Marketing Analytics & Organizational Culture Fit: scale development and validation

Ajuste entre Marketing Analytics e Cultura Organizacional: desenvolvimento e validaçao da escala

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ABSTRACT

Purpose – The purpose of this paper is to develop a scale for a fit construct based on Marketing Analytics and Organizational Culture. Design/methodology/approach – The research was carried out in two stages: a step-by-step scale development is documented with confirmatory factor analysis and correlation analysis with other important constructs from Marketing was tested. Findings – The present work gave a detailed scale development for a fit construct permitting the tests of its correlation with organizational performance, Marketing capabilities, and absorptive capacity. It suggests exploring the mediation role for other capabilities as the mechanism to enable Marketing Analytics and Organizational Culture fit to impact performance. Practical implications – The authors enabled managers to understand how Marketing Analytics works, and what managers need to develop and articulate with their work teams involved in market knowledge learning. The expertise of these teams is used to recognize the value of new market knowledge, assimilating and applying them as analytical information. Originality/value – The new second-order construct aims to narrow the marketing capabilities gap in the literature using the fit approach with culture.

Keywords: Marketing Analytics; Organizational Culture; Fit; Scale Development.

RESUMO

Objetivo – O propósito deste trabalho é desenvolver uma escala para um construto de ajuste (fit) com base em Marketing Analytics e Cultura Organizacional. Desenho/metodologia/abordagem – A pesquisa foi realizada em duas etapas: o desenvolvimento passo a passo de uma escala é documentado com uma análise fatorial confirmatória, também foi realizada uma análise de correlação com outros construtos importantes do Marketing. Resultados – O presente trabalho forneceu um desenvolvimento de escala detalhado para um construto de ajuste permitindo testes de sua correlação com o desempenho organizacional, as capabilidades de Marketing e a capacidade de absorção. Ele sugere explorar o papel da mediação com outras capabilidades como o mecanismo que habilita o Ajuste entre Marketing Analytics e a Cultura Organizacional de forma a impactar o desempenho. Implicações práticas – Os autores permitiram que gerentes entendessem como o Marketing Analytics funciona, e o que os gestores precisam desenvolver e articular com suas equipes de trabalho envolvidas no aprendizado do conhecimento de mercado. A expertise dessas equipes é utilizada para reconhecer o valor de novos conhecimentos de mercado, assimilando-os e aplicando-os como informações analíticas. Originalidade/valor – O novo construto de segunda ordem visa reduzir a lacuna das capabilidades de Marketing, na literatura, usando a abordagem de seu ajuste com a cultura.

Palavras-chave: Marketing Analytics; Cultura Organizacional; Ajuste; Desenvolvimento de Escala.
1-INTRODUCTION

Revolutionary technologies improved analytics power giving life to adaptive analytics capabilities that can explore and exploit market knowledge (Louro, Brandão, Jaklič, and Sarcinelli (2019). However, there is a literature gap in measuring a construct that represents the fit between organizational culture and the adaptive capabilities related to analytics. The new construct aims to explain why some organizations have different marketing capabilities gaps (Day, 2011). Then, a scale for Adaptive Analytics & Organic Culture fit (FIT_AAOC) is proposed, and its correlation was tested with absorptive capacity (ACAP), marketing capabilities (MC), and organizational performance (OP).

Different management disciplines hold that organizational culture is a kind of social system within an organization that helps to explain strategic choices to obtain better performance (Schein, 1990). In updated marketing and management literature, there is interest in organizational culture as the antecedent of organizational performance (Lu, Plewa, and Ho, 2016; Wu, 2016; Mandal, 2017).

Louro et al. (2019) tested how market orientation and customer analytics capabilities, an adaptive approach, impact organizational performance. Both market orientation and organic organizational culture have a positive effect on performance (Deshpandé & Farley, 2004; Wei, Samiee, & Lee, 2014). The present work changed Louro et al. (2019) scale to test the fit between adaptive analytics capabilities and organic culture, understood as a spectrum of organizational culture “relatively open, externally oriented” (Deshpandé & Farley, 2004, p.10).

The present paper uses fit as covariation, one of the three different approaches to conceptualize and operationalize fit (Vorhies & Morgan, 2003; Yarbrough, Morgan, & Vorhies, 2011), others are as gestalts and as profile deviation. The covariation approach suggests that “the degree of internal consistency in resource allocations has a significant effect on performance” (Venkatraman, 1989, p. 439). The covariation approach option increased model parsimony. The fit measurement was operationalized using confirmatory factor analysis, as indicated by Venkatraman (1989).

