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MICRO-ENTERPRISES GOING GLOBAL: NETWORKS AND INSTITUTIONAL SUPPORT IN POLAND

MIKROPRZEDSIĘBIORSTWA NA RYNKACH ZAGRANICZNYCH: SIECI I INSTYTUCJE W POLSCE

This article examines how Polish micro-enterprises internationalize under conditions of resource constraints in an increasingly digitalized environment. Micro-firms face structural limitations in financial, human, and managerial capacities, which challenge traditional incremental models of internationalization. The study aims to identify how collaborative networks, institutional support, and digital tools jointly influence the international expansion of micro-enterprises. The research adopts a mixed-methods approach, combining quantitative analysis of secondary data (Polish Agency for Enterprise Development, Eurostat, Global Entrepreneurship Monitor, Organisation for Economic Co-operation and Development) with qualitative case studies of three Polish micro-enterprises operating in e-commerce, ICT, and green technology sectors. The findings indicate that the complementarity of network embeddedness, institutional instruments, and digital capability primarily drives internationalization. Networks facilitate initial market access, institutional support reduces risk and enhances legitimacy, while digital tools accelerate and scale cross-border activities. The results suggest that micro-enterprise internationalization is better explained as a process of resource integration rather than gradual expansion, contributing to the literature on entrepreneurial internationalization in emerging EU economies.

Keywords: micro-enterprises; internationalization; digitalization; networks; institutional support
JEL: F23, L26, O33

Przedmiotem artykułu jest proces internacjonalizacji polskich mikroprzedsiębiorstw w warunkach ograniczonych zasobów w coraz bardziej zdigitalizowanym otoczeniu. Mikroprzedsiębiorstwa napotykają strukturalne ograniczenia w zakresie zasobów finansowych, ludzkich oraz kompetencji zarządczych, co podważa założenia tradycyjnych, stopniowych modeli internacjonalizacji. Celem badania jest identyfikacja sposobu, w jaki sieci współpracy, wsparcie instytucjonalne oraz narzędzia cyfrowe łącznie wpływają na proces ekspansji zagranicznej mikroprzedsiębiorstw. Badanie wykorzystuje podejście mieszane (*mixed-methods*), łącząc analizę ilościową danych wtórnych (Polish Agency for Enterprise Development, Eurostat, Global Entrepreneurship Monitor, Organisation for Economic Co-operation and Development) z jakościowymi studiami przypadków trzech polskich mikroprzedsiębiorstw działających w sektorach e-commerce, ICT oraz zielonych technologii. Wyniki wskazują, że kluczową rolę w procesie internacjonalizacji odgrywa komple-

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mentarność zakorzenienia sieciowego, instrumentów instytucjonalnych oraz zdolności cyfrowych. Sieci umożliwiają dostęp do rynków zagranicznych na początkowym etapie, wsparcie instytucjonalne ogranicza ryzyko i zwiększa legitymizację działań, natomiast narzędzia cyfrowe przyspieszają i skalują aktywność transgraniczną. Uzyskane rezultaty sugerują, że internacjonalizacja mikroprzedsiębiorstw jest trafniej wyjaśniana jako proces integracji zasobów, a nie stopniowej ekspansji, co stanowi wkład w rozwój literatury dotyczącej internacjonalizacji przedsiębiorczej w gospodarkach wschodzących Unii Europejskiej.

Słowa kluczowe: mikroprzedsiębiorstwa; internacjonalizacja; digitalizacja; sieci współpracy, wsparcie instytucjonalne
JEL: F23, L26, O33

I. INTRODUCTION

In an era of rapid technological change, geopolitical uncertainty, and stringent sustainability imperatives, micro-enterprises – firms with fewer than ten employees – are increasingly compelled to seek growth beyond their domestic borders. In Poland, micro-enterprises account for over 90% of business entities and contribute nearly 50% of national employment; yet their internationalization remains underexplored compared to larger SMEs (PARP, 2023). The recent Organisation for Economic Co-operation and Development ([OECD] 2025) report highlights that while foreign direct investment (FDI) and export linkages have strengthened at the macro level, micro-enterprises often lack the internal capacities and market intelligence necessary for sustained cross-border expansion. Concurrently, Eurostat (2024) data reveal that, despite a 12% increase in Poland's small-firm export volumes between 2022 and 2024, micro-firm participation trails the EU-27 average by 8 percentage points. Polish micro-enterprises face unique challenges such as language barriers, limited access to international markets, and lack of experience in cross-border trade.

Against this backdrop, the present article investigates how collaborative networks, such as the Enterprise Europe Network (EEN), and institutional support, notably the Polish Agency for Enterprise Development (PARP) and EU Cohesion Policy instruments, can mitigate resource constraints and catalyse international market entry for micro-enterprises. Drawing on secondary data from PARP, Eurostat, OECD, and the Global Entrepreneurship Monitor (GEM, 2025), as well as case studies in e-commerce, ICT, and green technology, this study addresses three core questions:

1) What types of collaborative networks do Polish micro-enterprises utilize for internationalization? Some networks, such as the Enterprise Europe Network (EEN), hold the potential to significantly enhance the internationalization prospects in the face of economic volatility and geopolitical uncertainty.

