

Crazy in Love with a Tech Giant? Exploring Consumer Perceptions of Digitally-Driven Brand Alliances

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Abstract. In many industries, digitalization has considerably changed the skills and capabilities that are necessary for success. Since traditional industry incumbents often lack these capabilities, they have started to enter strategic partnerships with ‘tech giants’ (big technology companies) that possess wide-ranging digital capabilities. It is not yet clear how these digitally-driven alliances influence consumers’ brand perceptions of the traditional industry incumbents. In this phenomenon-driven research, we present the findings of an experimental study (n = 912) conducted in the context of the automotive industry, where car manufacturers increasingly use Apple (‘CarPlay’) and Google (‘Android Auto’) solutions for their infotainment systems. Our results show different effects depending on the brand character of the traditional industry incumbent. In particular, alliances between premium brands and digital companies lead to negative consumer responses. However, non-premium brands can benefit from these partnerships, as we found favourable consumer perceptions. Our research emphasizes the importance of the careful consideration of digitally-driven brand alliances that are visible to consumers, because they can lead to both favourable and undesirable consumer responses.

Keywords. digitalization · brand alliances · consumer perception · tech giants · premium brands

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1. Introduction

1.1. Motivation

In an increasing variety of sectors, traditional industry incumbents are under attack from a new breed of digital competitors. ‘Tech giants’ like Apple and Google have redefined the telecommunication landscape. In media and entertainment, Amazon, Netflix and YouTube dictate new norms. Paypal has revolutionized private banking, and Waymo is entering the automotive industry with a self-driving car service. These few examples are just the tip of the iceberg. New rivals are entering the fray with digital capabilities that are fundamentally different from the core competencies of traditional industry incumbents. These new digital capabilities empower them to harness the new explosive powers of an array of emerging digital technologies such as the Internet of Things, Artificial Intelligence, Big Data, Blockchain and others, and disrupt traditional ways of delivering value.

In response to these impending threats, we are witnessing a flurry of alliances and partnerships between industry incumbents and digital players, who are often even rivals (Dacin, Oliver, & Roy, 2007; Lioukas, Reuer, & Zollo, 2016). Nowhere is this more apparent than in the automobile industry, where a battle looms between traditional car manufacturers such as BMW, Ford and Toyota and new digital players such as Google, Apple and Uber. Traditional manufacturers compete with capabilities in R&D, product design and marketing to improve their products’ performance and appeal. New digital players, on the other hand, see the car as an attractive target for a host of new services. It is possible to envisage new business models designed to shift users from owning cars to ordering them on demand, luring them onto platforms with a variety of personalized and digitally connected services for their rides (a similar shift has happened, for example, in the music industry; see Trefzger, Rose, Baccarella, & Voigt, 2015). For example, a user could have a driverless car that predicts and arrives when it is needed, is aware of the user’s itinerary for the ride, is able to offer stops at favourite coffee shops or stores, and for the duration of the ride streams in personalized news, videos or music.

Traditional car manufacturers understand these trends and recognize that value may shift from a car’s driving performance to customized digital services. Digital players recognize that their capabilities need to be complemented by reliable driving machines. It is not surprising that they look to one another for partnerships. Both sides do, however, recognize the inherent adversarial underpinnings in their goals (Yu, Subramaniam, & Cannella, 2013).

If we suppose that traditional industry incumbents form alliances with digital companies because of their lack of digital competencies and abilities, the question arises of how consumers perceive these new partnerships. Under the assumption that a partnership is visible to consumers, there are two possible arguments. On the one hand, consumers might value the additional quality of the digital services they receive, and therefore be happy about the partnership between the traditional industry incumbent and the digital company. They might think, “It’s great that the two companies have partnered up to improve my experience”. On the other hand, consumers could also be disappointed that the traditional industry incumbent was not able to

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come up with its own solution. They might interpret the partnership as an ‘obvious’ weakness of the traditional industry incumbent.

1.2. Research goal and context

Against this background, it is the goal of this study to examine how consumers perceive partnerships between traditional industry incumbents and digital companies. To our knowledge, no other study has looked into this rising phenomenon. However, it is important to understand these consumer reactions because there might be great threats or opportunities for the traditional industry incumbents related to these new partnerships.

We have chosen a phenomenon-driven empirical research approach, leaving out a literature review and theoretical framing and focusing mainly on the experimental study. We believe that the automotive industry is a rich context in which to study and understand many different facets of the partnerships under study, as the traditional auto industry transforms into a mobility ecosystem. We examine some precise contingencies that influence consumer reactions to partnerships between traditional auto companies and digital players in the realm of a car’s infotainment system.

