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Business Model Innovation: Impact of Entrepreneurial Competencies to New Value Proposition

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Abstract

Background: Rapid changes and dynamic markets significantly impact the way businesses operate. Many companies fail to adapt and innovate their business models, which jeopardises their sustainability. Managers, as key decision-makers, play a pivotal role in the innovation process, whereby their entrepreneurial competencies directly influence various dimensions of business model innovation. **Objectives:** The main aim of this study is to examine the impact of entrepreneurial competencies on the new value proposition dimension of business model innovation (BMI), exploring competencies such as opportunity recognition, analytical thinking, innovativeness, tenacity, and passion for work. It investigates how these competencies contribute to developing new offerings and new channels, attracting new customers and markets, and building new customer relations. **Methods/Approach:** The study is conducted on a sample of 267 managers of medium and large companies across various industries in Bosnia and Herzegovina. The data were analysed using Structural Equation Modelling (SEM). **Results:** The results show that different entrepreneurial competencies have a significant impact on various aspects of a new value proposition. **Conclusions:** The study contributes to a deeper understanding of the influence of different entrepreneurial competencies on new value proposition dimensions within BMI. Managers who effectively utilise these competencies can enhance their companies' value propositions, thereby increasing competitiveness and business success.

Keywords: entrepreneurial competencies; opportunity recognition; analytical thinking; innovativeness; passion for work; tenacity; business model innovation; new value proposition; SEM
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Introduction

In a volatile business climate, business model innovation (BMI) is regarded as critical to an enterprise's competitiveness and survival (Bouncken & Fredrich, 2016; Futterer et al., 2018). Specifically, the evolution of information technology and its influence on the transformation of business processes, as well as goods and services themselves, compel organisations to re-examine and enhance their business model continually. BMI is the process of developing new mechanisms for producing, distributing, and collecting value in order to get consumers to pay for it and transform it into profit (Bocken & Geradts, 2020). Schneider & Spieth (2013) stated that BMI represents *"a firm's response to changing sources of value creation"* (Schneider & Spieth, 2013, p. 20). According to Casadesus-Masanell & Ricart (2010), one of the key components of a business model is management's decision-making process regarding the way in which an organisation operates. Chesbrough (2010) highlighted cognitive limitations as one of the main barriers that prevent managers from fully recognising the need to innovate different dimensions of BMI within their organisations. Since efficient development and implementation of new business models pose a significant challenge for managers of the company (Chesbrough, 2012), managers' knowledge, skills, attitudes, and experience are crucial elements that enable them to address these challenges successfully. Schneider and Spieth (2013) stated that BMI requires the company to focus on utilising and developing resources and competencies, whereby entrepreneurial actions play a key role in the process. Therefore, managers' competencies, particularly entrepreneurial competencies, emerge as imperative in managers' efforts to achieve organisational success through different dimensions of BMI, namely value creation, value proposition and value capturing.

In the literature on BMI, Schneider and Spieth (2014) called for the need to examine the capabilities, factors, and conditions that enable decision-makers to experiment with and implement new business models within organisations. The focus is on the need to explore managerial capabilities (Wirtz et al., 2022), managerial mindset (cognition), as well as analytical skills, intuition, and the ability to recognise entrepreneurial opportunities as important predictors in the BMI process (Spieth et al., 2014, 2023). A particular emphasis was given to the need to conduct empirical studies (Spieth et al., 2014) in large enterprises (Seiferlein et al., 2022).

Despite its importance, empirical research on the role of managerial, entrepreneurial, and leadership competencies in successful BMI remains limited (Wirtz et al., 2022). Several studies recognised and analysed this relationship. A positive impact of entrepreneurial competencies on BMI was demonstrated in a qualitative case study (Seiferlein et al., 2022) and multiple case studies (Eriksson et al., 2019). Some research found risk-taking abilities (Dewald & Bowen, 2010), managerial and entrepreneurial skills (Bashir et al., 2023; Guo et al., 2013), and managerial connections as predictors of creating value, value proposition and value capturing as dimensions of BMI (Bashir et al., 2023; Wang et al., 2017). There is an evident research gap in examining the impact of entrepreneurial competencies on different dimensions of BMI. Therefore, this study aims to fill the gaps in understanding the role of various entrepreneurial competencies in driving especially new value proposition dimensions of BMI and competitive advantage.

In this regard, this study aims to analyse the impact of entrepreneurial competencies on the new value proposition dimension of BMI. The competencies that will be analysed in this paper are opportunity recognition, analytical thinking, innovativeness, tenacity, and passion for work. Consequently, the study will provide the findings that reflect the contribution of managers' entrepreneurial competencies

to the company's business performance as reflected in the new value proposition dimension of BMI.

The research paper is structured as follows. First, the theoretical framework on entrepreneurial competencies and BMI is presented. Second, the hypotheses are developed. The methodology section details the research design, data collection process, and analytical approach. The findings are discussed in the results and discussion section. Finally, the paper concludes with a summary of key theoretical contributions, practical implications, limitations, and suggestions for future research.

