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Organizational Capital and New Ventures' Early Internationalization. The Case of Polish IT/ICT Start-ups

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The paper evaluates the phenomenon of early internationalization from the resource-competence-based theory viewpoint. At the same time, the conclusions are based on primary research results conducted on 220 Polish start-ups. Our study only confirmed that the start-ups' organizational culture, based on employees' financial support in acquiring new knowledge, and the start-up's planned international strategy play a crucial role in IT/ICT start-ups' early internationalization. Our study primarily contributed to the scientific discussion of start-up organizational capital and its role in the process of early internationalization. In the managerial field, our research implication for practitioners is that they should primarily focus on creating the right conditions for their employees to develop knowledge, which can consequently strengthen strategy creation processes.

Keywords: *International Entrepreneurship; Early Internationalization; Start-Ups; Organizational Culture; Strategy; Intellectual Property.*

Introduction

The literature on the subject shows a systematic increase in research on the internationalization of enterprises (Sekliuckiene, Sedziniauskiene, & Viburys, 2016; Sekliuckiene, Jarosinski, & Kozma, 2019; Butkeviciene & Sekliuckiene, 2022; Trapczynski, Mertens, Peters, & Barlozewski 2021; Szwajkosz, 2021; Żur & Walega, 2023). Particularly popular in academia is research carried out within the School of International Entrepreneurship (Bigos & Michalik, 2020), which emphasizes the vital importance of start-ups in early internationalization (Bigos & Pera, 2022). The firms' internationalization does not always flow in an incremental, or in other words, sequential way (Wach, 2021; Schweizer & Vahlne, 2022), but can also proceed in leaps and bounds. This phenomenon was observed around the mid-1990s and consequently contributed to the research intensification of early internationalization (Oviatt & McDougall, 1994).

Many of the considerations carried out within the framework of early internationalization theory are concerned with studying the role played by capital in a company. The importance in this case is not only financial capital but also intellectual capital (Bigos, Michalik, & Pera, 2022). According to many researchers, intellectual capital is called an intangible asset of a company, and it mainly includes human capital (Fernandez-Alles, Hernandez-Roque, Villanueva-Flores, & Díaz-Fernandez, 2022; Wach & Glodowska, 2021), organizational capital (Ulubeyli & Yorulmaz, 2020), and relational capital (Baier-Fuentes, Hormiga, Amorós, & Urbano, 2018). The intensive development of the Internet, and thus many digital platforms, has helped revolutionize the sale of start-ups and consequently accelerated international trade (Deng, Zhu, Johanson, & Hilmersson, 2022). Even if early internationalization is a recognizable research topic in the literature, it can also be observed that previous studies have not unambiguously answered many questions relating to the determinants of this phenomenon (Jiang, Kotabe, Zhang, Hao, Paul & Wang, 2020). So the research gap in the study contributes to the science of start-up internationalization by determining the impact of organizational capital on start-ups' propensity to internationalize early. The study is set in the Polish context as a country in the Central and Eastern Europe (CEE), and the resource-competence theory is taken as the point of analysis.

An in-depth and comprehensive understanding of companies' early internationalization behavior will only be possible with research that analyzes the phenomenon from different points of view. In the cognitive context, the relations between organizational capital and the start-ups' propensity to early internationalization are indicated, which may prove relevant for the contemporary study of international entrepreneurship in the (CEE) cultural context. As for methodological values, the study presents a research model of the early internationalization of start-ups that allows quantitative verification of the hypotheses. The research model will serve as a prelude to further consideration of the early internationalization of start-ups in a broader cultural context. In the pragmatic context, the paper focuses on understanding how organizational capital can stimulate the early internationalization propensity of start-ups and thus build competitive advantages in foreign markets. This will make it easier for business practitioners to make optimal decisions on measures to support the international development of the broader organization. In contrast, in the context of the country's economic policy, it will make it easier for policymakers to create conditions for developing early internationalized start-ups at the institutional level.

The article focuses on the start-ups' early internationalization, which is understood as firms' foreign expansion within 4 years after their establishment (Hewerdine & Welch,

2013). In the research, start-ups are micro and small firms that become international by exporting or entering foreign markets. The research focuses on information-and-communications-technology-based (IT/ICT) start-ups, an industry of recent interest to many researchers (i.e., Sabatini, Cucculelli & Gregori, 2022). This paper aims to verify organizational capital's impact on start-ups' early internationalization. The first part of the paper is theoretical, in which we reviewed the literature and introduced the research hypotheses. In the empirical part, we verified hypotheses based on the results of Polish IT/ICT start-ups. We attempted to prove that organizational capital is essential in explaining early foreign expansion. To do so, we used binomial regression models that verified the hypotheses in the article.

