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Effectuation and causation configurations for business model innovation: Addressing COVID-19 in the gastronomy industry

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ABSTRACT

The gastronomy sector is among those that are hit particularly hard by a loss of customers and regulatory uncertainty of the COVID-19 crisis. When established ways of doing business become almost impossible, business model innovation (BMI) is a possible reaction to this high uncertainty level. Effectuation and causation are decision-making logics that may lead to BMI and help a firm navigate uncertainty. We investigate configurations of causation and effectuation components associated with a high BMI level during the first wave of COVID-19. We perform fuzzy-set-qualitative comparative analysis (fsQCA) on a sample of 143 gastronomy entrepreneurs in Münster county, Germany. We identify two paths that lead to a high BMI level: "the planning soloist" and "the hedging networker." We conclude that innovators among the gastronomy entrepreneurs use effectuation and causation components in complex configurations.

1. Introduction

On July 3rd, 2020, the "digital beer garden" opened in Münster between Promenade and Aasee, a prime downtown location. The digital beer garden is a cooperative outdoor gastronomy concept with 12 gastronomy partners and an online order and payment system based on a digital platform for the gastronomy industry. Food was delivered from the participating restaurants by bike, adding an element of sustainable city logistics to the cooperation (Kalus, 2020).

The digital beer garden is an example of how gastronomy entrepreneurs responded to the COVID-19 crisis with *business model innovation* (BMI). We define the gastronomy sector as food services and drinking places, in line with NAICS classification 722. We define BMI as "designed, novel, nontrivial changes to the key elements of a firm's business model and/or the architecture linking these elements" (Foss and Saebi, 2017, p. 201). Examples of BMI as gastronomy industries' response to COVID-19 include increasing outtake/delivery, additional hygiene concepts, localization, menu reduction to increase flexibility, and others (Gursoy and Chi, 2020). In line with recent findings from Breier et al. (2020), these examples illustrate that BMI supports gastronomy businesses in times of high uncertainty.

How starters, owners, and managers deal with high uncertainty is one of the hallmarks of entrepreneurial action (Townsend et al., 2018). Here we address starters, owners, and owner-managers as entrepreneurs because they have to lead their business in times of uncertainty and be agents of entrepreneurial action (Kallmuenzer et al., 2019). The literature proposes *Effectuation* (Sarasvathy, 2001), *Lean Startup* (Harms and Schwery, 2020; Ries, 2011), *Design Thinking* (Romme, 2003), and other perspectives as guidance for entrepreneurial action (Mansoori and Lackéus, 2020). Here we chose the effectuation perspective because it emphasizes uncertainty management and focuses on resources compared to other approaches (Mansoori and Lackéus, 2020).

Futterer et al. (2018) explored the effectiveness of causation and effectuation for achieving BMI. They conclude that both causation and effectuation can lead to BMI, but differ in their effectiveness, depending on the level of uncertainty. Further, they encourage investigations on "combinatory effects and temporal shifts between those two logics in general and with the target of achieving BMI in particular" (Futterer et al., 2018, p. 76). The combinatory effects are salient for our research context and allow us to ask a crucial question about causation and

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effectuation in general.

Initially, models on causation and effectuation have treated their dimensions as independent factors (Futterer et al., 2018). Some argue that causation and effectuation are incompatible (Brettel et al., 2012), while others suggest that they may coexist (An et al., 2020; Harms and Schiele, 2012). Recent causation and effectuation research begins to use a configuration perspective (Harms et al., 2009), but does not consider effectuation's dimensions separately (An et al., 2020). We argue that focusing on causation and separate components of effectuation is relevant because this focus allows managers to initiate specific action.

Our study identifies configurations of causation and effectuation components associated with a high degree of business model innovation in the gastronomy sector. The research question is: "Which configurations of causation and effectuation components are associated with a firm's business model innovation?"

The present work offers several contributions. First, it enriches the discussion on causation and effectuation by introducing causation and effectuation components into a set-theoretic framework within the gastronomy industry. Second, it contributes to the literature on corporate effectuation (Brettel et al., 2012). Corporate effectuation is the study of how effectuation works in established firms. A sub-stream of the corporate effectuation literature deals with business model development and innovation (Evald and Senderovitz, 2013; Futterer et al., 2018). We add to this sub-stream in the context of corporate effectuation in crisis (Kraus et al., 2020a,2020b; Kuckertz et al., 2020; Laskovaia et al., 2019), here particularly in the gastronomy sector.

Finally, this study is a rapid response research project "intended to produce evidence in a timely manner rather than to explain the crisis and the effects after the event" (Kuckertz et al., 2020, p. 2), whose practical implications may support SMEs in general and gastronomy businesses in particular, to better respond to COVID-19-based market and regulatory uncertainty. We follow Gursoy and Chins' (2020, p. 529) recent call for more research in the gastronomy industry during the ongoing crisis who argue that "it is critical to generate new knowledge that can provide insights to the industry about how to transform their operation according to newly emerging customers' needs and wants due to COVID-19 pandemic."

2. Theoretical background

2.1. Components of causation and effectuation

Causation and effectuation are two alternative decision-making logics. At its core, *effectuation* takes a set of means as given and focuses on selecting possible effects that the entrepreneur can create with that set of means and controls what they can control (Sarasvathy, 2001). This process contrasts with *causation*, where a particular effect is given, and the entrepreneur focuses on selecting the right means to create that predefined effect, focusing on prediction rather than control (Sarasvathy, 2001). These decision-making logics can refer to a single decision, a series of decisions, a proclivity to emphasize either causation or effectuation, or actual decision-making behavior (based on McKelvey et al., 2020). We position causation and effectuation here as a strategic orientation at the firm level rather than a decision-making logic at the individual level (McKelvey et al., 2020). A strategic orientation is a "firm-level construct, observable through the behavioral manifestations of organizational strategy [making]" (Anderson and Covin, 2014, p. 215, own addition). We use the firm-level orientation perspective because we want to address BMI, which is a firm-level activity rather than an individual decision (Kraus et al., 2020a,2020b).

