335] D.G. Muntinga, M. Moorman, E.G. Smit, *Introducing COBRAs: Exploring motivations for brand-related social media use*, „International Journal of Advertising", 2011, 30, 1, pp. 13–46.

commenting on a post or by "Liking" a piece of content, there is a shift from the stage of observer to media contributor. Lastly, when the consumer uploads a picture showing a product or brand on a SNS he or she creates brand-related content [336]. Those three levels of consumer's engagement with brands on social media are integrated into the COBRA framework [337].

The COBRA framework has its foundation on the works of G. Shao[338]. The author delimitated boundaries to the levels of engagement of consumers with user-generated media (UGM). G. Shao suggested that consumers engage with UGM in three ways, i.e., by consuming, by participating, and by producing brand-related media [339]. Even though G. Shao conceived a first theoretical step towards the development of the framework the author did not empirically test it.

D.G. Muntinga, M. Moorman, and E.G. Smit advanced the findings of G. Shao by empirically exploring the consumer's motivations to engage into online brand-related activities [340]. Additionally, the authors coined the framework to be named COBRA and suggested its dimensions to be called: consumption, contribution, and creation [341]. D.G. Muntinga, M. Moorman, and E.G. Smit validated the theoretical framework with 20 consumers using instant message interviews (IM). Their qualitative research method evidenced the distinguished dimensions of the COBRA framework according to the level of brand-related activeness [342]. Albeit the authors contributed to the building literature on the topic of consumer's engagement with brands on social media, no definition of the framework was anticipated.

In line with established procedures for developing measures of marketing constructs [343] a formal definition for COBRA is therefore proposed in this dissertation. Consistent with the works of G. Shao and D.G. Muntinga, M. Moorman, and E.G. Smit the COBRA framework is therefore defined by the author as *a set of online activities on the part of the consumer that are related to a brand, and which*

[336] D.G. Muntinga, M. Moorman, E.G. Smit, *Introducing COBRAs: Exploring motivations for brand-related social media use*, „International Journal of Advertising", 2011, 30, 1, p. 14.
[337] *Ibidem*, p. 14.
[338] G. Shao, *Understanding the appeal of user-generated media: A uses and gratification perspective*, „Internet Research", 2009, 19, 1, pp. 7–25.
[339] *Ibidem*, pp. 7–25.
[340] D.G. Muntinga, M. Moorman, E.G. Smit, *Introducing ...*, pp. 13–46.
[341] *Ibidem*, p. 13.
[342] *Ibidem*, p. 16.
[343] G.A. Churchill, *A paradigm for developing better measures of marketing constructs*, „Journal of marketing research", 1979, XVI, February, pp. 64–73.

vary in the levels of interaction and engagement with the consumption, contribution, and creation of social media content. This definition comprehends the consumer's online engagement with brand-related content from lower to higher media involvement. Hence a gamma of social media activities such as watching, commenting, or uploading content is pertinent to the construct. In addition, this definition is flexible to adjust to technical changes of SNS, which in turn may generate new activities through the time [344].

2.2.2. The consumer's engagement with social media brand-related content

The growth in popularity of social media across companies and consumers has opened a vast research field for brand scholars. For the last few years researches have been investigating the ways in which individuals interact with brands on social media approaching different perspectives, such as brand community [345, 346]; community identification and engagement [347]; electronic word-of-mouth [348]; peer communication [349]; social media participation [350]; user-generated and firm-created content [351, 352, 353]; involvement with user-generated content [354]; reasons for

[344] B. Schivinski, M. Brzozowska-Woś, *Badanie aktywności online polskich konsumentów dotyczącej marek*, "e-mentor", 2015, 59, 2. pp. 77–85.

[345] M. Laroche, M.R. Habibi, M.-O. Richard, Sankaranarayanan R., *The effects of social media based brand communities on brand community markers, value creation practices, brand trust and brand loyalty*, „Computers in Human Behavior", 2012, 28, 5, pp. 1755–1767.

[346] H.J. Schau, A.M. Muñiz Jr., E.J. Arnould, *How brand community practices create value*, „Journal of Marketing", 2009, 73, September, pp. 30–51.

[347] R. Algesheimer, U.M. Dholakia, A. Herrmann, *The social influence of brand community: Evidence from European car clubs*, „Journal of Marketing", 2005, 69, July, pp. 19–34.

[348] T. Hennig-Thurau, G. Walsh, *Electronic word-of-mouth: motives for and consequences of reading customer articulations on the Internet*, "International Journal of Electronic Commerce", 2004, 8, 2, pp. 38–52.

[349] X. Wang, C. Yu, Y. Wei, *Social media peer communication and impacts on purchase intentions: a consumer socialization framework*, „Journal of Interactive Marketing", 2012, 26, 4, pp. 198–208.

[350] T.E.D. Yeo, *Social-media early adopters don't count: How to seed participation in interactive campaigns by psychological profiling of digital consumers*, „Journal of Advertising Research", 2012, 52, 3, pp. 297-308.

[351] M. Bruhn, V. Schoenmueller, D.B. Schäfer, *Are social media replacing traditional media in terms of brand equity creation?*, "Management Research Review", 2012, 35, 9, pp. 770–790.

[352] B. Schivinski, D. Dabrowski, *The effect of social media communication on consumer perceptions of brands*, "Journal of Marketing Communications", 2014, pp. 1–26.

[353] B. Schivinski, D. Dabrowski, *The impact…*, pp. 1–22.

[354] G. Christodoulides, C. Jevons, J. Bonhomme, *Memo to marketers: Quantitative evidence for change. how user-generated content really affects brands*, "Journal of Advertising Research", 2012, 52, 1, pp. 53–64.

"Liking"[355]; and worth-of-mouth [356]. It is important to notice that those research fields involve both types of social media brand-related communication (i.e., firm-created and user-generated) and they are pertinent to at least one dimension of the COBRA framework (i.e., the consuming, the contributing, and the creating COBRA types).

The consuming COBRA type has its roots in the marketing literature with the consumer's participation in networks and online brand communities [e.g., 357, 358, 359, 360]. This type of COBRA represents a minimum level of consumer's engagement into brand-related activities. It refers to individuals, who passively consume brand-related media without participating [361, 362]. The consumption of brand-related content includes media that are both firm-created and user-generated; therefore, no distinction of communication sources is anticipated. This is the most frequent COBRA type among consumers [363].

The contributing COBRA type includes both peer-to-peer and peer-to-content interaction about brands [364]. This COBRA type does not include one's actual creation, however, consumers who contribute to brand-related content by participating in media that was previously created by either a company or another individual. Due to its interactive nature, this COBRA type has gained popularity across practitioners and brand researchers. Research on this type of COBRA can be traced back from studies of brand-related electronic word-of-mouth (e-WOM) [e.g., 365, 366, 367, 368] and online

[355] E. Wallace, I. Buil, L. de Chernatony, M. Hogan, *Who "Likes" you ... and why? A typology of Facebook fans: From "Fan"-atics and self-expressives to utilitarians and authentics*, „Journal of Advertising Research", 2014, 54, 1, pp. 92–109.

[356] B.A. Carroll, A.C. Ahuvia, *Some antecedents and outcomes of brand love*, „Marketing Letters", 2006, 17, pp. 79–89.

[357] A. Armstrong, J. Hagel III, *The real value of on-line communities*, „Harvard Business Review", 1996, 74, May-June, pp. 134–141.

[358] U.M. Dholakia, R.P. Bagozzi, L.K. Pearo, *A social influence model of consumer participation in network- and small-group-based virtual communities*, „International Journal of Research in Marketing", 2004, 21, 3, pp. 241–263.

[359] R.V. Kozinets, *E-tribalized marketing? The strategic implications of virtual communities of consumption*, "European Management Journal", 1999, 17, pp. 252-264.

[360] A.M. Muniz Jr., T.C. O'Guinn, *Brand community*, „Journal of consumer research", 2001, 27, March, pp. 412–433.

[361] G. Shao, *Understanding the appeal of user-generated media: A uses and gratification perspective*, „Internet Research", 2009, 19, 1, pp. 7–25.

[362] D.G. Muntinga, M. Moorman, E.G. Smit, *Introducing COBRAs: Exploring motivations for brand-related social media use*, „International Journal of Advertising", 2011, 30, 1, pp. 13–46.

[363] *Ibidem*, pp. 13–46.

[364] G. Shao, *Understanding...*, pp. 7–25.

[365] J.A. Chevalier, D. Mayzlin, *The effect of word of mouth on sales: Online book reviews*, „Journal of Marketing Research", 2006, XLIII, August, pp. 345–354.

customer reviews (OCR) [e.g., 369, 370], whereas more recently attention has been given specifically to consumers who "Like" brands [e.g., 371, 372] or share brand-related content on social media [e.g., 373, 374].

Finally, the creating COBRA type involves the consumer's creation and online publication of brand-related content. Studies on consumers' involvement with the creation of brand-related content are grounded in the topics of co-creation [e.g., 375, 376, 377] and consumer empowerment [e.g., 378, 379, 380]. More recent studies have focused on the topic of user-generated content (UGC) [e.g., 381, 382, 383, 384, 385, 386, 387]. Therefore, the

[366] C. Dellarocas, X. Zhang, N.F. Awad, *Exploring the value of online product reviews in forecasting sales: The case of motion pictures*, „Journal of Interactive Marketing", 2007, 21, 4, pp. 23–45.

[367] T. Hennig-Thurau, E.C. Malthouse, C. Friege, S. Gensler, L. Lobschat, A. Rangaswamy, B. Skiera, *The impact of new media on customer relationships*, "Journal of Service Research", 2010, 13, 3, pp. 311–330

[368] K.H. Hung, S.Y. Li, *The influence of eWOM on virtual consumer communities: Social capital, consumer learning, and behavioral outcomes*, „Journal of Advertising Research", 2007, 47, 4, pp. 485-495

[369] N. Ho-Dac, S. Carson, W. Moore, *The effects of positive and negative online customer reviews: Do brand strength and category maturity matter?*, „Journal of Marketing", 2013, 77, November, pp. 37–53.

[370] F. Zhu, X. (Michael) Zhang, *Impact of online consumer reviews on sales: The moderating role of product and consumer characteristics,* „Journal of Marketing", 2010, 74, March, pp. 133–148.

[371] K. Nelson-Field, E. Riebe, B. Sharp, *What's not to "Like?" Can a Facebook fan base give a brand the advertising reach it needs?*, „Journal of Advertising Research", 2012, 52, 2, pp. 262-269.

[372] E. Wallace, I. Buil, L. de Chernatony, Hogan M., *Who "Likes" you ... and why? A typology of Facebook fans: From "Fan"-atics and self-expressives to utilitarians and authentics*, „Journal of Advertising Research", 2014, 54, 1, pp. 92–109.

[373] R. Belk, *You are what you can access: Sharing and collaborative consumption online*, „Journal of Business Research", 2014, 67, 8, pp. 1595–1600.

[374] Z. Shi, H. Rui, A. Whinston, *Content sharing in a social broadcasting environment: Evidence from Twitter*, „MIS Quarterly", 2014, 38, 1, pp. 123–142.

[375] J. Füller, M. Bartl, H. Ernst, H. Mühlbacher, *Community based innovation: How to integrate members of virtual communities into new product development*, „Electronic Commerce Research", 2006, 6, 1, pp. 57–73.

[376] J. Füller, H. Mühlbacher, K. Matzler, G. Jawecki, *Consumer empowerment through internet-based co-creation*, „Journal of Management Information Systems", 2009, 26, 3, pp. 71–102.

[377] C.K. Prahalad, V. Ramaswamy, *Co-creation experiences: The next practice in value creation*, „Journal of Interactive Marketing", 2004, 18, 3, pp. 5–14.

[378] G.D. Pires, J. Stanton, P. Rita, *The internet, consumer empowerment and marketing strategies*, „European Journal of Marketing", 2006, 40, 9/10, pp. 936–949.

[379] L. Wathieu, L. Brenner, Z. Carmon, A. Chattopadhay, K. Wertenbroch, A. Drolet, J. Gourville, A.V. Muthukrishnan, N. Novemsky, R.K. Ratner, G. Wu, *Consumer control and empowerment: A primer*, „Marketing Letters", 2002, 13, 3, pp. 297–305.

[380] L. Wright, A. Newman, C. Dennis, *Enhancing consumer empowerment*, „European Journal of Marketing", 2006, 40, 9/10, pp. 925–935.

[381] P. Berthon, L. Pitt, C. Campbell, *Ad lib: When customers create the ad*, "California Management Review", 2008, 50, 4, pp. 6–31.

[382] M. Bruhn, V. Schoenmueller, D.B. Schäfer, *Are social media replacing traditional media in terms of brand equity creation?*, "Management Research Review", 2012, 35, 9, pp. 770–790.

[383] G. Christodoulides, C. Jevons, J. Bonhomme, *Memo to marketers: Quantitative evidence for change. how user-generated content really affects brands*, "Journal of Advertising Research", 2012, 52, 1, pp. 53–64.

creating COBRA type represents the deepest level of online brand-related engagement [388] where the content generated by consumers, may be a stimulus for further consumption and/or contribution by other peers.

Actually, it should be accounted that the same consumer may act as a consumer/contributor/creator of content for the same brand concurrently or successively depending on situational factors. Similarly, the same consumer may choose to contribute for one brand but only consume content for another brand. Accordingly, by enclosing the three dimensions (i.e., consumption, contribution, and creation) into the COBRA framework researchers may gain a richer understanding of the consumer's engagement with social media brand-related content [389].

2.2.3. Antecedents of consumer's online brand-related activities

Recent studies revealed that brands differ in their receptiveness to COBRAs on social media environment [390, 391]. J. Berger and E. Schwartz investigated the characteristics that make consumers talk about products and brands[392]. The authors found that the more visible a brand is, the more immediate and noticeable word-of-mouth that brand gets. Although marketing communication influences the consumers to engage with brands on social media, the understanding of consumer's drivers to social media brand-related behavior is of great importance to brand scholars and managers. Summaries of research findings on the antecedents of each dimension of COBRA are presented in Tables 4, 5, and 6 respectively.

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[384] T. Daugherty, M. Eastin, L. Bright, *Exploring consumer motivations for creating user- generated content*, "Journal of Interactive Advertising", 2008, 8, 2, pp. 16–25.

[385] J. Hautz, J. Füller, K. Hutter, C. Thürridl, *Let users generate your video ads? The impact of video source and quality on consumers' perceptions and intended behaviors*, „Journal of Interactive Marketing", 2013, 28, 1, pp. 1–15.

[386] B. Schivinski, D. Dabrowski, *The effect of social media communication on consumer perceptions of brands*, "Journal of Marketing Communications", 2014, pp. 1–26.

[387] B. Schivinski, D. Dabrowski, *The impact of brand communication of brand equity through Facebook*, "Journal of Research in Interactive Marketing", 2014, pp. 31–53.

[388] D.G. Muntinga, M. Moorman, E.G. Smit, *Introducing COBRAs: Exploring motivations for brand-related social media use*, „International Journal of Advertising", 2011, 30, 1, pp. 13–46.

[389] *Ibidem*, pp. 13–14.

[390] J. van Doorn, K.N. Lemon, V. Mittal, S. Nass, D. Pick, P. Pirner, P.C. Verhoef, *Customer engagement behavior: Theoretical foundations and research directions*, "Journal of Service Research", 2010, 13, 3, pp. 253-266.

[391] S. Aral, Identifying Social Influence: *A comment on opinion leadership and social contagion in new product development*, "Marketing Science", 2011, 30, 2, pp. 217-224.

[392] J. Berger, E. Schwartz, *What drives immediate and ongoing word-of-mouth?,* "Journal of Marketing Research", 2011, 48, 5, pp. 869-880.

Consuming COBRA type. Researches on the lowest level of consumer's engagement with brands on social media i.e., the consuming COBRA type involve both firm-created and user-generated types of brand communication. R.V. Kozinets investigated Internet users' motivations to consume Star Trek related content on a virtual community [393]. The author found that consumption fulfills the contemporary need for a conceptual space. In addition, Internet users revealed to consume brand-related content as a form to express their selves and their life style. Those findings were later empirically supported in an online brand community devoted to the brand Starbucks [394]. R.V. Kozinets identified that social distinction, artisanship, craftsmanship, personal involvement, passion, authenticity, humanity, and religious devotion influence consumption of brand-related content.

A.M. Muniz Jr. and T.C. O'Guinn investigated the idea of communal consumption in online brand communities to explore the characteristics, processes, and particularities of three brand communities (i.e., Ford Bronco, Macintosh, and Saab) [395]. The authors reported that shared consciousness, rituals and traditions, and a sense of moral responsibility influence consumers to engage into consumption of online brand-related content.

T. Hennig-Thurau and G. Walsh addressed the question of what motivates individuals to read the online brand-related social media content from consumer opinion platforms [396]. Obtaining buying-related information, social orientation through information, community membership, remuneration, and to learn to consume a product were identified as motives for reading virtual customer articulations. Additionally, their results indicated that consumers read on-line articulations mainly to save decision-making time and make better buying decisions.

U.M. Dholakia, R.P. Bagozzi, and L.K. Pearo explored the influence of group norms and social identity on the consumer's participation in online brand

[393] R.V. Kozinets, *Utopian enterprise: Articulating the meanings of Star Trek's culture of consumption*, „Journal of consumer research", 2001, 28, June, pp. 67–88.
[394] R.V. Kozinets, *The field behind the screen: Using netnography for marketing research in online communities*, "Journal of marketing research", 2002, XXXIX, February, pp. 61-72.
[395] A.M. Muñiz Jr., T.C. O'Guinn, *Brand community*, „Journal of consumer research", 2001, 27, March, pp. 412–433.
[396] T. Hennig-Thurau, G. Walsh, *Electronic word-of-mouth : Motives for and consequences of reading customer articulations on the internet*, "International Journal of Electronic Commerce", 2003, 8, 2, pp. 51-74.

communities while considering their motivational antecedents and mediators [397]. Moreover, the authors introduced a typology to conceptualize virtual brand communities, based on the distinction between network-based and small-group-based communities [398]. Their findings demonstrated that virtual community type moderates the consumer's reasons for participating, in addition to the strengths of their impact on social identity and group norms.

R. Algesheimer, U.M. Dholakia, and A. Herrmann developed and estimated a conceptual model to measure selected aspects of customer's relationships with the brand community [399]. The authors investigated online car clubs communities in German-speaking Europe (Germany, Austria, and Switzerland) and uncovered that higher levels of brand relationship quality lead to a stronger brand community identification.

A.M. Muñiz Jr. and H.J. Schau explored an online brand community from a product that was abandoned by the marketer i.e., the Apple Newton [400]. The authors found that supernatural, religious, and magical motifs invest the brand with psychological meanings and therefore perpetuate the brand and the online community. Accordantly, these motifs were identified to be drivers of the consumption of online brand-related content.

B. Cova and S. Pace advanced the knowledge on brand communities and customer empowerment by evidencing that convenience product brand (Nutella) shows a different form of sociality and customer empowerment than luxury or niche brands [401]. According to the authors, the consumer's engagement with brands on virtual communities is not based on interaction between customers, but more on personal self-exhibition in front of other peers through the marks and rituals linked to the brand.

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[397] U.M. Dholakia, R.P. Bagozzi, L.K. Pearo, *A social influence model of consumer participation in network- and small-group-based virtual communities*, „International Journal of Research in Marketing", 2004, 21, 3, pp. 241–263.

[398] *Ibidem*, pp. 241–263.

[399] R. Algesheimer, U.M. Dholakia, A. Herrmann, *The social influence of brand community: Evidence from European car clubs*, „Journal of Marketing", 2005, 69, July, pp. 19–34.

[400] A.M. Muñiz Jr., H.J. Schau, *Religiosity in the abandoned Apple Newton brand community*, "Journal of Consumer Research", 2005, 31, March, pp. 737-747.

[401] B. Cova, S. Pace, *Brand community of convenience products: New forms of customer empowerment – the case 'my Nutella The Community'*, "European Journal of Marketing", 2006, 40, 9/10, pp. 1087–1105.

C. McMahan, R. Hovland, and S. McMillan observed the effects of gender differences for consumer's online behavior on interactivity and advertising effectiveness [402]. The results determined that there is a significant interaction effect amongst gender and human-to-computer on consumer online behavior. Therefore, women and men have distinctive preferences for human-to-computer interactivity.

Based on the sociology and advertising literature, F. Zeng, L. Huang, and D. Wenyu investigated the influences of social identity and group norms on community user's group intentions to accept advertising in SNSs [403]. The authors found that perceived relevance and value of advertising to the SNSs impact the consumer's attitudinal and behavioral responses to it.

G. Shao argued that user-generated media could be analyzed in terms of the gratification or psychological needs of the individual. The author implemented the uses and gratifications theory (U&G) [404, 405] to unveil that individuals consume UGC for fulfilling their information, entertainment, and mood management needs [406].

To explore the influence of users' motivation to engage in online social networking on responses to social media marketing, H.-H. Chi addressed two aspects of users' motivation (i.e., need for online social capital and psychological well-being) and two types of social media marketing (i.e., interactive digital advertising and virtual brand community) [407]. The author found that Facebook users responded to social media advertising and virtual brand communities differently.

M. Pagani, C.F. Hofacker, and R.E. Goldsmith explored individual-level characteristics of SNS participants so as to try to understand the drivers that motivate passive (consumption of content) and active use (contribution and creation of content)

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[402] C. McMahan, R. Hovland, S. McMillan, *Online marketing communications: Exploring online consumer behavior by examining gender differences and interactivity within internet advertising*, "Journal of Interactive Advertising", 2009, 10, 1, pp. 61-76.

[403] F. Zeng, L. Huang, D. Wenyu, *Social factors in user perceptions and responses to advertising in online social networking communities*, "Journal of Interactive Advertising", 2009, 10, 1, pp. 1-13.

[404] J.G. Blumler, E. Katz, *The uses of mass communication*, Sage, Newbury Park, CA 1974, pp. 167-196.

[405] E. Katz, J.G. Blumler, M. Gurevitch, *Uses and gratifications research*, "The Public Opinion Quarterly" 1973, 37, 4, pp. 509-523.

[406] G. Shao, *Understanding the appeal of user-generated media: A uses and gratification perspective*, „Internet Research", 2009, 19, 1, pp. 7–25.

[407] H.-H. Chi, *Interactive digital advertising vs. virtual brand community: Exploratory study of user motivation and social media marketing responses in Taiwan*, "Journal of Interactive Advertising", 2011, 12, 1, pp. 44-61.

of SNS [408]. The authors' findings suggested that innovative users are more likely to use and contribute with content to SNS, whereas the consumer's self-identity and social identity expressiveness only drive active SNS use.

D.G. Muntinga, M. Moorman, and E.G. Smit conducted interviews with people engaged in COBRAs to investigate their motivations to do so [409]. Similarly to G. Shao [410], the authors used the U&G framework. Their results indicated that the consumption, contribution, and creation of social media brand-related content is driven by six motivations i.e., information, personal identity, integration and social interaction, entertainment, empowerment, and remuneration.

To explore brand attributes, which contribute to a brand's social media success, D.G. Muntinga, E. Smit, and M. Moorman researched consumers from two SNSs i.e., Facebook and Hyves. To determine the characteristics of social media brands, the authors focused on the brand's functional and symbolic attributes [411]. The authors found that Internet users tend to not only to consume, but also to contribute and to create more social media brand-related content for high involvement brands; whereas, low involvement brands are given occasional online attention by the consumers. Additionally, D.G. Muntinga, E. Smit, and M. Moorman investigated the effects of brand personality dimensions (exciting, responsibility, and ordinary) on COBRAs [412]. Their results demonstrated that responsibility and exciting contribute influence the consumption of social media brand-related content. The same effects were detected for the contribution COBRA type.

Although SNSs and brand communities have largely been researched separately, M. Zaglia approached both in one single netnographic study aiming to investigate the existence, functionality, and different types of brand communities within SNSs [413]. The author found that passion for the brand and the field of interest, willingness to learn and improve skills, social relation to other brand community members, and reception of information tailored to specific member's needs,

[408] M. Pagani, C.F. Hofacker, R.E. Goldsmith, *The influence of personality on active and passive use of social networking sites*, "Psychology & Marketing", 2011, 28, 5, pp. 441–456.
[409] D.G. Muntinga, M. Moorman, E.G. Smit, *Introducing COBRAs: Exploring motivations for brand-related social media use*, „International Journal of Advertising", 2011, 30, 1, pp. 13–46.
[410] G. Shao, *Understanding…*, pp. 7–25.
[411] D.G. Muntinga, E. Smit, M. Moorman, *Social media DNA: How brand characteristics shape COBRAs*, „Advances in Advertising Research", 2012, Vol. III, pp. 121–137.
[412] *Ibidem*, pp. 121–137.
[413] M. Zaglia, *Brand communities embedded in social networks*, "Journal of Business Research", 2013, 66, 2, pp. 216-223.

entertainment, and enhancement of one's social position to be motivational antecedents for participation into brand communities within the SNS context.

R.J. Brodie, A. Ilic, B. Juric, and L. Hollebeek adopted netnography to explore the consumer's engagement in an online brand community environment [414, 415]. The authors revealed that consumer engagement with brands online emerge at different levels of intensity over time, therefore reflecting different engagement states. Subsequently, the authors argue that the consumer's engagement with brands online comprises an array of sub-processes, which reflect the consumer's interactive experience within online brand communities, and value co-creation amongst community members [416]. Their findings showed that consumer loyalty, satisfaction, empowerment, connection, emotional bonding, trust, and commitment are drivers of consumer's engagement with brands on online communities. The above outlined studies are summarized in Table 4.

Concise to the undertaken researches on the consumption of online brand-related content, the consuming COBRA type is driven by personal and social factors, involvement with the brand, need of information, remuneration, and branding/marketing influences.

Table 4. Antecedents of consuming COBRA type

FINDINGS	RESEARCH METHOD	AUTHORS
Self-perception and life style influence the consumption of online brand-related content	Netnography	R.V. Kozinets, 2001
Shared consciousness, rituals and traditions, and a sense of moral responsibility influence content consumption into brand communities	Netnography	A.M. Muñiz Jr., T.C. O'Guinn, 2001
Social distinction, artisanship, craftsmanship, personal involvement, passion, authenticity, humanity, and religious devotion influence consumption of brand-related content in online brand communities	Netnography	R.V. Kozinets, 2002

[414] R.J. Brodie, A. Ilic, B. Juric, L. Hollebeek, *Consumer engagement in a virtual brand community: An exploratory analysis*, "Journal of Business Research", 2013, 66, 8, pp. 105-114.
[415] R.J. Brodie, L. Hollebeek, B. Juric, A. Ilic, *Customer engagement: Conceptual domain, fundamental propositions and implications for research*, "Journal of Service Research", 2011, 14, 3, pp. 1–20.
[416] R.J. Brodie, A. Ilic, B. Juric, L. Hollebeek, *Customer engagement: Conceptual domain, fundamental propositions and implications for research*, "Journal of Service Research", 2011, 14, 3, pp. 1–20, pp. 105-114.

FINDINGS	RESEARCH METHOD	AUTHORS
Obtaining buying-related information, social orientation through information, community membership, remuneration, and to learn to consume a product influence individuals to read online customer articulations	Structural equation modeling	T. Hennig-Thurau, G. Wash, 2003
Virtual community type moderates the consumer's reasons for participating, social identity, and group norms	Structural equation modeling	U.M. Dholakia, R.P. Bagozzi, L.K. Pearo, 2004
Consumer's brand relationship quality influences their brand community identification	Structural equation modeling	R. Algesheimer, U.M. Dholakia, A. Herrmann, 2005
Supernatural, religious, and magical motifs influence the consumption of online brand-related content within brand communities	Netnography	A.M. Muñiz Jr., H.J. Shau, 2005
Self-exhibition influences the consumer's engagement with brands on virtual communities	Netnography	B. Cova, S. Pace, 2006
Gender effects the consumption of social media advertising	Onscreen recorder and ANOVA	C. McMahan, R. Hovland, S. McMillan, 2009
Perceived relevance and value of advertising to the SNSs impact the consumer's consumption of social media advertising	Structural equation modeling	F. Zeng, L. Huang, D. Wenyu, 2009
The consumer's needs of information, entertainment, and mood management drives the consumption of UGC	Literature analysis	G. Shao, 2009
The consumption of social media brand-related content vary across SNS advertising and virtual brand communities differently	Regression analysis	H.-H. Chi, 2011
Innovativeness influence the consumption of content on SNS	Structural equation modeling	M. Pagani, C.F. Hofacker, R.E. Goldsmith, 2011
Information (surveillance, knowledge, pre-purchase intention, and inspiration), personal identity (self-expression), integration and social interaction (social identity and social pressure), entertainment (enjoyment, relaxation, pastime, and escapism), empowerment, and remuneration are antecedents of the consuming COBRA type	In-depth interviews	D.G. Muntinga, M. Moorman, E.G. Smit, 2011
High involvement brands influence the consumption of social media brand-related content;	Regression analysis	D.G. Muntinga, E. Smit, M. Moorman, 2012
Brand personality (responsibility and exciting dimensions) positively influence the consuming COBRA type		
Passion for the brand, willingness to learn, social links, information, entertainment, and social position are antecedents for participation into brand communities within the SNS context	Netnography	M. Zaglia, 2013
Consumer loyalty, satisfaction, empowerment, connection, emotional bonding, trust, and commitment are antecedents of consumer's engagement with brands on online communities	Netnography	R.J. Brodie, L. Hollebeek, B. Juric, A. Ilic, 2011; 2013

Source: Own elaboration.