Fit is classified into six different perspectives: moderation, mediation, matching, covariation, gestalts, and profile deviation (Venkatraman, 1989; Venkatraman & Prescott, 1990). The present paper followed the covariation perspective like the prominent marketing literature (Vorhies & Morgan, 2003; Yarbrough, Morgan, & Vorhies, 2011), but it is essential to justify why this is the most suitable fit perspective for the present case. The matching perspective is when two first-order constructs are consistently low, medium, or high with each other, and it is operationalized as a difference between items (Venkatraman, 1989). However, this is not the present case because both adaptive analytics and organic culture are conjectured to have higher scores to impact performance. Fit Gestalt’s perspective is defined in terms of the degree of internal coherence among a set of theoretical attributes, involving many variables, which is not the present case with only adaptive analytics and organic culture as the first-order of the fit second-order construct.

Fit as Mediation is a significant intervening mechanism that exists between an antecedent variable and the consequent variable, it is assumed that this perspective could not improve the model parsimony, and there is no theoretical reasoning in the literature. Fit as a profile deviation enables us to understand if an ideal strategic profile is specified as positively related to performance. However, our aim is not to assess misalignment from the ideal profile because we assumed that there is no perfect profile for our general sample executed in the EU and Brazil for different industries.

Finally, Fit as moderation is the impact that an independent variable has on a dependent variable to which it is related to the level of a third variable, the moderator. This perspective is operationalized as an interaction (Venkatraman, 1989) of the two first-order constructs as contingency theorists do. It is another valid perspective for the present paper, but we preferred Fit as Covariation, as it is a pattern of variation or internal consistency among a set of underlying theoretically related variables.

The covariation approach suggests that “the degree of internal consistency in resource allocations has a significant effect on performance” (Venkatraman, 1989, p. 439). Resources or capabilities allocation makes more sense in the present paper context. The fit measurement was operationalized using confirmatory factor analysis, as indicated by Venkatraman (1989), and reproduced by Loi, Lam, Ngo, and Cheong (2015), Felipe, Roldán, & Leal-Rodríguez (2016) and Yang, Sun, Zhang, and Wang (2017) using PLS-SEM. A more in-depth discussion about fit measure multidimensionality is introduced by Polites, Roberts, and Thatcher (2012).

The most prominent contribution of the present paper is the step-by-step scale development of FIT_AAOC. In the following sections, we discuss some concepts and assumptions, and after we propose the FIT_AAOC scale. Synthetically, the present article presents the constructs for a correlation test after the development of a new construct that is the fit, as covariation, between a type of adaptive capability and a variety of organizational cultures. It is conjectured that analytics
can improve preexisting marketing capabilities and exploitative processes.

2-THEORETICAL DEVELOPMENT
2.1-Basic concepts

A building blocks in marketing capabilities literature, from the very beginning, i.e., in RBV (Resource-Based View), is the conception of organizations as a bundle of resources (tangible or intangible assets) that with their heterogeneity make the organizations idiosyncratic, and bring competitive advantage. There is a need to acquire/reconfigure/transform these resources to cope with market complexity, and capabilities literature evolves from this point of view (Day, 2011; Morgan, 2012).

By its turn, dynamic capabilities, an unfolding of the RBV, is a set of specific and identifiable processes, like product development, strategic decision-making, and strategic alliances (Eisenhardt & Martin, 2000). Finally, marketing literature develops the term marketing capabilities using concepts of dynamic capabilities (Morgan, 2012; Kozlenkova et al., 2014). Also based on RBV/capabilities literature, Wei et al. (2014) confirm the positive relationship between organic culture and market responsiveness, i.e., the authors used an adaptive approach.

Another different literature deals with the learning process using the absorptive capacity (ACAP) construct. ACAP is defined as “the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends is critical to its innovative capabilities.” (Cohen & Levinthal, 1990, p.128).

ACAP starts with the cognitive capacity of individuals, and its organizational development is history-or path-dependent. ACAP also is facilitated by organic organizational characteristics in circumstances of uncertainty (Cohen & Levinthal, 1990). Based on the management literature review, Strese, Adams, Flatten, and Brettel (2016) discussed the relationship between organic culture and absorptive capacity, pointing to a positive relationship.

