International Innovation and Labor Management: Insights into Sales Productivity at EPSON Perú

Tipo de contribución: FULL PAPERS (FP)
Formato: Full Paper (FP): general

Jorge Martín Cruz Padilla[1], Jully Pahola Calderón Saldaña[5], Luis Alzamora de los Godos[2], Fiorella Sthefany Valladolid Marcos[2], Javier Alejandro Pineda Medina[3], Rossina Dany De la Rosa Condormango[4], Lucimar Josefina Barrios Cabello[2]
Organización: 1: Universidad Privada del Norte - (PE); 2: Universidad Norbert Wiener - (PE); 3: Pontificia Universidad Católica del Perú - (PE); 4: Universidad César Vallejo - (PE), Perú; 5: Universidad de San Martín de Porres - (PE)

Autor corresponsal : Dr. Luis Alex Alzamora de los Godos Urcia (Universidad Norbert Wiener - (PE), ID: 1059

This interpretative research explores the relationship between labor competency management and sales productivity within the framework of international innovation and entrepreneurship. A longitudinal, analytical study was conducted at EPSON Perú, a transnational technology company, using a validated questionnaire administered to 120 sales promoters between 2020 and 2021. While no statistically significant association was found between productivity and core competency strategies—such as the Delta model, integrated customer solutions, or benefit-based competency frameworks—the analysis revealed meaningful patterns in subdimensions like comparative competency profiling and optimal information use. These insights suggest that, in international innovation-driven environments, productivity may depend more on adaptive and contextual management practices than on standardized competency models. The findings highlight the complexity of workforce productivity and underscore the need for dynamic and innovation-oriented human capital strategies in competitive global markets.

Keywords – labor competency management, international sales productivity, innovation in human capital, interpretative analysis, transnational entrepreneurship.

.

"International Innovation and Labor Management: Insights into Sales Productivity at EPSON Perú"

Tipo de contribución: FULL PAPERS (FP)
Formato: Full Paper (FP): general

Jorge Martín Cruz Padilla[1], Jully Pahola Calderón Saldaña[5], Luis Alzamora de los Godos[2], Fiorella Sthefany Valladolid Marcos[2], Javier Alejandro Pineda Medina[3], Rossina Dany De la Rosa Condormango[4], Lucimar Josefina Barrios Cabello[2]
Organización: 1: Universidad Privada del Norte - (PE); 2: Universidad Norbert Wiener - (PE); 3: Pontificia Universidad Católica del Perú - (PE); 4: Universidad César Vallejo - (PE), Perú; 5: Universidad de San Martín de Porres - (PE)

Autor corresponsal : Dr. Luis Alex Alzamora de los Godos Urcia (Universidad Norbert Wiener - (PE), ID: 1059

This interpretative research explores the relationship between labor competency management and sales productivity within the framework of international innovation and entrepreneurship. A longitudinal, analytical study was conducted at EPSON Perú, a transnational technology company, using a validated questionnaire administered to 120 sales promoters between 2020 and 2021. While no statistically significant association was found between productivity and core competency strategies—such as the Delta model, integrated customer solutions, or benefit-based competency frameworks—the analysis revealed meaningful patterns in subdimensions like comparative competency profiling and optimal information use. These insights suggest that, in international innovation-driven environments, productivity may depend more on adaptive and contextual management practices than on standardized competency models. The findings highlight the complexity of workforce productivity and underscore the need for dynamic and innovation-oriented human capital strategies in competitive global markets..

Keywords – labor competency management, international sales productivity, innovation in human capital, interpretative analysis, transnational entrepreneurship.

INTRODUCTION

In the context of international innovation and entrepreneurship, the global printing industry has undergone dynamic transformations driven by technological advancement, competitive positioning, and evolving customer expectations. According to the Worldwide Quarterly Hardcopy Peripherals Tracker, the market experienced a modest 1.2% year-over-year growth in unit sales during the first quarter of the year, totaling 28.1 million units. However, revenue declined by 1.0%, amounting to $13.7 million [1]. Among leading global firms—HP, EPSON, Brother, Canon, and Xerox—EPSON emerged as a frontrunner with a 12.2% increase in sales, reflecting a strong market response to its innovation-led strategy.

A key driver of EPSON's competitive advantage has been the development of its EcoTank series, which represents a paradigm shift in sustainable printing technology. Since its launch in 2010, over 15 million units have been sold globally. These refillable tank printers significantly reduce costs and environmental impact by eliminating disposable ink cartridges [2]. EcoTank models are now responsible for 10% of EPSON's total global sales, and the company aims to expand this to 40% in coming years. This product innovation exemplifies the firm's strategic alignment with global trends in environmental efficiency, technological adaptation, and customer-centric business models—pillars of international entrepreneurship.

Despite technological progress, barriers to entry remain high for new firms. These include accessing global distribution networks, establishing brand credibility, and navigating regulatory frameworks and pricing standards [3], [4]. For incumbent firms, sustaining innovation and ensuring long-term profitability increasingly depend on human capital development, particularly in knowledge-intensive roles like international sales.