Contributing COBRA type. Differently from the consuming COBRA type, the contributing COBRA type requires the consumers to participate with the social media content. Table 5 summarizes the most important researches that grounded the building literature on the antecedents of consumer's contribution to social media brand-related content.

J.E. Phelps, R. Lewis, L. Mobilio, D. Perry, and N. Roman used a combination of qualitative research methods (i.e., focus group, content analysis, and in-depth interviews) to explore the consumer's responses and motivations to share advertising emails [417]. The authors found that the consumer's desire to connect and share with others are drivers to advertising email sharing.

Drawing on findings from research on online brand communities and on word-of-mouth, T. Hennig-Thurau, K.P. Gwinner, G. Walsh, and D.D. Gremler introduced a typology for antecedents of consumer e-WOM [418]. The authors reported that consumers are motivated to engage into e-WOM for social interaction (social benefits), desire for economic incentives, concern for other consumers, advice seeking, and the potential to increase self-worth.

T. Sun, S. Youn, G. Wu, and M. Kuntaraporn developed a model to investigate the antecedents and consequences of e-WOM in the context of music-related communication [419]. Electronic word-of-mouth was measured with two components i.e., online opinion leadership and online opinion seeking. The authors identified innovativeness, Internet usage, and Internet social connection as antecedents of e-WOM.

Using data from a movie website, C. Dellarocas and R. Narayan introduced a metric of a consumer's predisposition to rate a product online [420]. Their findings indicated that offline and online WOM exhibit important similarities; thus marketing

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[417] J.E. Phelps, R. Lewis, L. Mobilio, D. Perry, N. Roman, *Viral marketing or electronic word-of-mouth advertising: Examining consumer responses and motivations to pass along email*, "Journal of Advertising Research", 2004, 44, 4, pp. 333-348.

[418] T. Hennig-Thurau, K.P. Gwinner, G. Walsh, D.D. Gremler, *Electronic word-of-mouth via consumer-opinion platforms: What motivates consumers to articulate themselves on the Internet?*, "Journal of Interactive Marketing", 2004, 18, 1, pp. 38–52.

[419] T. Sun, S. Youn, G. Wu, M. Kuntaraporn, *Online word-of-mouth (or mouse): An exploration of its antecedents and consequences*, "Journal of Computer-Mediated Communication", 2006, 11, 4, pp. 1004-1127.

[420] C. Dellarocas, R. Narayan, *A statistical measure of a population's propensity to engage in post-purchase online word-of-mouth,* "Statistical Science", 2006, 21, 2, pp. 277–285.

expenditures, eclectic and less widely available products, higher disagreement among critic reviews, and perceived quality are antecedents of online ratings.

Following the advances of M.M.L. Wasko and S. Faraj on the understanding of content sharing on SNSs [421], C. Wiertz and K. de Ruyter focused on the relationship between the relational dimension of social capital and firm-related content contribution in a IT online community [422]. Their results indicated that commitment to the online community influences the consumer's will to contribute and share content.

J. Brown, A.J. Broderick, and N. Lee designed a two-stage study to investigate drivers of e-WOM [423]. Using in-depth qualitative interviews followed by a social network analysis of an online community the authors found evidence that individuals engagement with e-WOM is shaped by three key influences i.e., tie strength, homophily, and source credibility.

S. Nambisan and R. Baron used the U&G framework to investigate consumer's motivations that underlie participation in product support in the high-tech sector [424]. The findings indicated that perceived consumer benefits (i.e., learning, social integrative, personal integrative, and hedonic) positively influence the consumer's participation in value creation, more specifically in product support. Additionally, the authors found that interactivity, community norms, and customer's tenure directly influence participation in brand communities [425].

J.Y.C. Ho and M. Dempsey examined the motivations of Internet users to share social media content [426]. The author identified four potential motivations i.e., the need to be part of a group, the need to be individualistic, the need to be altruistic, and the need for personal growth. Additionally, the results indicated that consumers,

[421] M.M.L. Wasko, S. Faraj, *Why should I share? Capital and knowledge contribution in electronic networks of practice*, "MIS Quarterly" 2005, 29, 1, pp. 35-57.

[422] C. Wiertz, K. de Ruyter, *Beyond the call of duty: Why customers contribute to firm-hosted commercial online communities*, "Organization Studies", 2007, 28, 3, pp. 347-376.

[423] J. Brown, A.J. Broderick, N. Lee, *Word of mouth communication within online communities: Conceptualizing the online social network*, "Journal of Interactive Marketing" 2007, 21, 3, pp. 2–20.

[424] S. Nambisan, R. Baron, *Virtual customer environments: Testing a model of voluntary participation in value co-creation activities*, "Journal of Product Innovation Management", 2009, 26, 4, pp. 388-406.

[425] *Ibidem*, pp. 388-406.

[426] J.Y.C. Ho, M. Dempsey, *Viral marketing: Motivations to forward online content*, "Journal of Business Research", 2010, 63, 9-10, pp. 1000-1006.

who are more individualistic and/or more altruistic, tend to share more social media content than others [427].

K. Nelson-Field, E. Riebe, and B. Sharp explored the relationship about the consumer's engagement into the Facebook Fan base of two different fast moving consumer goods (FMCG) brands (i.e., chocolates and soft-drinks) and compared it to the actual buying bases of those brands [428]. Their results implied that the customer base of each of the exanimated brands was distributed in the typical NBD [429], whereas the Facebook Fan base was skewed in the opposite direction - toward the heaviest of the brands' consumers. Therefore, these findings suggest that purchase behavior drives consumers to "Like" and follow brands on Facebook.

Building on the social psychology literature, C.M.K. Cheung and M.K.O. Lee investigated factors (i.e., egoistic, collective, altruistic, and principlistic motivations) that drive consumers to engage into e-WOM in online consumer-opinion platforms [430]. The authors found that consumer's reputation, sense of belonging, and enjoyment of helping are antecedents of e-WOM.

J. Feng and P. Papatla examined whether online consumer conversations and consumer e-WOM are more likely for new automobile models launched by firms either in existing/new categories or redesigns [431]. The results indicated that e-WOM are likely to be higher for redesigns than for new models. In addition, they found that e-WOM is driven by positive opinions from experts, by increase in sales, and consumer satisfaction.

L. de Vries, S. Gensler, and P.S.H. Leeflang explored possible antecedents for brand post popularity (i.e., "Liking" and commenting) [432]. Results demonstrated that positioning the brand post on top of the brand fan page influences both the number of

[427] J.Y.C. Ho, M. Dempsey, *Viral marketing: Motivations to forward online content*, "Journal of Business Research", 2010, 63, 9-10, pp. 1000-1006.

[428] K. Nelson-Field, E. Riebe, B. Sharp, *What's not to "like?" Can a Facebook fan base give a brand the advertising reach it needs?*, „Journal of Advertising Research", 2012, 52, 2, pp. 262-296.

[429] The NBD indicates that the heterogeneity in purchasing rates follows a gamma distribution, which under most conditions reflects a high frequency of light buyers (customers who demonstrate a low to close-to-zero purchasing rate), fewer medium buyers, and very few heavy buyers; in A.S.C. Ehrenberg, N. Barnard, J. Scriven, *Justifying our advertising budgets*, "Warc Conference paper", 1998, pp. 1–13.

[430] C.M.K. Cheung, M.K.O. Lee, *What drives consumers to spread electronic word of mouth in online consumer-opinion platforms*, "Decision Support Systems", 2012, 53, 1, pp. 218–225.

[431] J. Feng, P. Papatla, *Is online word of mouth higher for new models or redesigns? An investigation of the automobile industry*, "Journal of Interactive Marketing", 2012, 26, 2, pp. 92–101.

[432] L. de Vries, S. Gensler, P.S.H. Leeflang, *Popularity of brand posts on brand fan pages: An investigation of the effects of social media marketing*, "Journal of Interactive Marketing", 2012, 26, 2, pp. 83–91.

"Likes" and number of comments. Additionally, the authors found that vivid and interactive brand post characteristics increase the number of "Likes". Likewise, the number of positive comments on a brand post is positively related to the number of "Likes". On the other hand, the authors reported that the number of comments increases when using interactive brand post characteristic i.e., by asking the consumers a question. The valance of both positive and negative comments was directly related to the number of comments.

J. Berger and K. Milkman examined how online content characteristics influence virality [433]. In particular, the authors examined how specific positive and negative emotions evoked by content induce social transmission, particularly sharing behavior on social media. Their findings showed that positive content is more viral than negative content. Additionally, the authors reported that the relationship between emotion and social transmission is more complex than valence alone and that arousal drives social transmission. In other words, online content that evoked high-arousal emotions was more viral, nevertheless of whether those emotions were positive (awe) or negative (anger or anxiety). On the other hand, content that evokes low-arousal, or deactivating, emotions such as sadness is less viral.

Y. Liu-Thompkins and M. Rogerson built on network science and social network analysis to identify key factors related to network structure, content quality and topic, and author characteristics that may influence the diffusion of UGC [434]. Their results indicated that entertainment and educational values influences the UGC diffusion. Additionally, quality as manifested by ratings effects diffusion more than innate content quality. Their findings also indicated that an author's past success (i.e., the number of total videos posted and average views), and content from younger authors positively influence on the diffusion of brand-related UGC.

K. Swani, G. Milne, and B.P. Brown investigated the message strategies most likely to promote online e-WOM activity for business-to-business (B2B) and business-to-consumer (B2C) whereas controlling for product and service Facebook pages [435]. Their findings revealed that brand posts are more effective if they include

[433] J. Berger, K. Milkman, *What makes online content viral?,* Journal of Marketing Research, XLIX, April, 2012, pp. 192–205.
[434] Y. Liu-Thompkins, M. Rogerson, *Rising to stardom: An empirical investigation of the diffusion of user-generated content*, "Journal of Interactive Marketing", 2012, 26, 2, pp. 71–82.
[435] K. Swani, G. Milne, B.P. Brown, *Spreading the word through likes on Facebook*, "Journal of Research in Interactive Marketing", 2013, 7, 4, pp. 269–294.

corporate brand names and avoid hard sell techniques or explicitly commercial statements for B2B pages. The authors also found that firm-created content including emotional sentiments is a particularly effective social media strategy for B2B and service marketers.

N. Ho-Dac, S. Carson, and W. Moore studied the effects of brand equity and online customer' reviews (OCR) on sales response in an online selling environment[436]. Their results indicated that brand equity moderates the relationship between OCRs and sales in emerging and mature product categories. The valence of OCRs moderates the sales of weak brands. The same effect was not observed on the sales of strong brands; although these brands noted significant sales increase. Therefore, positive OCRs help build the equity of weak brands[437]. The authors also detected that more sales lead to a larger number of positive (but not negative) OCRs, thus creating a positive feedback loop between sales and positive OCRs for weak brands.

To explore attitudes of consumers who engage with brands through Facebook "Likes", E. Wallace, I. Buil, and L. de Chernatony examined the relationship between self-expressive brands (inner self and social self) and brand outcomes[438]. Brand outcomes included brand love and brand advocacy, where advocacy incorporates e-WOM and Facebook "Liking" and brand acceptance. Their findings indicated that consumers "Like" brands on Facebook to express their inner self. Additionally, the authors identified a positive bond between the self-expressive nature of brands "Liked" and brand love.

Z. Shi, H. Rui, and A. Whinston explored people's motivation in sharing content on Twitter. The authors examined whether the strength of the interpersonal tie moderate individual's voluntary content sharing behavior[439]. Their findings indicated that weak ties are more likely to engage in the process of content sharing.

M. Shi and A.C. Wojnicki investigated the use of intrinsic (i.e., interest and involvement in a product category and/or desire to help others) and extrinsic (i.e.,

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[436] N. Ho-Dac, S. Carson, W. Moore, *The effects of positive and negative online customer reviews: Do brand strength and category maturity matter?*, „Journal of Marketing", 2013, 77, November, pp. 37–53.
[437] *Ibidem*, pp. 37–53.
[438] E. Wallace, I. Buil, L. de Chernatony, *Consumer engagement with self-expressive brands: Brand love and WOM outcomes*, „Journal of Product & Brand Management", 2014, 23, 1, pp. 33–42.
[439] Z. Shi, H. Rui, A. Whinston, *Content sharing in a social broadcasting environment: Evidence from Twitter*, „MIS Quarterly", 2014, 38, 1, pp. 123–142.

financial) motivations for consumer's online SNS referrals across opinion leaders and non–opinion leaders [440]. Their results demonstrated that online referral rates were higher when extrinsic rewards were conferred. Additionally, the effect of an extrinsic reward was stronger amongst opinion leaders.

S. Kabadayi and K. Price explored how levels of extraversion, neuroticism, and openness to new experiences drive consumers to "Like" or comment on a brand-related post on Facebook [441]. Additionally, the authors included in the study, two different modes of interaction (i.e., broadcasting and communicating mode) that consumers exhibit on Facebook as the mediating factors in the relationship between behavior and personality traits. The result outcomes denoted that personality traits affect individual's mode of interaction, which in turn determines if he or she will "Like" and/or comment on a brand-related post on Facebook.

In accordance with the aforementioned studies, the contributing COBRA type is driven by personal traits and social factors, involvement with the brand, need of information, economic incentives, and branding/marketing influences. Additionally, technical factors related to SNS services such as the location of the post on the SNS, the number and quality of posts were reported to influence consumers to contribute to social media brand-related content. Individual and group factors such as community norms, strength of ties, and the consumer's emotions were also detected to influence consumers to contribute to social media brand-related content.

Table 5. Antecedents of contributing COBRA type

FINDINGS	RESEARCH METHOD	AUTHORS
The desire to connect and share with others influence consumers to share advertising email messages	Focus group, content analysis, and in-depth interviews	J.E. Phelps, R. Lewis, L. Mobilio, D. Perry, N. Roman, 2004
Social benefits (interaction), economic incentives, concern for other consumers, advice seeking, and the potential to increase self-worth (extraversion and positive self-enhance) influence the engagement into e-WOM	Regression analysis	T. Hennig-Thurau, K.P. Gwinner, G. Walsh, D.D. Gremler, 2004

[440] M. Shi, A.C. Wojnicki, *Money talks ... to online opinion leaders: What motivates opinion leaders to make social-network referrals?*, „Journal of Advertising Research", 2014, 54, 1, pp. 81-91.
[441] S. Kabadayi, K. Price, *Consumer – brand engagement on Facebook: Liking and commenting behaviors*, "Journal of Research in Interactive Marketing", 2014, 8, 3, pp. 203–223.

FINDINGS	RESEARCH METHOD	AUTHORS
Innovativeness, Internet usage, and Internet social connection are antecedents of e-WOM	Structural equation modeling	T. Sun, S. Youn, G. Wu, M. Kuntaraporn, 2006
Marketing expenditures, eclectic and less widely available products, higher disagreement among critic reviews, and perceived quality drive online ratings	Regression analysis	C. Dellarocas, R. Narayan, 2006
The consumer's commitment to the online community drives online brand community content contribution	Structural equation modeling	C. Wiertz, K. de Ruyter, 2007
Tie strength, homophily, and source credibility drive e-WOM	In-depth interviews and content analysis	J. Brown, A. Broderick, N. Lee, 2007
Learning, social integrative, personal integrative, and hedonic benefits positively influence the consumer's participation in value creation (product support) in online brand communities; Interactivity, community norms, and customer's tenure directly influence participation in online brand communities	Structural equation modeling	S. Nambisan, R.A. Baron, 2009
Inclusion (individualization), affection (altruism), control (personal growth), and consumption of online content have a positive impact on the consumer's will to forward online content; Consumers who are more individualistic and/or more altruistic, tend to share more social media content than others	Structural equation modeling	J.Y.C. Ho, M. Dempsey, 2010
Information (surveillance and knowledge), personal identity (self-expression, self-presentation, and self-assurance), integration and social interaction (social identity, and help), entertainment (enjoyment, relaxation, and pastime), empowerment, and remuneration are antecedents of the contributing COBRA type	In-depth interviews	D.G. Muntinga, M. Moorman, E.G. Smit, 2011
Innovativeness, self-identity, and social identity expressiveness positively influence the contribution of content on SNS	Structural equation modeling	M. Pagani, C.F. Hofacker, R.E. Goldsmith, 2011
High involvement brands influence the contribution of social media brand-related content; Brand personality (responsibility and exciting dimensions) positively influence the contributing COBRA type	Regression analysis	D.G. Muntinga, E. Smit, M. Moorman, 2012
Purchase behavior (light and heavy product buyers) drives consumers to "Like" and follow brands on Facebook	Analysis of self-reported purchase data and Facebook Fan page	K. Nelson-Field, E. Riebe, B. Sharp, 2012
Consumer's reputation, sense of belonging, and enjoyment of helping are antecedents of e-WOM	Structural equation modeling	C.M.K. Cheung, M.K.O Lee, 2012
Social media content virality is driven by physiological arousal. Content that evokes high-arousal positive (i.e., awe) or negative (i.e., anger or anxiety) emotions is more viral	Content analysis and logistic regression	J.Berger, K.L. Milkman, 2012

FINDINGS	RESEARCH METHOD	AUTHORS
Positive opinions from experts, by increase in sales, and consumer satisfaction drive e-WOM for the automobile industry	Three-stage least squares	J. Feng, P. Papatla, 2012
Entertainment and educational values, content quality, UGC authorship success, content from younger authors positively influence on the diffusion of brand-related videos	Proportional rates model	Y. Liu-Thompkins, M. Rogerson, 2012
Positioning the brand post on top of the brand fan page influences both the number of "Likes" and number of comments; The number of positive comments and vivid and interactive brand post characteristics influences the number of "Likes"; The number of comments increases when using interactive brand post characteristic; The numbers of both positive and negative comments are directly related to the number of comments in a post	Regression analysis	L. de Vries, S. Gensler, P.S.H. Leeflang, 2012
The use of corporate brand names and the use of emotional content influence consumers to "Like" firm-created brand-related content of Facebook	Content analysis and hierarchical linear modeling	K. Swani, G. Milne, B.P. Brown, 2013
Sales number lead consumers to post positive product reviews for weak brands	Regression analysis	N. Ho-Dac, S. Carson, W. Moore, 2013
Self-expressive brand (inner self) and brand love influence the consumer to "Like" a brand on Facebook	Structural equation modeling	E. Wallace, I. Buil, L. de Chernatony, 2014
Weak of ties are more likely to engage in the process of content sharing on Twitter	Conditional maximum likelihood estimation	Z. Shi, H. Rui, A. Whinston, 2014
Online referral rates are higher when extrinsic rewards (i.e., financial) are conferred	Regression analysis	M. Shi, A.C. Wojnicki, 2014
Extraversion and openness to experience affect individual's mode of interaction (i.e., broadcasting and communication), which in turn influence "Like" and/or comment behavior on Facebook	Structural equation modeling	S. Kabadayi, K. Price, 2014

Source: Own elaboration.

Creating COBRA type. The final COBRA type requires the consumers to engage with the creation brand-related content. The following researches introduce the most important marketing and business studies about the antecedents of consumer's creation of social media brand-related content. A summary of findings is reported in Table 6.

Before the proliferation of the online blogs, H.J. Schau and M.C. Gilly investigated the motives behind the consumer's creation of web sites [442]. The authors found that consumers are driven to the creation of web sites by an initial impetus (i.e.,

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[442] H.J. Schau, M.C. Gilly, *We are what we post? Self-presentation in personal web space*, "Journal of Consumer Research", 2003, 30, 3, pp. 385-404.

a triggering life event, the desire for personal growth, and advocacy), self-presentation strategies (i.e., constructing a digital self, projecting a digital likeness, digital associations, and reorganizing narrative structures), and evolving motivations (i.e., exploration of other selves, desire to meet other users expectations, and desire to increase and display technical competence).

A.M. Muñiz Jr. and H.J. Schau used netnography to investigate user-generated advertising by examining a brand community focused on the Apple Newton, a brand that was discontinued by the firm in 1998 [443]. Their results indicated that consumers create brand artifacts (i.e., advertising media) to tie the community together, reinforce its values and beliefs, and continually revitalize the product.

P. Berthon, L. Pitt, and C. Campbell explored the motivations behind the involvement of consumers with the creation of user-generated advertising [444]. Their findings showed that consumers participate in online brand-related content creation for a variety of reasons, including the notion that consumers are driven to create their own advertisements for self-promotion, intrinsic enjoyment, and the hope of changing public perceptions.

T. Daugherty, M. Eastin, and L. Bright expanded the understanding of the creation of UGC by examining consumer's motivations and subsequent attitudes using the functional theory framework [445]. The authors reported that a consumer's functional source of motivation relates positively to their attitude toward creating UGC content. Additionally, their analysis indicated that the consumption of brand-related content positively influences the creation of UGC and that attitude mediates the relationship between the consumption and creation dimensions of UGC. Therefore, the consumer's attitude serves as a mediator in the relationship between consumption and creation of UGC.

Expanding on the typology of online communities, S. Krishnamurthy and W. Dou categorized UGC according to the main purpose for which consumers participate

[443] A.M. Muñiz Jr., H.J. Schau, *Vigilante marketing and consumer-created communications*, "Journal of Advertising", 2007, 36, 3, pp. 35–50.
[444] P. Berthon, L. Pitt, C. Campbell, *Ad lib: When customers create the ad*, "California Management Review", 2008, 50, 4, pp. 6–31.
[445] T. Daugherty, M. Eastin, L. Bright, *Exploring consumer motivations for creating user- generated content*, "Journal of Interactive Advertising", 2008, 8, 2, pp. 16–25.

in its creation [446]. According to the authors, the drivers of UGC can be classified into two broad psychological categories i.e., rational (knowledge sharing and advocacy) and emotional (social connections and self-expression). Additionally, UGC can be cluster into two types according to the level of communal involvement in its creation, thus content generated through group collaborations or by individual users.

J. Füller explored what consumers expect from online co-creation and how their motivations and personalities influence those expectations [447]. Specifically, the author suggests that consumers engage in online co-creation for reasons such as curiosity, dissatisfaction with existing products, intrinsic interest in innovation, to gain knowledge, to show ideas, or to get monetary rewards. Additionally, J. Füller revealed that consumers differ in the motive structure that drives them to engage in online co-creation. Four differently motivated consumer types were identified engaging in online co-creation. The identified typology distinguishes consumers as reward-oriented, need-driven, curiosity-driven, and intrinsically interested. Therefore, four different kinds of consumers engaging in co-creation emerged i.e., reward-oriented, need-driven, curiosity-driven, and intrinsically interested.

To explore the consumer's involvement with UGC, G. Christodoulides, C. Jevons, and J. Bonhomme developed a model that measured drivers of UGC creation, involvement, and consumer-based brand equity [448]. Their results indicated that consumer perceptions of co-creation, community, and self-concept have a positive impact on UGC involvement that, in turn, positively influences CBBE.

To provide conceptual insights into how Facebook, YouTube, and Twitter foster UGC with different characteristics A.N. Smith, E. Fischer, and C. Yongjian tested data from a content analysis of UGC posts for two retail-apparel brands that differed in the extent to which they manage social media proactively [449]. Their findings showed that promotional self-presentation, brand centrality, marketer-direct communication, response to online marketer action, factually informative about the

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[446] S. Krishnamurthy, W. Dou, *Advertising with user-generated content: A framework and research agenda*, "Journal of Interactive Advertising", 2008, 8, 2, pp. 1–4.
[447] J. Füller, *Refining virtual co-creation from a consumer perspective*, "California Management Review", 2010, 52, 2, pp. 98–122.
[448] G. Christodoulides, C. Jevons, J. Bonhomme, *Memo to marketers: Quantitative evidence for change. How user-generated content really affects brands*, "Journal of Advertising Research", 2012, 52, 1, pp. 53–64.
[449] A.N. Smith, E. Fischer, C. Yongjian, *How does brand-related user-generated content differ across YouTube, Facebook, and Twitter?*, "Journal of Interactive Marketing", 2012, 26, 2, pp. 102–113.

brand, and brand sentiment influence consumers engage into the creation of UGC across different SNS platforms. In addition, the authors reported that while brand-related UGC tends to differ across SNSs for some dimensions of content (i.e., promotional self-presentation and brand centrality).

Grounded on psychology literature on consumer personality traits, M. Pagani, R.E. Goldsmith, and C.F. Hofacker investigated how extraversion effects the creation of UGC both directly and through its impact on social identity expressiveness [450]. Their findings supported that extraversion and social identity expressiveness are antecedents of UGC. Additionally, extraversion is related to the creation of social media brand-related content both directly and indirectly through social identity expressiveness.

To understand how co-creation emerges and develops in virtual brand co-creation communities, N. Ind, O. Iglesias, and M. Schultz [451] used netnography to investigate a new online brand community. Their research findings demonstrated that consumers participate actively by providing feedback and allowing for community socialization in online brand communities that offers the opportunity to do something meaningful and to express their creativity.

R. Thakur, J.H. Summery, and J. John explored the factors that enhance bloggers attitudes toward joining in blogging activity and how their attitudes influence the propensity to blog [452]. Results of their analysis indicated that bloggers' knowledge, responsiveness to readers, market mavenism, and social network optimization influence on bloggers attitude; which in turn impacted their propensity to blog.

C. Presi, C. Saridakis, and S. Hartmans investigated the motivation of customers to create UGC after a negative service experience [453]. Their results indicated that altruistic, vengeance, and economic motivations are antecedents of UGC. Additionally, the authors tested for the moderating role of extraversion

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[450] M. Pagani, R.E. Goldsmith, C.F. Hofacker, *Extraversion as a stimulus for user-generated content*, "Journal of Research in Interactive Marketing", 2013, 7, 4, pp. 242 – 256.
[451] N. Ind, O. Iglesias, M. Schultz, *Building brands together: Emergence and outcomes of co-creation,* "California Management Review", 2013, 55, 3, pp. 5–27.
[452] R. Thakur, J.H. Summery, J. John, *A perceptual approach to understanding user-generated media behavior,* "Journal of Consumer Marketing", 2013, 30, 1, pp. 4–16.
[453] C. Presi, C. Saridakis, S. Hartmans, *User-generated content behaviour of the dissatisfied service customer*, "European Journal of Marketing", 2014, 48, 9/10, pp. 1600–1625.

personality trait. It was found that highly extraverted customers create more UGC after a negative service experience when driven by vengeance.

Drawing from the abovementioned studies, consumers engage into the creation of brand-related social media content as a result of social, personal, psychological, and other factors. Similarly to the consumption and contribution COBRA types the social factors derive from the consumer's needs of belonging into a group, whereas the personal and psychological factors are a result of their personality traits and characteristics. Economic and technological factors were also detected to drive the creation COBRA type. Finally, negative emotions such as revenge and dissatisfaction motivate consumer's engagement; therefore differentiating the creation COBRA from the consuming and contributing types.