Literature Review and Hypotheses Development

New Ventures Internationalization

Research on enterprise internationalization systematically appeared in the literature around the 1960s. Since the early 1990s, research on small and medium-sized enterprises (SMEs) has intensified (Wach, 2012). One of the widely known models of enterprise internationalization that can also be used to analyze the behavior of SMEs is the model presented by Johanson and Vahlne (1974), namely the Uppsala model of internationalization. The school contributed to developing the internationalization theory of SMEs of international entrepreneurship, whose representatives are Oviatt and McDougall (1994). The researchers defined international new ventures (INV) s international start-ups (Oviatt & McDougall, 1994). Attention to this type of venture has contributed to increased research on early internationalization, which proceeds differently from previously known traditional sequential models (Schweizer & Vahlne, 2022).

Research on early internationalized start-ups is justified mainly due to the deepening liberalization. Due to the dynamic development of technology bringing down the cost of firms' international operations, it can be observed that access to individual markets is much easier than it was just a few decades ago (Knight & Cavusgil, 2005). The internationalization of start-ups occurs quickly and proactively shortly after they begin operations, which opposes explicit process theories that emphasize the importance of a slow internationalization based on a stable domestic market. Their development occurs gradually, and knowledge is critical in the preliminary internationalization phase (Schwens *et al.*, 2010).

Current thinking on international entrepreneurship suggests that many start-ups focus on exploring tangible and intangible resources overseas, as their availability in the domestic market is significantly limited (Bishop, 2008). Nonetheless, it is difficult for start-ups to acquire the resources needed for survival and internationalization mainly because they are usually unknown to the public (Zahra, 2005).

Organizational Capital and Early Internationalization

Intellectual capital plays a unique role in building the international success of start-ups (Korsakiene, Liucvaitiene, Buzavaite & Simelyte, 2017). Even though, over the past decades, intellectual capital has been a constantly analyzed topic by researchers of the world, it can be observed in the literature a kind of lack of consensus on its definition and components (Choo Huang, Luther, & Tayles, 2007). This is because intellectual capital is a multidisciplinary concept, the understanding of which varies in business-related papers depending on the taken viewpoint. For example, according to the OECD, intellectual capital is the economic value of two categories of intangible assets of a company: human capital and organizational capital (Choo Huang *et al.*, 2007). Edvinsson (1997) states that intellectual capital is expressed primarily in a company's knowledge, experience, technology, or customer relationships. This, in turn, coincides with Calza et al. (2014), who equate it with "the knowledge and cognitive capacity of a social collective." Nadeem (2020) argues that intellectual capital is the core of any company's competitive advantage and innovation. Moreover, many scientific theories indicate that expressed in the form of organizational knowledge is crucial to companies' survival and success over time.

Organizational capital owned by an organization is one component of intellectual capital. It is used to support employees in learning new things. Organizational capital is sometimes also referred to as structural capital, as it refers to assets in an organization that are not dependent on individuals (i.e., processes, patents, and software systems). Many researchers argue that organizational capital refers to knowledge embedded in organizational processes and structures (Seetharaman *et al.*, 2004; Hsu & Wang, 2012; Nawaz *et al.*, 2021). According to Ulubeyla and Yorulmaz (2020), it supports an organization's human resources and knowledge, which can be embedded in business development plans and corporate strategy. It is common in the literature to find a division of organizational capital into two elements: (1) organizational process and (2) information systems (Hsu & Wang, 2012). In this case, the organizational process refers to how people use the information or knowledge resources available in the workplace. In contrast, information systems refer to the information technology used in knowledge management.

Within the organizational capital, organizational culture and information technology capabilities are significant and can be a source of early internationalization (Zhang & Tansuhaj, 2007). On the other hand, Kumar and Sharma (2018) emphasize that the propensity for early internationalization may depend on a solid organizational culture. According to the researchers, a sharing-based culture is vital in this regard, as it can encourage employees to take advantage of the start-up's networks, which can further facilitate access to resources and sharpen employees' alertness to opportunities in foreign markets. Furthermore, Kumar and Sharma (2018) noted that the organizational culture of early internationalized start-ups characterized by continuous learning among employees positively relates to their propensity to internationalization. In turn, the team of Korsakiene, Liucvaitiene, Buzavaite, and Simelyte (2017), based on the results of their research conducted among representatives of business and academia, concluded that, among other things, product technologies and the process of strategy formation could play a vital role in the process of internationalization of ventures.

H1: Start-ups whose organizational culture is based on financial support for employee education are more likely to internationalize early than those without such organizational culture.

Many researchers have confirmed that the strategy of a new venture can be fundamental in explaining the process of early internationalization (Sui & Baum, 2014). Typically, internationally-oriented start-ups develop differentiated products or services (Jiang et al., 2020). Jiang et al. (2020) also note that much of the research on the early internationalization of start-ups notes that these companies typically operate in high-tech industries. The internationalization of start-ups occurs quickly and proactively shortly after they begin operations, which opposes explicit process theories (Schwens *et al.,* 2010). Early internationalized start-ups must be better prepared to operate in a given destination market in terms of international and diversification strategies. Consequently, strategically-oriented start-ups that internationalize early perform significantly better than traditional companies (Jantunen *et al.,* 2008). Therefore, we hypothesize:

H2: Start-ups that (a) have international development strategy or (b) implement differentiation strategy are more likely to internationalize early than those which have not.