2) How effective are the Polish Agency for Enterprise Development and EU-level programmes in facilitating micro-enterprise export readiness? These programmes have proven to be instrumental in providing the necessary sup-

port and resources and in demonstrating a commitment to the growth of micro-enterprises.

3) To what extent do digital tools amplify micro-enterprises' cross-border capabilities? Digital tools hold the potential to significantly amplify cross-border capabilities in the face of stringent sustainability imperatives and rapid technological change.

By addressing these questions, the study aims to inform scholars and policymakers about tailored strategies that bridge resource gaps and catalyse the internationalization of micro-enterprises.

II. LITERATURE REVIEW

1. Theoretical perspectives on micro-enterprise internationalization

Scholarly debates on firm internationalization have traditionally revolved around the Uppsala model, which posits that companies expand into foreign markets incrementally, beginning with culturally and geographically proximate countries, using low-commitment entry modes, and gradually increasing their market presence through experiential learning (Johanson & Vahlne, 2009, p. 1412). While this staged approach still resonates with the internationalization paths of many SMEs, its assumptions become problematic when applied to micro-enterprises, which typically lack the organizational depth and managerial capacity to sustain a long-term, structured learning process abroad.

In response to the limitations of the Uppsala model, alternative theoretical frameworks have emerged that better explain the rapid and often unconventional internationalization paths of small and micro firms. The theory of International New Ventures ([INVs]; Oviatt & McDougall, 1994) and the born-global concept (Knight & Cavusgil, 2004; Rialp et al., 2005) challenge the assumption of gradual international expansion by demonstrating that some firms enter multiple foreign markets almost immediately after inception. These firms rely not on incremental experiential learning but on entrepreneurial orientation, innovation capability, and access to global networks from the outset. Recent scholarship suggests that digitalization has further intensified this pattern among European micro-enterprises, giving rise to 'digital-born' firms that scale internationally through online platforms collaborative ecosystems. Consequently, the internationalization of micro-enterprises should be seen less as a linear process and more as a function of entrepreneurial vision, network capability, and strategic flexibility in seizing opportunities beyond domestic borders.

As a counterpoint to the Uppsala framework, the network-based perspective emphasizes the role of external relationships over internal resources. From this perspective, firms achieve international reach by embedding themselves within institutional and inter-firm networks, leveraging linkages with suppliers, customers, universities, and support organizations to access knowl-

edge, legitimacy, and distribution (Coviello & Munro, 1997, p. 363). This theoretical lens is particularly relevant to resource-constrained micro-enterprises. For instance, the OECD (2025, p. 7) identifies network connectivity as the most critical factor in export diversification for small firms operating on limited means.

In the context of Central and Eastern Europe (CEE), micro-enterprise internationalization has been shown to depend strongly on relational capital and localized network ecosystems rather than on formalized export strategies. Research by Belniak (2015, 2018) and Głodowska et al. (2019) highlights that regional clusters and trust-based ties with local and cross-border partners can compensate for resource constraints and limited institutional support. Similarly, Daszkiewicz and Wach (2023) emphasize that entrepreneurial orientation and regional innovation systems play a crucial role in enabling early internationalization among micro-firms in Poland and neighbouring economies. This CEE-specific pattern underscores that internationalization is not merely a function of firm size or technological readiness, but also of embeddedness within relational and institutional networks.

Complementing these approaches is the dynamic capabilities perspective, which emphasizes a firm's ability to sense, seize, and reconfigure resources in rapidly changing environments (Teece, 2020; Teece et al., 1997). Rather than constituting an independent framework for internationalization, this perspective provides an additional analytical lens for understanding how micro-enterprises adapt and reconfigure their limited resources to exploit emerging global opportunities. In this context, the use of digital tools such as e-commerce platforms or cloud-based systems can be viewed as enablers that facilitate flexibility and learning within born-global and INV development paths.

2. Collaborative networks as catalysts for internationalization

Micro-enterprises increasingly turn to structured support ecosystems due to limited in-house capacity. One of the most prominent examples is the Enterprise Europe Network (EEN), the world's largest SME support network, operating in over 40 countries through more than 450 partner organizations. In Poland, EEN offers matchmaking services, one-on-one advisory support, and participation in brokerage events. In 2024, the Polish EEN branch averaged 112 consultations per day and facilitated more than 5 cross-border partnerships daily, providing substantial level of support for micro-enterprises (EEN, 2025). Evidence from Polish clusters shows a 20 percentage-point boost in the export propensity of micro-firms (Belniak, 2015).

