



An Empirical Investigation of the Relationship between Knowledge Type, Organizational Learning, and New Product Launch Success

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Abstract- The primary purpose of this study is to observe the relationship between knowledge type, organizational learning, and new product launch success. The present study was conducted through positivism philosophy, and by employing RBV theory and double loop learning theory for framing the hypotheses. Furthermore, the study also employed a deductive approach, explanatory research design, and a quantitative methodology. In all, 211 samples were collected from the leather gloves industry in Sialkot Pakistan. Besides, the use of Smart-PLS and SPSS was used in analyzing and developing the model of the present study. As such, the outcome of the analysis revealed that all five hypotheses were supported. Based on this, it is hoped that this finding will assist the policymakers, the government of Pakistan, firms' owners, managers, as well as other stakeholders to formulate the succeeding policy and practice. Finally, it is recommended for further research to employ other organizational resource variables, which are not included in this study.

Keywords: knowledge tacitness, knowledge complexity, organizational learning, new product launch success (NPLS), new product development (NPD), RBV theory, double loop learning theory, leather gloves industry

I. INTRODUCTION

In a volatile business atmosphere where rises a requirement for legislative actions that are strategically premeditated, an organization will have to align its operations in a way that will enable it to meet the client needs and simultaneously stay competitive relative to the other players in the market (Grinstein, 2008). According to Wronka and Fraczkiwics (2016) in times of higher business unrest, there is need for organizations to interact proactively with customers to forecast, network with other players in the sector, be able to recognize and rollout new business opportunities, by applying new technology and launching new products to fulfill consumer preferences and requirements thus continuously creating customer demand. Upon identifying what the customers want, a firm should also orient itself to the market demands by producing products using appropriate technology (Matikainen et al., 2016).

Above all, the firm managers should have appropriate attributes relating to knowledge type (Jin et al., 2019). This implies that according to the knowledge management principles, a firm's competitiveness is determined by the interaction of the firm's knowledge, technology, market performance, and customer acceptance of new product launch success (Matikainen et al., 2016). Taking into consideration, for instance, the leather gloves industry in Pakistan account directly for a significant part of the economic development of Pakistan, it contributes \$ 874 million annually to the national economy (TDAP, 2019). This industry plays a substantial role in the economy adding 4 % to the GPD of Pakistan (TDAP, 2019). Therefore, the success of this industry fully depends on new product launch success given the life of the product is short (Hyder & Lussier, 2016). This is because it has been found that an association depends on knowledge type and organizational learning will lead to NPLS (Lee & Wong, 2011). Hence, the objective of the study is aimed to observe the effect of knowledge type and organizational learning on new product launch success.

II. EMERGING PROBLEM

The new product launch is significant for the corporate success of a firm (Cooper, 2019). Evaluating new product launch success and its influence on the business of an organization is a very complicated procedure. The new product launch is oxygen for the leather gloves industry contending in competitive markets due to the comparatively short product life cycle (Tzokasa et al., 2004). In Pakistan's leather gloves industry, lack of knowledge about the latest market trends and lack of development of new products with attractive designs and good quality is the main challenge that has become synonymous with a reduction of the existing product life cycle and the introduction of new products periodically has become a must to these firms (Khalid et al., 2017). As Li and Calantone (1998) suggested, for an organization operating under such an environment not to be squeezed from the market, they have to invest heavily in their research and development and seize the opportunities that using innovative tools to advance next-level products to not only develop appropriate strategies but to also be appropriately oriented as well. This long-lasting problem at the leather gloves industry in Pakistan has been viewed likely to continue in the future if enough attention is not given to it (Maqbool et al., 2018). However, knowledge type and organizational learning are very important variables that play a major role in new product launch success (Kim et al., 2012). Unfortunately, these factors are perceived to be missing at present in the leather gloves industry of Pakistan which have been viewed to be likely to continue as before in the future. Hence, the need to observe the effect of knowledge type, organizational learning variables on new product launch success is eminent.

