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Necessary and Sufficient Conditions for Audience Success of Media Product Brands: A field report on a two-step fsQCA with 10 conditions and 255 cases

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Abstract: In a literature review and an explorative pre-study ten building blocks of audience success of media product brands were distilled, resp. confirmed. The causally remote conditions (building blocks of success) are organizational facets, human resources, leadership, internal processes, environmental orientation, and external evaluation. Causally proximate are the conditions form, content, marketing and distribution. The research questions of this paper are: which conditions are necessary, and which (combinations of) conditions are sufficient for audience success? An online survey of 255 media decision makers in Germany, Austria and Switzerland was executed, in which the respondents assessed a) to which extent the factors (items) belonging to the building blocks of success (concepts) were achieved, and b) to which extent success was achieved by the media product brand the respondents are involved with. A two-step fsQCA with 'Enhanced Standard Analysis' was deployed to find necessary and sufficient building blocks of audience success. Four conditions were qualified as necessary for audience success: form, distribution, human resources and environmental orientation. In addition, four sufficient combinations of building blocks for success emerged in the analysis.

Keywords: Two-step fsQCA; media product brands; audience success factors

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Abstract

In a literature review and an explorative pre-study ten building blocks of audience success of media product brands were distilled, and confirmed, respectively. The causally remote conditions (building blocks of success) are organizational facets, human resources, leadership, internal processes, environmental orientation, and external evaluation. Causally proximate are the conditions form, content, marketing and distribution. The research questions of this paper are: which conditions are necessary, and which (combinations of) conditions are sufficient for audience success? An online survey of 255 media decision makers in DACH countries was carried out, to assess a) to which extent the factors (items) belonging to the building blocks of success (concepts) were achieved, and b) to which extent success was achieved by the media product brand the respondents are involved with. A two-step fsQCA with 'Enhanced Standard Analysis' was deployed to find necessary and sufficient building blocks of audience success. Four conditions were qualified as necessary for audience success: form, distribution, human resources and environmental orientation. In addition, four sufficient combinations of building blocks for success emerged in the analysis.

Introduction

Production across different types of media such as film, television, radio and online converges in times of digitalization. Literature on success factors of media products and services tends to focus on one media category or content type, although distinct means of distribution are increasingly replaced by transmedia story worlds or brands (McDowell, 2006).

In an extensive literature review, success factors of media product brands were identified (Sommer & von Rimscha, 2013). The success factors were assigned to complex concepts, i.e. building blocks of success that were confirmed and found to be applicable across different types of media and means of distribution in two topical qualitative studies (Rimscha, Verhoeven, Krebs, Sommer, & Siegert, 2016; Sommer, von Rimscha, Verhoeven, Krebs, & Siegert, 2016). The building blocks are content, design, environmental orientation, internal processes, organizational aspects, leadership, human resources, marketing, distribution, and external evaluation. This paper answers the following research question: Which building blocks are necessary, and which (combinations of) building blocks are sufficient for success?

The researchers of this study designed a standardized instrument and built an online questionnaire to survey media professionals in print, audiovisual and online media in Austria, Germany, and Switzerland. The collected data were analyzed in a qualitative comparative analysis (QCA). The method is well suited for success factor research. Reviewing empirical studies on media success, one finds different combinations of factors leading to success. In addition, factors that influence success in one study or context are apparently not valid in other contexts. QCA allows systematic causal analyses and simultaneous testing of several conditions. In addition, it avoids problems of multi-collinearity and embraces equifinality; causal factors are not treated as rivalling, but as ingredients of complex causal relations, and more than one combination of factors can lead to the outcome success. The results provide insights into the most promising combinations of building blocks of media success.

This paper begins with a brief discussion of the literature in the field of media product brands' success factors: building blocks of success and complex causality for success.¹ In the second section, the method is described in detail: the measures, sample and survey are introduced and the analysis method and its deployment in this research project are laid out. The results are presented in the third section. A discussion of the results and the further steps in this research project rounds off this paper.

¹ See also for more comprehensive discussions: literature on success factors: Sommer and von Rimscha (2013), building blocks of success and complex causality: Sommer et al. (2016), Rimscha et al. (2016), Verhoeven, von Rimscha, Krebs, Siegert and Sommer (2017, accepted).

1. Literature review

1.1. Success Factor Research

Success factor research in the media is a fragmented field. Studies tend to focus on one type of media (e.g., newspapers, movies, etc.) or content (e.g., TV-formats), seldom aiming for universality. Various methodological approaches are deployed and no common standards regarding the operationalization of variables or the measurement of success have emerged. Even success as a measure is disputed since it can be captured differently (Sommer & von Rimscha, 2013). On a basic level, economic and cultural success can be distinguished, yet the latter needs the former to some extent to be sustainable. Most research in certain sectors of media products focuses on the well documented success on the audience side (Kaiser & Wright, 2006; Perez-Latre, 2007): movie box office results (Clement, 2004; Simonton, 2009), book sales (Blömeke, Clement, Mahmudova, & Sambeth, 2007), and periodic media sales (Habann, 2010; Schönbach, 2004). Media product brands are released in markets that vary strongly in (potential) size. Therefore, a relative indicator of success is a relevant measurement—the extent to which market share targets are achieved.

With regard to the numerous factors that influence the success of media product brands, similarities between different types of media are found in literature (Sommer & von Rimscha, 2013). For example, there are comparisons between books and movies (Blömeke et al., 2007; Clement, 2004; Simonton, 2009), magazines, and TV-shows (Bleis, 1996; Shamsie, Miller, & Greene, 2006; Tschörtner, 2008), as well as between printed and audio-visual news (Cummins & Chambers, 2011; Schönbach, 2004). Based on literature and acquired theoretical knowledge, for two qualitative studies, the retrieved success factors were systemized and assigned to ten complex concepts—building blocks of success of media product brands. In one explorative study consisting of case studies and semi-structured in-depth interviews with media professionals, the retrieved success factors of media products and services across different types of media were further investigated and confirmed (cf., Sommer et al., 2016). In the other study based on the same data, convergence in media was investigated (von Rimscha et al., 2016). Each building block has several measurable sub-components (i.e., the retrieved success factors), as elaborated upon below.²

The building blocks of success can be distinguished along dimensions of functionality, temporal positioning in the life cycle of a media product brand, and causal relation to the media product brand³. The latter distinction is based on the causal distance to the object of investigation, in this study the success of media product brands. Remote conditions are ‘given’ to media professionals, the context in which to produce, and are not properties of the units of analysis, the media product brands. Proximate conditions can be manipulated by the actors involved, and are often properties of the units of analysis. On one hand, ‘process’ factors are found that are to some extent remote to the actual media product brand. These factors enable (successful) development, production and dissemination of media product brands: (1) organizational aspects, (2) internal processes, (3) environmental orientation, (4) leadership, (5) human resources, and, later in the value chain of a media product, (6) external evaluation. On the other hand, proximate factors are features of, or relate directly to, the product brand. The proximate ‘product’ factors, (7) content and (8) form are concrete features of the media product brand and are building blocks of success. If the latter two proximate building blocks are ‘upstream’ (earlier) in the

² See also Verhoeven, et al. (2017, accepted).

³ In this study, media product brands are investigated. It is assumed that in the perception of the interviewees and respondents, every product is a brand or has a brand. The difference between being and having a brand is of no consequence to this study.

value chain of a media product, we also identified two 'downstream' (later) proximate building blocks: (9) marketing and (10) distribution, which are activities executed directly on the media product.

Remote building blocks of success

(1) **Organizational facets** ('organization', henceforth abbreviated in figures and tables as **ORG**) form a remote process factor for success. The factors influencing the extent of success compiled in this building block are organization-internal cooperation, external cooperation, organization brand, organization support for the product, organization size, and network competences (Bleis, 1996; Blömeke et al., 2007; Chang & Chan-Olmsted, 2010; Habann, Nienstedt, & Reinelt, 2008; McDowell, 2006)

(2) Following the concept of brand orientation (Baumgarth, 2009; Urde, 1994, 1999), the brand should be the guideline for **internal processes (INT)**, another remote process building block. The factors that make up this building block are audience integration, product budget and resources, processes and internal (brand) communication qualities, and innovation (Aaker, 1996, 2010; Meffert, 2004; Meffert & Burmann, 2002; Nandan, 2005; Siegert, Gerth, & Rademacher, 2011).

(3) A remote process building block, **environmental orientation (ENV)** is important for the success of media brands. Although a brand is primarily considered an inside-out construct based on the identity as a core, it is dynamic and open to influences from outside the company (Siegert et al., 2011). The factors belonging to this building block are observation of competitors, regional reference frame, societal reference, and deployment of consumers-conform language (Clement, 2004; Habann, 2010; Kim, 2009; McDowell, 2006; Meiseberg & Ehrmann, 2008; Shamsie et al., 2006; Simonton, 2009; Tschörtner, 2008).

(4) **Leadership (LEA)** is a remote process building block for the success of a media product brand. Within brand management, the importance of leadership and its influences are discussed (Burmann & Zeplin, 2005; Burmann, Zeplin, & Riley, 2009). The factors retrieved from the literature review and confirmed in the explorative phase of the project are star leadership (reputable leaders), trade competence promotion and leadership (competent leaders), and organization-internal power leadership (powerful leaders) (Büsching, Hellbrück, & Teluk, 2011; Habann, 2010).

(5) **Human resources (HR)** is another remote process building block of success. It can be understood in a brand-centered context (Burmann et al., 2009; Burmann & Zeplin, 2005; Maxwell & Knox, 2009). The integrated and confirmed factors are qualities of the staff involved in the media product brand. They are competence, motivation, experience and reputation, in addition to coherence of the team and team-internal brand workings (Basuroy, Chatterjee, & Ravid, 2003; Clement, Proppe, & Rott, 2007; Desai & Basuroy, 2005; Elberse, 2007; Elliott & Simmons, 2008; Henkel & Huber, 2005; Schmidt-Stölting, Blömeke, & Clement, 2011; Simonton, 2009).

(6) A remote and downstream building block for success is **external evaluation (EXT)**. A substantial part of the external evaluation of a brand is its image, a central construct within brand research (Aaker, 1996; Keller, 1993). Here the distinguished factors are evaluation of the media product brand in media coverage, in reviews, by word of mouth, and by awards (Aaker, 1996; Chan-Olmsted, 2006; Clement et al., 2007; Gemser, van Oostrum, & Leenders, 2007; Hennig-Thurau, Marchand, & Hiller, 2012; Lampel & Shamsie, 2000; Lobigs, 2015; Nandan, 2005; Reinstein & Snyder, 2005; Simonton, 2009; Zuckerman & Kim, 2003).

Proximate building blocks of success

(7) A proximate product building block is **content (CON)**. The actual content is often identified as a success factor of media brands (Bleis, 1996; Blömeke et al., 2007; Feddersen & Rott, 2011; Kim, 2009;

Schönbach, 2004; Schönbach, Lauf, Stürzebecher, & Peiser, 1997; Siegert et al., 2011; Wirtz & Ullrich, 2009; Wolf, 2006). The factors integrated in this building block are clarity of genre/format, the presence of stars, the match of the content to the organization, and the content attributes of quality, credibility, diversity, novelty, and exclusivity.

(8) Another proximate product building block is **form/design (FOR)**. The form and design of the brand is reflected in the products (Bleis, 1996; Blömeke et al., 2007; Schönbach, 2004; Siegert et al., 2011). The individual factors were confirmed in the explorative project phase and are the extent to which the form fits the content, the quality and the consistency of the design.

(9) **Marketing (MAR)** is often considered a (downstream) building block of high importance for success of a media product brand. Within this proximate building block of success, the factors influencing success are the extent to which marketing is based on research of the targeted audience and advertising markets, the extent to which marketing is based on the product brand, the sufficiency of advertising resources, and the pricing of a product as an instrument (Baumgarth, 2004; Bleis, 1996; Blömeke et al., 2007; Boatwright, Basuroy, & Kamakura, 2007; Chang & Chan-Olmsted, 2010; Clement, 2004; Elliott & Simmons, 2008; Förster, 2011; Greve, 1996; Habann et al., 2008; Habann, 2010; Hennig-Thurau et al., 2012; Kim, 2009; Rademacher & Siegert, 2007; Schnell, 2008; Wolf, 2006).

(10) The building block **distribution (DIS)** is located downstream in the life cycle of a media product brand, and is regarded as a proximate building block. It was previously found influential on the success of media products and contents (Blömeke et al., 2007; Boatwright et al., 2007; Chang & Chan-Olmsted, 2010; Chang & Ki, 2005; Feddersen & Rott, 2011; Habann, 2010; Hennig-Thurau et al., 2012; Lampel & Shamsie, 2000; Liu, 2006; Meiseberg & Ehrmann, 2008; Simonton, 2009; Tarkiainen, Ellonen, Kuivalainen, Horppu, & Wolff, 2008; Wolf, 2006). Integrated in this building block are the timing and platforms of audience release as well as the optimization for target audiences.

1.2. Complex causality for success of media product brands

As discussed by Sommer and von Rimscha (2013), the studies of media product brands' success have focused on a wide variety of factors. In summary, despite the vast amount of studies and links to media brand management, the results of success factor research of media product brands show inconsistencies. The results are far from univocal and often show contradictory outcomes, pointing to different factors as important for success. In addition, results are contradictory for the same factor, for example regarding the impact on success of genres (cf., Hennig-Thurau et al., 2012; Meiseberg & Ehrmann, 2008; Zuckerman & Kim, 2003). Regarding the impact of stars on success, Desai and Basuroy (2005) and Elliott and Simmons (2008) come to different conclusions than others (Gemser et al., 2007; Hennig-Thurau, Houston, & Heitjans, 2009; Joshi & Mao, 2012; Zuckerman & Kim, 2003). See Table 1 for more contradictory findings of research in various media types. One reason for these contradictory results could be that the causal process, through which success is achieved by media product brands, is complex and hard to capture through traditional regression models. Factors might combine to lead to success, different combinations of factors could be equifinal in their relationship to success, and effects might be asymmetric (Sommer & von Rimscha, 2013). An explorative study of 20 media product brands also points in this direction, as various, mutually contradicting routes to success are found (Rimscha et al., 2016; Sommer et al., 2016; Verhoeven et al., 2017, accepted).

Table 1: Contradictory results in success factor research

Success Factor	Influence	No Influence
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Advertising	Elliott & Simmons, 2008; Hennig-Thurau et al., 2012	Boatwright et al., 2007
Budget	Chang & Ki, 2005; Elliott & Simmons, 2008; Hennig-Thurau et al., 2009; Joshi & Mao, 2012; Lampel & Shamsie, 2000; Meiseberg & Ehrmann, 2008	Boatwright et al., 2007; Gemser et al., 2007
Competition	Chang & Ki, 2005; Joshi & Mao, 2012; Reinstein & Snyder, 2005	Gemser et al., 2007; Lampel & Shamsie, 2000
Genre	Chang & Ki, 2005; Desai & Basuroy, 2005; Elliott & Simmons, 2008; Reinstein & Snyder, 2005	Hennig-Thurau et al., 2009; Joshi & Mao, 2012
Organization	Elliott & Simmons, 2008; Reinstein & Snyder, 2005	Chang & Ki, 2005; Gemser et al., 2007; Lampel & Shamsie, 2000
Stars	Desai & Basuroy, 2005; Elliott & Simmons, 2008	Gemser et al., 2007; Hennig-Thurau et al., 2009; Joshi & Mao, 2012; Zuckerman & Kim, 2003

Within the same media type, a comparison of studies shows that success factors are context-sensitive—the same factor influences success in one context and fails to do so in another, as is shown for print products (Sommer & Krebs, 2015) and books (Schmidt-Stölting et al., (2011). Even more so, the absence of particular factors can be shown to influence success. (Gemser et al., 2007) found this for independent versus Hollywood films and the factor studio affiliation.

Despite the strong indications that media success is a complexly causal phenomenon underlined by the fact that factors combine, combinations could be equifinal, and patterns might be asymmetric, the majority of studies have relied on correlational-based methods that more often than not come with assumptions more fit for the study of linear relations. Among others, Ragin (2014) points out the inadequacies of regression models for studying phenomena that should be considered causally complex. In a regression analysis, variables ‘compete’ with each other regarding the extent of impact on success. Also Nicolai and Kieser (2002) see potential explanations being ironed out, averaged away, and Clement (2004) sees interaction effects insufficiently addressed in previous studies.

Therefore, instead of focusing on linear relationships, we focus here on relationships of necessity and sufficiency that might better capture the complex causal nature of the phenomenon. We attempt to answer the following research questions: which building blocks are necessary for success, and which combinations of building blocks are sufficient for success?

Following the logic behind remote versus proximate building blocks of success, we expect proximate building blocks (attributes of product brands or activities executed on the brands), to be necessary for success, and combinations of proximate and remote (enabling) building factors to be sufficient for success, whereby distinct groups of cases show different combinations of building blocks in achieving success.

2. Method

2.1. Survey, Sample, Data

An online survey of media professionals was carried out to answer the research question. Following the literature review and the results of the explorative phase (Sommer et al., 2016), the survey items (see Appendix 5.1) were designed to follow the concept formation presented in the previous section.

⁴ The indicators (success factors) chosen for each of the systematized concepts (building blocks) introduced in Section 1.1. were rated by respondents on 6-point Likert scales, expressing to what extent the factor was achieved for the media product brand the respondent is involved in. The outcome of interest, success of media product brands, was measured through one item, in which respondents rated the achievement of targeted shares of the audience market. ⁵ Success in terms of achieving the targeted shares of the audience market is a relative indicator. Not only ‘mass audience’ product brands, but also ‘niche’ product brands can be scored high. ⁶ Several items enabled grouping and subsampling by distinguishing the cases (media product brands) along dimensions of content and seriality (Sommer & von Rimscha, 2014), primary medium types, product life cycle, hierarchical position and function of the respondent.

The cases (i.e., product brands the respondents are responsible for, or involved in) are print, audio-visual and online media product brands in Austria, Germany, and Switzerland. The respondents were recruited from industry associations. The research team collected 340 questionnaires and the gross response rate was 9%. Respondents were presidents of the board of directors, CEOs, department and section heads, executive product managers, producers, chief and vice-chief editors, editorial staff members, filmmakers, etc. All respondents were, to some extent, decision makers⁷ on media product brands, yet not all were directly involved with producing or assembling the actual content of the product. The share of general supervising, administrative and technical roles, and marketing, sales, acquisition, i.e., non-content roles, is ca. 30%. In very few cases, spokespersons or press officers responded.

Data cleaning was based on completion of the survey, on time spent on the total survey and the separate topical sections, on traceable answer tendencies, and on the logical consistency of the answers. Of the 340 cases, 40 were removed initially for poor quality. Another 45 were excluded because they had missing values on the outcome (see Appendix 5.3 for additional information on the data cleaning procedure). In the sample 255 cases remained, see Table 2 for the data structure.

Table 2: Data structure along dimensions of medium, seriality and content types

Data structure (n=255)		
Primary medium	Seriality type	Content (aim) type
Print (newspapers, magazines) 34%	Continuous 58%	Information 56%
TV 21%	Multi-part 17%	Infotainment 24%

⁴ See also Sommer et al. (2016), Rimscha et al. (2016), Verhoeven et al. (2017, accepted).

⁵ Success of media product brands is in the media practice interpreted in a variety of ways. To be able to compare the deployed outcome, the achievement of targeted audience market shares, to alternative success interpretations, additional items were integrated in the survey that measured the different kinds of success a media product can achieve.

⁶ This indicator somewhat depends on the ambitions of the respondents. Overambitious respondents might seem less successful while those with fewer ambitions tend to reach their goals. Since we have no reason to believe that ambitions are not evenly distributed, results should not be affected.

⁷ It could not be established in all cases to what the decision-making competence pertains.

Book 18%	One-off 25%	Entertainment 20%
Online 12%		
Radio 9%		
Film 6%		

2.2. Analysis method

The data set was analyzed using qualitative comparative analysis (QCA). QCA can be regarded as a bridge between qualitative and quantitative social research. One of the main advantages of using this method is that it allows for the analysis of a large number of cases in a systematized fashion, like quantitative analyses, but it also focuses on complex causality, qualitative distinctions, and within-case analyses in a qualitative research fashion. QCA is based on set theory and Boolean algebra to show how different configurations of conditions are related to a certain outcome of interest. Thus, QCA treats cases as configurations of conditions, while causal relations are regarded in terms of necessity and sufficiency. Similarities and differences on causal conditions can be explored across cases by using an analytic tool called a “truth-table” that displays the data in a matrix of possible configurations of conditions. Using this analytic tool can help researchers arrive at causally complex results. Combinations of conditions can be shown to generate an outcome (conjunctural causality), there can be different paths or combinations of conditions that produce the same outcome (equifinality), and there can be different explanations that lead to the presence of a certain outcome or its absence (asymmetry rather than linearity). These features make QCA well suited for success factor research because it allows standardized causal analyses, simultaneous testing of several conditions, and complex results. Additionally, it avoids problems of multi-collinearity because causal factors are not treated as rivals and cases and conditions are assumed to gather in clusters.

2.2.1. Fuzzy set QCA

For this study, the researchers decided to use the "fuzzy" variant of QCA (fsQCA) rather than the "crisp" variant. The choice for fuzzy sets was motivated by the fact that these can be said to contain more information than crisp (dichotomous) sets, which only allow for values of 1 (member of a set) and 0 (non-member). Thus, the data with which fsQCA operates are fuzzy set-membership scores that represent degrees of inclusion of a case in a certain set of a condition or the outcome. Fuzzy set-membership scores allow for distinctions in-degree between cases and qualitative distinctions due to the use of three qualitative anchors on the raw data. To assign fuzzy set-membership scores of cases in the conditions used in the analysis, the raw data needed to be calibrated. In the process of calibration, for each of the ten conditions and the outcome, a choice was made regarding the place of the three qualitative anchors (0, full non-membership, 0.5, point of indifference, 1, full membership). The cases then fit between these anchors per their values in the raw data. The raw data, the calibration procedure, and the sets of ‘strong’ conditions/building blocks and the outcome success are discussed below.

2.2.2. Raw data

The scores on the indicators (survey items, success factors) composing each of our conditions (building blocks of success) were averaged to obtain aggregate values for each condition. In the data we gathered, all conditions slant to the positive side of the Likert scale; the lowest mean was 3.6 and the

highest 5.1 on a 6-point scale. The high means and the shape of the density plots below indicate that respondents in our sample tend to systematically rate the building blocks positively. This information needed to be considered in our calibration choices. The items in the conditions content (CON) and form (FOR) apparently evoked a substantial number of respondents to answer in an even more positive way. Content (CON) had no aggregated case score under 3.1 on the Likert 6-point scale and form, which consists of three items, was assessed best of all conditions with a mean aggregated score of 5.1. See appendix 5.2 for the raw data.