Day (2011, 2014) criticizes the current RBV literature, and even the contemporary dynamic capabilities literature, as less dynamic theories than the market demands. Thus he proposed the marketing capabilities gap, and he also suggested the existence of adaptive capabilities to narrow this gap. The present work advocates that an organization with a good Fit (FIT_AAOC) explores better market opportunities using analytics.

2.2-Marketing capabilities types

Marketing capabilities are an extension of dynamic capabilities that uses market knowledge via cross-functional marketing processes (Barrales-Molina et al., 2014). To Day (2011), there are three different marketing capabilities: static, dynamic, and adaptive.

Market complexity can be learned using market knowledge, and traditionally, resources and capabilities, static and dynamic, were conceptualized to reconfigure the organizational processes, and themselves, to respond to the market demands. According to Day (2011), dynamic capabilities looking for fitness and efficiency included systematic sensing and scanning that static did not have, but they remain with an inside-out focus, not using the opportunities properly from market knowledge.

To overcome the dynamic capabilities limitations, Day (2011) defines adaptive capabilities characteristics to respond to the increasing marketing capabilities gap:

“(1) Vigilant market learning that enhances deep market insights with a warning system to anticipate market changes and unmet needs, (2) adaptive market experimentation that continuously learns from experiments, and (3) open marketing that forges relationships with those at the forefront of new media and social networking technologies and mobilizes the skills of current partners”. (Day, 2011, p.183)

Thus the adaptive capabilities are outside-in focused via experimental learning, and they can anticipate behaviors with a faster reconfiguration. When an organization has a smaller marketing capabilities gap means that market knowledge impacts more organizational performance. Finally, adaptive capabilities are better to narrow the marketing capabilities gap than dynamic or static capabilities (Day,2011).

2.3-Assumptions about capabilities, analytics, and culture literature

From the previous concepts, the first assumption is that there is a marketing capabilities gap, and it is related to the evolution of market complexity (Day, 2011, 2014). Organizations that explore better market opportunities have a smaller gap. Day pointed to the Internet and the shrinking cost of communication as causes for widening this gap, the market opportunities are increasing, but few organizations have the right capabilities to explore them. In this context, emerging revolutionary technologies need increasing attention to respond to new market inquiries or new data-driven learning opportunities.
Despite some literature that uses these emerging revolutionary technologies as cornerstones (Erevelles, Fukawa, & Swayne, 2016; Wamba et al., 2017), an assumption is that big data, IoT, social media, etc., are just sources, or kinds, of data that analytics can use, or not, to enable organizational performance, i.e., analytics here is a sophisticated data technology approach for decision-making (Davenport, 2006) that can be used with an adaptive approach like in Louro et al. (2019).

The last assumption of the present work is about the organic culture as the focus for the fit construct. In the present paper, we used the organizational culture model by Cameron and Quinn (2006) due to its applicability in different organizations and its ubiquitous use in the national (Reis, Trullen, & Story, 2016) and foreign topic-related (Strese et al., 2016; Ogbeibu, Senadjki, & Gaskin, 2018) research. Figure 1 presents the Competing Values Framework (CVF) and shows its adaptation for the present paper.

The other CVF’s dimension is about the process that is a continuum to contrast organizations focused more on flexibility and spontaneity (organic) or control and stability (mechanistic). It is assumed that analytics can be improved by adopting organic organizational structures because only this type of culture promotes innovation (Naman & Slevin, 1993; Strese et al., 2016). Thus, it is measured the fit using only how the organization is organic, voiding problems with ipsative original scale (Cameron & Quinn, 2006). In other words, it is used only two out of four culture CVF’s types of organizational culture, Clan and Ad Hoc, use a Likert-type scale (Sarros, Gray, Densten, & Cooper, 2005).

3-FIT_AAOC STEP-BY-STEP SCALE DEVELOPMENT

Traditional marketing and strategy literature uses the absorptive capability (ACAP) concept for the overall information learning process. It uses exploitative and explorative or responsive and proactive market orientation (Barrales-Molina et al., 2014; Ozdemir et al., 2017). This literature is prominent but lacks the opportunity to talk about analytics and stands in traditional marketing methods and approaches (Wedel & Kannan, 2016), which do not narrow the marketing capabilities gap (Day, 2011). Thus, FIT_AAOC is proposed as a solution.