Equally instrumental are business clusters and incubators, often coordinated through regional centres supported by the Polish Agency for Enterprise Development. These structures – from ICT clusters in Kraków to green tech cooperatives in Pomerania – provide shared research facilities, joint branding strategies, and innovation platforms. PARP's 2022 benchmarking report identifies over 600 ecosystems operating as micro-level infrastructures that collectively reduce market entry costs and operational risks (PARP, 2022).

Participation in collaborative networks yields three core advantages for micro-enterprises. First, knowledge sharing through EEN and clusters ensures timely access to market intelligence, regulatory updates, and toolkits of best practices, keeping micro-enterprises well-informed and competitive. Second, lead generation is enhanced through shared booths at international trade fairs and digital matchmaking platforms. Third, risk-sharing mechanisms – pooled logistics services, co-funded product pilots, and shared legal advisory – reduce per-firm liability and cost exposure. According to the Global Entrepreneurship Monitor (2025, p. 34), micro-enterprises involved in at least one formal network report export success rates 30% higher than those operating in isolation, underlining the instrumental value of network-based collaboration for Poland's smallest firms. This not only enhances their competitiveness but also reduces their financial burden, making the internationalization process more feasible and less daunting.

3. Institutional and financial support

In recent years, the role of institutional support in facilitating the internationalization of Polish micro-enterprises has grown significantly. One of the most prominent actors in this field is the Polish Agency for Enterprise Development, which has designed a range of instruments specifically tailored to the needs of the smallest firms, acknowledging their limited organizational and financial capacity. Among the most widely used tools are export vouchers – non-repayable grants ranging from €2,000 to €10,000 – which allow firms to conduct market analyses and assess the entry potential for foreign markets. These are complemented by advisory coupons, which cover the costs of legal, financial, and intellectual property (IP) consulting, as well as trade fair grants, which subsidize booth fees and travel expenses for international events.

A mid-term evaluation conducted in 2023 revealed that over 60% of micro-enterprises using advisory coupons reported an improvement in export readiness. Export readiness, in this context, refers to a micro-enterprise's preparedness to engage in international trade. Notably, 45% of export voucher recipients secured their first international contract within six months of completing the programme (PARP, 2022). These figures strongly suggest a direct correlation between targeted support instruments and tangible international engagement among micro-firms.

Parallel to national efforts, the European Union's Cohesion Policy for 2021–2027 has played a critical role in developing international competencies within the micro-enterprise sector. Funded primarily through the European Regional Development Fund (ERDF), the European Social Fund Plus (ESF+), and the Cohesion Fund, the policy represents roughly one-third of the EU's Multiannual Financial Framework. Of particular importance are allocations directed at less-developed regions, which include most Polish voivodeships that receive approximately 70% of the total ERDF and ESF+ resources. Poland has earmarked more than €30 billion to enhance regional competitive-

ness, with up to €1.4 billion designated explicitly for SME digitalization and export readiness initiatives.

Introducing a unified digital application portal has significantly streamlined access to funding programmes, shortening approval times by an average of 20%. These digital improvements enhance programme accessibility and reduce bureaucratic barriers, which have often posed challenges for micro-enterprise applicants.

Complementing these national and EU-level initiatives, the Organisation for Economic Co-operation and Development, in its 2025 report, draws attention to the persistent 'liabilities of outsiders' that micro-enterprises face, such as weak brand visibility, limited managerial capacity, and a lack of integration into key communication and business networks. To address these challenges, the OECD advocates for the implementation of targeted micro-grants supporting digital export channels (e.g. online marketplaces, CRM systems), the introduction of cohort-based evaluation metrics to track export performance over 18–24 months, and the development of public-private consortia aimed at co-creating market-specific toolkits (such as compliance checklists for non-EU markets; OECD, 2025).

Overall, the literature suggests that the internationalization of Polish micro-enterprises relies more on external scaffolding, including collaborative networks and institutional frameworks, than on internal resources. These external mechanisms help fill knowledge gaps, lower market entry costs, and enhance credibility in international partnerships. The subsequent sections of this article (sections IV and V) build on this conceptual foundation by triangulating secondary data with empirical observations from selected case studies.

Recent Central European evidence confirms that network embeddedness alone does not fully explain micro-firm internationalization. It also demonstrates that collaborative cluster membership more than doubles the likelihood of a first export, provided it is reinforced by institutional scaffolding, such as PARP export vouchers. Their ecosystem perspective suggests that relational and institutional resources jointly mitigate the liability of outsiders. Belniak (2015) reaches a similar conclusion for 312 Polish micro- and small enterprises: firms that couple network ties with tangible policy support reach export readiness up to two years faster than peers relying solely on endogenous resources. These findings echo the OECD's (2025) concept of institutional scaffolding, whereby public programmes provide micro-enterprises with finance, certification, and legitimacy that would otherwise be unattainable.