Table 3: Summary of outcome, six remote conditions and four proximate conditions

Condition	OUT	Remote conditions						Proximate conditions			
		(1) ORG	(2) INT	(3) ENV	(4) LEA	(5) HR	(6) EXT	(7) CON	(8) FOR	(9) MAR	(10) DIS
Min.	1	1	2.14	1.75	1.25	2.6	1	3.13	2.34	1	1
1st Qu.	3	4.14	3.86	4.25	3.5	4.34	2.75	4.5	4.67	2.93	4
Median	4	4.57	4.5	5	4.5	4.83	3.8	5	5	3.57	4.67
Mean	3.98	4.51	4.41	4.78	4.26	4.83	3.75	4.89	5.06	3.56	4.67
3rd Qu.	5	5.14	5	5.33	5.25	5.34	4.75	5.35	5.67	4.29	5.34
Max.	6	6	6	6	6	6	6	6	6	6	6

Figure 1: Density plot of proximate conditions CON, FOR, MAR, DIS and outcome success OUT

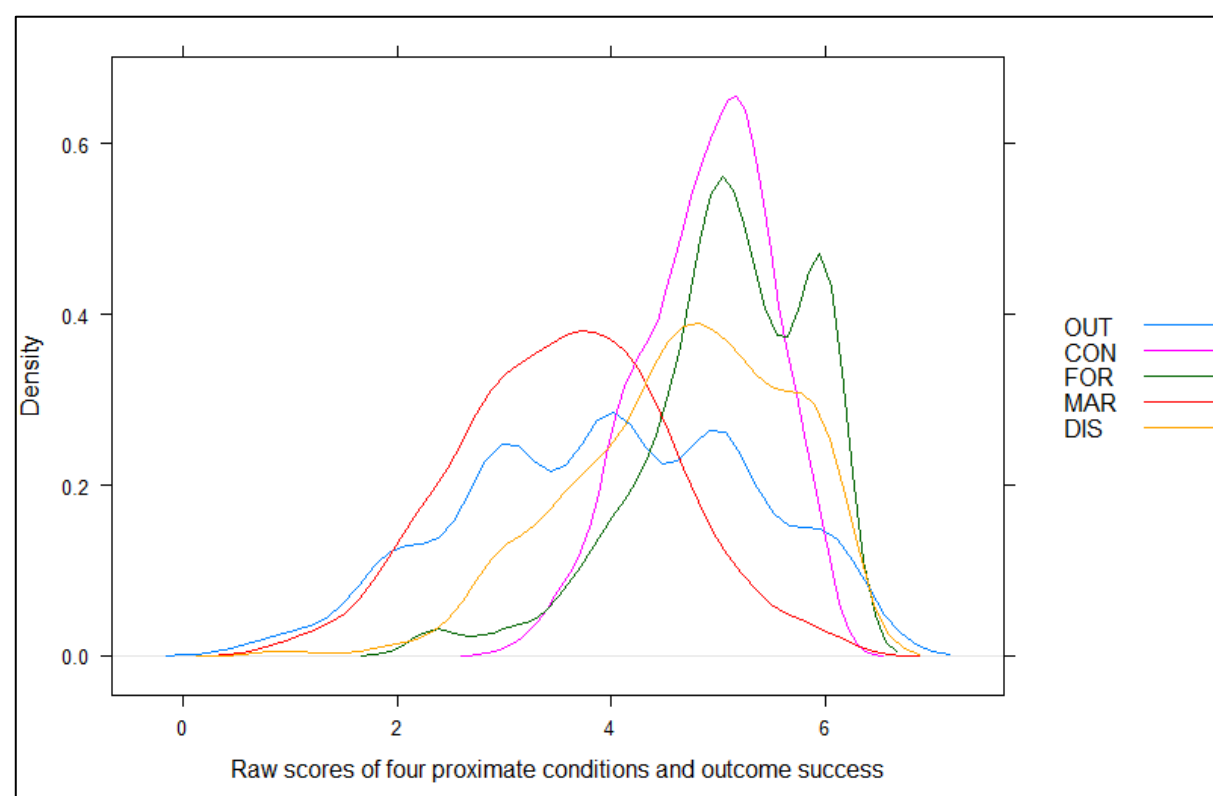
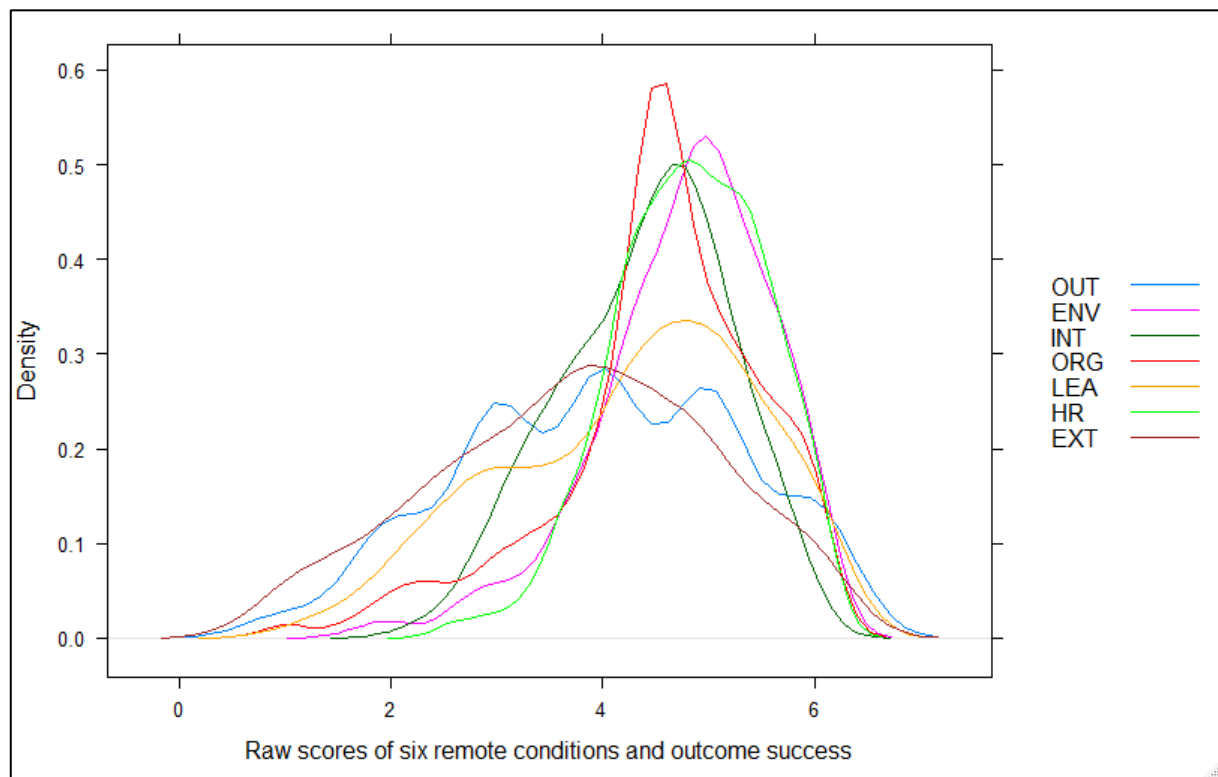


Figure 2: Density plot of remote conditions ENV, INT, ORG, LEA, HR, EXT and outcome success OUT



2.2.3. Calibration

The method of direct calibration was deployed (Schneider & Wagemann, 2012, p. 35). Following these authors (2012, p. 37), the calibration was based on considerations external to our retrieved data, and was evoked by theory, findings from our exploratory study, and our research goal of finding ‘real’ important building blocks for ‘real’ success. Neither the literature review, nor the qualitative study provided the researchers with a reason to single out any building block for special and divergent calibration. All factors in the building blocks were distilled from literature and individually distinguished. All factors were subsequently confirmed as important for success in the qualitative study, whereby no differences in strength between the building blocks could be made out (Sommer et al., 2016). In the survey discussed in this paper, we asked respondents directly in how far their product has achieved all the factors, and there is no reason to believe that membership in some of the sets of ‘strong’ building blocks is harder to attain than the membership in others.

In QCA, conditions represent sets and each case has a degree of membership in each set.⁸ Three qualitative anchors were placed, the high anchor, the point of indifference (i.e., the middle anchor) and the low anchor. Cases with an aggregated score above the highest anchor have fully achieved the factors in the building blocks (conditions), respectively are successful in terms of achieving or

⁸ In data cleaning, based on knowledge and logic, we verified that for all conditions the inapplicable items for a particular case were correctly assessed as missing, and not (erroneously) scored low. In some cases, however, as will be discussed below in the sections on necessity and sufficiency, a lack of information inhibited correction before analysis.

exceeding the targeted shares in the audience market (outcome). The middle anchor (the point of indifference) is the threshold between the cases that are more in than out of the set of a 'strong' condition or the 'high' outcome, and the cases more out than in these sets. These cases have achieved or realized (the factors in) the building block or the outcome to a considerable, resp. to a marginal degree. The cases with scores below the lowest anchor have not achieved the items in the set of a 'strong' building block or in the set of 'high' success at all.

The set of strong⁹ (1) organizational facets (ORG) entails brands that state to fully benefit (i.e., the average score exceeds the highest qualitative anchor) from their parent organization.¹⁰ The organizations' support, competences, brand, cooperation, and size are thus (strongly) advantageous. Brands that indicate to dispose of accurate product budget and resources, of well-functioning production process communication and organization, of solid brand-based internal guidance, and of leeway for innovation and recipients' integration emerge as members of the set of good (2) internal processes (INT). The set of high (3) environmental orientation (ENV) consists of brands that link firmly to a (home) region, deploy audience language, and accurately monitor the public climate, and the relevant market. Brands that are adequately managed by respected, skilled and organizationally authoritative leaders are in the set of strong (4) leadership (LEA). The set of accurate (5) human resources (HR) entails brands that dispose of highly skilled, knowledgeable, inspired, respected, team-minded, goal- and value-oriented staff. Brands indicating that reviews, awards, favorable media coverage, and consumer interaction (WOM) strongly advanced their goals make up the set of high (6) external evaluation (EXT). The set of brands with good (7) content (CON) consists of cases that have fully accomplished high quality, trustworthy, diverse, up-to-date and exclusive content. Respected co-workers produce contents that match the company and satisfy audience expectations. Brands of which the intricate and consistently maintained form suits the content well emerge as members of the set of good (8) form/design (FOR). Brands emerge in the set of good (9) marketing (MAR) when the activity consist of well-considered audience targeting, pricing, and rests firmly upon the product brand and accurate market research. The set of good (10) distribution (DIS) consists of brands that time the audience release well, deploy the right channels and have incorporated the user patterns of the audience.¹¹ Finally, members of the set of the high success have fully reached or surpassed the envisioned shares in the audience market (OUT).

Eight conditions/building blocks of success were calibrated identically: the basic guiding principle was to determine real convincing, doubtless membership in the set of a 'strong' condition. The lowest qualitative anchor (fuzzy score of 0) was placed at the Likert index score of 1.05. The middle anchor (fuzzy score of 0.5) was placed at the Likert index score of 4, beyond the middle of the Likert scale,

⁹ The deployed adjectives are interchangeable: 'high', 'good', 'accurate', etc.

¹⁰ Cases that do not have a parent organization score inapplicable.

¹¹ Cronbach Alpha scores are low for three of the building blocks. An overall factor analysis rendered 14 factors out of the items, and the loading pattern supported seven of the building blocks. A factor analysis per building block showed that the items in two building blocks (ORG and FOR) load on one separate factor per block, that the items in six other building blocks also load on one separate factor per block, yet entail one ill-performing item, and that the items in MAR and CON load on two, resp. three factors. Any structural connection between this statistical information and the QCA results does not emerge. Two of the three building blocks with low Cronbach's Alpha scores (DIS and ENV) qualified as necessary. The building blocks MAR and CON are less, resp. more positively assessed, than the consistently on one factor loading building blocks. The union of MAR and CON is necessary. QCA is theory-driven and data-driven operations on factors/building blocks (exclusion of items, adaptation of constructs) are incompatible with the stringent deployment of the method. The factors that were distilled from literature and assigned to building blocks were evaluated (and filtered) in the qualitative phase of the project, and in the case inspection.

expressing our strict requirements for membership of ‘strong’ conditions. The highest anchor (fuzzy score of 1) was placed at 5.95, another strict requirement for full membership of a ‘strong’ condition. The researchers regarded the scores on the building blocks content (CON) and form (FOR) as showing some bias. These conditions were consequently calibrated somewhat stricter than the other conditions to correct the perceived slight bias. This is the only data-driven adaptation of the calibration.

The calibration of the outcome success (based on one item) is as strict as the conditions/building blocks content and form. The outcome of interest is “highly achieved” success, rather than “slightly achieved” success. Only cases with scores higher than 4.5 on the success survey item are considered more in than out (above the 0.5 anchor) in the outcome set. The researchers chose the qualitative anchor 5.95 for a case to qualify as a full member of “highly achieved success.” See Table 4 for calibration of the Likert scale index scores into fuzzy values.

Table 4. Calibration of raw scores into membership scores in sets of ‘strong’ conditions and outcome

Conditions (Raw data: index value on 6-point Likert)	Location of three qualitative anchors		
	0	0.5	1
(1) Organizational facets (ORG)	1.05	4.00	5.95
(2) Internal processes (INT)			
(3) Environmental orientation (ENV)			
(4) Leadership (LEA))			
(5) Human resources (HR			
(6) External evaluation (EXT)			
(7) Content (CON)	3.00	4.50	
(8) Form/design (FOR)	2.00		
(9) Marketing (MAR)	1.05	4.00	
(10) Distribution (DIS)			
Outcome (Raw data: score on 6-point Likert)	0	0.5	1
Success (OUT)	1.05	4.50	5.95

2.2.4. Two-step QCA

The nature of the conditions in this study invoked the researchers to deploy a specific variation of QCA, the two-step QCA. Two-step QCA is suitable if a distinction between causally remote versus proximate conditions can be made in the research design (cf., Schneider & Wagemann, 2006), as is the case here. Inspection of the conditions was carried out first in the literature review (Sommer & von Rimscha, 2013) and subsequently in the exploratory study (Sommer et al., 2016), and provided the basis for the distinction.

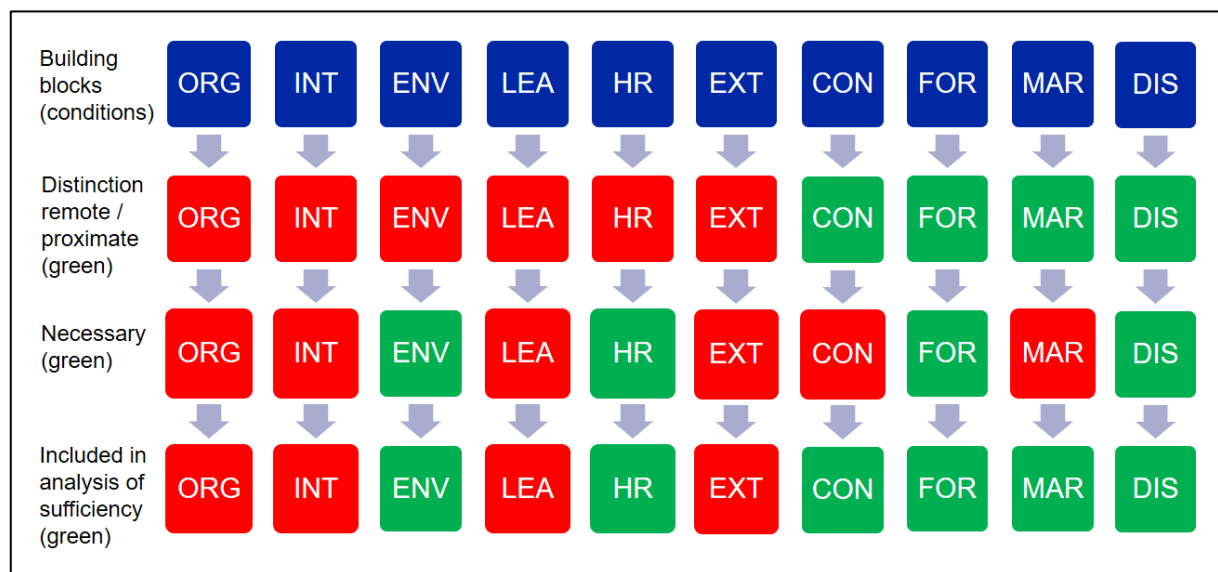
The causally remote conditions in this study are the process conditions of organization, internal processes, human resources, leadership, environmental orientation, and the downstream condition, external evaluation. The process conditions relate to the media product brands as success enabling factors. The influence is important, but the relationship to the success of a media product brand can be seen as indirect to a degree. In addition, the downstream condition external evaluation is mostly not controlled by the professionals involved in the product, an indirect relationship.

The proximate conditions in this study are the product conditions of content and form, and the downstream conditions of marketing and distribution. Content and form/design can be considered essential product elements or attributes, and therefore are obvious proximate conditions. In addition, marketing and distribution are factors actively farmed by media professionals and/or affiliated

organizations. These conditions consist of items related to activities carried out directly on/with the specific media product brand.

We deploy in this study a revised version of the two-step QCA procedure of Schneider and Wagemann (2006). The revision (by Schneider) was evoked by criticism of the original procedure. In the first step of the revised two-step QCA the necessity of all (present and absent) conditions is assessed. In the second phase of the two-step QCA, the remote conditions that pass the analysis of necessity are included in the analysis of sufficiency for the outcome success, along with the four proximate conditions content, form, marketing, and distribution. See Figure 3 for the differentiation of the building blocks (conditions) and the process steps of the two-step QCA.

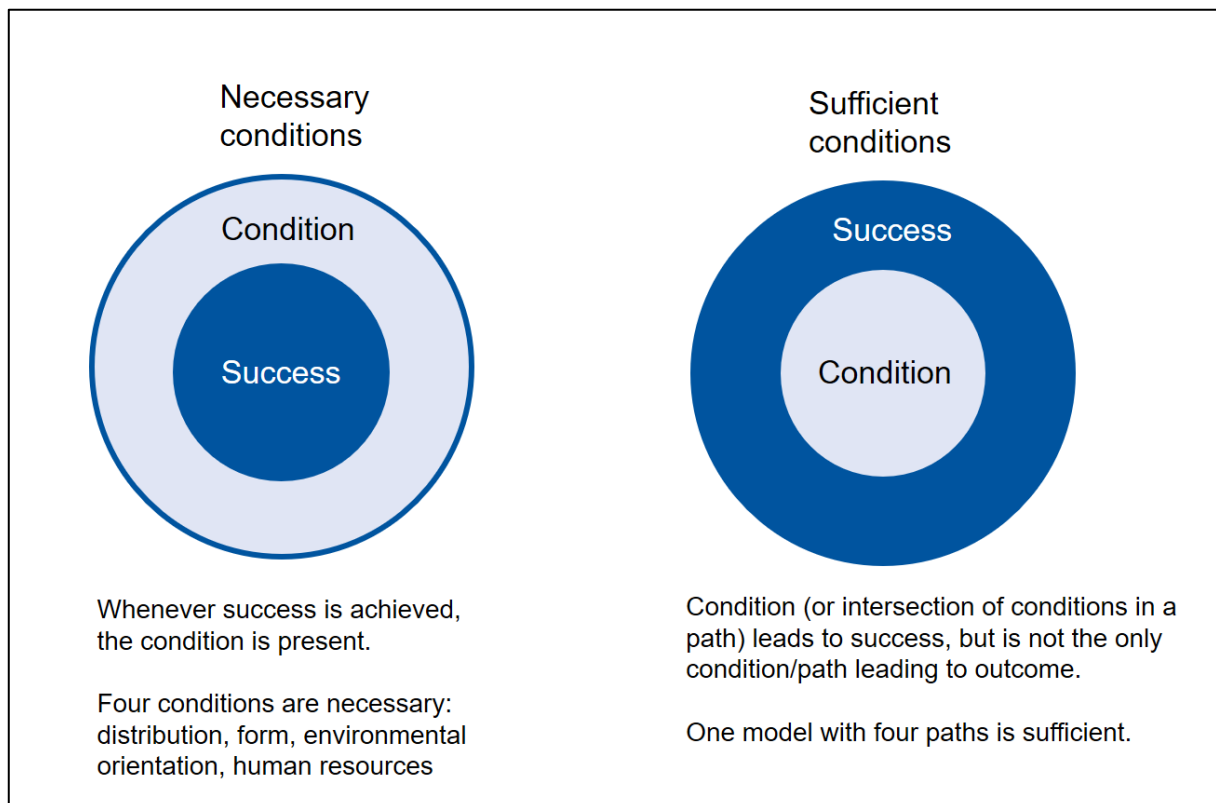
Figure 3: Building blocks in two-step QCA: distinction remote/proximate, analysis of necessity, inclusion in analysis of sufficiency



3. Results

Running the QCA analysis allows us to render the necessary conditions for success and sufficient paths (combinations) of conditions that lead to success. Before reporting on the results of the analysis, we should note that the nature of the data encumbers any analysis (including QCA) to a considerable degree: the survey data do not cluster neatly. In this section, we present the analysis results: the necessary conditions, the sufficient solution model and paths that lead to the outcome. Case inspection further informs the results.

Figure 4: Necessary and sufficient conditions for success



3.1. Results: problems, measures and robustness

Schneider and Wagemann (2012, p. 249) summarize the problems that might occur in QCA when dealing with sets with skewed membership scores, which can lead to “flawed inferences in the analysis of sufficiency and necessity”. Schneider and Wagemann (2012) propose a parameter for relevance in the analysis of necessity (‘Relevance of Necessity’, RoN), and adopt from Ragin (2008) an additional parameter for the analysis of sufficiency. This parameter, ‘Proportional Reduction of Inconsistency’ (PRI), expresses how far a condition is simultaneously a subset of the outcome and of the negated outcome. Both remedies have been deployed in this study.

Schneider and Wagemann (2012) list robustness tests as part of the standards of good practice for QCA. First, we checked the robustness of our results by trying out different (theoretically tenable) calibration choices. In the data, alterations of the calibration of the crossover point influenced the results of necessity only after larger, less tenable changes. The results of the sufficiency analysis were also sensitive to moderate changes. A second robustness test tried, in tests of sufficiency, the effect of

changing the inclusion (consistency) cut-offs¹² in the truth table. After careful consideration, the deployed inclusion cut-off was determined based on a gap in the inclusion scores, on inspection of the truth table rows and on the lucidity and feasibility of the rendered solution model. For clarity's sake, we decided to consider in the analysis the truth table rows that showed at least two cases. Changing the inclusion cut-off had effects: the rendered solutions varied, but the cases in the solutions intersected to a large degree. A third robustness test, verification of results by inspecting the effects of dropping certain cases, also changed the results of the sufficiency analysis to a moderate extent, but not the necessity of the four conditions. In conclusion, the results of the analysis of necessity are considered robust. The results of the analysis of sufficiency are also robust to an acceptable degree against the backdrop of raw data that do not cluster neatly.

3.2. Necessity of conditions for success

When the outcome (high achievement of success) is a subset of the condition, the condition is necessary. Simply put, necessity signifies that whenever the outcome is present, the condition must be present too: when the targeted audience market shares are highly achieved, the necessary building block must be highly achieved as well. A condition needs to be there, but it might need to be combined with other conditions (necessary, but not by itself sufficient for the presence of the outcome). Since the condition is a superset of the outcome, there are cases with the condition but not with the outcome.

3.2.1. Four necessary conditions for presence of outcome success

When analyzing the necessity of single conditions for the presence of the outcome success, four pass a 0.9 consistency necessity threshold: form and distribution (proximate conditions), and environmental orientation and human resources (remote conditions).

The necessity of the condition 'good' form/design for 'high' success can be seen to reflect to some extent the Zeitgeist in a media landscape undergoing rapid and disruptive change. The adaptation of the design of products to many dissemination channels and technologies is a matter of great concern across media types on the road to success. A clear majority of cases in the sample offer their content on online platforms in addition to their primary means of distribution. At the numerous portfolio and cross-media cases in the sample, several platforms are farmed to the same extent.

The necessity of strong distribution shows that in times of proliferation of channels, accurate product dissemination emerges as a requirement for success. The necessity of the building block emerges against the backdrop of a sample that consists of numerous small and mid-sized media with a topical focus, for which accurate distribution is challenging, while not guaranteed.

The necessity of strong environmental orientation shows that media product brands have to be well intertwined with their surroundings to flourish in terms of market shares. In times of heightened competition within- and across media sectors, audience and market orientation gains high prominence.

Finally, the necessity of strong human resources reflects that almost all media products require an at least moderate level of technical and creative expertise. It also reflects that (almost) all media products involve teamwork and rely on the quality, competence, experience, and motivation of the staff, and on the cohesion and goal-orientation of the entire team.

¹² The inclusion cut-off determines which truth table rows are regarded as producing the presence of the outcome consistently.