III. GAPS IN THE LITERATURE

There is a huge bulk of studies observing the influence of a firm's organizational resources on new product launch (Schoenherr & Swink, 2015; Cooper, 2019; Langerak et al., 2004; Nadia et al., 2006; Judson et al., 2006; Suwannaporn & Speece, 2010; Keller, 2004; Verba, 1993), however, mostly ignored the influence of other organizational resources on NPLS. One of the widely organizational resources is strategic orientations represent profoundly embedded beliefs and values that yield assured actions that influence NPLS (Hakala, 2010) and guide the organizations to competitive advantage in the market (Pehrsson, 2016). Also, several studies that focus on a specific orientation or the direct effects of each respective orientation; disregard the consideration for the opportunity of knowledge type collaboration that has a various influence on new product positional benefit, managing knowledge collection in regards with the organizational resource is crucial for NPLS (Matikainen et al., 2016). Numerous studies highlighted that firm's requisite to improve its interior abilities and knowledge continues to expand its competitive set in the industry (Watanabe and Benton, 2017). Ensuing this concept, the literature demonstrates that organizational learning is an essential element for new product development (Grant, 1996; Appelbaum & Gallagher, 2000; Noruzy et al., 2012; Beyene et al., 2016; Wang & Ahmed, 2003).

Mu and Benedetto (2011) found that organizational resources enhance organizational marketing knowledge which leads to its financial success (NPLS). Tolsby (2018) perceives that organizational resources positively relate to NPLS. Organizational learning has rarely been tested as a mediator in prior research (Saban et al., 2000). This study will empirically test organizational learning as a mediator to fill the gap in the literature. Furthermore, there has not been much study conducted concerning the leather gloves industry in Pakistan. Establishing the relationship between knowledge type, organizational learning, and new product launch success is not yet established in developing countries like Pakistan. Based on this, the present research intended to fill this gap by investigating the relationship between knowledge type, organizational learning, and new product launch success in the Pakistani context.

IV. CRITICAL FACTORS OF KNOWLEDGE TYPE

Several characteristics of knowledge add difficulty to describe kinds of knowledge explicitly. Conventionally contradicting epistemological, cultural, and psychological types can be simply differentiated (Magnier-Watanabe & Benton, 2017). It is essential to identify what is destined by knowledge before the significance of knowledge could be assessed (Madhavan & Grover, 1998). The Epistemologists have had scuffled explaining the idea for ages, so far, a collectively acknowledged definition of knowledge has not been accepted. From the business point of view and for experimental research in knowledge-based view, some operating explanation of knowledge is essential. Smith & Bollinger (2001) propose that knowledge is a strategic resource of an organization. Grant (1996)

explains it as knowledge is the most strategically important asset of an organization. These concepts of knowledge could be regarded as an addition of RBV of an organization (Smith and Bollinger, 2001).

The experimental research mainly dedicated to the observation of knowledge as an asset only which belongs to the firm in a business context (Eisenhardt and Santos, 2001). Knowledge is a distinctive source of economic value and growth (Lodhi & Ahmed, 2010). The resources are classified by the knowledge they own it but not through their physical attributes or characteristics (Schoenherr et al., 2014). In business, economic development takes place when people take resources and reposition them as they become more worthy and add value to the firm (Goffin et al., 2010). Knowledge as a source of power, adds a great value to businesses (Lodhi & Kalim, 2002). But, the unrestrained administration of knowledge may not bring success to the firm. That is the reason; it is imperious to manage knowledge systematically. One of the great Austrian economists Von Hayek stressed the significance of knowledge in business. He took a stance that knowledge is persistent and priceless (Von Hayek, 1945). He then recommended that differences between several types of knowledge are required to be explored according to the nature of the business. In relevance to the leather gloves industry, this study will analyze two types of knowledge such as knowledge tacitness and knowledge complexity.

4.1 Knowledge Tacitness

Tacit knowledge viewed as a fundamental source for businesses that shows a major character on the ground, where employees build and utilize this sort of tacit knowledge in day-to-day routines and activities. The routines are essential features of effective manufacturing processes (Sandhu & Suppiah, 2011). Through RBV, largely by Penrose, 1959; Barney, 1991; Grant, 1996; Buckley & Casson, 2007; knowledge is regarded as the only discrete asset and a crucial differentiator and vital for firms to maintain their competitive advantage in the market (Kim et al., 2012). These references describe the necessity to comprehend and emphasis on the significance of KM, particularly tacit knowledge for greater success in new product launch success (Pathirage et al., 2007). Workers in firms are frequently unacquainted of the knowledge they own or are unable of conveying things to others, regardless of their experiences mentioned these problems, firms are gradually increasing their hunt for means to acquire on how to distribute and transmit tacit knowledge among their workers and groups and avoid loss of this information through worker turnover; since these employees are the central cause of knowledge tacitness and they are the signs of the success of NPL (Gubbins et al., 2012). The significance of such knowledge tacitness is vital for the leather gloves industry, who handle day-to-day actions, particularly once it needs critical decision making with their savoir-faire practices (Maqbool et al., 2018). Apart from this, these workers also build a decent communication forum with clients, dealers, and other shareholders, which are vital for a firm's stability. Therefore, leather gloves firms need to apply tactics for tacit knowledge administration in maintaining a higher product launch success rate.