Table 6. Antecedents of creating COBRA type

FINDINGS	RESEARCH METHOD	AUTHORS
Initial impetus, self-presentation strategies, and evolving motivations drive consumers to the creation of web sites	Content analysis and in-depth interviews	H.J. Schau, M.C. Gilly, 2003
Loyal consumers engage into UGC to fill the void created by the lack of advertising for the brand	Netnography and in-depth interviews	A.M. Muñiz Jr., H.J. Schau, 2007
Self-promotion, intrinsic enjoyment, and change perceptions are antecedents of UGC	In-depth interviews	P. Berthon, L. Pitt, C. Campbell, 2008
Ego-defensive and social functions influence the consumer's attitude towards UGC creation. Additionally, content consumption positively influences UGC	Multiple regression analysis	T. Daugherty, M. Eastin, L. Bright, 2008
Knowledge sharing, advocacy, social connections, and self-expression are psychological drivers of UGC	Literature analysis	S. Krishnamurthy, W. Dou, 2008
Consumers engage in online co-creation for reasons such as curiosity, dissatisfaction with existing products, intrinsic interest in innovation, to gain knowledge, to show ideas, or to get monetary rewards.	Cluster, variance, and regression analysis	J. Füller, 2010
Innovativeness, self-identity, and social identity expressiveness positively influence the creation of content on SNS	Structural equation modeling	M. Pagani, C.F. Hofacker, R.E. Goldsmith, 2011
Information (surveillance and knowledge), personal identity (self-expression, self-presentation, and self-assurance), integration and social interaction (social identity, and help), entertainment (enjoyment, relaxation, and pastime), empowerment, and remuneration are antecedents of the creating COBRA type	In-depth interviews	D.G. Muntinga, M. Moorman, E.G. Smit, 2011
High involvement brands influence the creation of social media brand-related content; Brand personality (responsibility, exciting, and ordinary dimensions) positively influence the creating COBRA type	Regression analysis	D.G. Muntinga, E. Smit, M. Moorman, 2012

FINDINGS	RESEARCH METHOD	AUTHORS
Co-creation, community, and self-concept impact on the consumer's involvement with UGC	Structural equation modeling	G. Christodoulides, C. Jevons, J. Bonhomme, 2012
Promotional self-presentation, brand centrality, marketer-direct communication, response to online marketer action, factually informative about the brand, and brand sentiment influence the creation of UGC across different SNS platforms	Content analysis, regression analysis, log-linear analysis	A.N. Smith, E. Fischer, C. Yongjian, 2012
Extraversion and social expressiveness are antecedents of UGC	Structural equation modeling	M. Pagani, R.E. Goldsmith, C.F. Hofacker, 2013
Consumers engage into online brand-related co-creation as an opportunity to do something meaningful and to express their creativity.	Netnography	N. Ind, O. Iglesias, M. Schultz, 2013
Bloggers' knowledge, responsiveness to readers, market mavenism, and social network optimization are antecedents of bloggers' attitude. Bloggers attitude influences their propensity to blog	Structural equation modeling	R. Thakur, J.H. Summery, J. John, 2013
Altruistic, vengeance, and economic motivations are antecedents of negative UGC Extraversion moderates the effects of vengeance on the negative creation of UGC	Structural equation modeling	C. Presi, C. Saridakis, S. Hartmans, 2014

Source: Own elaboration.

In summary, consumers engage into COBRAs as result of a combination of internal and external factors. The internal factors are broadly associated with the consumer's needs, personal, and psychological traits. On the other hand, the external factors arise mainly from social and firm driven stimulus. In this dissertation, focus is given to explore how the consumers' perceptions of brand equity influence their consumption, contribution, and creation of brand-related social media content within the high-tech industry context.

This section concludes the literature foundations of this dissertation. The subsequent chapters are organized as follows. Chapter 3 addresses the research gaps emerged from Chapter 1 and Chapter 2 that are relevant to the development of the conceptual model to measure the impact of CBBE on COBRA. Consequently, in Chapter 4 the hypotheses are postulated and the conceptual model is empirically tested in the high-tech industry context. The final chapter deals with the applicability of the instruments introduced in Chapters 3 and 4.

3. EMPIRICAL RESEARCH FOUNDATION: SCALES DEVELOPMENT AND REFINEMENT

3.1. The consumer-based brand equity scale development and validation

3.1.1. The delimitation of consumer-based brand equity dimensions

Addressing to the limitations of the CBBE measurement previously described in section 1.2.4 (e.g., the employment of a single construct to measure brand awareness and brand associations [454], the use of a single item to measure brand awareness [455], the need of implementation of additional factors in the model to capture bran associations [456]) the following studies aim to fulfill the need for the refinement of the scale. To capture the concept of CBBE, it was drawn on four of D.A. Aaker's five core brand equity dimensions (i.e., brand awareness, brand associations, perceived quality, and brand loyalty) [457]. The fifth dimension, other proprietary brand assets, is not included in the CBBE framework because it is not directly related to consumers, only to firms [458, 459].

Brand awareness is defined as "the ability of a potential buyer to recognize or recall that a brand is a member of a certain product category" [460]. It encompasses a continuum ranging from an uncertain feeling of brand recognition, to a belief that the brand is the only one in its product class [461]. Therefore, brand awareness echoes the strength of the brand in the customer's mind [462, 463, 464]. D.A. Aaker conceptualized brand awareness as entailing of brand recognition and brand recall [465]. Brand recognition requires that consumers identify a brand as one they have seen or heard of

[454] B. Yoo, N. Donthu, *Developing and validating a multidimensional consumer-based brand equity scale*, „Journal of Business Research", 2001, 52, 1, pp. 1–14.

[455] R. Pappu, P.G. Quester, R.W. Cooksey, *Consumer-based brand equity: Improving the measurement – empirical evidence*, „Journal of Product & Brand Management", 2005, 14, 3, pp. 143–154.

[456] I. Buil, L. de Chernatony, E. Martínez, *A cross-national validation of the consumer-based brand equity scale,* "Journal of Product & Brand Management", 2008, 17, 6, pp. 384–392.

[457] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, NY 1991, pp. 1-34.

[458] B. Schivinski, P. Łukasik, *Rozwój badań nad kapitałem marki bazującym na konsumencie – przegląd literatury*, "Marketing i Rynek", 2014, Listopad, 11, pp. 74–80.

[459] G. Christodoulides, L. de Chernatony, *Consumer-based brand equity conceptualization and measurement: A literature review,* "International Journal of Marketing Research", 2010, 52, 1, pp. 43-65.

[460] D.A. Aaker, *Managing...*, p. 61.

[461] *Ibidem*, p. 61.

[462] *Ibidem*, p. 61-63.

[463] D.A. Aaker, *Measuring brand equity across products and markets,* "California Management Review", 1996, 38, 3, pp. 102–120.

[464] K.L. Keller, *Conceptualizing, measuring, and managing customer-based brand equity*, „Journal of Marketing", 1993, 57, January, pp. 1–22.

[465] D.A. Aaker, *Managing...*, p. 62.

previously. Brand recall is related to consumers' ability to retrieve a brand from memory; for instance, when the product's category or the needs satisfied by that category is mentioned. Hence, in the present dissertation, brand awareness is articulated as consisting of both brand recognition and brand recall.

D.A. Aaker defines the second dimension, brand associations, as "anything linked to the memory of a brand" [466]. The associations have disparity levels of strength, and a link to the brand tends to be stronger when it is based on regular repetitions of stimulus or experience than when it is founded on infrequent exposure [467]. In this dissertation, when developing the construct of brand associations, it was focused on D.A. Aaker's reference that brand associations provide value by giving consumers reasons to purchase a brand and by creating positive attitudes/feelings toward the brand [468].

The third dimension, perceived quality, is delimitated by D.A. Aaker as "the customer's perception of the overall quality or superiority of a product or service that with respect to its intended purpose, relative to alternatives" [469]. Perceived quality is an elusive response about the brand. This dimension is centered on characteristics of the products and/or services that the brand is related, as for instance performance and reliability [470]. In the literature, perceived quality was described to have four basic characteristics: (a) it is distinctive from the objective or tangible quality of the product; (b) it is an abstract conception, rather than a explicit feature of the product; (c) it is an assessment that resembles attitude; and (d) it derives from a consumer's evoked set [471]. Additionally, perceived quality also provides value by distinguishing a brand from its competitors and providing the customer with reasons to purchase it [472].

Finally, the fourth dimension, brand loyalty is defined as "the attachment that a customer has to a brand" [473]. Brand loyalty mirrors the probability of a consumer to switch brands, especially when that brand presents price or product features

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[466] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, NY 1991, p. 109.
[467] *Ibidem*, p. 109.
[468] *Ibidem*, pp. 109-113.
[469] *Ibidem*, p. 85.
[470] *Ibidem*, p. 86.
[471] V.A. Zeithaml, *Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence*, "Journal of Marketing", 1988, 52, July, pp. 2–22.
[472] R. Pappu, P.G. Quester, R.W. Cooksey, *Consumer-based brand equity: Improving the measurement – empirical evidence*, „Journal of Product & Brand Management", 2005, 14, 3, pp. 143–154.
[473] D.A. Aaker, *Managing...*, p. 39.

fluctuations [474]. In the literature, brand loyalty has been conceptualized upon the consumer's behavioral perspective, concentrating on product purchasing repetition [475] or on an attitudinal perspective that highlights a the consumers' commitment to a set of values related to the brand [476] and the propensity to be faithful to a brand, prioritizing the brand as a first purchase choice [477].

3.1.2. Research methodology and CBBE scale refinement

Prior to conducting the primary studies, it was used the Best-Worst scaling (BWS) method and expert item judging for the selection of the construct items [478].

To develop the initial pool of items it was employed the definitions of the CBBE constructs presented in section 3.1.1. A pool of 43 items was created and further introduced to two groups of 15 respondents (see Table A1 of Appendix A). Each respondent was presented with four sets of BWS tasks for each of the CBBE constructs [479]. Prior to solving each task, the respondents learned about what each CBBE dimension should capture. In each assignment, the subjects were asked to indicate the best and worst representatives items of each construct. The items with the lowest scores were not considered in the further steps of the study. This process rendered a pool of 23 indicators with a minimum of 4 and a maximum of 7 items per latent variable.

Finally, five marketing professors with backgrounds in brand management and measurement judged the items for representativeness. They were introduced with the definitions of the CBBE framework and dimensions. The judges dropped no items, however, few adjustments were employed for better sounding and comprehension. The next step was to test the items with quantitative research methods. Four studies

[474] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, NY 1991, p. 39.
[475] A.S.C. Ehrenberg, G. Goodhardt, T. Barwise, *Double jeopardy revisited*, "Journal of Marketing", 1990, 54, July, pp. 82–91.
[476] A. Chaudhuri, M. Holbrook, *The chain of effects from brand trust and brand affect to brand performance: The role of brand loyalty*, "Journal of Marketing", 2001, 65, April, pp. 81–93.
[477] B. Yoo, N. Donthu, *Developing and validating a multidimensional consumer-based brand equity scale*, „Journal of Business Research", 2001, 52, 1, pp. 1–14.
[478] J.A. Lee, G. Soutar, J. Louviere, *The best-worst scaling approach: An alternative to Schwartz's values survey*, "Journal of Personality Assessment", 2008, 90, 4, pp. 335–347.
[479] *Ibidem*, pp. 335–347.

were held during this stage. The procedures and sample characteristics are described within each study.

Study 1: Initial exploration of the items. The aim of this initial quantitative study was to the CBBE items rendered from the BWS and expert item judging procedures and obtain preliminary estimates of their psychometric properties. The data were collected using the computer assisted web interview (hereafter, CAWI) technique [480]. Only one subject was allowed to participate in the survey per computer.

Three product categories were chosen, and two brands were assessed within each category [481]. Product categories and brands with which consumers were familiar were chosen, as follows: athletic shoes - Adidas and Nike; clothing - H&M and Reserved; and colas - Coca-Cola and Pepsi. The same questionnaire was used for all the product categories, differing only the brand names. A sample of 225 consumers participated in the study. Incomplete and invalid questionnaires were rejected, resulting in 206 valid questionnaires (91.56 %).

The average age of respondents was 33 years, 50.5% were female, 24% had at least some college education, and the median monthly household income was in the range of 2500zł to 4500zł (~760 USD to ~1360 USD).

The indicators were measured using a seven-point Likert scale ranging from 1 for "strongly disagree" to 7 for "strongly agree" [482]. Brand awareness was captured using seven items. Six items measured brand association. Four items measured perceived quality. Finally, six items captured brand loyalty.

Exploratory and confirmatory techniques were employed to test for the reliability, dimensionality, and validity of the new measures. Cronbach's alpha was employed to assess the initial reliability of the items. The Cronbach's alpha values for

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[480] R. Mącik, M. Korba, *Wiarygodność pomiaru w badaniach mixed-mode: Porównanie efektów stosowania PAPI i CAWI*, "Prace Naukowe Uniwersytetu Ekonomicznego we Wrocławiu", 2010, 96, pp. 199–210.
[481] The consumer's evaluation of product categories was previously used for the development of previous CBBE scale, e.g., W. Lassar, B. Mittal, A. Sharma, *Measuring customer-based brand equity*, „Journal of Consumer Marketing", 1995, 12, 1995, pp. 11–19; B. Yoo, N. Donthu, *Developing and validating a multidimensional consumer-based brand equity scale*, „Journal of Business Research", 2001, 52, 1, pp. 1–14; and R. Pappu, P.G. Quester, R.W. Cooksey, *Consumer-based brand equity: Improving the measurement – empirical evidence*, „Journal of Product & Brand Management", 2005, 14, 3, pp. 143–154.
[482] J. Dawes, *Do data characteristics change according to the number of scale points used? An experiment using 5 point, 7 point and 10 point scales*, "International Journal of Marketing Research", 2008, 50, 1, pp. 61–78.

all the indicators were above the 0.70 threshold [483, 484]. The coefficients ranged from 0.87 to 0.91. Exploratory factor analysis (hereafter, EFA) with Promax rotation and the maximum likelihood extraction method [485] was performed to explore the dimensionality of each construct. The Kaiser-Meyer-Olkin (hereafter, KMO) measure of sampling adequacy test was 0.92 [486]. A total of 4 factors were extracted, and 69.21 per cent of the total variance was explained. The EFA results suggested lack of unidimensionality and cross-loadings issues as per the items did not load on single factors.

Proceeding with the analyses, all 4 latent variables were included in a single multifactorial confirmatory factor analysis (hereafter, CFA) model in AMOS 21.0. The CFA model hypothesized a priori that consumers' responses to the CBBE framework can be explained by the factors brand awareness, brand associations, perceived quality, and brand loyalty; each item will have a non-zero factor loading on the CBBE dimension it was designed to measure and zero factor loadings on all other three dimensions; the four factors would be correlated; whereas the measurement error terms would be uncorrelated.

The CFA was executed using the maximum likelihood estimation method (hereafter, ML) [487]. The goodness-of-fit (hereafter, GOF) statistics of the model were evaluated using the chi-square test statistic, the comparative fit index (hereafter, CFI), the Tucker-Lewis coefficient (hereafter, TLI), and the root mean square error of approximation (hereafter, RMSEA). Threshold values higher than 0.90 for the CFI and TLI and lower than 0.08 for the RMSEA indicate a good fit of the model [488, 489].

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[483] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow, UK, 2014, p. 125.

[484] A. Sagan, *Analiza rzetelności skal satysfakcji i lojalności*, "StatSoft Polska", 2003, p. 49.

[485] A. Sagan, *Badania marketingowe: Podstawowe kierunki*, Wydawnictwo Adademii Ekonomiznej w Krakowie, Kraków 2004, p. 175.

[486] *Ibidem*, p. 174.

[487] The analyses computed in this chapter were based on the default AMOS ML estimation method with no consideration of the multivariate nonnormality of the data. Although the Satorra-Bentler robust ML approach addresses nonnormality of the data by providing a scaled statistic that corrects the ML χ^2 value, as well as the standard errors the parameter estimates remain the same for both estimation methods; in A. Satorra, P.M. Bentler, *Corrections to test statistics and standard errors in covariance structure analysis*; in A. von Eye, C.C. Clogg, *Latent variables analysis: Applications for developmental research*, Thousand Oaks, CA 1994, pp. 399-419.

[488] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow, UK 2014, p. 584.

[489] The GOF statistics and thresholds are used consistently throughout this dissertation.

During the CFA, the model yielded a poor fit. The chi-square value was $\chi^2_{(224)}$ = 1230.03.17, the CFI = 0.75, and the TLI = 0.72. The RMSEA value was 0.14; 90% C.I. 0.14 0.15. All the values were outside the range of the acceptable thresholds [490], therefore indicating the bad fit of the model.

To address the model misfit, it was used a combination of statistical heuristics and content validity judgments to retain or exclude items in a manner that is consistent with the psychometric literature [491]. The indicators that presented very high factor loadings (> 0.95) or low (< 0.50) were considered for deletion [492]. Additionally, items that had very high or very low item-to-total correlations and highly correlated with another item within its category (> 0.80) were considered for deletion [493]. Two items were dropped during this stage. The items that endured those procedures were reworded and used in the subsequent study.

Study 2: Item adjustments. The purpose of the study 2 was to test the reworded CBBE items that remained after the previous study. As in Study 1, the data were collected online using CAWI technique. The sample had similar metrics. To ensure the answers' reliability, respondents that took part at Study 1 did not participate in this stage.

Three product categories were chosen, and two brands were evaluated within each category. The product categories and brands were as follows: chocolate bars – Mars and Snickers; colas - Coca-Cola and Pepsi; and toothpaste - Blend-a-med and Colgate. As in Study 1, the only differences between the questionnaires were the brand names. A sample of 167 consumers participated in the study. The procedures used for data screening were the same as in Study 1 and resulted in 152 valid questionnaires (91.02 %).

The items used during Study 2 were also measured using a seven-point Likert scale. Five items measured brand awareness. Six items measured brand association. Four items measured perceived quality. Finally, six items measured brand loyalty.

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[490] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow, UK, 2014, p. 584.

[491] S.N. Haynes, K. Nelson, D. Blaine, *Psychometric issues in assessment research*, In *Handbook of research methods in clinical psychology,* John Wiley & Sons, Hoboken, NJ 1999, pp. 125–154.

[492] R.P. Bagozzi, Y. Yi, *On the evaluation of structural equation models*, "Journal of the Academy of Marketing Science", 1988, 16, 1, pp. 74–94.

[493] B.M. Byrne, *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd Ed.), Taylor & Francis Group, NY 2010, pp. 97-128.

The alpha coefficients ranged from 0.79 to 0.93. Similarly to the previous study, EFA was performed with Promax rotation and the ML extraction method. The KMO value was 0.92. A total of four factors were extracted explaining 67.10 per cent of the total variance. The items related to brand awareness and brand associations loaded on two distinctive factors; though, the indicators for perceived quality and brand loyalty loaded on a single factor. A fourth factor arose from cross-loadings from perceived quality and brand loyalty. These findings suggested a lack of unidimensionality on perceived quality and brand loyalty.

Next all the four dimensions were include in a CFA model. The CFA was caulculated with the ML estimation method. During the CFA, the model yielded a reasonable fit. The GOF values were $\chi^2_{(203)}$ = 452.11, CFI = 0.90, TLI = 0.89, and RMSEA = 0.09; 90% C.I. 0.07 0.1. These values indicated that the refined scales achieved better statistical performance; however, they still needed adjustment to render better GOF statistics. Following the procedures used during Study 1, statistical heuristics and content validity judgment procedures were applied to the items.

Study 3: Item adjustments. The purpose of Study 3 was to test the reworded items resulting from Study 2. As in the first two studies, it was used CAWI technique and the sample had similar metrics. The subjects who took part in the first two studies did not participate in this wave of the research.

Four product categories were used, and similarly to Studies 1 and 2, two brands were evaluated in each category. The product categories and brands were as follows: athletic shoes − Adidas and Nike; chocolate bars − Mars and Snickers; colas - Coca-Cola and Pepsi; and toothpaste - Blend-a-med and Colgate. Similar to the previous studies, the only differences between the questionnaires were the brand names. A sample of 179 consumers participated in the study. After screening the data, a total of 152 valid questionnaires remained (84.91 %).

Each dimension was captured using a set of five items. The alpha coefficients ranged from 0.87 to 0.93. The EFA was calculated with Promax rotation and the ML extraction method. The KMO value was 0.89. Four factors were extracted explaining 66.52 per cent of the total variance. All the items loaded on four single factors, demonstrating the unidimensionality of the CBBE facets. The factor loadings exceeded the 0.70 threshold, and there was no indication of cross-loadings.

Proceeding with the confirmatory statistics, the four latent variables were included in a CFA model executed using the ML estimation. During CFA, the model

rendered a good fit. The GOF values were: $\chi^2_{(161)}$ = 302.27, CFI = 0.93, TLI = 0.92, and RMSEA = 0.07; 90% C.I. 0.06 0.08. The generated values were in the ranges of the acceptable thresholds and showed a good fit of the model to the data [494]. As per the results from Study 3 demonstrated good fit of the model, a main investigation was carried out in a larger sample of brands and product categories to validate the CBBE scales and obtain the estimates of their psychometric properties.

3.1.3. Data analysis and results

As in the first three studies, the data were collected online using the CAWI technique. Only one respondent was allowed to participate in the survey per computer. Subjects that took part in the first three studies were not invited to the validation study. Each respondent evaluated only one brand.

Ten product categories were used with two brands evaluated within each category. They were as follows: athletic shoes – Adidas and Nike; beer – Tyskie and Żywiec; coffeehouses – Coffee Heaven and Starbucks; colas - Coca-Cola and Pepsi; deodorants – Axe and Old Spice; energy drinks – Burn and Red Bull; juices – Frugo and Tymbark; laundry detergents – Persil and Vizir; shampoos – Garnier and Head & Shoulders; and smartphones – Apple and Samsung.

A seven-point Likert scale measured the final set of CBBE items. Five items each captured brand awareness, brand associations, and brand loyalty. Four items measured perceived quality. The resulting CBBE scale comprised a total of nineteen items. The final set of indicators can be found in Table 7.

Similarly to the previous studies, the same questionnaire was used for all the brands, differing only the brand names. The questionnaire was administered in Polish. A sample of 1650 respondents participated in the study. Invalid and incomplete questionnaires were rejected, resulting in 1364 valid questionnaires (82.66%). The age of respondents ranged from 18 to 68 years - average of 34 years of age (*SD* = 6.19), 54.6% were female, 29.3% of the respondents declared to have at least some college education, and the median monthly household income was in the range of 2500zł to 4500zł (~760 USD to ~1360 USD). The profile of the sample closely

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[494] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow, UK 2014, p. 584.

matches the demographic structure of the Polish population [495]. The sample characteristics are listed in Table A2 of Appendix A.

Table 7. Consumer-based brand equity adjusted scale

DIMENSION	ITEM
Brand awareness	[BAW1] I know Brand X [BAW2] I know at least one Brand X product [BAW3] I easily recognize Brand X among other brands [BAW4] I recognize the logo of Brand X [BAW5] I know that there is a Brand X
Brand associations	[BAS1] I like Brand X [BAS2] I have good memories of Brand X [BAS3] Brand X has a good image [BAS4] I feel sympathy for Brand X [BAS5] My memories associated with Brand X positively influence my purchasing decisions
Perceived quality	[PQ1] Brand X products are of better quality than the generic alternative [PQ2] Although other brands' products are good, I still think that Brand X is better [PQ3] Brand X products are of good quality [PQ4] Brand X offers reliable products
Brand loyalty	[BL1] I am faithful to Brand X [BL2] I think I am loyal to Brand X [BL3] I consider myself a fan of Brand X [BL4] I am attached to Brand X [BL5] If someone offers me a competitive brand, I still buy Brand X products

Source: Own elaboration.

A combination of exploratory and confirmatory techniques was employed for the analysis of the final rendered CBBE scale. In addition, the instrument was tested for factorial equivalence of scores.

Exploratory factor analysis. The EFA was calculated with Promax rotation and the ML extraction method. The KMO test value was 0.94, which is greater than the minimum recommended value of 0.6 [496]. The outcome of the EFA suggested a four-factor solution, explaining for 75.69 per cent of the total variance. All of the items loaded on four single factors, demonstrating that the four CBBE dimensions were unidimensional, and there was no evidence of substantial cross-loadings observed. The EFA pattern matrix can be found in Table 08.

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[495] GUS, *Rocznik demograficzny*, Zakład Wydawnictw Statystycznych, Warszawa 2012, str. 126-153.
[496] H. Kaiser, *An index of factorial simplicity*, "Psychometrika", 1974, 39, 1, pp. 31–36.

Table 8. Four-factor solution for the CBBE subscales

n = 1364	FACTOR			
	Brand loyalty	*Brand awareness*	*Brand associations*	*Perceived quality*
BL1	0.93	0.02	-0.02	0.01
BL2	0.90	-0.01	-0.00	0.01
BL4	0.86	-0.01	0.07	-0.02
BL3	0.83	0.01	0.12	-0.09
BL5	0.81	0.02	-0.07	0.14
BAW5	-0.04	0.90	-0.03	0.01
BAW2	-0.01	0.89	0.03	-0.01
BAW3	0.03	0.89	-0.01	0.01
BAW1	0.01	0.89	0.01	0.01
BAW4	0.05	0.88	0.01	-0.03
BAS2	0.01	-0.01	0.94	-0.07
BAS5	0.09	-0.02	0.85	-0.04
BAS4	0.10	-0.01	0.85	-0.03
BAS1	0.04	-0.01	0.75	0.15
BAS3	-0.13	0.12	0.60	0.22
PQ1	0.05	0.01	-0.07	0.80
PQ4	0.05	-0.04	0.10	0.71
PQ3	-0.13	0.02	0.24	0.70
PQ2	0.28	-0.04	0.01	0.64

Source: Own elaboration. Notes: Extraction method = ML; Rotation method = Promax with Kaiser normalization; Rotation converged in 5 iterations; BL = brand loyalty; BAW = brand awareness; BAS = brand associations; PQ = perceived quality.

To establish the reliability of the scales, it was used Cronbach's alpha and composite reliability (hereafter, CR). The alpha coefficients ranged from 0.87 to 0.95, exciding the recommended threshold value of 0.7. The CR values ranged from 0.88 to 0.95, meeting the standard minimum threshold of 0.70 [497]. To assess convergent validity, three criteria were used, therefore: the model fit must be adequate; the lambda values must be significant and greater than 0.30 (see Table A3 in Appendix A [498]); and the AVE values must exceed 0.50 [499]. All the three criteria were met during the study. To assess discriminant validity, it as used the Fornell-Larcker test. This test requires that the square root AVE for each construct to be greater than any inter-construct correlations [500]. All the constructs from the CBBE scale met this criterion. The AVE values were later competed to the square of the estimated

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[497] W. Chin, B. Marcolin, P. Newsted, *A partial least squares latent variable modeling approach for measuring interaction effects: results from a Monte Carlo simulation study and voice mail emotion/adoption*, "Information Systems Research", 2003, 14, 2, pp. 189–217.

[498] Notice that Table A3 is also used to report the tests for the factorial equivalence of the instrument scores across groups, which is described further in the text.

[499] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow UK, 2014, p. 605.

[500] C. Fornell, D. Larcker, *Evaluating structural equation models with unobservable variables and measurement error,* "Journal of Marketing Research", 1981, 18, 1, pp. 39–50.

correlation between constructs (MSV) [501]. The AVE values were greater than the MSV, therefore evidencing discriminant validity. The reliability, convergent, and discriminant validity scores are summarized in Table 09.

Table 9. Reliability, convergent, and discriminant validity table chart

n = 1364	ALPHA	CR	AVE	MSV	BAS	BAW	PQ	BL
BAS	0.92	0.92	0.72	0.62	*0.85*			
BAW	0.95	0.93	0.80	0.07	0.28	*0.89*		
PQ	0.87	0.88	0.64	0.62	0.79	0.25	*0.80*	
BL	0.94	0.95	0.78	0.49	0.66	0.07	0.70	*0.88*

Source: Own elaboration. Notes: The square roots of the average variance extracted (AVE) are marked in italics; BAS = brand associations; BAW = brand awareness; PQ = perceived quality; BL = brand loyalty.

Confirmatory factor analysis. For the CFA procedures the ML estimation in the Amos 21 software package was used. All the factor loadings exceeded the 0.70 threshold, and as demonstrated during the EFA analysis (see Table 8), there was no indication of cross-loadings. The model's GOF values were as follws: $\chi^2_{(146)} = 1036.17$ [502], CFI = 0.96, TLI = 0.96, and RMSEA = 0.06; 90% C.I. 0.06 0.07. The values demonstrate a good fit for the model.