A conceptualization of a firm-level orientation of effectuation was developed by Werhahn et al. (2015). Werhahn et al. (2015) address the effectuation elements of means, partnership, affordable loss, contingency, and control orientation, based on a careful reading of Sarasvathy (2001). A firm-level orientation perspective of causation was not part of the Wehrhahn et al. (2015) effort. Such a perspective is needed to analyze how patterns of effectuation elements and causation are related to BMI. Thus, we add the dimension of *causation orientation* as we take combinatorial effects of both effectuation and causation orientation into account. We continue to describe the effectual orientation components.

The *means orientation* is a strategic orientation that relates to a "managerial ability to motivate a company's organizational members to contribute and leverage their means (knowledge, experience, competencies, networks, preferences, interests, etc.) continuously and to the fullest extent" (Werhahn et al., 2015, p. 3). This definition relates to the means available or acquirable as a starting point of strategy making, understood at "selecting between possible effects" (Sarasvathy, 2001, p. 245). It takes Sarasvathy's starting point of individual entrepreneurs' traits, knowledge, and network to the level of employees' means and managements' capability to leverage those means. For the hospitality industry, Alonso et al. (2020) identify a self-reliant, thus means-oriented, way of coping as a reaction of hospitality operators to the COVID-19 pandemic.

The *partnership orientation* is a strategic orientation in which managers of a firm "[…] encourage employees to perceive new actors on the market as potential partners, to identify those partners who are willing to make commitments ex-ante, and finally to approach them" (Werhahn et al., 2015, p. 3). Pre-commitments reduce the amount of uncertainty (Chandler et al., 2011). Pre-commitments can also be a source for business model innovation (Brenk et al., 2019). Rivera (2020) points to the importance of stakeholder engagement for the COVID-19 recovery for the hospitality industry. Breier et al. (2020) suggest the role of repetitive customers, the *stammgasts*, as a network resource.

The *affordable loss orientation* is a strategic orientation based on the affordable loss principle. The affordable loss principle is where investment decisions are also based on whether a loss would not have severe negative consequences, not its profit potential. The affordable loss orientation is defined as one where "firm's individual members are encouraged to base their decisions – for instance, which initiatives to create or to pursue – on the affordable loss concept (Werhahn et al., 2015, p. 3). For example, for the hospitality industry, Song et al. (2021) point to cash flow – which can make losses affordable – as a factor that leads to resilience for U.S.-based restaurants in the COVID-19 situation.

The *contingency orientation* addresses "a managerial ability to motivate employees to make rapid, creative, proactive, and effective changes when new information requires a change – in other words, to leverage contingencies continuously and as advantageously as possible." (Werhahn et al., 2015, p. 3). Under this orientation, contingencies are not seen as unfavorable but as a resource that entrepreneurs can exploit. This orientation is similar to the flexibility dimension by Chandler et al. (2011). Concerning the hospitality industry, Kaushal and Srivastava (2020, p. 8) highlight employees' "preparedness for unforeseen contingencies" as a critical point of attention in dealing with COVID-19.

The *control orientation* is one where management "motivates its employees to exert a controlling or shaping influence on their firm's environment by attempting to co-create future markets and demand or to influence trends." (Werhahn et al., 2015, p. 3). If entrepreneurs see the future as unpredictable, trying to control parts of the future, for example, through pre-commitments, can reduce uncertainty.

We add to the Werhahn et al. (2015) dimensions a *causation orientation*. We define a causation orientation as one where management encourages employees to predict and plan the future to maximize returns with the help of pre-existing capabilities (based on Chandler et al., 2011). This addition allows us to research if effectuation and causation components could coexist (Galkina and Lundgren-Henriksson, 2017; Smolka et al., 2016; Yu et al., 2018).

We argue that the components of causation and effectuation may be independent of one another. First, the components of Chandlers' effectuation construct are not all positively related, which indicates that effectuation may be a formative rather than a reflective construct. (McKelvey et al., 2020). Second, causation and effectuation were not negatively related. This relationship suggests that they could be used

together (McKelvey et al., 2020), for example, differently in different decisions at different times (An et al., 2020). Third, a study that treats components of effectuation separately was able to identify that two components – here, pre-commitment and flexibility – have a stronger performance impact than other components (Smolka et al. 2017, as reported by McKelvie et al. 2020).

We also argue that effectuation and causation components may be related in a complex way to an outcome variable. This configurational proposition builds on causal complexity (Misangyi et al., 2017). Causal complexity is characterized by conjunction, equifinality, and asymmetry (Misangyi et al., 2017). Conjunction means that outcomes may result from the interdependence of multiple conditions (Misangyi et al., 2017). For example, An et al. (2020) found that to belong to a group of high-performing businesses, combinations of causation, effectuation, and bricolage need to be present. Equifinality means that there may be more than one way to achieve an outcome (Gresov and Drazin, 1997). An et al. (2020) have identified two distinct combinations of causation, effectuation, and bricolage to achieve high performance for small firms. Asymmetry denotes that effective attributes in one configuration may be unrelated or even negatively related to another configuration outcome (Misangyi et al., 2017). Again, An et al. (2020) show that causation and effectuation are mutually exclusive in configurations that lead to small firms' high performance. Based on the described studies, we expect that there is also causal complexity between components of effectuation, causation, and the outcome. Our empirical research explores configurations of causation and effectuation components regarding a high degree of business model innovation.

Drawing on McKelvie et al. (2020, p. 22, own modifications in italics), we claim: "Espousing a *conceptual and analytical approach* that allows for effectuation subcomponents*' relation to the outcome variable to expose causal complexity* vary may inform theoretical development of the efficacy of effectuation."