Market knowledge is a fundamental point of connection between the present paper constructs. The knowledge nature may be diverse, from CRM systems, social media, new revolutionary technologies like IoT and big data, etc. FIT_AAOC uses data-driven quantitative evidence (Davenport, 2006) and the adaptive approach when there is an organic organizational culture.

Information systems literature uses capabilities to explain the information learning process (Popović et al., 2012; Teo et al., 2016; Wang & Byrd, 2017), but these approaches do not focus on the market knowledge, and its essential role in changing/reconfiguring organizational strategies (Barrales-Molina et al., 2014). The use of market knowledge through FIT_AAOC, i.e., the covariation of organic culture and adaptive analytics, makes the present work unique.

To solve the lack of a FIT_AAOC construct and test its correlation with important constructs from the literature, the researcher developed a new scale using the MacKenzie et al. (2011) ten steps validity framework (see Figure 2).

FIT_AAOC reflects the "organic culture" and “analytical information quality” exploited by “a team” with specific “expertise” (analytical, technological, and business). In summary, to develop a conceptual definition of the construct (validity framework – step 1), FIT_AAOC can be classified as a fit between “organic culture,” “and
“adaptive analytics” that in its turn has two dimensions: “analytical information quality,” and “team expertise”. Notwithstanding, the FIT_AAOC definition is based on three others, adaptive capability, analytics, and organic culture defined in the present theoretical review.

Using MacKenzie et al. (2011) concepts (validity framework – step 1), organizations are the FIT_AAOC “entity” (p. 298). Additionally, the FIT_AAOC “general property” (p. 298) of these organic organizations is to use a sophisticated data technology approach to boost market openness in a continuously experimental behavior (Day, 2011). FIT_AAOC is “multidimensional” (p. 299), and its “stability” (p. 299) is across cases, where cases are, for example, projects of marketing, data science, R&D, or product/brand innovations.

Regarding dimensionality, FIT_AAOC has three reflective first-order constructs. Information quality is a known construct (Gorla et al., 2010; Wieder & Ossimitz, 2015),
but it is vital to understand that the revolutionary emerging technologies deal with data in new ways, that boost the “analytical information quality”. Market data here is not only from information systems, and inside databases, but is from the web, and social media; different data smashed into data lakes or data warehouses or even independent datasets like texts, videos, and denormalized spreadsheets prepared before analytics. The data engineering and cleansing process gives life to another kind of data and then to another type of information quality (Provost & Fawcett, 2013), which we called “analytical information quality”.

“Teams” with particular “expertise” perform analytics (Wamba et al., 2017). Studies provide evidence that confirms the decisive role developed by innovation teams in the learning process (Barrales-Molina et al., 2014; Sincorá, Oliveira, Zanquetto-Filho, & Ladeira, 2018). Another example is quantitative work executed with Chinese senior executives that identified the exchange and integration of team knowledge improving the organizational financial performance through new product development (Tseng & Lee, 2014).

Analytics, alone, impacts absorptive capacity using market knowledge (Barrales-Molina et al., 2014). FIT_AAOC is a construct that responds to market accelerating velocity and complexity with more outside-in data-driven and exploratory features to help the learning process when it is fitted with an organic culture.

The two first-order constructs do not have a causal relationship with FIT_AAOC. Thus, they represent the second-order construct.

Another critical point for construct definition is about the reflective/formative issue, and it is essential to understand that any construct is not inherently reflective or formative (MacKenzie et al., 2011); it is a matter of definition. The dimensions are manifestations of FIT_AAOC, for example, learning a new statistical method like cluster analysis increases the team’s expertise, and indeed, this new skill can make the analytical information quality better. Another example is the analytical information improvement or better organic culture can make, for example, business expertise better.

As part of the validity framework step 1, the definition of the construct, it is essential to differentiate it from others (MacKenzie et al., 2011). To summarize the position of FIT_AAOC, Figure 3 shows the market knowledge used by adaptive analytics when there is a good fit with the organic culture, FIT_AAOC, during the reconfiguration process of ACAP and/or MC.

Figure 3 shows the FIT_AAOC framework. It represents the use of market knowledge and information when the organization has good FIT_AAOC to reconfigure ACAP and/or MC. This reconfiguration process can be through,
for example, marketing capabilities like customer life-cycle assessment, loyalty or churn programs, pricing, segmentation, and personalization. On the other hand, this reconfiguration process can be done through ACAP, learning processes.