In terms of organizational capital, some researchers suggest that protecting intellectual property rights (IPR) can significantly benefit more export-oriented firms in developing technological innovations (Cho & Kim, 2017). In contrast, the other scientists argue that trademark registration is domain of better-performing firms which are more present in international markets (Rienda *et al.,* 2021). Gassmann and Keupp (2007) emphasize similar viewpoint of IPR protection importance for start-ups' early internationalization. Therefore, Chetty and Campbell-Hunt (2004) note that innovation strategy is a significant driver of early internationalization among start-ups. They also have a clear marketing strategy, including branding and intellectual property protection (Chetty & Campbell-Hunt, 2004). Thus, we can hypothesize that:

H3: Start-ups with at least one patent/trademark and/or copyright registered are more likely to internationalize early.

Based on the literature review, we verify the hypotheses related to Polish start-ups founded between 2017–2021.

Methods

Sample and Data Collection

In the article, we applied the quantitative method. We surveyed between March and April 2022 (preliminary CAWI survey) and between May and June 2022 (primary CATI survey) 220 Polish start-ups founded between 2017 and 2021. Our paper considers start-ups as any young, innovative venture in the information and communication technology (IT/ICT) industry. In the references, there is no formalized definition of start-ups, but there are many attributes, and most of them comply with start-ups' high degree of innovation. In the survey, we considered only those firms that were active micro and small enterprises operating in the IT/ICT industry. The definition of micro and small firms complied with the European Commission's definition. Similarly, the definition of industry was in line with Eurostat, where IT/ICT industry is classified under two categories of the NACE Rev. 2. code: (1) IT/ICT Manufacturing (26.1, 26.2, 26.3, 26.4, 26.8), and (2) IT/ICT Services (58.2, 61-62, 63.11).

Table 1

Sample Statistics

Variable	N	Min	Max	Mean	SD
1. EARLY_INT	220	0	1	0.43	0.496
2. GENDER	220	0	1	0.79	0.411
3. AGE	220	18	55	35.68	7.785
4. R_D	220	0	1	0.47	0.5
5. INNOV_PROD	220	1	5	3.56	1.588
6. INNOV_B_PROC_	220	1	5	3.21	1.643
7. ORG_CULT	220	0	1	0.65	0.477
8. INT_STRAT	220	0	1	0.42	0.494
9. DIFF_STRAT	220	0	1	0.55	0.499
10. INTEL_PROP_RIGHT	220	0	1	0.29	0.455

Source: own elaboration

We conducted the preliminary survey using the Computer-Assisted Web Interview method among all micro and small Polish firms operating in the IT/ICT industry. The selection was done in the ORBIS database, which provides comprehensive information on several hundred million private and public companies worldwide. In the next step, we request the selected firm via e-mail to complete the online survey questionnaire. Consequently, we received 45 responses. Further research happened between May and June 2022, when we conducted a survey using the Computer Assisted Telephone Interview method among 200 randomly selected start-ups from the ORBIS database under the abovementioned criteria. We remain 220 records in the analysis as we must have eliminated outliners.

In our sample, ca. 27 % of firms were established in 2017, around 29 % in 2018, 21 % in 2019, 16 % in 2020 and 7 % in 2021. Nearly 90 % of the start-ups analyzed are companies with a turnover of less than 2 millions EUR, while the rest

exceed this amount. The average annual growth in sales revenue of the firms is ca. 79 % (median=30 %).

Research model

We apply a binomial logistic regression model (Hosmer, Lemeshow, & Sturdivant, 2013) to verify dependence between endogenous variable describing propensity to early internationalization and exogenous variable describing organizational capital (see table 2). The logit model allows the application of the logit transformation (logarithms of odds) to the proportion of responses. The dependent variable in logit models is a dummy (dichotomous) (Hosmer *et al.*, 2013), where when measured phenomenon occurs then 1 is assign, but if otherwise then 0 (McCullagh & Nelder, 1989; Sperandei, 2014).