In this regard, EPSON has prioritized talent management as a strategic asset. Internal assessments revealed that approximately 75% of its workforce had insufficient social competencies, which are essential in customer relationship roles. Even after substantial training investments, nearly half of the sales force continued to struggle with interpersonal performance. This highlights the challenge of aligning innovation-driven business models with competency-based human resource strategies. Hence, this study investigates the link between labor competency management and productivity from an interpretative perspective, offering empirical insights relevant to transnational companies operating at the intersection of innovation, human capital, and global entrepreneurship..

THEORETICAL FRAMEWORK

From the standpoint of international innovation and entrepreneurship, managing competencies within organizations transcends technical skill acquisition; it encompasses adaptive leadership, strategic learning, and capacity development across borders and markets. Berényi [5] argues for an integrated model of sustainable development, incorporating economic, environmental, and social dimensions into corporate strategy. In globally operating firms, this model is particularly relevant, as innovation is both a strategic imperative and a mechanism of adaptation to diverse markets.

Baptista [6] underscores that competency management—especially in small or transnational firms—serves as a cornerstone for maintaining long-term competitiveness. His findings suggest that the alignment of workforce skills with entrepreneurial goals is a universal requirement across multinational enterprises. Similarly, Szabó and Csepregi [7] emphasize that in knowledge-intensive economies, intellectual capital is a vital innovation resource that must be systematically developed and strategically applied.

In the context of commercial innovation, Labra [8] notes that deficiencies in market forecasting and inadequate CRM systems often undermine sales performance, despite strong technological infrastructure. This aligns with Suárez [9], whose study of customer service in appliance retail revealed that strategic differentiation—a core tenet of entrepreneurial innovation—enhanced client satisfaction and loyalty.

Talent management, as studied by Ángeles and Oyola [10], further illustrates how employee retention, productivity, and innovation are interlinked. Their research in EFE-Chimbote demonstrates that coherent capacity-building strategies reduce turnover and foster operational excellence, critical elements in maintaining competitive agility in international markets.

Gordon and Tarafdar [11] add an important layer to this discussion by demonstrating how IT competencies—ranging from project management to digital collaboration—enable innovation at the organizational level. Their model bridges technical skills with innovation performance, indicating that entrepreneurial organizations must cultivate these skills to sustain transformation and responsiveness.

Müller and Turner [12] and Turner et al. [13] delve into leadership competencies, showing that effective project outcomes depend on cultivating specific cognitive, emotional, and behavioral competencies. In international entrepreneurship, such leadership is essential to navigate complexity, uncertainty, and multicultural dynamics.

Ciftci et al. [14] provide a sectoral perspective, highlighting that strategic human resource planning must address industry-specific demands to ensure alignment between available talent and innovation trajectories. Meyer et al. [15] propose a comprehensive categorization of competencies—professional, methodical, social, and ego—that influence organizational adaptability and performance, key for innovation in global markets.

Gronhaug and Nordhaug [16] and Bergenhenegouwen [17] reinforce the view that core and individual competencies must be systematically mapped and integrated. In global innovation ecosystems, mapping and aligning competencies with entrepreneurial goals is essential for strategic readiness.

Finally, Salerno et al. [18] connect competency development to broader urban and economic innovation frameworks, such as smart cities, highlighting how competency systems are foundational not only within firms but in shaping entrepreneurial ecosystems.

METHODOLOGY

This study adopts an applied, interpretative, prospective, and longitudinal design, situated within the thematic area of international innovation and entrepreneurship. It aims to explore how labor competency management influences sales productivity in a transnational innovation-oriented company such as EPSON Perú. Emphasizing a contextual and dynamic understanding of human capital performance, the research follows the interpretative paradigm to capture both quantitative outcomes and the underlying organizational meanings attributed to competency practices.

The study population consisted of 120 sales employees from EPSON Perú's national network of branches, all of whom were engaged in commercial operations during 2020 and 2021. From this population, a representative and homogeneous random sample of 82 individuals was selected, ensuring demographic consistency. Participants were aged between 18 and 25 years, had 1 to 3 years of sales experience, had received prior corporate induction, maintained regular work schedules, and were employed under stable contractual conditions.

Data collection was executed through mixed techniques, including structured surveys, face-to-face interviews, and field observations. The instruments incorporated both open and closed questions designed to explore key variables related to competency development, sales performance, and internal perceptions of innovation-related labor management. Observation guides and customized questionnaires were developed to align with the dual focus of the study: interpretative understanding and strategic innovation analysis.

To ensure methodological rigor, the Expert Judgment Verification Technique was employed, involving three PhD-level specialists in business administration with extensive field experience in organizational development. These experts

conducted 30-minute structured interviews with EPSON suppliers and assessed the reliability of the instrument by cross-referencing findings with sales performance records.

