

Comparative Analysis of Digital Innovation Platforms in the Context of Collaboration between Academic and Private Environments

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Abstract. *Digital innovation platforms are increasingly supporting organizational innovation processes and cooperation between companies and academia. Enterprise-oriented solutions and open and participatory platforms continue to differ considerably, despite the emphasis in the literature on their potential to integrate stakeholders, resources and information. Focusing on the interaction between academia and the private sector, this research analyzes the differences between digital innovation platforms in terms of functionality, governance and openness to collaboration between organizations. Six well-known digital innovation platforms were used for qualitative multi-criteria comparative analysis, using functional, technological and collaborative characteristics. The research analyzes theories on governance maturity, standards alignment and academic integration, in addition to research concerns on internal process orientation and external collaboration. The results show a clear difference between systems that emphasize accessibility and external involvement and those that focus more on structured internal innovation processes. Even though many platforms have complex technological capabilities, they are still underutilized to support long-term academic collaboration. In addition to highlighting the limitations of current platforms, this study proposes important design options for future digital solutions that can effectively support collaboration between academia and the private sector.*

Keywords: digital innovation platforms, academia – private collaboration, open innovation, comparative analysis.

Introduction

As a result of the digital transformation of innovation processes, digital innovation platforms have emerged as a new organizational infrastructure that supports the creation, evaluation and implementation of innovative solutions in a structured and cooperative manner. By overcoming structural barriers between academia, the private sector and stakeholders, these platforms are used as socio-technical tools that promote networked innovation and collaboration across disciplines

(Poniatowski, et al., 2022). Layered systems are used to describe platforms, being composed of different functional levels that collaboratively influence innovation outcomes, including information systems, interaction mechanisms, and ecosystem support factors (Mikelsone, et al., 2024), (Venkatraman, et al., 2015).

The main objective of this research is to determine how digital platforms enable innovation processes, to see their potential to facilitate collaboration between multiple organizations, and the level of maturity of the processes reflected in the features they provide. This research aims to provide a clearer and more useful understanding of how digital platforms can support innovation processes, improve the connection of companies with academia, and be transformed into strategic tools for increasing innovation capacity in firms.

Theoretical background

Digital innovation platforms in organizational innovation

Innovation platforms are complex digital structures that transform how companies find, incorporate and use knowledge, they serve as ecosystem coordination mechanisms, IT infrastructure and venues for stakeholder participation (Isckia, et al., 2018). In addition to ecosystem-level characteristics (operational, dynamic and improvisational), platforms generate benefits of scale, scope and speed that facilitate digital innovation in business beyond organizational boundaries (Venkatraman, et al., 2015), (Osorno & Medrano, 2022).

Figure 1 depicts the layered architecture of digital innovation platforms, demonstrating how ecosystem, technological, and information aspects interact to promote value creation and cooperation.

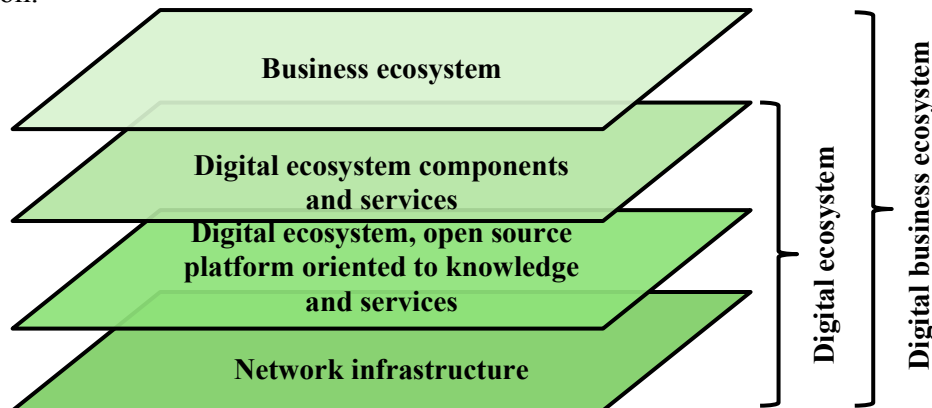


Figure 1. Multi-layered digital business ecosystem

Source: Adapted from (Chang & Uden, 2008).