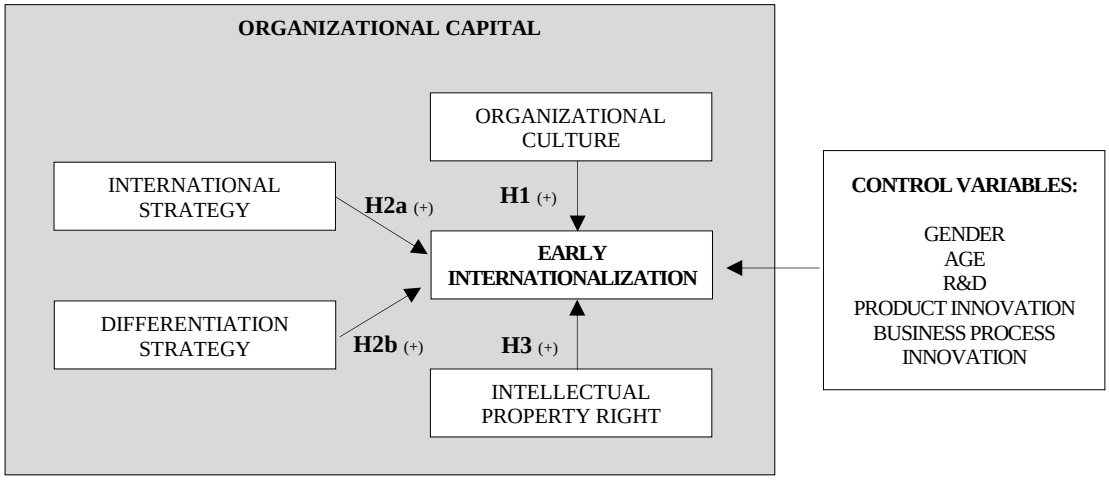

Figure 1. Proposed Research Model

Source: own elaboration.

The proposed research model (see figure 1) suggests a positive relationship between selected organizational capital components (independent variables) and start-ups' early internationalization (dependent variable). We included into our analysis five control variables. We assume that both endogenous and dependent variables are positive in all cases. In our research, we distinguished those ventures which are internationalizing early and those which are focusing only on the domestic market.

Measures

Dependent Variable

In our research (see figure 1), the dependent variable is the early internationalization (EARLY_INT) measured dichotomously. If proper start-up realized first foreign sales in a span of four years since inception (see table 2), we assign number 1. While the venture focused on selling its goods or services only on the domestic market (without any international operations), we assigned the number 0. Early internationalization understand, e.g. Li, Qian, and Qian (2012), Hewerdine and Welch (2013), Zucchella et al. (2007) or Santhosh (2019). In our sample, 94 (43 % of total sample) start-ups were early internationalized, while 126 (54 % of total sample) were considered domestic-focused firms.

Table 2

Description of Model Variables

Measure	Definition	Possible value
Dependent variable		
Early internationalization (EARLY_INT)	Does the start-up realize any foreign sales within four years since inception?	Dummy variable: 1- yes 0 – no
Independent variable		
Organizational culture (ORG_CULT)	Does the start-up financially support its employees' education?	Dummy variable: 1- yes 0 – no
International strategy (INT_STRAT)	Does the start-up have a well-thought-out strategy for international business development?	Dummy variable: 1- yes 0 – no
Differentiation strategy (DIFF_STRAT)	Does the start-up offer a differentiated product/service for specific customer segments?	Dummy variable: 1- yes 0 – no
Intellectual property right (INTEL_PROP_RIGHT)	Does the start-up have at least one registered patent/trademark and/or copyright?	Dummy variable: 1- yes

Measure	Definition	Possible value
		0 – no
Control variable		
Gender (GENDER)	Gender of main founder	Dummy variable: 1 – man 0 – woman
Age (AGE)	Average age of founder(s)	Continuous variable
Research and development (R_D)	Does the start-up conduct R&D activities?	Dummy variable: 1- yes 0 – no
Product innovation (INNOV_PROD)	Over the past months/years has the start-up implemented any product innovation?	Ordinal variable: 1 – definitely not 2 – rather not 3 - neither yes nor no 4- rather yes 5 – definitely yes
Business process innovation (INNOV_B_PROC)	Over the past months/years has the start-up implemented any business process innovation?	Ordinal variable: 1 – definitely not 2 – rather not 3 - neither yes nor no 4- rather yes 5 – definitely yes

Source: own elaboration.

Independent Variables

Our analysis includes four independent variables: organizational culture (ORG_CULT), international strategy (INT_STRAT), differentiation strategy (DIFF_STRAT), and intellectual property right (INTEL_PROP_RIGHT). Organizational culture is measured by whether start-up financially supports its employees' education. This variable is dummy, meaning that if start-ups support such activity, we assigned number 1; if not, number 0. It is comply with, i.e. Kumar and Sharma (2018). Another variable is international strategy, which is also dummy. In our analysis, we assign number 1 to whose start-ups mentioned that they have international strategy. In other cases, we assign number 0. This variable was also used, i.e., by Onkelinx, Manolova, and Edelman (2016). Penultimate variable used in analysis is differentiation strategy. This variable verifies whether each start-up offers a differentiated range of products/services to specific customer segments. If start-up confirmed this fact, we assigned number 1 then, otherwise we assigned 0. According to Jiang et al. (2020) such variable can be used as independent variable. Finally, intellectual property right verifies if each start-up has at least one registered patent/trademark and/or copyright in a different organization. If answer was positive, we assigned number 1, if not, then number 0. This variable is complied with, i.e., Rienda et al. (2021) and Gassmann and Keupp (2007).