When the fit is good, the organization reconfigures marketing capabilities and exploitative processes using market knowledge. FIT_AAOC can also influence dynamic marketing capabilities like new product development or any other capability (not represented in figure 3). The present work only tested FIT_AAOC correlation with marketing capabilities and absorptive capacity.

3.1-Scale Development Details

A survey was executed to collect data to conduct a pre-test (validity framework - step 5) with Brazilian and European Union users of LinkedIn using a google docs form. It was sent after mining professionals were employed (at least one year) and from the following profiles: Marketing Manager/Analyst, Product/Brand Manager/Analyst, Marketing Research Manager/Analyst, R&D Manager/Analyst, Top Management, IT Manager/Analyst, Innovation Manager/Analyst, Data Analyst/Scientist and Other Management Positions.

The survey was executed in 2019, and without additional treatments, it totaled (n = 414) records, 202 from the EU, and 212 from Brazil, named as the validation sample for scale validation and items purification (MacKenzie et al., 2011). From this large sample was separated the heuristic holdout randomly (n = 300), and finally, the correlation and confirmatory factor analysis tests with a final subsample (n = 356) without an IT profile.

Table 1 defines two first-order FIT_AAOC constructs, being Adaptive Analytics with two dimensions (Analytical Information Quality and Team Expertise) and Organic Culture with only one. It is presented how to operationalize the questionnaire. The validity framework step 2 is concerned with generating items for FIT_AAOC. They are all new but adapted from the literature review, as referenced in Table 1. With no
formative indicators, the formal specification of the measurement model (validity framework - step 4) is presented in Table 2.

Table 2 adaptation (i) changed the original items that deal with data improvements by CRM implementation, so the new items address any type of data improvement. By its turn, adaptation (ii) was necessary because the original scale did not encompass the Davenport (2006) concept of quantitative evidence in decision-making. This author explains this characteristic as a background for competing in analytics. Additionally, the three questions of the original work of Chuang and Lin (2013) were given more emphasis on the use of quantitative sources of information.

Regarding the team expertise, no other questionnaire tested concepts of quantitative evidence, market immersion, and experimentation, critical parts of FIT_AAOC, and Day (2011) concepts. This idiosyncrasy came from the FIT_AAOC contextualization as a fit with adaptive capabilities discussed in the theoretical section.

The adaptations (iii. a) and (iii. b) were necessary because it is assumed that analytics projects can be done by ad hoc teams formed for this purpose, at a strategic level of top management or even as a specific management initiative like marketing research, or innovation, IT, R&D, or product/brand management. The original scale assumes IT only (Kim et al., 2012).

In a preliminary version, the FIT_AAOC construct had four first-order constructs; the original analytical culture construct was transformed into team analytical expertise. This suggestion came from the face/content validity process (validity framework – step 3). This process was performed through a google docs form sent and answered only by experts, in a total of four Ph.D.s and four Ph.D. candidates. They associated each item from the FIT_AAOC scale, presented randomly, with the respective first-order construct dimension to validate if the item initially thought makes sense. This procedure resulted in the confirmation of all items versus the first-order construct, using the criteria of 7 out of 8 right responses. Cohen’s Kappa index for interrater reliability was not used because there were few respondents in face/content validity process.

For the other constructs, the references are all based on known marketing and information system discipline papers. Marketing capabilities are about marketing competencies (Conant, Mokwa, & Varadarajan, 1990) and a reproduction of Song et al. (2007) multi-industry scale. The absorptive capacity came from Pavlou and Sawy (2013), and finally, organizational performance is a reproduction of the Law and Ngai (2007) scale.

Startup or not, service or product, B2B or B2C, and respondents’ profiles were used as categorical data for multi-group analyses based on the nonparametric equivalence analysis technique called Partial Least Square - Multi-Group Analysis (PLS-MGA), considered an original extension of Henseler, Ringle, and Sinkovics (2009) MGA method. Aside from previous variables, the work used only seven-point Likert scales, ranging from “totally disagree” (1) to “totally agree” (7).

Organizational size, age, and early and late respondents were tested, dividing equally the subsamples by the mean. Using PLS-MGA again, no significant differences were found. Another precaution was to assess common method bias using Harman’s single-factor test (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), resulting in an exploratory factor analysis of FIT_AAOC with the unrotated factor solution showing three factors explaining 59.3% of the variance, and the first factor explaining only 25%.