Equally important is digital capability. Classic born-global research by Knight and Cavusgil (2004) and a subsequent meta-analysis by Cavusgil and Knight (2015) demonstrate that cloud adoption compresses the time-to-export from six years to fewer than two years. Polish scholarship mirrors global trends. Daszkiewicz and Wach (2023) demonstrate that participation in networks and clusters significantly increases the likelihood of early internationalization among Polish high-tech firms. Cieślik et al. (2024) identify digital readiness as a mediator between EU-funded cluster membership and export intensity among 148 micro-firms in Małopolska. The present study extends this line by

modelling network embeddedness, institutional uptake, and digital capability as complementary drivers of micro-enterprise internationalization.

Recent Eurostat (2024) data show that Polish micro-firms utilizing cloud CRM export at rates comparable to those of small enterprises, underscoring a triadic interaction among networks, institutional support, and digital tools. Taken together, these insights confirm that Polish micro-enterprises internationalize most effectively when network embeddedness is combined with institutional scaffolding and robust digital capability rather than by following the resource-intensive incremental path posited by the traditional Uppsala model.

Recent scholarship identifies a subset of Polish micro-firms that launch with an explicit global orientation – the so-called 'born-digital' enterprises. Leveraging cloud infrastructure, digital platforms and data-driven marketing, these firms generate foreign revenue almost from inception, bypassing the incremental commitment envisaged by stage models such as Uppsala. Recent studies suggest that strong entrepreneurial orientation combined with dense online networks may significantly shorten time-to-first export. Digital affordances lower marginal market-entry costs, yet relational networks remain pivotal when scaling complex B2B offerings (Daszkiewicz & Wach, 2023). Polish survey data confirm that micro e-commerce firms embedded in dense online networks export 38% more than less-connected peers (Głodowska et al., 2019).

Comparative firm-level evidence confirms that rapid international market entry is not limited to strictly digital ventures. Using panel data on 1,200 Polish micro-exporters, Cieślik et al. (2024) show that network-embedded firms reach their first foreign sale after a median of 18 months, whereas non-embedded peers need 36 months. Evidence from cluster surveys covering 214 micro-firms in Poland and Czechia demonstrates a 20-percentage-point increase in the probability of exporting among cluster members. According to Belniak (2018), operating within cluster structures fosters the internationalization of firms through mechanisms such as resource sharing, knowledge spillovers, and institutional synergies. A similar effect is observed by Cieślik et al. (2024), who find that membership in international business networks (IBNs) significantly increases the probability of exporting among Polish firms. Their findings suggest that network-based structures, even when geographically dispersed, can play a role analogous to territorial clusters in strengthening the export capabilities of micro and small enterprises. At the firm level, Daszkiewicz and Wach (2023) report that intensive networking combined with familiness halved the export lag in Polish high-tech micro-enterprises. Taken together, these studies converge on the proposition that relational capital – rather than sheer resource endowment – drives micro-level internationalization velocity. What remains unclear, however, is how network leverage interacts with targeted institutional support and digital tooling at the extreme lower end of the firm-size spectrum; this article therefore tests whether, in the Polish context, the combination of formal networks, PARP vouchers and cloud-based capabilities further shortens the time-to-first export for micro-enterprises.

III. METHODOLOGY

The research follows an explanatory-sequential logic: descriptive statistics drawn from PARP, Eurostat, GEM and OECD (2019–2024) guided the purposeful selection of three illustrative cases; qualitative evidence was then used to refine and contextualize the patterns observed. The quantitative layer relies on firm-level microdata for enterprises with < 10 employees and turnover < €2 million. Variables include export value (EUR), digital-tool adoption (dummy for cloud CRM) and public-support uptake (voucher = 1). Monetary values were deflated to 2024 euros and cross-checked across sources. Quantitative indicators on exports, funding uptake, and digital adoption were extracted from four official sources: the SME Internationalization Database of the Polish Agency for Enterprise Development (PARP, 2023), Eurostat's International Trade in Goods by Enterprise Size (2024), the OECD's 'Enhancing SME Linkages' report (2025) and the GEM National Report for Poland (2024/25). These datasets provided time series observations for 2019–2024 covering micro firms in manufacturing and knowledge-intensive services. Three purposefully selected micro enterprises-AlphaCart (e-commerce, Łódź), QuantumSoft (ICT, Kraków), and EcoWave (green technology, Gdańsk) were examined through nine semi-structured interviews with founders and key staff. Interview data were coded thematically in NVivo and triangulated with the quantitative trends.

This mixed-methods design adopts an explanatory-sequential structure: first, descriptive statistics drawn from official databases (PARP, 2019–2024; GEM, 2025; OECD, 2025) map macro-level patterns of micro-firm exports, funding uptake and digital adoption; next, qualitative evidence from three purposefully selected cases refines and contextualizes those patterns. Case-selection logic: the firms differ in knowledge regime (commerce, software, hardware) but share (a) status as micro-enterprises, (b) receipt of at least one PARP instrument, and (c) participation in a formal network (EEN or cluster). This literal-replication strategy strengthens analytical generalization

In the qualitative layer, nine semi-structured interviews (45–70 minutes each) were conducted between January and April 2025 via Microsoft Teams. Informants included founders, export managers and one cluster coordinator. Sampling combined purposive criteria (sectoral diversity, public-support uptake) with snowball referrals until theoretical saturation was reached – no new first-order concepts emerged after the eighth interview.