Control Variables

We included several control variables that could potentially impact the results. First, we control gender as we claim that men are more proponed to develop new international business directions than women due to higher risk propensity. Opposite to men, women have higher aversion to risk which is not desired in conducting international business. Women are less willing to take over risky duties than men, which is confirmed in different studies (e.g., Diaz-Garcia & Jimenez-Moreno, 2010; Zhang, Duysters, & Cloodt, 2014). Next control variable we used in the analysis is age, as we assume that elder top managers may identify an entrepreneurial opportunity quicker than younger ones due to their professional experience (Reuber & Fischer, 1999; Zucchella *et al.*, 2007). If there were more than one founder, then the arithmetic average of their ages was calculated. Another control variable used in the analysis is R_D as some research demonstrates a positive association between research and development spending and early internationalization (e.g., Fernhaber & Li, 2013; Sheppard & McNaughton, 2012). Finally, we control product innovation (INNOV_PROD) and business process innovation (INNOV_B_PROC) as we assume there is a link between innovation and internationalization. Product innovation is a new or improved product or service that differs significantly from the company's existing products or services and that has been introduced to the market within the past months or years. Whereas business process innovation is understood as a new or improved business process for one or more business functions that differs significantly from existing business processes of the enterprise, and which has been put into use by the firm. Both types of innovation could be closely related to start-ups' early internationalization. In the literature, we could find various empirical research which confirm the relationship between the firm's internationalization process and the level of innovativeness (e.g. Lachenmaier & Woßmann, 2006, Wach, 2016, Moreno-Menendez, 2018).

Results

We checked credibility of binomial logistic regression model using two criteria: (1) likelihood ratio test estimated with the maximum probability, and (2) Hosmer-Lemeshow test. The first test should be statistically significant, while in terms of second test desired output is statistical insignificance (Hair, Anderson, Tatham, & Black, 1998). According to the first logistic regression model we can observe that likelihood ratio test is statistically significant (chi-square=56.820, df=9, $p<0.001$), while Hosmer-

Lemeshow test is statistically insignificant (chi-square=11.706, df=8, p=0.165). The same situation occurs in model 2 (likelihood ratio test: chi-square=35.752, df=6, $p<0.001$; Hosmer-Lemeshow test: chi-square=10.522, df=8, p=0.230), model 3 (likelihood ratio test: chi-square=51.033, df=6, $p<0.001$; Hosmer-Lemeshow test: chi-square=3.007, df=8, p=0.934), model 4 (likelihood ratio test: chi-square=28.459, df=6, $p<0.001$; Hosmer-Lemeshow test: chi-square=5.273, df=8, p=0.728), and model 5 (likelihood ratio test: chi-square=28.769, df=6, $p<0.001$; Hosmer-Lemeshow test: chi-square=4.426, df=8, $p=0.817$).

In research discussion, some researchers consider that the coefficient of determination *R*-square is not an adequate measure of the quality of model adjustment to variables and is not recommended (Blomstermo, Deo Sharma, & Sallis, 2006). Researchers suggest using Nagelkerke Pseudo *R*-square or Cox-Snell Pseudo *R*-square (Smith & McKenna, 2013). They claim that both measures are better than simple *R*-square. In the first model Nagelkerke Pseudo *R*-square is 0.306, while Cox-Snell Pseudo *R*-square is 0.228. In the second model, whose measures are 0.201 and 0.150, respectively. Regarding the third model 3, Nagelkerke Pseudo *R*-square is 0.278, but Cox-Snell Pseudo *R*-square equals 0.207. Based on the fourth model Nagelkerke Pseudo *R*-square is 0.277, while Cox-Snell Pseudo *R*-square is 0.208. In the last model, Nagelkerke Pseudo *R*-square is 0.165, but Cox-Snell Pseudo *R*-square is 0.123.

We also calculate *V*-Cramer coefficient between the variables used in the analysis (see table 3). It could be observed that EARLY_INT is relatively well related to INT_STRAT ($v=0.385$, $p<0.001$), INNOV_B_PROC ($v=0.283$, $p<0.001$), ORG_CULT ($v=0.202$, $p<0.01$), R_D ($v=0.184$, $p<0.01$), whereas relatively lower linked to GENER ($v=0.024$) and INTEL_PROP_RIGHT ($v=0.027$).

In the first model, which includes five control and four independent variables, we verify all hypotheses in the article. We check whether organizational capital altogether affects on early internationalization. In this model, we could observe that among control variables GENDER is statistically insignificant (coeff.= 0.128, Wald=0.104, odd ratio=1.137). Similar situation occurs in terms of AGE (coeff.= -0.032, Wald=2.205, odd ratio=0.969). The situation is different in R&D (coeff.= 0.836, Wald=5.778, odd ratio=2.306, $p<0.05$), which is statistically significant. The same with PRODUCT INNOVATION (coeff.= -0.217, Wald=3.201, odd ratio=0.805, $p<0.1$) and BUSINESS PROCESS INNOVATION (coeff.= 0.319, Wald=8.757, odd ratio=1.376, $p<0.01$). Among independent variables explaining the start-ups' early internationalization both ORG_CULT (coeff.= 0.703, Wald=3.943, odd ratio=2.019, $p<0.05$) and INT_STRAT (coeff.= 1.461, Wald=19.397, odd ratio=4.309, $p<0.001$) are statistically significant, while DIFF_STRAT (coeff.= -0.067, Wald=0.041, odd ratio=0.935) and INTEL_PROP_RIGHT (coeff.= -0.457, Wald=1.562, odd ratio=0.633) are statistically insignificant.