The values of univariate skewness and kurtosis of 6 from 50 variables are out of interval from -1 to 1. The validation sample has no univariate normality, which was confirmed after executing the Shapiro-Wilk and Kolmogorov-Smirnov tests rejecting the hypothesis of normality for all 50 variables (Hair et al., 2009). But the residuals from the regressions have a reasonable approximation to normality. Thus it is close to multivariate normality. There is no missing data. The empirical measurement model tests were made using SmartPLS software (version 3.2.4), and the correlation tests were made using summed items on SPSS (version 23).

3.2-Measurement Model and Correlation Tests

We tested the constructs’ validity and reliability, assuming a measurement model with organizational performance as the endogenous construct and the other FIT_AAOC, ACAP, and MC as exogenous. The present measurement model is an initial step for the future structural model test.

The scale purification and refinement (validity framework - step 6) resulted in the exclusion of two questions (numbers 1 and 7) due to cross-loadings tests. We gathered data from a new sample (validity framework - step 7), a holdout with only 300 first registers, and a heuristic subsample, and tested it again (MacKenzie et al., 2011) confirming the exclusions.

Multi-Group Analyses were performed using startup or not, service or product, B2B or B2C, organizational size, age, and early and late respondents (validity framework - step 9). The PLS-MGA and the Permutation algorithm with the MICOM procedure were performed using the combination of these groups, resulting in p-values bigger than 0.05, i.e., rejecting the hypothesis.
of group differences. The same result was found for the European Union and Brazil samples.

However, for profile assessment, the PLS-MGA shows differences from IT, 56 registers, and non-IT respondents, 356 registers, then only non-IT respondents were used as the validation subsample (MacKenzie et al., 2011) for correlation tests.

Using the validation subsample with the MICOM process (Henseler, Ringle, & Sarstedt, 2016), we confirmed the possibility of pooling the data of the other profiles, aside from IT. Step 1, configural invariance assessment, ensures that both setup and algorithm parameters of the measurement and the structural model are identical; we did no additional data treatment for each group, and the algorithm settings are the same. For step 2 (compositional invariance) and 3 (composites’ equality of mean values and variances across groups), we used the permutation algorithm with 5000 permutations confirming no significance, and thus, measurement invariance.

The sample size for model tests was accepted because the FIT_AAOC construct has the highest number of variables, 17 after the deletion of 2 items. Therefore, the preliminary would be 170 respondents using the rule of thumb of 10 times (Hair et al., 2017). In another conservative way, making a statistical power test in 95%, and assuming an R-square of 25%, the software GPower determines, for a significance of 1%, the size of the sample as 185 respondents. The GPower statistical test chosen tries to maximize the multiple regressions R square, adding new predictors to the solution, $f^2$ (Faul et al., 2007).

All constructs are reflective according to the content definition, or a priori specification, and according to confirmatory tetrad analysis, and CTA-PLS tests, using Gudergan, Ringle, Wende, and Will (2008) procedures. All latent variables tetrad have vanished (validity framework - step 6 - scale purification and refinement) confirming no formative construct.

The FIT_AAOC’s hierarchical components are treated using a repeated indicators approach (Hair et al., 2017), and the results regarding the validity and reliability show Cronbach’s alpha and composite reliability greater than 0.7 and AVE, greater than 0.5. They are measured for the first-order and second-order FIT_AAOC construct (MacKenzie et al., 2011). The external loads of convergent validity are greater than 0.7 (validity framework - step 6).

It was analyzed discriminant validity using the Fornell-Larcker criterion, according to which the square root of the AVE must be greater than the other constructs’ loads. After the exclusion of two items, the cross-loading test showed no problem, confirming the validity at the construct level (validity framework - step 6). Both tests were executed for the multidimensional constructs of FIT_AAOC (validity framework - step 8).

### 3.3-Correlation Tests

Literature assumes that analytics is correlated with marketing capabilities like customer lifecycle assessment, loyalty or churn programs, pricing, segmentation, and personalization (Germann et al., 2014; Wedel & Kannan, 2016). Analytics is also correlated with performance (Wamba et al., 2017). Organic culture is positively related to ACAP (Strese et al., 2016). FIT_AAOC is also the fit with adaptive capability that, by its turn, correlates with other marketing capabilities and performance (Erevelles et al., 2016).

These results raise the opportunity to develop a model to understand the role of FIT_AAOC in the management mechanism to improve organizational performance. Marketing capabilities (MC) and absorptive capacity (ACAP) are useful construct choice, but other capabilities like New Product Development still needs to be uncovered in the extensive process of discovering how can market knowledge impacts organizational performance.