A car’s infotainment system integrates information (e.g. a navigation system, traffic alerts, and an advanced driver-assistance system) and entertainment (e.g. radio and music apps) into one central system. Such infotainment systems are usually accessed via the built-in display in the centre of the car’s cockpit. Traditional auto firms have the option of providing the software behind such infotainment systems themselves and branding them as such (e.g. BMW’s ‘Connected Drive’). However, Google and Apple have already introduced their own car infotainment solutions. Google’s solution is called ‘Android Auto’ and Apple’s solution is called ‘Apple CarPlay’. Both applications connect the user’s smartphone and the car’s built-in infotainment display.

The specific question we address is: how do consumers respond to these different infotainment solutions (the ‘traditional’ car brand solution vs. the ‘new’ digital company solution), and how does this influence their perceptions of the car brand? We focus on one contingency that could influence that response, namely, the car’s brand character, or its ‘premiumness’ (premium brand vs. non-premium brand). We conducted an experimental study to find answers.

2. Methodology

2.1. Experimental design and stimuli

As our stimulus, we used the infotainment system in the centre of the car’s cockpit to model an existing type of alliance between a traditional car manufacturer and a digital company, aiming to use a realistic alliance scenario. The experiment used a 3 × 2 design between infotainment (car brand solution vs. Apple solution vs. Google solution) and brand type (premium car brand vs. non-premium car brand) to generate six distinct stimuli. We chose BMW and Ford as the premium and non-premium car brands, respectively. We conducted a pre-test for this choice through a short online questionnaire using a 2-item 5-point Likert scale (strongly disagree/strongly agree). The questionnaire asked “For me, [Ford/BMW] is a premium brand”. Based on 83 participants, the results confirmed our premise that BMW ($M = 4.28$) was perceived as significantly more “premium” than Ford ($M = 2.05$; $p < .01$).

For the main experiment, we distributed an online questionnaire. Participants were randomly assigned to one of the six experimental conditions. Participants in all six groups were exposed to a car advertisement showing the cockpit of a medium-sized sedan car. A BMW 3 Series was chosen as the premium brand car, and a Ford Mondeo as the non-premium brand car. We took care to ensure that the two cockpits looked almost the same in the advertisements. The car advertisements presented a built-in infotainment display. A sticker with the logo of the infotainment provider was included next to the infotainment display (Ford, BMW, Apple, or Google). Moreover, a headline introducing the infotainment system to the participants was presented at the top of the picture (e.g., BMW INFOTAINMENT WITH ‘APPLE CARPLAY’). The stimuli used are presented in Appendix 2.

2.2. Measures

Before the participants were exposed to one of the six advertisements, we assessed their general attitudes towards premium brand cars and towards new technologies (technology anxiety), as control variables. Attitude towards premium brand cars was assessed on a 5-item 7-point Likert scale (strongly disagree/strongly agree). Technology anxiety was measured with a 4-item 7-point Likert scale (strongly disagree/strongly agree) (adapted from Venkatesh, 2000). After the participants were exposed to the stimuli, we assessed the dependent variables. First, attitude towards the ad was measured using a 3-item 5-point semantic differential scale (Mackenzie & Lutz, 1989). Second, the uniqueness of the car brand shown in the advertisement was assessed with a 4-item 7-point Likert scale (strongly disagree/strongly agree) (Netemeyer et al., 2004). Third, product innovativeness was measured with a 5-item 7-point Likert scale (strongly disagree/strongly agree) (adapted from Wu, Balasubramanian, & Mahajan, 2004). Additional control variables were then assessed. Most importantly, brand familiarity was measured for all brands presented in this study (complemented by some additional filler brands) using 7-point semantic differential scales (I am not at all familiar with this brand/I am very familiar with this brand). Finally, the participants reported their demographic data. A complete list of all the main constructs and items can be found in Appendix 1.

2.3. Participants

To collect the data, we distributed the link to the online questionnaire on various social media sites. For example, we used different Facebook groups (e.g., automobile groups, women's lifestyle groups, business networking groups) to post the link to our questionnaire and ask users to participate in our study. This broad sampling strategy resulted in 12,183 clicks on the link. Overall, 984 participants finished the questionnaire (response rate: 7.49%). After removing incomplete responses, a sample of 912 usable questionnaires remained. The participants' ages ranged from 18 to 74 years, with a mean of 31.7 years. 57.5% of the participants were female. 97.4% owned a driver's licence, and 41.8% reported an intention to purchase a car soon. Moreover, 80.3% currently owned a car. 42.7% of the car owners reported that they drove a premium brand car (e.g., Audi, BMW, Infiniti, Lexus, Mercedes-Benz, Porsche). An overview of the number of participants per experimental condition is shown in Table 1.