Literature review

Entrepreneurial competences

In the 1980s, the concept of competencies generated significant interest among researchers in fields such as medicine, psychology, education, human resource management, strategic management, and others (Morris et al., 2013). The development of the concept of competencies is credited to Robert White, who first introduced this term to describe the personal characteristics of individuals associated with superior performance and higher levels of motivation (White, 1959). Competencies are defined as basic characteristics that can be motives, traits, skills, self-image, social role, or an individual's knowledge, which result in superior performance at work (Boyatzis, 1982). Woodruffe (1993) viewed competencies as a set of behavioural patterns that an individual must demonstrate at work to perform tasks competently. Chandler and Jensen (1992) assumed that a manager in a company takes three different roles: entrepreneurial, managerial, and technical-functional. According to the roles they perform, managers possess different competencies: entrepreneurial competencies, managerial competencies, and technical competencies. Man et al. (2002) defined entrepreneurial competencies as the overall abilities, traits, and skills of an entrepreneur to perform business tasks successfully.

Earlier research found that certain entrepreneurial characteristics of managers have an impact on business success (Mitchelmore & Rowley, 2010). In earlier studies, entrepreneurial competencies were viewed as a multidimensional construct (Man et al., 2002; Rahman et al., 2015; B. Smith & Morse, 2005). The authors explored the impact of specific entrepreneurial competencies, such as identifying business opportunities (Ardichvili et al., 2003; Rasmussen et al., 2011; Shane, 2000), risk-taking (Leko-Šimić et al., 2007), tenacity (De Clercq et al., 2013), and passion for work (Baum & Locke, 2004; De Clercq et al., 2013).

According to Man & Lau (2005), entrepreneurial competencies consist of dimensions deeply rooted in an individual's background, such as traits, personality, attitudes, self-image, and social roles, as well as those acquired through education, training, and work experience (skills, knowledge, and experience). In defining entrepreneurial competencies, different studies developed frameworks that emphasise the diversity of entrepreneurial competencies that are crucial to success. Below, several significant studies that focused on examining and categorising entrepreneurial competencies are presented. Table 1 presents the overview of the significant studies investigating the categorisation of entrepreneurial competencies.

Chandler and Jensen's (1992) study underscores the significance of the founder's entrepreneurial role in shaping business success. The study's results indicated that founders who exhibit the ability to recognise business opportunities and the drive to execute their vision tend to lead high-performing ventures. According to Baum and Locke (2004), the entrepreneurial role, observed through tenacity and passion for work, represents the key characteristics of a company's success.

Table 1.
Overview of the most significant studies investigating the categorisation of entrepreneurial competencies

Author	Entrepreneurial competencies
Chandler & Jansen (1992)	Entrepreneurial competencies (recognising and exploiting business opportunities, tenacity); Managerial competencies (conceptual, interpersonal, and political); Technical competencies
Shane & Venkataraman (2000)	The decision to seize an opportunity, Perception, Optimism, Self-confidence, Internal locus of control, and Desire for achievement.
Man et al. (2002)	Competencies for opportunity recognition; Human relationship competencies; Conceptual competencies; Organizational competencies; Strategic and commitment competencies
Baron & Markman (2003)	Four different aspects of social competencies: social perception (accuracy in perceiving others), Impression management (the ability to elicit favourable reactions from others), Social adaptability (the ability to adapt to a wide range of social situations), and Expressiveness (the ability to appropriately express emotions and feelings).
Schmitt-Rodermund (2004)	Entrepreneurial competencies: Leadership, Curiosity, Self-confidence
Rauch & Frese (2007)	Self-confidence; Proactivity; Tenacity; Need for achievement; Stress tolerance; Goal orientation; Need for autonomy; Innovation; Resilience; Flexibility; Passion for work
Mitchelmore & Rowley (2010)	Entrepreneurial competencies; Business and managerial competencies; Human relation competencies; Conceptual and relationship competencies
Ahmad et al. (2010)	Strategic competencies; Conceptual competencies; Human relationship competencies; Learning competencies; Personal competencies; Ethical competencies; Competencies of dedication and familyism
Rahman et al. (2015)	Entrepreneurial competencies for recognising business opportunities; Entrepreneurial strategic competencies; Entrepreneurial conceptual competencies; Entrepreneurial technical competencies
RezaeiZadeh, et al. (2017)	Productive thinking (identifying, evaluating, and exploiting opportunities; tolerance for ambiguity and uncertainty; adaptability and flexibility; willingness to take risks, questioning everything; facing stress and failure; readiness to embrace challenges; creativity, initiative; viewing the market from a different perspective, ability to seek information, intuitive ability, adding value); Motivation; Leadership; Positivity; Domain knowledge (commercial knowledge); Emotional objectivity (managing emotions)

Source: Authors' illustration based on the literature review

Based on the work of Baum and Locke (2004), for this research, we define the following entrepreneurial competencies:

- *Opportunity recognition* - includes research, development and evaluation of high-quality opportunities available in the market and in the environment (Man et al., 2002). Man et al. (2002) regarded opportunity recognition as a significant dimension of entrepreneurial competencies.