The basic aspect of the architecture is the network infrastructure, which ensures the connectivity and compatibility between systems required for data exchange and system integration. The next layer in Figure 1, namely, the service-oriented platform and digital ecosystem elements layer, represents the sharing of open-source knowledge, the creation of modular services and inter-organizational integration being possible in addition to the first layer. The business ecosystem, being the upper layer, represents the space in which companies, users and complements create value through managed activities and common innovation goals.

This model demonstrates, by visualizing interconnected layers, how digital platforms are at the same time integrators of the ecosystem, IT infrastructure and engagement mechanisms. Beyond

organizational barriers, this structure supports and enhances constant communication, knowledge sharing and continuous capacity development.

Digital platforms support a structural shift from traditional knowledge exchange methods to competency-based ecosystems. They overcome the limitations of traditional knowledge transfer methods and enhance users' long-term innovation capacity by promoting the development of dynamic capabilities such as opportunity identification, resource integration and asset reconfiguration (Rozgon, 2023), (Calabrese, et al., 2021).

A competitive advantage is represented by the development of digital innovation platforms in business, combining scalability and adaptability, which are designed to support previous theoretical studies (Venkatraman, et al., 2015). In general, digital innovation platforms differentiate themselves through their ability to support different areas of application in innovation, to accelerate the process of idea generation, to market implementation and to increase engagement without additional coordination costs. (Venkatraman, et al., 2015). These platforms include functional, dynamic and rapidly adapting dimensions, providing lasting and adaptable innovation ecosystems over time (Venkatraman, et al., 2015), (Osorno & Medrano, 2022).

The creative cooperation intermediaries in this structure that contribute to participatory innovation processes and integrate participants from different fields are digital open innovation platforms. Compared to passive databases or simple matching systems of possible collaborations, they actively promote collaboration through integrated resource mechanisms, supported interaction environments and structured project support, which enhance the long-term innovation potential of users (Abbate, et al., 2022), (Calabrese, et al., 2021).

Typologies and classification criteria of digital innovation platforms

Typologies based on innovation type, idea generation and usage patterns are used as a benchmark for the design and selection of digital innovation platforms. The literature suggests complementary classification systems to explain how different platform models promote innovation in different organizational contexts and domains. Platforms can support collaborative, disruptive or incremental innovation, with incremental models mainly supporting continuous development through organized internal idea generation (Törner, 2020), (Krejci & Missonier, 2021).

Innovation processes are supported by digital platforms by protecting proprietary knowledge and aligning idea generation with business strategies (Yablonsky, 2018). Collaboration platforms between academia and the private sector focus on technology transfer and knowledge transfer, providing resources such as intellectual property management, technological readiness assessment, and financial advisory services to connect these two ecosystems (Fitriasari, et al., 2024). In comparison, government-developed platforms encourage regional development and social innovation, supporting the production of public value through openness, involvement and collaboration (Ojasalo & Tähtinen, 2017), (Abbate, et al., 2022).

The architecture of a digital innovation platform is based on the concepts of structural flexibility, inter-system communication, and scalability, and is designed to support complex processes of data management, service development, collaboration, and collaborative testing between companies, academia, and other partners. According to recent research on digital platforms used in innovation ecosystems, they have developed into multi-layered architectures, where each technical layer supports the flexibility, scalability, and overall governance of the platform (Oladimeji & Eteng, 2022), (Hilbolling, et al., 2020), (Iskoskov & Mitrofanova, 2023).

According to the identified literature, the architecture of an innovation platform is based on five main technical layers that are interconnected to create a secure, cooperative and scalable digital ecosystem, as seen in Figure 2.