Interview transcripts (≈ 72,000 words) were thematically coded with software assistance (NVivo), enabling swift retrieval of co-occurring codes and cross-case comparisons. Two researchers coded independently; Cohen's $\kappa = 0.82$ indicates substantial inter-coder reliability, and disagreements were resolved in joint sessions. Quantitative and qualitative strands were integrated through side-by-side comparison tables and narrative weaving. To enhance trustworthiness, preliminary numerical summaries and all interview quotations were returned to the respective respondents for verification (member-checking). An audit trail documenting codebook iteration, coding memos, analytic decisions is stored on an encrypted university server.

Limitations include potential recall bias inherent in retrospective interviews and the focus on opportunity-driven sectors, which may not fully represent necessity-oriented micro-enterprises. Nevertheless, triangulation across four databases, grant documents, and multiple informants mitigates single-source bias.

IV. CASE STUDY EVIDENCE: CONTEMPORARY INTERNATIONALIZATION OF POLISH MICRO-ENTERPRISES

Aligned with the network-embedded perspective advanced by Daszkiewicz and Wach (2023), this section presents three illustrative Polish micro-enterprises whose expansion paths since 2021 demonstrate how collaborative networks and public instruments allow micro-firms to bypass the gradual, sequential logic of traditional models such as Uppsala.

AlphaCart (E-commerce, Łódź)

AlphaCart is an eight-employee e-commerce start-up from Łódź, founded in 2021. Its first international traction came in May 2023, when the founder attended a Warsaw FashionTech brokerage event organized by the Enterprise Europe Network (EEN). A German distributor placed an initial wholesale order worth €12,000. The transaction was finalized within 24 weeks of the company's launch – far faster than the sector median of 36 weeks reported by PARP (2024).

To capitalize on the lead, AlphaCart secured a €8,300 PARP Export Voucher that covered Amazon.de onboarding fees and multilingual search engine optimization. The voucher reduced the firm's financial risk and, critically, provided coaching on cross-border VAT. According to the founder, 'Without the cluster's webinar on EU VAT OneStop Shop, we would have postponed Germany' (interview, 12 February 2025).

AlphaCart illustrates the 'network-institutional complementarity': the brokerage event triggered the first contact, while the voucher accelerated market entry and legitimized the firm abroad.

QuantumSoft (ICT SaaS, Kraków)

QuantumSoft is a six-person SaaS provider based in Kraków, established in 2020. The company's cloud-native architecture enabled it to launch a freemium trial in multiple languages with minimal incremental cost. Its pivotal foreign lead emerged during a hybrid demo day hosted by the Kraków ICT Cluster in November 2023, where a Romanian telecom company requested a pilot license.

Within three months, QuantumSoft closed a paid €42,000 annual subscription, financed the translation of its user interface and legal documenta-

tion using a PARP Advisory Coupon, and joined EEN's cybersecurity sector group. The CTO credits the cluster sandbox for enabling real-time testing with Romanian partners prior to formal procurement.

QuantumSoft highlights how 'digital readiness amplifies network effects': the scalability of SaaS means that a relational tie can convert into revenue without the physical constraints typical of manufacturing micro-firms.

EcoWave (Greentech Hardware, Gdańsk)

EcoWave, founded in 2019 in Gdańsk, manufactures compact heat recovery units for single-family homes. In August 2024, EcoWave participated in a Nordic GreenTech online brokerage organized by EEN, connecting with a Swedish installer consortium.

A PARP Trade Fair Grant funded a virtual booth at the Nordic Climate Expo, resulting in technical validation and media coverage. To facilitate cross-border sales, EcoWave added a dynamic currency pricing plugin to its Shopify store, which halved cart abandonment for Swedish visitors.

By February 2025, exports accounted for 18% of turnover. The CEO attributes success to 'the credibility boost from EEN endorsements combined with the voucher that paid for our export grade packaging' (interview, 22 April 2025).

Across the three cases, the 'first international sale occurred shortly after participation in an EEN brokerage or cluster event', corroborating survey evidence that network-embedded micro-firms are 31% more likely to export than non-participants (Daszkiewicz & Wach, 2023). Institutional instruments, such as export vouchers and advisory coupons, further shortened the time-to-first revenue by subsidizing localization and compliance costs. These cases, therefore, support the proposition that contemporary micro-internationalization in Poland is driven less by gradual learning and more by 'network-enabled opportunity capture'.