Quantitative validation was conducted through statistical tests including Cronbach's Alpha for internal consistency and the Goodman and Flanagan test for validity. The analytical phase employed SPSS (v24.0), STATA, and the SOTAM sample optimization tool, developed by Vicente Manzano, to refine statistical power and generalizability.

The dataset was structured into contingency tables and visualized using bar and pie charts to illustrate frequency distributions and proportional relationships. A Student's T-test was applied to examine variations in sales margins before and after the application of capacity management strategies. Additionally, logistic regression models were used to analyze the relationship between selected variables, particularly to accommodate the modest sample size and enhance the interpretative depth of the analysis.

This methodological design integrates quantitative rigor with interpretative depth, providing a comprehensive framework to understand how labor competencies function as catalysts—or constraints—in the pursuit of innovation and productivity in international entrepreneurial contexts.

III. Resultados

Following an extensive literature review and the statistical analysis of collected data, the sample was confirmed to be homogeneous and normally distributed, with minimal skewness in the variable related to skills management and its association with labor productivity. This internal consistency across the dataset provided a reliable basis for interpretative analysis in the context of international innovation and sales performance.

In examining the **primary competitiveness dimension**, particularly the relationship between the Delta model and salesforce productivity, several nuanced insights emerged. Under the **low-cost strategy**, average daily sales ranged from 4.5 to 2.03 units, with corresponding revenues between 2,903.33 and 1,509 soles. This broad range suggests heterogeneity in outcomes among employees operating under cost-driven business models. In the **differentiation dimension**, average sales were linked to 3.8 products per day, generating 2,442 soles, while employees who emphasized visual presentation achieved 4.94 daily sales, and those who focused on branding attained 4.6 sales, with standard deviations of 2.2 and 4.4, respectively.

Despite observable differences in these descriptive statistics, **no statistically significant associations were found** between Delta model strategies and productivity outcomes, as all p-values exceeded the 0.05 threshold. Consequently, the research hypothesis was rejected, and the null hypothesis was retained. These findings suggest that although Delta model competencies—such as operational knowledge and communication skills—serve as necessary organizational inputs, they are not sufficient by themselves to predict variations in productivity. Instead, **external factors**, including evolving customer preferences and product-specific characteristics, appear to mediate the influence of competencies on commercial results.

This complexity underscores a broader pattern: productivity in transnational, innovation-driven companies like EPSON may depend not only on internal talent configurations but also on how such competencies interact with strategic positioning, customer behavior, and market pressures (see Table 1).

Table 1:

Management of core competencies in delta model and sales productivity.

le tence management.	**Indicator**	**Number of sales per day**		**Money reported x day**	
ompetences:		**Stoc king**	**DE S. Est**	**Stocki ng**	**DES . Est**
ic Delta Model Strategies					
cost 0.0, p = 1.00) 0.0, p = 1.00)	Yes	-	-	-	-
	No (120)	4.47	2. 32	2903. 33	1509. 60
entiation	Your features (33)	3.76	2. 26	2442. 42	1471. 77
.37 , p>0.05) .37 , p>0.05)	Appearance (32)	4.94	2. 21	3209. 37	1438. 71
	Brand (55)	4.62	2. 36	3001. 81	1534. 56

(*) Source: Authors.

Further analysis explored the relationship between core competencies—specifically integrated customer solutions—and sales performance. The reconfiguration of customer engagement strategies showed promising trends. For example, cooperative relationships yielded an average of 4.5 sales per day and 2,897 soles in revenue, while closer customer alignment reached 4.7 sales and 3,055 soles. Similarly, employees with stronger influence in customer decision-making averaged five sales and 3,250 soles, indicating the potential value of proactive client integration.

Horizontal integration patterns also reflected modest productivity: those offering comprehensive service solutions reached an average of 4.96 sales and 3,225 soles. Nevertheless, none of these relationships achieved statistical significance, reaffirming the complexity of isolating competencies as sole predictors of productivity within entrepreneurial ecosystems.

A parallel assessment of systemic consolidation strategies—such as adherence to industry standards or

dominance in specific market interfaces—demonstrated further variance. Real estate development standards correlated with 4.97 sales/day and 3,231 soles, while lower industry benchmarks corresponded to 4.33 sales and 2,813 soles. In the dominant market interface dimension, firms positioned as central players averaged 4.39 sales and 2,852 soles; meanwhile, those navigating "critical mass" constraints sold 5.17 products, generating 3,358 soles per day.

Exclusive channel strategies yielded similar results. Firms identifying as sole suppliers reported 4.55 daily sales and 2,954 soles, while those highlighting significant entry barriers for competitors reported 4.46 sales and 2,898 soles.

Despite these figures suggesting the influence of strategic positioning and innovation-driven differentiation, statistical insignificance persisted, prompting the rejection of the alternative hypothesis. These outcomes indicate that competency-based management, while relevant, may not operate in isolation from broader commercial, technological, and consumer-driven variables—especially in transnational enterprises navigating innovation ecosystems (see Table 2).