- *Analytical thinking* - according to Man et al. (2008), they refer to the application and integration of ideas, as well as the process of monitoring their implementation.
- *Innovativeness* - relates to the capacity to engage in and promote new ideas and creative processes (Chinwendu & Eze, 2021).
- *Passion for work* - work-related passion refers to sentiments of love, connection, and desire for one's job (Baum & Locke, 2004).
- *Tenacity* - often known as persistence, is the ability to maintain goal-directed action and energy in the face of adversity (Baum & Locke, 2004).

Business model innovation

Business model and business model innovation attracted significant attention over the past two decades, both in academic research and corporate practice, as important aspects of strategic considerations in companies of various industries and sizes (Clauss, 2023). Morris et al. (2005) defined a business model as "*a concise representation of how an interrelated set of decision variables in the areas of venture strategy, architecture, and economics are addressed to create sustainable competitive advantage in a defined market*" (2005, p. 727). Casadesus-Masanell & Ricart (2010) explained that "*business models are made of concrete choices and the consequences of these choices ... different designs have different specific logics of operation and create different value for their stakeholders*" (2010, p. 198). The effectiveness of business models depends on the management that can make quick decisions, actively learn at multiple levels, build commitment, and engage in conflict (W. K. Smith et al., 2010). Bucherer et al. (2012) defined BMI as "*a process that deliberately changes the core elements of a firm and its business logic*" (2012, p. 184).

Various BMI conceptualisations are present in the literature. Despite conceptual variations amongst scientists in different study areas, several aspects are shared by most definitions of a business model. According to Zott et al. (2011), they are classified as follows:

- There is a general agreement that a business model is a separate unit of analysis distinct from the product, company, industry, or network contained within the company but with limits that are larger than the companies.
- Business models stress a comprehensive, systemic approach to understanding how companies "do business."
- The actions of the company and its partners are important in various business conceptualisations. Business models attempt to explain both value creation and value appropriation.

More in-depth research was conducted to determine the content components of a business model. According to Zott & Amit (2010), three fundamental aspects of a business model are content (activities to be performed), structure (how and on what basis the activities are connected), and governance (who implements those activities). Spieth and Schneider (2016) considered a business model to be a holistic approach that incorporates three key integrative dimensions: value offering, value architecture, and revenue model. First, the value offering dimension includes three critical components: target customers, product and service offerings, and competitive positioning. These elements define the benefits the business provides, identify the target customers, and distinguish the company from its competitors. Second, the value architecture dimension, as outlined by Spieth & Schneider (2016), encompasses four elements: key competencies and resources, internal value creation, external value creation network, and distribution. These components define the necessary resources and competencies involved in creating a company's value proposition, the internal and external activities used in value creation, and the means

by which the value proposition is delivered to target customers. Finally, the revenue model dimension focuses on the mechanisms for generating revenue and managing costs. It explains how a company earns money, including the various revenue streams and cost structures involved (Spieth & Schneider, 2016). Clauss (2017) considered BMI as a multidimensional construct consisting of three dimensions:

- *Value creation innovation dimension* - specifies how and with what resources businesses generate value along the value chain, utilising the resources and capabilities of organisational processes.
- *Value proposition* innovation *dimension* - defines solutions for customers and the way of presenting the offer to end customers.
- *Value capture innovation dimension* - defines how the company generates revenues that cover costs and makes a profit.

According to Clauss (2017), BMI represents a change in each of these dimensions or at least in one of them. This paper aims to analyse the new value proposition dimension of BMI, which consists of the following subdimensions (Clauss, 2017):

- *New offerings* describe what a company offers to address its customers' issues or better fulfil their requirements and relate to the creation of a new product or service or the application of new technology.
- *New customers and markets* refer to new client groups or market segments in which the company provides its products or services. This dimension entails either redefining existing markets or entering new ones.
- *New channels* are associated with new methods of providing value to end users.
- *New customer relationships* imply a company's capacity to enhance or establish new relationships with its customers, given that these relationships are a key source of information regarding changes in the environment and market demands.

Hypotheses development

Numerous studies found that BMI is a key source of competitive advantage and business success for organisations (Guo et al., 2013). However, it is vital to recognise that strong abilities, talents, and competent managers are needed to develop a successful BMI (Anwar et al., 2019). Entrepreneurial competencies play a pivotal role in driving business success and fostering innovation. Pejic Bach et al. (2024) provide a comprehensive review of start-up research trends that highlight the increasing emphasis on entrepreneurial competencies in emerging business environments.

Previous research suggests that entrepreneurial skills and capabilities have a direct and positive impact on BMI. Anwar et al. (2019) discussed the importance of competencies in adapting businesses to a competitive environment. They confirmed that managers with extraversion, likeability, and openness to personal experience have a significant positive impact on BMI. Guo et al. (2013) empirically confirmed that the managerial and entrepreneurial skills and managerial connections of top managers significantly lead to BMI. When it comes to research on the impact of various entrepreneurial competencies on value creation, value proposition and value capturing within BMI, it can be noted that the number of studies is quite limited.