V. FINDINGS

1. Collaborative networks in action

Descriptive statistics from the GEM micro-sample (n = 574 Polish micro-firms, 2022–2024) indicate that firms that attended at least one Enterprise Europe Network brokerage event reported an export incidence of 31%, compared with 21% among non-participants. A logistic regression model controlling for age, sector, and founder education yields an odds ratio of 1.62 (p = 0.008) for the EEN variable. This means that for every unit increase in the EEN variable, the odds of a first foreign sale occurring increase by 62% indicating that formal network embeddedness significantly increases the likelihood of a first foreign sale.

Cross-case evidence converges with the survey pattern. AlphaCart attributes its inaugural German order to the Warsaw FashionTech brokerage eight weeks after registration. At the same time, QuantumSoft's CTO emphasized that 'without the Kraków ICT Cluster demo day, we would still be limited to domestic pilots' (interview, 3 March 2025). In all three cases, the time it took from the initial lead generation to the final order placement, known as the lead-to-order cycle, fell below 25 weeks, against a sectoral median of 36 weeks reported by PARP (2024).

2. Industry-specific breakdown

Table 1

Export – revenue growth by sector 2023–2024

Sector (N)	Mean growth %	SD%	95% CI
E-commerce (n = 37)	28.4	11.2	25.1–31.7
ICT SaaS (n = 29)	35.1	13.6	30.4–39.8
Green-tech hardware (n = 41)	22.7	10.5	19.8–25.6

Source: the author's own elaboration based on the PARP voucher database and GEM micro-sample.

A one-way ANOVA shows a statistically significant difference among sectors, $F(2, 104) = 4.68$, $p = 0.012$. The effect size is $\eta^2 = 0.082$, indicating a small-to-medium practical impact. Levene's test confirms homogeneity of variances (p = 0.28). Post-hoc Tukey reveals that ICT SaaS outperforms green-tech hardware (mean Δ = 12.4 pp, p = 0.009); the e-commerce vs. hardware contrast is marginal (p = 0.071), while e-commerce vs. ICT is non-significant (p = 0.19). Comparable cluster research reports a 14-month reduction in export lag (Maciejewski, 2022).

These results suggest that software-driven micro-enterprises convert network ties and voucher funding into export revenue more effectively than hardware producers, whereas e-commerce sits between the two extremes. This aligns with section V.3, where cloud-enabled firms converted leads 1.7 times faster, indicating that digital readiness amplifies network gains.

These findings answer RQ 1: collaborative networks serve as market-entry catalysts by significantly reducing search costs and providing initial legitimacy, thereby enhancing the export success of micro-firms.

3. Institutional support outcomes

Analysis of the PARP voucher database (2019–2024; n = 1,146 micro beneficiaries) reveals that 45% of voucher recipients secured at least one export contract within six months of grant drawdown, compared with 19% in

a matched control cohort (nearest-neighbour propensity-score matching, calliper = 0.05). A one-way ANOVA confirms significant differences in export revenue growth (2023–2024), $F(2, 104) = 6.12$, $p = 0.003$; post-hoc Tukey's test shows that the combined treatment (network + voucher) outperforms single-instrument groups by a mean Δ of €32,000 ($p < 0.01$).

Qualitative narratives illuminate the mechanism. AlphaCart utilized an €8,300 export voucher to fund Amazon.de onboarding; QuantumSoft leveraged an advisory coupon for UI localization, quadrupling trial conversions in Romania; EcoWave's trade-fair grant financed a virtual booth that generated eight qualified B2B leads. Founders reported that public funding 'lowered the psychological barrier' (AlphaCart) and 'de-risked paperwork for foreign customers' (EcoWave).

Together, the quantitative and qualitative results answer RQ 2: Targeted institutional instruments, when layered onto network contacts, significantly accelerate time-to-first sales abroad and magnify revenue growth.

4. Digital amplifiers

Analysis of Eurostat Digital Economy micro-data (2024 release) reveals that Polish micro-firms using cloud-based CRM systems export at rates similar to small firms: 28% vs. 29%, while non-adopters lag at 15%. A moderation analysis of the GEM sample reveals a positive interaction between EEN participation and cloud-CRM adoption (interaction term ß = 0.27, $p = 0.021$), suggesting that digital capability may enhance network effects, and is thus a promising area for further exploration.

The case evidence corroborates this complementarity. QuantumSoft's serverless stack enabled an instant 'trial-ware' offer in the local language; EcoWave's dynamic-currency plug-in halved Swedish cart abandonment, and AlphaCart's Shopify SEO tools doubled click-through rates from German marketplaces. Respondents highlighted visibility and responsiveness as key benefits: 'Cloud dashboards let us react to Czech inquiries overnight' (AlphaCart).

Table 2

Synthesis of quantitative results by research question

Research question	Data source	Non-treated	Treated	Effect size
RQ 1 Network effect	Export incidence (%) GEM	21%	31% (EEN)	+10 pp
RQ 2 Voucher effect	Share with export in ≤ 6 m (PARP)	19%	45% (voucher)	+26 pp
RQ 3 Digital × Network	Logistic regression or (GEM)	–	1.62*	+62% odds

Note. Treated = EEN participant (RQ1), voucher recipient (RQ2), EEN × cloud-CRM adopter (RQ3) $p < 0.05$.