4.2 Knowledge Complexity

To define complex knowledge with a huge amount of information but, in contrast, the definition of simple knowledge desires much less within the same context. Kogut & Zander (1992) describe the same idea, they do not describe complexity by the quantity of information however, the number of various skills or competencies encompass an action. Therefore, complexity considers the variations in the integration of various kinds of competencies, and the greater the number of competencies involving it, the more complex knowledge it becomes. Other writers define complexity as more alike to Simon's (1962). One of them is Hansen (1999), to him, knowledge complexity has two measurements involving knowledge dependency and the level of codification. Simonin (1999) who describes it as the number of codependent technologies, individuals, routines, and assets associated with a specific portion of complex knowledge. Leather gloves firms in Pakistan often are small and home-grown (TDAP, 2019). It means that diverse clans have complex understandings of what belief, value, obligation, and compliance mean to them. It makes it interesting to explore the knowledge complexity factor of the leather gloves industry that adds value to new product launch success.

V. RELATIONSHIP BETWEEN KNOWLEDGE TYPE AND NEW PRODUCT LAUNCH SUCCESS

In the prior research, many studies are signifying that firms applying tacit knowledge and complex knowledge practices are proficient in launching successful products and maintain sustainable competitive advantage as well (Cabarcos et al., 2019; Pereira et al., 2012; Pathirage et al., 2007). According to Rene 2001, if a firm is a family-owned or small business then, tacit and complex knowledge should be part of the business strategy (Nonaka and Toyama, 2003). This type of knowledge is emphasized as the difference

between each type of knowledge, with several views, have practical consequences for an organization which is in accordance with RBV theory (Cavusgil et al., 2003). To choose the combination of each type of knowledge being practiced among numerous phases of creation may rationally be anticipated to impact new product launch success. There is a practical example that recommends that a combination of tacit and complex knowledge, labeled as “a ‘focused codification strategy’, significantly helps knowledge inflows in the firm and thus supports to increase new product success (Schulz &Jobe, 2001).

Boisot (1995) says that family or small firms are a non-hierarchical set of restricted size firms performing on the foundation of common intangible knowledge and standards. These standards are implicit and well recognized by the employees of the firm, however, they are very tough to articulate. These firms often are small and home-grown, it means that diverse clans have different understandings of what belief, value, obligation, and compliance mean to them. If a clan is huge, it usually involves sub-clans due to the nature of physical propinquity. The firm procedure, entrenched in loyalty and trust, cannot cope with impersonal relationships. It does not drive that small firms do not use coded or other types of knowledge, certainly they do, however, the understanding of it is driven by tacit and complex knowledge type. In this regard, theoretical knowledge and other types of knowledge are mainly vague. This is the main reason for choosing tacit knowledge and complex knowledge for this study as we are focusing on the leather gloves industry in Pakistan which is mostly small or family-owned business.

Based on the above statement, the relationship between knowledge type and new product launch success in leather gloves industry of Pakistan must have to be put to test through the following hypotheses:

- *H1: Knowledge tacitness positively relates to new product launch success*
- *H2: Knowledge complexity positively relates to new product launch success*

VI. MEDIATING ROLE OF ORGANIZATIONAL LEARNING

Organizational learning is the procedure of converting personally gained knowledge into a firm’s owned knowledge (Levinthal & March 1993; García-Morales et al., 2012), and it helps firms avoid repeating previous inaccuracies (Sarin & McDermott, 2003). A precondition of OL is the allocation of knowledge that allows the business to adopt new and significant knowledge (Dibella, Nevis, & Gould, 1996). We debate that the knowledge desires to be adapted and transferred through double loop learning theory tools to effectively produce unique products (Liao et al., 2017). We, therefore, recommend that OL mediates the relationship between knowledge type and NPLS. Organizational resources, categorized with great levels of knowledge distribution and internalization, can syndicate with competitive pressures to permit entrance to diverse knowledge sources that drive to successful product development (Hansen, 1999).

