THE MOTIVATED CONSUMER INNOVATIVENESS SCALE: INITIAL ITALIAN VALIDATION

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This study aims at providing an initial Italian validation of the Motivated Consumer Innovativeness (MCI) scale. This instrument has recently been developed to measure the underlying motivations linked to the consumer's orientation in acquiring innovations. The Italian version of the scale, translated and adapted from the original version, is composed of 20 items on a 5-point Likert scale. The scale was administered to 379 participants, equally distributed between sexes. A confirmatory factor analysis proved that the scale had four correlated factors measuring four different motivations (functional, hedonistic, social, and cognitive), and that this structure was strictly invariant across genders. Results also indicated that the MCI scale had good discriminant and convergent validities, as well as concurrent and predictive validities. The Italian version of the MCI seems to be able to measure the consumers' motivation to acquire innovations, serving as a tool for identifying clusters of (motivated) consumers.
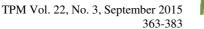
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Innovation is an important feature of markets and organizations. In fact, firms that produce innovations are interested in knowing whether a particular territory is a good place to innovate (e.g., Pauwels, Silva-Risso, Srinivasan, & Hanssens, 2004). There are many factors that determine the innovative potential of a territory. Some of the factors pertain to the "supply side," such as the availability of venture capital, potential competition, rule of law, and the enforcement of intellectual property rights. However, there are also important factors on the "demand side," which are related to the often-neglected role that consumers play in the innovation process.

Accordingly, the concept of innovativeness can be applied to a wide range of processes, such as the ability of a firm to launch new products, the degree to which a product can be seen as innovative and the degree to which people are inclined to adopt a new product. The latter aspect is defined as "consumer innovativeness" and, in this paper, the term "innovativeness" will refer exclusively to consumer innovativeness.

Due to its propensity toward innovations, consumer innovativeness has generally been described as an individual trait or characteristic that differentiates individuals on the basis of their likelihood to buy a novelty (e.g., Goldsmith & Foxall, 2003; Midgley & Dowling, 1978). In the literature, however, the concept of consumer innovativeness is not yet well defined and a substantial agreement about the meaning of this construct remains unreached (Bartels & Reinders, 2011). In the same way, several scales have been developed to capture consumer innovativeness, albeit

with inconsistent results, especially with respect to the capacity to predict behavioral intention and actual adoption behavior (Arts, Frambach, & Bijmolt, 2011).

Recently, scholars have focused on motivations that underlie people's propensity toward innovations. For example, Vandecasteele and Geuens (2010) affirmed that motivations are at the core of people's intentions toward an innovative product, because innovations are related to the needs of people to satisfy some public or private goals. The identification of product functions is in line with the approach suggested by Vandecasteele and Geuens. The researchers proposed and validated a scale, the Motivated Consumer Innovativeness (MCI), which measures the motivation of people to use and buy innovations. Accordingly, the present work is aimed at supplying an initial Italian validation of the MCI scale in an attempt to confirm its factor structure, reliability, and general usability.

CONSUMER INNOVATIVENESS

Consumer innovativeness can be defined as the extent to which an individual is oriented to buy and use new and different products, rather than to maintain previous consumption styles (Foxall, Goldsmith, & Brown, 1998; Steenkamp, ter Hofstede, & Wedel, 1999). This definition is comprised of both the attitude toward a new product and the actual behavior of buying an innovation. Consumer innovativeness seems to be an important factor for the commercial success of a new consumer product and one of the main drivers for new product purchases (Pauwels et al., 2004). As such, understanding and predicting whether consumers will adopt a new product or service is an important insight for innovation marketing managers (Bartels & Reinders, 2011).

It is argued that the willingness and the ability of individuals to buy and use new products and technologies are as important as the development processes of such products and technologies (Bhidé, 2009). Moreover, developers of new products are more willing to devote marketing and research resources if they anticipate receptive customers and a large market for their innovations.

While the construct of consumer innovativeness plays an important and critical role, there is a lack of consensus about the meaning of innovativeness in literature (Roehrich, 2004). Accordingly, a recent review by Bartels and Reinders (2011) highlights the three main concepts of consumer innovativeness that can be found in literature: a) innovativeness as an innate personality trait (i.e., a general and relatively stable individual predisposition toward innovations), b) domain-specific innovativeness (i.e., the individual's predisposition toward a definite product class), and c) innovative behavior, that is "the degree to which an individual's purchase or use of an innovation precedes that of other consumers" (p. 605).

According to the authors, innate innovativeness seems to be the most frequently used approach in the literature. In this case, innovativeness is conceptualized as an innate and general personality trait that pushes people to use and buy novelties (Goldsmith & Foxall, 2003; Im, Bayus, & Mason, 2003; Mowen, 2000), serving other personality predispositions, such as sensation seeking and the need for uniqueness (Goldsmith, 1984; Steenkamp et al., 1999).

Consequently, several scales have been developed in order to measure this general and innate tendency to purchase innovations (e.g., Baumgartner & Steenkamp, 1996; Goldsmith & Hofacker, 1991; Leavitt & Walton, 1975; Ridgway & Price, 1994; Tellis, Yin, & Bell, 2009). Efforts to relate personality and innovative purchase behavior have generated a wide range of litera-

ture in general and, more specifically, on the issue of consumer innovativeness. However, the direct application of these findings to the marketing of consumer products is still questionable.

Indeed, empirical research has failed to demonstrate a strong correlation between people's innate consumer innovativeness and their actual innovative behavior (i.e., buying that product; e.g., Im et al., 2003; Im, Mason & Houston, 2007; Venkatraman & Price, 1990). While the first attempts were criticized for their lack of success in relating personality and randomly selected products (Jacoby, 1971; Kassarjian, 1971; Wells, 1975), more recent analyses have emphasized the importance of identifying product functions as a basis for characterizing products or groups of products (Kahle & Valette-Florence, 2012; Whelan & Davies, 2007).