3.2.2. Parameters of fit of necessary conditions for success

The Boolean notation of necessity for success reads:

- $FOR \leftarrow OUT$
- $DIS \leftarrow OUT$
- $HR \leftarrow OUT$
- $ENV \leftarrow OUT$

The parameters of fit of the four conditions meet the usual threshold set for necessity. Here, consistency expresses how far the outcome is a subset of the condition. The commonly used minimum threshold for necessity is consistency of 0.9. Another parameter of fit is the coverage of necessity which, according to Schneider and Wagemann (2012, p. 147), can be interpreted as an indicator of the relevance of the necessary conditions and measures the difference in size between the condition and outcome sets: low coverage indicates triviality of the condition. The parameter relevance of necessity is a more refined indicator of triviality that also shows whether the condition set might be universal (cf. Schneider & Wagemann, 2012, p. 235).¹³ We consider the values for these parameters high enough to deem them not trivial. Taking into account these three parameters (see Table 5), the proximate conditions distribution and form are considered necessary. Additionally, the remote conditions environmental orientation and human resources are deemed necessary for the outcome. The latter two meet the consistency requirements and are regarded as success-enabling, whereby even a relatively low score on the relevant triviality parameters would be acceptable. All conditions show some instances of cases that are deviant in kind. These are discussed and reflected upon in the following sections. Following the procedure of the deployed (revised) two-step QCA, the two remote conditions environmental orientation and human resources are included in the second step, the analysis of sufficiency, together with all four proximate conditions content, form, distribution, and marketing.

Table 5: Parameters of fit for necessity of conditions for outcome

Necessity of present conditions for present outcome success (OUT)			
Condition	Consistency of necessity	Coverage of necessity	Relevance of necessity
(1) ORG	0.868	0.613	0.565
(2) INT	0.883	0.655	0.626
(3) ENV	0.911	0.590	0.478
(4) LEA	0.813	0.640	0.652
(5) HR	0.918	0.585	0.461
(6) EXT	0.682	0.672	0.769
(7) CON	0.849	0.615	0.583
(8) FOR	0.904	0.592	0.491
(9) MAR	0.692	0.774	0.859
(10) DIS	0.902	0.617	0.542

¹³ Regarding, for example, the relationship “breathing is necessary for politicians to be corrupt” it can be said that the set “breathing” is trivial. Membership in the condition is very easy to achieve; the condition comprises all cases at hand.

3.2.3. Deviant cases

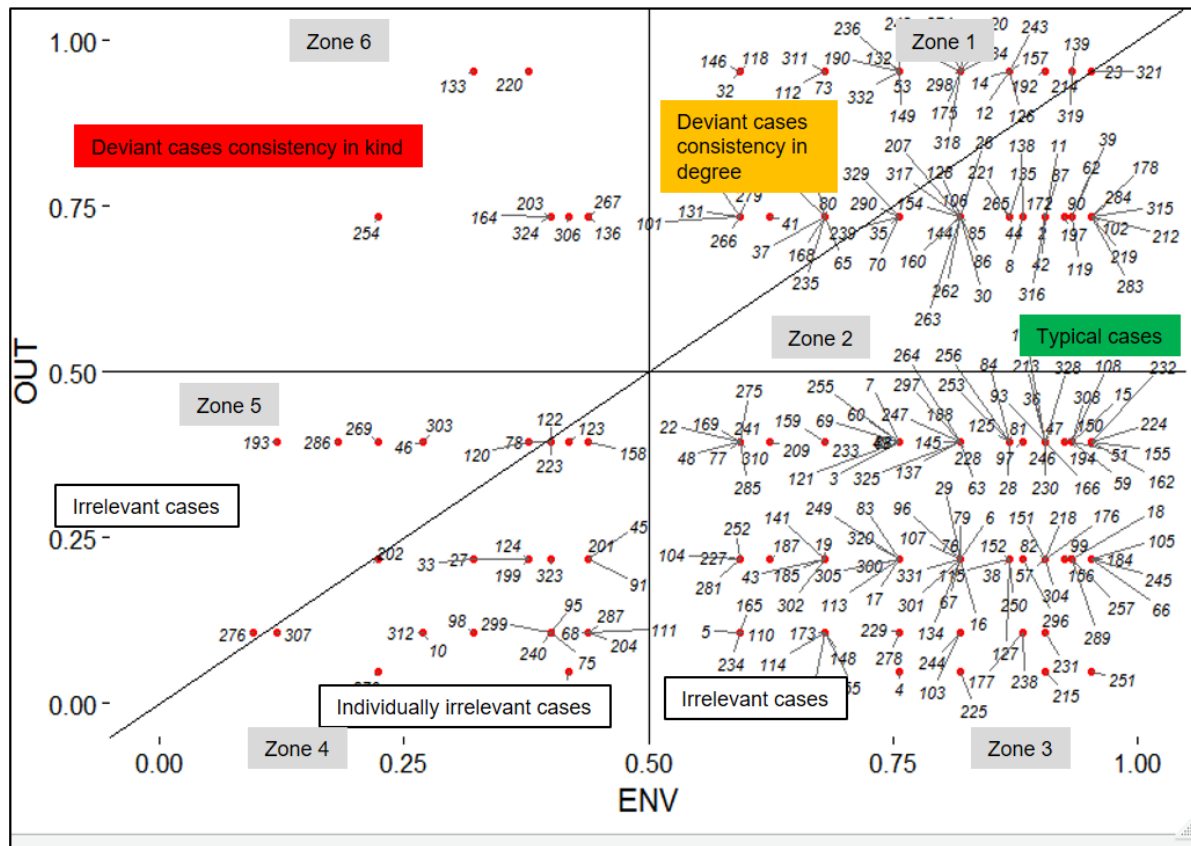
Regarding all instances of deviant cases, we discuss and interpret the cases based on Schneider and Rohlfing (2013), and we use their (six-zone) model as a heuristic device to better differentiate between cases contradicting necessity, and, in the sections below, sufficiency.

Typical for necessity are cases that have a membership of higher than 0.5 in both the outcome and the condition, and the membership in the conditions is higher than in the outcome (superset). Cases that are neither member of the conditions nor of the outcome are individually irrelevant. These cases cannot inform the statement of necessity. Cases are deviant with regard to consistency in degree, if the scores on the condition and the outcome are > 0.5 , but the outcome is not a subset of the condition. Although deviant, these cases do not serve as strong enough evidence against necessity because they still have high membership scores in the condition and the outcome. Finally, there are cases which are “deviant cases with regard to consistency in kind” (Schneider & Rohlfing, 2013, p. 581). These cases go against the finding of necessity in a qualitative way, by not being a member of the condition, but still showing the outcome. These cases need to be explained to verify the qualification of conditions as necessary. In overview, the deviant cases for consistency in kind of necessity/sufficiency in this study can be distinguished into four types. The types 1 to 3 cannot serve as adequate evidence against the qualification of necessity/sufficiency, the verdict is open on type 4.

1. Most deviant cases narrowly fell in the category of ‘deviant with regard to consistency in kind’ because of the conditions’ (strict) calibration. This strict calibration was induced by theory and the research goal of finding ‘real important’ factors for ‘real’ success. If we inspect the raw scores (4 on the Likert scale), these borderline cases are not (strongly/really) deviant.
2. In several cases that are deviant for consistency in kind, the scores on the items composing the indexes were questionable: items that are inapplicable for the media product were scored low instead of missing by the respondent, which (inappropriately) lowers the condition’s index score.
3. In other cases that are deviant for consistency in kind, the outcome score diverged from scores on the comparable (audience success measuring) items. Although these scores withstood rigorous data cleaning, and are thus regarded as valid, these cases do not constitute conclusive evidence.
4. There are deviant cases for consistency in kind, for which none of the types (1-3) apply. The verdict on the qualification of necessity then depends on the strength of explanations that, after enhanced case inspection, can be rendered for the deviant status.

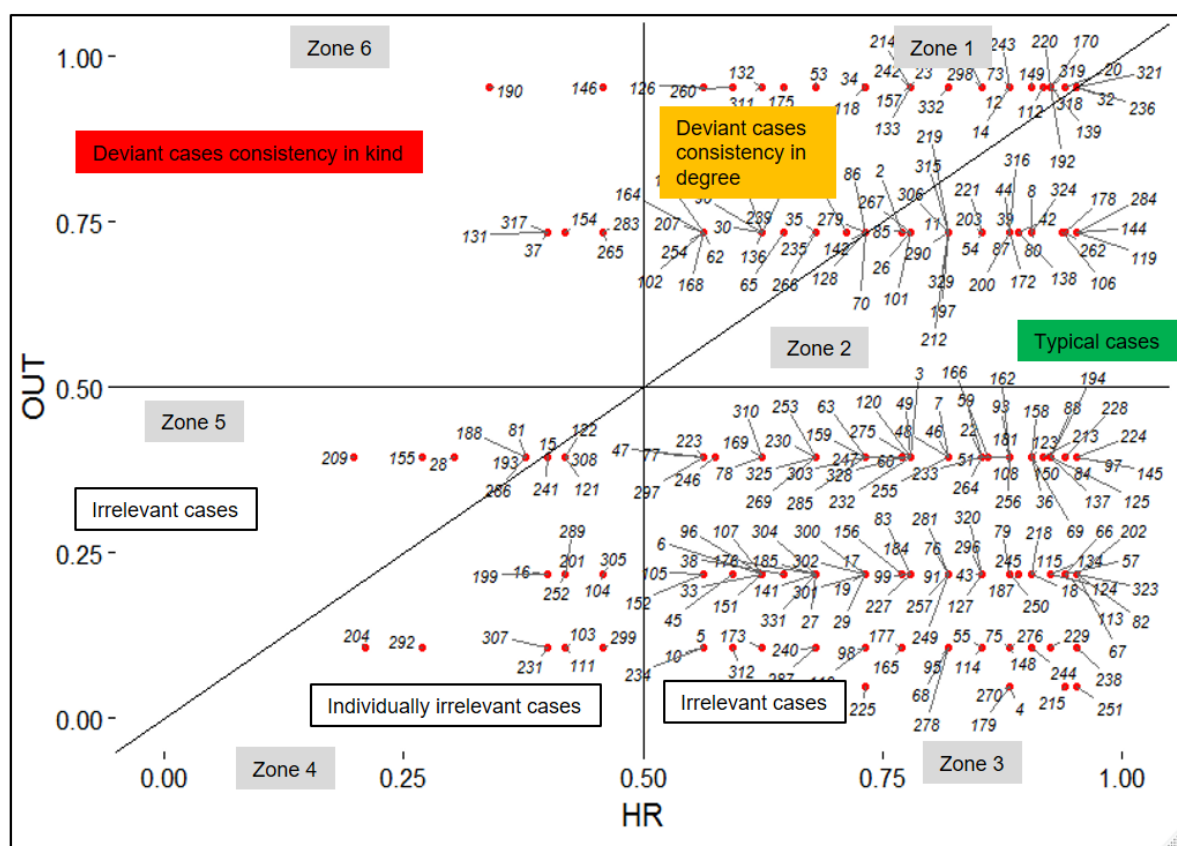
Despite the fact, that the four conditions pass a conservative threshold of necessity and appear to be a superset of the outcome, not all cases neatly fall in line with this statement. Looking at Figure 5, Zone 6, we find 14 cases that are members of the high success set, but are not a member of the set of good form. These cases contradict that statement that when we have the outcome, the condition should be present as well. Eight of these cases are of type 1: borderline cases do not disqualify necessity. The remaining six cases (type 4) that defy the necessity of good form are all serial product brands. In these types of cases, the investment in design (one of the three survey items of the condition) seems wrongly underrated, perhaps due to the serially produced nature of the product. Among these, some respondents (type 3 cases) seem to overrate success on the item that is deployed as outcome compared to the three other audience success items in the survey.

Figure 7: Plot of necessary condition environmental orientation (ENV) and outcome success (OUT)



Of the nine cases that qualitatively contradict the necessity of strong environmental orientation in kind, three truly contradict necessity. Two cases are borderline (type 1). Regarding the other cases, their placement below the 0.5 anchor for the condition 'good' environmental orientation can be attributed to less convincing assessments of one or two of the four composing indicators (type 2). The items pertaining to regional reference and societal relevance are scored low in some of the deviant cases, while the appropriate answer would be inapplicable (i.e., missing). Once more keeping in mind the size of the sample and the survey nature, we consider the qualification of necessity robust.

Figure 8: Plot of necessary condition human resources (HR) and outcome success (OUT)



The necessary condition strong human resources shows eight deviant cases in kind, one of which truly contradicts necessity. With respect to the other cases, either the answers to the items experience and reputation of co-workers should have been scored inapplicable (type 2), or the cases are borderline cases (type 1).

3.2.4. Additional necessity analyses

In line with our theoretical expectations, being a non-member of the conditions was not necessary for success as a media product brand. See Appendix 5.4, Table 16.

Being a member of any of the conditions also was not necessary for the negated outcome (absence of success), although scoring high on strong human resources (HR) came pretty close. This could also be driven by the fact that the cases' membership scores in the set of strong human resources are high, which makes the set rather inclusive. See Appendix 5.4, Table 17.

Finally, not being a member of the conditions did not show to be necessary for the absence of high success. Here the absence of the condition strong marketing came closest to the 0.9 consistency necessity threshold (See Appendix 5.4, Table 18). This indicates that not having accurate marketing could be necessary for not being successful. However, due to the less than ideal values for consistency, we do not explore this notion further.

QCA includes a superset relations test for SUIN conditions. (Schneider & Wagemann, 2012, p. 333) define as SUIN conditions, single (S) conditions, that are an unnecessary (U) part of a logical OR combination, that is insufficient (I) but necessary (N) for the outcome. SUIN conditions are to be interpreted only if researchers have strong conceptual arguments to suspect that two concepts/conditions are functional equivalents, i.e. the conditions are measures of the same overarching theoretical concept. In this case, there is no theoretical, empirical or logical reason to assume that any of the investigated conditions, the building blocks of success, are complete functional equivalents to another block. Each building block consists of a different set of distinct success factors, and refers to a discrete category of activity, expertise, etc. Nevertheless, we did test for superset relations. See Appendix 5.5, Table 19.

3.3. Model with four paths as sufficient solution

A relationship of sufficiency occurs when a condition or a combination of conditions is a consistent enough subset of the outcome (success). This means that when that condition or combination is present, the outcome is also present. While in some research projects only one combination of conditions leads to the outcome, often there are multiple combinations that can present themselves as subsets of the outcome. Therefore, QCA allows for equifinality in the results by rendering all these different paths to the outcome of interest. In this case, it renders all the different combinations of strong building blocks that a media product brand can show in being successful at achieving audience market shares. The different paths to success combine into one model, which is arrived at using an analysis tool called the truth table. While in a standard data matrix each row represents a different case, in a truth table each row represents one of the logically possible combinations between the conditions together with the (number of) cases belonging to it.

The 'Standard Analysis' is a widely used QCA technique. The results rendered with our survey data are complex and largely indefensible (see Appendix 5.6). It follows, that we deployed the QCA technique 'Enhanced Standard Analysis' (ESA) (Schneider & Wagemann, 2012, pp. 200–219). This modified version of the Standard Analysis refines results by excluding untenable assumptions from the analysis of sufficiency and renders an enhanced solution.¹⁴ Just like the Standard Analysis, ESA can render both a parsimonious solution based on all logical remainders (combinations of conditions without empirical evidence or without cases) and an intermediate solution that sorts these logical remainders by incorporating theoretical hunches (directional expectations) on how conditions are expected to lead to success. In our case, the parsimonious and intermediate solutions rendered by ESA are identical and will henceforth be referred to as a solution (see Table 6 for the truth table and ESA operations, and Figure 9 for the solution).

In Boolean notation, the model reads¹⁵:

1. hr*DIS*ENV*FOR +
2. HR*ENV*FOR*MAR +
3. HR*DIS*ENV*MAR +
4. HR*DIS*for*mar*con → OUT

¹⁴ Untenable assumptions are combinations of conditions that are either incoherent in that they contradict the previous necessity findings, or contradictory in that they are deemed sufficient for both the occurrence and the non-occurrence of the outcome.

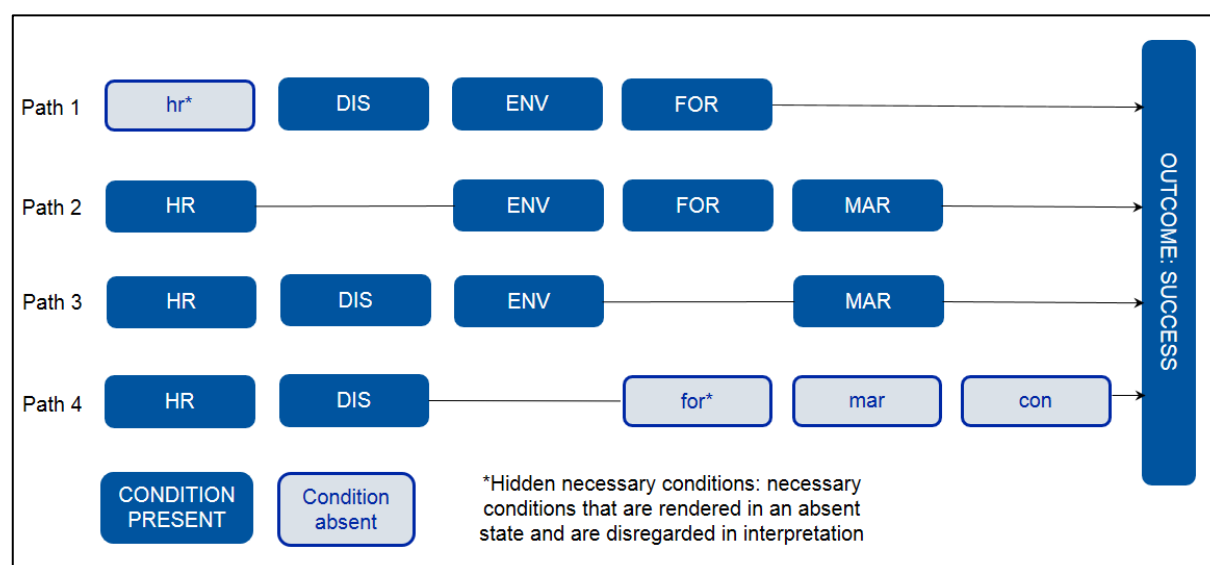
¹⁵ Uppercase letters indicate presence of the condition. Lowercase letters indicate absence of it.

Table 6: Truth table and ESA operations

Truth Table														
All rows with colored cells are set to OUT= 0, and are not included in the minimization process.														
Simultaneous subset relationships. Contradictory rows in both minimization processes. Excluded based on PRI values.														
Contradictory simplifying assumptions. Rows used as simplifying for both the outcome and its negation. Excluded.														
Remainder rows contradicting necessity. Excluded.														
Excluded based on plot of truth table row and PRI values.														
Row	CON	FOR	MAR	DIS	HR	ENV	OUT	n	incl.	PRI	HR	ENV	DIS	FOR
30	0	1	1	1	0	1	1	2	0.914	0.56				
28	0	1	1	0	1	1	1	3	0.912	0.555				
2	0	0	0	0	0	1	1 -> 0	3	0.908	0.432				
38	1	0	0	1	0	1	1 -> 0	2	0.906	0.465				
4	0	0	0	0	1	1	1 -> 0	2	0.902	0.469				
16	0	0	1	1	1	1	1	2	0.902	0.524				
62	1	1	1	1	0	1	1	3	0.895	0.545				
7	0	0	0	1	1	0	1	2	0.893	0.444				
1	0	0	0	0	0	0	1 -> 0	4	0.892	0.344				
3	0	0	0	0	1	0	1 -> 0	2	0.891	0.371				
22	0	1	0	1	0	1	1	2	0.89	0.464				
18	0	1	0	0	0	1	1 -> 0	4	0.886	0.384				
60	1	1	1	0	1	1	1	3	0.88	0.462				
54	1	1	0	1	0	1	1	4	0.88	0.475				
36	1	0	0	0	1	1	1 -> 0	7	0.877	0.397				
19	0	1	0	0	1	0	1 -> 0	2	0.876	0.386				
49	1	1	0	0	0	0	1 -> 0	3	0.874	0.294				
35	1	0	0	0	1	0	1 -> 0	4	0.873	0.273				
48	1	0	1	1	1	1	1	4	0.872	0.465				
32	0	1	1	1	1	1	1	11	0.87	0.566				
23	0	1	0	1	1	0	1 -> 0	2	0.869	0.463				
50	1	1	0	0	0	1	1 -> 0	4	0.869	0.361				
8	0	0	0	1	1	1	1	6	0.865	0.427				
39	1	0	0	1	1	0	1 -> 0	3	0.864	0.329				
20	0	1	0	0	1	1	1 -> 0	6	0.862	0.389				
40	1	0	0	1	1	1	1 -> 0	6	0.842	0.376				
51	1	1	0	0	1	0	1 -> 0	5	0.833	0.266				
64	1	1	1	1	1	1	1	45	0.83	0.607				
24	0	1	0	1	1	1	0	13	0.825	0.414				
55	1	1	0	1	1	0	0	12	0.825	0.437				
52	1	1	0	0	1	1	0	14	0.813	0.335				
56	1	1	0	1	1	1	0	63	0.758	0.462				
27	0	1	1	0	1	0	?	1	0.933	0.613				
43	1	0	1	0	1	0	?	1	0.932	0.477				
44	1	0	1	0	1	1	?	1	0.926	0.529				

6	0	0	0	1	0	1	?	1	0.916	0.507				
5	0	0	0	1	0	0	?	1	0.911	0.448				
17	0	1	0	0	0	0	?	1	0.903	0.391				
59	1	1	1	0	1	0	?	1	0.9	0.457				
9	0	0	1	0	0	0	?	0	-	-				
10	0	0	1	0	0	1	?	0	-	-				
11	0	0	1	0	1	0	?	0	-	-				
12	0	0	1	0	1	1	?	0	-	-				
13	0	0	1	1	0	0	?	0	-	-				
14	0	0	1	1	0	1	?	0	-	-				
15	0	0	1	1	1	0	?	0	-	-				
21	0	1	0	1	0	0	?	0	-	-				
25	0	1	1	0	0	0	?	0	-	-				
26	0	1	1	0	0	1	?	0	-	-				
29	0	1	1	1	0	0	?	0	-	-				
31	0	1	1	1	1	0	?	0	-	-				
33	1	0	0	0	0	0	?	0	-	-				
34	1	0	0	0	0	1	?	0	-	-				
37	1	0	0	1	0	0	?	0	-	-				
41	1	0	1	0	0	0	?	0	-	-				
42	1	0	1	0	0	1	?	0	-	-				
45	1	0	1	1	0	0	?	0	-	-				
46	1	0	1	1	0	1	?	0	-	-				
47	1	0	1	1	1	0	?	0	-	-				
53	1	1	0	1	0	0	?	0	-	-				
57	1	1	1	0	0	0	?	0	-	-				
58	1	1	1	0	0	1	?	0	-	-				
61	1	1	1	1	0	0	?	0	-	-				
63	1	1	1	1	1	0	?	0	-	-				

Figure 9: Sufficient solution model for the outcome success with four paths



3.3.1. Parameters of fit

For the model presented here, the consistency of sufficiency threshold used for truth table rows was conservative (0.826).¹⁶ The coverage obtained for the entire model (0.716) expresses how much of the outcome is explained. This indicates that the model has empirical importance, but that there still are 52 globally uncovered cases.¹⁷ We believe we obtained a balance between conservative consistency and acceptable coverage. Additionally, we chose $n=2$ cases for each truth table combination to be considered as having empirical evidence. The truth table rows were inspected and plotted, row 35 was excluded based on the plot and the PRI score. The analyses in the sections 3.3.4 to 3.3.8 focus on types of cases to inform on the rendered paths.