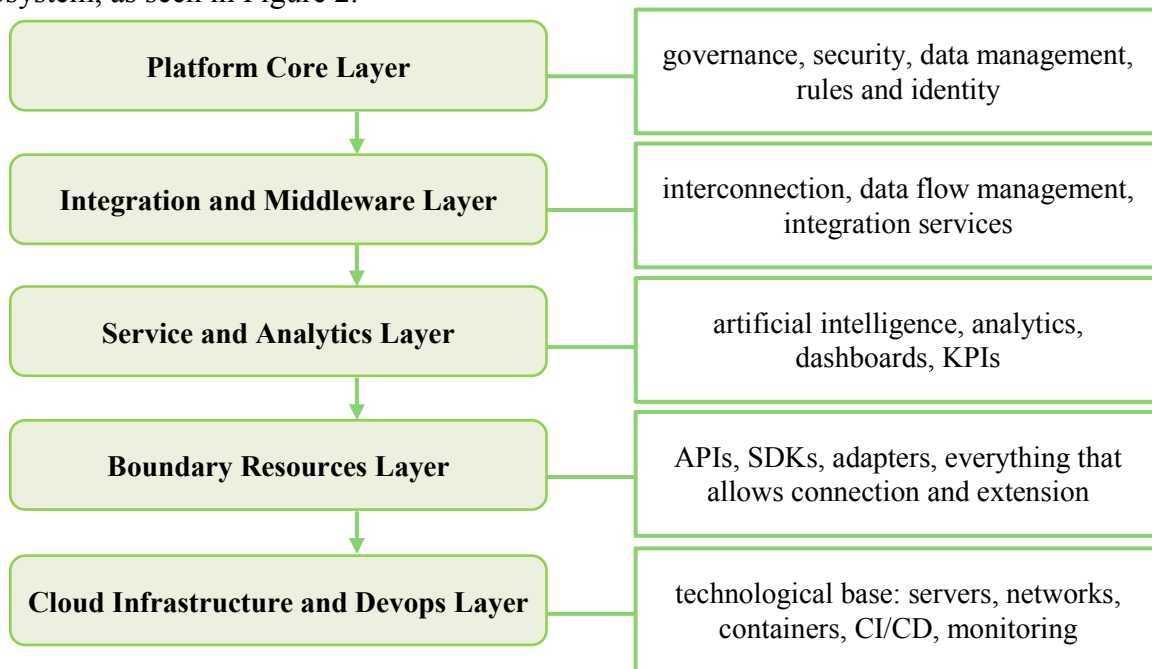


Figure 2. Layered architecture of digital platforms

Source: Adapted from (GeeksforGeeks, 2025), (Hilbolling, et al., 2020).

The foundation for digital innovation platforms are layered architectures that contain core management processes, resources for controlled openness, and analytics and services that support data processing and artificial intelligence. The cloud infrastructure layer and middleware ensure resilience, scalability, and integration into emerging innovation ecosystems.

The collaboration between academia, companies and other stakeholders is supported by these digital platforms, being integrated socio-technical, by evaluating processes, analyses and co-creation methods. Their performance depends on how well technological elements and collaboration methods are combined for knowledge transfer and the results of the innovation process (Nambisan, et al., 2017), (Hakim, et al., 2022).

Methodology

Research objectives and questions

The main objective of this exploratory and descriptive research is to present a broad perspective on how digital platforms, mainly used in companies, support innovation processes, stakeholder collaboration and creative performance monitoring.

Looking at the literature on digital innovation platforms, several structural elements that influence the organization of processes within ecosystems are highlighted by previous research. Collaboration between academia, companies and other interested parties is increasingly pronounced in research on open innovation, and other studies on innovation management systems show that internal platforms of companies support more internal activities, such as idea management, portfolio monitoring and performance evaluation.

Previous research shows that digital innovation platforms differ considerably in terms of governance structures, technological maturity and openness to external collaboration. There are two categories of platform solutions, the first part includes participatory engagement and open innovation projects, and the other part prioritizes the internal development of collaboration and analytical capacity. The integration of international innovation management standards into digital platforms is still lacking, but they provide directions for organized procedures, being a plus for these environments.