Along this vein, several authors have launched the idea that consumer innovativeness is domain-specific, rather than an individual's general predisposition (e.g., Gatignon & Robertson, 1985; Goldsmith & Hofacker, 1991). In this approach, consumer innovativeness is conceptualized as the individual's interest toward a specific product or service domain (Goldsmith & Hofacker, 1991), thus implying that "a person might be an innovator in one product category and a follower in another product category" (Grewal, Mehta, & Kardes, 2000, p. 236).

Scales developed to capture domain-specific innovativeness (e.g., Goldsmith & Hofacker, 1991) seem to be better able to predict new product purchases (Roehrich, 2004). However, there are several problems with their discriminant (e.g., they tend to be highly correlated with both opinion leadership and product involvement) and predictive validities (Roehrich, 2004; Vandecasteele & Geuens, 2010), as well as their practicality, given that these scales have a specific and a limited target. Regardless, an intermediate level of abstraction of consumer innovativeness (i.e., domain-specific vs. innate and global innovativeness) seems to be the more useful approach to analyze an individual's propensity toward innovation, given that it predicts innovative buying behavior better than higher or lower measurement abstractions do (Goldsmith, Freiden, & Eastman, 1995; Hoffmann & Soyez, 2010).

Recently, Vandecasteele and Geuens (2010) advocated that research on consumer innovativeness has paid little attention to the motives that drive people's tendencies toward innovative products. Accordingly, the authors highlighted that people learn about and buy innovations because these people are motivated to reach some goals. In other words, a predisposition toward a specific product and its actual purchase is also defined by the interaction between the individual's motives and goals to the extent that the product allows an individual to reach his/her goals.

MOTIVATED CONSUMER INNOVATIVENESS

Since Maslow's (1943) theory of human needs, psychologists have recognized the importance of people's motivations to fulfill their needs as a determinant of people's behavior. In this sense, motivation may be defined as an individual's psychological pressure to behave and think in order to reach a specific goal (i.e., satisfy his/her needs) in a specific situational state (e.g., Campbell, Dunnette, Lawler, & Weick, 1970; Dalbert, 2012; Emmons, 1997).

The ways in which needs may be satisfied are different from one individual to another, but many scholars agree that human needs are limited in number. Based on Maslow's theory, McClelland (1961), for example, identified three principal needs: achievement, affiliation, and power. More recently, Vallerand (1997) proposed a continuum in which motivations are classified as intrinsic (e.g., to know, to accomplish, and to experience stimulation) and extrinsic (exter-

nal regulation, introjection, and identification). Several other taxonomies of motives and needs have been proposed, but the most relevant aspect for the present research is the relationship between motives and cognitions.

Classical approaches to motivations analysis tend to separate needs and motives from cognitions (for example, to choose to buy an innovative product) that are viewed as rational processes coming from more sophisticated cerebral areas. Recently, however, several authors have questioned this separation, proposing that cognitions may be bolstered by some motives. The recent interest in the motivational aspects of cognitions has increased scholars' focus on the psychological needs served by attitudes, beliefs and ideologies (Jost, Glaser, Kruglanski, & Sulloway, 2003; Kruglanski, 1996).

Along this vein, the classical dualism between motivation and cognition, in which motives and cognitions are conceptualized as distinct and different psychological processes, has been passed over in favor of a reciprocal relationship between the two constructs. This approach, known as motivated social cognition, posits that people's cognitions, such as attitude and ideologies, are bolstered by motivation to reach a particular goal. These motivational factors affect the way in which social targets are judged. For example, it has been shown that conservative ideologies are motivated by the need to manage uncertainty and threat (Jost et al., 2003). In the domain of consumer innovativeness, Grewal et al. (2000) demonstrated that social identity needs motivate people's interests toward innovativeness and opinion leadership. More precisely, the more people viewed a product as a way to improve or maintain their social identity, the more they were interested in innovation regarding that product and the more they tended to become opinion leaders, especially for publicly viewed items (i.e., cars) rather than items used in private (i.e., computers).

In summary, people's attitudes and behaviors can be seen as motivated processes that are supported and bolstered by some kind of psychological need. Accordingly, in consumer innovativeness research, Vandecasteele and Geuens (2010) stressed that motivations are at the core of people's attitudes toward an innovative product. Indeed, products in general and innovations in particular help people to reach some public or private goals, shaping identities and providing people with characteristics they desire (Grewal et al., 2000). Thus, product perception is a socially shared and interactional process in which people build and share meanings about the use, role and function (social and private) of a particular class of product.

The focus on motives to buy an innovation is not new, and several instruments measuring the needs and motivations of consumers have been proposed (for a review, see Arts et al., 2011; Roehrich, 2004; Vandecasteele & Geuens, 2010). However, according to Vandecasteele and Geuens, these scales measure, at most, two motivations — that is, the need for uniqueness and the need for stimulation (e.g., Hartman, Shim, Barber, & O'Brien, 2006) — and the scales suffer due to the lack of a clear theoretical framework (see also Cowart, Fox, & Wilson, 2008).

Trying to overcome these problems, Vandecasteele and Geuens (2010) reviewed literature on innovativeness instruments and motives and proposed a new scale called the Motivated Consumer Innovativeness (MCI) scale. The authors, based on a review of the literature and the principle theories of human needs, values, and goals, identified four main motives in which consumer innovativeness is rooted (see Table 1).

TABLE 1
Conceptual descriptions for the four Motivated Consumer Innovativeness dimensions
(Vandecasteele & Geuens, 2010)

Motives	Description	Needs/values
Functional	Consumer innovativeness motivated by the functional performance of new products and focalized on task management and performance improvement	Achievement, mastery, competence
Hedonic	Consumer innovativeness motivated by the desire to reach affective and sensory gratification and stimulation	Stimulation, self-gratification, hedonism
Social	Consumer innovativeness motivated by the desire to impress and to be different from others	Power, self-enhancement, preserving/enhancing social image
Cognitive	Consumer innovativeness motivated by the desire to be mentally stimulated	Mental stimulation, epistemic, intelligence, skills

According to Vandecasteele and Geuens's (2010) analysis, these four motives are congruent with needs and motives, which are described in the more general theories of values, goals, and motivation. Many scholars point out that the principle motives for many people's behaviors are: epistemic (cognitive), self-enhancement, achievement, and power (social) needs (Kruglanski, 1996; Jost et al., 2003; Maslow, 1943; McClelland, 1961; Schwartz, 1992). For example, these motives can be found in Schwartz's (1992) theory of human values, in which hedonic and stimulation values are served by hedonic innovativeness, stimulation values bolster cognitive innovativeness, self-enhancement and power values are related to social innovativeness, and achievement values (i.e., mastery) may be seen as linked to functional innovativeness.