Numerous studies highlight that firm’s requisite to improve their internal abilities and knowledge continues to expand their competitive setting in the industry (Alegre &Chiva, 2013) Ensuing this concept, research shows that OL is an essential element for new product development (Grant, 1996; Alegre &Chiva, 2013; Hansen et al., 2020). Senge (1990) found that organizational resources (knowledge type) enhance a firm's advertising proficiency and finally its financial success (Hansen et al., 2020). Strese et al. (2016) pondered into this idea, perceiving that organizational resources positively relates to NPLS. All in all, this study states that organizational resources also improve the invention output of NPLS functions, which can be anticipated to result in greater organizational performance. In the end, we forecast that practical elements can explore the knowledge they have added through OL in competitive intra-firm settings, which eventually increases the chances of successful product launch (Lin &Kuo, 2007). Thus, based on these findings, the following hypotheses were proposed:

- *H3: Organizational learning mediates the relationship between knowledge tacitness and new product launch success*
- *H4: Organizational learning mediates the relationship between knowledge complexity and new product launch success*

VII. RELATIONSHIP BETWEEN ORGANIZATIONAL LEARNING AND NEW PRODUCT LAUNCH SUCCESS

In today’s modern age and tough business environment, without the capability to identify the failures and fix them through double loop learning tools, knowledge may scarcely be transferred to new products as

anticipated (Zack et al., 2009). We postulate that knowledge encourages OL, which, in reply, improves an organizational performance in new product success. Prior research found that well-organized knowledge must be accompanied by a strong learning edge to enhance the capability of organizations to involve in inventive alterations (Coleman, 1990). OL is a central tool of innovation development since organizations can't produce comprehensions for technical progressions without its manifestation (Appelbaum & Gallagher, 2000). It is also critical for growth and survival in variability and uncertainty (Sinkula et al., 1997). OL can render an organization's capacity into the competency to reply more rapidly to marketplace variations than opponents do, hence leading in sustainable competitive advantage (Hurley & Hult, 1998; Suliyanto & Rahab, 2011). An entrepreneurially focused organization is always ready to take advantage of new product development prospects through learning from the market, experience, and other sources (Slater & Narver, 1998). And a networking-oriented organization constantly learns through its network

allies over time, thus being accessible to market signs and clients' needs and, eventually, collect high returns from new product development. OL guides to the reconfiguration of organizational structure and to the rearrangement of organizational assets to add to new product launch success (Lumpkin & Dess, 1996). As the procedure of introducing new products into the market requires an extensive modification from previous technology, high-class response and knowledge are questionably essential to the efficiency of new product development. They facilitate organizations to recognize suitable technological guidelines and actions in form of tacit or complex knowledge that is associated with industry tendencies and guide the industry towards NPLS (Jin et al., 2019). Therefore, based on the above statements, we formulate the following hypothesis.

- H5: *Organizational Learning positively relates to new product launch success*

VIII. THEORETICAL DEVELOPMENT IN PRODUCT LAUNCH SUCCESS

Beginning with the ground-breaking article by Wernerfelt (1984), the RBV of the firm has advanced from numerous academics' efforts. The central claim of those scholars with this view is that a company's resource endowment could be a source of rent generation when it categorized by the features of diverse information sharing among organizations in the business (Grant, 1991; Amit & Schoemaker, 1993; Dierickx & Cool, 1989; Barney, 1991; Peteraf, 1993). These assets have facilitated the firms to simplify that the most critical components of the resource endowment are not tangible like financial and physical assets and intangibles like reputation, human capital that has already been recognized in the conventional literature on strategic management (Lippman & Rumelt, 1982; Dosi & Marengo, 1993). Resources seem to be tradable in the marketplace (Barney, 1991) and some of them may be creative. In spite, rent comes mainly from capabilities that firms accrue over time, are sternly distinctive (Amit & Schoemaker, 1993). The capabilities object at coordinating and deploying several resources (Dierickx & Cool, 1989; Conner & Prahalad, 1996), exist in inherently intangible practices (Teece, 2016; Leonard-Barton, 1992; Grant, 1996). As capabilities are made of knowledge, their source is learning that occurs inside the firm (Nonaka, 1994; Teece, 2016). Explicitly, learning is prompted by problem-solving tactics stimulated by gaps between efficient and potential performance (Grant, 1991).

It initiates from the actions performed by individuals at workplaces (Amit & Schoemaker, 1993) in circumstances of complication, uncertainty, and disputes (Leonard-Barton, 1995) and involves social collaboration for the constant transformation of tacit and complex knowledge (Iansiti & Clark, 1994). Learning shapes capabilities persistent with the characteristics of rent generation, as its innovative nature consequences both from the history of the organization which is path dependence and from the place where it substantially takes place which refers to organizational specificity (Snow & Hrebiniak, 1980; Teece, 2016; Amit & Schoemaker, 1993). The resource-based view tends to implement these theoretical thoughts to the practice of the new product launch (De Brentani et al., 2010). The RBV explains that the existence of integrative and practical capabilities initiating from agents' actions is positively associated with process effectiveness assessed in terms of period taken and product efficiency linked to the fit with marketplace wants and product excellence (Kozlenkova et al., 2013). Maintained above usual returns come both from a procedure and from a new product launch that generates consumer value by its overall excellence and its capacity to fit with market requirements (Soni & Cohen, 2004).