2.2. Causation, effectuation, and business model innovation

BMI describes "designed, novel, nontrivial changes to the key elements of a firm's business model and/or the architecture linking these elements." (Foss and Saebi, 2017, p. 201). Consequently, business model innovation is present when one or more dimensions of the business model are altered (Spieth and Schneider, 2016). In fact, it is argued that even innovating 'only' one core dimension of the business model, usually leads to changes in the remaining dimensions, too (Johnson et al., 2008). In contrast to other types of innovation (e.g., product and process innovation), recent debates argue for BMI as a distinct research stream (Foss and Saebi, 2017). This literature stream highlights the role of business model innovation to create and sustain advantageous competitive market positions, especially in the context of high uncertainty (Futterer et al., 2018).

In particular, researchers build on the BMI dimensions of value proposition, which is the offering delivered to the customers; value creation, which describes the required processes to create the value proposition; and value capture, which depicts the associated cost and revenue structures underlying the business model (Amit and Zott, 2001; Teece, 2010).

Refining this understanding, Futterer et al. (2018) emphasize the two sub-dimensions related to value creation and differentiate between internal and external value creation. Internal value creation encompasses the activities performed inside the organization, whereas external value creation depicts activities performed by and with external partners (Kindström, 2010; Yunus et al., 2010).

External value creation is a critical business model dimension as a reaction to market and regulatory uncertainty. The external dimension depicts the activities related to securing external partners' commitment, which reduces uncertainty. Additionally, external partners can provide access to (complementary) resources, which allows the entrepreneur to overcome resource scarcity and pursue further opportunities (Zaheer et al., 2010). Consequently, innovating the business model dimension of external value creation appears to be of particular relevance under high uncertainty conditions. Even more relevant for our research, external value creation is the BMI dimension which is affected by both causation and effectuation (Futterer et al., 2018).

The role of effectuation and causation in business model innovation is based on the fundamental distinction of deliberate versus emergent strategy (Mintzberg and Waters, 1985) and planning versus adaptive approaches to uncertainty (Wiltbank et al., 2006). Examples of previous authors at the causation-effectuation–BMI interface are Evald and Senderovitz (2013) who focus on internal corporate venturing and identify predominantly effectual business model development, with causation-type behavior when firm consolidates, and the entrepreneur gains experience. Reymen et al. (2017) also identify dominant effectual business model innovation, particularly when the entrepreneurs specify their customer segment and causal for other business model elements. In addition, Sitoh et al. (2014) provide evidence for the interplay between effectuation and causation. Focussing on experimentation, Andries et al. (2013) propose that simultaneous experimentation can bridge a potential gap between action and planning, respectively, effectuation and causation. In a recent effort, Futterer et al. (2018) differentiate the impact of causation and effectuation on BMI and find that they both impact positively on BMI. They position causation and effectuation as a firm-level orientation.

We build on the previous work at the interface of causation, effectuation, and BMI. These studies agree that both effectuation and causation impact BMI. We extend this previous work in two ways: First, others have treated effectuation as a summed score. A summed score does not allow us to discern if effectuation components impact BMI differently. Second, in previous quantitative studies, the relation between decision-making logic and BMI was considered independent and linear. Independent and linear analyses do not allow us to discern if this relation may reflect causal complexity (An et al., 2020).

3. Method

3.1. Population and sample

The gastronomy industry is an ideal context for our research. First, the gastronomy industry has already embraced the relevant industry trends (KPMG, 2016) to move from conventional business models (e.g., dine-in restaurant model) towards a differentiated set of business models before the COVID-19 situation (Bogers and Jensen, 2017). In particular, we note the advent of digitally integrated models such as platform models (Aksoy et al., 2019). Second, the magnitude and swiftness of COVID-19 made traditional dine-in business models redundant. In Germany, in late March 2020, many gastronomy businesses experienced partial lockdown (DEHOGA, 2020). Revenue from the traditional business was lost, while fixed costs remained. From a BMI researchers' perspective, COVID-19 can be seen as a natural experiment (Anthes, 2020), where most of the industry had to become innovative at the same time.

The population consists of gastronomy businesses in Münster county, Germany. Münster county has 2.6 million inhabitants, with the university city, Münster, as its core and rural periphery We realize that each geographical areas' gastronomy industry has its structure, limiting our study's generalizability. Specific areas such as those heavily dominated by seasonal tourism or core urban areas may have a different gastronomy industry composition. However, the impact of the industry's COVID-19 regulations has been similar across the globe, with most regions experiencing a total lockdown at some point in time and extended and still ongoing periods of restricted core business. By restricting our study geographically, we isolate the effects of market and regulatory uncertainty, which might prevail due to each county's different regulations during the COVID-19 crisis.

We aim at a census with the periodical "Münster geht aus" (Münster

goes out), the DEHOGA (German Gastronomy Association) overview, and the Tripadvisor list of gastronomy firms as the registry. We define the gastronomy sector as food services and drinking places, in line with NAICS classification 722. We exclude for example hotels, as their BMI may be different. This population consists of 990 members, 484 in the city and 506 more in the county. We first contacted the owner-managers personally and via social media. In a second wave, we used snowball sampling and referrals from local economic development agencies. We reviewed a total of 143 responses, yielding a response rate of 14 %.

The survey was available online as well as through a printed version. From these 143 responses, we had to delete 15 responses that have indicated that they were currently not affected by COVID-19. Examples include businesses that just opened during the corona crisis or owners who reported they could afford a temporary break based on having had a successful business in the past. These businesses did not perform any BMI, but not because they may have had a particular configuration of effectuation and causation, but because they were in a specific situation. We used procedural remedies to prevent common method bias (Podsakoff et al., 2003).

We checked on the generalizability of our samples' distribution of key demographics (age, gender, full-time equivalent workforce). However, official statistics do not provide these values (see, e.g., the Statista, 2020 report). Therefore we compared early and late respondents ("continuum of resistance"-assumption, Lin and Schaeffer, 1995), a technique often used to assess nonresponse bias, impacting generalizability (Blair and Zinkhan, 2006). We compared the early and late respondents' distribution of age, size (full-time equivalent), and gender. The differences were non-significant, except for age. The respondents from the first wave were younger. We attribute this to the fact that the Münster city survey started earlier, and the city gastronomy owner-managers are younger than the county gastronomy owner-managers (difference significant at $p < .05$). Hence, we find no evidence for a nonresponse bias, which could compromise generalizability.