The four motives of innovativeness are also congruent with the taxonomy of Sweeney and Soutar (2001), who distinguished four consumption values: functional, emotional (hedonic), social, and epistemic (cognitive) values. Moreover, functional (to accomplish), hedonic (to experience stimulation), cognitive (to know/epistemic), and social (external regulation) motives also fit well with Vallerand's (1997) taxonomy.

In order to capture these four motives, Vandecasteele and Geuens (2010) developed a self-report scale composed of 20 items on a 5-point Likert-type scale (from 1 = *strongly disagree*, to 5 = *strongly agree*). The scale measures four dimensions, which correspond to the four motives: (1) functionally motivated consumer innovativeness (fMCI); (2) hedonically motivated consumer innovativeness (hMCI); (3) socially motivated consumer innovativeness (sMCI); and (4) cognitively motivated consumer innovativeness (cMCI).

This scale has been validated through five studies enrolling approximately 2,600 respondents in total and using different samples, such as student and non-student samples, as well as samples representative of the population. Results of the confirmatory factor analysis determined that the best fit was obtained by the expected four-correlated dimensions model. Results also confirmed the reliability and validity of the scale. Moreover, the MCI scale was able to predict the purchase intentions of different kinds of innovations. In summary, the MCI scale showed several

positive features, such as multidimensionality, predictive validity and relative shortness. These characteristics make this scale a powerful tool for assessing consumer innovativeness.
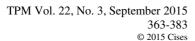

AIMS AND HYPOTHESES

Given that the MCI scale seems to be a promising tool for improving the comprehension of consumer innovativeness, the aim of this paper was to supply an initial Italian validation of the MCI scale in an attempt to extend and generalize its results, usability, and predictive power in order to help marketers and scholars make cross-national comparisons. The first expectation was that the MCI items would be organized in the expected four-correlated factors structure. A second expectation concerned the invariance of the scale across gender. Gender, indeed, is one of the most frequent forms of market segmentation and has been proven to impact purchasing behavior (e.g., Tifferet & Herstein, 2012). Men and women are interested in different products (Mitchell & Walsh, 2004), due to gender differences in socialization, expectation, needs, values, and so on (e.g., Fischer & Arnold, 1994; Schwartz & Rubel, 2005). Moreover, it has been shown that gender also affects consumer innovativeness (Handa & Gupta, 2009; Kim, Di Benedetto, & Lancioni, 2011). Although gender can affect people's orientation toward products, the underlying motives to innovate should be the same for men and women. Thus, we expected that the MCI scale would be invariant across genders, at least at the structural invariance level.

Other expectations concerned the correlations between the dimensions of the scale and other constructs that have been proven to be linked to consumer behavior and innovativeness. More precisely, we considered opinion leadership which is the tendency of an individual to influence the purchasing behavior of others (e.g., Flynn, Goldsmith & Eastman, 1996). Opinion leaders are usually interested in certain products and have an impact on the consumption attitudes and behaviors of others (e.g., Gatignon & Robertson, 1985).

Furthermore, market mavenism, that is, the tendency to discuss products with others and supply advice about markets (Feick & Price, 1987), was considered. We also considered materialism, which is the tendency to possess and exhibit material products (Richins, 2004; Richins & Dawson, 1992). It is articulated in three main dimensions: centrality (the importance of material products), success (the tendency to judge the success of a person on the basis of his/her products), and happiness (the tendency to enjoy having material products). Another construct was consumer susceptibility, which is the tendency to be influenced by others when making decisions about product purchasing (Bearden, Netemeyer, & Teel, 1989). Consumer susceptibility has typically been divided into normative (conform to others' expectations) and informative (actively searching information about products) influences. Finally, we considered also consumer involvement (Laurent & Kapferer, 1985) that is the extent to which individuals feel interested and attentive toward a particular product (in this case, a smartphone).

Given the characteristics of these constructs, we expected that the hedonic and cognitive motives of consumer innovativeness would be positively correlated with stimulation-related constructs, such as opinion leadership, market mavenism, consumer involvement, and materialism. Moreover, we expected that the social motive of innovativeness would be positively correlated with other social-related constructs, such as consumer susceptibility to normative influence and the dimension of materialism success. Furthermore, we expected that the functional motive of in-

novativeness would be correlated, in particular, with consumer involvement and consumer susceptibility to informative influence.

In addition, personality dimensions were considered and, more precisely, the five traits of the Five Factor Model (Costa & McCrae, 1992; Rammstedt & John, 2007) were taken into account. Given that motivated innovativeness should be relatively independent from personality traits, we expected to find no, or weak, correlations between innovativeness motives and personality factors.

With respect to the concurrent and predictive validities, we expected that MCI dimensions would be moderately correlated with other scales that measured innovativeness (i.e., Domain Specific Innovativeness scale, DSI; Goldsmith & Hofacker, 1991). Moreover, we expected that the MCI dimensions would be correlated with past purchasing behavior (i.e., the number of smartphones purchased in the past) and with the purchasing intention (i.e., to acquire a smartphone in the future).

METHOD

Items Translation

In order to translate the items, a team-based iterative approach (Douglas & Craig, 2007; Harkness, Van de Vijver, & Mohler, 2003) with back-translation was used. More precisely, items were first translated by two independent researchers (i.e., parallel translation), who then compared the translations and solved any disagreements through discussion. The resulting scale was then back-translated by a bilingual person in order to assure comparability between the English and Italian versions. The resulting items were pretested by asking some students to fill out the scale with one researcher, expressing their understanding, problems, and misunderstandings of each item. Minor problems and misunderstandings emerged in the pretest. Items were changed accordingly and reanalyzed by the team until an adjudication of the translated scale was reached.