In the field of new product launch, management processes grounded on regular and task-oriented announcements have been positively associated with the final performance of the firm (Leonard-Barton, 1992). As only explicit knowledge can be transferred, organizations need to accept the procedures of incorporating valuable tacit knowledge (Grant, 1996). In this regard, Nonaka (1991) noted that emulation and observation, known as the socialization of external technical specialists, are main ladders for acquiring such sort of knowledge, hence, making the new product launch successful. Correspondingly, Lansiti & Clark (1994) contend that external communication can partially manage the performance results of a new product launch, stating that product quality and time taken are predominantly related to the capability of combining new knowledge with the one that has already been gathered. Their study finds that through the empowerment of product managers at firms those known by a profound understanding of organizational goods and competencies can well achieve organizational objectives. The tacit knowledge could be transferred through culture. The formation of a research and development net grounded on solid formal relations to contractors, for example, is known to be a significant driver of new product launch success among Japanese companies (Nonaka, 1990). Also, Lansiti and West (1997) have stated that process effectiveness expanded in the 1990s by U.S. computer-based organizations is due to the engagement of complex knowledge from associations with different institutes (Brown & Eisenhardt, 1995).

Regardless of the undoubtedly vital role of processes, in recent research, scholars mostly emphasized on determining the influence of managerial systems and integrative structures. Lansiti (1997) and Pisano (1994) shown the combination of several internal sources of complex knowledge as the main driver of productivity. Moreover, Leonard-Barton claims that an organization can launch a product successfully by spreading the internal combination from the product team to the whole firm by limiting the hurdles and internal boundaries (Leonard-Barton, 1995). The same strategy could be applied in the case of leather gloves in Pakistan as it is difficult for leather firms to transfer the complex knowledge from one employee to the other (TDAP, 2019). In summary, the RBT views integrative and functional as the main driver of effective new product launch. In doing so, the model broadens the understanding of the management of product innovation by explaining a set of unique key factors affecting new product launch success which would also help to meet the objectives of this study in the leather gloves industry of Pakistan.

IX. THEORETICAL FRAMEWORK

By considering available literature, problems, gaps, and underlying theory stated above, the following framework (figure 1) is developed to base the present study.