Finally, the correlations between the CBBE dimensions were as follows: Brand awareness–Brand associations, r = 0.28; Brand awareness–Perceived quality, r = 0.25; Brand awareness–Brand loyalty, r = 0.07; Brand associations–Perceived quality, r = 0.79; Brand associations–Brand loyalty; r = 0.66; and Perceived quality–Brand loyalty, r = 0.70. The results of the analyses – a four-dimensional, 19-item CBBE scale are summarized in Figure 2.

Tests for the factorial equivalence of the instrument scores. The data were randomly split in half and divided into two samples For the purpose of cross-validation [503]. For the purpose of cross-validation of the conceptual framework it was followed the partial invariance test procedures suggested by B.M. Byrne and colleagues [504].

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[501] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow UK, 2014, p. 619-620.

[502] The χ^2 value is inflated as a consequence of the high sample size (n = 1364).

[503] R. Cudeck, M. Browne, *Cross-validation of covariance structures*, "Multivariate Behavioral Research", 1983, 18, 2, pp. 147–167.

[504] B.M. Byrne, P. Baron, J. Balev, *The beck depression inventory: A cross-validated test of second-order factorial structure for bulgarian adolescents*, "Educational and Psychological Measurement", 1998, 58, 2, pp. 241–251.

Figure 2. Confirmatory factor analysis – four-factor CBBE scale
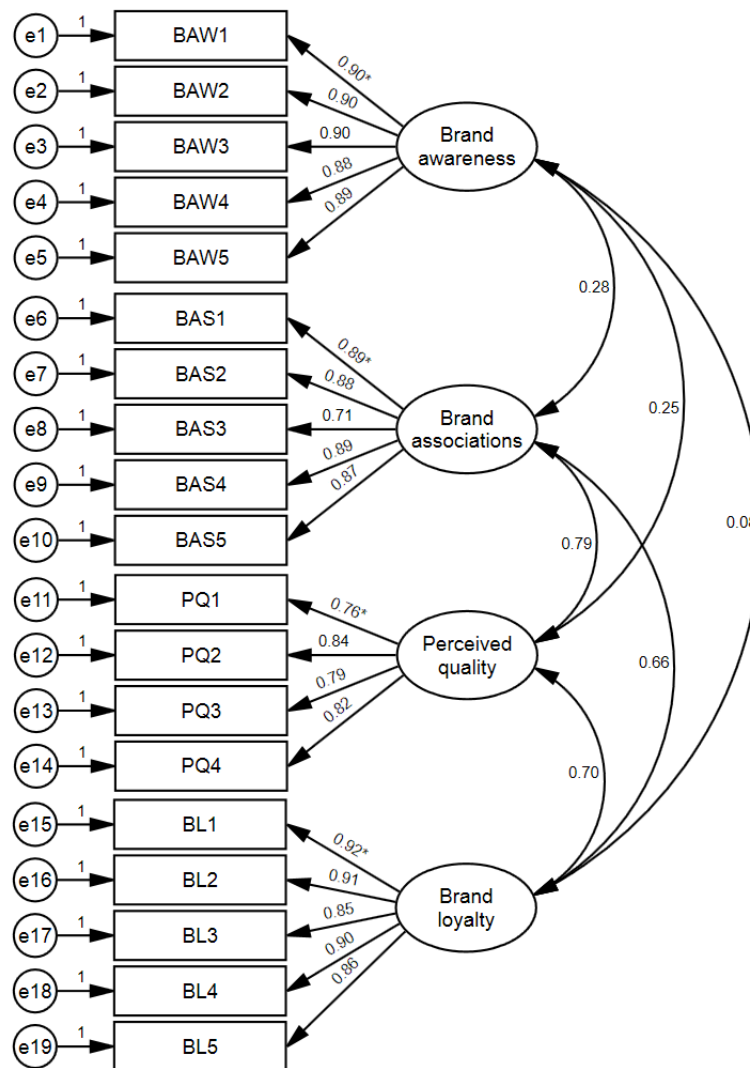
Source: Own elaboration. Notes: $\chi^2_{(146)}$ = 1036.17, CFI = 0.96, TLI = 0.96, RMSEA = 0.06; 90% C.I. 0.06 0.07; Estimator = ML; n = 1364; all standardized coefficients are significant ($p < 0.001$) and appear above the associated path; * path constrained to 1 for model identification.

The first step of the cross-validation test involved the specification of a full-constrained model set to be equal across the two groups. This model was subsequently compared to less restrictive models in which the parameters were unconstrained.

A classical approach for determining evidence of difference across models is based on the χ^2 difference. However, the χ^2 difference test functions as a stringent test of invariance, presuming that SEM models are, at best, only estimates of reality[505, 506]; thus, the CFI difference test was included on the analysis. To base

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[505] R. Cudeck, M. Browne, *Cross-validation of covariance structures*, "Multivariate Behavioral Research", 1983, 18, 2, pp. 147–167.

decisions of invariance on a difference in CFI values, those values must exhibit a probability of < 0.01 [507]. Furthermore, in the literature there is still no agreement on which tests of invariance are the best [508]. Based on this lack of agreement, both the $\Delta\chi^2$ and ΔCFI values are reported in this stage of the analysis.

The ML estimation on Amos 21 with the Emulisrel6 option was employed to test for the factorial equivalence of the CBBE instrument scores. The results of the configural model yielded the following values: $\chi^2_{(292)} = 1238.47$, CFI = 0.96, and RMSEA = 0.04; 90% C.I. 0.04 0.05. These results show that the hypothesized multi-group measurement model fits well across the groups.

Following the classical approach of the invariance test, the next step was to compute a model that only the factor loadings were constrained equal [509]. To simplify the evaluation of models, this model was named Model 2A. When reviewing the results of this model, the fit was consistent with that of the configural model (CFI = 0.96; RMSEA = 0.04; 90% C.I. 0.04 0.05). The differences of the χ^2 and CFI values reported from the configural model and Model 2A produced the subsequent results: $\Delta\chi^2_{(15)} = 14.10$ (*p*-value = 0.51) and ΔCFI < 0.000. Both tests argue for evidence of invariance given its statistical stringency. These results show that all the items designed to measure CBBE operate equivalently across both groups.

Proceeding with the analysis, the next step was to specify a model with all factor loadings, in addition to the factor covariances to be constrained equal across the groups (Model 3A). A review of the results of this model revealed its fit to be consistent with that of the configural model (CFI = 0.96; RMSEA = 0.04; 90% C.I. 0.04 0.05). The differences of χ^2 and CFI values reported for the configural model and Model 3A yield the following results: $\Delta\chi^2_{(21)} = 26.24$ (*p*-value = 0.19) and ΔCFI < 0.000. As in the previous step of the analyses, both the $\Delta\chi^2$ and ΔCFI tests argue for invariance. These results suggest that the covariances among the CBBE

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[506] R.C. MacCallum, M. Roznowski, L.B. Necowitz, *Model modifications in covariance structure analysis: The problem of capitalization on chance,* "Psychological Bulletin", 1992, 111, 3, pp. 490–504.
[507] G.W. Cheung, R.B. Rensvold, *Evaluating goodness-of-fit indexes for testing measurement invariance*, "Structural Equation Modeling: A Multidisciplinary Journal", 2002, 9, 2, pp. 233–255.
[508] *Ibidem*, pp. 233–255.
[509] B.M. Byrne, P. Baron, J. Balev, *The beck depression inventory: A cross-validated test of second-order factorial structure for bulgarian adolescents*, "Educational and Psychological Measurement", 1998, 58, 2, pp. 241–251.

dimensions are invariant across the groups. The summary of findings is presented in Table 10.

Table 10. Summary of goodness-of-fit statistics of tests for the invariance of causal structure

Model description	Comparative model	χ^2	df	$\Delta\chi^2$	Δdf	p-value	CFI	ΔCFI
Configural model No equality constraints imposed	–	1238.47	292	–	–	–	0.96	–
Measurement model (Model 2A) All factor loadings invariant	2A versus 1	1252.58	307	14.10	15	0.51	0.96	0.00
Structural model (Model 3A) Model 2A with all covariances invariant	3A versus 1	1264.72	313	26.24	21	0.19	0.96	0.00

Source: Own elaboration. Notes: $\Delta\chi^2$ = difference in χ^2 values between models; Δdf= difference in number of degrees of freedom between models; ΔCFI = difference in CFI values between models.

Although scholars have addressed restrictions of previous CBBE scales [510], limitations still remained. The primary objective of the studies presented in section 3.1 was to meet the need for a refinement of the four-factor CBBE scale. A combination of qualitative and quantitative research methods was employed to achieve the given objective. These procedures included the Best-Worst scaling method to assistance to filter the measurements, item judging by marketing professors, exploratory and confirmatory factor analyses, and tests for the factorial equivalence of the instrument scores.

It observed robust evidence for the internal consistency and validity of the scales across four studies. The results showed that the four-factor CBBE scale to be invariant across groups. These results have important implications for researchers and brand managers. As per the scale measures the four dimensions of CBBE this instrument can be use to audit and track the consumer's perceptions of brands. Therefore, the use of the scale should contribute at a managerial level, supporting the decision-making process and the management of CBBE.

Although his study brings significant contribution to the measurement of CBBE, it is not without limitations. However, the limitations of the study can provide

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[510] I. Buil, L. de Chernatony, E. Martínez, *A cross-national validation of the consumer-based brand equity scale,* "Journal of Product & Brand Management", 2008, 17, 6, pp. 384–392.

guidelines for future development of the scale. First, the dimensions brand associations and perceived quality presented relatively high inter-construct correlations. This issue did not affect convergent validity; however, under other circumstances, if the inter-construct correlations become higher than the square root of the AVE value, it may be a sign of problematic items.

A wider range of brands and product categories should be examined in future studies. This practice will indicate how the scale performs under different product and brand choices. Finally, a central European sample was used in this study, therefore creating difficulties to the generalization the results to other cultures. Hence, it is recommend that similar research be conducted in different countries to produce a stronger validation and generalization of the findings.

3.2. The consumer's online brand-related activities scale development and validation

3.2.1. Research methodology and exploration of COBRAs

Although the works of G. Shao [511] and D.G. Muntinga and colleagues [512] gave a first step into the research on the consumer's online brand-related activities, to the present date, no scale to quantitatively capture the framework was developed. To achieve the main research objectives postulated in this dissertation i.e., to identify the effects of CBBE on consumer's engagement with social media brand-related content; it is addressed this gap in the literature. Hence, in section 3.2 it is extended the COBRA framework by introducing the consumer's engagement with social media brand-related content scale (CESBC).

Following a multi-stage process of scale development and validation [513] both qualitative and quantitative studies were conducted. The qualitative studies were designed to extend the preliminary set of COBRAs reported in literature [514, 515], consequently aiming at a broader exploration of individual online brand-related activities [516]. For such, it was employed online focus groups – bulletin board (Study 1), online depth interviews (Study 2), and netnography (Study 3) [517, 518]. The outcomes of the qualitative studies served as a basis for the preparation of an initial pool of items that was used to further develop the measurement instrument to CESBC. The scale was calibrated and tested with confirmatory factor analysis (Study 4).

Study 1: Online focus groups – bulletin board. The purpose of Study 1 was to elaborate on the social media brand-related activities previously reported in literature.

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[511] G. Shao, *Understanding the appeal of user-generated media: A uses and gratification perspective*, „Internet Research", 2009, 19, 1, pp. 7–25.

[512] D.G. Muntinga, M. Moorman, E.G. Smit, *Introducing COBRAs: Exploring motivations for brand-related social media use*, „International Journal of Advertising", 2011, 30, 1, pp. 13-46.

[513] G.A. Churchill, *A paradigm for developing better measures of marketing constructs*, „Journal of marketing research", 1979, XVI, February, pp. 64–73.

[514] C. Li, J. Bernoff, *Groundswell: Winning in a world transformed by social technologies*, Harvard Business Review Press, Boston, MA 2011, pp. 3-39.

[515] D.G. Muntinga, M. Moorman, E.G. Smit, *Introducing COBRAs: Exploring motivations for brand-related social media use*, „International Journal of Advertising", 2011, 30, 1, p. 16.

[516] For reasons of space restrictions, the extensive list of activities pertinent to each COBRA dimension are reported in Table A4 of Appendix A and not after each qualitative study.

[517] B. Schivinski, P. Łukasik, *Typologia aktywności online konsumenta w zakresie marki*, "Marketing i Rynek", 2015, Marzec, 3, str. 20–27.

[518] The samples used during each study are systematically reported with the exception of the sample used in Study 4, which is summarized in Table A5 of Appendix A.

To do so, two online bulletin boards were administrated using the service Google Groups for a period of two weeks. A total of 25 respondents participated in the study divided in two groups: 12 participants who passively consumed COBRAs (bulletin board 1: consumption), and 13 who created brand-related content (bulletin board 2: creation) [519]. The division of the participants considering their level of engagement with brands on social media makes it possible to better capture the content domain, serving to the primary purpose of the study i.e., the widest possible exploration of COBRAs. For this exploratory step of the research, it was used an asynchronous method, i.e., online focus groups with bulletin boards [520]. A bulletin board is "an Internet site where users can post comments about a particular issue or topic and reply to other users' postings" [521].

Regarding the recruitment of the respondents to join the bulletin board 1, the participants needed to use the Internet daily and actively follow brands on social media. The same criteria were required for the recruitment of respondents to join the bulletin board 2, with the addition that the participants needed to have created at least three pieces of content for at least one brand. The participants who did not fulfill the above criteria were not accepted to take part in the studies. The age of participants ranged from 18 to 34 years old. The respondents also affirmed to spend from 2 to 5 hours online daily. The majority of the respondents (47%) declared to use at least one social media channel, 33% frequently use two services, and the remaining use three or more services. The sample was evenly distributed according to gender.

Both bulletin boards were administered daily by one moderator. The role of the moderator was to post new entries and motivate the respondents to engage into the discussion. The moderator also provided explanation to the respondents in case of doubts, however, without solving any of the tasks. Throughout the study, the participants were asked exploratory questions such as "What sort of activities [things] you do on social media that involve brands?" or "Could you name activities that require the Internet users to be engaged with a brand?"

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[519] Notice that activities pertinent to the contributing COBRA type should emerge spontaneously, as this dimension intermediates the consuming and creating COBRA types.

[520] F.E. Fox, M. Morris, N. Rumsey, *Doing synchronous online focus groups with young people: Methodological reflections*, "Qualitative Health Research", 2007, 17, 4, pp. 539–547.

[521] E. McKean, *The new Oxford American dictionary*, 2nd Edition, Oxford University Press, USA, 2005, CD-ROM entry: bulletin board.

The outcomes of Study 1 included activities belonging to the three types of COBRAs. Brand-related activities such as following a brand on social media, watching brand-related videos, picture, and images, commenting on brand-related posts, and writing brand-related content on blogs are a few examples of COBRAs that were mentioned by the participants. Although the outcomes of the Study 1 closely matched the COBRAs previously reported in the literature, it seemed appropriate to that the list of COBRAs should be confirmed and complemented by a synchronous data collection method.

Study 2: Online depth interviews. Throughout this stage, the goals of the study were twofold: (a) to confirm the previous list of COBRAs with a different sample of Internet users using a synchronous data collection method; and (b) to discover COBRAs that remained undetected during Study 1. To reach the objectives of Study 2, it was used online depth interviews with consumers. Online depth interviews are a synchronous research method that allows researchers to broaden their understanding of what they observe on Internet [522]. Additionally, this methodology brings in detail the subjective understanding of the respondents about the topic; and it is effective to hear about their recollections and interpretations of events [523].

A total of 32 consumers were interviewed using online instant messages (IM) based software. For the recruitment of respondents, similar criteria to Study 1 were employed. The sample also had a similar structure to the one used in Study 1.

Three interviewers received training and were explained about the research objectives and goals. During the interviews the respondents were asked to recall the brands they followed on social media and to give examples of activities they take or took part according to the given level of COBRA (i.e., consumption, contribution, and creation). Examples of such activities were given when required.

The results generated from the second study enhanced the outcomes from Study 1. As expected, the online depth interviews uncovered COBRAs that were not previously detected when using the asynchronous research method (e.g., subscribing to a brand-related video channel, commenting on a brand-related fan page, and publishing a brand-related picture exposing a product).

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[522] F.E. Fox, M. Morris, N. Rumsey, *Doing synchronous online focus groups with young people: methodological reflections*, "Qualitative Health Research", 2007, 17, 4, pp. 539–547.
[523] R.V. Kozinets, K. De Valck, A.C. Wojnicki, S.J.S. Wilner, *Networked narratives: Understanding word-of-mouth marketing in online communities,* "Journal of Marketing", 2010, 74, March, pp. 71–89.

The results of both Studies 1 and 2 made up an extensive list of COBRAs that the respondents could recall from memory. Therefore, a third study was designed to cover possible mind gaps from the respondents using a less obtrusive research method. For a sample of responses and their categorization see Table B1 of Appendix B.

Study 3: Netnography. The objectives of Study 3 were the following: (a) to verify whether the list of COBRAs obtained from literature and Studies 1 and 2 were commonly found across social media channels; and (b) to identify activities that the respondents could not recall from memory. To reach the given objectives it was applied netnography, a technique far less obtrusive than the ones used previously, mainly because it is conducted using observations of the consumers' online behavior in a context that was not established by the researcher [524].

To perform the netnography, five investigators were trained and had no access to the outcomes of the first and second stage of the research. The investigators were instructed to perform observations on the Internet and to generate a list of COBRAs. The observations were held across social media channels that the consumers listened during the Studies 1 and 2. By the end of the procedures, the authors confronted the outcomes of the investigations and generated one single list.

As expected, the results of Study 3 rendered a more extensive list of COBRAs than the previous two studies. Activities such as downloading brand-related widgets, clicking on brand-related ads, and rating a branded product were included in the final COBRA typology. The outcomes of the three qualitative studies collectively made up an initial pool of 35 items to measure COBRA as follows. The consuming COBRA type was measured by 12 items. This scale measures the level of which Internet users engage into a passive consumption of media by reading, watching, and following brands on social media. The contributing COBRA type was measured by 15 items. This scale captures the intermediary level of engagement of a consumer with a brand on social media. Activities that belong to this level require the consumer to interact with brand by using options such as 'Liking', sharing, and commenting. Finally, 8 items measured the creating COBRA type. This scale captures the highest level of

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[524] R.V. Kozinets, *The field behind the screen: Using netnography for marketing research in online communities*, "Journal of marketing research", 2002, XXXIX, February, pp. 61-72.

engagement of consumers with brands on social media by creating content in the form of text, image, and videos.

3.2.2. CESBC scale: Item reduction and reliability

A questionnaire was next developed from the initial item pool (listed in Table A4 of Appendix A). Respondents were asked to indicate their level of agreement with each of the 35 statements using a seven-point adaptation of the Likert scale anchored at 'not very often' and 'very often'. The respondents were also given the option 'not at all' (coded later as zero).

The questionnaire was pretested using a sample of 48 undergraduate business students. All the students declared to follow brands in different social media channels. Minor changes to the order and wording of questions were made following the pretest.

The main data collection was conducted online. Probability sampling was not used during the recruiting process. Rather, respondents were recruited by extending invitations in several social media channels, online forums, and discussion groups. The invitation to the survey consisted of an informative text highlighting the broad topic of the study. After clicking on the survey's link, the respondent was redirected to the questionnaire. The survey was divided in blocks. The introduction presented an explanatory text describing the general objectives of the study and distinguished between the three types of COBRAs. The second block consisted of demographic questions. For the next block, the respondents were asked to enter a brand they actively follow on social media. Examples of engagement with brands on social media were briefly described. Additionally, the respondents were also informed that they would be using the chosen brand throughout the entire survey. For capturing CESBC dimensions, three additional blocks were individually presented to the respondents. Each block contained the scale for one single dimension. The order of the CESBC blocks and the scale within each block were randomized to avoid the systematic order effect.

A sample of 2578 Polish consumers participated in the study. Invalid and incomplete questionnaires were rejected (12.65%), resulting in 2252 valid questionnaires (87.35%). The sample characteristics are summarized in Table A5 of Appendix A. A total of 299 brands were analyzed spanning a range of industries

including apparel and accessories, automotive, beverages, clothing, computer, food, high-tech, and mobile operators.

The usable sample was randomly split into calibration and validation samples [525,526,527]. Each sample consisted of 1126 consumers. The calibration sample was used to develop the scale, whereas the validation sample was used to verify CESBC's dimensionality and establish its psychometric properties.

Exploratory factor analysis. First it was performed an EFA with maximum-likelihood extraction method and Promax orthogonal factor rotation using SPSS 21.0 software package. It was employed the factor extraction according to the MINEIGEN criterion (i.e., all factors with Eigenvalues > 1). The KMO value was 0.97 with a significant chi-square value for the Bartlett test for sphericity (χ^2 = 25243.07; $p < 0.001$) indicates that the sufficient correlations exist among the variables [528]. The exploratory factor analysis was appropriate for the data.

Four items demonstrated to have cross-loadings issues and failed to exhibit a simple factor structure. The problematic items were subsequently removed from the analysis. The final structure of CESBC included 31 items, which reflected a three-factor solution, and accounted for 55.33% of the total variance. The internal consistency (Cronbach's alpha) of the CESBC follows: consumption α = 0.90 (12 items), contribution α = 0.93 (11 items), and creation α = 0.94 (8 items). The Cronbach's alpha value for each of the three dimensions demonstrated the internal consistency of the scales [529]. The correlations between the CESBC dimensions were positive and significant (Consumption−Creation, r = 0.72; Contribution−Creation, r = 0.65; Consumption−Contribution, r = 0.50). The next procedure was to check the hypothesized three-factor structure of the CESBC and to analyze the covariance matrix.

[525] G.A. Churchill, *A paradigm for developing better measures of marketing constructs*, „Journal of marketing research", 1979, XVI, February, pp. 64–73.
[526] R. Cudeck, M. Browne, *Cross-validation of covariance structures*, "Multivariate Behavioral Research", 1983, 18, 2, pp. 147–167.
[527] D. Gerbing, J. Anderson, *An updated paradigm for scale development incorporating unidimensionality and its assessment*, "Journal of Marketing Research", 1988, XXV, May, pp. 186–193.
[528] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow, UK, 2014, p. 103.
[529] *Ibidem*, p. 125.

3.2.3. Confirmatory factor analysis – three-factor CESBC

Following with the analysis, all latent variables were included in one single multifactorial CFA model in M*plus* 7.2 software. The ML estimator was used, and the GOF values of the model were evaluated using the chi-square test statistic, the CFI, the TLI, and the RMSEA. Values larger than 0.90 for CFI and TLI, and 0.08 or lower for RMSEA indicate good model fit [530].

Results of the CFA suggested that the three-factor 31-item model had a poor fit to the data. The $\chi^2_{(430)}$ was 3643.40, the CFI was 0.87, the TLI was 0.86, and the RMSEA was 0.08; 90% C.I. 0.08 0.09. The next step involved identifying the areas of misfit in the model. To assess the possible model misspecification it was then examined the standardized loadings of the items and modification indices (MI) [531]. Therefore the analyses were proceeded with the elimination of items: (a) whose standard loadings were below the 0.5 cutoff; (b) which demonstrated cross-loadings issues that were not detected during the EFA; and (c) which yielded high MI values. After running the diagnostics and eliminating the problematic items, the ensuing three-factor 17-item model yielded a good fit as indicated by the $\chi^2_{(115)} = 859.257$; CFI = 0.95, TLI = 0.94, and RMSEA = 0.07; 90% 0.06 0.07. Additionally, an alternative CFA was conducted using robust maximum-likelihood estimation (MLM) as the assumption of multivariate normality was violated [532]. The model yielded good GOF values: $\chi^2_{(115)}$ 557.467; CFI = 0.95, TLI = 0.94, and RMSEA = 0.05; 90% 0.05 0.06.

The next step was to calculate the CR of the three dimensions of CESBC. The reliability for consumption was 0.85, for contribution was 0.91, whereas for creation was 0.93. The CR values exceeded the threshold of 0.7, thus demonstrating the internal consistency of the three subscales [533].

The reliability and validity outcomes resulting from the CFA are summarized in Table 11. All of the loadings estimates were statistically significant and greater than 0.63. The *t*-values ranged from 30.92 to 105.56 ($p < 0.001$). These results

[530] L.-T. Hu, P.M. Bentler, *Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives*, "Structural Equation Modeling", 1999, 6, 1, pp. 1–55.
[531] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow, UK 2014, p. 621.
[532] As is common with rating scales the data showed to be multivariate kurtotic (for the descriptive statistics see Table A6 of Appendix A.
[533] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow, UK, 2014, p. 619.

provide evidence of convergent validity [534]. In terms of discriminant validity, it was calculated the AVE for each construct. The AVEs were 0.59 (consumption), 0.64 (contribution), and 0.68 (creation) respectively. The AVE values were later compared with the square of the estimated correlation between constructs (MSV) [535]. The AVE were greater than the MSV values, therefore discriminant validity was supported.

Table 11. Reliability and validity of the CESBC

	ALPHA	CR	AVE	MSV	Contribution	Consumption	Creation
Contribution	0.91	0.91	0.64	0.29	*0.80*		
Consumption	0.87	0.87	0.59	0.42	0.65	*0.76*	
Creation	0.92	0.92	0.68	0.59	0.77	0.51	*0.82*

Source: Own elaboration. Note: The square root of the AVE values are marked in italics.

Finally, the correlations between the COBRA dimensions were as follows: Contribution−Creation, r = 0.77; Consumption−Contribution, r = 0.65; and Consumption−Creation, r = 0.51. The correlations were positive and significant. The results of the analyses – a three-dimensional, 17-item CESBC scale are summarized in Figure 3.

In summary, this research provides clear guidance on what constitutes the COBRA construct (i.e., the consuming, contributing, and creating dimensions) and which online activities define those dimensions. The dimensions of CESBC give managers the conceptual instrument to delineate consumers' social media behavior toward brands according to their level of engagement. In addition, the underlying subscales (in this case, each individual item in a dimension) provide managers with specific social media brand-related activities they could pursue.

Although this research makes a significant contribution to the measurement of COBRA, it is not without limitations. As such, the restrictions of this research can provide guidelines for future studies. First, the list of COBRAs (Table A4 of Appendix A) rendered from this study is not exhaustive. With the constant changes and adaptations of websites and Web 2.0 services, new activities pertinent to the three dimensions of CESBC are likely to emerge. Researchers should continue searching for new trends on social media and adjusting CESBC in line with technological changes.

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[534] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate…*, p. 605.
[535] *Ibidem*, p. 619-620.

Figure 3. Confirmatory factor analysis – three-factor CESBC scale
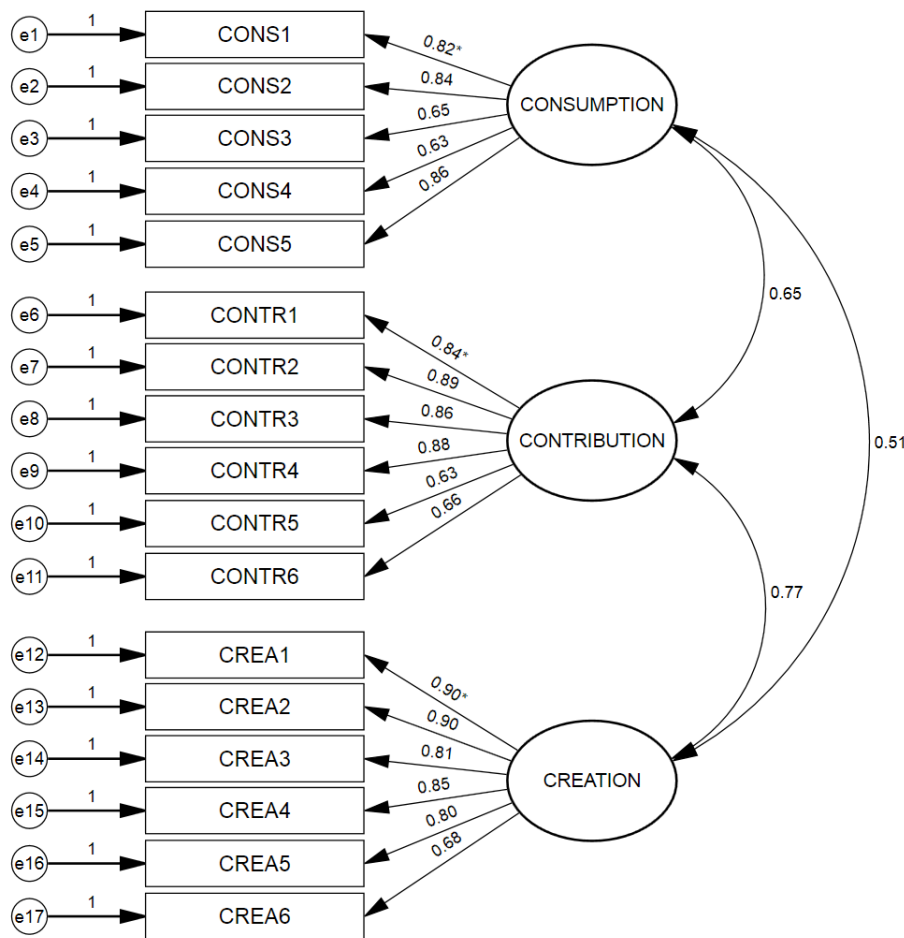
Source: Own elaboration. Notes: $\chi^2_{(115)}$ = 557.47, CFI = 0.95, TLI = 0.94, RMSEA = 0.05; 90% C.I. 0.05 0.06; Estimator = MLM; n = 1126; all standardized coefficients are significant ($p < 0.001$) and appear above the associated path; * path constrained to 1 for model identification.