The application of emerging technologies, such as artificial intelligence and analytics, is increasingly integrated into innovation platforms, but is limited in promoting collaboration between academia and companies. These results highlight the need to compare digital innovation platforms to better understand how they support and improve partnerships between different domains, internal processes, and external collaboration.

Known innovation models (such as Open Innovation, Quadruple Helix, Stage-Gate and ISO 56002) and the evaluation of publicly available data from independent platforms and sources (such as Gartner Peer Insights, G2 and Capterra) form the basis of the comparative analysis.

The International Organization for Standardization (ISO) has developed the ISO 56002:2019 standard on recommendations for the innovation management system, which provides an international reference framework for implementing an innovation management system in companies of all types and sizes (International Organization for Standardization, 2019). There is a component of the ISO 56000 standard, which also includes comparable standards for innovation partnerships (ISO 56003), innovation maturity assessment and specialist language (ISO 56000) (Porumboiu, 2023). Unlike compliance requirements, ISO 56002 provides recommendations and best practices for organizing innovation processes around important elements such as planning, leadership, strategy, organizational support, operations, performance evaluation and continuous improvement (Holmer, 2021).

The following research questions (RQ) are formulated based on this theoretical information and the observed research gaps:

RQ1. What are the innovative processes and key features that are most commonly used by modern digital platforms?

RQ2. To what extent do digital platforms stimulate collaboration between organizations and open innovation, mainly between academia and companies?

RQ3. Looking at the complexity, technology used and strategic orientation (internal vs. collaborative process), what would be the main differences between the analyzed platforms?

To assess these assumptions regarding platform orientation, governance maturity, and collaboration potential, the following hypotheses were formulated:

H1. Most digital platforms are primarily oriented towards internal idea management, while innovation or open collaboration play a secondary role, highlighting a more organizational than cross-domain approach.

H2. While elements of the ISO 56002:2019 standard are clearly observed in the process design, there are few direct references to it, and the degree of maturity and governance of the process varies greatly between platforms.

H3. Even though many platforms include data analysis and artificial intelligence features, they are not yet used at a higher level to find external partners or to connect academia with companies.

Platform selection criteria and analyzed platforms

The six digital innovation platforms used for the analysis are Brightidea, HYPE Innovation, Qmarkets, ITONICS, Agorize and IdeaScale. These platforms were selected to determine the scope of the study due to their widespread use and demonstrated applicability in organizational innovation ecosystems (Iskoskov & Mitrofanova, 2023), (Yablonsky, 2020), (Ahmed & Kowalkowski, 2025).

Transparent and repeatable review was ensured by combining publicly available documentation with independent professional assessment platforms, providing proven functional assessments and real-world use cases in business, government, and academic contexts, resulting in a fair comparative perspective possible due to the variety of innovation models offered by these platforms.

The research analysis used a multi-criteria qualitative method, using only verifiable public sources. The information was collected from professional software review platforms and official documentation between September and December 2025, and Table 1 provides a summary of these chosen platforms.