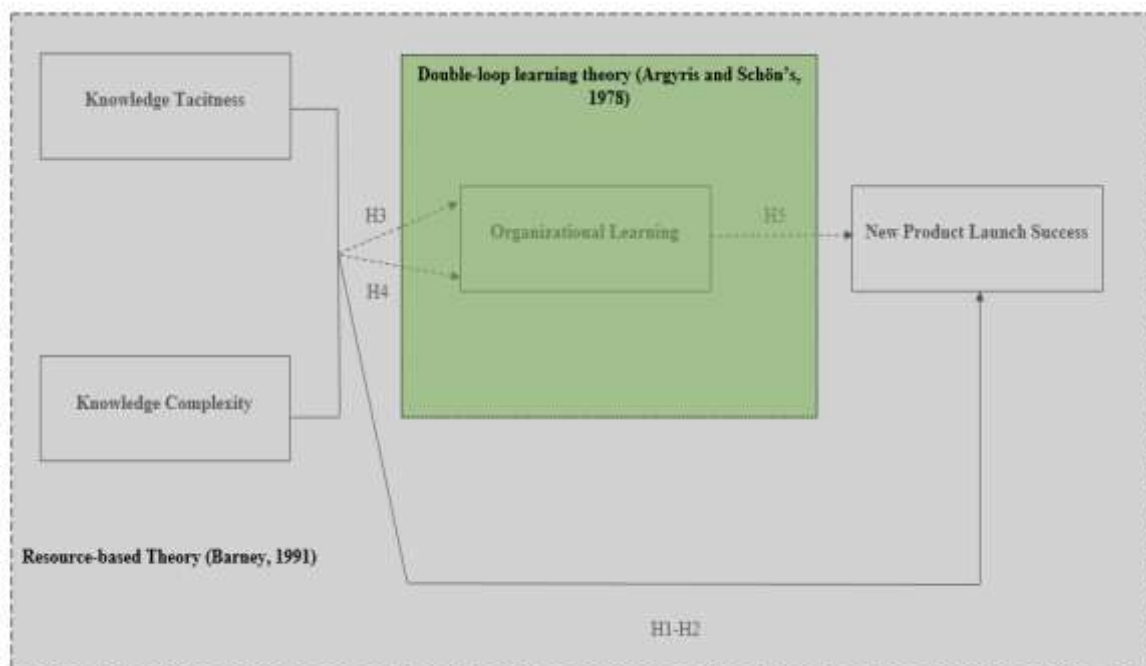


Figure 1: Theoretical Framework

X. RESEARCH METHODOLOGY

The present research is conducted under positivism philosophy, deductive approach, explanatory research design, and based on a quantitative methodology to measure all constructs of the model, which include knowledge tacitness, knowledge complexity, organizational learning, and new product launch success. Judgmental sampling technique is used in this study to select leather glove factories that fulfil criteria a) established for more than two years b) having new product launch in the last six months. There are 429 leather glove firms located in Sialkot city of Punjab (TDAP, 2019). The selected factory's product/project managers are then invited to fill the questionnaire as they have the knowledge about the new products that are being launched and new product performance in their organizations.

For researcher to determine the sample size for this study, G-power statistical software with a power of 0.95, $p < 0.05$, and an expected medium effect size of 0.15, was selected. Once $p \leq 0.05$ is achieved, researchers are assured that the results are actual (Van Voorhis & Morgan, 2007). Researchers can be 95% confident that the results indicate a non-chance finding with a significance level of 0.05 (Maccallum et al., 1996). Based on an effect size of 0.15, margin error of 5%, power of $(1 - \beta) = 95\%$, with 9 number of predictors (the maximum number of arrowheads into a construct) in the current study, power analysis indicated that the minimum sample size was 166 respondents with the power of 0.95 (Maccallum et al., 1996). In total, 429 questionnaires were segregated, and 228 questionnaires were collected from the respondents. However, only 211 questionnaires were usable for analyzing the research framework and 17 questionnaires were omitted due to missing values. To determine the respondents' degree of agreeableness, the questionnaire used a seven-point Likert scale, while the Smart-PLS is employed for hypothesis testing mainly for data analysis. Also, the descriptive analysis was carried out by using SPSS, to determine the demographic profile.

XI. ANALYSIS AND FINDINGS

Table 1 explains the respondents who participated in this study. Frequency analysis was employed to analyze demographic information. There were 42.7 % of the respondents from 31 to 35 years of age followed by 22.3% of those who were of 36 to 40 years' age. There were 91 % of male respondents and only 9% were female respondents. This huge difference is due to the male-dominant industry (TDAP, 2019). In terms of education, 68.7% of respondents had a bachelor's degree, while 23.7 % with a master's degree, and the rest of 7.6 % of respondents had a diploma in their field. A total of 66.8% of the respondents had the experience of 3 to 5 years in their respective firms. There were 46.9% of the respondents with firms age from 3 to 5 years and 44.1% with more than 5 years. In terms of the number of products launched in the last 2 years, 58.3% of the respondents reported that their firms launched 4 to 6 products in 2 years, however, 31.8% reported with 1 to 3 products. There were 57.8% of the respondents claimed their firms have launched 3 products successfully and 24.6% with 2 products. There were 87.2% of the respondents affiliated with consumer products, while 12.8% with commercial products in their respective firms. A total of 46.9% of respondents had 201 to 400 employees in their companies, while 37% with less than 200 employees.

Table 1: Respondents Profile

Category	Types	Frequency	Percentage (%)
Age	Less than 20 years	6	2.8
	21 to 25 years	6	2.8
	26 to 30 years	13	6.2
	31 to 35 years	90	42.7
	36 to 40 years	47	22.3
	More than 40 years	49	23.2
Gender	Male	192	91.0
	Female	19	9.0
Education	Diploma	16	7.6
	Bachelor's degree	145	68.7
	Master's degree	50	23.7
Experience	Under 2 years	40	19.0
	3 to 5 years	141	66.8
	6 to 8 years	24	11.4

	over 9 years	6	2.8
Company's age	Less than 2 years	18	8.5
	3 to 5 years	99	46.9
	More than 5 years	93	44.1
Number of Products Launched in Last 2 Years	1 to 3	67	31.8
	4 to 6	123	58.3
	More than 6	21	10.0
Successful Products	1	11	5.2
	2	52	24.6
	3	122	57.8
	More than 3	26	12.3
Product Type	Consumers	184	87.2
	Commercial	27	12.8
No of Employees	Less than 200	78	37.0
	201 to 400	99	46.9
	401 to 600	32	15.2
	Over 600	2	.9
	Total	211	100.0%