Second, this research was conducted in a single country. Although social media channels are similar across the globe, other researchers should replicate this study in other countries to assess the equivalence of CESBC across nations and cultures. Researchers could also use a combination of CESBC and other behavioral variables in a latent class analysis [536] to classify consumers who engage in social media brand-related activities into homogeneous subgroups and, thus, to explore a typology of consumers according to their level and type of engagement in COBRAs. Assuming that consumers' perceptions of social media communication differ across industries, researchers could also implement CESBC to explore in greater depth patterns of similarities and differences within the consumption, contribution, and

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[536] L.A. Goodman, *Exploratory latent structure analysis using both indentifiable and unidentifiable models*, "Biometrika", 1974, 61, 2, pp. b215–231.

creation of social media brand-related content. Researchers could use a multilevel approach to the data to perform analysis between (industries) and within (brands) groups.

When managing the presence of brands online and executing social media marketing strategies, managers can use the CESBC to audit and track the effectiveness of these programs. When using CESBC systematically, managers can not only evaluate the success of their social media marketing strategies but also take corrective action when necessary. The parsimony of CESBC is intended to facilitate such practical applications. Because COBRA is a holistic framework, managers should administer its three dimensions simultaneously. By using CESBC holistically, greater insights can be gleaned into consumers' social media behavior toward brands. However, the subscales could also be used individually when, for example, researchers or practitioners wish to focus on a specific type of activity, such as consumers' social media brand-related content creation.

Consistent with the literature review presented in Chapters 1 and 2, during Chapter 3 there were systematically presented the process of development of the CBBE and CESBC measurement instruments. Those two scales allow the estimation of the conceptual model to identify the impact of consumer-based brand equity on COBRAs. The model is further estimated with a sample of Polish consumers that are engaged with high-tech brands on Internet. This issue is covered in depth throughout Chapter 4.

4. THE CONCEPTUAL MODEL OF THE EFFECTS OF BRAND EQUITY ON CONSUMER'S ONLINE BRAND-RELATED ACTIVITIES

4.1. Relationships among brand equity dimensions

To identify the effects of consumer-based brand equity on consumer's engagement with social media brand-related content in the high-tech industry context there were used the D.A. Aaker's four-dimensional CBBE and the COBRA frameworks.

The framework of consumer-based brand equity introduced by D.A. Aaker posits that its dimensions inter-relate [537]. As regards the relationships among CBBE dimensions, researchers have proposed associative [e.g., 538, 539] and causal connections [e.g., 540, 541, 542, 543]. This study builds on the traditional hierarchy of effects model to postulate hypotheses about the causal connections among CBBE dimensions. This approach, also known as the standard learning hierarchy, follows the theory of reasoned action (TRA) [544, 545]. TRA postulates that attitudes and subjective norms influence the individual's intentions, which in turn influence behavior. In this model, consumers form beliefs about a product by seeking information about relevant attributes. Therefore, by evaluating these beliefs and developing associations about the product may result in buying or rejecting the brand [546].

The traditional hierarchy of effects model postulates that the consumers' decision-making process is highly complex. Thus, consumers are driven to seek out

[537] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, New York, NY 1991, p. 17.

[538] B. Yoo, N. Donthu, S. Lee, *An examination of selected marketing mix elements and brand equity*, "Journal of the Academy of Marketing Science", 2000, 28, 2, pp. 195–211.

[539] R. Pappu, P.G. Quester, R.W. Cooksey, *Consumer-based brand equity: Improving the measurement – empirical evidence*, „Journal of Product & Brand Management", 2005, 14, 3, pp. 143–154.

[540] N.J. Ashill, A. Sinha, *An exploratory study into the impact of components of brand equity and country of origin effects on purchase intention*, "Journal of Asia-Pacific Business", 2004, 5, 3, pp. 27–43.

[541] R. Bravo, E. Fraj, E. Martínez, *Family as a source of consumer-based brand equity*, "The Journal of Product and Brand Management", 2007, 16, 3, pp. 188–99.

[542] I. Buil, E. Martínez, L. de Chernatony, *The influence of brand equity on consumer responses*, „Journal of Consumer Marketing", 2013, 30, 1, pp. 62–74.

[543] I. Buil, L. de Chernatony, E. Martínez, *Examining the role of advertising and sales promotions in brand equity creation*, "Journal of Business Research", 2013, 66, 1, pp. 115–122.

[544] M. Fishbein, I. Ajzen, *Belief, attitude, intention and behavior: An introduction to theory and research,* Addison-Wesley, Reading, MA 1975, pp. 5–10.

[545] I. Ajzen, M. Fishbein, *Understanding attitudes and predicting social behavior*, Prentice Hall; Englewood Cliffs, NJ 1980, pp. 7–15.

[546] M.R. Solomon, G. Bamossy, S. Askegaard, M.K. Hogg, *Consumer behaviour: A European perspective (Fourth Edition),* Prentice Hall, Harlow, UK 2010, pp. 245–312.

information, evaluate alternatives, and consequently make a considered decision [547]. Researchers on CBBE suggest that the traditional hierarchy of effects model is a useful framework for studying the causal order amongst its dimensions. This framework describes the evolution of CBBE as a consumer learning process; thus the consumers' awareness of the brand drives to attitudes (i.e., brand associations and perceived quality), and consequently those attitudes influence brand loyalty [548, 549, 550].

The consumers' awareness of the brand initiates the process of building CBBE. Consumers must first be conscious about a brand to later develop brand associations [551]. Therefore, brand awareness influences the formation and the strength of brand associations [552, 553]. A similar relationship occurs between brand awareness and perceived quality. Brand awareness works as an antecedent to perceived quality, hence the more aware the consumer is about a brand, the higher is the perception of the quality of that brand [554, 555]. Additionally, recent studies also confirm the positive relationships amongst brand awareness, brand associations, and perceived quality [556, 557]. Based on the aforementioned arguments, it is expected that the same relationships will hold for brands belonging to the high-tech industry. Thus, it is postulated that:

H1. Brand awareness positively influences brand associations.
H2. Brand awareness positively influences perceived quality.

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[547] M.R. Solomon, G. Bamossy, S. Askegaard, M.K. Hogg, *Consumer behaviour: A European perspective (Fourth Edition),* Prentice Hall, Harlow, UK 2010, pp, pp. 245-312.

[548] B. Yoo, N. Donthu, *Developing and validating a multidimensional consumer-based brand equity scale,* „Journal of Business Research", 2001, 52, 1, pp. 1–14.

[549] K.L. Keller, D.R. Lehmann, *How do brands create value?*, „Marketing Management", 2003, 5, May/June, pp. 27–31.

[550] K.L. Keller, D.R. Lehmann, *Brands and branding: Research findings and future priorities,* "Marketing Science", 2006, 25, 6, pp. 740–759.

[551] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name,* The Free Press, New York, NY 1991, pp. 56-77.

[552] *Ibidem,* p. 56-77.

[553] K.L. Keller, *Conceptualizing, measuring, and managing customer-based brand equity,* „Journal of Marketing", 1993, 57, January, pp. 1–22.

[554] D.A. Aaker, *Managing…*, pp. 56-77.

[555] K.L. Keller, D.R. Lehmann, *How…*, pp. 27–31.

[556] I. Buil, L. de Chernatony, E. Martínez, *Examining the role of advertising and sales promotions in brand equity creation*, "Journal of Business Research", 2013, 66, 1, pp. 115–122.

[557] I. Buil, E. Martínez, L. de Chernatony, *The influence of brand equity on consumer responses,* „Journal of Consumer Marketing", 2013, 30, 1, pp. 62–74.

When consumers develop positive perceptions of a brand, loyalty emerges [558]. Following the traditional hierarchy of effects model, brand associations and perceived quality lead to brand loyalty [559]. Therefore, high levels of positive brand associations and perceived quality influence brand loyalty [560, 561, 562, 563]. Similar effects should be also expected to brands of the high-tech industry, therefore the following hypotheses summarize these arguments:

H3. Brand associations positively influence brand loyalty.
H4. Perceived quality positively influences brand loyalty.

Based on the abovementioned discussion, it is expected that the consumers' perception of brand equity to influence their consumption, contribution, and creation of social media brand-related content. Those effects are approached in depth the following section.

4.2. Effects of brand equity on consumer's online brand-related activities

The consumers' awareness of a brand is a necessary although not sufficient condition to create value. Brand awareness is a precondition for CBBE as consumers must be aware that the brand exists [564]. Therefore focusing on the direct effects that CBBE dimensions can have on the consumer's online brand-related activities, the strongest effects are expected to come from brand associations, perceived quality, and brand loyalty.

By creating positive brand associations, companies build favorable attitudes and beliefs towards their brands. These positive associations are essential to managers in brand positioning and differentiation practices [565, 566]. Thus, as long as the brand

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[558] R.L. Oliver, *Whence consumer loyalty,* "Journal of Marketing", 1999, 63, pp. 33–44.
[559] K.L. Keller, D.R. Lehmann, *How…*, pp. 27–31.
[560] D.A. Aaker, *Managing…*, pp. 34-55.
[561] K.L. Keller, D.R. Lehmann, *How…*, pp. 27–31.
[562] I. Buil, E. Martínez, L. de Chernatony, *The influence of brand equity on consumer responses*, „Journal of Consumer Marketing", 2013, 30, 1, pp. 62–74.
[563] I. Buil, L. de Chernatony, E. Martínez, *Examining the role of advertising and sales promotions in brand equity creation*, "Journal of Business Research", 2013, 66, 1, pp. 115–122.
[564] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, New York, NY 1991, pp. 56-77.
[565] G. Low, C. Lamb Jr, *The measurement and dimensionality of brand associations*, "Journal of Product & Brand Management", 2000, 9, 6, pp. 350–352.

communication leads to a satisfactory customer reaction, it should trigger a positive effect in the customer as recipient and stimuli the engagement with content on social media. Previous researches have reported that brand communication is positively related with brand equity [567]. In the context of social media, it was evidenced that the individual's perception of a brand is related with his/her perception of communication [568, 569, 570]. Consequently, it is assumed that positive associations with a brand will positively influence the consumer's engagement with the consumption, contribution, and creation of social media brand-related content. Hence, the following hypotheses are formulated:

H5. Brand associations positively influence consumption (*H5a*), contribution (*H5b*), and creation (*H5c*) of social media brand-related content.

Brand loyalty has been found to be one of the main components of brand equity [571]. Researchers have reported the relationship of brand communication and brand loyalty to be either positive or negative, as concerns the circumstances consumers are exposed to them. Researchers reported that the amount firms spent in advertising to be positively related to brand loyalty as it strengthens brand associations and attitudes toward the brand [572].

In the context of social media communication, a negative impact of brand loyalty on the consumer's engagement with brand-related content seems not to be plausible, due to the characteristics of the social media communication system. For instance, consumers on SNSs such as Facebook, YouTube, or Twitter when clicking the options "Like", favorite, share, and other by default have agreed to receive and convey the content from a brand page or peer; hence, it works as a voluntary and

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[566] J. Kall, R. Kłeczek, A. Sagan, *Zarządzanie marką,* Wolters Kluwer Polska SA, Warszawa 2013, p. 22-25.
[567] B. Yoo, N. Donthu, S. Lee, *An examination of selected marketing mix elements and brand equity*, "Journal of the Academy of Marketing Science", 2000, 28, 2, pp. 195–211.
[568] M. Bruhn, V. Schoenmueller, D.B. Schäfer, *Are social media replacing traditional media in terms of brand equity creation?*, "Management Research Review", 2012, 35, 9, pp. 770–790.
[569] B. Schivinski, D. Dabrowski, *The effect of social media communication on consumer perceptions of brands*, "Journal of Marketing Communications", 2014, pp. 1–26.
[570] B. Schivinski, D. Dabrowski, *The impact of brand communication of brand equity through Facebook,* "Journal of Research in Interactive Marketing", 2015, 9, 1, pp. 31–53.
[571] J. Kall, R. Kłeczek, A. Sagan, *Zarządzanie marką,* Wolters Kluwer Polska SA, Warszawa 2013, p. 28-29.
[572] *Ibidem*, pp. 195–211.

deliberate action. In addition, researchers have found a positive relationship of brand loyalty and the quality of peer interactions in the Facebook brand fan page [573, 574]. Furthermore, brand loyalty is based on the interactions of customers with the company [575]. This bond can be a direct one or moderated by the consumer's interactions with the brand. Though, it is anticipated that not only the consumption of social media brand-related content will be influenced by brand loyalty, but also its contribution and creation. This discussion leads to the following hypotheses:

H6. Brand loyalty positively influences consumption (*H6a*), contribution (*H6b*), and creation (*H6c*) of social media brand-related content.

Perceived quality can lead to market differentiation and superiority of the brand [576]. Consumers use brand communication as an extrinsic cue to judge the quality of products [577]. Additionally, researchers have reported positive relationships between perceived quality and the consumer's perceptions of advertising [578, 579, 580]. Therefore, consumers tend to perceive highly advertised brands as higher quality brands [581]. In the social media context, it is assumed that similarly to traditional media, consumers will associate the quality of the brand with the quality of its communication.

On the other hand, UGC has become an important source of information to consumers. It complements or even substitutes other types of brand-related

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[573] M. Bruhn, V. Schoenmueller, D.B. Schäfer, *Are social media replacing traditional media in terms of brand equity creation?*, "Management Research Review", 2012, 35, 9, pp. 770–790.

[574] B. Schivinski, D. Dabrowski, *The impact…*, pp. 31–53.

[575] R.W. Palmatier, L.K. Scheer, J.-B.E.M. Stennkamp, *Customer loyalty to whom? Managing the benefits and risks of salesperson-owned loyalty*, "Journal of Marketing Research", 2007, XLIV, May, pp. 185–199.

[576] B. Yoo, N. Donthu, S. Lee, *An examination of selected marketing mix elements and brand equity*, "Journal of the Academy of Marketing Science", 2000, 28, 2, pp. 195–211.

[577] A.R. Rao, K.B. Monroe, The effect of price, brand name, and store name on buyers' perceptions of product quality: An integrative review, Journal of Marketing Research, 1989, XXVI, August, pp. 351–358.

[578] A. Kirmani, P. Wright, *Money talks: Perceived advertising expense and expected product quality*, "Journal of Consumer Research", 1989, 16, 3, pp. 344–353.

[579] A.F. Villarejo-Ramos, M.J. Sánchez-Franco, *The impact of marketing communication and price promotion on brand equity*, "Journal of Brand Management", 2005, 12, 6, pp. 431–444.

[580] I. Buil, L. de Chernatony, E. Martínez, *Examining the role of advertising and sales promotions in brand equity creation*, "Journal of Business Research", 2013, 66, 1, pp. 115–122.

[581] B. Yoo, N. Donthu, S. Lee, *An examination…*, pp. 195–211.

communication about product quality [582]. For instance, C. Riegner suggested that UGC are an important means whereby consumers obtain information about products or service quality [583]. Researchers also detected a positive relationship amongst perceived quality and UGC [584, 585]. Consequently, it is assumed that consumers will interpret social media brand-related communication to be positively related with their satisfaction of product and brand quality, thus, influencing their own predisposition to engage with social media brand-related content. Based on the above discussion, it is hypothesized that:

H7. Perceived quality positively influences consumption (*H7a*), contribution (*H7b*), and creation (*H7c*) of social media brand-related content.

The aforementioned discussion and study hypotheses are summarized in Figure 4.

Figure 4. Proposed conceptual framework
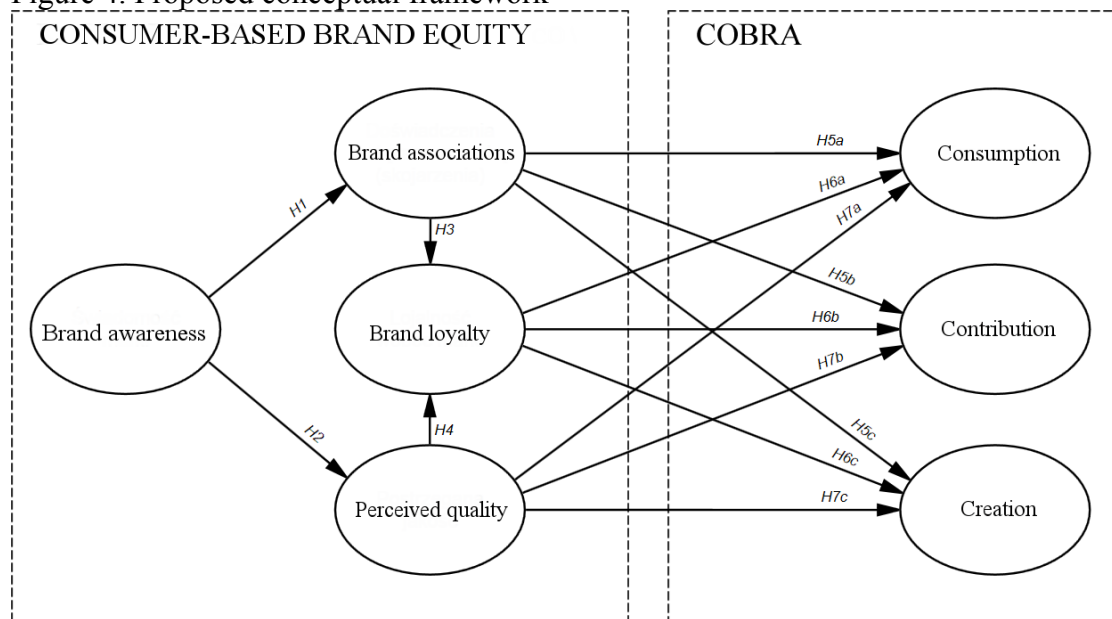
Source: Own elaboration

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[582] C. Li, J. Bernoff, *Groundswell: Winning in a world transformed by social technologies*, Harvard Business Review Press, Boston, MA 2011, pp. 17-26.
[583] C. Riegner, *Word of mouth on the web: The impact of Web 2.0 on consumer purchase decisions*, "Journal of Advertising Research", 2007, 47, 4, pp. 436–447.
[584] B. Schivinski, D. Dabrowski, *The impact of brand communication of brand equity through Facebook*, "Journal of Research in Interactive Marketing", 2015, 9, 1, pp. 31–53.
[585] Chevalier J.A., Mayzlin D., *The effect of word of mouth on sales: Online book reviews*, „Journal of Marketing Research", 2006, XLIII, August, pp. 345–354.

The proposed conceptual framework of the impact of consumer-based brand equity on COBRA is further tested in section 4.3.

4.3. Research methodology

4.3.1. High-tech industry characteristics

The high-tech sector requires continuous and intensive innovative initiatives [586]. This industry is characterized, inter alia, by its rapid diffusion of technological information shared with a short product life cycle [587]. The short product life cycle is associated with the high content of technology the products have, as for technologies evolve in a dynamic tempo, those same products become obsolete in a short time [588]. Consequently, the continuous need of innovation increases the demand for qualified personnel and capital inputs, while generating high investment risk [589].

One of the main concerns companies within the high-tech industry must deal is the market uncertainty [590]. High-tech companies are constantly confronted with the requirements of the market in terms of new technology. Accordingly, such technological uncertainty leads to risk associated with whether or not the company is able to reach the market expectations [591]. On the other hand, the fast development of the high technology products offer advantages to society and business, as for instance to alleviate human suffering, to improve people's lives, to solve social problems, and to make businesses more effective [592].

Similarly to other industries, one of the roles of marketing is to inform the development and commercialization efforts of high-tech firms, and therefore to increase the chances that the new technologies will deliver on their promise while reducing downside risks [593]. Nevertheless, brand management should assist in this matter. Despite that several high-tech companies have their brands ranked as top

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[586] A. Zakrzewska-Bielawska, *Coopetition? Yes, but who with? The selection of coopetition partners by high-tech firms*, "Journal of American Academy of Business", 2015, 20, 2, p. 159.

[587] *Ibidem*, p. 159.

[588] D. Ferreri, *Marketing and management in the high-technology sector*, Praeger Publishers, Westport, CT 2003, p. 4.

[589] A. Zakrzewska-Bielawska, *Coopetition? Yes, but who with? The selection of coopetition partners by high-tech firms*, "Journal of American Academy of Business", 2015, 20, 2, pp. 159-160.

[590] D. Ferreri, *Marketing...*p. 4.

[591] *Ibidem*, p. 4.

[592] J. Mohr, S. Sengupta, S. Slater, *Marketing of high-technology products and innovations*: *Third Edition,* Pearson Education, Upper Saddle River, NJ 2010, p. 4.

[593] *Ibidem*, p. 4.

global brands according to their value in dollar [594], they often lack in brand strategy [595]. However, financial success in the high-tech sector is not determined by product innovation alone or by the latest product features and specifications. Rather, marketing and branding techniques are necessary to the success of high-tech products and brands [596].

Industries in the high-tech sector are classified according to their technology intensity, the level of scientific methods applied to the development and refinement of new technologies, the expenditure on research and development (R&D) [597]. Consequently, to determine whether a company belongs in the high-tech sector, the OECD sector classification is often used as a reference [598]. In Poland, the Polish business classification system (PKD) is used for the categorization of companies. The PKD corresponds to the European Commission's statistical business classification (NACE), which classifies the high-tech industries as manufacturers of pharmaceutical preparations and basic pharmaceutical products, producers of computers, electronic and optical products, and manufacturers of aircraft, spacecraft, and air related machinery [599]. NACE also specifies as high-tech, knowledge-intensive services computer programming, consultancy and related activities, information service activities and scientific R&D, and telecommunications [600].

The study presented in this section covered a group of high-tech brands, which are known for the Polish consumer and respect the abovementioned classification. The analyses that follow were based exclusively on the data obtained from consumers about these brands.

4.3.2. Sample and procedures

To examine the impact of consumer-based brand equity on COBRA it was used data collected by a standardized survey. Similar to procedures used in section 3.2.2, the main data collection was conducted online and the respondents were

[594] Interbrand, http://bestglobalbrands.com/2014/ranking/ (2015.04.08).
[595] J. Mohr, S. Sengupta, S. Slater, *Marketing of high-technology products and innovations*: *Third Edition,* Pearson Education, Upper Saddle River, NJ 2010*,* p. 406.
[596] *Ibidem*, p. 406-407.
[597] A. Zakrzewska-Bielawska, *Coopetition? Yes, but who with? The selection of coopetition partners by high-tech firms*, "Journal of American Academy of Business", 2015, 20, 2, p. 159.
[598] A. Zakrzewska-Bielawska, *Relacje między strategią a strukturą organizacyjną w przedsiębiorstwach sektora wysokich technologii*, Wydawnictwo Politechniki Łódzkiej, Łódź 2011, s. 21.
[599] A. Zakrzewska-Bielawska, *Coopetition…*, p. 161.
[600] *Ibidem*, p. 161.

recruited in several social media channels, online forums, and discussion groups, with the difference that the respondents were asked to enter a high-tech brand they actively follow on those channels. The respondents were informed that they would be using the chosen high-tech brand throughout the survey. For capturing COBRA dimensions, three blocks were individually presented to the respondents. The respondents were briefly informed about COBRA and examples were used to distinguish them. Each block contained one CESBC dimension. For measuring brand equity, four blocks were used for each CBBE dimension. To avoid the systematic order effect the orders of the CESBC and CBBE scales within each block were randomized.

A sample of 489 consumers participated in the study. Invalid and incomplete questionnaires were rejected resulting in 414 valid questionnaires (84.6%). Women consisted 59.7% of the sample. The majority of the respondents (47.6%) were in young at the range of 22-25 years of age. The median education level was secondary school (33.3%). The respondents also informed to spend from 2 to 4 hours online everyday (45.4%). The final sample closely resembles the population of Poland using the Internet [601]. A total of 51 brands were analyzed within the high-tech industry. The profile of survey respondents is presented in Table A7 of Appendix A.

4.3.3. Preliminary analyses: Exploratory and confirmatory statistics

Exploratory factor analysis. In line with the procedures used in previous sections of this study, first it was performed an EFA with maximum-likelihood extraction method and Promax orthogonal factor rotation. During the EFA the SPSS 21.0 software package was employed with the factor extraction according to the MINEIGEN criterion. The KMO value was 0.93 with a significant chi-square value for the Bartlett test for sphericity ($\chi^2 = 11120.18$; *p*-value < 0.001) suggested that sufficient correlations exist amongst the variables [602]. The EFA was appropriate for the data.

Two CESCB items (CONTR5 and CONTR6) demonstrated to have cross-loadings issues and failed to exhibit a simple factor structure (Table A8 of Appendix A). The problematic items were not removed from the analysis, although they were

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[601] IAB Polska, *Internet 2013: Raport strategiczny Polska Europa Świat*, VFP Communications, Warszawa 2014, str. 17-19.
[602] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow, UK 2014, p. 103.

objects of further observation during the CFA procedures. The final structure of the conceptual model included 35 items, which reflected a seven-factor solution, and accounted for 67.90% of the total variance (Table A9 of Appendix A). The internal consistency of the CESBC follows: consumption α = 0.87 (5 items), contribution α = 0.89 (6 items), and creation α = 0.93 (6 items). Whereas the internal consistency of the CBBE scale were: brand awareness α = 0.84 (4 items), brand associations α = 0.93 (5 items), perceived quality α = 0.88 (4 items), and brand loyalty α = 0.92 (5 items). The Cronbach's alpha value for each of the three CESBC and the four CBBE dimensions demonstrated good internal consistency of the scales [603]. The correlations between the CESBC dimensions were positive and significant (Contribution−Creation, r = 0.65; Consumption−Contribution, r = 0.60; Consumption−Creation, r = 0.50). Similarly, the correlations between the CBBE dimensions were also positive and significant (Brand associations−Perceived quality, r = 0.64; Brand associations−Brand loyalty, r = 0.57; Perceived quality−Brand loyalty, r = 0.57; Brand awareness−Brand associations, r = 0.32; Brand awareness−Perceived quality, r = 0.25; Brand awareness−Brand loyalty, r = 0.11). The factor correlation matrix see Table A10 of the Appendix A. Following with the analyses, the next procedure was to check the hypothesized structure of the conceptual model and to analyze the covariance matrix.

Confirmatory factor analysis. Results of the CFA suggested that the seven-factor 35-item model had a good fit to the data. The GOF values were as follows: MLM$\chi^2_{(539)}$ = 1113.41, CFI = 0.93, TLI = 0.92, and RMSEA = 0.05; 90% C.I. 0.04 0.05.

The next step was to calculate the reliability and validity of the scales. The outcomes resulting from the CFA are summarized in Table 12. The CR of the three dimensions of CESBC were 0.87 for consumption, 0.90 for contribution, 0.93 for creation, whereas the CR values for the four dimensions of CBBE were 0.93 for brand awareness, 0.86 for brand associations, 0.88 for perceived quality, and 0.92 for brand loyalty. The CR values exceeded the threshold of 0.7, thus demonstrating the internal consistency of the three subscales [604].

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[603] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow, UK 2014, p. 125.
[604] *Ibidem*, p. 619.