The gastronomy businesses had, under conditions of regular business, on average, 15.2 employees (full-time equivalent). Ninety-three businesses (65.03 %) reported that they did some kind of business model innovation to respond to the corona crisis. These include, for example, takeout, delivery, new menu items, a regional focus, merchandising, contactless payment, but also more innovative BMI such as the "digital beer garden" or a gym/open-air club cooperation. More than half of the respondents have indicated that they have little experience with new technology in gastronomy, impacting digitally-enabled BMI.

3.2. Operationalization

3.2.1. Operationalizing business model innovation

BMI is characterized by innovating at least one core dimension, which might subsequently lead to changes in other business model elements (Spieth and Schneider, 2016; Futterer et al., 2018; Filser et al., 2020). We chose Futterer et al. (2018) among different BMI scales because they differentiate between internal and external value creation. In more detail, we chose to focus on BMIs' external value creation dimension (BMIexternal) because of different reasons. First, the authors report that effectuation and causation both turned out to be effective on the external value creation dimension. As we acknowledge causal complexity in the causation-effectuation-BMI interface, we further analyze this core dimension of BMI. Second, the focus on BMIexternal might allow businesses to overcome resource constraints by adding external value creation (Zaheer et al., 2010).

Building on the Futterer et al. (2018) scale, we further acknowledge differences in the scale items' perception and relevance in different industries. For our research context in gastromy businesses, we eliminated the differentiation between sales and trade channels by deleting the item "new trade channels are established" but kept the related item "new sales channels are established." We measure the external value creation dimension of BMI with the adapted 3-item, 7 points Likert scale. Businesses that reported that they do not innovate the business model were given zero value on that dimension. The Cronbach's alpha for BMIexternal was 0.94.

3.2.2. Operationalizing effectual and causal orientation

We operationalized effectuation based on the conceptualization of effectuation as strategic orientation using the items of Werhahn et al. (2015). We operationalized causation using the items from Chandler et al. (2011). We used the same introduction to the question as for the effectuation items, framing causation as a strategic orientation. The reasons for choosing strategic orientation rather than the original Chandler et al. (2011) items were that we address existing gastronomy businesses rather than startups, and we analyze BMI, which implies a set of decisions rather than a single entrepreneurial decision. See Table 1 for descriptive statistics and correlations.

3.2.3. Calibration

FsQCA is a set-theoretic approach that evaluates cases according to their set-membership, thus requiring calibration. To transform the raw data measured on interval scales into fuzzy-set scores ranging from 0 to 1, we used direct calibration (Ragin, 2017). Direct calibration is based on the log odds of full membership (i.e., fuzzy score = 0.95), the threshold for full non-membership (i.e., fuzzy score = 0.05), and the cross-over point (i.e., fuzzy score = 0.5) (Ragin, 2017). The literature recommends basing the anchors for calibration on meaningful theoretical standards (Misangyi et al., 2017).

We based the anchors on the Likert-scale distribution to calibrate the effectuation components and causation, as the scale corresponds to meaningful theoretical standards. Cases with a value of four on the Likert scale would have dropped out of the analysis as this displays the point of maximum ambiguity. According to Frazier et al. (2016), we calibrate the cross-over point with a fuzzy-score of 0.501 instead of 0.5 to avoid them being dropped during the analysis.

To calibrate the outcome variable, BMIexternal, we based anchors on our particular study sample distribution (Misangyi et al., 2017; Thiem and Dușa, 2013). Since we have assigned the value of zero to cases without BMI, an anchor based on the Likert scale distribution is not sufficient. Looking at our sample distribution, we took the mean value as a cross-over point and used a value of mean minus one standard deviation as the cross-over point for full exclusion and a value of mean plus one standard deviation as the cross-over point for full inclusion. The calibration thresholds are shown in Table 2.

3.3. Method of analysis

Set-theoretic relationships have received much attention from academics and practitioners in social sciences. fsQCA has been widely employed as a powerful analysis method for set-theoretic approaches or asymmetric thinking to test social science theories (Fiss, 2011). The literature has expressed a strong interest in categorizing relevant antecedents or causal conditions into configurations for achieving high outcomes based on fsQCA (Kraus et al., 2017). According to the user's guide of fsQCA, standard analysis can generate the "intermediate solution" by considering partial logical remainders without removing necessary conditions (Ragin, 2017). Accordingly, the current study contributes to combine relevant antecedents (i.e., means, partnerships, affordable loss, contingency, control, and causation) into various causal recipes to identify the configurations for achieving a high level of Business Model Innovation based on standard analysis by employing fsQCA.

4. Results of our FsQCA analysis

The FsQCA method consists of several steps (Ragin, 2017). The first

Table 1
Descriptive Statistics and Correlations.

	Factors	α	Min	Max	Mean	SD	1.	2.	3.	4.	5.	6.
1.	BMI external	.94	.00	7.00	3.34	2.29						
2.	E: Means	.74	4.00	7.00	6.28	.62	.15					
3.	E: Partnerships	.67	2.75	7.00	5.29	.82	−.03	.33**				
4.	E: Affordable Loss	.70	3.00	7.00	6.12	.82	−.26**	.23*	.21*			
5.	E: Contingency	.84	1.00	7.00	5.61	1.07	.06	.35**	.15	.13		
6.	E: Control	.81	1.75	7.00	4.98	1.11	.28**	.33**	.36**	−.04	.40**	
7.	Causation	.86	2.29	7.00	5.45	0.85	.04	.42**	.33**	.32**	.38**	.31**
	Fuzzy scores											
1.	BMI external		.05	.09	.07	.02						
2.	E: Means		.50	.95	.89	.07	.15					
3.	E: Partnerships		.22	.95	.76	.14	.03	.34**				
4.	E: Affordable Loss		.27	.95	.87	.11	−.22*	.21*	.18*			
5.	E: Contingency		.05	.95	.80	.17	.03	.27**	.15	.14		
6.	E: Control		.10	.95	69	.20	.25**	.29**	.38**	−.02	.39**	
7.	Causation		.15	.95	.78	.15	.08	.36**	.30**	.31**	.42**	.34**

Notes: *. Correlation is significant at the 0.05 level, and **. Correlation is significant at the 0.01 level (2-tailed).

