

Networks in Born Global Firms (BGs): An Integrated Theory of Inventive Problem Solving Approach

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Abstract

Globalisation is a complex and dynamic process that requires a firm's network to support rapid international expansion. However, there still needs to be a critical gap in understanding how born global firms (BGs) can systematically identify, assess, and optimise network resources at various stages of their internationalisation. This study proposes integrating TRIZ (Theory of Inventive Problem Solving) tools into analysing network dynamics in BGs. The research uses S-curve analysis, the main parameter of value (MPV) analysis, and the 9-Windows tool to systematically investigate how BG firms can optimise their networks during different stages of globalisation. The findings provide practical information for these firms to leverage their networks, effectively supporting rapid international growth. This research contributes to the literature by underscoring the strategic importance of network utilisation and providing a foundational roadmap for future studies on network dynamics and resource management in early-stage internationalising firms.

Keywords: Born Global, Networks in Internationalisation, S-Curve Analysis, Main Parameter of Value (MPV) Analysis, and the 9-Windows

Introduction

BGs are firms characterised by rapid and early internationalisation from their inception. In general, these small firms face many significant challenges while overcoming restricted financial and human resources and issues of legitimacy in new markets (Rumyantseva & Welch, 2023; Taylor et al., 2021; Iqbal et al., 2021). Despite such limitations, BGs rely on linkages to external networks to access critical resources that support their internationalisation (Oliva et al., 2022; Weerawardena et al., 2020). In this respect, the reliance on networks to access and develop externally managed growth-enabling resources differentiates the BG from more giant multinational corporations. This is because the former relies more on the resources controlled by other organisations, which are made accessible by

developing certain critical strategic network relationships (Hennart et al., 2021; Monaghan et al., 2020; Iqbal et al., 2020).

Formal or informal networking strengthens the rapid internationalisation process of BGs through access to valuable resources, knowledge, and market opportunities. For example, extant evidence shows a significant positive relationship between resources acquired through a firm's network and its internationalisation performance. Today's business world is increasingly perceived as an integrated web of interdependent connections rather than a neoclassical marketplace involving independent suppliers and consumers (Johanson & Vahlne, 2015). Entrepreneurial strategies towards different networks significantly impact the firm's internationalisation processes (Coviello & Munro, 1997; Coviello, 2006). In particular, small BGs benefit from creating relational trust with established partners in their network by mitigating risks and improving organisational learning. Therefore, "the BGs use these durable links to develop and acquire expensive organisational capabilities. Long-term relationships are common in supporting learning and resources accrual in BGs."

Despite the acknowledged importance of networks for BGs, it is necessary to critically understand how these firms can systematically identify, assess, and optimise network resources at different stages of their internationalisation. Traditional research must focus more on strategic processes through which BGs identify and use network resources to improve decision-making and optimise resource allocation. TRIZ, the Theory of Inventive Problem Solving- is a structured approach to problem-solving and innovation traditionally used within manufacturing and business domains to enhance the analysis of network dynamics in BGs. TRIZ maintains that resources are crucial for implementing an innovative, tangible, or intangible solution.

This article aims to apply the tools of TRIZ (Iqbal et al., 2025; Zulhasni & Iqbal, 2023a,b) to support BGs in systematically identifying and optimising network resources for internationalisation. This research stems from networks' critical role in international-born global firms. These firms often need more support, such as limited resources and a lack of legitimacy, which make strategic network utilisation essential for survival and growth. Despite numerous studies emphasising the importance of networks, there remains a notable gap in systematic methodologies that help firms identify and optimise these network resources effectively. This study aims to fill this gap by leveraging TRIZ tools, which provide a structured approach to understanding and enhancing network dynamics.

This research significantly contributes to international business and innovation management by integrating TRIZ-based analytical tools—S-Curve Analysis, MPV Analysis, and the 9- Windows Tool—into studying born global firms' networks. Doing so offers a comprehensive framework that deepens the understanding of network evolution and equips firms with practical strategies for optimising resource allocation and strategic decision-making. This approach provides a novel perspective that extends beyond traditional network theories, adding value for scholars and practitioners seeking to enhance the international performance of born global firms.