Table 2:

Management in core competencies such as the integral solution to the client and productivity in sales

Variable Integral Customer Solution	**Indicator**	**Number of sales per day**		**Money reported x d**	
		Stocking	**DES. Est**	**Stocking**	
Restructuring the relationship with customers (F v= 1.19, p > 0.05) (F d= 1.19, p > 0.05)	Proximity (8)	3.00	2.00	1950.00	1300.0
	Proximity (20)	4.70	2.43	3055.00	1579.5
	Collaboration (24)	4.46	2.30	2897.62	1496.7
	Trust (68)	4.47	2,32	2972.79	1580.0
Customer integration (Fv=0.57 , p>0.05) (Fd=0.57 , p>0.05)	Transfer substantial capacities (9)	5.00	2.45	3250.00	1592.17
	Insights to meet critical customer needs (74)	4.30	2.39	2793.24	1554.39
	Insights to boost performance (10)	4.70	2.16	3055.00	1405.83
	Enhanced services to meet your customer needs (20)	4.95	2.14	3217.50	1390.50
	Performance Boosting Services (7)	3.86	2.41	2507.14	1566.69
Horizontal amplitude (Fv =1.91, p > 0.05) (Fd = 1.91, p > 0.05)	Complete provision of products (48)	4.67	2.48	3033.33	1610.88
	Full provision of services (27)	4.96	2.34	3225.93	1524.19
	Customer satisfaction (45)	3.96	2.08	2571.11	1350.40

Table 2B:

Management of core competencies in providing comprehensive solutions to the customer and sales productivity.

Variables	**Indicator**	**Quantity x day**		**Amount reported x day**	
System consolidation					
		Prom.	**D.S.**	**Prom.**	**D.S.**
Standards ownership (Fv =1.354, p > 0.05) (Fd = 1.354, p > 0.05)	Development of industry standards.	4.97	2.32	3231	1507
	Record of industry standards	4.33	2.25	2813	1462
	Capture of complementary companies to enhance product offer.	3.93	2.60	2556	1692
Dominant exchange (Fv =1,213, p > 0.05) (Fd = 1,213, p > 0.05)	The company is the interface between buyers and sellers.	4.39	2.26	2852	1470
	Difficulty of moving from critical mass	5.17	2.82	3358	1834
Exclusive channel (Fv=0.14 , p>0.05) (Fd=0.14 , p>0.05)	The company is the sole source of customer needs.	4.55	1.92	2954	1245
	There are significant barriers preventing competitors from accessing customers	4.46	2.37	2898	1538

(*) Source: Authors.

In exploring the relationship between individual competencies of sales professionals and their productivity, the findings offer interpretative insights relevant to international innovation-oriented enterprises. The analysis revealed that compensation mechanisms and intrinsic motivation play observable—but statistically non-significant—roles in shaping sales outcomes. Sales staff averaged 4.69 products sold per day, corresponding to an average daily income of 2,952 soles. Notably, those working without direct supervision exhibited slightly higher performance, selling 4.77 products per day and earning 3,100 soles, in contrast to supervised employees who sold 4.43 units with a revenue of 2,879 soles.

Further dimensions such as attitudinal disposition and values orientation were also analyzed. Employees who maintained a consistently positive mindset reported 4.52 daily sales and 2,939 soles in income. Those identified as upholding strong personal values reached an average of 4.47 sales and 2,903

soles. Similarly, employees with a high self-concept achieved 4.47 sales daily, translating into 2,906 soles of revenue.

Knowledge-based performance was also considered. Sales personnel who passed internal knowledge assessments averaged 4.5 units sold and 2,906 soles in income, while those who did not pass sold 4.37 units, earning 2,838 soles. Among all dimensions, the highest performance was associated with problem-solving ability: employees in this category sold 5.09 units per day and earned the highest average income of 3,309 soles. Despite these variations, none of the observed differences were statistically significant, as all p-values exceeded 0.05.

As a result, the null hypothesis was accepted and the research hypothesis rejected. These findings reinforce the notion that, although competency-based frameworks remain theoretically valid, productivity in innovation-driven sales environments cannot be attributed solely to observable individual traits. Rather, external variables such as brand positioning, organizational reputation, access to technological tools, and overall market conditions play a disproportionately influential role.

This supports a broader interpretation: in transnational enterprises navigating global competition, the efficacy of human capital depends not only on individual capabilities but on how these are embedded within wider strategic and organizational architectures. The absence of statistically significant correlations does not negate the importance of competencies—it contextualizes them within the multi-layered dynamics of global entrepreneurial ecosystems, where innovation, market identity, and institutional branding mediate performance.

Table 3:
Association between competencies and sales productivity.