Table 2
Calibration thresholds.

	Fuzzy membership		
	0.05	0.501	0.95
Conditions			
E: Means	1	4	7
E: Partnerships	1	4	7
E: Affordable Loss	1	4	7
E: Contingency	1	4	7
E: Control	1	4	7
Causation	1	4	7
Outcome			
BMI External	1.05	3.34	5.63

step is to create a truth table, which lists the logically possible combinations of causal conditions (configurations) and the cases associated with those configurations, based on calibrated fuzzy scores (Ragin, 2008a). Our six conditions result in 64 ($=2^6$) possible configurations. Eleven realized configurations emerge from our cases (see Table 3).

The next step involves establishing two thresholds to retain the most relevant configurations, that is, the frequency threshold (i.e., the minimum amount of cases to define the relevant configurations) and the consistency threshold (i.e., the acceptable level of raw consistency to define the configurations supporting the outcome) (Ragin, 2017). A frequency threshold of 1 is recommended when using a small and medium-sized sample (Ragin, 2017). Consistency assesses the extent to which the cases that belong to a specific configuration support the outcome (Fiss, 2011). Thus, high consistency ensures the empirical relevance of the configurations. Ragin (2017) indicates that the choice of the threshold can correspond to gaps observed in the distribution of consistency scores, and experimenting with different thresholds while assessing the consequences is most beneficial.

The third step consists of producing solutions based on the edited truth table (Ragin, 2017). To consider the configurations with no or few cases (remainders), fsQCA differentiates between easy and difficult counterfactuals (Fiss, 2011). Easy counterfactuals assume that a known configuration would still display the outcome when adding a redundant causal condition to that configuration (Fiss, 2011). We show the solution that addresses easy counterfactuals (intermediate solution). The intermediate solution is superior to other solutions because it restricts remainders to those most plausible (Fiss, 2011). The intermediate solutions for sufficiency reveal two configurations as causal paths that lead to a high level of BMI (see Table 4). These configurations have individual and overall consistency levels equal to or above 0.76. These numbers signal that the configurations are a sufficient condition for the outcome (Ragin, 2008). The total coverage of 0.32 means that the configurations explain a large proportion of the outcome (Ragin, 2008).

Identifying core conditions from peripheral conditions may provide additional evidence for understanding the causal paths (Fiss, 2011). Core conditions are those that appear in both the parsimonious and intermediate solutions. Large circles in Table 4 show that partnerships, affordable loss, and control appear in both the parsimonious and intermediate solutions. According to Fiss (2011), these causal conditions are core conditions. Means, contingency, and causation are peripheral conditions that appear in the intermediate solution. Together with partnerships, affordable loss, and control, they form configurations sufficient for the outcome.

5. Discussion

The research question was, “Which configurations of effectuation and causation components are associated with a firm’s business model innovation?”. We discovered two configurations, which we label as “hedging networker” and “the planning soloist,” based on which

Table 3
Truth table for a high level of of high business model innovation.

Means	Partnerships	Loss	Contingency	Control	Causation	# of cases	BMI	Raw consistency	PRI consistency	SYM consistency
1	1	0	1	1	0	1	1	.81	.58	.57
1	1	0	1	1	1	1	1	.81	.62	.62
1	0	1	1	1	1	2	1	.75	.56	.56
1	1	1	0	1	1	1	0	.75	.54	.54
1	1	1	1	1	0	3	0	.73	.52	.51
1	1	1	0	0	1	2	0	.70	.42	.42
1	1	1	0	0	0	1	0	.70	.36	.36
1	1	1	1	1	1	104	0	.69	.60	.62
1	1	1	1	0	0	1	0	.69	.41	.42
1	0	1	1	0	1	2	0	.68	.41	.41
1	1	1	1	0	1	10	0	.67	.48	.48

Table 4
Causal configurations sufficiently leading to a high level of Business Model Innovation.

	Business Model Innovation	
	"Hedging networker"	"Planning soloist"
E: Means	●	●
E: Partnerships	●	○
E: Affordable Loss	○	●
E: Contingency	●	●
E: Control	●	⬤
Causation		●
Consistency	0.81	0.75
Raw coverage	0.19	0.29
Unique coverage	0.02	0.13
Solution consistency	0.76	
Solution coverage	0.32	

Black circles '●' indicate the presence of conditions. White circles '○' indicate the absence or negation of conditions. Large circles represent core conditions. The blank cells represent 'do not care' conditions, meaning that the causal path always leads to the outcome variable without regard to the levels of the 'do not care' conditions.

strategic orientations they draw on when they were addressing business and regulatory uncertainty through BMI.

The core condition that best distinguishes configurations that lead to a high degree of BMI is control. This finding is in line with recent empirical findings that suggest a positive relation between effectual control orientation and innovation performance. Szambelan and Jian (2020), for example, argue that controls reduces perceived barriers to innovation. Effectual control orientation has been introduced as a construct that "controlling and shaping influence on an external environment in a co-creative manner. This means, instead of trying to predict the future, ECO proactively shapes and designs the external environment and creates new market demand" (Szambelan and Jian, 2020, p. 867). Our two configurations, the "hedging networker" and the "planning soloist" address this control in combinations with other elements of causation and effectuation.