Procedure and Participants

The Italian version of the MCI scale (MCI-Iv) was inserted into a questionnaire aimed at assessing several constructs; an online procedure was used. The mailing list of students attending the University of Parma was obtained and used to send invitations to research participation. Participants were contacted and invited to enroll in research regarding attitudes toward smartphones and to complete an online questionnaire. Moreover, social networks (i.e., Facebook) were also used in order to enroll participants. In this case, an advertisement was posted with an invitation to participate, along with the link to the questionnaire. Before starting the questionnaire, participants were requested to register and then login. They were assured that these data would not be collected. This procedure was used in order to avoid duplicates and fake compliers, as well as to reduce the risk of enrolling participants with low motivation to complete the study.

In the first page, participants were informed that participation was voluntary and that data were collected anonymously and used for research purposes only. Participants were also informed

that taking the questionnaire would be assumed to be the expression of their agreement to participate. Finally, it was stated that participants could stop the questionnaire at any time.

There were 497 questionnaires returned. However, questionnaires with one or more missing values were excluded from the analyses. Given that an answer to all but the socio-demographic items was mandatory, to have one or more missing values meant that the participants did not complete the research. Thus, the final sample included 379 participants that completed the survey, with a mean age of 24.92 years (*SD* = 5.75, range = 15-56). Of these participants, 175 (48.50%) were men and 186 (51.50%) were women (18 participants did not report sex). Regarding labor force participation, 229 (64%) were students, 52 (14.50%) workers, 56 (15.60%) student-workers, and 21 (5.90%) unemployed (21 participants did not report occupation).

Measures

The questionnaire was comprised of several measures as described below. They are presented in the order in which they appeared in the questionnaire. Except for the personality dimensions and the MCI scale, the Italian version that was proposed by Barbaranelli and Vecchione (2003a; see also Barbaranelli & Vecchione, 2003b; Vecchione & Russo, 2006) of each scale was used. For each scale or dimension, the final score was computed as the mean of the intended items so that higher scores indicate higher levels of the measured construct.

Opinion leadership was measured by the Opinion Leadership Scale (OLS; Childers, 1989). It is composed of six items (e.g., "Over the last six months, how many different people did you talk to about smartphones?") on a 5-point Likert scale labeled accordingly with the content of the items; scale reliability was good (α = .89).

Smartphone innovativeness was measured with the Domain-Specific Innovativeness scale (DSI; Goldsmith & Hofacker, 1991). The scale is composed of six items (e.g., "Generally I am amongst the first of my circle of friends to buy a new smartphone") on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*); reliability was good (α = .82).

Market maven was measured with Feick and Price's (1987) Market Mavens Scale (MMS), which is composed of five items (e.g., "I like to introduce new brands to my friends") on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*); reliability was good (α = .90).

Consumer involvement was measured with the Interest subscale of Laurent and Kapferer's (1985) Consumer Involvement Profile (CIP) scale. The Interest subscale is composed of three items (e.g., "I have a strong interest in smartphones") on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*); reliability was good (α = .89).

Materialism was measured with the Material Value Scale (MVS; Richins & Dawson, 1992), which is composed of 18 items on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). The scale measures three dimensions: success (six items, α = .70), centrality (seven items, α = .65), and happiness (five items, α = .76).

Interpersonal influence was measured with the consumer Susceptibility to Interpersonal Influence scale (SII; Bearden et al., 1989), which is composed of 12 items on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). The scale measures two dimensions: a) susceptibility to normative influence (eight items, α = .91) and b) susceptibility to informative influence (four items, α = .73).

Personality dimensions were measured with the Big Five Inventory-10 (BFI-10; Rammstedt & John, 2007), a short form of the widely used Big Five Inventory (BFI; John, Donahue, & Kentle, 1991). Ten items measuring the same five personality dimensions as the original questionnaire compose the BFI-10: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Participants rated each items on a 5-point scale (1 = *completely false for me* to 5 = *completely true for me*).

Motivated consumer innovativeness was measured with the translated version of the MCI scale, which was composed of 20 items on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*).

Past purchase and intention to purchase were measured with two items. The first item asked participants to indicate the number of smartphones they had acquired in the past 24 months. The second item asked participants to indicate the extent to which they were oriented to purchase a smartphone in the next six months (1 = *very improbable* to 5 = *very probable*).

The last section of the questionnaire aimed to assess several demographic characteristics, such as age, sex, occupation, and family income (1 = up to 15,000 Euros, 2 = from 16,000 to 30,000 Euros, 3 = from 31,000 to 45,000 Euros, 4 = from 46,000 to 60,000 Euros, 5 = from 61,000 to 75,000 Euros, and 6 = more than 75,000 Euros).

RESULTS

Factor Structure of the MCI Scale

Initially, an exploratory factor analysis with principal axis factoring and Promax rotation was conducted on the 20 items of the MCI-Iv. Results indicated four factors with eigenvalues greater than 1, explaining 71% of the total variance. Items had loadings greater than .30 (Kline, 1994) on the intended factors (smallest loading = .45) and negligible loadings on the other factors. Table 2 shows the original and translated items, as well as their factor loadings.

This first analysis clearly indicated the expected four-factor structure of the scale. In order to confirm these results, a confirmatory factor analysis was performed using the Mplus software (Muthén & Muthén, 2006), testing a four-factor structure. Specifically, maximum likelihood estimation was used and robust standard error was employed in order to adjust for distributional problems and use a more conservative approach.