All of the loadings estimates were statistically significant and greater than 0.57. The *t*-values ranged from 16.67 to 67.01 ($p < 0.001$). Therefore evidencing convergent validity [605]. With regard to discriminant validity, it was calculated the AVE for each construct. The AVEs for CESB were 0.58 (consumption), 0.62 (contribution), and 0.68 (creation), whereas the AVEs for CBBE were 0.73 (brand awareness, 0.61 (brand associations), 0.65 (perceived quality), and 0.72 (brand loyalty). The list of constructs and measurements used are presented in Table A11 of Appendix A.

Table 12. Reliability and validity of the conceptual model of CBBE effects on COBRA

	ALPHA	CR	AVE	MSV	CREA	BAW	BAS	CONS	CONTR	PQ	BL
CREA	0.93	0.93	0.69	0.60	*0.83*						
BAW	0.84	0.93	0.73	0.62	0.12	*0.85*					
BAS	0.93	0.86	0.61	0.10	-0.24	0.32	*0.78*				
CONS	0.87	0.87	0.58	0.39	0.48	0.34	0.05	*0.76*			
CONTR	0.89	0.90	0.62	0.60	0.77	0.26	-0.05	0.63	*0.78*		
PQ	0.88	0.88	0.65	0.62	0.13	0.79	0.30	0.25	0.21	*0.80*	
BL	0.92	0.92	0.72	0.47	0.27	0.59	0.16	0.37	0.34	0.68	*0.85*

Source: Own elaboration. Note: The square root of the AVE values are marked in italics; BAW = brand awareness; BAS = brand associations; PQ = perceived quality; BL = brand loyalty; CONS = consumption; CONTR = contribution; CREA = creation.

The AVE values were compared with the square of the estimated correlation between constructs (MSV) [606]. The AVE values were greater than the MSV values, thus supporting discriminant validity. Regarding the two CESCB items (CONTR5 and CONTR6), which demonstrated cross-loadings issues they were further included in the analysis, as they did not interfere with the reliability or the validity of conceptual model. The next step of the analysis was therefore to test the structural model and the postulated hypothesis.

4.3.4. The structural model and test of the hypotheses

To test the hypothesis, it was used structural equation modeling (hereafter, SEM) in M*plus* 7.2 software. During the SEM procedures, all latent variables were included in one single structural model. The MLM estimator was used. The GOF

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[605] J.F. Hair Jr., W.C. Black, B.J. Babin, Anderson R.E., *Multivariate data analysis* (Seventh Ed.), Pearson Education Limited, Harlow, UK 2014, p. 605.
[606] *Ibidem*, p. 619-620.

values of the structural model were evaluated using the chi-square test statistic, the CFI, the TLI, and the RMSEA fit indexes. Results of the SEM indicated that the seven-factor 35-item model had a good fit to the data. The GOF values were as follows: $MLM\chi^2_{(544)}$ = 1358.39, CFI = 0.90, TLI = 0.90, and RMSEA = 0.06; 90% C.I. 0.05 0.06.

Presented in Table 13 is a summary of statistics related to the estimations and test of the hypotheses. In *H1* and *H2* it was assumed that brand awareness positively influences brand associations and perceived quality. The findings show that brand awareness positively impacts the consumers associations with brands (β = 0.36; *t*-value = 8.29; *p*-value < 0.001) and their perceptions of brand quality (β = 0.34; *t*-value = 8.89; *p*-value < 0.001), therefore supporting both hypotheses. Following with the analysis, for *H3* it was expected brand associations to positively influence brand loyalty. The results indicated a positive effect (β = 0.25; *t*-value = 8.06; *p*-value < 0.001), thus confirming *H3*. The subsequent hypothesis expected the consumers' perceptions of brand quality to positively influence brand loyalty. The findings confirmed this effect therefore supporting *H4* (β = 0.54; *t*-value = 18.63; *p*-value < 0.001). In summary, the estimations from *H1* to *H4* support the traditional hierarchy of effects model amongst CBBE dimensions in the high-tech industry context.

The following hypotheses postulated a positive effect of CBBE dimensions on the consumers' engagement with the consumption, contribution, and creation of social media brand-related content. *H5* postulated that brand associations would positively influence the consumption (*H5a*), contribution (*H5b*), and creation (*H5c*) of social media brand-related content. The results supported both *H5a* (β = 0.25; *t*-value = 6.11; *p*-value < 0.001) and *H5b* (β = 0.13; *t*-value = 3.58; *p*-value < 0.001). Brand associations showed not impact the consumers' engagement with the creation of social media brand-related content, thus leading to the rejection of *H5c* (β = -0.02; *t*-value = -0.55; *p*-value = 0.58).

The following hypotheses advanced that brand loyalty positively influences the consumption (*H6a*), contribution (*H6b*), and creation (*H6c*) of social media brand-related content. The findings supported that loyal consumers tend to consume (β = 0.30; *t*-value = 5.33; *p*-value < 0.001), to contribute (β = 0.30; *t*-value = 5.66; *p*-value < 0.001), and to create social media brand-related content (β = 0.29; *t*-value = 5.95; *p*-value < 0.001). Finally, *H7* postulated that perceived quality

positively influences consumption (*H7a*), contribution (*H7b*), and creation (*H7c*) of social media brand-related content. The results of the SEM model were statistically significant for the consumption (β = -0.16; *t*-value = -2.87; *p*-value < 0.001) and contribution (β = -0.09; *t*-value = -1.78; *p*-value < 0.07) COBRA types. However, a negative impact was detected, therefore indicating that both hypotheses should be rejected. A non-significant effect was identified in the causal path between perceived quality and the creation of social media brand-related content (β = -0.05; *t*-value = -0.97; *p*-value < 0.32), thus, leading to the rejection of *H7c*. The results for the tests of the hypotheses are summarized in Table 13 and Figure 5 [607].

Table 13. Standardized structural coefficients of the model

HYPOTHESIS	β	*t*-value	*p*-value	Acceptance or rejection
H1. Brand awareness – brand associations	0.36	8.29	***	+
H2. Brand awareness – perceived quality	0.34	8.89	***	+
H3. Brand associations – brand loyalty	0.25	8.06	***	+
H4. Perceived quality – brand loyalty	0.54	18.63	***	+
H5a. Brand associations – consumption	0.25	6.11	***	+
H5b. Brand associations – contribution	0.13	3.58	***	+
H5c. Brand associations – creation	-0.02	-0.55	0.58	-
H6a. Brand loyalty – consumption	0.30	5.33	***	+
H6b. Brand loyalty – contribution	0.30	5.66	***	+
H6c. Brand loyalty – creation	0.29	5.95	***	+
H7a. Perceived quality – consumption	-0.16	-2.87	***	-
H7b. Perceived quality – contribution	-0.09	-1.78	*	-
H7c. Perceived quality – creation	-0.05	-0.97	0.32	-

Source: Own elaboration. Notes: $\chi^2_{(544)}$ = 1358.39, CFI = 0.90, TLI = 0.90, RMSEA = 0.06; 90% C.I. 0.05 0.06; Estimator = MLM; n = 414; *** *p*-value < 0.001, * *p*-value < 0.1.

Post-hoc analysis. Summarized in Figure 5 are the parameter estimates for the final structural model of the effects of CBBE on COBRA. Those estimates indicate from a micro-relationship perspective that brand associations positively influences the consumption and the contribution of social media brand-related content; whereas brand loyalty positively influences the consumption, the contribution, and the of social media brand-related content.

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[607] Although the estimations for H7a and H7b were statistically significant, they were not included in the Figure 5 as the hypotheses posited a positive relationship of the constructs.

Figure 5. Parameter estimates for final structural model

To identify the effects of consumer-based brand equity on consumer's online brand-related activities from a macro-relationship perspective a post-hoc analysis was carried out with higher-order structures for both CBBE and COBRA framework. The estimation of a higher-order SEM for determining the effects of CBBE on COBRA from a higher-order perspective is appropriate as both frameworks are multidimensional constructs and there are correlational relationships among the constructs [608]. Figure 6 illustrates the higher-order conceptual model of CBBE effects on COBRA.

To test the conceptual model, it was used M*plus* 7.2 software. For the SEM procedures, brand awareness, brand associations, perceived quality, and brand loyalty were loaded into one single higher-order factor named CBBE. Similarly, the CESBC dimensions - consumption, contribution, and creation were loaded into a higher-order factor called COBRA. The calculations of the CFA rendered the following GOF values: MLM$\chi^2_{(552)}$ = 1185.41, CFI = 0.92, TLI = 0.91, and RMSEA = 0.05; 90% C.I. 0.04 0.05. The results indicated a good fit of the higher-order CFA model. All of the higher-order loadings estimates were statistically significant and greater than 0.65 with the exception of brand awareness that yielded 0.32. The t-values ranged from 6.93 to 43.90 (p < 0.001). No items pertinent to the CBBE and COBRA latent

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[608] J.F. Hair Jr., W.C. Black, B.J. Babin, R.E. Anderson, *Multivariate data analysis: A global perspective* (Seventh Ed.), Pearson Prentice Hall, Upper Saddle River, NJ 2010, pp. 737-738.

Figure 6. Higher-order structural model of CBBE effects on COBRA
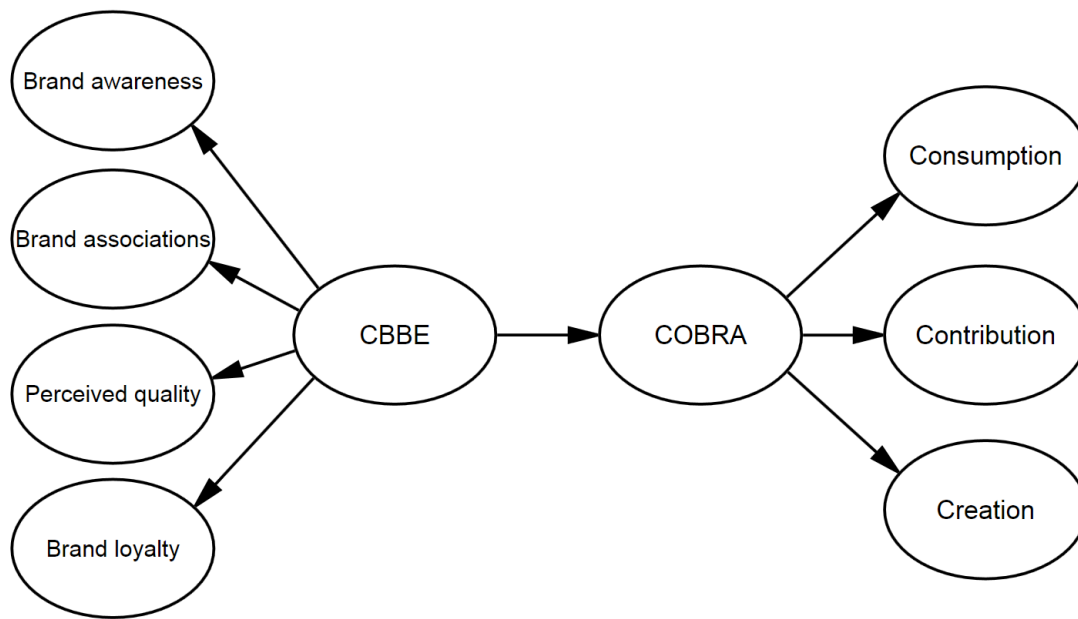
Source: Own elaboration.

variables were dropped. The correlation between the CBBE and COBRA was positive and significant (r = 0.30; t-value = 6.65; p-value < 0.00).

For the estimation of the higher-order SEM model, the COBRA factor was regressed on the CBBE factor. The MLM estimator was used. Results of the SEM indicated that the higher-order structural model had a good fit to the data. The GOF values were as follows: MLM$\chi^2_{(552)}$ = 1185.34, CFI = 0.92, TLI = 0.91, and RMSEA = 0.05; 90% C.I. 0.04 0.05. The results of the analysis confirmed that consumer-based brand equity positively influences consumer's online brand-related activities (β = 0.30; t-value = 6.65; p-value < 0.001).

Therefore, together the micro- and macro-relationship perspectives of effects of CBBE on COBRA supported the thesis statement of this dissertation. They support that the consumer's perception of brand equity is a driver of engagement into social media brand-related content.

4.4. Conclusion and summary of findings

This study offers important contributions to current body of literature on the topic of brand management on social media. The findings provide conceptual insights into how consumer-based brand equity foster the consumption, contribution, and creation of social media brand-related content in the high-tech industry context.

The primary objective of this dissertation was to identify the effects of CBBE on consumer's online brand-related activities in the high-tech industry perspective. The conceptual model postulated the existence of relationships among the CBBE dimensions. The results of the model yielded that brand awareness influenced both brand associations ($\beta = 0.36$) and perceived quality ($\beta = 0.34$). Those dimensions in turn had a positive impact on brand loyalty ($\beta_{(BAS-BL)} = 0.25$ and $\beta_{(PQ-BL)} = 0.54$). These results are in line with the stream of research, which postulates that CBBE is a hierarchical structure. Although brand awareness is influenced by traditional and social media communications [609], in the social media context, researchers reported that the consumer's awareness of brands is levered by both firm-created and user-generated communication [610]. Therefore, managers should expect an increase of brand awareness by making their brands present on social media channels. This in turn should trigger a chain of effects on the CBBE dimensions.

Following with the structure of the model, the results demonstrated that brand associations influenced both consumption ($\beta = 0.25$) and contribution of social media brand-related content ($\beta = 0.13$). However, brand associations showed not to influence the creation COBRA type (*p*-value = 0.58), hence suggesting that consumer's positive associations with a brand are driving low and medium level of engagement activities such as reading, watching, commenting, and "Liking" social media brand-related content. Drawing from these findings, to elicit the consumer's engagement into lower and medium level COBRAs managers should enhance the consumers' positive associations with those brands. Similarly to brand awareness, in the social media context, brand associations is also influenced by firm-created and user-generated communication [611]. Firm-created social media marketing campaigns should be designed to build emotional links with consumers instead of focusing on the functional aspects of a specific product/brand. Additionally, the increase of one's positive brand associations not only influences further social media brand-related engagement and behavior, but also works as an antecedent of brand loyalty ($\beta = 0.25$).

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[609] M. Bruhn, V. Schoenmueller, D.B. Schäfer, *Are social media replacing traditional media in terms of brand equity creation?*, "Management Research Review", 2012, 35, 9, pp. 770–790.
[610] B. Schivinski, D. Dabrowski, *The impact of brand communication of brand equity through Facebook*, "Journal of Research in Interactive Marketing", 2015, 9, 1, pp. 31–53.
[611] *Ibidem*, pp. 31–53.

Regarding the effects of brand loyalty, results from the conceptual framework indicated that this CBBE dimension has the strongest overall effects on COBRA as evidenced by the consumer's tendency to consume ($\beta = 0.30$), contribute ($\beta = 0.30$), and create ($\beta = 0.39$) social media brand-related content. Brand managers should benefit from those findings by reaching their most loyal fan bases on social media. Even though this group of consumers is relatively smaller in numbers compared to non-loyal fans on social media channels [612], loyal fans to a brand tend to achieve the highest level of engagement of COBRA and their generated brand-related content is consider to be trustworthy amongst other consumers [613]. Additionally, this form of UGC is also material for further consumption and contribution between social media users.

Finally, although not less important, perceived quality showed to negative influence the consumption ($\beta = -0.16$) and the contribution ($\beta = -0.09$) of social media brand-related content. The hypotheses postulated positive relationships between perceived quality and COBRAs, leading to their rejection. However, these findings are of relevance to both scholars and practitioners. A possible explanation for the negative relationship may be that COBRAs are related to hedonic aspects of the brand rather than functional aspects. This argument would also explain the positive relationships between brand associations and brand loyalty with the dimensions of COBRA. Researchers should further investigate these relationships to deepen the knowledge on the possible motivations for a negative impact of perceived quality on COBRAs.

The aforementioned findings of the influence of CBBE metrics on COBRA dimensions confirm the thesis statement in a micro-relationship perspective. Nevertheless, for a macro-relationship perspective of the phenomena a post-hoc analysis was performed with higher-order structures for CBBE and COBRA. The conceptual higher-order framework supported the thesis statement by confirming that the consumer's perception of brand equity positively influences COBRAs ($\beta = 0.30$).

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[612] K. Nelson-Field, E. Riebe, B. Sharp, *What's not to "like?" Can a Facebook fan base give a brand the advertising reach it needs?*, „Journal of Advertising Research", 2012, 52, 2, pp. 262-296.
[613] F. Karakaya, N.G. Barnes, *Impact of online reviews of customer care experience on brand or company selection*, "Journal of Consumer Marketing", 2010, 27, 5, pp. 447–457.

Although this study makes a significant contribution to the current body of literature of brand management on social media, it is not without limitations. As such, the restrictions of this research can provide guidelines for future studies.

First, the data were not factored for consumers' past brand usage. Although the data was collected in several social media channels, online forums, and discussion groups, the results presented should be interpreted with care. Further research should address this limitation. In addition, scholars could use the brand usage variable for moderation and conditional process analysis. Such analyses would answer questions such as how previous brand usage influences the consumers engagement with consumption, contribution, and creation of social media brand-related content.

Second, the structural model was estimated in the high-tech industry context. Due to the specifics of this industry, further research should be carried out and test the conceptual framework across different industries. Previous research demonstrated that the consumer's perceptions of social media communication vary throughout industries [614], [615]. Assuming that consumers' perceptions of social media communication differ across industries, researchers could also explore in a multilevel approach patterns of similarities and differences within the consumption, contribution, and creation of social media brand-related content. Other variables could be implemented for a deeper understanding of the drivers of COBRA.

Finally, this research was conducted in a single country. Although social media channels are alike across nations, other researchers should replicate this study in other countries to assess the equivalence of the conceptual model across nations and cultures.

The final chapter deals with the applicability of the quantitative research instruments presented in this dissertation. Examples of the implementation of the CBBE and CESBC scales, as well as, the final conceptual model of CBBE effects on COBRA are illustrated from the managerial standpoint within the high-tech industry context.

[614] B. Schivinski, D. Dabrowski, *The impact of brand communication of brand equity through Facebook*, "Journal of Research in Interactive Marketing", 2015, pp. 31–53.
[615] M. Bruhn, V. Schoenmueller, D.B. Schäfer, *Are social media replacing traditional media in terms of brand equity creation?*, "Management Research Review", 2012, 35, 9, pp. 770–790.

5. THE APPLICABILITY OF THE STUDY RESULTS FOR BRAND MANAGEMENT IN THE HIGH-TECH INDUSTRY

5.1. Managerial applicability of the CBBE and CESBC scales in the high-tech industry

In this section it is presented the applicability of the CBBE and CESBC scales for three selected brands in the high-tech industry, namely Apple, Nokia, and Samsung [616]. The examples are given from two managerial points of view. First the scales are used as an audit instrument for those brands and lately a comparison of scores across brands is undertaken. The outcomes are displayed in Tables 14 and 15 correspondently.

The results for CBBE and CESBC dimensions are presented according to mean values of each individual item and as an overall score [617]. This last score is an aggregate of the mean values for each indicator and represent the dimension as a whole. For the comparisons of scores across brands it was employed the Mann-Whitney U test [618]. For computing the scores, SPSS 21.0 software package was employed.

Managerial applicability of the CBBE scale. Before managers can build consumer-based brand equity they should understand what dimensions make the construct manifest. The CBBE scale provided in this dissertation can guide brand executives on what constitutes CBBE (dimensions) and what aspects (items) comprise those dimensions.

When practitioners decide to build CBBE they need to consider a heterogeneous range of aspects. Therefore, brand managers need to find answers to questions such as 'Do consumers know our brand? Can consumers recognize its logo and the brand product among other products? Do consumers like our brand and have good feelings about it? Do consumers perceive our brand products to be of superior quality than its alternatives? Are consumers loyal and attached to the brand to a point

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[616] Those brands were chosen for their similarity across some product categories such as smartphones, tablets, and personal computers. Additionally, the three brands are market leaders and competitors.

[617] The use of mean values rationale on the easiness of its calculation, therefore not requiring from practitioners advanced statistical knowledge and specialized software. Additionally, in literature researchers also recommend the practical applicability of mean values for generating indexes when applying scales for auditing purposes e.g., B. Yoo, N. Donthu, *Developing and validating a multidimensional consumer-based brand equity scale*, „Journal of Business Research", 2001, 52, 1, p. 10.

[618] Questionnaire data tend to be skewed and kurtotic.

that they buy its products instead of competitors'?' Only when such questions are addressed brand managers will be considering the breadth of issues that convey the domain of CBBE.

When using the CBBE scale managers can benefit from an instrument for auditing and tracking the consumer's perceptions of brand equity. If the instrument is used over a period of time the measurement results allow brand managers to assess the effectiveness of marketing and brand management strategies. Therefore, corrective actions can be taken if necessary. In a similar way, brand managers are also able to audit and track CBBE from other brands in the market.

When analyzing the overall score of brand awareness, Nokia showed to have higher scores ($M = 6.65$; $SD = 0.63$) than Samsung and Apple. The cross-comparison of difference of scores among the brands were not statistically significant at the aggregate level, however at the items' level BAW2 seemed to statistically significant in the comparison between Apple and Samsung (z-score = -2.45; p-value < 0.05) and Nokia and Samsung (z-score = -1.53; p-value < 0.1). Therefore, these results indicate that the three brands are highly recognized by the consumers. Additionally, the discrepancy of BAW2 (I know at least one product of Brand X) indicates that Samsung has higher product recognition than the competitors. This may result from the product strategy of the company, which has a broader diversification of their product lines than Apple and Nokia.

The analysis of brand associations demonstrated that Samsung obtained higher overall scores ($M = 5.87$; $SD = 1.04$) than Apple and Nokia. This difference was detected to be statistically significant in the comparison between Apple and Nokia (z-score = -4.17; p-value < 0.001) and Nokia and Samsung (z-score = -6.60; p-value < 0.001). These patterns of differences also reflected in the items' level from BAS1 to BAS5. No statistical difference was found when comparing the overall brand association scores for Apple and Samsung (p-value = 0.36). The findings demonstrate that consumers have stronger positive feelings for Apple and Samsung in comparison to Nokia. Hence, Nokia it is suggested that Nokia to implement marketing and branding communication strategies that aim at building emotional links with the consumers instead of focusing on the instrumental features and characteristics of the products.

Following with the analysis of overall scores for the CBBE dimensions, Apple showed higher overall score for perceived quality ($M = 5.82$; $SD = 1.44$) than the

competing brands. This discrepancy of scores was detected to be statically significant for the comparison between Apple and Nokia (z-score = -5.20; p-value < 0.001) and Apple and Samsung (z-score = -2.66; p-value < 0.001). The comparison between Nokia and Samsung overall scores for perceived quality also showed to be statistically significant (z-score = -6.27; p-value < 0.001). Differences across the consumers' perceptions of quality were also detected in the items' level across the Apple, Nokia, and Samsung. Taking a closer look at the results, there is an evident need of attention from the management of Nokia concerning the consumers' perceptions of quality of its products. Although the consumers' perceptions of quality spawn from a combination of factors, such as prior experience with product[619], price, distribution, and advertising spending [620, 621], managers from Nokia should consider investigating the sources that could be influencing on the scores.

Finally, the analysis for brand loyalty indicates that Apple achieved higher overall scores ($M = 5.00$; $SD = 1.96$) than Nokia and Samsung. When comparing the overall score differences across brands Apple statistically differ from both Nokia (z-score = -2.90; p-value < 0.001) and Samsung (z-score = -2.88; p-value < 0.001). On the other hand, no statistical differences were detected between Nokia and Samsung (p-value = 0.96). On the items' level Apple differ from the competing brands in all items, with the exception of BL2 when compared to Samsung (p-value = 0.24). Across Nokia and Samsung the scores of all items did not yield statistical differences apart from BL3 (z-score = -1.96; p-value < 0.05). Therefore, important practical implication can be drawn from these findings. As brand loyalty is considered to be the core of CBBE [622], it is of great importance to brand managers from Nokia and Samsung to tailor and implement marketing and branding strategies designated to lever the overall score of this CBBE dimension. Nevertheless the consumers' perceptions of brand loyalty from Apple were higher than the competing brands, attention could be drawn for the correction of indicators BL2 and BL3, which scored bellow average. The results are summarized in Table 14.

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[619] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, New York, NY 1991, p. 85.
[620] B. Yoo, N. Donthu, S. Lee, *An examination of selected marketing mix elements and brand equity*, "Journal of the Academy of Marketing Science", 2000, 28, 2, pp. 195–211.
[621] I. Buil, L. de Chernatony, E. Martínez, *Examining the role of advertising and sales promotions in brand equity creation*, "Journal of Business Research", 2013, 66, 1, pp. 115–122.
[622] D.A. Aaker, *Managing...*, p. 39.

Table 14. The applicability of the CBBE scale for selected brands in the high-tech industry

ITEM	APPLE		NOKIA		SAMSUNG		APPLE X NOKIA		APPLE X SAMSUNG		NOKIA X SAMSUNG	
	Mean	*SD*	*Mean*	*SD*	*Mean*	*SD*	*z*	*p*	*z*	*p*	*z*	*p*
					Brand awareness							
Overall	6.46	1.17	6.65	0.63	6.56	0.84	-0.49	0.62	-1.02	0.30	-0.69	0.48
BAW1	6.24	1.55	6.51	0.92	6.35	1.15	-0.23	0.81	-0.26	0.79	-0.76	0.44
BAW2	6.29	1.48	6.66	0.96	6.72	1.02	-1.16	0.24	-2.45	**	-1.53	*
BAW3	6.60	1.06	6.64	0.78	6.50	1.12	-0.80	0.42	-1.03	0.30	-0.32	0.74
BAW4	6.74	0.88	6.82	0.62	6.70	0.93	-0.18	0.85	-0.43	0.66	-0.83	0.40
					Brand associations							
Overall	5.79	1.55	4.71	1.29	5.87	1.04	-4.17	***	-0.90	0.36	-6.60	***
BAS1	5.98	1.53	4.93	1.45	6.08	1.02	-4.16	***	-0.74	0.45	-6.17	***
BAS2	5.69	1.90	4.63	1.38	5.82	1.33	-3.92	***	-0.94	0.34	-6.40	***
BAS3	5.95	1.54	5.01	1.30	6.00	1.04	-4.30	***	-0.97	0.32	-5.93	***
BAS4	5.69	1.82	4.52	1.57	5.70	1.45	-4.15	***	-0.87	0.38	-5.77	***
BAS5	5.64	1.80	4.48	1.46	5.80	1.25	-4.17	***	-0.56	0.57	-6.77	***
					Perceived quality							
Overall	5.82	1.44	4.45	1.20	5.49	1.08	-5.20	***	-2.66	***	-6.27	***
PQ1	6.05	1.51	4.64	1.47	5.88	1.20	-5.14	***	-1.70	**	-6.29	***
PQ2	5.57	1.92	4.20	1.58	5.22	1.54	-4.30	***	-2.12	**	-4.94	***
PQ3	6.10	1.39	4.98	1.32	5.94	1.08	-4.61	***	-1.85	**	-5.65	***
PQ4	5.60	1.48	3.99	1.41	4.94	1.48	-5.31	***	-2.59	***	-5.03	***
					Brand loyalty							
Overall	5.00	1.96	4.20	1.59	4.21	1.62	-2.90	***	-2.88	***	-0.04	0.96
BL1	5.17	2.17	4.43	1.94	4.27	1.94	-2.25	**	-2.86	***	-0.61	0.53
BL2	4.88	2.07	4.59	1.78	4.28	1.83	-1.17	0.24	-1.98	**	-1.23	0.21
BL3	4.62	2.23	3.13	1.80	3.65	1.94	-3.59	***	-2.57	**	-1.96	**
BL4	5.29	2.17	4.68	1.90	4.68	1.82	-2.20	**	-2.48	**	-0.08	0.93
BL5	5.07	2.16	4.18	1.76	4.22	1.70	-2.67	***	-2.84	***	-0.28	0.77

Source: Own elaboration. Notes: The subsamples are part of the sample that constituted the sample used for the main study presented in Chapter 4 where n = 414; All scales range from 1 to 7; $n_{(Apple)}$ = 82, $n_{(Nokia)}$ = 90, $n_{(Samsung)}$ = 99; *** *p*-value < 0.001, ** *p*-value < 0.05, * *p*-value < 0.1.