The hedging networker emphasizes the means orientation, partnerships, contingency and control, absence of affordable loss, and has a neutral position on causation. We interpret this configuration as one that engages in financially risky innovation (absence of affordable loss) yet tries to hedge the risk by drawing on other effectuation aspects. In contrast to the planning soloist, the hedging networker embraces networks and hedges the risks with pre-commitments and the idea of shared risks among committed partners. The planning soloist emphasizes all aspects of effectuation except the focus on partnerships. We assume that the planning soloists use causation (e.g., related to analyzing, planning, and controlling) to make up for the uncertainty-reducing effect achieved by the effectuation principle of partnerships: gaining new means and resources, sharing gains but also risks, and involving pre-committed partners.

Regarding the distributions, we first found that a large share of businesses had an effectual and a causal orientation (see the truth table). This finding contributes to effectuation theory in that it shows that causation and effectuation coexist at the level of strategic orientation and supports the previous literature in favor of coexistence in the coexistence-versus-exclusion debate (An et al., 2020; Futterer et al., 2018). As modes of coexistence, An et al. (2020) suggests combinations simultaneously, the dominance of one at different moments in time, and temporal coexistence in separate functional areas. Drawing on causation and effectuation as a strategic orientation, we can add the *potential* as a coexistence mode. Businesses can then express their strategic orientation elements when triggered or when the entrepreneur decides to. This line of thought invites new research into the nature of "orientation as action potential" and into the triggers to activate that potential.

Regarding the distributions, we also found that few businesses belong to having a high degree of BMI. Even though the assignment to the group of businesses with high BMI results from calibration, the raw BMI scores' distribution is highly skewed towards zero or low values. These power-law distributions apply to entrepreneurship data (Crawford et al., 2015). It follows that research may "need to examine the entire distribution of a phenomenon; in particular, to focus on extreme cases rather than explaining them away as anomalies" (Crawford et al., 2015, p. 709). This is the case for BMI as "nontrivial" changes" (Foss and Saebi, 2017, p. 201), which are rare by definition.

Regarding the relationship between causation, effectuation, and BMI, we first found that partnerships and causation seem to be in a partial trade-off relationship. First, this means that this finding is in line with Saravathy's (2001) claim that to the extent that entrepreneurs can control the future (through pre-commitments incorporated in the partnership component), they do not need to predict it (causation). A second contingency is a partnership and networking and affordable loss trade-off relationship. Entrepreneurs who seem to attach less importance to affordable loss find insurance in pre-commitments from partners. Entrepreneurs who take affordable loss into account may seem to be less reliant on networks. Second, this finding implies that it is not a complete set of causation and effectuation orientation associated with a high BMI degree, but these specific combinations are. This finding is surprising if one would assume that a complete set of orientations would allow gastronomy entrepreneurs the full behavioral spectrum that they can draw on. This would allow them to have a maximum degree of flexibility, which should be helpful under uncertainty. This finding is less surprising if one considers the frictions that come with the activation of network-based control versus solo prediction: mutual commitments made in a network can suggest different actions than individual planning would suggest and vice versa.

We contribute to the current scientific debate by linking the orientation perspective (Werhahn et al., 2015) with the configuration perspective (An et al., 2020) and adding the analysis of distinct effectuation dimensions. Our results show that the analysis of the distinct dimensions was able to provide new insights.

Entrepreneurs can draw on our findings by being aware of the relationships between components of effectuation and causation. Means, contingency, and control orientation are elements of all configurations associated with a high degree of BMI. This implies that innovative gastronomy entrepreneurs should include these in their strategic orientation, respectively, action repertoire. It does not seem to pay to develop all causation and effectuation components, however.

Entrepreneurs who seek a high degree of BMI may consider developing their venture towards the successful configurations that we have identified.

A limitation is that we do not yet know if a high degree of BMI will be economically successful. We assume that due to the magnitude of the COVID-19-induced consequences for the gastronomy industry (Gursoy and Chi, 2020), incremental innovation may not suffice to bring back customers. However, highly innovative BMI is also risky as it meets market- and technological uncertainties (Bertels et al., 2015). Second, our research is contextualized towards the gastronomy industry under the impact of COVID-19. While this focus delivers actionable insights for this context (Thorngate, 1976), future research needs to investigate configurations for causation and effectuation in other industries and under different uncertainty triggers. Finally, we focused on the causation and effectuation of neglecting other core conditions such as drivers or inhibitors of innovation in gastronomy, such as leadership, strategy, customers, and others (Berenguier de Vasconcelos et al., 2020). With a solution consistency value of 0.76, we just reached the recommended threshold for well-specified models. This could be a further indication that important conditions were not taken into account in the model. One inhibitor may be the lack of financial resources to start BMI (Breier et al., 2020).

To conclude, we have demonstrated the value of analyzing configurations of causation and effectuation components in their relation to BMI. We look forward to future research to investigate other contexts and other related outcome variables. We also hope that gastronomy entrepreneurs can weather the COVID-19 crisis, some even coming out of it stronger than they have entered – with successful innovative business models.