Business models are designed to achieve economic value by exploiting entrepreneurial opportunities (George & Bock, 2011). Managers contribute to this goal through the effective combination and design of internal and external resources to exploit opportunities (Zott & Amit, 2010). Pejic Bach et al. (2018) emphasise that entrepreneurial intentions and cognitive styles significantly influence an entrepreneur's ability to identify opportunities and drive innovation. Osiyevskyy and

Dewald (2015) found that the ability to perceive business opportunities has a positive impact on the intention to explore disruptive business models. Examining the impact of opportunity recognition and the mediating effect of BMI on performance, Guo et al. (2017) used a sample of 155 small and medium enterprises and concluded that opportunity identification alone does not guarantee the success of a company. The results of the study showed that BMI enables companies to capitalise on opportunities recognised by managers and improve their performance (Guo et al., 2017). The manager with expertise in research, development, and evaluation of high-quality opportunities in the market and environment would lead to the creation of innovative proposals for the company. Therefore, the following hypothesis is formulated:

- *H1: Opportunity recognition competence is related to the* company*'s new value proposition dimension of BMI.*

Entrepreneurial, analytical thinking represents one of the most important capabilities of a manager in the process of creating new value propositions within BMI. In a qualitative analysis of six case studies of horticultural companies in Finland, Eriksson et al. (2019) confirmed that entrepreneurial competencies - such as market identification, innovation, opportunity recognition, and strategy formulation, are the key internal drivers of BMI. According to the study de Freitas Michelin et al. (2023), entrepreneurial behaviours directly influence the ability to create and implement innovative offerings in technology-based ventures. Analysing the business models of leading companies such as Facebook and Lego, Foss and Saebi (2015) emphasised that entrepreneurial judgment is a necessary skill for managers in the process of implementing architecturally radical innovations of business models. Giesen et al. (2010) concluded that when creating a successful BMI, special attention should be given to the fostering of entrepreneurial thinking and judgment. A manager capable of effectively applying and implementing ideas can significantly contribute to the development of the company's new value propositions within BMI. Considering the above discussion, the following hypothesis is formulated:

- *H2: Analytical thinking is related to the* company*'s new value proposition dimension of BMI.*

Božić (2024) demonstrated that in organic agricultural enterprises, collaborative networks, such as associations of micro-producers, play a crucial role in overcoming resource limitations and driving innovation. Likewise, Bonazzi et al. (2023) argue that collaborative open innovation is essential for entrepreneurs seeking to navigate challenges related to accessing explicit knowledge, thereby fostering a more integrated innovation ecosystem. The manager who participates in and supports new ideas and creative processes is more likely to contribute to the company's new value propositions. Therefore, the following hypothesis is formulated:

- *H3: Innovativeness is related to the* company*'s new value proposition dimension of BMI.*

The manager's tenacity, which is manifested through the capacity to maintain goal-directed action and energy in the face of challenges, will impact the innovating process of BMI. Casino and Sloka (2023) found that competencies extending beyond profit-driven motives, such as empathy and social responsibility, can enhance organisational performance by generating shared value in the social entrepreneurship ecosystem. Similarly, Nguyen and Phan (2024) emphasise the role of environmental factors, such as self-efficacy and entrepreneurial role models, in shaping entrepreneurial intentions and behaviours. Therefore, the following hypothesis is formulated:

- *H4: Tenacity is related to the* company*'s new value proposition dimension of BMI.*

Passion for work encompasses the strengths and intentional emotions that individuals experience toward the various responsibilities and tasks involved in innovative processes (Dinibutun, 2024). Entrepreneurial passion enables business owners to recognise future opportunities through their enthusiasm (Snihur & Zott, 2020). In an empirical study of 389 manufacturing and technology companies from China, Zou (2022) found that entrepreneurial passion has positive and significant impacts on BMI and entrepreneurial learning, with entrepreneurial learning mediating this relationship. Managers who feel deeply connected to their work are more likely to develop new propositions of BMI for the company. Similarly, Dinibutun (2024) provides evidence that entrepreneurial passion significantly influences business model innovation, with curiosity serving as a moderator and entrepreneurial learning acting as a mediator. The findings suggest that curiosity amplifies the effect of entrepreneurial passion on innovation by fostering continuous learning and skill development, where entrepreneurial learning strengthens this relationship. Based on the discussion, the following hypothesis is formulated:

- *H5: Passion for work is related to the company's new value proposition dimension of BMI.*

Methodology

Data

The data for this research were collected by surveying the managers in active medium and large companies in Bosnia and Herzegovina. Following the practice of previous similar studies, top managers were selected as adequate respondents, given that they are familiar with the ideas and values within the organisation (Limaj & Bernroider, 2019). Large companies generally have more resources to invest in innovation, making them more capable innovators compared to small companies (Wagner & Hansen, 2005). Furthermore, Mol and Birkinshaw (2009) highlight that they have greater opportunities to implement new managerial practices. Damanpour (1992) emphasises that their more skilled and educated human resources enable them to generate the knowledge and experience necessary for innovation.