Table 7: Solution model: paths, parameters*

Intermediate solution (identical to parsimonious solution)	Consistency (inclusion)	Raw coverage	Unique coverage
Model	0.758	0.716	-
Path (1) hr*DIS*ENV*FOR	0.854	0.399	0.022
Path (2) HR*ENV*FOR*MAR	0.804	0.645	0.012
Path (3) HR*DIS*ENV*MAR	0.800	0.651	0.008
Path (4) HR*DIS*for*mar*con	0.856	0.332	0.016

*Consistency expresses in how far a subset relation of condition and outcome exists, ranges from 0 (no subset) to 1 (perfect subset relation). Raw coverage expresses how much of the outcome is explained by the sufficient path. Unique coverage expresses how much of the outcome is covered only by the particular path. Paths with null unique coverage completely overlap with other paths in a model in terms of the cases they cover.

¹⁶ Consistency of sufficiency is a parameter of fit that measures how closely the empirical evidence comes to a perfect subset relationship, in this case a relationship of sufficiency.

¹⁷ Globally uncovered cases are cases that present the outcome, but are not part of any of the sufficient paths in the solution. A less than perfect coverage is a normal result in QCA, since the main focus is on finding consistent subsets of the outcome and equifinal paths to success rather than on explaining more of the outcome.

3.3.2. Hidden necessary conditions

In the analysis presented in this report hidden necessary conditions emerge (Schneider & Wagemann, 2012, pp. 221–227). Under perfect circumstances in QCA, all necessary conditions are rendered as present ingredients of sufficient paths. The hidden necessary conditions are related to the survey nature of the data where the scores of cases do not neatly cluster, and to the inconsistent truth table rows. Schneider and Wagemann (2012, pp. 221–227) see a potential cause in skewedness of data. In addition, the necessary conditions themselves have less than perfect consistency. Not only are the necessary conditions strong human resources, form, distribution and environmental orientation not always rendered as ingredients of paths to success, two of the conditions become in an absent state an ingredient of paths. We regard this as a not quite resolved problem in QCA, which rendered an erroneous result here. It follows, that we acknowledge the hidden necessary conditions, but refrain from discussing and interpreting them.

3.3.3. Deviant cases

Typical and exemplary for sufficiency are cases that have a membership of higher than 0.5 in both the outcome and the sufficient path, and the membership in the sufficient path is lower than in the outcome (a subset relation). The inspection of deviant cases serves to verify the qualification of sufficiency. In addition, however, deviant cases are in this analysis also inspected to inform further on the character of a sufficient path. Deviant cases with regard to consistency in kind are cases that go against the finding of sufficiency in a qualitative way by being a member of the path (> 0.5), but not showing high scores on the outcome (< 0.5). These deviant cases for consistency in kind are, as previously done for necessity in 3.2.3, distinguished into four types: borderline cases (deviant cases of type 1), cases with unconvincing assessments of the path's conditions or the outcome (type 2, and type 3, respectively), and cases for which an explanation for the deviant status needs to be rendered (type 4). The types 1 to 3 do not evidence the rejection of sufficiency, and the verdict is open on type 4.

3.3.4. Path (1): The 'legacy mainstream media' path to success: strong distribution, environmental orientation, form, and absent strong human resources

The Boolean notation of the path is:

- (1) $hr*DIS*ENV*FOR \rightarrow OUT$

All the paths are characterized by relatively low unique coverage, which means that there is significant overlap between them. The path with the highest unique coverage emerging from the data consists of the intersection of good distribution, environmental orientation and form. This tells us that in one of the ways in which a product can achieve success in audience market shares, the environment needs to be strongly reflected upon, the product needs to be well-designed, and it also needs to be accurately distributed. The path ($hr*DIS*ENV*FOR$) also consists of the (necessary) condition strong HR that is rendered in an absent state. The latter is regarded as erroneous in this analysis, and is not interpreted or discussed as a true ingredient of the path to success (see section 3.3.2.).

While we can analyze large-N data in a systematic manner with QCA, the qualitative nature of the research approach also requires an emphasis on the cases as “parameters of fit are not an end in themselves” (Schneider & Wagemann, 2012, p. 150). See Table 8 for the (most) typical cases (the highest membership scores on the path as well as the outcome, and as close to the diagonal as

possible), and the most deviant cases for consistency. The latter are the cases where the difference is largest between a high membership of the path (> 0.5) and a low membership of the outcome success (< 0.5).

Table 8: Cases with path (1): human resources (absent), distribution, form and environmental orientation

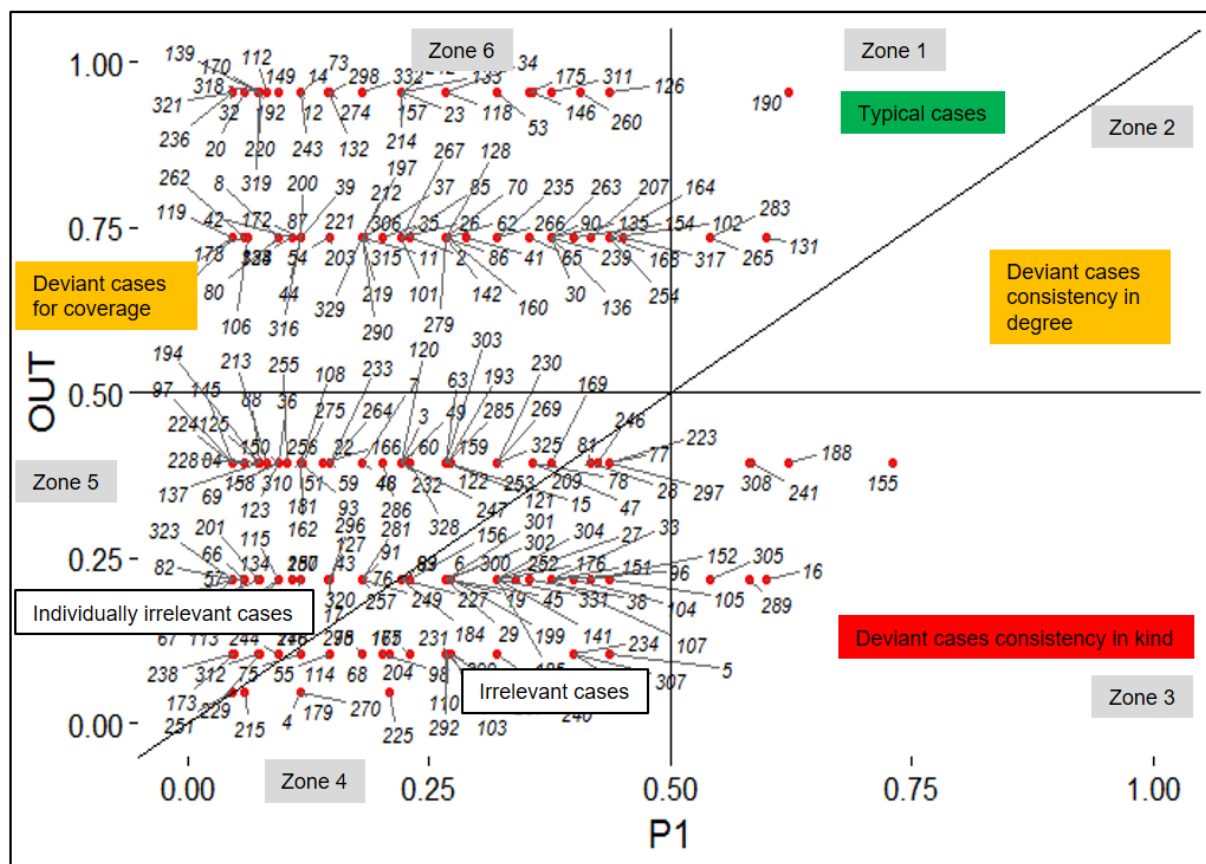
Path (1): hr*DIS*ENV*FOR → OUT					
Case	Respondent	Seriality Type	Content Type	Medium	Path
Most typical and uniquely covered case					
131 Regional newspapers of legacy national newspaper publisher	Head	Continuous	Information	Print, online (equally important, i.e., cross-media)	1
Additional typical and uniquely covered cases					
265 Sports website of TV station	Chief-editor	Continuous	Infotainment	Online, TV (cross-media)	1
190 Regional TV station	Program head	All (portfolio)	All (portfolio)	TV, online (cross-media)	1
283 Regional website	Chief-editor	Continuous	All (portfolio)	Online	1
Most deviant case for consistency					
16 Newspaper for small region	Editor	Continuous	Information	Print (primary), online (secondary)	1
Additional deviant cases for consistency					
289 National information product	CEO, owner, founder	Continuous	Information	TV, online (cross-media), print (sec.)	1
305 Trade press product on water management	Manager	Continuous	Information	Print, online (cross-media)	1
155 Magazine on education and science	Manager	Continuous	Information	Print, online (cross-media)	1
188 TV station for small region	Manager	All (portfolio)	All (portfolio)	TV, online (cross-media)	1
241 Regional crime stories series	Publisher, author	One-off, multi-part	Entertainment	Book	1
308 Local news product	Employee	Continuous	Information	TV, online (cross-media)	1

The nature of the paths is exemplified by inspecting the outstanding features of cases that show the path to success. The cases covered by path (1) are large regional media, and a sports website. The cases are established legacy outlets. Continuously producing outlets are typical of the path, and one case shows all seriality types, i.e., the ‘portfolio’ answers that refer to all products of, for example, a

TV station that offers continuous, multi-part and one-off programs. The content types of the typical cases vary: information and infotainment are present, but portfolio answers (the answers refer to all content types, for example by the respondent of a regional website) domineer. The cases deploy print, online and TV, but most typical are cross-media products. The manager of the division regional media of a legacy newspaper responded for the case that is most typical of the path (1). This portfolio of products continuously disseminates regional information, while newspapers and websites are designated as equally important. The respondents of the typical cases have managerial roles and are not deeply involved in content creation.

The most deviant case shows a high membership in the path (1), but has a low success score. The case is a regional information outlet that is not cross-media, and the role of the respondent is strongly content-related. The case is no longer deviant if the outcome is corrected upwards (deviant case type 3). This would be warranted, because the achievement of targeted audience market shares of the product seems underrated compared to the other audience success measures. In the same vein, most of the additional deviant cases are not evidencing the rejection of sufficiency: the outcome score is by comparison underrated (deviant case type 3), or the raw outcome score is not low (i.e. score of 4, deviant case type 1). One deviant case (type 4) is a reputable national news multi-media project (TV, online, print), for which the founder/owner responded. Despite accurately catering to the building blocks in the path, success is marginal in the eyes of the notoriously ambitious respondent. Therefore, this case possibly illustrates the bias caused by (unrealistically) high ambitions of the respondent (as discussed in footnote 3).

Figure 10: Plot* of path 1 (DIS*FOR*ENV*hr) and outcome success (OUT)



*Additional information in all plots based on Schneider and Roling (2013).

The deviant cases are with good reasons rejected as evidence against sufficiency, yet they can be inspected to inform further on the character of the path to success. The intersection of high conditions distribution, environmental orientation and form is not the path to success for products with a limited topical width and corresponding audience potential: the typical cases are all more established, are better known, have larger audience potential and cover wider topics than the deviant cases. In addition, compared to the deviant cases, the typical cases' respondents are higher in the hierarchy and less involved in content composition.

3.3.5. Path (2): The 'special interest media' path to success: strong human resources, environmental orientation, marketing and form

The Boolean notation of the path is:

- (2) HR*ENV*FOR*MAR → OUT

Path (2) has a low unique coverage. Many cases are multiple covered by paths (2) and (3). The two paths only differ in one ingredient: form in path (2) is replaced by distribution in path (3). We first elaborate on the unique cases of path (2) and path (3), before we inspect the cases that show both paths.

The intersection of the conditions 'good' human resources (HR), environmental orientation, marketing and form is the second path emerging from the data. The only typical case of the path is a one-off entertainment film that is represented by the producer. The film is of a specific genre (action comedy western) and bases on well-known characters and story. Several cases are deviant for consistency in kind in the path (2). Regarding seriality and content these cases are of all categories. Cross-media cases are seldom. The respondents are predominantly involved in content creation or composition. The evidence against sufficiency of path (2) is not strong. Two cases are borderline cases (deviant case type 1). The respondents of two other deviant cases underrate the outcome score compared to other audience success items in the survey (type 3). The last case qualifies as highly deviant for consistency in kind (type 4): a children's book on building that consists of poems, photos and images. The outcome is rated as low by the surveyed author.

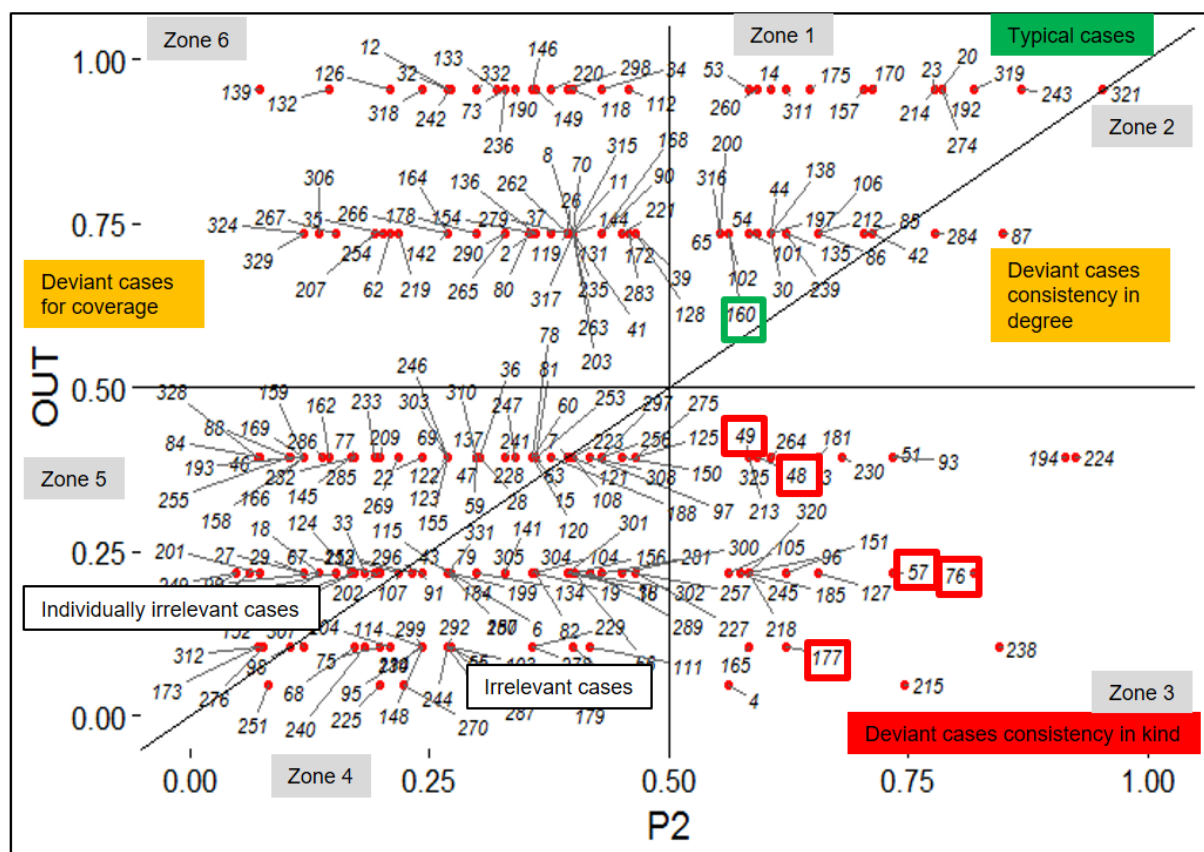
Table 9: Cases in path (2): human resources, environmental orientation, marketing and form

Path 2: HR*ENV*FOR*MAR → OUT					
Case	Respondent	Seriality Type	Content Type	Medium	Path
Uniquely covered typical case					
160 Feature film, comedy based on series of novels	Producer	One-off	Entertainment	Film	2
Deviant cases for consistency					
48 Political discussion program of PSB	Chief-editor	Continuous	Information	TV (1 st), online (2 nd)	2
49 Regional radio station	Manager	Continuous	Information	Radio (1 st), online (2 nd)	2
57 Women's magazine on entertainment and celebrities	Chief-editor	Continuous	Entertainment	Print (1 st), online (2 nd)	2

76 PSB foreign news reports	Vice chief-editor, info department PSB	Continuous	Information	TV, radio, online (cross-media)	2
177 Poetry/photo book	Author	One-off	Infotainment	Book	2

Inspecting the deviant cases informs further on the path (2). The political discussion program is in transition, and it (possibly) needs more time to regain its former and targeted market shares. The regional radio station and the entertainment women's magazine have acceptable market shares but are perceived by the respondents as struggling in an expanding multi-platform market for all content, and entertainment, respectively. The vice-head of foreign news reports feels under pressure from a decrease in interest, status, and budget, which overshadows the market share assessment. Success expectations of respondents that are deeply involved in content creation are more likely to be high, and disappointment of exaggerated expectations taints the assessment of the outcome.

Figure 11: Plot* of path 2 ($HR*ENV* MAR*FOR$) and outcome success (OUT)



* Unique typical and deviant cases of path 2 marked by green and red squares, respectively. The unmarked cases in zones 1 to 3 are the multiple covered cases of paths (2) and (3). This distinction is not made for the (not inspected) cases in zones 4 to 6.

3.3.6. Path (3): The 'cross-media niche information' path to success: strong human resources, environmental orientation, marketing and distribution

The Boolean notation of the path is:

- HR*DIS*ENV*MAR → OUT

The intersection of the conditions 'good' human resources, environmental orientation, marketing and distribution is the third path emerging from the data.

The unique typical cases showing path (3) are cross-medially disseminated continuous information products with a moderate to narrow topical focus: critical consumer information, and 'grassroots' information (TV and online) on a small region. The respondents are involved in content composition or management. The most typical case of the path, a consumer information product, was represented by the chief-editor. This reputable, long-established magazine and its website continuously publish information on products and services from a highly critical consumer perspective.

Table 10: Cases in path (3): human resources, environmental orientation, marketing and distribution

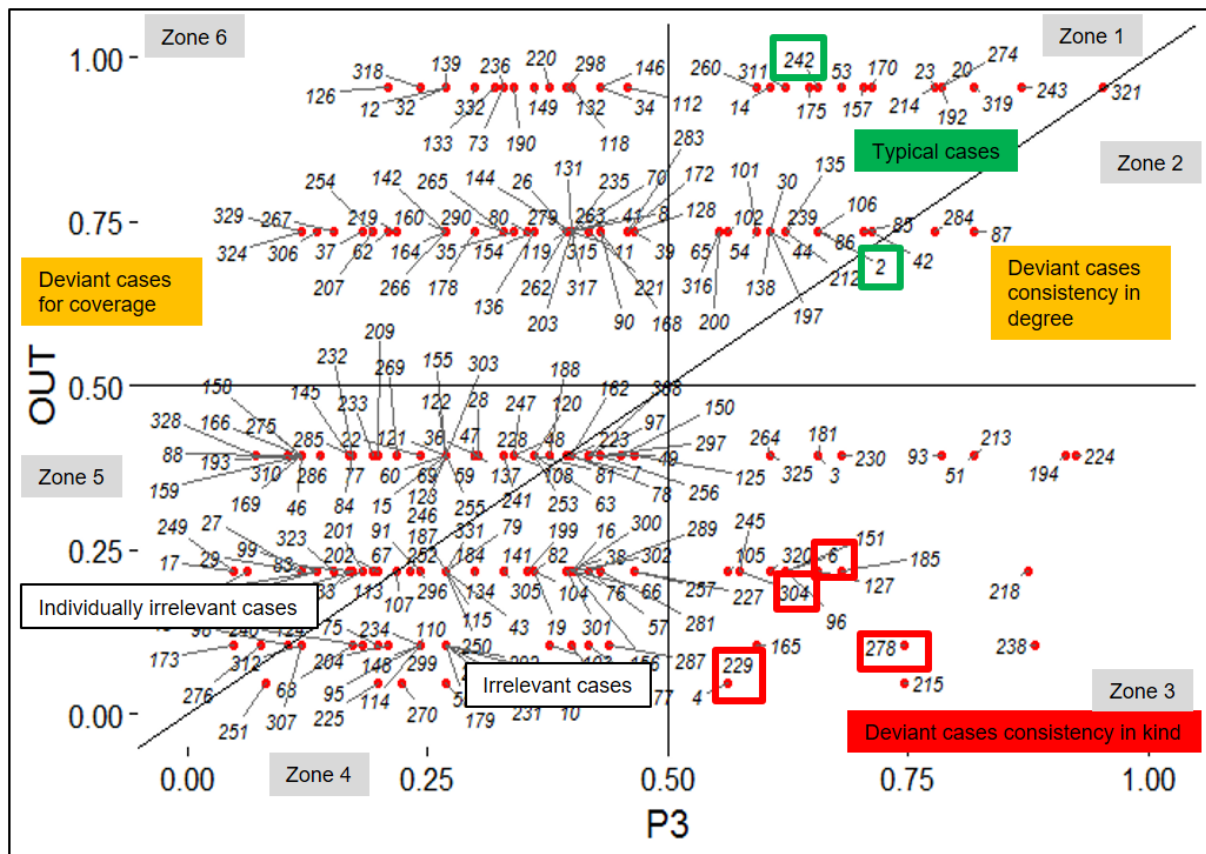
Path 3: HR*DIS*ENV*MAR → OUT					
Case	Respondent	Seriality Type	Content Type	Medium	Path
Uniquely covered typical cases					
2 Consumer information publication	Chief-editor	Continuous	Information	Print, online (cross-media)	3
242 Regional information program & website	Manager production company	Continuous	Information	TV, online (cross-media)	3
Deviant cases for consistency					
6 Corp. communication consulting and publishing	CEO	One-off	Information, infotainment	Book, online (cross-media)	3
229 Online portal for religious community	Chief-editor	Continuous	Information	Online (1 st), TV, radio (2 nd)	3
278 Publisher of health information	Manager	Continuous	Information	Print	3
304 Regional information publisher	Manager	Continuous	Information	Online, TV, radio (cross-media)	3

The deviant cases have high scores (> 0.5) on the path, but low scores on the outcome success (< 0.5). For two of the unique deviant cases, the assessed outcome (success in terms of reaching targeted shares of the audience market) is largely irrelevant: a publisher of corporate communication products and an information product pertaining to a local religious community (deviant cases type 4). The publisher on health and nutritionist issues seems to underrate the in this QCA deployed success item in comparison to three other audience success measures in the survey (deviant case type 3) and assesses the market shares targets for several products simultaneously: daily newspapers, magazines

and electronic media, which could be why this case emerges as deviant. The fourth unique deviant case also underrates the outcome compared to the other audience success items (type 3).

The deviant cases do not reject sufficiency, but they inform on the path and the outcome: time is a factor in realizing market shares, the markets need to be correctly defined, and achieved market shares are likely to be perceived as not large enough by very idealistic and/or ambitious respondents.

Figure 12: Plot* of path 3 (HR*ENV*MAR*DIS) and outcome success (OUT)



*Unique typical and deviant cases of path 3 marked by green and red squares, respectively. The unmarked cases in zones 1 to 3 are the multiple covered cases of paths (2) and (3). This distinction is not made for the (not inspected) cases in zones 4 to 6.

3.3.7. Path (2) & (3): The 'all topical media' path to success: strong human resources, environmental orientation, marketing, form and distribution

The overlap between paths (2) and (3) consists of strong human resources, environmental orientation, marketing, form and distribution. The overlap between the paths is shown by 53 multiple covered cases, of which 30 are successful.