Table 1. Description of selected digital innovation platforms

Digital innovation platforms	Description	Reference
Brightidea	Brightidea is one of the most advanced innovation management systems in the industry and is used by over 300 leading companies, such as Pepsico, Cisco, GE and Bayer. Its architecture is based on an event-driven framework with microservices for idea generation, production funnel management and pipeline governance.	(IdeaConnection, 2025), (Gartner Peer Insights, 2025)
HYPE Innovation	HYPE invention's focus on collaborative invention is characterized by thematic campaigns, gamification, external crowdsourcing and semantic concept analysis tools. It supports collaboration between different teams and stimulates a broad ecosystem of participation. HYPE Innovation serves as a reference platform for companies such as BMW, Bosch, Siemens, Airbus and Merck.	(HYPE, 2025), (Hakim, et al., 2022)
Qmarkets	The Qmarkets platform is focused on the search for innovations, idea management and continuous improvement, being a modular and configurable system, it is a low-code engine and has a complex network of company-wide integrations that underpin its adaptability.	(Qmarkets, 2025), (Gartner Peer Insights, 2025)
ITONICS	ITONICS is a strategic innovation platform that provides tools for technology discovery, forecasting and trend analysis. Through pattern detection, clustering and decision support, artificial intelligence helps strategic planning.	(ITONICS, 2025), (Setzke, 2022)
Agorize	Agorize is an innovation marketplace focused on academic collaborations, hackathons and challenges. It facilitates rapid connections with students, researchers and startups and is widely used in industry-academia projects.	(Agorize, 2024), (Capterra Inc., 2025)
IdeaScale	In academic institutions and public organizations, IdeaScale facilitates collaborative and participatory innovation. Idea collection, voting, sentiment analysis and open process reporting are important elements.	(IdeaScale, 2025), (G2.com, 2025)

Source: Authors' own research.

Research design and data sources

This research uses a comparative, qualitative and exploratory design, based on secondary analysis of publicly available data on digital innovation management platforms. Identifying commonalities, significant differences and emerging trends in the digitalization of innovation processes in companies is the methodological objective.

The analysis is based entirely on objective data collected from public sources, with no primary data or proprietary information used, and the platforms were chosen based on transparent criteria to ensure consistency and comparability of results. These criteria included the availability of technical and commercial information to the public (official websites and assessment platforms such as G2, Capterra or Gartner), the availability of recent data updates for active platforms between 2023 and 2025, coverage of at least three critical stages of the innovation process (idea generation, evaluation and implementation or monitoring of results), the presence of collaboration mechanisms such as knowledge sharing, crowdsourcing or internal and external campaigns, as well as a certain level of costs and access models.

Data on the scope, innovation processes, key functionalities, collaboration mechanisms, use of digital technologies, access models and reported performance indicators were collected for each platform chosen in the research. A qualitative scoring method was used for the review to support comparison between platforms, and the data was transposed into a comparative table. A five-point rating system was used to standardize all features, with higher ratings indicating more thorough and verified integration, so validation and replication of the results are guaranteed by this transparent and repeatable process, which relies exclusively on publicly available sources.

The analysis dimensions, which are presented in Table 2, were established by association with general principles from the specialized literature and the ISO 56002:2019 standard and were used to structure the data collection table.

Table 2. Dimensions and criteria for comparative analysis of digital innovation platforms

Dimensions	Analysis dimension	Synthetic description	Reference
D1	Functionality of the innovation process	Extent to which the platform covers the ideation-evaluation-implementation-monitoring stages	(ISO, 2022), (Gartner Peer Insights, 2025), (Brightidea, 2025)
D2	Type of innovation supported	Typologies: incremental, disruptive, collaborative, open (open innovation)	(Chesbrough, 2020), (G2.com, 2025)
D3	Collaboration and partnership mechanisms	Existence of internal and external campaigns, communities, cross-sector partnerships	(Carayannis & Campbell, 2021), (Nieminen, 2024)
D4	Performance and reporting indicators (KPI)	Presence of dashboards, idea reporting, conversion rate, ROI	(Idris & Durmuşoğlu, 2021), (Wilkins, 2025)
D5	Integrated digital technologies	AI, machine learning, analytics, API, cloud integration, security	(Vărzaru & Bocean, 2024), (ITONICS GmbH, 2025)
D6	Accessibility and costs	Pricing model (freemium/trial/enterprise license), ease of implementation	(Nambisan, et al., 2017)
D7	Adherence to innovation management principles	Correlation with ISO 56002 elements: leadership, processes, continuous improvement	(ISO, 2022), (Idris & Durmuşoğlu, 2021)

Source: Authors' own research.

Results and discussions

Based on the seven dimensions specified in the methodological grid, in Table 2, (D1 – D7), data was taken from public sources (the official websites of the platforms, G2, Capterra and Gartner Peer Insights) and combined into analytical tables made in Microsoft Excel.