As suggested by Kline (2005), several indices were used in order to establish the goodness-of-fit of the model, such as the comparative fit index (CFI), the Tucker-Lewis index (TLI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). A model can be said to have a good fit when the CFI and TLI are higher than .90 and the SRMR and RMSEA values are smaller than .08 (Bentler & Bonett, 1980; Hu & Bentler, 1999; Kline, 2005). The fit of the different models was compared in order to determine the best solution. More precisely, one-factor model, four uncorrelated dimensions model, four correlated dimensions model and four dimensions with a second order factor model were tested. Table 3 shows fit indices and difference tests for the models.

TABLE 2

Translated and original items of the MCI scale and their factor loadings (Promax rotation)

Translated and original items	1	2	3	4
Social				
Mi piace usare prodotti nuovi che possono fare colpo sugli altri [I love to use innovations that impress others]	.91			
Mi piace possedere un prodotto nuovo che mi distingue da chi non lo possiede [I like to own a new product that distinguishes me from others who do not own this new product]	.60			
Mi piace provare prodotti nuovi con i quali mettermi in mostra con amici e colleghi [I prefer to try new products with which I can present myself to my friends and neighbors]	.89			
Mi piace primeggiare sugli altri acquistando prodotti nuovi che loro non hanno [I like to outdo others, and I prefer to do this by buying new products which my friends do not have]	.83			
Compro intenzionalmente delle novità appariscenti e che suscitano ammirazione [I deliberately buy novelties that are visible to others and which command respect from others]	.70			
Functional				
Se viene lanciato sul mercato un nuovo prodotto che fa risparmiare tempo, lo compro subito [If a new time-saving product is launched, I will buy it right away]		.68		
Se trovo un nuovo prodotto più confortevole di quello che già possiedo, non esito a comprarlo [If a new product gives me more comfort than my current product, I would not hesitate to buy it]		.81		
Se un nuovo prodotto è più funzionale del precedente, di solito lo acquisto [If an innovation is more functional, then I usually buy it]		.95		
Se scopro un nuovo prodotto in un formato più comodo, sono molto incline a comprarlo [If I discover a new product in a more convenient size, I am very inclined to buy this]		.81		
Se un nuovo prodotto mi facilita il lavoro, per me diventa un prodotto che devo avere assolutamente [If a new product makes my work easier, then this new product is a "must" for me]		.45		
Hedonic				
Usare prodotti nuovi mi dà un senso di piacere personale [Using novelties gives me a sense of personal enjoyment]			.82	
Acquistare prodotti nuovi mi dà sensazioni piacevoli [It gives me a good feeling to acquire new products]			.72	
Le novità sul mercato rendono la mia vita più eccitante e stimolante [Innovations make my life exciting and stimulating]			.60	
Acquistare una novità mi rende più felice [Acquiring an innovation makes me happier]			.84	
La scoperta di nuovi prodotti mi rende allegro/a e di buonumore [The discovery of novelties makes me playful and cheerful]			.70	
Cognitive				
Compro soprattutto quei prodotti nuovi che stimolano i miei interessi intellettuali [I mostly buy those innovations that satisfy my analytical mind]				.65
Compro senza esitare quei nuovi prodotti che stimolano molto il ragionamento [I find innovations that need a lot of thinking intellectually challenging and therefore I buy them instantly]				.85
Compro spesso nuovi prodotti che stimolano le mie capacità logiche [I often buy new products that make me think logically]				.91
Compro spesso nuovi prodotti che mettono alla prova i punti di forza e di debolezza delle mie capacità logiche [I often buy innovative products that challenge the strengths and weaknesses of my intellectual skills]				.84
Mi piace essere intellettualmente stimolato e compro prodotti nuovi che tengono il mio cervello in allenamento [I am an intellectual thinker who buys new products because they set my brain to work]				.59

Note. Loadings lesser than .30 are omitted.

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TABLE 3
Fit indices for the tested models and fit comparisons

Model	χ^2	df	CFI	TLI	RMSEA	SRMR	AIC
1. Null	4049.32	190					
2. One factor	1757.51	170	.589	.540	.157	.118	18877.99
3. Four uncorrelated factors	865.40	170	.820	.799	.104	.291	17698.27
4. Four factors and one second order factor	507.86	166	.911	.899	.074	.066	17271.38
5. Four correlated factors	488.25	164	.916	.903	.072	.058	17252.37
Models comparison	$\Delta\chi^2$	Δdf	p				
5 vs. 1	3561.07*	26	< .001				
5 vs. 2	716.29*	6	< .001				
5 vs. 3	491.53*	6	< .001				
5 vs. 4	22.33*	2	< .001				

Note. Differences of χ^2 are computed with the Satorra-Bentler scaled chi-square. CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual, AIC = Akaike information criterion.

As one can see, the results indicated that the correlated four-factor model was better fitted to the data than were other models, and that its fit was satisfactory, $\chi^2(164) = 488.25$, $p < .001$; CFI = .92; TLI = .90; RMSEA = .07; CI [.06, .08]; $p < .001$; SRMR = .06. Thus, in accordance with the findings of Vandecasteele and Geuens (2010), the scale was assumed to be composed of four correlated dimensions. However, an inspection of the modification indices indicated that some errors of items correlated with each other. Accordingly, some errors regarding only items composing the same factor (i.e., errors of items measuring different dimensions were left uncorrelated) were correlated and the model was retested.

Fit improved with only seven correlated errors, $\chi^2(157) = 350.15$, $p < .001$; CFI = .95; TLI =.94; RMSEA = .06; CI [.05, .06]; $p = .06$; SRMR = .05. All items had standardized parameter estimations higher than .69 (all $p < .001$), and factor determinacy was excellent (.95, .96, .96, .94, for the hedonic, cognitive, social, and functional dimensions, respectively). Thus, both explorative and confirmatory factor analyses indicated that the Italian version of the MCI scale had a correlated four-factor structure that was highly comparable with the original scale (Vandecasteele & Geuens, 2010).

Discriminant and Convergent Validity

In order to assess the discriminant and convergent validities, as well as the reliability, of the scale, the procedure suggested by Fornell and Larcker (1981; see also Farrell, 2010; Hair, Black, Babin, & Anderson, 2010) was adopted. More precisely, the average variance extracted (AVE), composite reliability (CR), maximum shared squared variance (MSV), and average shared squared variance (ASV) were analyzed.