The proposed conceptual framework of the present study was tested using Smart-PLS 3.0. The composite reliability, factor analysis, and average variance extracted (AVE) of the variables as presented in Table 2 were tested to ensure the model is valid. Furthermore, no items were deleted as the factor loadings were in between 0.639 to 0.917 to fulfill the minimum threshold criterion of 0.50 (Chin, 1998). The composite reliability and AVE, as presented in Table 2 provided information regarding item reliability and validity. The composite reliability for all the items was in an acceptable range of reliability, which was above the cut-off value of 0.70 (Chin, 1998). For validity, the study revealed that the convergent validity for every latent variable was greater than the recommended value of 0.5 (50%), which indicated acceptable convergence of each construct (Fornell and Larcker 1981).

Table 2: Internal consistency and convergence validity results

Constructs/Items	Factor Loading	Cronbach's Alpha	CR	AVE
Knowledge Tacitness		0.832	0.881	0.652
KT1	0.862			
KT2	0.917			
KT3	0.766			
KT4	0.661			
Knowledge Complexity		0.711	0.837	0.633
KC1	0.770			
KC2	0.866			
KC3	0.745			
Organizational Learning		0.918	0.934	0.673
OL1	0.864			
OL2	0.874			
OL3	0.781			
OL4	0.890			
OL5	0.907			
OL6	0.757			
OL7	0.639			
New Product Launch Success		0.890	0.917	0.649
NPLS1	0.842			
NPLS2	0.869			
NPLS3	0.809			
NPLS4	0.867			
NPLS5	0.768			
NPLS6	0.658			

Additionally, discriminant validity reflects the actual distinctiveness of one construct from other constructs. The discriminant validity was measured by Heterotrait-Monotrait Ratio (HTMT). According to Henseler et al., 2016, the values of the HTMT must be lower than 0.90. However, in terms of the present study, the upper threshold value was 0.606 as shown in table 3 to comply with the discriminant validity because the value is lower than 0.90.

Table 3: HTMT results

Factors	KC	KT	NPLS	OL
KC				
KT	0.095			
NPLS	0.477	0.290		
OL	0.518	0.211	0.606	

Based on the above statement, all the requirements have been fulfilled and the criterion to test the present study relationships has also been achieved. According to Chin (1998), the bootstrapping procedure was done to estimate t statistics and confidence intervals. Table 4 and Figure 2 presented the path coefficient assessment result, where all the proposed hypotheses were supported. The supported hypotheses are statistically significant at least at the level of 0.05.

Table 4: Path coefficient results

Hypothesis	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision
H1: KT -> NPLS	0.194	0.058	3.318	0.001	Supported
H2: KC -> NPLS	0.199	0.073	2.740	0.006	Supported
H5: OL -> NPLS	0.459	0.069	0.616	0.000	Supported

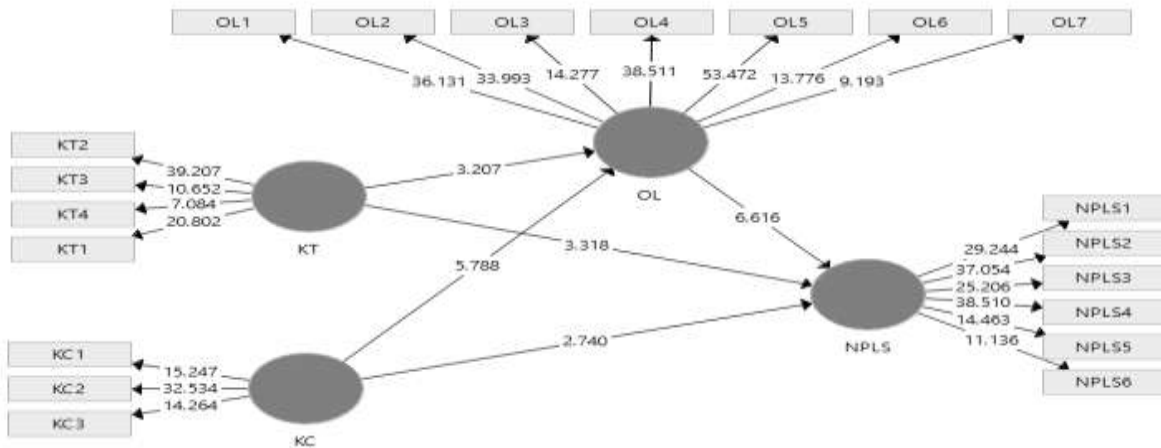


Figure 2: Structural Model (Bootstrapping with inner model t-values)

As shown in Table 5, organizational learning mediates the relationships between knowledge tacitness and new product launch success indicating hypotheses H3 is supported ($p < 0.05$). It also mediates the relationship between knowledge complexity and new product launch success supporting H4 ($p < 0.05$).