Using the database of the largest credit rating company in the country, which includes all registered active medium- and large-sized companies, the primary data were collected using an online questionnaire distributed to company managers through the Lime Survey software. This method of questionnaire distribution was chosen as it is the most commonly used data collection approach, relatively inexpensive, allowing quick and easy access to potential respondents while providing them with the flexibility to complete the questionnaire at a time and place that suits them best (Malhotra, 2015). An initial invitation to participate in the research was sent, followed by two reminders. While 1,358 individuals accessed the survey link, 321 completed the questionnaire. However, 54 responses were excluded during the data screening process due to missing values (Hair et al., 2018), resulting in 267 valid responses. This yields a final response rate of 19.65%.

The sample consisted of 267 medium and large companies with an average of 27.27 years in business (since the day of establishment). Eighty-five per cent of the companies were privately owned, 5% were state-owned, and 7% had mixed ownership. The study sample includes companies from diverse industries, ensuring a broad representation of different business sectors.

Research instrument and statistical analysis

The questionnaire was grouped into the following categories: entrepreneurial competencies, new value proposition of BMI, and demographic characteristics of the company and the respondents. The questionnaire was designed based on validated scales from previous studies. A seven-point Likert scale, ranging from (1) "strongly disagree" to (7) "strongly agree," was used to assess each item. Table 2. lists the items of variables used in this study.

Table 2
Measurement Items

Dimension	Indicators
Opportunity recognition	Identify goods or services customers want.
	Perceive unmet consumer needs.
	Actively look for products or services that provide real benefits to customers.
Analytical thinking	Apply ideas, issues, and observations to alternative contexts.
	Integrate ideas, issues, and observations into more general contexts.
	Monitor progress toward objectives in risky actions.
Innovativeness	Look at old problems in new ways.
	Explore new ideas.
	Treat new problems as opportunities.
Tenacity	I can think of many times when I persisted in work when others quit.
	I am able to work a lot more than most people I know.
	I am able to do challenging and demanding work for a long time.
	When something goes wrong, I always try to analyse the cause of the problem and approach its solution.
Passion for work	Most of the satisfaction in my life comes from the work I do.
	I often think about my job, even while doing other private life activities that have nothing to do with it.
	I find it difficult to get away from work to fulfil some other obligations.
	I work a lot because I love my job.
New offerings	We regularly address new, unmet customer needs.
	Our products or services are very innovative in relation to our competitors.
	Our products or services regularly solve customer needs, which competitors do not solve.
New markets	We regularly address new, unserved market segments.
	We are constantly seeking new customer segments and markets for our products and services.
New channels	We regularly utilise new distribution channels for our products and services.
	Constant changes in our channels have led to improved efficiency of our channel functions.
	We consistently change our portfolio of distribution channels.
New customer relationships	We try to increase customer retention by new service offerings.
	We emphasise innovative/modern actions to increase customer retention.
	We recently took many actions to strengthen customer relationships.

Source: Man at al. (2008), Baum & Locke (2004) and Clauss (2017)

The new value proposition of BMI construct included new offerings, new customers and markets, new channels, and new customer relationships. The measurement scale used in this study was adopted from Clauss (2017).

The entrepreneurial competencies construct included opportunity recognition, analytical thinking, innovativeness, passion for work, and tenacity. The measurement scales for opportunity recognition, analytical thinking and innovativeness were

adopted from Man et al. (2008), while tenacity and passion for work were measured using the scale developed by Baum & Locke (2004).

Since the measurement models of the observed constructs were adopted from previous studies, the next step in the analysis involved testing for internal consistency reliability and convergent and discriminant validity. After validating the measurement models, the structural equation modelling (SEM) technique was used to test the proposed structural model and its associated hypotheses. SEM provides the most efficient estimation technique for a series of separate multiple regression equations assessed simultaneously. It is characterised by the presence of a structural model along with multiple measurement models (Hair et al., 2014, p. 25). The path modelling approach, specifically the Partial Least Squares Structural Equation Model (PLS-SEM), is primarily used for developing theoretical foundations, with an emphasis on explaining the variance of dependent variables when estimating the model. SEM analysis emerged from researchers' need to incorporate multiple variables for a deeper understanding of their research domains. Structural equation models are represented through path diagrams, which researchers use to describe and explain their theories regarding relationships between variables (Hair et al., 2014, p. 27). The application of this technique in future research could significantly contribute to the analysis of intangible constructs (Shook et al., 2004).

Results

The PLS-SEM estimation technique was used for data analysis, with the following two steps: (i) the measurement model was evaluated; (ii) the analysis of structural relationships (hypotheses) was performed.