Variables Competences.	Indicators	Quantity sold x day		Money earned per day	
		Stocking	D.S.	Stocking	D.S.
Motivation	Wage	4.69	2.28	3048	1481
(F v=1.184, p>0.05)	Promotions	4.19	2.13	2720	1384
(F d= 1.184, p>0.05)	Training	4.54	2.62	2952	1700
Characteristics	Work with supervision	4.43	2.34	2879	1523
(F v=0.246, p>0.05)	Work unsupervised	4.77	2.20	3100	1432
(F d=0.246, p>0.05)					
Own concepts : Attitudes	Always	4.52	2.32	2939	1505
(F v=0.696, p>0.05)	Sometimes	3.91	2.43	2540	1577
(F d=0.696, p>0.05)					
Own concepts : Values	Always	4.47	2.32	2903	1509
(F v = 0 , p = 1)					
(F d = 0 , p = 1)					
Own concepts : Own Image	Always	4.47	2.38	2906	1543
(F v =0.004, p>0.05)	Sometimes	4.43	1.95	2878	1267
(F d =0.004, p>0.05)					
Knowledge	Passed in knowledge assessment	4.50	2.37	2906	1543
(F v = 0.074, p>0.05)					
(F d = 0.074, p>0.05)	Failed in knowledge assessment	4.37	2.22	2838	1443
Ability	Physical abilities	4.54	2.50	2950	1625
(F v=1.248, p>0.05)	Mental skills	4.19	2.26	2721	1465
(F d= 1.248, p>0.05)	Complex problem-solving skills	5.09	2.14	3309	1388

The relationship between the types of competition-related competencies and the productivity of the sales force reveals several nuanced findings with important implications for innovation-oriented, transnational organizations. The data suggests that a wide array of both core and transversal competencies—including logical reasoning, communication, planning, and technical proficiency—are present among the workforce and contribute to commercial functionality. However, their direct correlation with productivity outcomes remains statistically non-significant.

In terms of basic core competencies, sales staff who demonstrated proficiency in logical analysis and synthesis averaged 4.61 products sold per day, generating a daily income of 2,924 soles. Interestingly, those anchored in strong personal values achieved the highest productivity in this category, averaging 5.00 sales and 3,250 soles, although with a standard deviation of zero due to sample structure. Employees with general labor skills averaged 4.48 sales and 2,912 soles, while those with communication competencies reported slightly lower figures.

Analysis of transversal competencies yielded further insights. Employees performing similar job functions averaged 4.77 daily sales and 3,099 soles in revenue, compared to those working under autonomous functional structures, who averaged only 4.25 sales and 2,762 soles. Sales staff who demonstrated teamwork and planning skills also showed favorable performance indicators, with daily averages between

4.46 and 4.52 products and income levels approaching 2,940 soles. However, competencies such as programmability and manageability reflected mixed outcomes and variability across the sample.

With regard to technical competencies, results were remarkably stable. Employees with competencies in technology use, methodologies, and technical language consistently averaged between 4.4 and 4.5 sales per day and generated between 2,860 and 2,914 soles. In parallel, those reporting material capacity, physical capabilities, human capital strength, and customer service skills all reported identical average performance (4.47 sales/day and 2,903 soles), suggesting a performance plateau across these dimensions.

Nonetheless, despite these descriptive distinctions, none of the competencies analyzed yielded statistically significant relationships with productivity, as all p-values exceeded the 0.05 threshold. As such, the research hypothesis was rejected in favor of the null, confirming the absence of statistically demonstrable associations between specific competencies and sales force output.

From an interpretative and strategic standpoint, these results illustrate the complexity of performance generation in innovation-driven organizations. Although competency development is undeniably vital, its effects are likely mediated or overshadowed by broader organizational, technological, and market-driven variables—such as brand equity, pricing strategy, digital infrastructure, and customer perception.

Therefore, in the context of international innovation and entrepreneurship, competencies should be understood less as isolated performance determinants and more as enabling conditions within dynamic systems. The interaction of skills with organizational culture, digital transformation, and strategic innovation may offer a more accurate lens for interpreting productivity in multinational firms like EPSON Perú.

Table 4:
Types of competition and sales force productivity.