Table 5: Mediation results

Hypotheses	Relationships	Original Sample (O)	Sample Mean (M)	SD	t-value	p-value	Decision
H4	KC -> OL -> NPLS	0.190	0.198	0.045	4.196	0.000	Supported
H3	KT -> OL -> NPLS	0.107	0.117	0.043	2.466	0.014	Supported

XII. DISCUSSION ON THE FINDINGS

From the results of the present study, it is discovered that among the four predictors, the organizational learning factor is the most significant positive relationship towards new product launch success, which is also supported by the findings (Hsu & Fang, 2009; Kandemir et al., 2006; Mu & Di Benedetto, 2011). This is because; it is found that organizational learning plays a very vital role in new product launch success in the leather gloves industry of Pakistan. As it is found in existing literature, organizational learning is, of course, significant business and economic phenomenon that drives organizations towards new product success (Adams et al., 1998; Bendig et al., 2018)

The second most influential predictor is knowledge tacitness. This factor has a positive and significant effect on new product launch success which is also in line with the result of (Goffin et al., 2016; Venkatraman & Hill, 2001). Hence, the leather gloves industry of Pakistan will achieve new product launch success if they utilize tacit knowledge efficiently. Furthermore, the result also showed that knowledge complexity has a significant positive effect on new product launch success. This finding is in line with that of (Kim et al., 2012; Minguela-Rata et al., 2009; Xie et al., 2016). This delivers practical contributions primarily concentrating on product or project managers to increase the flow of formless knowledge by inspiring internal organizational knowledge distribution and application among NPL participants. This can boost the firm's confidence in launching the new product and will speed up the rate of NPLS.

The present study finds that organizational learning mediates a significant relationship between knowledge complexity and new product launch success. These findings are aligned with the result of Moilanen, (2001) and Garvin et al., 2008. Therefore, the leather gloves industry of Pakistan must ensure that complex knowledge is adequately stored and transferred to the employees by true means of organizational learning. Moreover, the study also finds that organizational learning mediates a significant relationship between knowledge tacitness and new product launch success. These results are in line with previous literature documented in the body of knowledge (Nevis et al., 1995; Senge, 1999).

XIII. CONCLUSION AND RECOMMENDATIONS

As such, the findings of the present study are worthwhile for all stakeholders, ranging from employees to employers of the leather gloves sector as well as several private firms to the government. Therefore, project/product managers should classify current resources in their firms, evaluate and recognize their worth, and completely utilize them in the strategy and implementation of a new product launch.

Furthermore, this study will encourage the Pakistani leather gloves producers to carry out steps for future preparedness in the competitive leather gloves market. Finally, the study recommends providing employees relevant knowledge & learning resources to achieve new product launch success. Thus, a practical implementation of the relevant knowledge type required to achieve NPLS can be well strategized and put into practice. Theoretically, this study has contributed to the body of knowledge by uncovering the causal relationship among knowledge tacitness, knowledge complexity as independent variables, organizational learning as a mediator, and new product launch success as the dependent variable. By incorporating the knowledge tacitness and knowledge complexity, the study confirms that these two organizational resources bring value to the business and better improve their new product launch success rate. Furthermore, knowledge type has been a constant correlator and predictor of NPLS in numerous settings, for example, in the R&D study context and the in-house NPL study context. Thus, to provide further understanding concerning this phenomenon, this research pushed the current frontier by linking knowledge type to NPLS and its survival. This research combined the resource-based view (RBV) theory and double loop learning theory to find ways to increase new product launch success in the leather gloves industry of Pakistan. The knowledge type of organizational resource, it is believed, raises the level of NPLS. Besides hypotheses testing, this study had fundamental objectives of generalization of the findings for future studies in a similar developing country context in the field of leather gloves industry. As such, comprehensive literature reviews, practical methodological tools, key findings, recommendations will also be helpful for future researchers. Finally, the study will be useful for not only practitioners and academics of Pakistan in the leather gloves sector but also globally as a whole in a similar non-west developing country context.

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