In summary, the CBBE scale provides individual scores for the dimensions of the framework, whereas each individual item point out possible weaknesses or strengths within the dimensions. To benefit on the synergetic characteristics of the framework, managers should carefully coordinate all the four CBBE dimensions. In other words, brand managers should approach the development of CBBE holistically to fully profit from the construct. For instance, concerning the CBBE scores for Nokia, which were relatively lower than Apple and Samsung. The company should focus on activities to lever the scores of problematic indicators, to consequently benefit from higher scores of the dimensions. Special attention should concern the dimensions brand associations and perceived quality. A detailed and planned strategy involving marketing and branding could assist on those aspects. Marketing and branding techniques would also influence brand awareness; therefore further

contributing to lever brand associations and perceived quality. Consequently, when the three dimensions holistically operate, it should be expected an increase in brand loyalty.

Managerial applicability of the CESBC scale. Although companies are using social media channels as part of their marketing and advertising communication strategies, research on consumer behavior related to brands on social media is nascent[623, 624]. Before managers can more confidently employ social media marketing and branding, they need to understand how consumers behave and interact with brands on those channels. The CESBC scale should assist in this matter.

The CESBC scale provides clear guidance on what constitutes the COBRA framework (i.e., the consuming, contributing, and creating dimensions) and which online activities define those dimensions. Therefore, CESBC give managers the conceptual instrument to delineate consumers' social media behavior toward brands according to their level of engagement. In addition, similarly to the CBBE scale the underlying CESBC subscales (in this case, each individual item in a dimension) provide managers with specific social media brand-related activities they could pursue.

Analyzing the overall scores for consumption of social media brand-related content across the brands, Apple scored the highest ($M = 3.32$; $SD = 1.54$). No statistical differences were found across Apple and Samsung for the overall consumption scores (p-value $= 0.45$). However, differences were detected when comparing the overall consumption scores between Nokia an Apple (z-score $= -2.25$; p-value < 0.05) and between Nokia and Samsung (z-score $= -2.10$; p-value < 0.05). At the items' level, the differences of scores for CONS1 and CONS2 showed to be statistically non-significant for the three brands. Nokia scores for CONS3 and CONS4 were lower and statistically differ from the scores obtained by Apple (z-score $= -2.56$; p-value < 0.05) and by Samsung (z-score $= -4.20$; p-value < 0.001). No statistically differences were founded for CONS3 between Apple and Samsung (p-value $= 0.67$); however the score for CONS4 was found to be statistically significant between the two brands (z-score $= -2.42$; p-value < 0.05). Finally, CONS5 yielded statistically

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[623] C. Burmann, *A call for 'user-generated branding,* "Journal of Brand Management", 2010, 18, 1, pp. 1–4.
[624] M. Yadav, P. Pavlou, *Marketing in computer-mediated environments: Research synthesis and new directions*, "Journal of Marketing", 2014, 78, January, pp. 20–40.

significant differences for the comparison of Apple and Nokia (z-score = -1.96; p-value < 0.05). No statistically significant differences were detected when comparing the CONS5 scores from Samsung with Apple (p-value = 0.17) and with Nokia (p-value = 0.35). Those findings indicate the overall consumption of social media brand-related content is similar between Apple and Samsung. The only significant difference detected between both brands was a higher participation in blogs related to the brand Apple (CONS4). On the other hand, the lower scores for Nokia are an indicator that there is a gap to be filled in the management of their social media brand-related communication. A solution for raising the consumption COBRA type for Nokia would be a higher participation with firm-created brand-related content across different social media platforms. This should be used in pair with their online and offline marketing strategies.

Following with the analysis, the overall scores for the contribution with brand-related content on social media was higher for Apple (M = 2.66; SD = 1.68) than for Nokia and Samsung. When comparing the overall contribution scores amongst the brands, statistically significant differences were detected between Apple and Nokia (z-score = -2.80; p-value < 0.05), Apple and Samsung (z-score = -1.91; p-value < 0.05), and Nokia and Samsung (z-score = -1.74; p-value < 0.05). When analyzing single items' scores the three brands, no statistically significant differences were found for CONTR1. Conversely, Apple scores were statistically significant different for all other indicators when compared to Nokia. Similarly, Apple scores for all subsequent indicators were statistically significant higher than Samsung's with the exception of CONTR6 (p-value = 0.35). The pairwise comparison of scores for Nokia and Samsung indicated statistically significant differences for CONTR5 (z-score = -2.24; p-value < 0.05) and CONTR6 (z-score = -1.98; p-value < 0.05). No significant differences were detected for the remaining items. Therefore, those findings inform that both Nokia and Samsung managers should engage consumers to actively participate in activities such as commenting, sharing, and "Liking" on social media. Brand executives, for instance, could elicit consumers' engagement into "Liking" and sharing behavior by designing vivid and interactive posts [625]. Similar

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[625] L. de Vries, S. Gensler, P.S.H. Leeflang, *Popularity of Brand Posts on Brand Fan Pages: An Investigation of the Effects of Social Media Marketing*, "Journal of Interactive Marketing", 2012, 26, 2, pp. 83–91.

results should also be obtained by controlling the valence and position of their brand-related social media content [626].

Finally, it was computed the overall score for creation of social media brand-related content. Similarly to the overall scores for consumption and contribution, Apple achieved higher scores ($M = 2.30$; $SD = 1.58$) amongst Nokia and Samsung. These differences were statistically significant when comparing the overall scores of Apple with Nokia (z-score $= -2.86$; p-value < 0.05) and Apple with Samsung (z-score $= -2.13$; p-value < 0.05). No statistically significance differences were found when comparing the scores of Nokia with Samsung (p-value $= 0.16$). A comparison on the items' level between the brands Apple and Nokia indicated statistically significant differences for all the indicators. Similarly, statistic significant differences were also found between Apple and Samsung, with the exception of CREA6 (p-value $= 0.20$). Lastly, when comparing Nokia and Samsung, with the exclusion of CREA2 (z-score $= -1.74$; p-value < 0.05) all other items did not present statistically significant differences. The findings indicate that the consumers' engagement with the creation of social media brand-related content for the brands Nokia and Samsung is lower than for the brand Apple. Although the creation COBRA type is independent of the company's control, to remedy the low scores, brand executives from both Nokia and Samsung should give emphasis into building stronger emotional links between the brand and the consumers. Consumers engage into the creation of social media brand-related content as result of a combination of social, personal, and psychological factors [627]. Therefore, brand managers should benefit from the consumers' engagement with social media brand-related content by considering those elements when developing their communication strategy. The abovementioned results are summarized in Table 15.

In summary, when managing the presence of brands online and executing social media marketing strategies, managers can use the CESBC to audit and track the effectiveness of these programs. The parsimony of CESBC is intended to facilitate such practical applications. Because COBRA is a holistic framework, managers should administer its three dimensions simultaneously. By using CESBC holistically, greater insights can be gleaned into consumers' social media behavior toward brands.

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[626] *Ibidem*, pp. 83–91.
[627] D.G. Muntinga, M. Moorman, E.G. Smit, *Introducing COBRAs: Exploring motivations for brand-related social media use*, „International Journal of Advertising", 2011, 30, 1, p. 26.

However, the subscales could also be used individually when, for instance, researchers or practitioners wish to focus on a specific type of activity.

Drawing from the findings of the applicability of the CESBC across the three brands, Nokia and Samsung brand executives should closely monitor their social media channels. The analyses of the CESBC indicators within each dimension indicated the activities consumers are engaging with more or less intensity. This point is consistent with the view that the full integration of the three levels of CESBC into social media communication strategies to benefit brands [628, 629, 630].

Table 15. The applicability of the CESBC scale for selected brands in the high-tech industry

ITEM	APPLE Mean	SD	NOKIA Mean	SD	SAMSUNG Mean	SD	APPLE X NOKIA z	p	APPLE X SAMSUNG z	p	NOKIA X SAMSUNG z	p
						Consumption							
Overall	3.32	1.54	2.68	1.45	3.08	1.48	-2.25	**	-0.74	0.45	-2.10	**
CONS1	3.17	1.63	2.97	1.76	3.17	1.72	-0.75	0.45	-0.09	0.92	-0.82	0.41
CONS2	3.31	2.04	3.01	1.93	3.08	1.83	-0.74	0.45	-0.53	0.59	-0.45	0.64
CONS3	3.83	2.12	2.83	1.88	3.99	2.02	-2.56	**	-0.42	0.67	-4.20	***
CONS4	2.93	1.78	1.87	1.35	2.22	1.57	-3.53	***	-2.42	**	-1.72	**
CONS5	3.38	1.83	2.73	1.74	2.96	1.78	-1.96	**	-1.37	0.17	-0.92	0.35
						Contribution							
Overall	2.66	1.68	1.89	1.14	2.08	1.17	-2.80	**	-1.91	**	-1.74	**
CONTR1	2.14	1.84	1.53	0.93	1.82	1.39	-1.33	0.18	-0.73	0.46	-0.90	0.36
CONTR2	2.50	1.86	1.84	1.34	1.74	1.30	-1.97	**	-2.59	**	-0.58	0.55
CONTR3	2.38	1.87	1.72	1.34	1.71	1.23	-2.14	**	-2.09	**	-0.33	0.73
CONTR4	2.57	1.95	1.72	1.14	1.84	1.36	-2.50	**	-2.44	**	-0.22	0.82
CONTR5	3.29	2.23	2.18	1.65	2.65	1.74	-2.90	***	-1.53	*	-2.24	**
CONTR6	3.07	2.05	2.36	1.86	2.72	1.83	-2.24	**	-0.93	0.35	-1.98	**
						Creation							
Overall	2.30	1.58	1.44	0.79	1.66	1.06	-2.86	**	-2.13	**	-1.37	0.16
CREA1	2.26	1.83	1.44	0.96	1.66	1.21	-2.46	**	-1.70	**	-1.25	0.20
CREA2	2.43	1.96	1.39	0.98	1.73	1.41	-3.48	***	-2.30	**	-1.74	**
CREA3	2.36	1.79	1.48	0.98	1.66	1.16	-3.10	***	-2.36	**	-1.27	0.20
CREA4	2.24	1.69	1.48	1.06	1.68	1.22	-2.65	**	-1.81	**	-1.42	0.15
CREA5	2.48	1.87	1.46	0.87	1.62	1.17	-3.22	***	-2.87	***	-0.70	0.47
CREA6	2.02	1.70	1.40	0.90	1.58	1.16	-1.89	**	-1.27	0.20	-0.94	0.34

Source: Own elaboration. Notes: Scales range from 1 to 7; $n_{(Apple)}$ = 82, $n_{(Nokia)}$ = 90, $n_{(Samsung)}$ = 99; *** p-value < 0.001, ** p-value < 0.05, * p-value < 0.10.

The managerial applicability of the CBBE and CEBC scales allow executives to audit and track the performance of brands. The following and final section of this

[628] M. Bruhn, V. Schoenmueller, D.B Schäfer, *Are social media replacing traditional media in terms of brand equity creation?*, "Management Research Review", 2012, 35, 9, pp. 770–790.

[629] B. Schivinski, D. Dabrowski, *The effect of social media communication on consumer perceptions of brands*, "Journal of Marketing Communications", 2014, pp. 1–26.

[630] B. Schivinski, D. Dabrowski, *The impact of brand communication of brand equity through Facebook*, "Journal of Research in Interactive Marketing", 2015, pp. 31–53.

dissertation deals with the applicability of the conceptual model of CBBE effects on COBRA.

5.2. The conceptual model and its application for the online management of brands in the high-tech industry

To test for significant differences between the effects of CBBE on COBRA across the three brands under investigation (i.e., Apple, Nokia, and Samsung) it was applied the CRDIFF technique. The CRDIFF method is preferred over the traditional $\chi2$ difference test as per the χ^2 difference test yields differences of parameters of models without calculating the estimate sizes; and the CRDIFF method renders both the unstandardized and standardized estimates with two-tailed confidence intervals[631]. Additionally, for the managerial applicability of the conceptual model a pairwise parameter comparison is more appropriate than the test for the invariance of a causal structure.

The structural model used for the CRDIFF analysis is the same as that presented in Figure 5. However, only the statistically significant structural paths were consider for the pairwise investigation. The samples used during the multi-group analysis were the same as used in section 5.1. The tests were executed with AMOS 21.0 using ML estimation method and the Emulisrel6 option. The GOF values for the multi-group model were as follows: $\text{ML}\chi^2_{(1653)} = 3441.83$, CFI = 0.90, TLI = 0.90, and RMSEA = 0.06; 90% C.I. 0.06 0.06.

A summary of findings is presented in Table 16. Concerning the relationships among the CBBE dimensions, it was analyzed four structural paths. The test of BAW–BAS yielded stronger effects to Apple ($\beta = 0.61$) in comparison with Nokia ($\beta = 0.17$; z-value = -1.96; p-value < 0.05) and with Samsung ($\beta = 0.26$; z-value = -2.82; p-value < 0.001). No statistical differences were detected between Nokia and Samsung. The second path analyzed was BAW–PQ. The test of the structural path rendered slightly higher values for Apple ($\beta = 0.44$) than Samsung ($\beta = 0.36$), although the difference of beta sizes between the brands showed not to be statistically significant. No correlations between brand awareness and perceived quality were detected for the brand Nokia (p-value = 0.22). The third analyzed path

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[631] B.M. Byrne, *Structural equation modeling with AMOS: Basic concepts, applications, and programming* (2nd Ed.), Taylor & Francis Group, NY 2010, pp. 133-141.

was the relationship between brand associations and brand loyalty. The test of BAS–BL generated stronger effects to Apple ($\beta = 0.58$) compared to Nokia ($\beta = 0.26$; z-value $= 2.55$; p-value < 0.001). The comparisons of differences of effects sizes between Apple and Samsung and Nokia and Samsung were not statically significant. The final path analyzed was between perceived quality and brand loyalty (PQ–BL). The effects of PQ–BL was marginally stronger to Nokia ($\beta = 0.54$), than Samsung ($\beta = 0.51$) and Apple ($\beta = 0.44$). Those differences were not detected to be statistically significant. Drawing from these findings, from a managerial standpoint, brand executives should benefit from the knowledge about the size of effects among the dimensions of CBBE. This information should be combined with the scores for CBBE dimensions as previously discussed in the section 5.1 for achieving the desired outcomes. Of great importance here is to observe the broken links amid dimensions, for instance the lack of effects of brand awareness on perceived quality detected for the brand Nokia.

Considering the effects of brand associations on COBRA two structural paths were analyzed. The first path consisted on the effects of brand associations on the consumption of social media brand-related content. The structural path BAS–CONS was significant only to the brand Nokia ($\beta = 0.30$). No significant effects were detected to Apple (p-value $= 0.95$) or Samsung (p-value $= 0.33$). The second path investigated the effects of brand associations on the contribution of social media brand-related content. The analysis of BAS–CONTR was not statistically significant to any of the brands.

Although the effects of brand associations on the consumption and contribution of social media brand-related content were detected in the main study of this dissertation, those effects were not statistically significant when performing a multi-group analysis (exception of the path BAS–CONS for the brand Nokia). Hence, to address those broken links, brand managers should implement in their social media campaigns firm-created content designed to elicit interactions such as brand-consumer, consumer-consumer, and consumer-brand. Marketing and branding campaigns outside the social media realm should also assist in this matter [632].

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[632] M. Yadav, P. Pavlou, *Marketing in computer-mediated environments: Research synthesis and new directions*, "Journal of Marketing", 2014, 78, January, pp. 20–40.

Regarding the effects of brand loyalty on COBRA three structural paths were investigated. The effects of brand loyalty on the consumption of social media brand-related content, thus BL–CONS were statistically significant to both Apple (β = 0.45) and Samsung (β = 0.29). No significant differences of effect sizes were detected between the two brands. On the other hand, the path BL–CONS did not render significant effects to Nokia (p-value = 0.58). The second path investigated, BL–CONT showed to be statistically significant only for the brand Samsung (β = 0.46). No effects from brand loyalty on the consumers' contribution with social media brand-related content were found for Apple (p-value = 0.21) and for Nokia (p-value = 0.45). Finally, the test of the path BL–CREA demonstrated to be statistically significant for Apple (β = 0.25) and Samsung (β = 0.27). No effects were detected for the brand Nokia (p-value = 0.17). Similarly, there was also no statistically significance across the differences of effects amongst the brands.

Drawing from these findings brand managers can learn from the comportment of consumers on social media. Although brand loyalty is considered to be the core of brand equity and a strong behavioral driver, its outcomes should be constantly measured. Having a close look to the effects of brand loyalty on COBRA for the brands Nokia and Samsung it is visible a contrast of consumers' behavior. Confronting those effects with the levels of loyalty reported in Table 14 of section 5.1, the lack of effects may be resulting from other sources. Research should be carried out to try for the identification of the source(s) of the problems.

Table 16. Results of the brands comparison in the high-tech industry

PATH	APPLE			NOKIA			SAMSUNG			AxN	AxS	NxS
	nsβ	β	p	nsβ	β	p	nsβ	β	p	z	z	z
BAW–BAS	1.26	0.61	***	0.42	0.17	*	0.29	0.26	***	-1.96**	-2.82***	-0.45
BAW–PQ	0.86	0.44	***	0.27	0.14	0.22	0.52	0.36	***	-1.48	-0.97	0.87
BAS–BL	0.74	0.58	***	0.27	0.26	***	0.49	0.30	***	2.55***	-1.20	1.36
PQ–BL	0.58	0.44	***	0.70	0.54	***	0.64	0.51	***	0.51	0.27	-0.31
BAS–CONS	-0.01	-0.01	0.95	0.35	0.30	***	0.15	0.09	0.33	1.48	0.63	-0.99
BAS–CONT	0.15	0.13	0.55	0.08	0.08	0.17	-0.02	-0.01	0.86	-0.23	-0.60	-0.76
BL–CONS	0.32	0.45	**	0.07	0.06	0.58	0.29	0.29	***	-1.20	-0.16	1.39
BL–CONT	0.25	0.28	0.21	0.04	0.08	0.45	0.39	0.46	***	-0.96	0.64	3.34
BL–CREA	0.25	0.25	*	0.07	0.15	0.17	0.16	0.27	***	-1.04	-0.50	1.14

Source: Own elaboration. Notes: BAW = brand awareness, BAS = brand associations, PQ = perceived quality, BL = brand loyalty, CONS = consumption, CONT = contribution, CREA = creation; nsβ = unstandardized beta; β = standardized beta; $n_{(Apple)}$ = 82, $n_{(Nokia)}$ = 90, $n_{(Samsung)}$ = 99; A = Apple, N = Nokia, S = Samsung; *** p-value < 0.001, ** p-value < 0.05, * p-value < 0.10; $\chi^2_{(1653)}$ = 3441.83, CFI = 0.90, TLI = 0.90, RMSEA = 0.06; 90% C.I. 0.06 0.06; Estimator = ML.

In summary the presented multi-group analyses across three competing brands in the high-tech industry are a demonstration of how managers and brand executives can benefit from the instruments reported in this dissertation. Although the instruments were dividedly calibrated and tested, the results obtained should be used and interpreted with caution. For robustness of the findings further tests with different samples and larger sample sizes are recommended.

SUMMARY AND CONCLUSION

A new set of challenges for brands have emerged from the advances in social media. Consumers interact with brands on their daily basis when using different types of social media channels. For instance, a consumer, when having his or her morning coffee watches a home video on YouTube about an individual personalizing the cover of a MacBook. This consumer not only "Likes" the video on the YouTube channel, but also decides to share the content on Facebook with peers. When sharing the video, the consumer adds the following comment "I was having my favorite coffee at Starbucks when came across this video. Wouldn't be great to have such a Mac?" The shared video was reposted several times and had hundreds of "Likes" and people commenting on it. This fictitious example of consumers' engagement with social media brand-related content demonstrates how simple actions are converted into brand communication. Such actions have drawn the attention of brand executives and scholars. Although researchers have been investigating the topics related to brand communication on social media, still there is a vast field of research to be undertaken.

In this dissertation, the topic of social media brand-related communication was approached from the perspective of consumers' perceptions of brand equity. Specifically, it was investigated the impact of brand equity on the consumer's engagement with social media brand-related content in the context of the high-tech industry. To the best of the author's knowledge, thus far, no study has reported the effects of brand equity on consumer's online brand-related activities. The study presented in this dissertation is an attempt to fulfill the literature and knowledge gaps regarding to the abovementioned relationship and beyond.

Concerning to the research question previously formulated (RQ) - *Does consumer-based brand equity influence the consumer's engagement with social media brand-related content?* To answer to the RQ a research objective (RO) was set, therefore - *to identify the effects of consumer-based brand equity on consumer's engagement with social media brand-related content.*

To achieve the RO, a conceptual model to identify the effects of CBBE on COBRA was developed. The conceptual model was based on two theoretical frameworks i.e., the consumer-based brand equity framework (CBBE) introduced by

D.A. Aaker [633] and the consumer's online brand-related activities framework (COBRA) extended by D.G. Muntinga and colleagues [634]. Prior to the development of the conceptual model, two specific research objectives (SO1 and SO2) concerning limitations to the measurement of CBBE and COBRA emerged. SO1 posited *to refine and validate a scale to measure consumer-based brand equity*, whereas SO2 addressed the need *to develop and validate a scale to measure consumer's online brand-related engagement*. Those limitations were addressed in this dissertation. The measurement instrument to CBBE consisted of a four-dimension construct underlying brand awareness, brand associations, perceived quality, and brand loyalty. In turn, the measurement instrument to COBRA - the CESBC scale, consisted of three dimensions reflecting the consumption, contribution, and creation of social media brand-related content. Therefore, the achievement of both specific research objectives allowed the estimation of the conceptual model to identify the effects of CBBE on COBRA.

For the estimation of the conceptual model, there were employed two perspectives analyses approaches. First, the conceptual model was estimated from a micro-relationship perspective to investigate the relationships of CBBE and COBRA dimensions. For the brand equity part of the model, it was postulated a hierarchical structure amongst the CBBE dimensions. Therefore the following hypotheses were tested:

H1. Brand awareness positively influences brand associations.

H2. Brand awareness positively influences perceived quality.

H3. Brand associations positively influence brand loyalty.

H4. Perceived quality positively influences brand loyalty.

The outcomes of the conceptual model confirmed the four hypotheses within the high-tech industry context. Brand awareness positively impacted both brand associations and perceived quality. Consequently, brand associations and perceived quality positively influenced brand loyalty. Hence, the confirmation of the hypotheses reveals that the framework describes the evolution of CBBE as a consumer learning process leading to behavior.

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[633] D.A. Aaker, *Managing brand equity: Capitalizing on the value of a brand name*, The Free Press, New York, NY 1991, pp. 1-33.

[634] D.G. Muntinga, M. Moorman, E.G. Smit, *Introducing COBRAs: Exploring motivations for brand-related social media use*, „International Journal of Advertising", 2011, 30, 1, pp. 13–46.

On the other hand, for the investigation of the effects of CBBE on the consumer's online brand-related activities, the following hypothesis were tested:

H5. Brand associations positively influence consumption (H5a), contribution (H5b), and creation (H5c) of social media brand-related content.

H6. Brand loyalty positively influences consumption (H6a), contribution (H6b), and creation (H6c) of social media brand-related content.

H7. Perceived quality positively influences consumption (H7a), contribution (H7b), and creation (H7c) of social media brand-related content.

The test of the hypotheses partially supported *H5*. The results demonstrated that brand associations positively influence the consumption *(H5a)* and contribution *(H5b)* of brand-related social media content. No statistically significant effects were detected for *H5c*, thus leading to its rejection. The test of *H6* determined that brand loyalty positively influenced the consumption *(H6a)*, contribution *(H6b)*, and creation *(H6c)* of social media brand-related content. Finally, the test for *H7* indicated a negative relationship between perceived quality and the consumption *(H7a)* and contribution *(H7b)* of social media brand-related content. No effects were detected for the relationship between perceived quality and the creation of social media brand-related content *(H7c)*. Consequently *H7* was rejected.

To give insights from a macro-relationship perspective, the conceptual model was estimated using higher-order factors of CBBE and COBRA in a post-hoc analysis. The results of the post-hoc analysis with higher-order structures rendered a positive influence of consumer-based brand equity on consumer's online brand-related activities. Moreover, together the micro- and macro-relationship perspectives of the phenomenon support the thesis statement (TS), thus *consumer-based brand equity positively influences the consumer's engagement with social media brand-related content.*

Regarding the applicability of the instruments developed and tested in this dissertation as tools to assist in the management of high-tech brands. The application of the CBBE and CESBC scales for the brands Apple, Nokia, and Samsung demonstrated that instruments could assist brand managers to audit and track the performance of brands. Furthermore, the results from the application of conceptual model revealed that the instrument provides detailed insights about consumer's perceptions and behavior. Similarly to the CBBE and CESBC scales, the conceptual model can also be regularly used to track the effectiveness of social media brand-

related campaigns based on consumers' perceptions of brand equity.

Apart from the practical applicability of the findings and instruments introduced in this dissertation, there are several contributions to the literature related to brand management that should be addressed. The CBBE and CESBC scales are of great importance to the building literature in the subjects of brand and brand management. While there are several rival measurements to brand equity, the presented CBBE scale showed to be a parsimonious and easy to administrate paper and pencil instrument based on D.A. Aaker's framework. Similarly, the CESBC scale pioneers in the measurement of the COBRA construct. This is the first scale that integrates the three levels of consumer's engagement with social media brand-related content and should assist in the further theoretical development of COBRA. Furthermore, those scales ought aid scholars focusing on the investigation of antecedents and consequences of CBBE and COBRA.

Nevertheless, the conceptual model of CBBE effects on COBRA contributes to the building novel that aims to understand the behavior of consumers regarding to brands on social media; a topic of relevance in the times of Web 2.0. Future research and development of the conceptual model could explore the influence of different consumer's perception of brands on COBRA. Variables such as brand image, brand attitude, and brand love would cover distinctive aspects of the consumer's mindset and therefore should help into discovering unknown motivations to COBRA. Analogously, behavioral variables could be implemented in the conceptual model as consequences of COBRA. Those in turn would shed light on a plethora of new outcomes that thus far are unexplored.

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APPENDIX A

Table A1. Pool of items generated from the definitions of CBBE dimensions

DIMENSION	ITEMS
Brand awareness	I easily recognize Brand X among other brands I have a good opinion about company X I know Brand X I know the products of company X I know there is a Brand X I recognize Brand X I recognize the logo of Brand X If someone asks me about PC, company X easily comes to mind When I need PC, Brand X comes to mind
Brand associations	I am able to name a few characteristics of Brand X I associate good feelings with Brand X I feel sympathy for Brand X I have good associations with Brand X I have good memories linked to Brand X I have good memories of Brand X I like Brand X I think that Brand X has a strong image I think that Brand X has character Somehow I feel personal affection for Brand X The memories I have of Brand X influence purchasing decisions
Perceived quality	Although other brands' products are good, I still think that Brand X has better products Brand X has better products than its competitors Brand X offers products of very good quality Brand X offers reliable products Brand X products are of better quality than the generic alternatives Brand X products are worth the money I think that Brand X has good-quality products I think that Brand X products are of good quality In general, I believe that Brand X products are superior in quality compared to the alternatives The products offered by Brand X are worth the price
Brand loyalty	As a personal choice, I will continue to consume Brand X I am attached to Brand X I am committed to Brand X I am faithful to Brand X I am loyal to Brand X I consider myself a fan of Brand X I think I am loyal to Brand X I will continue to buy products from Brand X If I need to buy PC, I usually buy Brand X If similar products cost the same, I choose Brand X If someone offers me a competitive brand, I still buy products from Brand X If someone offers me a competitor's brand, I still buy Brand X In the future, I will definitely buy products from Brand X

Source: Own elaboration.

Table A2. Profile of survey respondents used to calibrate and validate CBBE scale

CATEGORY	PERCENTAGE
Gender	
Male	46.4
Female	54.6
Age	
18 – 21	9.1
22 – 25	13.6
26 – 29	17.9
30 – 33	15.1
34 – 37	25.2
38 – 45	13.4
46 – 50	4.5
51 – 59	1.0
60 and older	0.2
Level of education	
Primary school	1.9
Vocational school	1.5
Secondary school	32.1
Post-secondary school	16.1
Some college education	29.3
Higher-education	18.5
Other	0.6
Monthly household income	
1200zł to 2500zł (~360 USD to ~760 USD)	37.6
2500zł to 4600zł (~760 USD to ~1360 USD)	54.6
Above 4600zł (Above ~1460 USD)	7.8

Source: Own elaboration. Note: n = 1364.