As suggested by Hair et al. (2010), convergent validity is demonstrated when CR is greater than AVE and AVE is greater than .50. Discriminant validity is demonstrated when MSV

and ASV are lower than AVE. Finally, CR should be greater than .70. Table 4 reports indices of validity, correlations, means, and standard deviations for the four dimensions of the scale.

As one can see, the criteria for discriminant and convergent validity were widely met for all dimensions. Indeed, CRs were all higher than .70, and AVEs were greater than .50 and lower than CR. Finally, MSVs and ASVs were all lower than AVEs. In summary, the four factors showed a good reliability and adequate discriminant and convergent validities.

TABLE 4
CR, AVE, MSV, ASV, correlations, means, and standard deviation
of the four dimensions of the MCI scale

	CR	AVE	MSV	ASV	fMCI	hMCI	cMCI	*M*	*SD*
fMCI	.880	.597	.384	.324	1			2.14	.86
hMCI	.882	.599	.462	.404	.596	1		2.32	.92
cMCI	.891	.621	.393	.314	.620	.627	1	2.24	.89
sMCI	.904	.654	.462	.286	.482	.680	.405	1.49	.73

Note. CR = composite reliability; AVE = average variance extracted; MSV = maximum shared squared variance; ASV = average shared squared variance; fMCI = functionally motivated consumer innovativeness; hMCI = hedonically motivated consumer innovativeness; cMCI = cognitively motivated consumer innovativeness; sMCI = socially motivated consumer innovativeness.

Scale Invariance between Sexes

Since gender has been recognized as an important feature affecting consumer innovativeness (Handa & Gupta, 2009; Kim et al., 2011), scale invariance across sexes was tested with a multigroup analysis. As previously known, measurement invariance can occur at different levels. The lower level, configural invariance, is the factor structure of the scale that is the same across different groups. Metric invariance (also called weak factorial invariance) refers to the equivalence of factor loadings across groups (i.e., factor loadings are constrained to be equal). Scalar invariance, instead, implies the equivalence of factor loadings and intercepts across groups. Finally, strict factor invariance implies that factor loadings, intercepts and error variance are the same across groups. Table 5 reports the fit indices and comparisons of the different models of invariance. As one can see, the MCI appeared to be strictly invariant across genders, given that fit indices are better in the residual invariance model and the χ^2 difference ($\Delta\chi^2$) is not significant.

TABLE 5
Models of measurement invariance of the MCI scale between men and women

Model of invariance	χ^2	*df*	CFI	TLI	RMSEA	SRMR	AIC
Configural (unconstrained)	544.95	314	.938	.925	.064	.057	16368.90
Metric (loading invariant)	561.43	330	.938	.929	.062	.062	16356.23
Difference	$\Delta\chi^2(16) = 16.48, p = .420$						−12.67

(table 5 continues)

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Table 5 (continued)

Model of invariance	χ^2	df	CFI	TLI	RMSEA	SRMR	AIC
Scalar (loading and intercept invariant)	586.57	346	.936	.929	.062	.062	16348.49
Difference	$\Delta\chi^2(16) = 24.74, p = .07$						−7.74
Residual (loading, intercept, and error invariant)	586.50	366	.941	.939	.058	.064	16331.60
Difference	$\Delta\chi^2(20) = 12.34, p = .904$						−16.89

Note. CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root mean square error of approximation; SRMR = standardized root mean square residual, AIC = Akaike information criterion.

Correlation with Other Measures

Table 6 reports zero-order correlations between considered variables and their descriptive statistics. Table 7 reports zero-order correlations of the four dimensions and the total score (T_MCI) of the MCI scale, along with other measures considered in this study. In order to evaluate and compare correlation coefficients, an effect size analysis was used. As previously known, correlation coefficients can be seen as the effect size of the strength of the relationships between two variables (Cohen, 1988).

According to Cohen (1988), along with the statistical significance, the magnitude of a correlation coefficient must also be taken into account when interpreting the relationship between variables. In the present study, following Cohen's suggestions, correlations lower than .10 were considered trivial and correlations lower than .30 were considered as small, albeit statistically significant. Moreover, correlations between .30 and .49 were considered moderate, while correlations of .50 or greater were considered large.

First, Table 7 shows that none of the correlation coefficients was .70 or greater, thus indicating the discriminant validity of the measures. Moreover, some MCI dimensions were not correlated, and other MCI dimensions were weakly correlated with personality dimensions, as expected and in accord with findings of Vandecasteele and Geuens (2010). This means that the MCI scale measures something that is very different from personality traits. Furthermore, the MCI total score was correlated with all constructs from a moderate to large extent, except for informative influence, which had a correlation coefficient lower than .30.

Considering each MCI dimension, one can see that the hedonistic dimension (hMCI) was positively associated with opinion leadership, market mavenism, consumer involvement, and the dimensions of materialism, as expected. Social dimension (sMCI) was correlated with normative influence and the dimensions of materialism. It is worth noting that normative influence and centrality of materialism were more strongly correlated with social motives than with hedonistic motives, $t(376) = 8.11$, $p < .001$ and $t(376) = 3.67$, $p < .001$, respectively,[1] as expected. Cognitive dimension (cMCI) and functional dimension (fMCI) showed similar patterns of correlations, even though the cMCI tended to correlate more with opinion leadership, $t(376) = 1.21$, $p = .21$, while fMCI tended to be correlated more with consumer involvement, $t(376) = 1.49$, $p = .14$.