Table 3

***V*-Cramer Coefficient**

	1	2	3	4	5	6	7	8	9	10
1. EARLY_INT	1									
2. GENDER	0.024	1								
3. AGE	0.359	0.422	1							
4. R_D	**0.184****	0.067	0.377	1						
5. INNOV_PROD	0.158	0.064	0.404	**0.389*****	1					
6. INNOV_B_PROC	**0.283*****	0.169	0.412	0.168	**0.377*****	1				
7. ORG_CULT	**0.202****	**0.145***	0.325	0.068	0.106	0.099	1			
8. INT_STRAT	**0.385*****	0.037	0.338	**0.164****	**0.255****	**0.365*****	**0.170****	1		
9. DIFF_STRAT	0.042	0.070	0.406	**0.122 †**	0.095	0.134	**0.246*****	0.045	1	
10. INTEL_PROP_RIGHT	0.027	0.032	0.390	**0.241*****	**0.257****	0.099	0.023	**0.127 †**	**0.125 †**	1

*Significance: † p<0.1, * p<0.05, ** p<0.01, ***p<0.001*

Source: own calculations in SPSS.

In the second binomial logistic regression model, similarly to model 1, we could observe that GENDER (coeff.= 0.237, Wald=0.404, odd ratio=1.268) and INNOV_PROD (coeff.= -0.143, Wald=1.637, odd ratio=0.867) are statistically insignificant, while rest of control variables are significant. Compared to model 1, the significance of both R_D and INNOV_B_PROC is slightly more enhanced. We could also observe that ORG_CULT is statistically significant (coeff.= 0.886, Wald=7.374, odd ratio=2.426, $p<0.01$). In model 3, we could observed that INT_STRAT variable is statistically significant (coeff.=1.501, Wald=21.675, odd ratio=4.485, $p<0.001$), while DIFFERENTIATION STRATEGY in the model 4 is not statistically significant (coeff.= 0.185, Wald=0.389, odd ratio=1.203).

Table 4

Binomial Logistic Regression Model

	Model 1		Model 2		Model 3		Model 4		Model 5	
	Exp (*b*)	Wald	Exp (*b*)	Wald	Exp (*b*)	Wald	Exp (*b*)	Wald	Exp (*b*)	Wald
Const.	0.408 (1.033)	0.756	0.452 (0.964)	0.677	0.754 (0.964)	0.086	0.756 (0.944)	0.087	0.804 (0.925)	0.056
GENDER	1.137 (0.398)	0.104	1.268 (0.373)	0.404	1.019 (0.385)	0.002	1.129 (0.366)	0.109	1.112 (0.367)	0.084
AGE	0.969	2.205	**0.961***	**3.877**	**0.966 †**	**2.738**	**0.964 †**	**3.42**	**0.966 †**	**2.942**

	Model 1		Model 2		Model 3		Model 4		Model 5	
	(0.021)		**(0.02)**		**(0.021)**		**(0.02)**		**(0.02)**	
R_D	**2.306* (0.348)**	**5.778**	**2.166** (0.324)**	**5.702**	**2.245* (0.336)**	**5.809**	**2.337** (0.319)**	**7.059**	**2.408** (0.324)**	**7.354**
INNOV_PROD	**0.805 † (0.121)**	**3.201**	0.867 (0.112)	1.637	**0.77* (0.119)**	**4.805**	0.843 (0.11)	2.413	0.848 (0.11)	2.221
INNOV_B_PROC	**1.376** (0.108)**	**8.757**	**1.47*** (0.102)**	**14.261**	**1.386** (0.107)**	**9.317**	**1.48*** (0.101)**	**15.086**	**1.487*** (0.101)**	**15.475**
ORG_CULT (H1)	**2.019* (0.354)**	**3.943**	**2.426** (0.326)**	**7.374**	-	-	-	-	-	-
INT_STRAT (H2a)	**4.309*** (0.332)**	**19.397**	-	-	**4.485*** (0.322)**	**21.675**	-	-	-	-
DIFF_STRAT (H2b)	0.935 (0.33)	0.041	-	-	-	-	1.203 (0.297)	0.389	-	-
INTEL_PROP_RIGHT (H3)	0.633 (0.366)	1.562	-	-	-	-	-	-	0.755 (0.337)	0.695
N	220		220		220		220		220	
Likelihood test	56.820*** (*p*<0.001)		35.752*** (*p*<0.001)		51.033*** (*p*<0.001)		28.459*** (*p*<0.001)		28.769*** (*p*<0.001)	
H.-L. test	11.706 (*p*=0.165)		10.522 (*p*=0.230)		3.007 (*p*=0.934)		5.273 (*p*=0.728)		4.426 (*p*=0.817)	
R2(Nagelkerke)	0.306		0.201		0.278		0.277		0.165	
R2(Cox-Snell)	0.228		0.150		0.207		0.208		0.123	

*Significance: † p<0.1, * p<0.05, ** p<0.01, ***p<0.001*

Standard error in parantheses. Source: own calculations in SPSS.