Table A3. Factor loadings and explained variance on each item for the final four-factor 19-item CBBE scale

ITEM	Group 1		Group 2		Full dataset		Skewness	Kurtosis
	$(\lambda_x)^b$	R^2	$(\lambda_x)^b$	R^2	$(\lambda_x)^b$	R^2		
Brand awareness								
BAW1 I know Brand X	0.88	0.77	0.91	0.83	0.90	0.80	-3.22	11.45
BAW2 I know at least one Brand X product	0.89	0.79	0.92	0.84	0.90	0.81	-3.44	12.21
BAW3 I easily recognize Brand X among other brands	0.90	0.81	0.90	0.80	0.90	0.81	-2.94	9.43
BAW4 I recognize the logo of Brand X	0.93	0.86	0.84	0.71	0.88	0.77	-2.96	9.18
BAW5 I know there is a Brand X	0.89	0.79	0.90	0.80	0.89	0.79	-4.34	19.30
Brand associations								
BAS1 I like Brand X	0.90	0.80	0.89	0.79	0.89	0.80	-1.05	0.99
BAS2 I have good memories of Brand X	0.87	0.76	0.88	0.76	0.88	0.76	-0.77	0.18
BAS3 Brand X has a good image	0.72	0.51	0.70	0.49	0.71	0.50	-1.15	2.17
BAS4 I feel sympathy for Brand X	0.89	0.78	0.89	0.79	0.89	0.79	-0.71	0.12
BAS5 My memories associated with Brand X positively influences my purchase decisions	0.88	0.79	0.87	0.75	0.87	0.76	-0.57	-0.24
Perceived quality								
PQ1 Brand X products are of better quality than the generic alternative	0.79	0.63	0.73	0.53	0.76	0.58	-0.59	-0.13
PQ2 Although other brands products are good, I still think that Brand X is better	0.82	0.67	0.85	0.73	0.84	0.70	-0.20	-0.65
PQ3 Brand X products are of good quality	0.82	0.66	0.76	0.57	0.79	0.62	-1.24	2.28
PQ4 Brand X offers reliable products	0.81	0.65	0.84	0.70	0.82	0.67	-0.49	0.09
Brand loyalty								
BL1 I am faithful to Brand X	0.93	0.85	0.92	0.84	0.92	0.85	0.26	-0.73
BL2 I think I am loyal to Brand X	0.92	0.84	0.89	0.79	0.91	0.81	0.18	-0.78
BL3 I consider myself a fan of Brand X	0.85	0.72	0.84	0.70	0.85	0.71	0.33	-0.76
BL4 I am attached to Brand X	0.90	0.81	0.90	0.80	0.90	0.80	0.17	-0.87
BL5 If someone offers me a competitive brand, I still buy Brand X products	0.85	0.71	0.87	0.76	0.86	0.74	0.16	-0.80

Source: Own elaboration. Notes: Group 1 $\chi^2_{(146)}$ 652.36, CFI = 0.96, TLI = 0.95, RMSEA = 0.06; Group 2 $\chi^2_{(146)}$ 613.11, CFI = 0.96, TLI = 0.95, RMSEA = 0.06; 90% 0.06 0.07; Full dataset $\chi^2_{(146)}$ 1036.17, CFI = 0.96, TLI = 0.96, RMSEA = 0.06; 90% 0.06 0.07; p < 0.001; Estimator = ML; Notes: $n_{(Group 1)}$ = 682; $n_{(Group 2)}$ = 682; $n_{(full dataset)}$ = 1364; Skewness and kurtosis calculated from the full dataset.

153

Table A4. Activities pertinent to each COBRA dimension

COBRA TYPE

Consumption
To download brand-related widgets/applications [d, e]
To follow a brand on social network sites [a, b, c, d]
To follow brand-related blogs [c, d, e]
To listen to brand-related audio [e, *]
To play brand-related games [d, e]
To read brand-related emails [c, ***]
To read brand-related fanpage(s) on social network sites [a, b, c, d]
To read brand-related posts on social media [a, b, c]
To read brand-related reviews [a, b, c, d, e, ***]
To read other people's comments about a brand on social media [a, b, c, d, e, ***]
To send brand-related virtual card [e, *]
To watch brand-related ads (*e.g.*, banners, YouTube ads) [d, ***]
To watch brand-related pictures/graphics [a, b, c, d, e]
To watch brand-related videos [b, c, e, ***]

Contribution
To add brand-related videos to favorites [c, d, ***]
To click on brand-related ads [d, ***]
To comment on brand-related pictures/graphics [a, b, c, d, e]
To comment on brand-related posts [c, d, e]
To comment on brand-related videos [a, b, c, d, e]
To engage in brand-related conversations [e, *]
To forward brand-related emails to my friends/family [c, **]
To join a brand-related profile on SNS [e, *]
To "Like" brand-related fanpages [a, b, c, d, ***]
To "Like" brand-related pictures/graphics [a, b, c, d]
To "Like" brand-related posts [b, c, d]
To "Like" brand-related videos [a, b, c, d, ***]
To participate in online contests/drawings sponsored by a brand [d, **]
To rate brand-related products [e, *]
To share brand-related pictures/graphics [a, b, c, d, ***]
To share brand-related post [a, b, c, d]
To share brand-related videos [a, b, c, d, **]
To take part in brand-related online events [b, d, **]

Creation
To create brand-related audio [e, *]
To create brand-related hashtags „#" on social network sites [c, ***]
To create brand-related posts [e, *]
To initiate brand-related posts on blogs [a, b, c, d, e]
To initiate brand-related posts on social network sites [a, b, c, d]
To post brand-related pictures/graphics [a, b, c, e]
To post brand-related videos [b, c, d, e]
To post pictures exposing self and a brand [b, c, d, ***]
To write brand-related posts on forums [c, d]
To write brand-related reviews [c, d, e]

Source: Own elaboration. Notes: [a] = activity detected during Study 1 (bulletin board – consumption); [b] = activity detected during Study 1 (bulletin board – creation); [c] = activity detected during Study 2 (online depth interviews); [d] = activity detected during Study 3 (netnography); [e] = indicates activity previously reported in literature; * = indicates item not identified during the qualitative procedures; ** = indicates item removed from the analysis during the EFA; *** = indicates item removed from the analysis during the CFA.

Table A5. Profile of survey respondents used to calibrate and validate CESBC

CATEGORY	Study 4: Calibration sample	Study 4: Validation sample	Study 4: Full dataset
Gender			
Male	38.8	41.9	40.4
Female	61.2	58.1	59.6
Age			
18 – 21	32.0	3.8	4.2
22 – 25	53.6	27.8	28.2
26 – 29	5.8	53.6	53.6
30 – 33	2.8	8.2	7.0
34 – 37	1.0	2.6	2.7
38 – 45	2.0	1.0	1.0
46 – 50	0.4	1.4	1.7
51 – 59	0.9	0.5	0.4
60 and older	0.4	0.9	0.9
Level of education			
Primary school	5.8	3.6	4.7
Vocational school	1.4	1.0	1.2
Secondary school	26.3	26.3	26.3
Post-secondary school	11.3	10.7	11.0
Some college education	24.3	25.4	24.9
Higher-education	30.5	32.7	31.6
Other	0.4	0.4	0.4
Daily Internet usage			
Up to 1 hour	14.5	11.7	13.1
1 – 2 hours	49.7	51.2	50.5
3 – 4 hours	30.0	29.0	29.5
5 – 6 hours	5.0	6.8	5.9
Above 6 hours	0.8	1.2	1.0

Source: Own elaboration. Notes: $n_{(calibration)} = 1126$; $n_{(validation)} = 1126$; $n_{(full\ dataset)} = 2252$.

Table A6. Factor loadings and explained variance on each item for the final three-factor 17-item CESBC scale

ITEM	Calibration sample		Validation sample		Full dataset		Skewness	Kurtosis
	(λ_x)[b]	R^2	(λ_x)[b]	R^2	(λ_x)[b]	R^2		
Consumption								
Cons1 I read posts related to Brand X on social media	0.82	0.68	0.82	0.67	0.82	0.68	-0.08	-1.08
Cons2 I read fanpage(s) related to Brand X on social network sites	0.83	0.68	0.84	0.71	0.84	0.69	-0.07	-1.22
Cons3 I watch pictures/graphics related to Brand X	0.64	0.41	0.65	0.43	0.65	0.43	-0.32	-0.82
Cons4 I follow blogs related to Brand X	0.62	0.39	0.63	0.39	0.63	0.40	0.70	-0.71
Cons5 I follow Brand X on social network sites	0.87	0.76	0.86	0.74	0.86	0.74	0.02	-1.17
Contribution								
Contr1 I comment videos related to Brand X	0.85	0.72	0.84	0.71	0.84	0.71	1.19	0.39
Contr2 I comment posts related to Brand X	0.87	0.75	0.89	0.80	0.89	0.77	1.04	0.05
Contr3 I comment on pictures/graphics related to Brand X	0.86	0.75	0.86	0.74	0.86	0.74	1.20	0.38
Contr4 I share Brand X related posts	0.89	0.79	0.88	0.78	0.88	0.78	1.00	-0.08
Contr5 I "Like" pictures/graphics related to Brand X	0.62	0.38	0.63	0.39	0.63	0.39	0.25	-1.13
Contr6 I "Like" posts related to Brand X	0.67	0.44	0.66	0.44	0.66	0.44	0.35	-1.05
Creation								
Creat1 I initiate posts related to Brand X on blogs	0.88	0.78	0.90	0.78	0.90	0.79	1.57	1.52
Creat2 I initiate posts related to Brand X on social network sites	0.86	0.75	0.90	0.75	0.90	0.78	1.37	0.82
Creat3 I post pictures/graphics related to Brand X	0.87	0.76	0.81	0.76	0.81	0.71	1.35	0.78
Creat4 I post videos that show Brand X	0.83	0.69	0.85	0.69	0.85	0.71	1.40	1.03
Creat5 I write posts related to Brand X on forums	0.80	0.64	0.80	0.64	0.80	0.64	1.42	1.07
Creat6 I write reviews related to Brand X	0.75	0.56	0.68	0.56	0.68	0.51	1.51	1.31

Source: Own elaboration. Notes: Calibration sample $\chi^2_{(115)}$ 564.31, CFI = 0.95, TLI = 0.95, RMSEA = 0.05; 90% 0.05 0.06; Validation sample $\chi^2_{(115)}$ 557.47, CFI = 0.95, TLI = 0.94, RMSEA = 0.05; 90% 0.05 0.06; Full dataset $\chi^2_{(115)}$ 719.47, CFI = 0.93, TLI = 0.92, RMSEA = 0.05; 90% 0.04 0.05; Study 5 $\chi^2_{(313)}$ = 651.71, CFI = 0.95, TLI = 0.95, RMSEA = 0.05; 90% C.I. 0.04 0.05; $p < 0.001$; Estimator = MLM; Notes: $n_{(calibration)}$ = 1126; $n_{(validation)}$ = 1126; $n_{(full dataset)}$ = 2252; Skewness and kurtosis calculated from the full dataset.

156

Table A7. Profile of survey respondents used to estimate the conceptual model

CATEGORY	PERCENTAGE
Gender	
Male	40.3
Female	59.7
Age	
18 – 21	40.1
22 – 25	47.6
26 – 29	1.9
30 – 33	3.1
34 – 37	1.4
38 – 45	2.4
46 – 50	0.5
51 – 59	1.0
60 and older	0.2
Level of education	
Primary school	1.7
Vocational school	0.5
Secondary school	33.3
Post-secondary school	14.5
Some college education	29.0
Higher-education	20.5
Other	0.5
Daily Internet usage	
Up to 1 hour	12.6
1 – 2 hours	45.4
3 – 4 hours	33.8
5 – 6 hours	5.8
Above 6 hours	2.4

Source: Own elaboration. Note: n = 414.

Table A8. Seven-Factor solution for the conceptual model of CBBE effects on COBRA

	FACTOR						
n = 414	CONS	CONTR	CREA	BAW	BAS	PQ	BL
CONS1	0.86						
CONS2	0.88						
CONS3	0.65						
CONS4	0.43						
CONS5	0.95						
CONTR1		0.70					
CONTR2		0.74					
CONTR3		0.71					
CONTR4		0.76					
CONTR5*	0.42						
CONTR6*	0.49						
CREA1			0.70				
CREA2			0.81				
CREA3			0.96				
CREA4			0.87				
CREA5			0.79				
CREA6			0.76				
BAW1				0.68			
BAW2				0.71			
BAW3				0.87			
BAW4				0.78			
BAS1					0.78		
BAS2					0.96		
BAS3					0.70		
BAS4					0.85		
BAS5					0.90		
PQ1						0.75	
PQ2						0.52	
PQ3						0.56	
PQ4						0.63	
BL1							0.98
BL2							0.91
BL3							0.60
BL4							0.82
BL5							0.79

Source: Own elaboration. Notes: Extraction method = ML; Rotation method = Promax with Kaiser normalization; Rotation converged in 8 iterations; CONS = consumption; CONTR = contribution; CREAT = creation; BL = brand loyalty; BAW = brand awareness; BAS = brand associations; PQ = perceived quality; * detected cross-loadings across factors.

Table A9. Total variance explained according to CBBE and CESBC factors

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	11.39	32.55	32.55	11.01	31.45	31.45	7.56
2	6.39	18.26	50.82	6.10	17.45	48.91	7.68
3	2.58	7.37	58.19	2.05	5.88	54.79	7.34
4	1.90	5.43	63.63	1.65	4.73	59.52	7.33
5	1.65	4.73	68.36	1.51	4.32	63.84	3.37
6	1.09	3.13	71.49	0.77	2.22	66.07	7.03
7	0.91	2.60	74.09	0.64	1.83	**67.90**	5.76

Source: Own elaboration. Notes: extraction method = Maximum likelihood; a. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Table A10. Factor correlation matrix for CBBE and COBRA

FACTOR	CREA	BAS	BL	CONS	BAW	CONTR	PQ
Creation	*1.00*	0.11	0.27	0.50	-0.23	0.64	0.14
Brand associations	0.11	*1.00*	0.56	0.35	0.31	0.25	0.64
Brand loyalty	0.27	0.56	*1.00*	0.38	0.11	0.30	0.57
Consumption	0.50	0.35	0.38	*1.00*	0.05	0.59	0.25
Brand awareness	-0.23	0.31	0.11	0.05	*1.00*	-0.01	0.25
Contribution	0.64	0.25	0.30	0.59	-0.01	*1.00*	0.20
Perceived quality	0.14	0.64	0.57	0.25	0.25	0.20	*1.00*

Source: Own elaboration. Notes: Extraction method = ML; Rotation method = Promax with Kaiser normalization; Rotation converged in 8 iterations; CONS = consumption; CONTR = contribution; CREAT = creation; BL = brand loyalty; BAW = brand awareness; BAS = brand associations; PQ = perceived quality.

Table A11. List of constructs and measurements used to estimate the conceptual model

CONSTRUCTS AND MEASUREMENTS	$(\lambda_x)^b$	R^2	t-value	Mean	SD	Skewness	Kurtosis
Brand awareness							
BAW1: I know Brand X*	0.69	0.48	13.50	6.33	1.26	-2.18	4.62
BAW2: I know at least one Brand X product	0.73	0.53	16.74	6.59	1.13	-3.02	8.77
BAW3: I easily recognize Brand X among other brands	0.83	0.69	25.19	6.57	1.01	-2.79	8.19
BAW4: I recognize the logo of Brand X	0.79	0.63	18.23	6.72	0.88	-3.49	12.49
Brand associations							
BAS1: I like Brand X*	0.87	0.76	66.71	5.83	1.30	-1.19	1.00
BAS2: I have good memories of Brand X	0.87	0.76	65.17	5.62	1.48	-1.02	0.38
BAS3: Brand X has a good image	0.76	0.58	29.13	5.78	1.27	-1.09	0.93
BAS4: I feel sympathy for Brand X	0.87	0.76	58.91	5.46	1.58	-0.98	0.25
BAS5: My memories associated with Brand X positively influence my purchasing decisions	0.87	0.71	56.96	5.48	1.53	-0.97	0.30
Perceived quality							
PQ1: Brand X products are of better quality than the generic alternative*	0.80	0.64	37.84	5.46	1.52	-0.90	0.14
PQ2: Although other brands' products are good, I still think that Brand X is better	0.80	0.64	37.19	5.03	1.70	-0.73	-0.14
PQ3: Brand X products are of good quality	0.83	0.69	40.95	5.72	1.30	-0.94	0.23
PQ4: Brand X offers reliable products	0.78	0.61	35.87	4.84	1.56	-0.50	-0.26
Brand loyalty							
BL1: I am faithful to Brand X*	0.91	0.82	64.57	4.59	1.94	-0.44	-0.90
BL2: I think I am loyal to Brand X	0.88	0.78	67.00	4.63	1.84	-0.47	-0.72
BL3: I consider myself a fan of Brand X	0.76	0.58	38.55	3.82	2.00	0.09	-1.14
BL4: I am attached to Brand X	0.84	0.71	39.33	4.86	1.87	-0.65	-0.58
BL5: If someone offers me a competitive brand, I still buy Brand X products	0.82	0.68	38.61	4.41	1.84	-0.23	-0.90
Consumption							
CONS1: I read posts related to Brand X on social media*	0.81	0.66	46.01	3.43	1.93	0.25	-1.10
CONS2: I read fanpage(s) related to Brand X on social network sites	0.82	0.67	39.06	3.36	2.02	0.36	-1.18
CONS3: I watch pictures/graphics related to Brand X	0.67	0.45	24.30	3.71	2.03	0.04	-1.29
CONS4: I follow blogs related to Brand X	0.57	0.32	16.67	2.28	1.61	1.24	0.63
CONS5: I follow Brand X on social network sites	0.88	0.78	61.98	3.21	1.91	0.43	-0.97
Contribution							
CONTR1: I comment videos related to Brand X*	0.79	0.62	25.92	1.83	1.40	1.97	3.57
CONTR2: I comment posts related to Brand X	0.85	0.73	46.31	1.99	1.49	1.59	1.83
CONTR3: I comment on pictures/graphics related to Brand X	0.85	0.72	38.32	1.88	1.46	1.79	2.44
CONTR4: I share Brand X related posts	0.82	0.68	31.35	2.01	1.49	1.57	1.76
CONTR5: I "Like" pictures/graphics related to Brand X	0.65	0.42	22.24	2.77	1.89	0.78	-0.56
CONTR6: I "Like" posts related to Brand X	0.66	0.44	28.58	2.80	1.94	0.77	-0.66
Creation							
CREA1: I initiate posts related to Brand X on blogs*	0.76	0.58	24.90	1.70	1.30	2.05	3.62
CREA2: I initiate posts related to Brand X on social network sites	0.83	0.70	29.16	1.74	1.43	2.13	3.83
CREA3: I post pictures/graphics related to Brand X	0.88	0.79	50.41	1.79	1.34	2.05	4.02
CREA4: I post videos that show Brand X	0.82	0.67	24.54	1.77	1.32	1.89	3.17
CREA5: I write posts related to Brand X on forums	0.85	0.72	40.11	1.81	1.37	1.91	3.21
CREA6: I write reviews related to Brand X	0.71	0.51	20.05	1.67	1.33	2.15	4.03

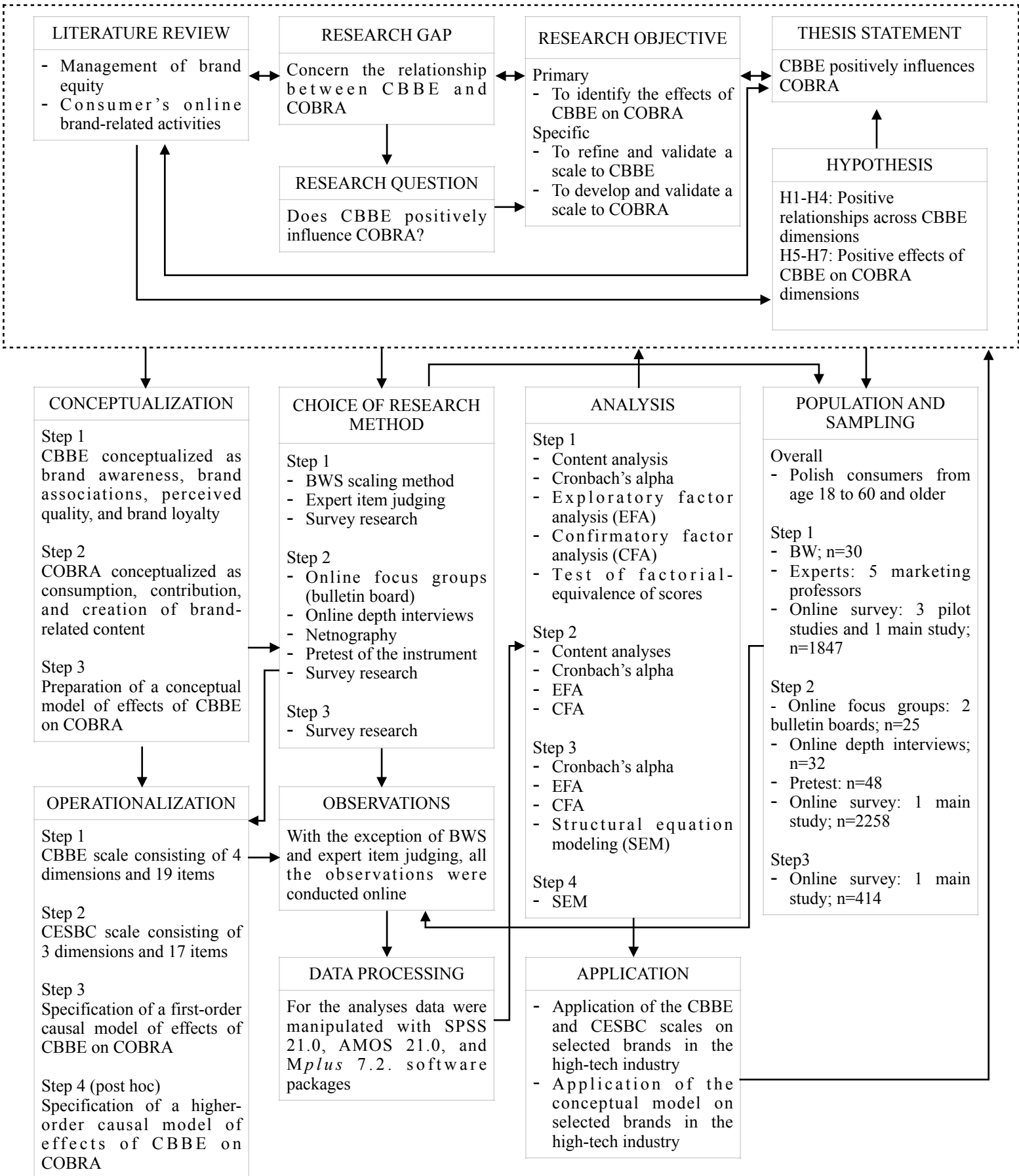Source: Own elaboration. Note: * path constrained to 1 for model identification.

APPENDIX B

Table B1. Sample of the online depth interviews

WRITTEN RESPONSE	IDENTIFIED KEY	COBRA TYPE
"…Facebook I use mainly for academic reasons, to talk to friends, to spend free time… and sometimes there are a few [fan] pages to click… for example ideas for tattoo, some products that are worth checking, some brands that I like and often buy" (Male, 22)	Follow fanpages Check products Check brands fanpages	Consumption
"…it depends on what we are talking about. For example, I follow several blogs about fashion and clothing. (Male, 27)	I follow blogs Fashion and clothing	Consumption
"…I normally follow brands on Facebook and Twitter… blogs too… I think that is a great way to find something new. I need to see what is new and what is available in the market. If something I like, I usually buy it" (Male, 20)	Follow brands on social network sites	Consumption
"…of course I read emails from the brands I like… do you know how many great deals [promotions] I got from that!!!" (Female, 24)	Read brand-related emails	Consumption
"…I share pictures and videos sometimes [talking about automobile brands] on Facebook, but I don't like doing it very often. People get annoyed with that! (Male, 32)	Share brand-related pictures and videos	Contribution
"…sometimes I share something… (not games or anything like it… just something I saw on Allegro or clothing brands… fashion…) but it is not really that often" (Female, 22)	I share Clothing brands	Contribution
"…of course it influences people [talking about firm-created social media communication]. I think that more and more people are aware of new brands thanks to sharing and re-sharing" (Male, 25)	Brand awareness Sharing	Contribution
"…I usually share posts of fashion brands that I get [talking about receiving firm-created social media communication] to my girlfriends. It is fun to talk about clothing and find what we have in common…" (Female, 21)	Share brand-related posts	Contribution
"…I use hashtags for that [talking about UGC]. I think that sometimes a hashtag draw more attention than posting a picture or something…" (Male, 29)	Create brand-related hashtags „#"	Creation
"…hmmmm… thing about that [UGC creation] I like posting selfies [self-taken picture] showing a brand that I like :P… like Starbucks for example… I must have about 1000 of those pictures already lol!" (Male, 34)	Post pictures exposing self and a brand	Creation
"…I have two blogs about computers and technology. I post at least something a week, or every two weeks. It depends on what is new out there.. reviews are really popular with my followers [talking about brands and products]" (Male, 27)	Write brand-related posts and reviews	Creation
"…I have a fashion vlog [video blog] on YouTube. Great part of my videos are about models and celebrities… and of course… the brands that are in the top now :)" (Female, 19)	Post brand-related videos	Creation

Source: Own elaboration.

Figure B1. Dissertation research process

LITERATURE REVIEW	RESEARCH GAP	RESEARCH OBJECTIVE	THESIS STATEMENT
- Management of brand equity - Consumer's online brand-related activities	Concern the relationship between CBBE and COBRA	Primary - To identify the effects of CBBE on COBRA Specific - To refine and validate a scale to CBBE - To develop and validate a scale to COBRA	CBBE positively influences COBRA

RESEARCH QUESTION

Does CBBE positively influence COBRA?

HYPOTHESIS

H1-H4: Positive relationships across CBBE dimensions
H5-H7: Positive effects of CBBE on COBRA dimensions

CONCEPTUALIZATION

Step 1
CBBE conceptualized as brand awareness, brand associations, perceived quality, and brand loyalty

Step 2
COBRA conceptualized as consumption, contribution, and creation of brand-related content

Step 3
Preparation of a conceptual model of effects of CBBE on COBRA

CHOICE OF RESEARCH METHOD

Step 1
- BWS scaling method
- Expert item judging
- Survey research

Step 2
- Online focus groups (bulletin board)
- Online depth interviews
- Netnography
- Pretest of the instrument
- Survey research

Step 3
- Survey research

ANALYSIS

Step 1
- Content analysis
- Cronbach's alpha
- Exploratory factor analysis (EFA)
- Confirmatory factor analysis (CFA)
- Test of factorial-equivalence of scores

Step 2
- Content analyses
- Cronbach's alpha
- EFA
- CFA

Step 3
- Cronbach's alpha
- EFA
- CFA
- Structural equation modeling (SEM)

Step 4
- SEM

POPULATION AND SAMPLING

Overall
- Polish consumers from age 18 to 60 and older

Step 1
- BW; n=30
- Experts: 5 marketing professors
- Online survey: 3 pilot studies and 1 main study; n=1847

Step 2
- Online focus groups: 2 bulletin boards; n=25
- Online depth interviews; n=32
- Pretest: n=48
- Online survey: 1 main study; n=2258

Step3
- Online survey: 1 main study; n=414

OPERATIONALIZATION

Step 1
CBBE scale consisting of 4 dimensions and 19 items

Step 2
CESBC scale consisting of 3 dimensions and 17 items

Step 3
Specification of a first-order causal model of effects of CBBE on COBRA

Step 4 (post hoc)
Specification of a higher-order causal model of effects of CBBE on COBRA

OBSERVATIONS

With the exception of BWS and expert item judging, all the observations were conducted online

DATA PROCESSING

For the analyses data were manipulated with SPSS 21.0, AMOS 21.0, and M*plus* 7.2. software packages

APPLICATION

- Application of the CBBE and CESBC scales on selected brands in the high-tech industry
- Application of the conceptual model on selected brands in the high-tech industry

Source: Own elaboration based on E.R. Babbie, *Badania społeczne w practyce*, Wydawnictwo Naukowe PWN, Warszawa 2004, p. 128.