The analysed constructs were all first-order reflective, and the testing for internal consistency reliability, convergent and discriminant validity was performed. Reliability was tested using composite reliability (CR>0.7). Convergent validity was tested by checking factor loadings of all indicators (>0.7) and using the average variance extracted indicators (AVE>0.5) (Hair et al., 2018). Finally, discriminant validity was tested using the Fornell-Larcker criterion (Fornell & Larcker, 1981). This criterion was met when the square root of the AVE value was greater than its highest correlation with any other construct. In addition, the Heterotrait-Monotrait Ratio (HTMT) was checked with values below 0.9, indicating the determination of discriminant validity.

Table 3 shows the CR and AVE values; all CR values were greater than 0.7, and all AVE values were greater than 0.5, indicating the measurement model's reliability and convergent validity.

Table 3
Internal Consistency and Convergent Validity

	Cronbach's Alpha	rho_A	CR	AVE
Opportunity recognition	0.878	0.888	0.925	0.803
Analytical thinking	0.857	0.860	0.913	0.779
Innovativeness	0.857	0.859	0.913	0.777
Tenacity	0.893	0.895	0.921	0.701
Passion for work	0.849	0.855	0.898	0.687
New offerings	0.806	0.810	0.886	0.722
New markets	0.769	0.770	0.897	0.813
New channels	0.925	0.925	0.952	0.869
New customer relationship	0.827	0.829	0.896	0.743

Note: CR is composite reliability; AVE is the average variance extracted (AVE)
Source: Authors' illustration

Table 4 shows the square root of the AVE value on the diagonal, while the correlations of the constructs are below. As seen in the table, all values on the diagonal were larger than the correlation values, supporting the measurement model's discriminant validity. Finally, Table 5 demonstrates that all values were smaller than 0.9, which further confirms the discriminant validity.

Table 4
Discriminant Validity (Fornell-Larcker Criterion)

		1	2	3	4	5	6	7	8	9
1	**Analytical thinking**	**0.882**								
2	**Innovativeness**	0.715	**0.882**							
3	**New channels**	0.392	0.344	**0.932**						
4	**New customer rela.**	0.310	0.303	0.598	**0.862**					
5	**New markets**	0.357	0.415	0.663	0.688	**0.901**				
6	**New offerings**	0.289	0.360	0.548	0.728	0.701	**0.850**			
7	**Opportunity**	0.764	0.588	0.357	0.322	0.377	0.309	**0.896**		
8	**Passion for work**	0.519	0.534	0.332	0.306	0.309	0.224	0.465	**0.829**	
9	**Tenacity**	0.698	0.718	0.309	0.309	0.341	0.326	0.613	0.567	**0.837**

Note: The square roots of AVE are in bold font on the diagonal, and the correlations among latent constructs are in the lower right triangle
Source: Authors' illustration

Table 5
Discriminant Validity (Heterotrait-Monotrait Ratio (HTMT))

		1	2	3	4	5	6	7	8	9
1	**Analytical thinking**									
2	**Innovativeness**	0.832								
3	**New channels**	0.440	0.385							
4	**New customer rela.**	0.368	0.356	0.680						
5	**New markets**	0.439	0.510	0.784	0.860					
6	**New offerings**	0.348	0.431	0.636	0.893	0.890				
7	**Opportunity**	0.871	0.667	0.390	0.373	0.456	0.364			
8	**Passion**	0.602	0.620	0.369	0.359	0.375	0.266	0.523		
9	**Tenacity**	0.793	0.816	0.339	0.356	0.411	0.381	0.686	0.642	

Source: Authors' illustration

After confirming that the measurement model was reliable and valid, the next step was to evaluate the structural relationships. To start the PLS-SEM algorithm, the factor weighting scheme and the stop criterion parameter were set to 10−7 with 5000 maximum iterations was used. Bootstrapping with 5000 sub-samples was used as a nonparametric resampling technique to acquire the empirical t-values. Table 6 and Figure 1 present the results of the SEM-PLS testing.