Variable Types of Competition	Indicator	Number of sales per day		Money reported x day	
		Prom	D.S.	Prom.	D.S.
Core Competencies (F v = 0.55, p>0.05) (F d = 0.55, p>0.05)	Labor	4.48	2.20	2912	1432
	Communication	4.39	2.34	2850	1523
	Analysis and Synthesis Skills	4.61	2.47	2994	1605
	Frame within principles	4.44	2,55	2888	1660
	Miscellaneous values	5.00	0	3250	0
Transversal competences (F v = 0.938, p > 0.05) (F d = 0.938, p > 0.05)	Complex job functions	4.00	2.80	2600	1817
	Autonomy functions	4.25	2.21	2762	1438
	Similar manifold functions	4.77	2.32	3099	1507
CT: Ability to work in a team (F v = 0.0, p = 1.00) (F d = 0.0, p = 1.00)	Yes	4.46	2.37	2902	1540
	No	4.48	2.14	2909	1388
CT: Ability to plan (Fv = 0.205, p>0.05) (F d = 0.205, p>0.05)	Yes	4.52	2.37	2939	1538
	No	4.30	2.22	2795	1439
CT Programmability (F v = 0.205, p >0.05) (F d = 0.205, p >0.05)	Yes	4.45	2.30	2893	1496
	No	4.56	2.50	2961	1626
CT: Manageability (F v = 0.517, p > 0.05) (F d = 0.517, p > 0.05)	Yes	4.56	2.43	2967	1577
	No	4.23	2.06	2748	1338
CT: Technological Development Capabilities (F v = 0.0, p = 1.00) (F d = 0.0, p = 1.00)	Yes	4.47	2.32	2903	1509
	No	0	0	0	0
TC: Material capacity (F v = 0.0, p=1.00) (F d = 0.0, p=1.00)	Yes	4.47	2.32	2903	1509
	No	0	0	0	0
TC: Human capabilities (F v = 0.0, p=1.00) (F d = 0.0, p=1.00)	Yes	4.47	2.32	2903	1509
	No	0	0	0	0
CT: Physical Capabilities (F v = 0.0, p=1.00) (F d = 0.0, p=1.00)	Yes	4.47	2.32	2903	1509
	No	0	0	0	0
CT: Customer Service Capabilities (F v = 0.0, p = 1.00) (F d = 0.0, p = 1.00)	Yes	4.47	2.32	2903	1509
	No	0	0	0	0
Technical Competencies (F v = 0.17, p > 0.05) (F d = 0.17 , p > 0.05)	Use of technologies	4.48	2.32	2914	1507
	Use of methodologies	4.40	2.38	2860	1547
	Use of technical language	4.47	2.32	2903	1509

When evaluating the relationship between perceived direct benefits and sales productivity, the findings suggest a stable yet statistically insignificant trend. Employees who reported experiencing greater quality of life—through factors such as skill diversification, recognition of experience, and expanded employability—consistently averaged 4.47 daily sales and 2,903 soles in income across all analyzed categories. These indicators, however, did not yield statistical significance ($p > 0.05$), leading to the rejection of the research hypothesis and acceptance of the null.

From an interpretative lens, this reflects a broader phenomenon observable in international entrepreneurship ecosystems: that while personal and professional development initiatives contribute to the perceived well-being of employees, their isolated impact on productivity remains inconclusive when not integrated into a systemic innovation strategy. Nonetheless, the role of competency management in enhancing not just performance metrics but also quality of life is strategically relevant. It points to a shift in organizational models toward human-centered innovation, where value creation encompasses both economic output and employee well-being.

Table 5.
Direct Benefits and Sales Productivity

Variable Direct benefit	Indicator	Number of sales x day		Reported income per day	
		Prom	D.S.	Prom	D.S.
Development of multi skills	Yes	4.47	2.32	2903	1509
(F v= 0.00, p = 1.00)	No	-	-	-	-
(F d= 0.00, p = 1.00)					
Recognition of experiences	Yes	4.47	2.32	2903	1509
(F v = 0.00, p = 1.00)	No	-	-	-	-
(F d = 0.00, p = 1.00)					
Increased job opportunities	Yes	4.47	2.32	2903	1509
(F v = 0.00, p = 1.00)	No	-	-	-	-
(F d = 0.00, p = 1.00)					
Improves quality of life	Yes	4.47	2.32	2903	1509
(F v = 0.00, p = 1.00)	No	-	-	-	-
(F d = 0.00, p = 1.00)					

A complementary analysis was conducted on the relationship between workforce capacity management and productivity. Employees who reported alignment with organizational concepts averaged 4.6 sales per day and 2,968 soles in income. Those contributing to the definition of job demand profiles showed slightly lower performance. The highest outcomes were observed in employees who had access to comparative skill profile analysis—achieving 4.77 daily sales and 3,100 soles—followed by those with optimized access to product information, averaging 5.13 sales and 3,331 soles. These two dimensions—profile comparison and information accessibility—were the only ones found to be statistically significant, highlighting their strategic role in productivity enhancement.

These findings underscore a central tenet of international innovation management: the effectiveness of labor competencies is amplified when supported by systems that facilitate knowledge access and decision-making. In global business contexts, capacity management becomes a dynamic process where real-time data, role clarity, and knowledge flow drive value creation.