Table 1. Number of participants per condition.

	Car brand infotainment	Apple infotainment	Google infotainment	Total
Premium brand	151	156	150	457 (50.1%)
Non-premium brand	162	139	154	455 (49.9%)
Total	313 (34.3%)	295 (32.3%)	304 (33.3%)	912 (100.0%)

3. Results

3.1. Manipulation check

First, we checked the manipulation of the brand character (premium vs. non-premium brand). For this purpose, we assessed the *uniqueness* construct, because it has been shown to be an important determinant of the perceived 'premiumness' of a brand (Netemeyer et al., 2004). As with the pre-test, our results confirmed that the car brand in the premium condition ($M = 3.63$) was perceived as significantly more unique than the car brand in the non-premium condition ($M = 2.36$; $F(1, 910) = 186.66$, $p < .01$), suggesting a successful manipulation.

3.2. Main effects

We conducted a multivariate analysis of covariance (MANCOVA) to analyse the relationships. We included the following control variables as covariates: brand familiarity (Ford, BMW, Apple, Google), attitude toward premium brand cars, and technology anxiety. Moreover, we aggregated the Apple and Google conditions, since there were no differences between the two conditions regarding attitude toward the ad, product innovativeness, and uniqueness (all $ps > .1$). Therefore, we used four conditions in our subsequent analysis: 2 (infotainment: car brand solution vs. Apple/Google solution) \times 2 (brand type: premium car brand vs. non-premium car brand). The advantage of this approach is that our results offer greater generalizability, as the results are not just about one digital company.

The results revealed a significant interaction of brand type (premium vs. non-premium) and infotainment (car brand solution vs. Apple/Google solution) on (a) attitude toward the ad ($F(1, 908) = 6.42$, $p < .05$), (b) product innovativeness ($F(1, 908) = 14.04$, $p < .001$), and (c) uniqueness ($F(1, 908) = 11.86$, $p < .01$). This means that brand type and infotainment jointly influence the degree of (a) how much people like a car advertisement, (b) how they perceive a car's innovativeness, and (c) how they feel that the brand of a car is 'distinct' from other car brands. In other words, the effect of the infotainment on these variables is dependent on whether the infotainment is included in a premium or a non-premium brand car. To analyse this interaction further, we individually examined the effects of infotainment on consumer responses for both the premium and the non-premium brand condition by conducting two MANCOVAs with the same covariates as above. The results of these analyses are presented in the following (see also Table 2).

Premium brand condition. Participants who were exposed to the BMW liked the car advertisement better when the car included BMW infotainment ($M = 3.58$) than when it had Apple/Google infotainment ($M = 3.24$; $F(1, 455) = 12.65$, $p < .001$). Moreover, the participants who were exposed to the BMW with its own infotainment perceived the car as more innovative ($M = 4.38$) than the participants who were exposed to the BMW with Apple/Google infotainment ($M = 4.16$; $F(1, 455) = 5.25$, $p < .05$). Similarly, the participants who saw the BMW with its own infotainment perceived the BMW brand as more unique compared to other car brands ($M = 3.91$) than the participants who saw the BMW with Apple/Google infotainment ($M = 3.24$; $F(1, 455) = 9.11$, $p < .01$).

Non-premium brand condition. Participants who were exposed to the Ford did not like the advertisement either less or more depending on the included infotainment ($p > .1$). However, participants perceived the Ford as less innovative when they saw the Ford with its own infotainment ($M = 3.37$) than when they saw the Ford with Apple/Google infotainment ($M = 3.74$; $F(1, 453) =$

10.78, $p < .01$). Furthermore, the Ford brand was perceived as less unique when participants viewed the Ford with its own infotainment ($M = 2.23$) than when participants were exposed to the Ford with Apple/Google infotainment ($M = 2.43$; $F(1, 453) = 4.23$, $p < .05$). In other words, we found reversed effects for the non-premium brand car compared to the premium brand car. In addition to Table 2, Figure 1 illustrates our results.

Table 2. Cell means and standard deviations.

Brand	Attitude towards the ad			Product innovativeness			Uniqueness		
	CBI	AGI	Sig.	CBI	AGI	Sig.	CBI	AGI	Sig.
Premium	3.58 (1.01)	3.24 (1.03)	.000	4.38 (1.14)	4.16 (1.10)	.022	3.91 (1.68)	3.50 (1.54)	.003
Non-premium	3.09 (1.03)	3.12 (1.00)	.727	3.37 (1.14)	3.74 (1.19)	.001	2.23 (1.15)	2.43 (1.23)	.040

CBI = car brand infotainment, AGI = Apple/Google infotainment, Sig. = significance.
 n = 912.