Table 3 presents the scores for the seven dimensions described above to illustrate the differences between the chosen platforms. These findings provide a detailed picture of the advantages and functional differences between the analyzed solutions and allow a comparison of the capabilities of each platform.

Table 3. Platform evaluation on the seven dimensions (D1 – D7)

Dimensions and platforms		D1	D2	D3	D4	D5	D6	D7
Brightidea	Scor	5	4	4	5	5	3	4
	Description	Full innovation flow	Incremental and disruptive	Internal and open innovation campaigns	Custom dashboards and indicators	AI, API, cloud integration	Enterprise model, high cost	Partial (leadership, processes, evaluation)
HYPE Innovation	Scor	5	5	5	4	4	3	4
	Description	Full coverage of the innovation cycle	Collaborative and open	Highly advanced (campaigns, partnerships)	Idea analysis and tracking systems	Cloud, analytics, gamification	Customized enterprise license	Partial alignment (strategy, continuous improvement)
Qmarkets	Scor	5	4	4	5	5	3	4
	Description	Complete, automated	Incremental and strategic	Internal campaigns and external collaborations	Detailed KPI dashboard	AI and automated workflow	High cost, but high scalability	Explicit in official documentation
ITONICS	Scor	4	4	4	5	5	2	5
	Description	Strategic analysis oriented	Strategic, disruptive	Partnerships and external integration	Advanced (roadmap and impact)	AI, analytics, data visualization	High cost, high complexity	Complete, according to internal processes
Agorize	Scor	4	5	5	3	4	4	3
	Description	Focused on idea generation and collaboration	Open, collaborative	Very high (university-industry, startups)	Moderate (number of participants, ideas)	Engagement tools, gamification	High (trial, flexible models)	Partial (feedback, improvement)
IdeaScale	Scor	3	3	3	3	3	5	2
	Description	Simplified idea generation and evaluation	Incremental, participatory	Public communities and open feedback	Basic reports	Cloud, API	Very high	Low

Source: Authors' own research.

Based on the dimensional assessment framework, presented in Table 3, the main conclusions for each digital innovation platform are described below.

The Brightidea platform stands out for its extensive coverage of the innovation process and its advanced analysis tools, being a mature and well-structured solution. High scores on digital technologies, KPIs, process functionality and alignment with the ISO 56002 standard indicate a strategic and efficiently organized approach. Even though this platform supports collaboration, the focus remains oriented towards internal processes, confirming hypothesis H1 regarding the

dominance of internal innovation in enterprise platforms, while, at the same time, high costs and limited accessibility can represent obstacles for small organizations.

HYPE Innovation positions itself as an open and collaborative innovation platform, with a strong focus on external ecosystems, crowdsourcing, and university-industry collaborations. The importance given to participatory and open innovation models is validated by high cooperation and innovation scores, which support hypothesis H3. The complexity of the analysis is limited compared to highly strategic platforms, despite the fact that the operation of processes and technology integration demonstrate a higher maturity. Innovation within the HYPE platform is more suitable for companies with more complicated digital infrastructures due to its high costs and more difficult implementation.

The Qmarkets digital platform presents a balanced innovation management profile, combining easy-to-develop collaboration with well-structured internal control. High scores for functionality, KPIs and digital technologies highlight the efficient integration of processes and the use of artificial intelligence for classifying and prioritizing ideas. Even though this platform allows external collaboration, the focus remains mainly oriented towards internal innovation processes, and these results confirm hypothesis H2, highlighting significant differences between platforms in terms of governance maturity and alignment with standards.

The ITONICS platform stands out as a strategically oriented innovation solution, focused on portfolio management, development direction planning and forecasting activities. The high scores for digital technologies, KPIs and alignment with ISO standards reflect its role as a decision support system, more than a platform dedicated to open collaboration. Due to its high complexity and limited accessibility, ITONICS is more suitable for large organizations with advanced R&D capabilities, thus, the results support hypothesis H2, highlighting the link between high technological and financial barriers and a higher level of governance maturity.