Table 11: Multiple cases in path (2) and (3): human resources, environmental orientation, marketing, form and distribution

Multiple covered cases by
 Path 2: HR*ENV*FOR*MAR → OUT
 Path 3: HR*DIS*ENV*MAR → OUT

Case	Respondent	Seriality Type	Content Type	Medium	Path
Most typical case for paths 2 & 3					
321 Film production company	Owner, manager	One-off	All (portfolio)	Film	2, 3
Additional typical cases for paths 2 & 3					
42 Entertainment programs of PSB	Department head	All	Entertainment	TV (1 st), online (2 nd)	2, 3
85 Regional newspaper	Advertising head	Continuous	All (portfolio)	Print, online, TV (cross-media)	2, 3
86 Relaunched regional newspaper	Former chief-editor	Continuous	All (portfolio)	Print, online (cross-media)	2, 3
106 Culinary magazine	Chief-editor	Continuous	Information, infotainment	Print (1 st), online (2 nd)	2, 3
243 Production company for documentaries, reports	CEO	One-off, multi-part	Infotainment	TV, online (cross-media)	2, 3
14 Feature film	Producer	One-off	Entertainment	Film, (later) TV, online	2, 3
20 Special edition computer magazine	Manager of publisher	One-off	Infotainment	Print (1 st), online (2 nd)	2, 3
23 Advertising-based TV station	CEO	All (portfolio)	Enter-/infotainment	TV (1 st), online (2 nd)	2, 3
30 Regional newspaper	Manager	Continuous	Information	Print (1 st), online (2 nd)	2, 3
44 Health event	Publisher	One-off	Information	Print, TV, radio, online (cross-media)	2, 3
53 Regional newspaper	Manager	Continuous	Information	Print (1 st), online (2 nd)	2, 3
54 Culinary magazine	Manager	Continuous	Information, infotainment	Print (1 st), online (2 nd)	2, 3
65 Photo agency	CEO	One-off	All (portfolio)	Print, online (cross-media)	2, 3
102 Regional newspaper	Head advertising acquisition	Continuous	Information	Print (1 st), online (2 nd)	2, 3
138 Regional newspaper	Manager	Continuous	Information	Print (1 st), online (2 nd)	2, 3
157 Regional radio station	Manager	All (portfolio)	All (portfolio)	Radio	2, 3
170 Regional information	Editor	All (portfolio)	Information	Radio, TV (1 st), online (3 rd)	2, 3

175 B2B trade press product for technological sector	Manager	Continuous	Information	Print (1 st), online (2 nd)	2, 3
192 Regional news of legacy newspaper	Manager	Continuous	Information	Print, online (cross-media)	2, 3
197 Biography of classical singer	Publisher	One-off	Information	Book	2, 3
200 Law publications	Manager	All (portfolio)	Information	Print, online (cross-media), book	2, 3
212 Regional bar and restaurant guide	Publisher	One-off	Infotainment	Book	2, 3
214 Local radio station	Chief editor	All (portfolio)	All (portfolio)	Radio	2, 3
239 Regional newspaper	Chief editor	Continuous	Information	Print (1 st), online (2 nd)	2, 3
260 B2B trade press product for machine engineering	Vice-chief editor	Continuous	Information	Print (1 st), online (2 nd)	2, 3
274 Reality TV show	Producer	Multi-part	Entertainment	TV, online (cross-media)	2, 3
311 Regional newspaper	Chief editor	Continuous	Information	Print (1 st), online (2 nd)	2, 3
316 National legacy newspaper	Chief editor	Continuous	Information	Print, online (cross-media)	2, 3
319 Regional TV stations of legacy newspaper	Manager	All (portfolio)	All (portfolio)	TV	2, 3
Most deviant case for consistency for paths 2 & 3					
215 Trade press product for physiotherapy	Chief editor	Continuous	Information	Print (1 st), online (2 nd)	2, 3
Additional deviant cases for paths 2 & 3					
4 Sports program of PSB	Chief editor	Continuous	Information	TV (1 st), online (2 nd)	2, 3
165 Publisher religious sources	Owner-manager	Multi-part	Information	Book, online (cross-media)	2, 3
185 Publisher regional newspapers	Manager	Continuous	Information	Print (1 st), online (2 nd)	2, 3
218 Regional newspaper	Manager	Continuous	Information	Print, online (cross-media)	2, 3
238 Travel magazine	Manager	Continuous	Infotainment, information	Print (1 st), online (2 nd)	2, 3

51 News of regional radio station	Chief editor	Continuous	Information	Radio (1 st), online (2 nd)	2, 3
127 Magazine on parenting	Manager	Continuous	Information	Print (1 st), online (2 nd)	2, 3
151 Regional radio station	Manager	All (portfolio)	Entertainment	Radio, online (cross-media)	2, 3
96 Regional newspaper	Chief editor	Continuous	Information	Print (1 st), online (2 nd)	2, 3
3 Cooking program	Manager	Multi-part	Entertainment	TV, print, radio, online (cross-media)	2, 3
93 Regional newspaper	Chief editor	Continuous	Information	Print (1 st), online (2 nd)	2, 3
105 Regional TV station	Head	All (portfolio)	All (portfolio)	TV (1 st), online (2 nd)	2, 3
181 B2B trade press product for German technological industry	Head	Continuous	Information	Print (1 st), online (2 nd)	2, 3
194 Regional radio station	Chief editor	All (portfolio)	All (portfolio)	Radio (1 st), online (2 nd)	2, 3
213 Regional news report	Chief editor	Continuous	Information	Radio, online, TV (cross-media)	2, 3
224 Publishing house children's books	Press officer	One-off	Entertainment	Book, online (cross-media)	2, 3
230 B2B trade press publication on toys trade and manufacturing	Manager	Continuous	Information	Print, online (cross-media)	2, 3
245 Trend guide wine, advertising	CEO marketing company	Continuous	Infotainment, advertising	Print, online (cross-media)	2, 3
264 Magazine on autos and motorsport	Chief editor	Continuous	Information	Print (1 st), online (2 nd)	2, 3
320 Regional newspaper, auction of goods	Manager, publisher	One-off	Information	Print, online, TV (cross-media)	2, 3
325 Regional radio station	Ex-chief editor	All (portfolio)	All (portfolio)	Radio, online, (cross-media)	2, 3

Comparing all typical cases in the overlap between paths (2) and (3) to the overall data structure along dimensions informs on this particular route to success. The primary medium of the multiple covered cases is more often print, radio and film than in the overall data structure. Although online-only products are absent, the medium type is omnipresent as part of cross-media dissemination or as secondary platform. The share of one-off products is larger, and the share of multi-part products is smaller at the multiple covered cases in the paths (2) and (3), than in the complete data set. The type of content information is more present, and infotainment is underrepresented compared to the overall data structure.

Table 12. Shares of medium, seriality and content types of all cases versus the cases multiple covered by paths (2) and (3)

Shares of primary medium, seriality and content types								
Primary medium			Seriality type			Content type		
Type	Sample	P. 2&3	Type	Sample	P. 2&3	Type	Sample	P. 2&3
Print	34%	52%	Continuous	58%	61%	Information	56%	70%
TV	21%	14%	Multi-part	17%	4%	Infotainment	24%	13%
Book	18%	10%	One-off	25%	35%	Entertainment	20%	17%
Online	12%	0%	<i>N cases</i>	255	23*	<i>N cases</i>	255	23*
Radio	9%	14%						
Film	6%	10%						
<i>N cases</i>	255	21*						

**Cross-media/portfolio cases (with undetermined types) are excluded.*

The most typical case displaying the two paths is a film company that is represented by the owner-manager, who in answering referred to the range of products of his company. The company produces all types of content: fictional films and documentaries for cinema, TV and online aggregators. The character of the other very typical cases shows a wide variety: audio-visual products for cinema and for (public service as well as advertising-based) TV, regional information print and online products, magazines with websites on culinary interests, a special edition of ICT trade press and a multi-media event. The respondents have mostly managerial, business and representational responsibilities at their product.

The deviant cases are numerous and vary wide, but valid reasons can be found to reject them as evidence against the qualification of sufficiency of the path. Eleven cases are borderline cases (deviant case type 1). Four cases have, in comparison to other success items, assessed the deployed outcome in comparison with other success items as too low (type 3). These cases ought thus to be considered as deviant for consistency in degree¹⁸, which is not strong evidence against sufficiency. The most deviant case distributes trade information to physiotherapy professionals: not all five building blocks seem relevant but are nonetheless rated high by the respondent. Thus, the evidence this case can provide against sufficiency is doubtful (type 2), it should not show the path. Seven deviant cases need to be explained further. A PSB legacy sports program has a large audience and corresponding market shares. Case inspection showed, that the low outcome score reflects the pressure on the PSB, as perceived by the respondent, in a disrupted market where sports broadcasting rights are a hotly contested commodity. The same line of argumentation holds for two established regional broadcasters (radio, and TV, respectively): the decent audience size and market shares are discarded by the respondents as low in markets that are under increased pressure from online information and entertainment. The publishing of religious source materials is executed in market of an indefinable size. In this case, the commitment to the product and the respondent's ambitions perhaps overshadow realistic market expectations. The same holds for an advertising product: it is (wrongly) perceived as underperforming in an infotainment market.

3.3.8. Path (4): The 'continuous topical information' path to success: strong human resources, distribution, marketing (absent) and content (absent)

The Boolean notation of the path is:

- HR*DIS*for*mar*con → OUT

The path (4) consists of good human resources and distribution, next to the absence of well-executed marketing and the absence of high quality form and content. The absence of 'good' form (for) is a hidden necessary condition, and is not interpreted, as explained in section 3.3.2.

Table 13: Cases in path (4) distribution and human resources

Path 4: HR*DIS*for*mar*con → OUT					
Case	Respondent	Seriality Type	Content Type	Medium	Path
Most typical and uniquely covered cases					
279 Travel books	Publisher	Continuous production of books	Infotainment	Book	4
164 Regional newspaper	Manager	Continuous	Information	Print, online (cross-media)	4
Additional typical cases					
132 Financial news website	CEO	Continuous	Information	Online (print edition cancelled)	4
Most deviant case for consistency					
17 Environmental lifestyle website	Chief-editor	Continuous	Information	Online	4

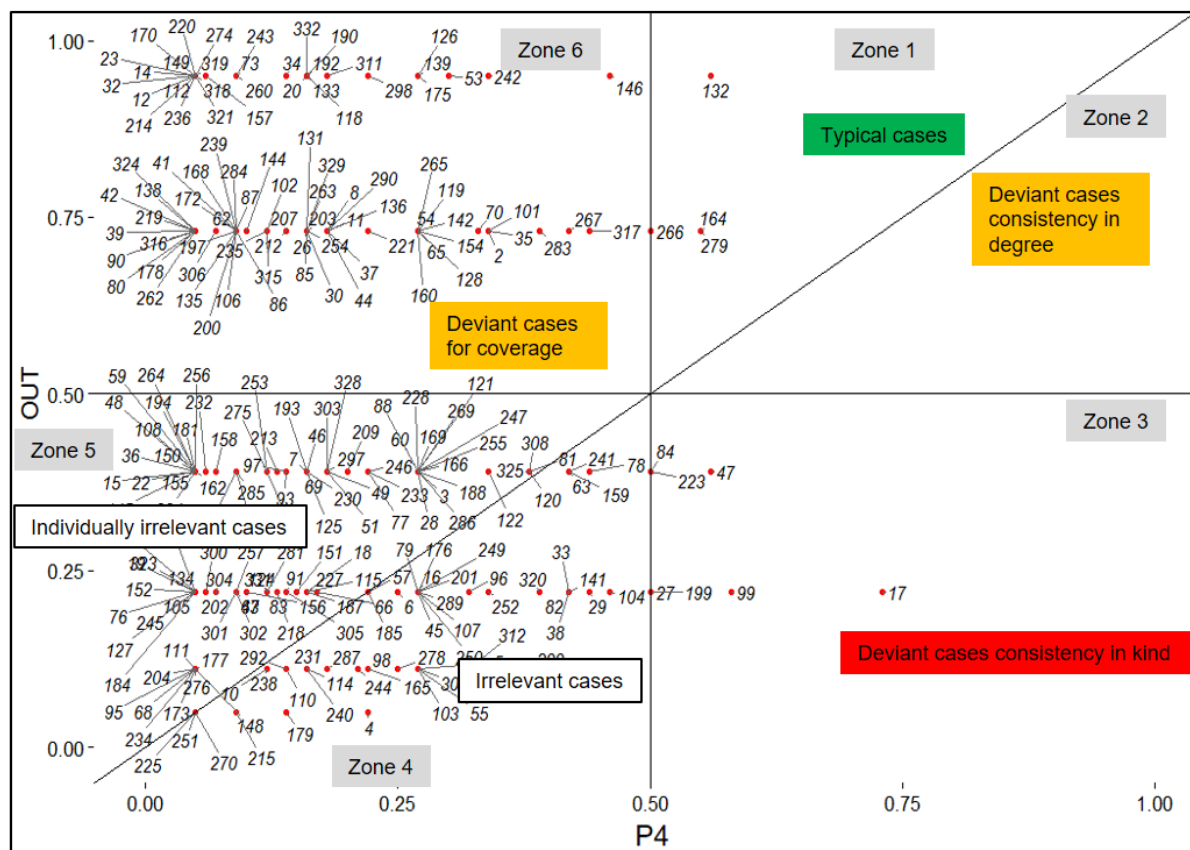
¹⁸ The score on the overlapping paths 2 & 3 is higher than the score on the outcome, but both are > 0.5.

Additional deviant cases for consistency					
99 Real estate business trade press publications	Manager	Continuous	Information	Print, online (cross-media)	4
84 B2B trade press publication, technology production sector	Owner-manager	Continuous	Information	Print, online (cross-media)	4
47 Architecture magazine	Chief-editor	Continuous	Information	Print, online (cross-media)	4
223 Publishing house of small regional newspapers	Head advertising	Continuous	Information	Print, online (cross-media)	4

The two most typical cases of path (4) are an ongoing series of travel books (infotainment), for which the publisher responded, and a continuously producing, small regional newspaper with cross-medial (print, online) distribution of information, for which the manager responded. In addition, a continuously producing online product offering financial and stock exchange news, that cancelled the print version, is typical of path (4).

If one regards the deviant cases as valid, it stands to attention that path (4) is not the route to success for cross-medially disseminated niche products. However, we find strong arguments for rejecting the evidence rendered by the deviant cases. The most deviant case for path (4) is a website dedicated to the promotion of environmental conscious lifestyles. Idealistic goals perhaps distort the formulation of realistically achievable audience targets. The targets are apparently not fulfilled, despite all efforts, at this media product brand. Three of the other deviant cases are borderline cases (type 1) and do not evidence rejection of sufficiency of the path. The real estate publications have a high reach and have allegedly a good reputation among its audience. The market share is marginal, an assessment that might also be evoked by the fact that three different products are concerned and that the share in the three related, yet different, markets cannot be easily assessed. In addition, the overall audience market is hard to define: just real estate sellers, brokers, professionals and agents, or the larger group of all people with an (investment) interest in real estate.

Figure 13: Plot of path 4 (HR*DIS*for*mar*con) and outcome success (OUT)



4. Discussion and outlook

For the analysis discussed in this report, the building blocks of media success were distinguished into remote and proximate conditions. The remote conditions are the 'upstream' and 'process' conditions (1) organizational facets, (2) internal processes, (3) environmental orientation, (4) leadership, (5) human resources, and the 'downstream' condition (6) external evaluation. The proximate conditions are the 'upstream' and 'product' conditions (7) content and (8) form, and the 'downstream' conditions (9) marketing and (10) distribution. Four conditions qualified as necessary for success: (3) environmental orientation, (5) human resources, (8) form, and (10) distribution.

In the media markets in Germany, Austria and Switzerland, brands that continuously disseminate information form a large share of the media outlets. Accurate (3) environmental orientation emerges as necessary. Media product brands thus seem to have to be well entangled with, and strongly aware of, their societal and economic context to achieve the envisioned shares of the market(s). High levels of interaction with the surrounding world of the brand, as well as adapting to the interests of various target audiences, advertisers, and to the developments on the brands' markets are important for information outlets, like the numerous regional, trade information and daily news suppliers in the sample. Scholars find the factors in this building block (often in addition to distribution) important for success: Habann (2010) for online platforms of established media, Clement (2004), Meiseberg and Ehrmann (2008), and Simonton (2009) for cinema products, and Shamsie et al. (2006) for TV offerings. The building block's factors of success also emerged in work by Kim (2009) for the film market in relation to the cultural atmosphere, and Tschörtner (2008). The latter highlights the importance of market and societal knowledge for success of magazines that are newly launched on the market. McDowell (2006) discusses the factors in the building block as leading to success in relation to branding strategies and marketing practices.

Media production consists almost exclusively of complex teamwork, with (many) individuals fulfilling necessary and mutually dependent (complex and/or creative) tasks. One-off and multi-part media offers (films, books, TV series, etc.) are often produced by project-based networks, which are (re-) composed for a particular product. The characteristics and competences of key personnel can be a resource in competition between media brands (von Rimscha & Siegert, 2015, pp. 151–168). Against this backdrop the condition (5) good human resources emerges as necessary for success. Henkel and Huber (2005) find stardom and prominence driving success in media. For books, Clement et al. (2007) and Schmidt-Stölting et al. (2011) see bestselling authors and competence of staff as success factor. Basuroy et al. (2003), Desai and Basuroy (2005), Elberse (2007), Elliott and Simmons (2008), and Simonton (2009) discuss among others the relevance of stars for the box office revenue of films.

The causally proximate product condition (8) good form is also necessary for success. Its advent as a necessary success set of factors can be said to exemplify the media Zeitgeist. In the age of proliferation of outlets for media content, well-executed versioning (for different channels and technologies) of the core product attains utmost importance and requires more resources than ever before. In addition, the standards of the audience are raised by the introduction and deployment of do-it-yourself production and design tools. The building block's rapidly increasing prevalence in the perception of media decision makers over the last years also reflects in a (previous) lack of probes of the condition in comparison to other (necessary) building blocks. Some scholars did investigate: Bleis (1996) finds design of importance with respect to the successful market entry of periodicals, Schönbach (2004) links the factors to newspapers' success, and Blömeke et al. (2007) to books' success. In addition, Siegert et al. (2011) connect the factors in the building block to success from a brand-oriented perspective.

With a wealth of dissemination channels and subsequent rigorous struggle for an increasingly splintered audience, the proximate downstream condition (10) good distribution emerges as necessary. In the German, Swiss and Austrian markets small- and medium-sized media brands form the lion's share of the media outlets. For these brands, adequate distribution is critical whilst often not secured. In addition, although not under immediate threat, numerous legacy and/or large media brands acknowledge distribution as a key ingredient of the success formula. The importance of distribution for success confirms the stipulations of a substantial number of researchers. For success of movies, Lampel and Shamsie (2000), Clement (2004), Chang and Ki (2005), Liu (2006), Boatwright et al. (2007), Meiseberg and Ehrmann (2008), Simonton (2009), as well as Hennig-Thurau et al. (2012) find distribution essential. Wolf (2006) comes to the same verdict for advertising-based TV stations, Blömeke et al. (2007) for books, Tarkiainen et al. (2008) and Habann (2010) for online portals, and Chang and Chan-Olmsted (2010) for cable TV distributors.

The importance of (7) strong content for success of various media types and formats is proposed with regard to magazines by Bleis (1996), for newspapers by Schönbach (1997), and Schönbach (2004). The same goes for books by Blömeke et al. (2007), for TV live sports by Feddersen and Rott (2011), for film by Kim (2009), for online outlets by Wirtz and Ullrich (2009), and for commercial TV stations by Wolf (2006). The continuous process of selection (gatekeeping) and production of content is to some extent perceived, foremost at the many information outlets in the sample, as a routine. In addition, content is perceived as dictated by scheduled media events, or as preordained by news values, or, at infotainment and entertainment media, as confined by the (presupposed) taste patterns of the 'construct' audience (Lotz, 2014). From a research design perspective, it can be said that the building block content consists of items reflecting a wide range of interpretations of media workers about the elements and characteristics of the building block. Although assessed well (minimum index score 3.1), the agreement amongst the surveyed decision makers in the sample is too marginal for the condition to become necessary.¹⁹ From a media economics perspective, the fact that the condition does not emerge as necessary can count as another indicator of an often-observed and strongly lamented devaluation of content against the backdrop of digitalization, convergence, commercialization and a crisis of media confidence (von Rimscha & Siegert, 2015, pp. 57–71).

Many researchers have emphasized the indispensable contribution of (9) good marketing to success. For example, Clement (2004), Elliott and Simmons (2008), Kim (2009), and Hennig-Thurau et al. (2012) point at the factors in the building block regarding cinema box office success. Marketing contributes strongly to success of magazines find Bleis (1996), Rademacher and Siegert (2007), and Boatwright et al. (2007). With respect to brand management and brand extension, Baumgarth (2004) and Chang and Chan-Olmsted (2010) respectively, single the condition out. So do Habann et al. (2008), Habann (2010), and Schnell (2008) for newspapers. In addition, marketing is labeled a success factor at other media types, formats and organizations: books (Blömeke et al., 2007), TV series (Förster, 2011), radio (Greve, 1996), and advertising-based TV broadcasters (Wolf, 2006). In this study, the condition strong marketing does not qualify as necessary. Only marginal consensus materializes about which factors in the condition are adequately covered, which results in the lowest average score of all building blocks. Marketing based on advertising and audience market research is perceived as unfeasible by small media brands, and is, at larger brands, often internally or externally outsourced and deemed beyond the scope of the brands' core activities.

Four paths are sufficient for success. The path (1) evolves around the building blocks strong distribution, form, and environmental orientation.²⁰ It might not come as a surprise, that the

¹⁹ It has to be noted that for the cases in the sample, the union of content and marketing (i.e. either content or marketing) is necessary for success. Although not necessary, the two conditions have to be interpreted as important building blocks of success.

²⁰ Hidden necessary conditions are ingredients of path (1), human resources, and path (4), form, but are, as explained in section 3.3.2., disregarded and not discussed in the concluding section of this report.

intersection of three (out of four) necessary conditions emerges as a route to success. The path is shown by brands of all media, content and seriality types, whereby continuous information products (incl. sports) are common. Portfolio answers and cross-media cases are prominently present among the cases showing the path, which confirms its perceived relevance and applicability. For information media, the building block environmental orientation is important in all its facets: societal and regional orientation, market and competitor monitoring is essential in a very competitive environment. Cases showing the path deploy cross-media distribution. The building block good form then attains importance; each platform version requires its own well-designed and consistent repackaging, that suits the content of the media product brand well. The topical range of the product brands is wide, and most cover a multitude of subjects and try to serve the largest possible audience segments. This path can be interpreted as the **route to success for legacy mainstream media product brands** aiming at the largest possible shares of broad markets. Serving a large audience requires widespread accurate distribution in the sense of platforms, timing, and pricing, whilst tapping adequately into audiences' consumption. The path seems to match the 'mood' in the established media well: it echoes regularly verbalized management trends concerning high degrees of market and audience orientation and up-to-date professional production standards.

The sample consists of many small and medium sized media brands that concern themselves with specific regions, realms, topics, and stories. These cases have a more limited topical bandwidth than the cases in path (1), and show the other three paths that emerge in the data.

In the second path (2), good human resources, environmental orientation, form and marketing intersect to bring about success. The six cases that show only this path (i.e. unique cases) consist of all media and content types, and the most typical case is a feature film. Entertainment, infotainment, and one-off products are prominent in the path, compared to the overall sample. The cases in the path all have a topical focus, or are of a specific genre for which, by and large, the appeal is selective: **the special interest route to success**. A topical/genre market requires adequate positioning and intense exchange with the environment. The audience needs to be made aware of (the release of) the product by accurate marketing. The latter condition evolves around the product's brand and is best based on market orientation and research. Accurate resources have to be available and the pricing of the product ought to be right. In addition, the product must be well designed, and the form must fit the content. In comparison to path (3), form is of essence in this path, but distribution is not a matter of concern. In most cases in this path distribution is given: it is guaranteed, pre-arranged, or outsourced. The specialized content can only be created by highly skilled, motivated, informed, experienced and cohesive teams.