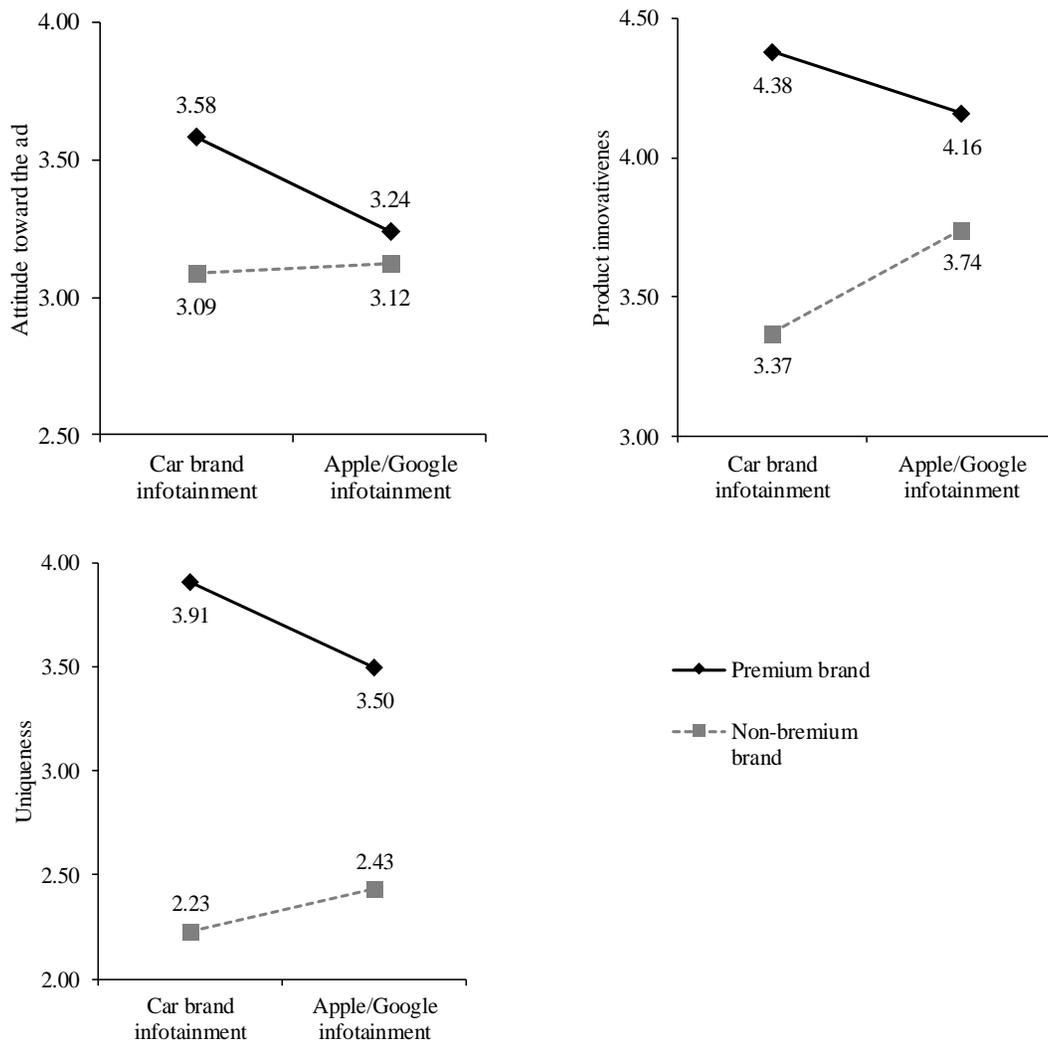


Figure 1. Cell means of attitude towards the ad, product innovativeness, uniqueness.

4. Discussion

Digitization and the disruptions related to it are currently changing the balance of power in traditional industries. Traditional industry incumbents face pressure from new players with established digital capabilities. As a result, new alliances and partnerships are emerging between traditional industry incumbents and (relatively new) digital players. The research presented here is unique in pointing out that these partnerships can have positive or negative effects on consumers' brand perceptions of the traditional industry incumbents.

To examine this issue, we conducted an experiment and picked the case of a car's built-in infotainment system, aiming to illustrate the relationship between the incumbent brand (car manufacturer) and the brand of a digital player (infotainment system produced by Google or Apple) from a consumer perspective. Since this relationship might also be influenced by the initial consumer perceptions of the incumbent brand, we distinguished between a premium brand (BMW) and a non-premium brand (Ford).