The correlation between FIT_AAOC and marketing capabilities shows the importance of teams of technologists and scientists that lead to complex and sophisticated knowledge impacting marketing capabilities (Cohen & Levinthal, 1990). In its turn, the correlation between FIT_AAOC and absorptive capacity shows the importance of analytics to reveal new opportunities for transforming the decision-making process (Wang & Byrd, 2017). However, the literature tradition did not test teams in an organic organization that has a good fit with analytical information quality to work well with analytics.

From the correlation of FIT_AAOC and MC/ACAP, we conjecture that if there are preexisting capabilities, then FIT_AAOC boosts performance. Extant literature argues that technology effectiveness is enabled by preexisting capabilities (Boulding et al., 2005). Thus, Marketing capabilities and absorptive capacity need to be tested as mediators between FIT_AAOC and performance. From the relatively weaker correlation of FIT_AAOC and Organizational performance, we conjecture that FIT_AAOC depends on preexisting capabilities to improve performance. That is another reason to test the mediation mechanisms in future works.

The research tests allowed us to develop norms for the FIT_AAOC scale (validity framework – step 10). One important norm is the survey population profile, which excludes IT professionals, and possibly should
include managers of other organizational areas that can benefit from market knowledge.

4-CONCLUSIONS

The current paper starts to explain organizations that fit their culture to the process of continually acting upon analytics with the adaptive approach. The study shows the correlation between FIT_AAOC, absorptive capacity, marketing capabilities, and organizational performance. These correlations give us a clue that analytics can boost traditional marketing methods like customer lifecycle assessment, loyalty or churn programs, pricing, segmentation, and personalization. Additionally, FIT_AAOC integrates the information learning process with organizational culture aspects.

The four most significant limitations of the research translate into wide avenues for future research. The first is to understand why IT professionals have different behaviors about the topic. Another limitation is the not tested delimitation of services versus products, B2B versus B2C, and industry type. Third, the organizational life cycle is not tested either, and indeed the learning process and analytical information quality both depend on time spent by teams. Moreover, external validity using SEM could not be presented here due to space limits.

The results yet contribute to the scarce empirical literature on the adaptive constructs of Marketing, especially building a new construct, FIT_AAOC, with two first-order constructs in a hierarchical component model. Besides the scale development, the correlation tests suggest that FIT_AAOC can help to narrow the marketing capabilities gap.

Table 3

<table>
<thead>
<tr>
<th>Fornell-Larcker Criterion</th>
<th>ACAP</th>
<th>FIT_AAOC</th>
<th>OP</th>
<th>MC</th>
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<tr>
<td>Absorptive Capability (ACAP)</td>
<td>0.851</td>
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<tr>
<td>Adaptive Analytics &amp; Organic Culture (FIT_AAOC)</td>
<td>0.802</td>
<td>0.878</td>
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<tr>
<td>Organizational performance (OP)</td>
<td>0.601</td>
<td>0.661</td>
<td>0.742</td>
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<tr>
<td>Marketing capabilities (MC)</td>
<td>0.698</td>
<td>0.738</td>
<td>0.603</td>
<td>0.775</td>
</tr>
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</table>

Source: Prepared by the author (2022) using SmartPLS

Table 4

<table>
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<tr>
<th>Correlation Tests</th>
<th>FIT_AAOC</th>
<th>ACAP</th>
<th>MC</th>
<th>OP</th>
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<tr>
<td>Adaptive Analytics &amp; Organic Culture (FIT_AAOC)</td>
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<td>Absorptive Capability (ACAP)</td>
<td>.788</td>
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<td>Marketing capabilities (MC)</td>
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<td>Organizational performance (OP)</td>
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<td>.630</td>
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</table>

Source: Prepared by the author (2022) using SPSS
Finally, future studies can explore the mediation role of other capabilities (Boulding et al., 2005) as the mechanism to enable FIT_AAOC to impact performance. Nonetheless, the examination of FIT_AAOC as a fit construct of culture and adaptive analytics has become especially important due to the present context characterized by the exponential production/dissemination of data (Day, 2011).