Table 6
Correlations and descriptive statistics of the measured constructs related to motivated consumer innovativeness

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Opinion leadership	.89	.61**	.75**	.04	.12*	.22**	.22**	.13*	.00	.02	−.05	.07	.00	.67**	.47**	.23**
2 Market mavenism		.90	.51**	.12*	.16**	.24**	.24**	.13**	.07	−.03	−.03	.08	.00	.55**	.33**	.16**
3 Consumer involvement			.89	.15**	.19**	.32**	.28**	.22**	−.06	−.08	−.09	.03	−.03	.67**	.45**	.26**
Consumer susceptibility																
4 Informative influence				.73	.35**	.12*	.09	.14**	−.03	.04	−.10	.14**	.01	.03	.03	.11*
5 Normative influence					.91	.48**	.28**	.34**	−.11*	−.05	−.16**	.03	−.13*	.27**	.19**	.16**
Materialism																
6 Success						.70	.56**	.53**	−.07	−.06	−.06	.05	−.21**	.38**	.26**	.14**
7 Centrality							.65	.46**	−.16**	−.15**	−.03	.02	−.24**	.35**	.31**	.16**
8 Happiness								.76	−.20**	−.17**	−.06	−.09	−.32**	.24**	.18**	.18**
Personality dimensions (BFI-10)																
9 Conscientiousness									−	.16**	.12*	.11*	.21**	−.10	−.11*	.03
10 Neuroticism										−	−.02	.18**	.32**	−.07	−.06	−.03
11 Openness to Experience											−	.05	.13*	−.07	−.07	−.04
12 Extraversion												−	.16**	.02	.09	−.01
13 Agreeableness													−	−.03	−.06	.02
14 DSI														.82	.58**	.23**
15 Number of SP acquired															−	.14**
16 Intention to acquire SP																−
M	2.77	2.55	2.74	2.80	1.35	2.11	2.60	2.25	3.49	2.99	3.70	2.87	3.30	1.62	.87	1.79
SD	0.94	1.03	1.18	0.82	0.56	0.71	0.62	0.81	0.89	1.01	0.89	0.92	0.78	0.72	0.79	1.15

Note. Cronbach's alpha on the diagonal. DSI = Domain Specific Innovativeness; SP = smartphone.
* $p < .05$. ** $p < .01$.

TABLE 7
Zero-order correlation coefficients between measured constructs and the MCI scale

	hMCI	cMCI	sMCI	fMCI	T_MCI
Opinion leadership	.46**M	.39**M	.29**S	.34**M	.47**M
Market mavenism	.42**M	.37**M	.36**M	.30**M	.46**M
Consumer involvement	.51**L	.37**M	.34**M	.43**M	.52**
Consumer susceptibility					
Informative influence	.21**S	.18**S	.18**S	.25**S	.26**S
Normative influence	.37**M	.25**S	.63**L	.28**S	.47**M
Materialism					
Success	.49**M	.34**M	.61**L	.32**M	.54**L
Centrality	.54**L	.30**M	.47**M	.33**M	.51**L
Happiness	.42**M	.30**M	.43**M	.31**M	.46**M
Personality dimensions (BFI-10)					
Conscientiousness	–.08T	–.05T	–.12*S	–.09T	–.10S
Neuroticism	–.12*S	–.09T	–.10*S	–.11*S	–.13**S
Openness to experience	–.03T	.01T	–.11*S	–.04T	–.05T
Extraversion	.02T	–.01T	.07T	.02T	.03T
Agreeableness	–.07T	–.10*S	–.23**S	–.13*S	–.16**S
DSI	.55**L	.36**S	.50**L	.41**M	.57**L
Number of SP acquired	.38**M	.27**S	.34**M	.30**M	.40**M
Intention to acquire SP	.28**S	.18**S	.19**S	.19**S	.27**S

Note. hMCI = hedonically motivated consumer innovativeness; cMCI = cognitively motivated consumer innovativeness; sMCI = socially motivated consumer innovativeness; fMCI = functionally motivated consumer innovativeness; T_MCI = total score of MCI; DSI = Domain Specific Innovativeness; SP = smartphone; T = trivial, S = small, M = moderate, L = large.
* $p < .05$. ** $p < .01$.

Concurrent and Predictive Validity

In order to assess the concurrent and predictive validity of the MCI scale, the four dimensions and the total score of the scale were correlated with the DSI scale (Goldsmith & Hofacker, 1991) and with the participants' past purchase and intention to purchase a smartphone (SP). As indicated, the total score of the MCI was correlated at .57 with the DSI scale showing a good concurrent validity (see Table 7).

For purchasing a smartphone (SP), the results indicated that DSI was more correlated than the MCI total score, $t(376) = 4.60$, $p < .001$, with the number of SPs purchased in the last 24 months (see Tables 6 and 7). This is not surprising given that one of the items on the DSI scale asks for the number of SPs purchased in the past. Nevertheless, the total MCI showed satisfactory correlation with the number of SPs acquired in the past ($r = .40$, $p < .001$). Total MCI, however, was slightly more correlated with the intention to acquire a SP than the DSI scale, suggesting a higher ability to predict people's innovative behavior, although the difference between correlation coefficients was not significant, $t(376) = .87$, $p = .38$.

Motivated Consumer Innovativeness and Demographic Characteristics

Having proven the effectiveness of the MCI scale, we analyzed whether or not the dimensions scores, as well as the total scores, were affected by sex, age, and family income of the participants. First, the total score of the MCI was inserted into a generalized linear model as a dependent variable, in which sex was considered as a categorical independent variable, and age and family income were considered to be continuous independent predictors. The results indicated that age, $F(1, 342) = 2.217$, $p = .137$, and sex, $F(1, 342) = 0.892$, $p = .346$, had no significant effect, while family income was positively related to the total MCI score, $F(1, 342) = 8.223$, $p = .004$.
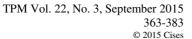
For subscales, a MANOVA with the MCI's four dimensions as the dependent variables and gender, age, and family income as the independent variables, was conducted showing that gender had no significant effect, Wilk's $\lambda = .989$, $F(4, 339) = .964$, $p = .427$. Age affected cMCI ($B = .019$, $SE = .008$, $t = 2.25$, $p = .025$) and fMCI ($B = .020$, $SE = .008$, $t = 2.57$, $p = .011$) but had no effect on hMCI ($B = .004$, $SE = .009$, $t = .51$, $p = .613$) and sMCI ($B = -.006$, $SE = .007$, $t = .920$, $p = .358$). This indicated that older participants were more cognitively and functionally innovative than younger participants. Finally, family income affected hMCI ($B = .066$, $SE = .033$, $t = 2.01$, $p = .045$), sMCI ($B = .088$, $SE = .026$, $t = 3.39$, $p = .001$), and fMCI ($B = .070$, $SE = .031$, $t = 2.30$, $p = .022$), but had no effect on cMCI ($B = .051$, $SE = .032$, $t = 1.61$, $p = .108$). These results indicated that the higher the family income, the more participants were hedonically, functionally, and socially innovative.