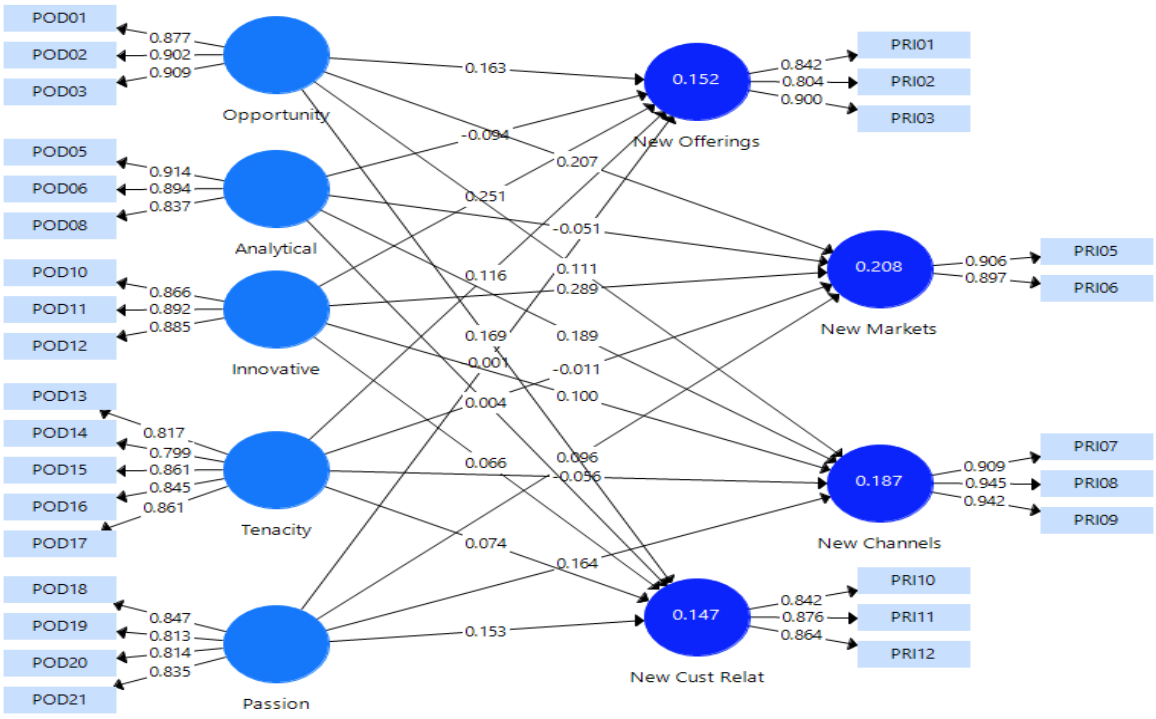
Table 6
Results of Hypotheses Analysis (Model 1)

	Original Sample (O)	Sample Mean (M)	St. Dev.	T-value	P-value
Opportunity -> New Offerings	0.163	0.170	0.105	1.551	0.121
Opportunity -> New Markets	0.207	0.203	0.093	2.218	0.027*
Opportunity -> New Channels	0.111	0.106	0.091	1.218	0.223
Opportunity -> New Customer Relat.	0.169	0.171	0.103	1.639	0.101
Analytical thinking -> New Offerings	-0.094	-0.089	0.123	0.762	0.446
Analytical thinking -> New Markets	-0.051	-0.043	0.112	0.458	0.647
Analytical thinking -> New Channels	0.189	0.179	0.113	1.672	0.095

Analytical thinking -> New Customer Relat.	0.004	0.013	0.116	0.032	0.974
Innovativeness -> New Offerings	0.251	0.246	0.101	2.476	0.013*
Innovativeness -> New Markets	0.289	0.291	0.099	2.930	0.003**
Innovativeness -> New Channels	0.100	0.106	0.103	0.973	0.331
Innovativeness -> New Customer Relat	0.066	0.067	0.100	0.665	0.506
Tenacity -> New Offerings	0.116	0.101	0.104	1.109	0.268
Tenacity -> New Markets	-0.011	-0.021	0.101	0.104	0.917
Tenacity -> New Channels	-0.056	-0.041	0.087	0.645	0.519
Tenacity -> New Customer Relat.	0.074	0.058	0.115	0.641	0.522
Passion -> New Offerings	-0.001	0.005	0.069	0.019	0.985
Passion -> New Markets	0.096	0.103	0.076	1.256	0.209
Passion -> New Channels	0.164	0.162	0.101	1.619	0.106
Passion -> New Customer Relat.	0.153	0.161	0.077	1.995	0.046*

Note: Two-tailed t-values; * statistically significant at 5%; ** 1%
Source: Authors' illustration

Figure 1
PLS-SEM Results



Source: Authors' illustration

Regarding the entrepreneurial competence to recognise opportunities, the results indicate a significant impact on new value proposition innovation in the domain of new market segments (t=2.218, p<0.05). In contrast, the impact on other factors was not significant. In other words, the ability to recognise opportunities was associated with new markets rather than new products, channels, or customer relationships. Analytical thinking had a significant influence on new channel innovation (t=1.672, p<0.1) while having no impact on other dimensions. Passion for work significantly contributed to the innovation of customer relationships (t=1.995, p<0.05) but did not affect other dimensions. Innovativeness had a positive effect on new offerings (t=2.476, p<0.05) and new markets (t=2.930, p<0.05).

The results indicate that opportunity recognition has a significant impact on the innovation of new markets as a dimension of new value propositions within BMI. This finding is consistent with previous studies, such as the work of Guo et al. (2017), which