The third path (3) differs from path (2) in just one building block and consists of good human resources, environmental orientation, distribution and marketing. The path (3) is shown by six unique cases (of which two are successful), and can be regarded as the **route to success of cross-media niche information product brands**. The path informs that continuous information products with a clear-cut and narrow focus that aim to maximize niche audiences rely on cross-media distribution to reach an audience that is either dispersed (topical focus) or concentrated in one area (regional focus). In addition, awareness about the product has to be evoked (marketing), the production process and content composition must be closely intertwined with the topical or regional market, and human resources and good recruitment are important in the light of the high degree of specialization, expertise, insider knowledge and networking that is required of staff at the products.

In the sample, 53 cases emerge that simultaneously show paths (2) and (3). Of these, 30 cases are successful. The path to success then reads as the merger of the two paths: good human resources, environmental orientation, marketing, form and distribution. This route to success is the most prominent. Four of the building blocks are qualified as necessary for success, the fifth building block marketing can be regarded as a managerial all-purpose solution. The overlap of paths (2) and (3) informs that success can be achieved by a strong competent team that produces an accurately designed product, by a high degree of interaction and intertwining with the relevant market and the stakeholders, and by achieving heightened awareness and accurate availability of the product. All successful products that show the overlap of the paths combine moderate versions of the essential characteristics of the unique cases in the paths (2) and (3). The cases range thus from general special interest to products for varying niche audiences. The variety of cases is wide, but only one legacy mainstream general information medium shows this success route, and no highly specialized cases with very limited audience appeal emerge here. This route can be regarded as the **generic path to success for all topical media**, for all product brands that have a limited bandwidth and are closer to narrowcasting than to broadcasting. In an analysis of (originally) 10 building blocks, this route to success with its simultaneous prioritization of five blocks should not be discarded as improbable.

The path (4) consists of good human resources and distribution, intersecting with the absent building blocks marketing, and content. The path is **the route to success for continuously produced topical information product brands** that need to concern themselves with optimal availability for its audience. These product brands require cohesive teams and high-quality staff. Cases showing this path have no great need for 'good' marketing, because they appeal to highly interested and informed audiences that are already sufficiently aware of the product. At cases with continuous output, content is viewed to a degree as given, as prescribed by the special topical focus (travel, financial news, regional information), and as ex-ante dictated by perceptions of either topical news value and/or established specialized audiences' demands and tastes. This causes respondents to indicate that good content is not achieved. Content thus does not have to - on aggregate - fulfill to some larger extent the high-quality standards and genre requirements. It does not have to be at the same time (highly) credible, diverse, current and exclusive, nor does it have to fit the organization optimally, and rely on reputable co-workers.

The results of this study confirm the convergence of media types. The dissemination technology (e.g., book, radio, etc.) of a brand is not linkable to a specific path to success. Almost all media types are typical in the various paths to success. On the other hand, along dimensions of content and seriality types, varying paths to success are distinguished. The content type information can be related to specific paths to success. Although it is very present in the sample and appears in all sufficient paths, it is the only content type in path (4), and it is dominant in path (3). Also, the type of seriality a media product brand can be connected to specific paths to success. Continuous products make up the lion's share of the sample, are represented in all paths, but are the only cases in path (4).

In overview, a feature of the media brands that is relevant to the clustering of cases in different sufficient paths is revealed in the results. The bandwidth of the covered topics, and, in accordance with it, the size of the envisioned audience emerges as a clustering similarity of cases in specific paths. On one side of the scale, there are the 'broadcasting' product brands with a wide general scope for a mainstream audience and the combination of good distribution, form and environmental orientation leads to success, as path (1) demonstrates. On the other side of the scale, there are 'narrowcasting' products; highly specialized, narrowly scoped contents for interested niche audiences, where the combination of good human resources, environmental orientation, marketing and either form or distribution leads to success, as demonstrated in paths (2) and (3). Closer to the middle of the scale, but still more on the 'narrowcast' side, we find content that has a broader topical (information) focus for limited, yet still sizeable audiences in path (4). Here the combination of good distribution and

human resources leads to success whereby good marketing and content are structurally unimportant. The overlap of the paths (2) and (3) consists of cases with varying, yet always topically limited contents and is place able on the narrowcast side of the scale.

Overall, the approach of the study allowed us to integrate different types of media product brands and to investigate overarching building blocks of success. Assumptions concerning the need of an integrative approach within success factor research (Sommer & Von Rimscha, 2013) can be confirmed. Against the backdrop of continuously progressing convergence, our study fulfills to some extent the immediate need for a comprehensive investigation of media product brands success. We believe that the results also demonstrate the benefits of the choice of QCA as approach. The use of QCA allowed us to gain important insight into the complexity of comprehensive factors and to add to the field of success factor research. For the wide range of media brands, no generalizable success recipe can be formulated. The results of our analysis of the sample reveal necessary conditions across media brands that support success, but do not by themselves lead to success. These building blocks need to be catered to in any case. The strategy for the distribution of resources over the different building blocks varies: various topical scopes and corresponding target audience sizes require different prioritizations of building blocks.

Factors materialized that affect the analysis of sufficiency for success. The brands' market life phase is relevant: achieving targeted audience shares takes time. The sphere and level of authority of the respondent influence the assessment of building blocks. The respondent's level of ambitions is a factor influencing the assessment of the deployed outcome, success in terms of achievement of targeted audience market shares, but this bias is most likely evenly distributed throughout the sample. Nevertheless, an (unrealistically) high level of success ambitions produced cases deviant for consistency in some instances.

QCA as an approach (Schneider & Wagemann, pp. 275–312) evokes elements to investigate further, to elaborate on findings, to add (or drop) causal conditions, and ultimately, to reformulate theoretical notions and contribute to theory building: process tracing in the shape of qualitative comparisons of systematically selected cases (cf., Schneider & Rohlfing, 2013). A next research step should consist of these investigations. In addition, a closer probing of the differences between subsamples based on projected target audience size, respondents' role/function/task and hierarchical position, market life phase of the product brand, is an ambition we hope to fulfill at a later stage.

5. Appendix:

5.1. Conditions, outcome, survey items

Table 14: Conditions, outcome, survey items

Building blocks of success (conditions)	Survey items (translated from German and shortened). Agreement with statements about media product brand. Answer options: not at all (1) – fully (6), plays no role (missing)
(1) Organizational aspects (abbr.: ORG)	<i>Internal cooperation.</i> The product profits from the cooperation within the organization (or company)
	<i>External cooperation.</i> The product profits from external co-operations that depend on the organization
	<i>Brand.</i> The product profits from the organization brand
	<i>Support.</i> The organization supports the product
	<i>Fit.</i> The product fits the organization
	<i>Size.</i> The product benefits from the size of the organization
(2) Internal processes (INT)	<i>Recipients' integration.</i> The wishes of recipients are integrated in product development
	<i>Product budget.</i> The product has the right budget
	<i>Processes.</i> The production is well organized
	<i>Resources.</i> For the product sufficient material and people are at disposal
	<i>Communication.</i> The communication in development and production functions accurately
	<i>Innovation.</i> Innovative thinking and acting has its place in the production process
	<i>Hidden brand.</i> We have a clear brand that is communicated to the involved employees
(3) Environment orientation (ENV)	<i>Competitors.</i> We observe the competition in developing and farming the product
	<i>Regional reference.</i> The product has a regional nature, has a regional frame of reference
	<i>Societal reference.</i> We observe the Zeitgeist, are in line with the societal atmosphere
	<i>Language.</i> The language used in the product is in line with the audiences' use of language
(4) Leadership (LEA)	<i>Star power.</i> The product is directed by a reputable personality
	<i>Trade/competence promotor.</i> The product benefits from a competent personality as head/leader/manager

	<i>Power promotor.</i> The product is supported/promoted by a powerful personality within the organization
	<i>Leadership.</i> The product is well managed
(5) Human resources (HR)	<i>Competence.</i> The co-workers are competent
	<i>Motivation.</i> The co-workers are motivated
	<i>Experience.</i> The co-workers are experienced
	<i>Coherence.</i> The co-workers fit together, tick the same
	<i>Reputation.</i> The co-workers are reputable, or famous
	<i>Hidden brand.</i> The co-workers share the same goals and values
(6) External evaluation (EXT)	<i>Reviews.</i> the product benefited from reviews
	<i>Awards.</i> The product benefited from awards
	<i>Media coverage.</i> the product benefited from media reports
	<i>Word of mouth.</i> The product benefited from word of mouth (in social media, or elsewhere)
(7) Content (CON)	<i>Genre/format.</i> The audience can assign the content to a specific genre
	<i>Stars.</i> Stars (reputable people) are involved in the product
	<i>Fit.</i> The content fits the total offer/program of the company/organization
	<i>Quality.</i> The product offers (high) quality content
	<i>Credibility.</i> The content is credible
	<i>Diversity.</i> The content is diverse
	<i>Novelty.</i> The content is new
	<i>Exclusivity.</i> The content is exclusive
(8) Form/design (FOR)	<i>Fit.</i> The design fits the product
	<i>Consistency.</i> The design is consistent, consequently maintained
	<i>Quality.</i> The form is elaborately designed
(9) Marketing (MAR)	<i>Audience research.</i> Marketing of the product bases on audience research
	<i>Brand.</i> Marketing bases on the brand of the product
	<i>Target audience.</i> Marketing is based on the (target) audience
	<i>Advertising.</i> The product is accurately advertised
	<i>Advertising market research.</i> Marketing is based on advertising market research
	<i>Advertising market.</i> Marketing is based on the advertising market
	<i>Price.</i> The price is right and is decisive for sales
(10) Distribution (DIS)	<i>Timing.</i> The timing of publication/release is right, is well chosen
	<i>Platforms.</i> The product is distributed through various platforms

	<i>Audience optimization.</i> The distribution suits the consumption patterns of audiences
Outcome	
Success (OUT)	<i>Audience market share targets.</i> In how far are the targets in audience market shares achieved? Not at all – fully achieved or exceeded, missing
Grouping variables	
Content	<i>Content type.</i> Information vs. entertainment (slide)
Content	<i>Content type.</i> Options: Fictional, nonfiction with fictional elements, nonfictional
Seriality	<i>Seriality type.</i> Options: one-off, multi-part, continuous
Product life phase	<i>Product age.</i> Product is new vs. established (slide)
Medium	<i>Medium type.</i> Intensity of use for product. Not used at all – intensely used. Options: Print, book, online, TV, radio, film
Revenue sources	<i>Financing.</i> Sources of revenue. Fill in percentage. Options: Taxes, foundations, advertisers, aid money, audience sales, investors, other
Corporate communication	<i>Corporate communication.</i> Product is CC. Options: Yes, no
Role	<i>Role/function.</i> Options: (main) responsibility is technical, commercial/business, content-related. No responsibility – full responsibility
Additional success measurement variables	
Reach in audience market	<i>Audience reach.</i> Goals achieved. Options: not at all – fully, missing
Turnover in audience market	<i>Audience market turnover.</i> Goals achieved. Options: not at all – fully, missing
Recognition in audience market	<i>Audience market recognition.</i> Goals achieved. Options: not at all - fully, missing
Improvement image of mother concern	<i>Improvement image concern/organization.</i> Goals achieved. Options: not at all – fully, missing
Turnover in advertising market	<i>Advertising market turnover.</i> Goals achieved. Options: not at all – fully, missing
Market share advertising market	<i>Advertising market share.</i> Goals achieved. Options: not at all – fully, missing
Generation of artistic/cultural value	<i>Cultural value.</i> Goals achieved. Options: not at all – fully, missing
Audience reach in numbers	<i>Audience reach.</i> Number, or no answer
Subjective success	<i>Subjective success.</i> Personal opinion. Options: Not at all successful – very successful

5.2. Raw data

2	5	4.6	4	5.5	4.7	4	4	4.8	4.4	5.3	3.8
3	4	4.3	5	4.8	4.7	4.7	4.5	4.8	4.4	5.7	4.3

4	1	5.1	5	4.8	5.6	5.1	4.8	5.3	4.2	5.7	3.8
5	2	4.6	5	4.3	3.3	4.5	1.5	4.2	3	4.7	3.5
6	3	3.1	3.7	5	4.3	3.4	3	4.3	4.7	5	3.5
7	4	4.6	5.3	4.8	4.3	4.9	4.3	5	3.6	5.3	3
8	5	5.3	5	5.3	4.9	5.6	5.3	5.5	4	5.3	5
10	2	5	5.5	3	4.7	4.5	2.3	4.2	3.6	3	2.3
11	5	5.3	5	5.5	4.9	4.6	2	5	4	5	5
12	6	5.1	6	5.3	5.4	4.3	4.5	5.3	3	4.7	5
14	6	5.9	6	5.3	5.1	6	5.3	5.3	4.3	4.7	6
15	4	4.9	6	5.8	4.7	3.4	3.8	4	3.4	3	1.5
16	3	3.5	5	5	4.6	4.1	3.8	4	4	5.3	3.8
17	3	3.6	3	4.8	4	4.5	2	4.7	1	5	1.8
18	3	5.2	5.3	5.8	3.4	3.1	2.5	5.5	2.1	5	2.3
19	3	5.4	6	4.5	4.5	4.9	3.8	4.7	3.4	5.3	1
20	6	4.3	5.3	5	5.4	5	3	5.8	4.9	5	3.5
22	4	5.4	6	4.3	4.3	5.6	4.5	5.2	2.9	4	6
23	6	5.4	6	6	5.6	4.5	3.5	4.8	5.2	6	6
26	5	5	5.3	5	4.6	4.5	5	4.8	3.6	4.7	4.3
27	3	4.5	4.3	3.5	4.1	3.9	2	4.5	2	4	3.3
28	4	4.3	5	5.3	4.3	4.6	2.8	3.2	4	3.7	3
29	3	4.6	4	5	5	5.2	5.3	4.7	2	5	3.5
30	5	4.6	5.3	5	4	4.6	5.3	4.3	4.3	5.3	3.8
32	6	5.3	6	4.3	4.7	5.7	6	6	3	6	3.8
33	3	4.6	4.7	3.3	4	5	3.8	4.3	2.5	4.7	1.5
34	6	5.4	5	5	3.7	5.3	5	4.7	3.7	5.7	3.3
35	5	4.5	3.3	4.8	3.4	3.9	3.8	4.5	3.9	3.3	3.8
36	4	5.8	6	5.5	3.7	6	6	5.5	3.2	4.7	2.3
37	5	4	4.3	4.5	3.4	5	3	4	3.5	2.5	1.3
38	3	4.5	4.7	5.3	2.1	2.7	3	4.4	3.6	3.7	4.5
39	5	5.6	6	5.8	5	5.9	3.5	5.3	3.9	6	5
41	5	5.3	5.7	4.3	4.7	4.6	5	4.6	4	5	5.3
42	5	5.3	6	5.5	5.3	4.6	5.3	5.4	4.6	6	5.3
43	3	4.1	5.7	4.5	5.4	5	5	5.2	3	3.3	2
44	5	5.3	5	5.3	4.7	5.3	5.5	5.3	4.3	5.7	4
45	3	4.2	4.3	3.8	3.8	1.6	2.7	4.3	1.3	3	3.8
46	4	5	5.3	3	4.4	4.7	5	5	2	3.7	1.5
47	4	4.4	4	5.5	3.9	4	3.3	4.2	3.1	4.3	1.8
48	4	4.7	6	4.3	4.6	5.4	4.5	5	5	3.3	5.3
49	4	4.1	4.7	4.8	3.7	2.9	4.5	4.8	5	3.7	4.5
51	4	5.1	5	5.8	5.9	5.3	2.3	5.3	5	5.3	4.8
53	6	4.7	4.7	4.8	4.9	6	4.8	4.5	4.6	4.7	4.3
54	5	4.1	5	4.3	4.7	4.6	4.3	5.2	4.3	4.3	3.5
55	2	4.6	5	4.5	4.4	4.3	4.3	5.2	3	5.5	3
57	3	4.9	5	5.5	5.1	5.9	5	5.8	4.9	3.7	2.5
59	4	4.9	6	5.8	5.1	3.4	4	5.2	3.1	4.7	4
60	4	4.6	4	4.8	4	3.9	4.8	4.8	3.7	3	2.3
62	5	5	5.7	5.8	4.7	4.6	4.8	4.2	2.7	3	4.5
63	4	4.3	4.7	5	3.9	1	2.8	4.7	3.4	5	4.3
65	5	4.9	5	4.5	4.4	4.7	5	4.4	4.1	6	4.5
66	3	5.3	4.7	6	4.1	4.5	5	5.8	3.6	6	2.5
67	3	4.6	5.7	5	5.3	4.1	4.5	6	2.6	4.7	5

68	2	5.8	6	3.8	4.7	4.1	5	5	2.4	4.3	5.5
69	4	4.8	5.3	4.8	5.1	5.7	2.8	5.5	3	4.7	3
70	5	4.9	4.3	4.8	5.4	3.4	2.5	4.7	4	4.3	4
73	6	5.3	5.7	4.5	4.6	5.1	4.5	5.3	3.3	5.3	5.5
75	2	4.6	3.7	4	4.4	4.4	4	5.3	2.6	4	4
76	3	6	6	5	4	5.9	5.8	5	5.3	4	4.8
77	4	5.1	4.3	4.3	4.6	4.1	3.5	4.2	2.4	4.7	4
78	4	4.6	4	4	3.4	4.6	4.5	4.3	3.7	4.3	3.5
79	3	4.8	5	5	4.7	3.7	4.3	5.3	3	5.7	4.8
80	5	5.7	6	4.5	4.6	5.4	5	5.5	3.4	4.7	6
81	4	3.9	4.7	5.3	2.6	4.6	3	3.5	3.4	3.7	2.5
82	3	4.3	4.7	5.5	4.1	4.7	4.5	6	3.4	5.7	5.8
83	3	5.5	5.3	4.8	5.1	6	3.5	4.8	2.4	4.3	2.8
84	4	4.5	2.3	5.3	2.4	2	5.3	5.7	2.4	6	1
85	5	3.6	5.3	5	4.6	4.6	5	4.8	4.6	6	3
86	5	5.1	5.7	5	4.9	5	5.5	4.7	4.4	5.7	4.8
87	5	4.6	5.7	5.5	5	5.6	5.3	5.3	5.1	5	4
88	4	5	5	4.8	3.7	2.1	4.5	5.7	1.9	3.7	1.5
90	5	4.3	6	5.8	5.1	4.3	4.5	4.3	3.7	4.3	1.7
91	3	5.4	4.3	3.8	4.3	4.6	1.3	5	2.9	3.7	5
93	4	5.4	5	5.5	5.7	5.4	6	5.3	4.9	6	3
95	2	5	6	4	4.3	5.4	5.5	5	2.9	5.7	4.5
96	3	4.9	4.7	5	4.4	5.4	5	4.3	4.4	5.7	4.8
97	4	5.4	5	5.3	4.9	5.3	6	6	3.7	4.3	4.8
98	2	5.1	3.3	3.3	2.6	1.7	4	4.7	1.9	3.7	2.5
99	3	4.3	4	5.7	2.9	2.1	4.3	4.8	2.1	4.7	4
101	5	4.6	4.7	4.3	4.6	5.1	5.3	4.8	4.4	4.5	1
102	5	5.5	4.7	6	4.4	5.3	5.3	4.2	4.3	5	1.5
103	2	5	3.7	5	3.7	4.7	4.3	3.7	3.5	5	4.8
104	3	4.1	4.3	4.3	3.4	3.6	2.8	3.8	3.4	4	2
105	3	4.6	6	6	4	3.6	5.3	4.2	4.4	5.7	4.5
106	5	5	5.7	5	5.1	4.1	6	5.8	4.4	5.3	2.7
107	3	4.9	5	5	3.7	5	4.3	4.3	2.7	3.7	3.8
108	4	5.8	6	5.8	3.3	6	2.8	5.3	4	3.3	4.5
110	2	5.4	5	4.3	4.6	3.9	4	4.7	2.9	5	4.5
111	2	5.5	6	3.8	3.1	6	4	3.7	3.7	4	6
112	6	5	6	4.5	5.4	4.5	6	5.6	3.8	4.7	2.5
113	3	5.6	6	4.8	5.4	2.6	4.3	5.8	2.7	4	6
114	2	4.6	5.3	4.5	4.5	4.5	1.3	5.2	2.9	4.3	5.5
115	3	5.3	5.3	5.3	5.3	3.9	4.3	5.5	3	5.3	5.3
118	6	4.9	5.3	4.3	4.4	4.9	3.3	4.7	4	5	5
119	5	5	5	5.8	5.1	6	5.3	6	3.6	5	2.5
120	4	4.8	4	3.5	3	3.7	2.8	4.8	3.4	4.7	3.5
121	4	4.1	4.7	4.8	4.1	4.1	3.5	3.7	4	3	1
122	4	3.9	3.7	4	3.6	4.9	3	3.7	3	3.3	1.5
123	4	5.6	5	3.7	3.1	4.4	3	5.5	3	4.7	1.8
124	3	5.5	5	3.5	4.9	3.1	4.3	5.7	2.4	5.7	4.5
125	4	4.9	5.3	5.3	5.3	4.6	5.8	5.7	3.9	5.3	1
126	6	4	5	5.3	4.7	3.9	3.5	4.2	2.7	4.7	4
127	3	5.8	6	5.3	5.6	6	6	5.2	4.4	5.7	6
128	5	4.8	5	5	4.3	4.4	4	4.7	3.9	4.3	4.8

131	5	4.6	5.3	4.3	4.7	5.4	5.3	4	4.3	5.7	4.8
132	6	4.4	3	4.8	3.9	2.4	2.8	4.3	3.6	4.3	3.5
133	6	5.3	5.3	3.3	4.9	5.4	5.8	4.8	4	5	4.5
134	3	5.5	6	5	5	4.6	5	5.7	3.1	4.3	5.8
135	5	5.4	5.7	5.3	4.6	4.5	5.8	4.3	4.6	5.3	5.5
136	5	5.3	5	3.8	4.9	4.6	4.5	4.3	3.4	4.7	2.5
137	4	5.5	5.7	5	5.4	4.1	2.3	5.7	3.1	6	2.3
138	5	5	6	5.3	4.7	4.4	5.3	5.4	4.3	5	5.8
139	6	5	2.3	5.8	3.8	5.3	4	5.7	3	3	1
141	3	4	4.7	4.5	3.6	3.6	3	4.5	3.3	5.7	4
142	5	5	4.7	4.5	4.3	3	3.3	4.7	3	4.7	5
144	5	5.6	5	5	4.7	5.6	6	6	4	6	5.3
145	4	5	6	5	4.8	4.5	4.3	6	2.4	5.3	3.3
146	6	3.6	4	4.3	2.9	4.3	2.8	3.8	3.7	4.3	3.3
148	2	4.4	6	4.5	3.4	4.4	4.8	5.3	2.9	4.7	4.3
149	6	6	6	4.8	4.7	5.1	6	5.5	3.4	6	6
150	4	5.1	6	5.7	5.3	4.5	4.3	5.5	3.8	4.5	3.3
151	3	4.1	5.3	5.5	5	4.5	2.3	4.3	5.1	6	4.7
152	3	3.9	6	5.3	4.4	4.5	3	4.2	2.1	3.7	3.3
154	5	4.9	5	5	3.6	4	4.8	3.7	3.4	4	3.8
155	4	5.5	5.7	6	5.9	6	3.5	3	6	6	6
156	3	5.6	5	5.8	4.6	5.1	4.5	4.8	3.6	5.3	4.5
157	6	5.9	5	5.3	5.1	5.7	4.3	4.8	4.6	6	3
158	4	5.8	5.3	3.8	4.9	4.5	4.5	5.5	2	2.7	2.5
159	4	4.3	4.7	4.5	3.4	3.8	4	4.7	2	6	2.8
160	5	3.6	5	5	3.2	4.5	4.3	4.2	4.3	3	4
162	4	6	3	6	3.6	4.5	5.5	5.3	4	3.7	6
164	5	4	4.3	4	4.3	4.7	5	4.2	3	5	4.5
165	2	5.1	4.7	4.3	4.1	4.7	4.3	4.8	4.3	6	4
166	4	3.9	5	5.5	3.9	5.3	3.8	5.2	2	6	3
168	5	5.6	5.7	4.5	5	5	5.8	4.2	3.7	6	4.8
169	4	4.4	5	4.3	3.1	3.3	3	4.3	2	4.3	2
170	6	5.3	6	5	5.1	5.6	5.5	5.7	4.6	6	6
172	5	5.6	5.3	5.5	6	4.6	5.5	5.3	3.8	4.7	4.3
173	2	5.4	5	4.5	3.4	4.5	4.5	4.3	1.4	1	5.3
175	6	4.3	5	5	5.1	5.1	6	4.4	4.7	6	5
176	3	5	4.7	5.5	4	5.1	3.5	4.5	2.4	4.3	3.3
177	2	4.3	6	5.3	5.2	5	4.3	4.8	4.3	3.7	3.5
178	5	5.9	6	6	5.9	4.7	3.5	5.8	3.1	5.3	6
179	1	5.4	5	3.7	4.1	5	5	5.3	4.1	3	1
181	4	5	6	5.5	5	3.3	4.3	5.3	4.4	5.3	5
184	3	5.4	6	6	5.1	4.5	4.5	4.8	3	4.5	1.8
185	3	5.1	4.7	4.5	5.3	5.1	4.8	4.5	4.6	5	4
187	3	4.6	5.3	4.3	3	3.9	1.3	5.4	3	4.7	3.8
188	4	4.7	5	5	3.9	1	3.8	3.5	3.7	5.3	2.3
190	6	5	5.3	4.8	4.3	4.9	3	3.3	3.6	4.3	5
192	6	4.9	5.3	5.5	5.4	4.5	6	5.7	4.9	6	2.5
193	4	4.9	5.3	2	3.7	5.5	4	3.5	3	3	2.3
194	4	4.9	6	5.8	5.7	6	5.5	5.7	5.6	6	5.8
197	5	5.1	5.7	5.7	4.7	5.4	5.5	5	4.3	5.7	3.5
199	3	4	3.7	3.5	3.1	4.9	3.3	4	3.4	4.5	1.3