Lastly, in the model 5, we could observed that INTEL_PROP_RIGHT is not statistically significant (coeff.= -0.281, Wald=0.695, odd ratio=0.755). In terms of control variables situation is similar to the model 2.

Discussion

From the data of the first model, we can see that men are almost 1.14 times more likely to lead start-ups on the path to internationalization than women. The same situation occurs in the rest of the models. Nevertheless, we cannot officially confirm such a relationship as GENDER variable is not statistically significant in all created models. It can be concluded that gender is insignificant in explaining the reasons for early internationalization.

In the case of the variable describing the average AGE of the start-up founder(s), we can observe that it is negatively related to the chance of early internationalization. For example, in model 2, the probability of early internationalization decreases with age by about 3.9 %, while in model 5, it decreases by about 3.4 %. AGE variable is statistically significant in all estimated models (except model 1). Consequently, even if it is statistically significant, there is no critical impact on the probability of early internationalization of a start-up as an odd ratio is particularly close to 1.

No less critical for propensity to start-ups' early internationalization is the research and development processes (R_D), where it can also be observed that conducting this activity positively influences the probability of early internationalization in start-ups. Depending on the constructed model, this dependence was between 2.17 and 2.41 times higher than in the case of start-ups oriented to the domestic market. In all the estimated regression models, this relationship is statistically significant.

In the case of the innovation activities of the surveyed start-ups, early internationalized start-ups are much more likely to implement business process innovations than product innovations. On average, they are 1.4 times more frequent in foreign-oriented entities than domestic ones. In the case of product innovations, these are more the domain of domestically oriented start-ups - the probability of early internationalization for start-ups implementing product innovations is 17 % lower on average than for domestically oriented start-ups. An inverse relationship occurs in the case of business process innovations, where a positive relationship can be observed between such innovations in a start-up's propensity to expand abroad.

In our research, the first hypothesis (H1) related to whether an organizational culture based on financing employee education fosters the early internationalization of start-ups. Based on the estimation results of the first model, it plays a vital role in explaining early internationalization within the start-up's organizational capital. The chance of early internationalization occurring in start-ups whose organizational culture is based on funding employee education is nearly two times higher than in start-ups whose organizational culture is based on other values (model 1: coeff=0.703, Wald=3.943; odd ratio=2.019, $p<0.05$). Organizational culture has significantly higher statistical significance in the second econometric model (coeff=0.886, Wald=7.374; odd ratio=2.426, $p<0.01$). The probability of early internationalization in start-ups with the organizational culture described above is more than 2.4 times higher than in terms of other start-ups. Thus, we can **accept hypothesis 1** that start-ups whose organizational culture is based on providing financial support to employees in terms of education manifest a higher propensity for early internationalization. Our results align with Zhang and Tansuhaj (2007), who noted that international entrepreneurship is an organization-wide process deeply embedded in a start-up's organizational culture. The researchers mentioned surveyed start-ups whose CEOs strongly agreed that the organizational culture prevailing in their ventures fosters a proactive exploration of new business opportunities abroad. An entrepreneurial business culture can foster a firm's entry into new markets and introduce innovative products (Martin & Javalgi, 2019) similarly, Kumar and Sharma's start-ups' propensity for early internationalization.

The next research hypothesis relates to determining the role of strategy in the early internationalization of start-ups. This part of the study investigated the impact of having a well-thought-out international strategy (H2a) and