Table 6.
Management by Labor Competencies and Sales Productivity

Variable Management by labor competencies advantages	Indicator	Number of sales per day		Money reported x day	
		Prom	D.S:	Prom	D.S:
Facilitates the use of concepts	Yes	4.57	2.32	2968	1506
objectives in the	No	4.24	2.35	2758	1527
organization.					
(Fv=0.49 , p>0.05)					
(Fd=0.40, p>0.05)					
Set the profiles of	Yes	4.52	2.16	2938	1404
Job requirements	No	4.38	2.58	2848	1674
(Fv=0.1 , p>0.05)					
(Fd=0.1 , p>0.05)					
Comparison between job requirements profile and competencies	Yes	4.77	2.29	3100	1488
	No	3.90	2.30	2538	1497
(Fv=3.87 , p<0.05)					
(Fd=3.87 , p<0.05)					
Employ behavioral assessment tests	Yes	4.18	2.25	2716	1461
(Fv=2.35 , p>0.05)	No	4.83	2.38	3139	1549
(Fd=2.35 , p>0.05)					
Result-oriented	Yes	4.47	2.32	2903	1509
(Fv=0.00 , p=1.00)	No	-	-	-	-
(Fd=0.00 , p=1.00)					
Information is used optimally and accessible	Yes	4.14	2.29	2689	1490
	No	5.13	2.27	3331	1473
(Fv=4.982 , p<0.05)					
(Fd=4.982 , p<0.05)					

The final component of analysis examined operational competencies associated with daily workflow optimization. Employees who regularly assessed their processes, demonstrated improvement mindsets, or set formal advancement goals all reported similar levels of productivity—ranging between 4.4 and 4.7 products per day and revenues between 2,858 and 3,072 soles. However, none of these differences reached statistical significance.

These results suggest that while continuous improvement practices are foundational to organizational learning and entrepreneurial development, their isolated application may be insufficient to drive significant short-term performance differentials. In global organizations, their effectiveness likely depends on deeper integration with organizational innovation systems, leadership frameworks, and incentive structures.

Table 7.
Employee Job Competencies and Sales Productivity

Variable	Indicator	Number of sales x day		Amount reported x day	
Employees' job competencies					
		Prom	D.S.	Prom	D.S.
Constant analysis of functions in search of continuous improvement	Yes	4.41	2.41	2865	1564
	No	4.73	1.93	3072	1255
(F v = 0.337, p > 0.05)					
(F d = 0.337, p > 0.05)					
Demonstrate attitudes for continuous improvement and professionalization	Yes	4.47	2.32	2903	1509
	No	-	-	-	-
(F v =0.000, p =1.00)					
(F d = 0.000, p = 1.00)					
Set fixed goals to advance within the organization or outside the organization	• Yes	4.40	2.37	2858	1539
	• No	4.62	2.24	3004	1546
(F v=0.237, p > 0.05)					
(F d=0.237, p > 0.05)					
Have certification competencies	• Yes	4.17	2.39	2708	1553
(F v = 0.498, p > 0.05)	• No	4.54	2.31	2952	1502
(F d = 0.498, p > 0.05)					

(*) Source: Authors.

In summary, the data indicates that competency-related variables alone do not produce statistically significant changes in productivity, except in cases where structural and informational enablers—such as profile comparison tools and accessible information systems—are in place. These findings reinforce the importance of viewing human capital not just as a collection of individual capabilities, but as a strategically embedded system within the innovation infrastructure of international organizations.

IV. CONCLUSIONES

- This study aimed to analyze the relationship between competency-based management and sales force productivity in an international business context, using Epson Peru as a case study. The results reveal that, across multiple variables associated with the Delta model of core competencies—including cost leadership, differentiation, and integrated customer solutions—no statistically significant associations were found with productivity indicators such as average daily sales and income. This lack of significance led to the consistent rejection of the research hypothesis in favor of the null hypothesis.

- Similarly, in evaluating salesperson attributes, including motivational factors, values, attitudes, and basic cognitive or technical skills, the data demonstrated no statistically significant effects on productivity. Despite widespread theoretical support in the literature for these competencies as drivers of performance, the empirical evidence from this study challenges the assumption that soft and hard skills alone translate into measurable sales outcomes within multinational corporate settings.

- Furthermore, regarding direct benefits—such as quality of life improvements, job opportunity expansion, or recognition of experience—no significant relationships were detected. These findings suggest that while such benefits may contribute to employee satisfaction, they do not necessarily impact short-term sales productivity.

- However, two dimensions within workforce capacity management—namely, the ease of comparing employee competency profiles and the optimal use of information—were positively associated with productivity and yielded statistically significant results. These results underscore the importance of strategic infrastructure, including systems for data access and knowledge integration, in enhancing performance. Notably, the success of these mechanisms points toward a more systemic and innovation-oriented model of talent management as opposed to isolated competency development.

- The implications of these findings are particularly relevant for innovation and international entrepreneurship, as they highlight the limitations of relying exclusively on traditional human resource models in dynamic global markets. The evidence suggests that international sales organizations must move beyond a narrow focus on skill training and instead adopt more comprehensive, innovation-aligned strategies. These strategies should integrate structural enablers—such as real-time information systems, flexible role definitions, and organizational learning frameworks—with clear market orientation and customer engagement systems.

- In conclusion, although competency management remains a vital pillar of organizational development, its effectiveness is contingent upon alignment with broader strategic, technological, and customer-centric approaches. For international companies like Epson Peru, success in sales performance requires not only capable individuals but also the systemic conditions that enable their capabilities to translate into results.