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References

Aksoy, L., King, C., Chun, H.H., 2019. Evolving service thinking: disruption and opportunity in hospitality and tourism. J. Serv. Manag. 30 (4), 449–451.
Alonso, A.D., Kok, S.K., Bressan, A., O'Shea, M., Sakellarios, N., Koresis, A., Solis, M.A.B., Santoni, L.J., 2020. COVID-19, aftermath, impacts, and hospitality firms: an international perspective. Int. J. Hosp. Manag. 91.
Amit, R., Zott, C., 2001. Value creation in E-Business. Strat. Manag. J. 22 (6-7), 493–520.
An, W., Rüling, C.-C., Zheng, X., Zhang, J., 2020. Configurations of effectuation, causation, and bricolage: implications for firm growth paths. Small Bus. Econ. 54, 843–864.
Anderson, B.S., Covin, J.G., 2014. Entrepreneurial orientation: disposition and behavior. In: Fayolle, A. (Ed.), Handbook of Research on Entrepreneurship. Edward Elgar, pp. 215–237.
Andries, P., Debackere, K., Looy, B., 2013. Simultaneous experimentation as a learning strategy: business model development under uncertainty. Strateg. Entrep. J. 7 (4), 288–310.
Anthes, E., 2020. The great experiment. The Washington Post. https://www.washingtonpost.com/outlook/2020/09/10/coronavirus-research-experiment-behavior/?arc404=true.
Berenguier de Vasconcelos, R.B., Vieira, R.S., Da Silveira, D.S., 2020. What's the recipe to innovate? An analysis of the determinants of the degree of innovation in the gastronomy segment. Int. J. Innov. Manag. 24 (1).
Bertels, H.M., Koen, P.A., Elsum, I., 2015. Business models outside the core: lessons learned from success and failure. Res. Manag. 58 (2), 20–29.
Blair, Edward, Zinkhan, George M., 2006. Nonresponse and generalizability in academic research. Acad. Mark. Sci. 34 (1), 4–7.
Bogers, M., Jensen, J.D., 2017. Open for business? An integrative framework and empircal assessment for business model innovation in the gastronomic sector. Br. Food J. 119 (11), 2325–2339.
Breier, Matthias, Kallmuenzer, A., Clauss, Thomas, Gast, J., Kraus, Sascha, Tiberius, Victor, 2020. The role of business model innovation in the hospitality industry during the COVID-19 crisis. Int. J. Hosp. Manag.
Brenk, Sebastian, Lüttgens, Dirk, Diener, K., Piller, F., 2019. Learning from failures in business model innovation: solving decision-making logic conflicts through intrapreneurial effectuation. J. Bus. Econ. 89, 1097–1147.
Brettel, M., Mauer, R., Engelen, A., Küpper, D., 2012. Corporate effectuation: entrepreneurial action and its impact on R&D project performance. J. Bus. Ventur. 27 (2), 167–184.
Chandler, Gaylen N., DeTienne, Dawn R., McKelvie, Alexander, Mumford, Troy V., 2011. Causation and effectuation processes: a validation study. J. Bus. Ventur. 26 (3), 375–390.
Crawford, G.C., Aguinis, H., Lichtenstein, B.B., Davidsson, P., McKelvey, B., 2015. Power law distributions in entrepreneurship: implications for theory and research. J. Bus. Ventur. 30 (5), 696–713.
DEHOGA, 2020. Corona 2020 – Zwischenbilanz in Gastronomie und Hotellerie.
Evald, M.R., Senderovitz, M., 2013. Exploring internal corporate venturing in SMEs: effectuation at work in a new context. J. Enterprising Cult. 21 (3), 275–299.
Filser, Matthias, Kraus, Sascha, Breier, Matthias, Nenova, Ioanna, Puumalainen, Kaisu, 2020. Business model innovation: identifying foundations and trajectories. Bus. Strategy Environ.
Fiss, P.C., 2011. Building better causal theories: a fuzzy set approach to typologies in organization research. Acad. Manag. J. 54 (2), 393–420.
Foss, N.J., Saebi, T., 2017. Fifteen years of research on business model innovation: How far have we come, and where should we go? J. Manage. 43 (1), 200–227.
Frazier, M.L., Tupper, C., Fainshmidt, S., 2016. The path(s) to employee trust in direct supervisor in nascent and established relationships: a fuzzy set analysis. J. Organ. Behav. 37 (7), 1023–1043.
Futterer, Fabian, Schmidt, Jochen, Heidenreich, S., 2018. Effectuation or causation as the key to corporate venture success? Investigating effects of entrepreneurial behaviors on business model innovation and venture performance. Long Range Plann. 51 (1), 64–81.
Galkina, T., Lundgren-Henriksson, Eva-Lena, 2017. Coopetition as an entrepreneurial process: interplay of causation and effectuation. Ind. Mark. Manag. 67, 158–173.
Gresov, Christopher, Drazin, Robert, 1997. Equifinality: functional equivalence in organization design. Acad. Manag. Rev. 22 (2), 403–428.
Gursoy, D., Chi, Christina G., 2020. Effects of COVID-19 pandemic on hospitality industry: review of the current situations and a research agenda. J. Hosp. Mark. Manage. 29 (5), 527–529.
Harms, R., Schiele, H., 2012. Antecedents and consequences of effectuation and causation in the international new venture creation process. J. Int. Entrep. 10 (2), 95–116.
Harms, R., Schwery, M., 2020. Lean Startup: operationalizing lean startup capability and testing its performance implications. J. Small Bus. Manag. 58 (1), 200–223.
Harms, R., Kraus, S., Schwarz, E.J., 2009. The suitability of the configuration approach in entrepreneurship research. Entrep. Reg. Dev. 21 (1), 25–47.
Johnson, M.W., Christensen, C.M., Kagermann, H., 2008. Reinventing your business model. Harv. Bus. Rev. 12.
Kallmuenzer, Andreas, Kraus, Sascha, Peters, Mike, Steiner, Julia, Cheng, Cheng-Feng, 2019. Entrepreneurship in tourism firms: a mixed-methods analysis of performance driver configurations. Tour. Manag. 74, 319–330.
Kalus, M., 2020. Münster eröffnet digitalen Biergarten.
Kaushal, V., Srivastava, S., 2020. Hospitality and tourism industry amid COVID-19 pandemic: perspectives on challenges and learnings from India. Int. J. Hosp. Manag. online.
Kindström, D., 2010. Towards a service-based business model–Key aspects for future competitive advantage. Eur. Manag. J. 28 (6), 479–490.
KPMG, 2016. An Appetite for Change. Key Trends Driving Innovation in the Restaurant Industry.
Kraus, Sascha, Ribeiro-Soriano, Domingo, Schüssler, Miriam, 2017. Fuzzy-set qualitative comparative analysis (fsQCA) in entrepreneurship and innovation research – the rise of a method. Int. Entrep. Manag. J.
Kraus, Sascha, Clauss, Thomas, Breier, Matthias, Gast, Johanna, Zardini, Alessandro, Tiberius, Victor, 2020a. The economics of COVID-19: Initial empirical evidence on how family firms in five European countries cope with the corona crisis. Int. J. Entrep. Behav. Res. 26 (5), 1067–1092.
Kraus, Sascha, Filser, Matthias, Puumalainen, Kaisu, Kailer, Norbert, Thurner, Selina, 2020b. Business model innovation: a systematic literature review. Int. J. Innov. Technol. Manag., 2050043
Kuckertz, Andreas, Brändle, L., Gaudig, A., Hinderer, S., Morales Reyes, C.A., Prochotta, A., Steinbrink, K.M., Berger, E.S.C., 2020. Startups in times of crisis – a rapid response to the COVID-19 pandemic. J. Bus. Ventur. Insights.
Laskovaia, A., Marino, L., Shirokova, G., Wales, K., 2019. Expect the unexpected: examining the shaping role of entrepreneurial orientation on causal and effectual decision-making logic during economic crisis. Entrep. Reg. Dev. 31 (5-6), 456–475.
Lin, I.F., Schaeffer, N.C., 1995. Using survey participants to estimate the impact of nonparticipation. Public Opin. Q. 59, 236–258.
Mansoori, Y., Lackéus, Martin, 2020. Comparing effectuation to discovery-driven planning, prescriptive entrepreneurship, business planning, lean startup, and design thinking. Small Bus. Econ. 54, 791–818.
McKelvey, A., Chandler, G.N., DeTienne, D., Johansson, A., 2020. The measurement of effectuation: highlighting research tensions and opportunities for the future. Small Bus. Econ. 54, 689–720.
Mintzberg, H., Waters, J.A., 1985. Of strategies, deliberate and emergent. Strateg. Manage. J. 6, 257–272.
Misangyi, V.F., Greckhamer, T., Furnari, S., Fiss, P.C., Crilly, D., Aguilera, R.V., 2017. Embracing causal complexity: the emergence of a neo-configurational perspective. J. Manage. 43 (1), 255–282.
Podsakoff, Philip M., MacKenzie, S.B., Podsakoff, Nathan P., Lee, Jeong-Yeon, 2003. Common method biases in behavioral research: a critical review of the literature and recommended remedies. J. Appl. Psychol. 88 (5), 879–903.