200	5	5.6	5.3	4.5	5.4	5	4.3	5.3	4.1	6	4.3
201	3	4	2.3	3.8	3.4	4.3	2	3.7	2.5	3	3
202	3	5.8	5.7	2.8	5.7	4.5	6	6	2.6	3.5	3
203	5	4.9	5.3	4	4.7	5.2	5	5.2	3.6	4.3	3.7
204	2	4.8	6	3.8	3.3	3	3	2.7	2.7	2.7	3.3
207	5	5.4	4.3	5	4.3	4.1	1.8	4.2	2.6	3.7	4.3
209	4	4	5	4.3	4.3	4.7	5	2.6	3.7	3.7	2.8
212	5	5.4	5	6	4.9	5.6	5	5	4.4	4.3	4
213	4	5.1	4.7	5.5	3.9	4.9	5.7	5.6	5.3	5	3.3
214	6	5.9	6	5.8	4.7	6	6	4.8	5.9	6	6
215	1	5.6	5.3	5.5	5.4	4.5	5.8	5.8	4.7	5.3	5
218	3	5.4	4.7	5.5	5.7	5.7	6	5.5	5.3	6	3.8
219	5	5.4	6	6	5.3	5.3	4	5	2.7	4.3	3.8
220	6	4.1	5.3	3.5	5	2	2.8	5.7	6	4	4.8
221	5	5.1	4.3	5.3	4.1	3.4	2.3	5.2	4.3	3.7	3.5
223	4	4.4	4.3	4	4.3	4.9	4.8	4.2	4	4.7	4.8
224	4	5.9	6	6	5.7	5.8	6	6	5.7	6	5.5
225	1	5.3	6	5	3.8	6	3.5	4.7	2.6	2.7	2.8
227	3	4.3	5.3	4.3	3.7	5.3	4.8	4.8	3.9	6	5
228	4	4.9	5	5	5.1	5.8	5.3	5.8	3.3	3.7	5.5
229	2	4.9	4	4.8	4.4	4.9	5	5.7	4.3	5.7	2.5
230	4	4.5	5.3	5.5	4.7	4.6	5.3	4.5	4.7	5.7	4.3
231	2	4.8	5.3	5.5	3.9	5	5.3	4	4	3	3
232	4	5.9	5	6	4.1	3.1	3	4.8	2.4	5	6
233	4	5.1	4.7	4.5	4.4	4.9	3.5	5.2	2.6	3	3.5
234	2	5.1	6	4.3	4	4.6	2.8	4.2	2.9	4	2.8
235	5	5.5	5	4.5	4.4	5.4	6	4.5	4	6	4
236	6	5	6	4.8	5.7	5.3	6	6	3.3	5.7	4.8
238	2	4.1	5.3	5.3	3.3	4.1	6	6	5.3	6	3
239	5	5.4	5.7	4.8	4.9	5	6	4.3	4.7	5	4
240	2	4.2	5.3	4	3.4	4.5	3	4.5	2.5	4	3
241	4	4	4.7	4.3	4.1	4.5	1.8	4	3.3	5	2.5
242	6	4.8	3.7	4.8	3.7	4.5	2.5	4.8	4.4	5.3	4.3
243	6	5.1	5.7	5.3	5.4	3.4	4.8	5.3	5.6	6	4
244	2	5.1	4	5	4.6	4.4	3.5	5.5	3	4.7	2.3
245	3	5.3	6	6	3.9	4.5	4.5	5.3	4.2	5	3.8
246	4	5.1	5	5.5	4.3	4	5	4.2	3	5.3	4.8
247	4	4.9	5	5	3.7	4.5	4.8	4.8	3.3	3.7	5.3
249	3	5	4.3	4.8	3.9	4.6	5	5	1	5.3	3.5
250	3	4.1	5	5.3	6	6	2	5.3	3	4.3	2.8
251	1	6	6	6	5.7	6	6	6	1.6	4.7	6
252	3	3.3	4	4.3	3.7	4.1	2.3	3.7	2.8	3.3	1.8
253	4	5.5	5	5.3	4	4.3	5.5	4.5	3.4	5	3.5
254	5	5.3	5.3	2.8	5	4.9	3.5	4.2	2.6	4.7	4.3
255	4	5	2.7	4.8	2.7	4.1	5.8	5	3.8	3	3.8
256	4	5.3	6	5.3	4.9	4.4	5.3	5.3	3.7	4.7	2
257	3	4.5	5.7	5.8	5.6	5.6	5.5	5	3.9	6	3.3
260	6	4.5	5	5	4.7	5	6	4.3	5.5	4.5	3.8
262	5	5.9	6	5	5	5.3	4.8	5.8	3.6	3.7	4.3
263	5	4.9	5.3	5	4.9	3.1	4.8	4.3	4	4	2.8
264	4	5.1	6	5	5	4.5	4.8	5.2	4.3	6	4

265	5	4.8	5	5.3	3.1	3.3	4	3.8	3.3	5	2.5
266	5	4	4.3	4.3	3.6	2.4	3	4.5	3	4	2.3
267	5	4.1	4.7	3.8	3.1	2.9	4	4.8	2.3	4.7	4
269	4	4.5	5	2.8	4.7	5	4.5	4.5	2.7	4.3	5
270	1	5.6	6	2.8	4.3	5	4.8	5.3	3	4.7	4.5
274	6	3.9	6	5	4.4	5.9	2.3	5.2	4.9	5	4.5
275	4	4.5	5.3	4.3	3.3	4.3	2.3	4.8	3.9	2	2
276	2	4.3	6	1.8	3.2	4	4.5	5.3	1.5	2.7	4.5
278	2	4.3	4	4.8	5	5.3	4.3	5	4.7	5	4.3
279	5	3.4	4.3	4.3	3.9	3.7	4.3	4.7	3.6	4.3	1.5
281	3	5.5	5	4.3	4.4	2.3	4.5	5	3.7	5	5
283	5	3.6	4.7	6	3.7	4.3	2.8	3.8	4.3	5	3.3
284	5	5.3	5.7	6	5.6	4.9	5.5	6	4.8	5	5.5
285	4	4.5	5.7	4.3	3.7	4.5	2.5	4.7	2.4	3.7	2.8
286	4	3.6	3.3	2.5	3	3	2.8	3.5	2.2	3	2
287	2	5.3	3.7	3.8	4.4	4.2	3	4.5	3.9	4.3	4.8
289	3	4.4	5	5.8	4.4	4.6	3.3	3.7	4.1	5.3	3.8
290	5	5.3	5	4.8	4.3	4.4	4.8	5	3.3	5.3	5.8
292	2	5.4	5	4.5	2.9	2.9	3.8	3	3.4	3	3.5
296	3	5.1	6	5.3	4.9	4.7	5	5.2	2.9	5	4.5
297	4	5.3	4.3	5	3.4	4.6	3.8	4.2	3.7	5.3	3.8
298	6	5.1	4.7	5	4.9	3.8	5.3	5.2	3.6	5.3	1
299	2	3.8	3.7	4	2.9	2.9	5	3.8	2.9	3.7	3.5
300	3	5.9	4.3	4.8	4.7	4.7	4.8	4.7	3.9	4	5
301	3	5.3	5.7	5	4.9	4.6	4.5	4.7	3.6	5	3
302	3	4.8	5.7	4.5	4.7	4.5	5.8	4.7	3.6	5	5
303	4	5.3	4	3	3	4.1	5	4.7	4.5	3.5	2
304	3	5.8	4	5.5	4.4	4.9	4.5	4.5	4.2	6	2.8
305	3	5.4	5	4.8	4.9	4.3	5	3.8	3.3	5.3	2.3
306	5	5.8	4.7	3.7	4.1	2.4	5	5	2.1	5.7	3
307	2	4	5	2	3	1.9	2.3	4	2.1	4	4
308	4	4.8	4.7	5.8	3.4	5.3	2.3	3.7	4.1	5.7	2.3
310	4	4.3	5.3	4.3	5.1	5.7	3.3	4.3	3.1	2	1
311	6	4.8	5	4.5	4.9	4.4	5.3	4.3	5	4.3	4
312	2	4.9	2.3	3	3.4	4.5	2	4.3	2	4	3.5
315	5	5.5	5.3	6	5	4.9	5.5	5	4	4.3	4
316	5	5.3	6	5.5	5.3	5.7	6	5.3	4.1	5.7	5.3
317	5	4.6	4.3	5	4.7	4.4	2.5	4	4	4.7	3
318	6	5.3	6	5	5.1	5.6	6	5.7	2.9	5	4
319	6	5.8	6	5.8	5	5.7	5.3	5.7	5	6	5.3
320	3	4.4	4.7	4.8	4	4.1	3.5	5.2	4.3	4.7	3.8
321	6	5.8	6	6	5.9	6	5.7	6	6	6	6
323	3	4.9	6	4	5	5.7	3.5	6	2.3	3.3	5
324	5	5	6	4	4.2	4.7	4.8	5.5	2	4.7	4
325	4	4.8	4.7	5	4.1	3.7	4.3	4.5	4.3	5.3	3.5
328	4	5.3	4.3	5.5	2.8	2.4	4.3	4.8	1.4	4	4.5
329	5	4.5	5.3	4.8	4.6	2.1	4.3	5	2	4.3	2.7
331	3	5.5	5	5	5.7	4.5	5.3	4.5	3	4.7	3
332	6	4.8	5.3	4.8	4.3	6	5	5	3.1	6	4

Table 15: Raw data of 255 cases

Case	OUT	1 ORG	2 INT	3 ENV	4 LEA	5 HR	6 EXT	7 CON	8 FOR	9 MAR	10 DIS
2	5	4	4.7	5.5	4	4.8	3.8	4.6	4	4.4	5.3
3	4	4.7	4.7	4.8	4.5	4.8	4.3	4.3	5	4.4	5.7
4	1	5.1	5.6	4.8	4.8	5.3	3.8	5.1	5	4.2	5.7
5	2	4.5	3.3	4.3	1.5	4.2	3.5	4.6	5	3	4.7
6	3	3.4	4.3	5	3	4.3	3.5	3.1	3.7	4.7	5
7	4	4.9	4.3	4.8	4.3	5	3	4.6	5.3	3.6	5.3
8	5	5.6	4.9	5.3	5.3	5.5	5	5.3	5	4	5.3
10	2	4.5	4.7	3	2.3	4.2	2.3	5	5.5	3.6	3
11	5	4.6	4.9	5.5	2	5	5	5.3	5	4	5
12	6	4.3	5.4	5.3	4.5	5.3	5	5.1	6	3	4.7
14	6	6	5.1	5.3	5.3	5.3	6	5.9	6	4.3	4.7
15	4	3.4	4.7	5.8	3.8	4	1.5	4.9	6	3.4	3
16	3	4.1	4.6	5	3.8	4	3.8	3.5	5	4	5.3
17	3	4.5	4	4.8	2	4.7	1.8	3.6	3	1	5
18	3	3.1	3.4	5.8	2.5	5.5	2.3	5.2	5.3	2.1	5
19	3	4.9	4.5	4.5	3.8	4.7	1	5.4	6	3.4	5.3
20	6	5	5.4	5	3	5.8	3.5	4.3	5.3	4.9	5
22	4	5.6	4.3	4.3	4.5	5.2	6	5.4	6	2.9	4
23	6	4.5	5.6	6	3.5	4.8	6	5.4	6	5.2	6
26	5	4.5	4.6	5	5	4.8	4.3	5	5.3	3.6	4.7
27	3	3.9	4.1	3.5	2	4.5	3.3	4.5	4.3	2	4
28	4	4.6	4.3	5.3	2.8	3.2	3	4.3	5	4	3.7
29	3	5.2	5	5	5.3	4.7	3.5	4.6	4	2	5
30	5	4.6	4	5	5.3	4.3	3.8	4.6	5.3	4.3	5.3
32	6	5.7	4.7	4.3	6	6	3.8	5.3	6	3	6
33	3	5	4	3.3	3.8	4.3	1.5	4.6	4.7	2.5	4.7
34	6	5.3	3.7	5	5	4.7	3.3	5.4	5	3.7	5.7
35	5	3.9	3.4	4.8	3.8	4.5	3.8	4.5	3.3	3.9	3.3
36	4	6	3.7	5.5	6	5.5	2.3	5.8	6	3.2	4.7
37	5	5	3.4	4.5	3	4	1.3	4	4.3	3.5	2.5
38	3	2.7	2.1	5.3	3	4.4	4.5	4.5	4.7	3.6	3.7
39	5	5.9	5	5.8	3.5	5.3	5	5.6	6	3.9	6
41	5	4.6	4.7	4.3	5	4.6	5.3	5.3	5.7	4	5
42	5	4.6	5.3	5.5	5.3	5.4	5.3	5.3	6	4.6	6
43	3	5	5.4	4.5	5	5.2	2	4.1	5.7	3	3.3
44	5	5.3	4.7	5.3	5.5	5.3	4	5.3	5	4.3	5.7
45	3	1.6	3.8	3.8	2.7	4.3	3.8	4.2	4.3	1.3	3
46	4	4.7	4.4	3	5	5	1.5	5	5.3	2	3.7
47	4	4	3.9	5.5	3.3	4.2	1.8	4.4	4	3.1	4.3
48	4	5.4	4.6	4.3	4.5	5	5.3	4.7	6	5	3.3
49	4	2.9	3.7	4.8	4.5	4.8	4.5	4.1	4.7	5	3.7
51	4	5.3	5.9	5.8	2.3	5.3	4.8	5.1	5	5	5.3
53	6	6	4.9	4.8	4.8	4.5	4.3	4.7	4.7	4.6	4.7
54	5	4.6	4.7	4.3	4.3	5.2	3.5	4.1	5	4.3	4.3
55	2	4.3	4.4	4.5	4.3	5.2	3	4.6	5	3	5.5
57	3	5.9	5.1	5.5	5	5.8	2.5	4.9	5	4.9	3.7
59	4	3.4	5.1	5.8	4	5.2	4	4.9	6	3.1	4.7
60	4	3.9	4	4.8	4.8	4.8	2.3	4.6	4	3.7	3

62	5	4.6	4.7	5.8	4.8	4.2	4.5	5	5.7	2.7	3
63	4	1	3.9	5	2.8	4.7	4.3	4.3	4.7	3.4	5
65	5	4.7	4.4	4.5	5	4.4	4.5	4.9	5	4.1	6
66	3	4.5	4.1	6	5	5.8	2.5	5.3	4.7	3.6	6
67	3	4.1	5.3	5	4.5	6	5	4.6	5.7	2.6	4.7
68	2	4.1	4.7	3.8	5	5	5.5	5.8	6	2.4	4.3
69	4	5.7	5.1	4.8	2.8	5.5	3	4.8	5.3	3	4.7
70	5	3.4	5.4	4.8	2.5	4.7	4	4.9	4.3	4	4.3
73	6	5.1	4.6	4.5	4.5	5.3	5.5	5.3	5.7	3.3	5.3
75	2	4.4	4.4	4	4	5.3	4	4.6	3.7	2.6	4
76	3	5.9	4	5	5.8	5	4.8	6	6	5.3	4
77	4	4.1	4.6	4.3	3.5	4.2	4	5.1	4.3	2.4	4.7
78	4	4.6	3.4	4	4.5	4.3	3.5	4.6	4	3.7	4.3
79	3	3.7	4.7	5	4.3	5.3	4.8	4.8	5	3	5.7
80	5	5.4	4.6	4.5	5	5.5	6	5.7	6	3.4	4.7
81	4	4.6	2.6	5.3	3	3.5	2.5	3.9	4.7	3.4	3.7
82	3	4.7	4.1	5.5	4.5	6	5.8	4.3	4.7	3.4	5.7
83	3	6	5.1	4.8	3.5	4.8	2.8	5.5	5.3	2.4	4.3
84	4	2	2.4	5.3	5.3	5.7	1	4.5	2.3	2.4	6
85	5	4.6	4.6	5	5	4.8	3	3.6	5.3	4.6	6
86	5	5	4.9	5	5.5	4.7	4.8	5.1	5.7	4.4	5.7
87	5	5.6	5	5.5	5.3	5.3	4	4.6	5.7	5.1	5
88	4	2.1	3.7	4.8	4.5	5.7	1.5	5	5	1.9	3.7
90	5	4.3	5.1	5.8	4.5	4.3	1.7	4.3	6	3.7	4.3
91	3	4.6	4.3	3.8	1.3	5	5	5.4	4.3	2.9	3.7
93	4	5.4	5.7	5.5	6	5.3	3	5.4	5	4.9	6
95	2	5.4	4.3	4	5.5	5	4.5	5	6	2.9	5.7
96	3	5.4	4.4	5	5	4.3	4.8	4.9	4.7	4.4	5.7
97	4	5.3	4.9	5.3	6	6	4.8	5.4	5	3.7	4.3
98	2	1.7	2.6	3.3	4	4.7	2.5	5.1	3.3	1.9	3.7
99	3	2.1	2.9	5.7	4.3	4.8	4	4.3	4	2.1	4.7
101	5	5.1	4.6	4.3	5.3	4.8	1	4.6	4.7	4.4	4.5
102	5	5.3	4.4	6	5.3	4.2	1.5	5.5	4.7	4.3	5
103	2	4.7	3.7	5	4.3	3.7	4.8	5	3.7	3.5	5
104	3	3.6	3.4	4.3	2.8	3.8	2	4.1	4.3	3.4	4
105	3	3.6	4	6	5.3	4.2	4.5	4.6	6	4.4	5.7
106	5	4.1	5.1	5	6	5.8	2.7	5	5.7	4.4	5.3
107	3	5	3.7	5	4.3	4.3	3.8	4.9	5	2.7	3.7
108	4	6	3.3	5.8	2.8	5.3	4.5	5.8	6	4	3.3
110	2	3.9	4.6	4.3	4	4.7	4.5	5.4	5	2.9	5
111	2	6	3.1	3.8	4	3.7	6	5.5	6	3.7	4
112	6	4.5	5.4	4.5	6	5.6	2.5	5	6	3.8	4.7
113	3	2.6	5.4	4.8	4.3	5.8	6	5.6	6	2.7	4
114	2	4.5	4.5	4.5	1.3	5.2	5.5	4.6	5.3	2.9	4.3
115	3	3.9	5.3	5.3	4.3	5.5	5.3	5.3	5.3	3	5.3
118	6	4.9	4.4	4.3	3.3	4.7	5	4.9	5.3	4	5
119	5	6	5.1	5.8	5.3	6	2.5	5	5	3.6	5
120	4	3.7	3	3.5	2.8	4.8	3.5	4.8	4	3.4	4.7
121	4	4.1	4.1	4.8	3.5	3.7	1	4.1	4.7	4	3
122	4	4.9	3.6	4	3	3.7	1.5	3.9	3.7	3	3.3
123	4	4.4	3.1	3.7	3	5.5	1.8	5.6	5	3	4.7

124	3	3.1	4.9	3.5	4.3	5.7	4.5	5.5	5	2.4	5.7
125	4	4.6	5.3	5.3	5.8	5.7	1	4.9	5.3	3.9	5.3
126	6	3.9	4.7	5.3	3.5	4.2	4	4	5	2.7	4.7
127	3	6	5.6	5.3	6	5.2	6	5.8	6	4.4	5.7
128	5	4.4	4.3	5	4	4.7	4.8	4.8	5	3.9	4.3
131	5	5.4	4.7	4.3	5.3	4	4.8	4.6	5.3	4.3	5.7
132	6	2.4	3.9	4.8	2.8	4.3	3.5	4.4	3	3.6	4.3
133	6	5.4	4.9	3.3	5.8	4.8	4.5	5.3	5.3	4	5
134	3	4.6	5	5	5	5.7	5.8	5.5	6	3.1	4.3
135	5	4.5	4.6	5.3	5.8	4.3	5.5	5.4	5.7	4.6	5.3
136	5	4.6	4.9	3.8	4.5	4.3	2.5	5.3	5	3.4	4.7
137	4	4.1	5.4	5	2.3	5.7	2.3	5.5	5.7	3.1	6
138	5	4.4	4.7	5.3	5.3	5.4	5.8	5	6	4.3	5
139	6	5.3	3.8	5.8	4	5.7	1	5	2.3	3	3
141	3	3.6	3.6	4.5	3	4.5	4	4	4.7	3.3	5.7
142	5	3	4.3	4.5	3.3	4.7	5	5	4.7	3	4.7
144	5	5.6	4.7	5	6	6	5.3	5.6	5	4	6
145	4	4.5	4.8	5	4.3	6	3.3	5	6	2.4	5.3
146	6	4.3	2.9	4.3	2.8	3.8	3.3	3.6	4	3.7	4.3
148	2	4.4	3.4	4.5	4.8	5.3	4.3	4.4	6	2.9	4.7
149	6	5.1	4.7	4.8	6	5.5	6	6	6	3.4	6
150	4	4.5	5.3	5.7	4.3	5.5	3.3	5.1	6	3.8	4.5
151	3	4.5	5	5.5	2.3	4.3	4.7	4.1	5.3	5.1	6
152	3	4.5	4.4	5.3	3	4.2	3.3	3.9	6	2.1	3.7
154	5	4	3.6	5	4.8	3.7	3.8	4.9	5	3.4	4
155	4	6	5.9	6	3.5	3	6	5.5	5.7	6	6
156	3	5.1	4.6	5.8	4.5	4.8	4.5	5.6	5	3.6	5.3
157	6	5.7	5.1	5.3	4.3	4.8	3	5.9	5	4.6	6
158	4	4.5	4.9	3.8	4.5	5.5	2.5	5.8	5.3	2	2.7
159	4	3.8	3.4	4.5	4	4.7	2.8	4.3	4.7	2	6
160	5	4.5	3.2	5	4.3	4.2	4	3.6	5	4.3	3
162	4	4.5	3.6	6	5.5	5.3	6	6	3	4	3.7
164	5	4.7	4.3	4	5	4.2	4.5	4	4.3	3	5
165	2	4.7	4.1	4.3	4.3	4.8	4	5.1	4.7	4.3	6
166	4	5.3	3.9	5.5	3.8	5.2	3	3.9	5	2	6
168	5	5	5	4.5	5.8	4.2	4.8	5.6	5.7	3.7	6
169	4	3.3	3.1	4.3	3	4.3	2	4.4	5	2	4.3
170	6	5.6	5.1	5	5.5	5.7	6	5.3	6	4.6	6
172	5	4.6	6	5.5	5.5	5.3	4.3	5.6	5.3	3.8	4.7
173	2	4.5	3.4	4.5	4.5	4.3	5.3	5.4	5	1.4	1
175	6	5.1	5.1	5	6	4.4	5	4.3	5	4.7	6
176	3	5.1	4	5.5	3.5	4.5	3.3	5	4.7	2.4	4.3
177	2	5	5.2	5.3	4.3	4.8	3.5	4.3	6	4.3	3.7
178	5	4.7	5.9	6	3.5	5.8	6	5.9	6	3.1	5.3
179	1	5	4.1	3.7	5	5.3	1	5.4	5	4.1	3
181	4	3.3	5	5.5	4.3	5.3	5	5	6	4.4	5.3
184	3	4.5	5.1	6	4.5	4.8	1.8	5.4	6	3	4.5
185	3	5.1	5.3	4.5	4.8	4.5	4	5.1	4.7	4.6	5
187	3	3.9	3	4.3	1.3	5.4	3.8	4.6	5.3	3	4.7
188	4	1	3.9	5	3.8	3.5	2.3	4.7	5	3.7	5.3
190	6	4.9	4.3	4.8	3	3.3	5	5	5.3	3.6	4.3