The digital platform Agorize promotes collaboration and emphasizes open innovation through hackathons, challenges, and partnerships between universities and companies. The high scores for innovation type and external cooperation support hypothesis H3, highlighting that few platforms actively support academic collaboration. Even though it stands out for its accessibility and high engagement, its use remains oriented more towards short-term, competition-based innovation initiatives due to the lack of advanced KPIs and strategic portfolio management.

The IdeaScale platform emphasizes accessibility and ease of use, focusing especially on incremental and participatory innovation. Lower scores on functionality and KPIs show a simplified innovation process, oriented towards the collection and evaluation of ideas. Due to its high accessibility and low implementation costs, the platform is suitable for NGOs, public institutions and small businesses. These results support hypothesis H1, highlighting that accessible platforms mainly favor incremental innovation, unlike innovation systems that are more strategically regulated.

To support the interpretation of the comparative results, a two-dimensional analysis was conducted based on two main components of the conceptual framework, namely functionality and collaboration. Functionality reflects the platform's capacity to support more complex and well-organized internal innovation processes, while the collaboration dimension highlights the level of involvement of external participants in the innovation cycle. These two categories allow for a clear differentiation between platforms oriented towards internal innovation management and those focused on external collaboration, while integrating the relevant elements for the analysis of the relationship between academia and the private sector.

The composite mean values of each dimension were determined and are presented in Table 4 as input values of the graphical representation.

Table 4. Functionality and collaboration – average scores across platforms

PLATFORM	FUNCTIONALITY (D1+D4+D5)/3	COLLABORATION (D2+D3+D6)/3
Brightidea	5	3,67
HYPE Innovation	4,33	4,33
Qmarkets	5	3,67
ITONICS	4,67	3,33
Agorize	3,67	4,67
IdeaScale	3	3,67

Source: Authors' own research.

To represent the data, a scatter plot was created, with the vertical axis representing collaboration and the horizontal axis representing utility. These platforms can be located in a two-dimensional framework using this approach, which supports the identification of unique clusters and reveals their strategic characteristics.

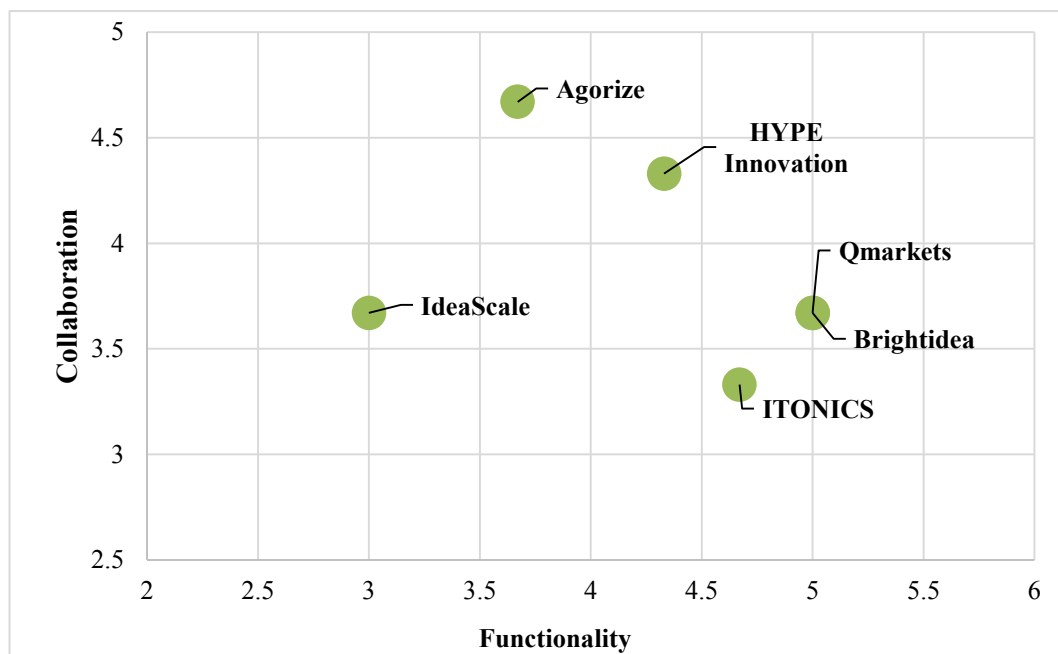


Figure 3. Positioning platforms by functionality and collaboration (Scatter Plot)

Source: Authors' own research.