Ragin, C.C., 2008. Redesigning Social Inquiry: Fuzzy Sets and Beyond. University of Chicago Press, Chicago.
Ragin, C.C., 2017. User's Guide to Fuzzy-set / Qualitative Comparative Analysis.
Reymen, I., Berends, H., Oudehand, R., Stultiëns, R., 2017. Decision making for business model development: a process study of effectuation and causation in new technology-based ventures. R&D Management 47 (4), 595–606.
Ries, Eric., 2011. The Lean Startup. Crown Publishing, New York.
Romme, A.G.L., 2003. Making a difference: organization as design. Organ. Sci. 14 (5), 558–573.
Sarasvathy, Saras D., 2001. Causation and effectuation: toward a theoretical shift from economic inevitability to entrepreneurial contingency. Acad. Manag. Rev. 26 (2), 243–263.
Sitoh, M.K., Pan, S.L., Yu, C.Y., 2014. Business models and tactics in new product creation: the interplay of effectuation and causation processes. IEEE Trans. Eng. Manag. 61 (2), 213–224.
Smolka, K.M., Verheul, I., Burmeister-Lamp, K., Heugens, P.P.M.A.R., 2016. Get it together! Synergistic effects of causal and effectual decision-making logics. Entrep. Theory Pract. 42 (4), 571–604.
Song, H.J., Yeon, J., Lee, S., 2021. Impact of the COVID-19 pandemic: evidence from the U.S. Restaurant industry. Int. J. Hosp. Manag. 92.
Spieth, P., Schneider, S., 2016. Business model innovativeness: designing a formative measure for business model innovation. J. Bus. Econ. 86 (6), 671–696.
Statista, 2020. Statista Branchenreport Gastronomie 2020.
Szambelan, S., Jian, Y., 2020. Effectual control orientation and innovation performance: clarifying implications in the corporate context. Small Bus. Econ. 54, 865–882.
Teece, D.J., 2010. Business models, business strategy, and innovation. Long Range Plann. 43, 172–194.
Thiem, A., Dușa, A., 2013. Qualitative Comparative Analysis With R: a User's Guide. Springer, New York.
Thorngate, Warren, 1976. "In general" vs. "it depends". Some comments on the Gergen-Schlenker debate. Pers. Soc. Psychol. Bull. 2, 404–410.
Townsend, D.M., Hunt, R.M., McMullen, J.S., Sarasvaty, S.S., 2018. Uncertainty, knowledge problems, and entrepreneurial action. Acad. Manag. Ann. 12 (2), 659–687.
Werhahn, D., Mauer, R., Flatten, T.C., Brettel, M., 2015. Validating effectual orientation as strategic direction in the corporate context. Eur. Manag. J. 33 (5), 305–313.
Wiltbank, R., Dew, N., Read, S., Sarasvaty, S.S., 2006. What to do next? The case for non-predictive strategy. Strat. Manag. J. 27 (10), 981–998.
Yu, X., Tao, Y., Tao, Xiangming, Xia, Fan, Li, Yajie, 2018. Managing uncertainty in emerging economies: the interaction effects between causation and effectuation on firm performance. Technol. Forecast. Soc. Change 135, 121–131.
Yunus, M., Moingeon, B., Lehmann-Ortega, L., 2010. Building social business models: lessons from the Grameen experience. Long Range Plann. 43 (2-3), 308–325.
Zaheer, A., Gözübüyük, Remzi, Milanov, Hana, 2010. It's in the connections: the network perspective in interorganziational research. Acad. Manag. Perspect. 24 (1), 62–77.