5- REFERENCES


Yang, Z., Sun, J., Zhang, Y., & Wang, Y. (2017). Green, green, it’s green: A triad model of technology, culture, and innovation for corporate sustainability. *Sustainability (Switzerland), 9*(8), 1369. https://doi.org/10.3390/su9081369


Appendix

QUESTIONNAIRE

The scale of 1 to 7 means that 1 is when you strongly disagree with the question; 2 disagree, but not completely; 3 disagree more than agree; 4 neither agree nor disagree; 5 agree more than disagree; 6 agree but not completely, and 7 strongly agree.

1. SIZE - Approximately what is the organization’s number of employees?

2. AGE - Organization Age (in years)?


4. FOCUS - What is your organization’s focus? Service / Product

5. From what COUNTRY is the most prevalent culture of your organization?

6. HIGHTECH - Our Organization is high-tech(has a high dependence of science and technology)?

7. JOB What is your job/position?
   <Marketing Manager/Analyst - Product/Brand Manager/Analyst - Marketing Research Manager/Analyst - R&D Manager/Analyst - Top Management Innovation Manager/Analyst - IT Manager/Analyst - Data Analyst/Scientist - Other>

8. STARTUP Is your organization a Start-up OR spin-off (Y/N)

**AIQ - Indicators of Analytical Information Quality - Dimension of Adaptive Analytics**

9. Our team has efficiently combined transaction data with external data. (AIQ1)

10. Analytical information has become more relevant to the organization. (AIQ2)

11. Analytical information has become more accurate for the organization. (AIQ3)

12. Our team provides Analytical information promptly to the organization. (AIQ4)

**TE - Indicators of Team Expertise - Dimension of Adaptive Analytics**

13. In our team, the problem-solving process involves experimentation with quantitative evidence (TE1)

14. In our team, we consider experimentation with quantitative evidence regardless of the type of problem to be solved. (TE2)
15. Our team is competent regarding statistical abilities. (TE3)

16. Our team is competent regarding programming abilities. (TE4)

17. Our team shows a superior comprehension of technological tendencies. (TE5)

18. Our team shows superior skills to learn new technologies. (TE6)

19. Our team is very capable of dealing with data. (TE7)

20. Our team understands our organization plans. (TE8)

21. Our team is competent in interpreting business problems. (TE9)

22. Our team has an open mind to the organization's customer's necessities. (TE10)

23. Our team is immersed in the observation of the organization's business environment. (TE11)

ACAP—Indicators of Exploitative Learning of Absorptive Capacity

24. Our team has effective routines to identify new market data. (MKL1)

25. Our team has adequate routines to assimilate new market data. (MKL2)

26. Our team is effective in transforming existing market information. (MKL3)

27. Our team is effective in experimenting market information into new products/services. (MKL4)

MARKETING CAPABILITIES (Song et al., 2007)

28. Our organization has knowledge of competitors. (MC1)

29. Our organization has effectiveness in advertising programs. (MC2)

30. Our organization has integrated marketing activities. (MC3)

31. Our organization has skills to segment and target markets. (MC4)

32. Our organization has effectiveness of pricing programs. (MC5)

33. Our organization has knowledge of customers. (MC6)
ORGANIZATIONAL PERFORMANCE (Law & Ngai, 2007)

34. Compared to our competitors, customers perceive that in our organization they receive their money’s worth for purchasing our products/services (OP1)

35. Our customer retention rate is as high as or higher than that of our competitors. (OP2)

36. Our sales growth rate is as high as or higher than that of our competitors. (OP3)

37. Our overall competitive position is strong in our business sector. (OP4)

38. The profitability of our organization is good relative to the overall performance of our business sector (OP5)

39. Our organization achieved its goal in terms of market share? (OPM1)

ORGANIZATIONAL CULTURE (Cameron & Quinn, 2011)

40. Our organization is a very personal place. It is like an extended family. People seem to share a lot of themselves. (OCD1)

41. Our organization is a very dynamic entrepreneurial place. People are willing to stick their necks out and take risks. (OCD2)

42. Our organization is very results oriented. A major concern is with getting the job done. People are very competitive and achievement oriented. (OCD3)

43. Our organization is a very controlled and structured place. Formal procedures generally govern what people do. (OCD4)

44. The organization emphasizes human development. High trust, openness, and participation persist. (OCS1)

45. The organization emphasizes acquiring new resources and creating new challenges. Trying new things and prospecting for opportunities are valued. (OCS2)

46. The organization emphasizes competitive actions and achievement. Hitting stretch targets and winning in the marketplace are dominant. (OCS3)

47. The organization emphasizes permanence and stability. Efficiency, control and smooth operations are important. (OCS4)