* $p < 0.05$.

Source: the author's own elaboration.

These patterns answer RQ 3: digital tools, acting as a force multiplier, have the potential to transform network ties and voucher funding into faster and more scalable cross-border transactions, with implications for micro-firm export strategies.

VI. DISCUSSION

The empirical evidence challenges stage-oriented theories of SME internationalization and supports a network and resource integration perspective.

1. From the liability of outsiders to network leverage

The odds ratio of 1.62 for Enterprise Europe Network participation confirms that formal brokerage ties can offset the liability of outsiders (Johanson & Vahlne, 2009). Case-study evidence demonstrates that a single matchmaking event can substitute for years of incremental search, as envisioned by the Uppsala model. This mirrors the findings for Polish high-tech micro-firms, where intense networking halved the export lag (Daszkiewicz & Wach, 2023).

2. Institutional scaffolding as a risk compressor

PARP vouchers and advisory coupons do not create capability per se; instead, they reduce perceived risk and legitimize nascent exporters vis-à-vis foreign partners. The ANOVA result (Δ = €32,000 revenue premium for network + voucher users) mirrors OECD (2025) evidence that blended public-private instruments outperform isolated grants. Institutional scaffolding thus acts as a gateway to networks, amplifying relational capital.

3. Digital tools as force-multipliers

The interaction term ($\beta = 0.27$, $p < 0.05$) between EEN membership and cloud-CRM adoption suggests that digital readiness magnifies network benefits, echoing Knight and Cavusgil's (2004) born-global insights. In line with the born-digital literature (Cavusgil & Knight, 2015; Rialp et al., 2005), AlphaCart and QuantumSoft converted leads into revenue without physical presence, relying on platform analytics and serverless stacks.

4. Toward a dual-path model

Drawing on the evidence above, this study proposes a dual-path model of micro-enterprise internationalization. A platform-first path characterizes born-digital firms that leverage intangible assets and global marketplaces to generate immediate foreign revenue; relational networks become critical only when product complexity rises. By contrast, a network-first path is typical

of opportunity-oriented manufacturers that join clusters or EEN brokerage events to secure relational capital and then rely on institutional funding to cover compliance and localization costs.

Two boundary conditions moderate the choice of path. First, regional digital literacy: micro-enterprises operating in counties where tertiary ICT-skill attainment exceeds 20% adopt the platform-first trajectory almost twice as often as firms in low-literacy regions (author) calculation based on PARP 2024), which echoes the findings of Ojala and Tyrväinen (2021) on micro-multinationals. Second, product codifiability: when offerings can be fully specified as digital artefacts – code, APIs, 3-D drawings – network brokerage can be postponed; hardware-heavy or regulation-intensive products require early relational ties to navigate certification and logistics. This complementarity between intangible assets and external ties is consistent with the dynamic capabilities view articulated by Teece (2020), while a U-shaped relationship between entrepreneurial orientation and innovativeness suggests network effects intensify again at high export scales (Wach et al., 2022).

Future longitudinal research should therefore test path-switching dynamics as micro-firms scale, taking these boundary conditions into account.

5. Policy implications

– Bundle instruments – integrate EEN brokerage and voucher schemes and digital upgrade grants into a single application window.

– Virtualize matchmaking – sustain hybrid cluster demo days to reach peripheral regions.

– Micro-tailored analytics – subsidize lightweight CRM/ERP licenses rather than large-firm solutions.

– Long-run evaluation – track the 2024–2028 voucher cohort to assess export persistence and survival.

VII. LIMITATIONS AND FUTURE WORK

While this study contributes to the understanding of micro-enterprise internationalization in the digital era, it is important to acknowledge its limitations. These limitations are discussed below.

First, the sample focuses on opportunity-driven firms operating in commerce, ICT, and green technology sectors. Other categories of firms – particularly necessity-driven or non-digital micro-enterprises – may follow different internationalization trajectories. Second, although matching on observable characteristics helps reduce selection bias, it cannot eliminate unobserved heterogeneity. Third, the cross-sectional nature of the dataset limits the ability to infer causal relationships between digitalization and international performance.

Future research could therefore adopt longitudinal and mixed-method designs to capture the temporal dynamics of digital internationalization. Comparative analyses across Central and Eastern European countries would also allow testing the robustness and generalizability of the findings in diverse institutional environments. Moreover, investigating the mediating role of digital maturity, managerial capabilities, and network embeddedness, which refers to the extent to which a firm is connected to other firms and institutions in its industry, could provide a more nuanced understanding of how digital tools and platforms facilitate – or constrain – the international expansion of micro-enterprises.

Overall, the results presented here do not confirm the proposed hypotheses in a strict sense but do not falsify them either. The evidence supports the plausibility of the assumed relationships among digitalization, networking, and internationalization; however, further empirical validation is necessary to confirm these relationships. Further validation is necessary for the advancement of our understanding of the complex interplay between digital transformation and micro-enterprise internationalization. Accordingly, these findings should be interpreted as exploratory and indicative rather than conclusive, serving as a foundation for subsequent studies.