DISCUSSION AND CONCLUSION

This work was aimed at supplying an initial Italian validation of the Motivated Consumer Innovativeness scale, developed by Vandecasteele and Geuens (2010). The scale is composed of 20 items measuring four correlated dimensions: hedonistic, functional, social, and cognitive motives of consumer innovativeness. The results from the exploratory and confirmatory factor analyses confirmed that the scale was composed of four dimensions capturing four motives of innovativeness. These dimensions were highly reliable and demonstrated good convergent and discriminant validity. Moreover, the scale was proven to be strictly invariant between genders, supplying a useful tool for comparing the innovativeness of men and women. Given that sex is an important variable affecting consumer innovativeness, we highlight the importance of an instrument able to supply the same measurement across sexes, in order to compare male and female orientation to buy innovations.

Importantly, the four dimensions, as well as the total score of the scale, were weakly or not at all correlated with personality traits, indicating that the scale did not measure general or stable disposition of consumers. Furthermore, the MCI scale was positively correlated with several measures that are linked to innovativeness, such as opinion leadership, market mavenism, consumer involvement, and materialism (see Ruvio & Shoham, 2007), although these correlations did not indicate a lack of discriminant validity of the scale and its subdimensions.

As expected, opinion leadership, market mavenism and involvement were more correlated with hedonic motives than with other dimensions. Furthermore, hedonistic and social motives were more correlated with materialism. It is worth noting that social motives showed the

highest correlation with consumer susceptibility to normative influences, as well as with the success dimension of materialism, confirming that socially motivated consumers have more interest in impressing others and paying more attention to what others think than hedonistically motivated consumers, who are instead more focused on self-gratification aspects.

Regarding demographic characteristics, results indicated that women were as innovative as men, indicating that if motives to buy a new product were considered, no gender differences appeared. Moreover, this work supports the findings of Vandecasteele and Geuens (2010), which disproved the hypothesis that younger people are more innovative than older people. In fact, no differences appeared on the total score of the MCI based on participants' ages. Instead, some differences appeared on the cognitive and functional motives, in which older people were more innovative than younger people. However, younger and older participants were equally innovative regarding hedonistic and social motives. Finally, results indicated that family income affected the extent to which people were motivated to buy innovations. In particular, this trend was true for hedonistic, functional, and social motives, while no differences appeared for the cognitive motive.

A final concern is in regard to the relationship between MCI scale, domain specific innovativeness (DSI) and purchasing of a new product (in this case, a smartphone). Results indicated that DSI and MCI (total) share about 32% of the variance, but this percentage decreases to 13% and 17% if cognitive and functional motives are considered. Moreover, while DSI was more correlated with the number of SPs acquired in the past years, MCI was equally able to detect intention to acquire a SP in the near future, in particular for the hMCI subscale.

PRACTICAL IMPLICATIONS FOR MARKETING

This research has practical relevance for scholars interested in the comprehension of innovativeness behavior, as well as for marketing managers who must create and launch innovative products. On the one hand, the present work supports results by Vandecasteele and Geuens (2010) and confirms the importance of taking into account consumers' motives to buy novelties in order to increase the success of a new product. As suggested by Vandecasteele and Geuens, the MCI scale may be useful for detecting categories of people who are differently motivated to acquire some products, helping developers to understand when and where they may improve the attractiveness of new products (i.e., the extent to which a product satisfies different motives).

On the other hand, the present work helps researchers use the same instrument to study innovativeness across different nations (at least Italy and Belgium). Given the enlargement of markets and globalization, cross-national surveys and research on innovativeness are obviously of crucial importance for firms engaged in the production and launch of innovations. Thus, to be able to use the same instrument across nations would increase the understanding of consumer innovativeness, as well as the probability that a new product will be successful. Vandecasteele and Geuens (2010) speculated that it would be unlikely that the type of motives would be different across nations. Present research seems to support this claim.

LIMITATIONS AND FUTURE DIRECTION

Although the present results are consistent, they suffer from some limitations. First, the sample was composed mainly of students, and this imposes some caution on the generalizability

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of results. This problem does not affect the psychometric properties of the scale, but rather the demographic differences in the scores. For example, although age was proven to affect functional and cognitive motives, the range of the participants' ages was relatively small. A range of ten years is relevant for the smartphone market; nevertheless, it is problematic to extend present results to an older population.

Another limitation is the use of a cross-sectional design and self-report measures that may influence results, given the common method variance and social desirability (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003), which could inflate correlations among variables. However, the fact that correlations are in the expected direction and not too high, in addition to some constructs (i.e., personality trait) being weakly or not correlated with other constructs, may indicate that the problems connected with common method bias would be, at least in part, reduced.

A further limitation affects the predictive validity of the scale, given that no direct test was used. Indeed, only the intention to acquire a smartphone was measured and not the actual purchasing behavior. Given that the relationship between intention and actual behavior is highly variable, there is little support for the predictive validity of the Italian version of the scale. Future research should more deeply investigate aspects linked to predictive validity and generalizability of results to the representative populations.

A final consideration must be directed to the use of the scale. Although in this work, the total score of the scale was used for analysis, this was only done to investigate the psychometric properties of the scale. According to Vandecasteele and Geuens (2010), the total score should not be used in practical applications because it does not supply the information related to the theoretical premises of the scale. Thus, if one wants to have a full profile of an innovator, the scores of all four dimensions' should be considered.

NOTE

1. Correlation coefficients were compared with the Williams's (1959) procedure for correlated correlations.

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