suggest that the ability to recognise opportunities allows entrepreneurs to better capitalise on market opportunities within BMI. Business models often evolve in response to changes in the environment, meaning that opportunity recognition is particularly important when it comes to expanding into new markets (Casadesus-Masanell & Ricart, 2010). Regarding analytical thinking, this study confirms a significant impact on the innovation of new channels as a dimension of value proposition innovation within BMI. These findings align with the research of Eriksson et al. (2019)and Foss and Saebi (2015), which emphasise that analytical thinking and managerial judgment play a key role in the development and implementation of new business models. While passion for work did not affect other dimensions, its significance in the development of customer relationships is clearly evident. This may suggest that managers with high enthusiasm and emotional engagement can build better interpersonal relationships with customers, positively influencing business success in the customer relationship segment. This result is in line with previous research conducted by Zou (2022), who found that passion for work positively influences BMI and the process of recognising new opportunities, which can facilitate the innovation of customer relationships. Additionally, Dinibutun (2024) indicates that passion for work allows entrepreneurs to engage in the development and implementation of new value propositions, including customer relationships. The results of this study confirm that innovativeness had a positive impact on offerings and markets within the new value proposition dimension of BMI. These results confirm the findings of Giesen et al. (2010), who stress that innovation enables entrepreneurs to create new offerings and explore new market opportunities. Managers who can think outside the box and develop creative solutions often lead organisations to better business models that allow companies to differentiate themselves from the competition. The absence of a significant influence of tenacity on dimensions of new value propositions of BMI in this study is in accordance with the findings of Baum & Locke (2004), who argued that while tenacity does not directly contribute to new venture growth, it plays an important role in developing new resource skills that indirectly influence innovative process. It could be concluded that tenacity might strengthen other competencies, ultimately indirectly influencing BMI.

Our findings suggest that entrepreneurial competencies have different effects depending on whether they relate to market expansion, new channels, new customer relationships, or the development of new offerings. These findings indicate that success in BMI requires using the right mix of entrepreneurial competencies that adapt to the specific challenges and needs of the organisation in different dimensions of new value propositions within BMI.

Discussion and conclusion

Summary of research

The purpose of this study was to investigate the relationship between entrepreneurial competencies and new value propositions of BMI in the context of companies operating in a developing nation setting. We investigated entrepreneurial competencies of recognising opportunities, analytical thinking, innovativeness, tenacity, and passion for work, as well as their concurrent influence on individual dimensions of new value propositions of BMI, namely new offerings, new markets, new channels, and new customer relationships. We confirmed that each of the entrepreneurial competencies contributes significantly positively to one dimension of new value propositions, whereas innovativeness contributes to two dimensions.

Theoretical contributions

The results of this study confirm that entrepreneurial competencies represent a good predictor of organisational capability for innovating business models. We believe that a good manager possesses various entrepreneurial competencies and that their combination contributes to the new value proposition dimension of BMI.

Research results indicated that each dimension of entrepreneurial competencies contributed to one of the dimensions of new value propositions of BMI, whereas innovativeness contributed to two of the dimensions. An innovative manager will contribute to the development of new products and services, as well as to capturing new market segments by spotting opportunities. Analytical thinking will enable channel innovation, while passion for work will facilitate the creation of new customer relationships. Interestingly, tenacity did not have a significant effect on the new value propositions of BMI. The explanation for this finding might be due to the necessity to respecify the model, i.e., that tenacity is likely to contribute to the strengthening of other abilities, which in turn impact BMI indirectly. Similarly, Baum and Locke (2004) confirmed that tenacity does not contribute to new venture growth but that it significantly relates to new resource skills "*as the ability to acquire and systematise the operating resources needed to start and grow an organisation*" (Baum & Locke, 2004, p. 589).

By recognising opportunities, an innovative manager will help create new products and services and capture new market sectors, while analytical thinking will enable channel innovation. Passion for work will aid in the formation of new customer relationships. These findings are in line with previous research by Zou (2022), who found that managers who are passionate about their work increase customer satisfaction, which in turn leads to BMI.

Surprisingly, tenacity had no significant impact on BMI's new value propositions. This finding might be explained by the need to re-examine the interrelationships between various competencies of managers, i.e., that tenacity may contribute to the strengthening of other talents, which in turn impacts BMI indirectly. Baum and Locke (2004) confirmed that tenacity does not contribute to the growth of new ventures but that it is strongly related to new resource skills.

Practical implications

This study confirms that key entrepreneurial competencies are significant predictors of new value propositions within (BMI). Competencies such as opportunity recognition, analytical thinking, innovativeness, and passion for work enable managers to identify new market opportunities, recognise customer needs, develop new channels, and establish new customer relationships, thereby contributing to the creation of a new value proposition within the company's business model. Managers striving for above-average performance should dedicate significant time and energy to developing these competencies. Special attention should be given to the creation of educational programs that facilitate the development and enhancement of creativity and innovativeness, environmental scanning and analysis, effective resource combinations, and strategic and analytical thinking. These competencies enable managers to recognise market needs and identify ways to create innovations in the value proposition of BMI, which is crucial for long-term competitive advantage and sustainable organisational growth.

Limitations and future research directions

The study's limitations and recommendations for future research can be outlined as follows. First, this study tested causal relationships using cross-sectional data. Authors

recommend that future research employ longitudinal studies, which could provide deeper insights into the examined relationships and a better understanding of the dynamics of business model innovation over time. Moreover, since the results obtained did not indicate a significant effect of tenacity on the new value proposition dimension of business model innovation, future research should consider introducing moderators or mediators to investigate this relationship further.

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