RECOMENDACIONES

- Desarrollar un sistema de interoperabilidad entre las instituciones de educación superior (IES), PRONABEC y organismos del Estado como RENIEC y MINEDU. Esta innovación permitiría verificar digitalmente la documentación requerida y evitar la redundancia de trámites presenciales. La

trazabilidad documental constituye una condición técnica clave para fortalecer la eficiencia institucional en la gestión de becas.

- Incorporar evaluaciones diagnósticas tempranas que permitan identificar tanto déficits académicos como activos culturales en los becarios. Esta doble mirada —déficit-superávit— posibilita intervenciones diferenciadas, más justas y eficaces, y contribuye a diseñar itinerarios de formación personalizados, en línea con una pedagogía innovadora centrada en la diversidad de trayectorias.
- Establecer mecanismos formales que permitan suspender temporalmente los estudios por embarazo sin pérdida del beneficio, tanto para las estudiantes afectadas como para sus parejas. Esta medida con enfoque de derechos refuerza la continuidad educativa en contextos de vulnerabilidad y evita que situaciones personales derivadas de la maternidad o la paternidad condicionen negativamente el acceso a la titulación.
- Revisar los esquemas de titulación actuales para permitir horarios adaptables y cobertura del 100% de costos, en cumplimiento del principio de igualdad de oportunidades. Esta acción es indispensable para asegurar que el programa Beca 18 cumpla con su misión de impulsar la movilidad social ascendente, especialmente en poblaciones históricamente excluidas del sistema de educación superior técnico.

Agradecimientos

A la Pontificia Universidad Católica del Perú, Universidad Autónoma del Perú, a la Universidad César Vallejo y a la Universidades Wiener y San Martín de Porres por el apoyo en la investigación.

References

[1] J. Fuentes, "Crecen las ventas de impresoras en plena era digital," *Blogthinkbig.com*, 2018. [En línea]. Disponible en: https://blogthinkbig.com/crecen-las-ventas-de-impresoras-en-plena-era-digital

[2] "EcoTank: refillable tank printers reduce costs and environmental impact," 2019.

[3] *The Wall Street Journal Americas*, "Impresoras vs copiadoras: el mercado actual," p. 18, mayo de 2008.

[4] Superintendencia de Banca y Seguros – Perú, "Información financiera quincenal, al 15 de enero," 2009.

[5] L. Berényi, "Integrated approach to managing sustainability," *Theory, Methodology, Practice*, vol. 9, no. 2, pp. 23–28, 2013.

[6] I. O. M. Baptista de, "Competency management: a strategic approach adapted to small companies," *RAI*, vol. 4, no. 2, p. 49, 2007.

[7] L. Szabó y A. Csepregi, "Competences found important for knowledge sharing," *IUP Journal of Knowledge Management*, vol. 9, no. 3, pp. 41–58, 2011.

[8] M. L. Labra Panuera, *La gestión comercial de las empresas de venta de computadoras del centro comercial Siglo XX*. Arequipa, Perú: Universidad Tecnológica del Perú, 2019.

[9] A. M. Suárez, *Estrategias competitivas y el servicio al cliente de la tienda Carsa Barranca*. Universidad de Barranca, 2018.

[10] P. Ángeles y M. Oloya, *Gestión del Talento Humano y rotación del Personal de la Tienda EFE – Chimbote 2019*. Universidad César Vallejo, 2019. [En línea]. Disponible en: https://repositorio.ucv.edu.pe/handle/20.500.12692/40998

[11] S. R. Gordon y M. Tarafdar, "How do a company's information technology competences influence its ability to innovate?" *Journal of Enterprise Information Management*, vol. 20, no. 3, pp. 271–290, 2007.

[12] R. Müller y J. R. Turner, "Attitudes and leadership competences for project success," *Baltic Journal of Management*, vol. 5, no. 3, pp. 307–329, 2010.

[13] J. R. Turner, R. Müller y V. Dulewicz, "Comparing the leadership styles of functional and project managers," *International Journal of Managing Projects in Business*, vol. 2, no. 2, pp. 198–216, 2009.

[14] M. Ciftci, H. Baysal y M. Atatorun, "Human resources planning in organizations: a content analysis on harmonization of supply with demand," *International Journal of Arts & Sciences*, vol. 4, no. 22, pp. 331–340, 2011.

[15] G. Meyer, B. Brünig y P. Nyhuis, "Employee competences in manufacturing companies – an expert survey," *Journal of Management Development*, vol. 34, no. 8, pp. 1004–1018, 2015.

[16] K. Gronhaug y O. Nordhaug, "Strategy and competence in firms," *European Management Journal*, vol. 10, no. 4, p. 438, 1992.

[17] J. Bergenhenegouwen, "Core and individual competencies in human resource management," [libro o artículo], 1996.

[18] S. Salerno, A. Nunziante y G. Santoro, "Competences and knowledge: key-factors in the smart city of the future," *Knowledge Management & E-Learning*, vol. 6, no. 4, p. 356, 2014.