Our findings reveal that when premium car brands (e.g. BMW) integrate an Apple or Google infotainment system into their cockpits, consumers perceive the premium car brand as *less* unique and innovative than when those brands use their own infotainment system. In contrast, we found that when non-premium car brands (e.g. Ford) integrate an Apple or Google infotainment system, consumers perceive the car brand as *more* unique and innovative than when the brand uses its own infotainment system.

The reason for this contrasting relationship might be related to the initial consumer perceptions of the incumbent brand. On the one hand, premium brands, as opposed to non-premium brands, are typically associated not only with higher quality but also with a greater level of innovativeness (Quelch, 1987). Consumers are thus willing to pay higher prices for these premium products. These favourable consumer perceptions might be closely related to consumers' expectations that the premium brand will continue to remain unique and innovative in terms of products and product features (Baccarella, Scheiner, Trefzger, & Voigt, 2016; Trefzger, Baccarella, Scheiner, & Voigt, 2016). Accordingly, consumers could question the value proposition of premium brands when these brands cooperate with new digital players to integrate new technology into their products. Consumers might interpret this as a sign of a lack of innovativeness of the incumbent brand when such partnerships concern product features that are visible and important to consumers. On the other hand, consumers might have considerably lower expectations of non-premium brands in regards to being unique and innovative. Therefore, when non-premium brands cooperate with these new digital players, consumers might see that as an opportunity to get a non-premium product with a better digital performance, yet without paying the higher price of a premium brand product.

In short, traditional industry incumbents initiate alliances to access digital capabilities from digital companies. Unfortunately, there is an inherent dilemma associated with this because whether or not such alliances are useful has to be decided not only from a capability-driven perspective. As we have shown in this research, the consumer perspective constitutes a further important perspective that should be considered (Lafferty, Goldsmith, & Hult, 2004; Lafferty, 2007; Samuelsen, Olsen, & Keller, 2015). Whereas some brands can benefit from digitally-driven alliances, other brands might compromise their current brand perceptions.

5. Limitations and further research opportunities

There are two main limitations to our study that offer opportunities for further research. First, we followed a phenomenon-driven research approach and forewent a literature review (for the theoretical foundation of brand alliances, see e.g. Haeussler, Patzelt, & Zahra, 2012; Joshi & Nerkar, 2011; Nielsen, 2010; Sluyts, Matthyssens, Martens, & Streukens, 2011). Further research should try to apply existing theories to our findings in order to find a better explanation for the underlying mechanisms of the relationships we reveal. Second, our study focused on a specific case in the automotive industry. Future studies could use a similar research approach and apply it in a different context to validate and expand our findings.

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Appendix 1: Main constructs, descriptive statistics, and reliabilities

Construct items	Mean	SD	Cronbach's α
Attitude toward premium brand cars (own scale)	4.14	1.32	.78
1 When I buy a car, I have no problem with spending a little bit more.			
2 When I buy a car, I consider what others think about the car brand.			
3 When I buy a car, it is important to me that it is 'premium'.			
4 When I buy a car, it has to have excellent quality.			
5 When I buy a car, I want to have 'the best'.			
Technology anxiety (adapted from Venkatesh, 2000)	5.63	1.42	.88
1 New technologies do not scare me at all.			
2 New technologies make me nervous.			
3 New technologies make me feel uncomfortable.			
4 New technologies make me feel uneasy.			
Attitude towards the ad (Mackenzie & Lutz, 1989)	3.23	1.03	.93
1 good/bad			
2 pleasant/unpleasant			
3 favourable/unfavourable			
Uniqueness (adapted from Netemeyer et al., 2004)	3.00	1.55	.92
1 The previously shown car brand is 'distinct' from other car brands.			
2 The previously shown car brand really 'stands out' from other car brands.			
3 The previously shown car brand is very different from other car brands.			
4 The previously shown car brand is 'unique' from other car brands.			
Product innovativeness (adapted from Wu et al., 2004)	3.92	1.19	.79
1 The product includes innovative product features.			
2 High-quality technological innovations are embedded in the product.			
3 Compared to similar products, the product offers unique features/attributes/benefits to customers.			
4 In terms of the embedded technology, the product is substantially more innovative compared to existing products available in the market.			
5 The product is only a minor product improvement/modification over existing products available in the market.			

SD = standard deviation.

Appendix 2: Overview of experimental stimuli

Three premium brand (BMW) advertisements with BMW/Apple/Google infotainment:



Source: www.bmw.de

Three non-premium brand (Ford) advertisements with Ford/Apple/Google infotainment:



Source: www.ford.de