192	6	4.5	5.4	5.5	6	5.7	2.5	4.9	5.3	4.9	6
193	4	5.5	3.7	2	4	3.5	2.3	4.9	5.3	3	3
194	4	6	5.7	5.8	5.5	5.7	5.8	4.9	6	5.6	6
197	5	5.4	4.7	5.7	5.5	5	3.5	5.1	5.7	4.3	5.7
199	3	4.9	3.1	3.5	3.3	4	1.3	4	3.7	3.4	4.5
200	5	5	5.4	4.5	4.3	5.3	4.3	5.6	5.3	4.1	6
201	3	4.3	3.4	3.8	2	3.7	3	4	2.3	2.5	3
202	3	4.5	5.7	2.8	6	6	3	5.8	5.7	2.6	3.5
203	5	5.2	4.7	4	5	5.2	3.7	4.9	5.3	3.6	4.3
204	2	3	3.3	3.8	3	2.7	3.3	4.8	6	2.7	2.7
207	5	4.1	4.3	5	1.8	4.2	4.3	5.4	4.3	2.6	3.7
209	4	4.7	4.3	4.3	5	2.6	2.8	4	5	3.7	3.7
212	5	5.6	4.9	6	5	5	4	5.4	5	4.4	4.3
213	4	4.9	3.9	5.5	5.7	5.6	3.3	5.1	4.7	5.3	5
214	6	6	4.7	5.8	6	4.8	6	5.9	6	5.9	6
215	1	4.5	5.4	5.5	5.8	5.8	5	5.6	5.3	4.7	5.3
218	3	5.7	5.7	5.5	6	5.5	3.8	5.4	4.7	5.3	6
219	5	5.3	5.3	6	4	5	3.8	5.4	6	2.7	4.3
220	6	2	5	3.5	2.8	5.7	4.8	4.1	5.3	6	4
221	5	3.4	4.1	5.3	2.3	5.2	3.5	5.1	4.3	4.3	3.7
223	4	4.9	4.3	4	4.8	4.2	4.8	4.4	4.3	4	4.7
224	4	5.8	5.7	6	6	6	5.5	5.9	6	5.7	6
225	1	6	3.8	5	3.5	4.7	2.8	5.3	6	2.6	2.7
227	3	5.3	3.7	4.3	4.8	4.8	5	4.3	5.3	3.9	6
228	4	5.8	5.1	5	5.3	5.8	5.5	4.9	5	3.3	3.7
229	2	4.9	4.4	4.8	5	5.7	2.5	4.9	4	4.3	5.7
230	4	4.6	4.7	5.5	5.3	4.5	4.3	4.5	5.3	4.7	5.7
231	2	5	3.9	5.5	5.3	4	3	4.8	5.3	4	3
232	4	3.1	4.1	6	3	4.8	6	5.9	5	2.4	5
233	4	4.9	4.4	4.5	3.5	5.2	3.5	5.1	4.7	2.6	3
234	2	4.6	4	4.3	2.8	4.2	2.8	5.1	6	2.9	4
235	5	5.4	4.4	4.5	6	4.5	4	5.5	5	4	6
236	6	5.3	5.7	4.8	6	6	4.8	5	6	3.3	5.7
238	2	4.1	3.3	5.3	6	6	3	4.1	5.3	5.3	6
239	5	5	4.9	4.8	6	4.3	4	5.4	5.7	4.7	5
240	2	4.5	3.4	4	3	4.5	3	4.2	5.3	2.5	4
241	4	4.5	4.1	4.3	1.8	4	2.5	4	4.7	3.3	5
242	6	4.5	3.7	4.8	2.5	4.8	4.3	4.8	3.7	4.4	5.3
243	6	3.4	5.4	5.3	4.8	5.3	4	5.1	5.7	5.6	6
244	2	4.4	4.6	5	3.5	5.5	2.3	5.1	4	3	4.7
245	3	4.5	3.9	6	4.5	5.3	3.8	5.3	6	4.2	5
246	4	4	4.3	5.5	5	4.2	4.8	5.1	5	3	5.3
247	4	4.5	3.7	5	4.8	4.8	5.3	4.9	5	3.3	3.7
249	3	4.6	3.9	4.8	5	5	3.5	5	4.3	1	5.3
250	3	6	6	5.3	2	5.3	2.8	4.1	5	3	4.3
251	1	6	5.7	6	6	6	6	6	6	1.6	4.7
252	3	4.1	3.7	4.3	2.3	3.7	1.8	3.3	4	2.8	3.3
253	4	4.3	4	5.3	5.5	4.5	3.5	5.5	5	3.4	5
254	5	4.9	5	2.8	3.5	4.2	4.3	5.3	5.3	2.6	4.7
255	4	4.1	2.7	4.8	5.8	5	3.8	5	2.7	3.8	3
256	4	4.4	4.9	5.3	5.3	5.3	2	5.3	6	3.7	4.7

257	3	5.6	5.6	5.8	5.5	5	3.3	4.5	5.7	3.9	6
260	6	5	4.7	5	6	4.3	3.8	4.5	5	5.5	4.5
262	5	5.3	5	5	4.8	5.8	4.3	5.9	6	3.6	3.7
263	5	3.1	4.9	5	4.8	4.3	2.8	4.9	5.3	4	4
264	4	4.5	5	5	4.8	5.2	4	5.1	6	4.3	6
265	5	3.3	3.1	5.3	4	3.8	2.5	4.8	5	3.3	5
266	5	2.4	3.6	4.3	3	4.5	2.3	4	4.3	3	4
267	5	2.9	3.1	3.8	4	4.8	4	4.1	4.7	2.3	4.7
269	4	5	4.7	2.8	4.5	4.5	5	4.5	5	2.7	4.3
270	1	5	4.3	2.8	4.8	5.3	4.5	5.6	6	3	4.7
274	6	5.9	4.4	5	2.3	5.2	4.5	3.9	6	4.9	5
275	4	4.3	3.3	4.3	2.3	4.8	2	4.5	5.3	3.9	2
276	2	4	3.2	1.8	4.5	5.3	4.5	4.3	6	1.5	2.7
278	2	5.3	5	4.8	4.3	5	4.3	4.3	4	4.7	5
279	5	3.7	3.9	4.3	4.3	4.7	1.5	3.4	4.3	3.6	4.3
281	3	2.3	4.4	4.3	4.5	5	5	5.5	5	3.7	5
283	5	4.3	3.7	6	2.8	3.8	3.3	3.6	4.7	4.3	5
284	5	4.9	5.6	6	5.5	6	5.5	5.3	5.7	4.8	5
285	4	4.5	3.7	4.3	2.5	4.7	2.8	4.5	5.7	2.4	3.7
286	4	3	3	2.5	2.8	3.5	2	3.6	3.3	2.2	3
287	2	4.2	4.4	3.8	3	4.5	4.8	5.3	3.7	3.9	4.3
289	3	4.6	4.4	5.8	3.3	3.7	3.8	4.4	5	4.1	5.3
290	5	4.4	4.3	4.8	4.8	5	5.8	5.3	5	3.3	5.3
292	2	2.9	2.9	4.5	3.8	3	3.5	5.4	5	3.4	3
296	3	4.7	4.9	5.3	5	5.2	4.5	5.1	6	2.9	5
297	4	4.6	3.4	5	3.8	4.2	3.8	5.3	4.3	3.7	5.3
298	6	3.8	4.9	5	5.3	5.2	1	5.1	4.7	3.6	5.3
299	2	2.9	2.9	4	5	3.8	3.5	3.8	3.7	2.9	3.7
300	3	4.7	4.7	4.8	4.8	4.7	5	5.9	4.3	3.9	4
301	3	4.6	4.9	5	4.5	4.7	3	5.3	5.7	3.6	5
302	3	4.5	4.7	4.5	5.8	4.7	5	4.8	5.7	3.6	5
303	4	4.1	3	3	5	4.7	2	5.3	4	4.5	3.5
304	3	4.9	4.4	5.5	4.5	4.5	2.8	5.8	4	4.2	6
305	3	4.3	4.9	4.8	5	3.8	2.3	5.4	5	3.3	5.3
306	5	2.4	4.1	3.7	5	5	3	5.8	4.7	2.1	5.7
307	2	1.9	3	2	2.3	4	4	4	5	2.1	4
308	4	5.3	3.4	5.8	2.3	3.7	2.3	4.8	4.7	4.1	5.7
310	4	5.7	5.1	4.3	3.3	4.3	1	4.3	5.3	3.1	2
311	6	4.4	4.9	4.5	5.3	4.3	4	4.8	5	5	4.3
312	2	4.5	3.4	3	2	4.3	3.5	4.9	2.3	2	4
315	5	4.9	5	6	5.5	5	4	5.5	5.3	4	4.3
316	5	5.7	5.3	5.5	6	5.3	5.3	5.3	6	4.1	5.7
317	5	4.4	4.7	5	2.5	4	3	4.6	4.3	4	4.7
318	6	5.6	5.1	5	6	5.7	4	5.3	6	2.9	5
319	6	5.7	5	5.8	5.3	5.7	5.3	5.8	6	5	6
320	3	4.1	4	4.8	3.5	5.2	3.8	4.4	4.7	4.3	4.7
321	6	6	5.9	6	5.7	6	6	5.8	6	6	6
323	3	5.7	5	4	3.5	6	5	4.9	6	2.3	3.3
324	5	4.7	4.2	4	4.8	5.5	4	5	6	2	4.7
325	4	3.7	4.1	5	4.3	4.5	3.5	4.8	4.7	4.3	5.3
328	4	2.4	2.8	5.5	4.3	4.8	4.5	5.3	4.3	1.4	4

329	5	2.1	4.6	4.8	4.3	5	2.7	4.5	5.3	2	4.3
331	3	4.5	5.7	5	5.3	4.5	3	5.5	5	3	4.7
332	6	6	4.3	4.8	5	5	4	4.8	5.3	3.1	6

5.3. Data cleaning

Ca. 50% of our cases have missing values on one or more factors of a building block, and the index (the aggregated score for the building block) was in these cases the average of the other sub-indicators, the assessed factors in the building block. In ca. 20% of the cases, none of the factors in a specific building block were assessed. There we imputed the building block's overall index (the average of all cases). Since in the entire index generating process averaging was deployed, we regard this as the least obtrusive strategy. Another option, that is more in line with best practices in QCA, would have been the removal of all cases with missing values. The sample would then be reduced to ca. 60 cases. Although QCA is not encumbered by a smaller sample, we had to consider the sponsors of this study, who have less (or no) affinity with the method.

5.4. Additional analyses of necessity

Table 16: Parameters of fit for necessity of absent conditions for outcome

Necessity of absent conditions for present outcome success (OUT)			
Condition	Consistency of necessity	Coverage of necessity	Relevance of necessity
(1) org	0.501	0.706	0.871
(2) int	0.522	0.671	0.840
(3) env	0.412	0.711	0.902
(4) lea	0.541	0.633	0.802
(5) hr	0.430	0.773	0.925
(6) ext	0.666	0.601	0.696
(7) con	0.525	0.705	0.863
(8) for	0.428	0.714	0.899
(9) mar	0.723	0.588	0.638
(10) dis	0.441	0.664	0.868

Table 17: Parameters of fit for necessity of present conditions for absent outcome

Necessity of present conditions for absent outcome success (out)			
Condition	Consistency of necessity	Coverage of necessity	Relevance of necessity
(1) ORG	0.814	0.647	0.587
(2) INT	0.772	0.645	0.619
(3) ENV	0.851	0.620	0.497
(4) LEA	0.721	0.639	0.651
(5) HR	0.888	0.636	0.494
(6) EXT	0.606	0.671	0.769
(7) CON	0.805	0.656	0.610
(8) FOR	0.848	0.625	0.512
(9) MAR	0.692	0.774	0.859
(10) DIS	0.802	0.617	0.543

Table 18: Parameters of fit for necessity of absent conditions for absent outcome

Necessity of absent conditions for absent outcome success (out)			
Condition	Consistency of necessity	Coverage of necessity	Relevance of necessity
(1) org	0.513	0.813	0.914
(2) int	0.587	0.849	0.920
(3) env	0.437	0.846	0.946
(4) lea	0.594	0.781	0.871
(5) hr	0.422	0.853	0.950
(6) ext	0.704	0.714	0.762
(7) con	0.528	0.797	0.901
(8) for	0.447	0.839	0.941
(9) mar	0.820	0.750	0.744
(10) dis	0.502	0.852	0.937

5.5. SUIN conditions

Many unions of (present, but also very often absent) building blocks are rendered as necessary (see table below). The necessity of unions of present blocks merely confirms what is communicated throughout this study. All building blocks were in a previous stage distinguished as contributors to success, all are positively assessed in the survey, and all are thus in principle relatively close to being necessary. An 'either X or Y or Z is necessary' result is then merely logical and does not inform additional interpretations.

Table 19: SUIN conditions

Inclusion cut (Incl.cut) = 0.9

Conditions	Inclusion	Relevance of Nec.	Raw coverage
1 HR	0.918	0.461	0.585
2 ENV	0.911	0.478	0.590
3 DIS	0.902	0.542	0.617
4 FOR	0.904	0.491	0.592
5 lea+INT	0.926	0.495	0.604
6 LEA+INT	0.929	0.488	0.603
7 org+INT	0.916	0.541	0.623
8 ORG+int	0.911	0.482	0.592
9 ORG+INT	0.941	0.460	0.595
10 ORG+lea	0.926	0.450	0.584
11 ORG+LEA	0.928	0.449	0.584
12 ext+INT	0.935	0.442	0.585
13 ext+LEA	0.906	0.441	0.571
14 ext+ORG	0.938	0.421	0.577
15 EXT+INT	0.909	0.543	0.621
16 EXT+ORG	0.904	0.476	0.586
17 dis+INT	0.908	0.544	0.621
18 mar+INT	0.929	0.438	0.580
19 mar+LEA	0.914	0.418	0.565

20 mar+ORG	0.930	0.404	0.566
21 MAR+INT	0.907	0.591	0.646
22 MAR+ORG	0.901	0.532	0.612
23 for+INT	0.915	0.556	0.630
24 for+ORG	0.906	0.507	0.601
25 con+INT	0.920	0.539	0.623
26 con+ORG	0.912	0.495	0.598
27 CON+INT	0.927	0.465	0.592
28 CON+lea	0.909	0.456	0.579
29 CON+LEA	0.915	0.466	0.586
30 CON+ORG	0.934	0.419	0.574
31 CON+ext	0.923	0.416	0.568
32 CON+mar	0.902	0.432	0.565
33 CON+MAR	0.907	0.528	0.612
34 org+LEA+int	0.905	0.498	0.596
35 EXT+LEA+int	0.930	0.459	0.590
36 EXT+org+LEA	0.927	0.476	0.597
37 hr+EXT+LEA	0.915	0.501	0.602
38 env+EXT+LEA	0.908	0.499	0.598
39 env+hr+INT	0.905	0.556	0.625
40 dis+EXT+LEA	0.917	0.474	0.591
41 dis+hr+ORG	0.904	0.499	0.596
42 dis+env+ORG	0.906	0.490	0.593
43 MAR+LEA+int	0.915	0.503	0.604
44 MAR+org+LEA	0.917	0.518	0.612
45 MAR+EXT+LEA	0.918	0.524	0.615
46 MAR+hr+LEA	0.903	0.554	0.623
47 MAR+dis+LEA	0.907	0.516	0.606
48 for+org+LEA	0.905	0.510	0.602
49 for+EXT+LEA	0.928	0.488	0.602
50 for+MAR+LEA	0.913	0.539	0.621
51 con+LEA+int	0.905	0.488	0.592
52 con+org+LEA	0.915	0.483	0.594
53 con+EXT+LEA	0.938	0.456	0.592
54 con+dis+LEA	0.902	0.491	0.592
55 con+MAR+LEA	0.917	0.511	0.608
56 con+for+LEA	0.913	0.504	0.603
57 CON+org+int	0.910	0.476	0.588
58 CON+EXT+int	0.918	0.448	0.579
59 CON+EXT+org	0.911	0.462	0.582
60 CON+hr+org	0.902	0.491	0.592
61 CON+hr+EXT	0.901	0.481	0.587
62 CON+env+int	0.900	0.488	0.590
63 CON+dis+org	0.902	0.476	0.585
64 CON+dis+EXT	0.905	0.461	0.579
65 CON+for+int	0.903	0.480	0.587
66 CON+for+org	0.905	0.484	0.589
67 CON+for+EXT	0.912	0.461	0.583
68 env+hr+org+LEA	0.903	0.497	0.595
69 dis+hr+org+LEA	0.909	0.477	0.589
70 dis+env+org+LEA	0.904	0.480	0.587

71	MAR+EXT+org+lea	0.902	0.494	0.593
72	for+hr+LEA+int	0.904	0.491	0.592
73	for+env+LEA+int	0.907	0.493	0.595
74	for+env+hr+LEA	0.901	0.515	0.603
75	for+dis+LEA+int	0.905	0.476	0.586
76	con+env+hr+LEA	0.903	0.491	0.592
77	CON+dis+hr+int	0.902	0.467	0.580
78	CON+for+dis+hr	0.902	0.474	0.584
79	CON+for+dis+env	0.900	0.474	0.583
80	dis+env+hr+LEA+int	0.901	0.479	0.586
81	MAR+env+EXT+lea+int	0.904	0.481	0.588
82	MAR+dis+EXT+lea+int	0.901	0.473	0.583
83	MAR+dis+env+EXT+lea	0.901	0.482	0.587
84	for+MAR+EXT+lea+int	0.901	0.488	0.590
85	for+MAR+env+EXT+lea	0.902	0.486	0.590
86	for+MAR+dis+EXT+lea	0.900	0.474	0.583
87	con+mar+EXT+org+lea	0.902	0.431	0.565
88	con+MAR+EXT+lea+int	0.905	0.476	0.586
89	con+MAR+EXT+org+int	0.902	0.510	0.601
90	con+MAR+env+EXT+lea	0.907	0.482	0.590
91	con+MAR+env+EXT+org	0.904	0.516	0.605
92	con+MAR+dis+EXT+lea	0.904	0.472	0.584
93	con+MAR+dis+EXT+org	0.903	0.502	0.598
94	con+for+mar+EXT+lea	0.902	0.429	0.564
95	con+for+mar+EXT+org	0.900	0.445	0.570
96	con+for+MAR+EXT+lea	0.903	0.483	0.588
97	con+for+MAR+EXT+org	0.904	0.518	0.606
98	MAR+env+hr+EXT+org+int	0.901	0.519	0.605
99	MAR+dis+env+EXT+org+int	0.903	0.502	0.597
100	for+MAR+env+EXT+org+int	0.906	0.513	0.604
101	for+MAR+env+hr+EXT+org	0.901	0.525	0.608
102	for+MAR+dis+EXT+org+int	0.901	0.495	0.593
103	for+MAR+dis+env+EXT+org	0.903	0.503	0.598
104	con+MAR+dis+env+EXT+int	0.902	0.496	0.594
105	con+for+MAR+env+EXT+int	0.907	0.500	0.598
106	con+for+MAR+env+hr+EXT	0.903	0.519	0.605
107	con+for+MAR+dis+EXT+int	0.902	0.490	0.592
108	con+for+MAR+dis+env+EXT	0.904	0.501	0.598

7

5.6. Standard Analysis

The Standard Analysis as rendered before Enhanced Standard Analysis procedures were deployed is shown below, inclusion cut of truth table (Incl. Cut1) = 0.85, minimum cases in row (n.cut) = 2

- Parsimonious solution

Model:

hr + con*dis + con*env + con*for + con*MAR + for*dis + for*env + for*MAR + MAR*dis => OUT

incl PRI cov.r cov.u

```
-----
1 hr      0.773 0.381 0.430 0.033
2 con*dis 0.787 0.356 0.361 0.004
3 con*env 0.811 0.392 0.345 0.002
4 con*for 0.799 0.373 0.355 0.007
5 con*MAR 0.853 0.557 0.451 0.038
6 for*dis 0.807 0.349 0.312 0.007
7 for*env 0.796 0.295 0.296 0.003
8 for*MAR 0.853 0.452 0.365 0.013
9 MAR*dis 0.863 0.483 0.374 0.022
-----
```

M1 0.692 0.372 0.631

- Intermediate solution

M1: hr*ENV + con*dis + con*for + for*dis + con*HR*env + for*HR*env + con*MAR*ENV + MAR*dis*ENV + (dis*hr + for*MAR*ENV) => OUT

M2: hr*ENV + con*dis + con*for + for*dis + con*HR*env + for*HR*env + con*MAR*ENV + MAR*dis*ENV + (dis*hr + for*MAR*HR) => OUT

M3: hr*ENV + con*dis + con*for + for*dis + con*HR*env + for*HR*env + con*MAR*ENV + MAR*dis*ENV + (CON*FOR*hr + for*MAR*ENV) => OUT

M4: hr*ENV + con*dis + con*for + for*dis + con*HR*env + for*HR*env + con*MAR*ENV + MAR*dis*ENV + (CON*FOR*hr + for*MAR*HR) => OUT

incl PRI cov.r cov.u (M1) (M2) (M3) (M4)

```
-----
1 con*dis 0.787 0.356 0.361 0.004 0.004 0.004 0.004 0.004
2 con*for 0.799 0.373 0.355 0.007 0.007 0.007 0.007 0.007
3 for*dis 0.807 0.349 0.312 0.007 0.007 0.007 0.007 0.007
4 hr*ENV 0.803 0.424 0.423 0.003 0.026 0.026 0.003 0.003
5 con*HR*env 0.837 0.435 0.343 0.002 0.002 0.002 0.002 0.002
6 con*MAR*ENV 0.853 0.551 0.447 0.037 0.037 0.037 0.037 0.037
7 for*HR*env 0.818 0.326 0.296 0.003 0.003 0.003 0.003 0.003
8 MAR*dis*ENV 0.872 0.497 0.370 0.022 0.022 0.022 0.022 0.022
-----
```

```
9 dis*hr 0.795 0.311 0.320 0.000 0.001 0.001
10 CON*FOR*hr 0.834 0.438 0.395 0.001 0.002 0.002
11 for*MAR*ENV 0.858 0.463 0.364 0.000 0.013 0.013
12 for*MAR*HR 0.855 0.456 0.364 0.000 0.013 0.013
```

M1 0.696 0.374 0.629

M2 0.696 0.374 0.629

M3 0.697 0.377 0.630

M4 0.697 0.377 0.630

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