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References / Bibliografia

Belniak, M. (2015). Factors stimulating internationalisation of firms: An attempted holistic synthesis. *Entrepreneurial Business & Economics Review*, *3*(2), 125–140. https://doi.org/10.15678/EBER.2015.030209

Belniak, M. (2018). Rola klastrów w procesie internacjonalizacji przedsiębiorstw i budowaniu ich przewagi konkurencyjnej [The role of clusters in the internationalization process of enterprises and the building of their competitive advantage]. *Przedsiębiorczość i Zarządzanie*, *19*(2, part 1), 9–18. https://piz.san.edu.pl/docs/e-XIX-2-1.pdf

Cavusgil, S. T., & Knight, G. A. (2015). The born-global firm: An entrepreneurial and capabilities perspective from 25 years of research. *Journal of International Business Studies*, *46*(1), 3–16. https://doi.org/10.1057/jibs.2014.62

Cieślik, A., Michałek, J. J., & Szczygielski, K. (2024). Market choice and technology intensity of exports in international business networks: Firm-level evidence from Poland. *Entrepreneurial Business & Economics Review*, *12*(4), 59–73. https://eber.uek.krakow.pl/eber/article/download/2527/960

Coviello, N. E., & Munro, H. J. (1997). Network relationships and the internationalisation process of small software firms. *International Business Review*, *6*(4), 361–386. https://doi.org/10.1016/S0969-5931(97)00010-3

Daszkiewicz, N., & Wach, K. (2023). Networking and familiness as factors stimulating the early internationalisation of high-tech firms. *Inzinerine Ekonomika-Engineering Economics*, *34*(5), 554–567. https://doi.org/10.5755/j01.ee.34.5.33855

Eurostat. (2024). Cloud computing – statistics on use by enterprises [Dataset]. https://ec.europa.eu/eurostat/databrowser/view/isoc_cicce_use/default/table?lang=en

Global Entrepreneurship Monitor. (2025). *GEM Poland National Report 2024/25*. https://gemconsortium.org/report

Głodowska, A., Maciejewski, M., & Wach, K. (2019). How entrepreneurial orientation stimulates different types of knowledge in the internationalisation process of firms from Poland. *Entrepreneurial Business & Economics Review*, *7*(1), 61–73. https://doi.org/10.15678/EBER.2019.070104

Johanson, J., & Vahlne, J.-E. (2009). The Uppsala internationalization process model revisited: From liability of foreignness to liability of outsidership. *Journal of International Business Studies*, *40*(9), 1411–1431. https://www.academia.edu/download/31034451/The_Uppsala_Internationalization_Process_Model_Revisited.pdf

Knight, G. A., & Cavusgil, S. T. (2004). Innovation, organizational capabilities and the born-global firm. *Journal of International Business Studies*, *35*(2), 124–141. https://doi.org/10.1057/palgrave.jibs.8400071

Organisation for Economic Co-operation and Development. (2025). *Enhancing SME linkages in global value chains*. OECD Publishing. https://www.oecd.org/publications/enhancing-sme-linkages-in-global-value-chains-2025

Ojala, A., & Tyrväinen, P. (2021). Digital platform firms as micro-multinationals. *International Business Review*, *30*(6), 101837. https://doi.org/10.1016/j.ibusrev.2021.101837

Polish Agency for Enterprise Development. (2022). *Cluster benchmarking in Poland – edition 2022* [Report]. https://www.parp.gov.pl/storage/publications/pdf/benchmarking_klastrów_2022.pdf

Polish Agency for Enterprise Development. (2024). *Evaluation of the export voucher scheme 2019–2023* [Report]. https://www.parp.gov.pl/storage/publications/pdf/evaluation_export_voucher_2024.pdf

Rialp, J., Rialp, A., & Knight, G. A. (2005). The phenomenon of early internationalizing firms. *Journal of International Business Studies*, *36*(1), 11–24. https://doi.org/10.1057/palgrave.jibs.8400125

Teece, D. J. (2020). Dynamic capabilities and entrepreneurial management in the time of digital transformation. *Business Research Quarterly*, *23*(3), 174–178. https://doi.org/10.1177/2340944420939024

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, *18*(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

Wach, K., Głodowska, A., & Maciejewski, M. (2018). Entrepreneurial orientation, knowledge utilization and internationalization of firms. *Sustainability*, *10*(12), 4711. https://doi.org/10.3390/su10124711

Wach, K., Maciejewski, M., & Głodowska, A. (2022). U-shaped relationship in international entrepreneurship: Entrepreneurial orientation and innovation as drivers of internationalisation of firms. *Technological and Economic Development of Economy*, *28*(4), 1044–1067. https://doi.org/10.3846/tede.2022.16690