From the graph above, four theoretically significant areas are highlighted, firstly, there is a greater emphasis on internally controlled innovation processes in the Brightidea, Qmarkets and ITONICS platforms, which are positioned as highly functional but less collaborative platforms. This visualization supports hypothesis H1, according to which enterprise platforms prioritize

internal innovation processes. At the same time, the HYPE Innovation platform highlights a balance between high functionality and collaboration, which indicates a high level of organizational maturity and good adaptation for innovation projects carried out between different domains. Also, the orientation of the Agorize platform towards external collaboration, along with the reduced functionality, confirms hypothesis H3 regarding the important role of open platforms in academic collaboration and innovation ecosystems. In the case of the IdeaScale platform, the reduced functionality and the emphasis on accessibility reflect a participatory approach, oriented more towards incremental innovation than towards strategic innovation governance.

The results of the comparative analysis support the main objective and hypotheses of the research, highlighting clear differences between the way digital innovation platforms manage organizational processes and collaboration across different domains. The analysis directly answers research questions RQ1 and RQ2, highlighting a separation between platforms oriented towards external collaboration and open innovation, such as Agorize and IdeaScale, and those focused on internal innovation processes, such as Brightidea, Qmarkets and ITONICS.

Platforms with a high degree of accessibility have higher scores on the cooperation side, but have low process maturity, platforms with very good functionality, comprehensive analytics and organized governance favor internal innovation, supporting the first hypothesis (H1). The limited validation of hypothesis H2 highlights the differences between digital innovation platforms in terms of governance maturity and level of alignment with ISO 56002 standards. At the same time, the results obtained support hypothesis H3, indicating that advanced digital technologies are still used to a limited extent to support long-term collaboration between academia and the private sector.

The results obtained highlight two main trends, the first is represented by the difference between open and participatory platforms and technologically advanced enterprise solutions, and the second is represented by the lack of a platform that effectively combines modern innovation processes with solid institutional collaboration mechanisms. In this context, a high-performance digital platform should integrate a modular architecture, efficient tools for external collaboration, artificial intelligence-based analytics, support for the entire innovation cycle, alignment with the ISO 56002 standard, high accessibility and clear performance evaluation mechanisms. These results provide both a perspective on the current limitations of the analyzed platforms, as well as directions for the development of solutions that more effectively support collaboration between academia and companies.

Conclusion

This research analyzed, through a conceptual and comparative method, how digital innovation platforms support processes in companies and collaboration between them and academia. These digital platforms represent socio-technical infrastructures that integrate processes, resources and stakeholders.

The comparative analysis of the six platforms available internationally revealed significant variations in terms of technological capabilities, strategic orientation, process maturity and support for collaboration between organizations. The Agorize and IdeaScale platforms, which are open platforms that emphasize accessibility and participation at a higher level, and the Brightidea, Qmarkets and ITONICS platforms, which emphasize internal processes and complex innovation governance, emerged as two main trends in the research.

The results obtained prove the research hypotheses, which show that the orientation towards internal processes is more accentuated (H1), the elements of the ISO 56002 standard are not fully

involved (H2) and the performing digital functionalities are used less to support the long-term academic collaboration (H3). The main contribution of this research was to develop an empirically validated analytical framework that highlights the important components of a successful digital platform for industry-academia collaboration, identifying the limitations of existing solutions and providing relevant directions for the development of future platforms and further research.

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