differentiation strategy (H2b) on the probability of early internationalization in start-ups. In model 1, hypothesis 2a proved statistically significant (coeff=1.461, Wald=19.397; odd ratio=4.309, $p<0.001$) as did in model 3 (coeff=1.501, Wald=21.675; odd ratio=4.485, $p<0.001$). A well-thought-out international strategy for a start-up significantly increases the probability of early internationalization by an average of almost 4.4 times. Our research appears to align with, for example, Kalinic and Forza (2012). They point out that the strategic focus of new ventures, entailing a combination of niche and highly proactive global international strategies, is a key determinant of early internationalization. Similarly, Ribeiro, Oliveira Jr., and Borini (2012), who emphasize the importance of a globally-oriented start-up strategy, arguing that individualized products and customer-focused strategies will foster earlier internationalization. So we can **confirm hypothesis 2a** that a start-up's international strategy promotes early internationalization. For hypothesis 2b, we can see that inverted relationship between differentiation strategy (DIFF_STRAT) and propensity to early internationalization. We can observe that early internationalization is negatively related to start-ups using product differentiation strategies. In model 1 (coeff=-0.067, Wald=0.041; odd ratio=0.935), the probability of start-ups' early internationalization is nearly 6.5 % lower in those firms that use differentiation strategies. Opposite to model 1, in model 4 (coeff=0.185, Wald=0.389; odd ratio=1.203), we can observe an inverted relationship, where start-ups' early internationalization probability is by 20 % higher in those start-ups that differentiate their products in comparison to those that do not differentiate. However, due to the discrepancy of results and the fact that each of the econometric models mentioned above proved to be statistically insignificant, we can **neither accept nor reject hypothesis 2b** that start-ups using a differentiation strategy are more likely to experience early internationalization than other firms. In the literature, many researchers emphasize that early internationalized firms employ a differentiation strategy rather than not. Jiang et al. (2020) argue that early internationalized start-ups gain a competitive advantage by employing differentiation strategies. Some start-ups develop differentiated products or offer leading technology products for a specific international market segment and generate value through innovative technologies and product designs (Jiang et al., 2020). While entrepreneurs may begin internationalization because they perceive foreign market opportunities as more attractive than domestic ones, some may not be motivated to take advantage of further internationalization opportunities because they do not see them as an opportunity to differentiate themselves from the competition (Hsieh *et al.*, 2019).

The last hypothesis (H3) tested in the analysis is the activity related to the legal protection of intellectual property. This hypothesis is measured by a variable verifying whether a start-up has registered at least one patent, trademark, or copyright for a product or service (INTEL_PROP_RIGHT). In model 1 (coeff=-0.457, Wald=1.562; odd ratio=0.633), a negative relationship was observed between the propensity of start-ups to internationalize early and the organization's intellectual property registration. The case is similar in Model 5 (coeff=-0.281, Wald=0.695; odd ratio=0.755), where the chance of early internationalization in start-ups that protect themselves from intellectual property theft is almost 25% lower than in those start-ups that do not. Thus, early internationalized start-ups are less likely to protect intellectual property rights than domestically-oriented start-ups. Bradshaw, Bowyer, and Haufe (2010) argue that the high-tech industries in which start-ups operate have a relatively high risk of intellectual property rights infringement, thereby making their protection a primary challenge. Start-ups, significantly early internationalized ones, are aware of such risks, which will not protect them from potential intellectual property theft in another country. Considering also the issue of enforcement tools in other countries - especially those poorly institutionalized (Mandrinos *et al.*, 2022), start-ups probably see more costs than benefits from securing intellectual property assets than one would think. Similar results to our study were obtained by Teixeira and Coimbra (2014), who found no support for the hypothesis that early internationalization is related to the number of registered patents/trademarks and/or copyright (no statistical significance). Nevertheless, this variable is statistically insignificant in both Model 1 and Model 5, so we can **neither accept nor reject hypothesis 3**.

Conclusion

As our study has shown, organizational capital enhances the early internationalization of start-ups. Taking the resource-based approach, i.e., one that focuses on start-ups, we observed that an organizational culture that enables employees to acquire new knowledge and has a planned strategy for internationalization plays a significant role. In this way, it is possible to contribute to a better understanding of the processes of early internationalization, which is building a competitive advantage in the market, which seems essential for practitioners and policymakers. In our study, organizational capital positively impacts the probability of early internationalization of start-ups. Our study showed a statistically significant propensity for early internationalization was demonstrated by those start-ups that promote an organizational culture based on financial support for employee education and a planned strategy for internationalization. At the same time, we did not confirm this relationship for differentiation strategies and intellectual property protection in such ventures.

As with all empirical studies, the current one is not free of limitations. First, this work's empirical study is based on a survey of randomly selected Polish start-ups using CAWI and CATI methods. In the context of the second method of collecting records for the study, interviewing each analyzed entity is particularly time-consuming, while the circumlocution and timing of the interview may distort the respondents' answers. Another research limitation is that the survey was conducted on 220 Polish start-ups who agreed to participate in the study. Future research on organizational capital in early internationalization should consider a more significant number of responses from such entities. However, we have observed that interest in participating in research studies steadily declines each year, which may hinder future research. In our survey, we focused on selecting several variables describing organizational capital in a company; hence further research should also consider

other proposals for variables describing organizational capital. It is also worth noting that our results should be treated cautiously regarding their generalization, as we based our conclusions on start-ups operating only in Poland. Hence, it would be worthwhile to undertake the research in another cultural context, e.g., by considering start-ups operating in another country in subsequent analyses, to confirm whether our study enables generalizability and replicability. In future research, it is also worthwhile to deepen the research with selected start-ups by conducting in-depth interviews to expand aspects related to the use of organizational capital in start-ups.

Our study primarily contributed to the scientific discussion of start-up organizational capital and its role in early internationalization. It can be observed that the implication of our research in the managerial field is that practitioners should primarily pay attention to the creation of the right conditions for their employees in the development of all kinds of knowledge, which can consequently strengthen the processes of strategy creation - mainly those that relate to internationalization in a start-up.

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