Methods

This study applies a systematic methodology based on the fundamental TRIZ tools theory of inventive problem solving, analysing network dynamics that born global firms must undergo during their internationalisation (Rahim & Iqbal, 2022). In general, TRIZ offers a structured methodology for problem-solving and innovation and is especially adequate for comprehending and optimising complex systems like dynamic networks within BGs. This research will apply TRIZ tools to answer our research questions of systematically analysing and optimising network resources within BGs. One of the tools applied in this respect is the Main Parameters of Value, MPV. This is a crucial descriptor since it represents critical elements of customer value and significantly contributes to understanding the appeal of any product or service to customers. MPV analysis creates alignment between business objectives and market demands, extending the traditional uses of TRIZ to create practical solutions within business contexts where there is an explicit need for impact.

In BG networks, for example, an MPV analysis would underline the critical relationships in the network that are instrumental to the success in the internationalisation of a firm and would allow better prioritisation of resources. Another essential tool applied in this respect is S-curve analysis, which is the generic form of the model for examining the evolutionary dynamics of life cycles in biology, engineering, economics, and finance. According to scholars such as Baur et al (2017), and Bukhman (2021), the S-curve analysis framework describes four distinct phases of birth, growth, maturity, and decline in describing the evolutionary path of a system.

The S-curve analysis, applied in this study, maps the evolutionary paths of the relationships in the BG network relationships; as such, it gives a high possibility of constructing which stages exist in the life cycle of a relationship and can thus predict future trajectories. The insight addresses our research objective- to comprehend the evolution of network dynamics across different stages of BG internationalisation- and inform strategic decisions on optimising network use at each stage. The 9-Windows tool provides a structured multidimensional approach to problem and innovation analysis, exploring systemic interactions at hierarchical levels: subsystem, system, and supersystem across three temporal phases: past, present, and future. This provides a comprehensive view of the context, evolution, and possible further development of the problem.

Applied to BG networks, it allows the 9-Windows tool to perform a wide-ranging analysis of network dynamics along time frames and system levels to trace the origin of network-related challenges managers face, assess the current situation, and identify future needs. Therefore, this proposal contributes to deepening the understanding of how TRIZ tools systematically support the analysis and optimisation of BGs of network resources in a way that contributes to the development of a coherent and adaptable internationalisation strategy.

By integrating these TRIZ tools, this study represents a framework that would enhance the BG's strategic capability to manage its network resources. This enables a BG to meet short-term internationalisation challenges while offering a sustainable path for adaptation to global markets' complex and dynamic nature.

Use TRIZ in the BG network

Integrating TRIZ tools, such as S-Curve Analysis, MPV Analysis, and the 9-Windows Tool, addresses critical aspects of network dynamics in born global firms. S-Curve Analysis enables firms to understand the life cycle of their network relationships and anticipate future challenges. MPV Analysis helps prioritise network resources that provide the highest value, ensuring efficient resource allocation. The 9-Windows Tool offers a holistic view of the firm’s situation across different time frames and system levels, allowing for strategic foresight and adaptation. Together, these tools create a robust framework that equips born global firms with the analytical capabilities to thrive in international markets.

Analysis of the main parameter of value (MPV) in the BG network

MPV analysis is one of the powerful TRIZ tools that could be adapted to analyse and optimise BGs' networks. MPV analysis applied to network relationships identifies the list of critical parameters that create the most value for the firm and thus assists in choosing which network resources and links to emphasise. Such parameters could include the following:

- Network Diversity
- Knowledge Transfer Efficiency
- Access to resources
- Complementarity of Partners
- Network Reactivity
- Quality of trust and relationships
- Technological Integration
- Financial Value

Table 1 shows the main MPV.

Table 1
Main parameters of value (MPV) in the BG network

MPV	Description	Example Metric
Network Diversity	Variety in Geographical and Industrial Connections	Number of countries/industries represented in the network
Knowledge Transfer Efficiency	Speed and Effectiveness of Information Sharing	Frequency of Knowledge Exchanges
Access to resources	Ease of accessing network resources	Time to acquire the necessary resources through the network.
Complementarity of Partners	How well do partners' capabilities align with BG's needs?	Degree of skill/resource match with partners
Network Response	Ability to adapt to market changes	Time to enter new markets through the network
Quality of trust and relationship	Strength of network relationships	Partner satisfaction ratings
Technological Integration	Level of tech-enabled collaboration	Adoption Rate of Shared Digital Platforms
Financial Value	Economic Benefits of the Network	Revenue generated through network partnerships

Firms could identify and evaluate these MPVs in BG networks through quantitative measures, such as the number of international partners and the frequency of knowledge exchanges, added to qualitative assessments, including partner satisfaction surveys and perceptions of relationship strength. These MPVs will vary in importance at different phases of a BG's internationalisation process. For instance, at the formation stage, a BG may focus on 'Network diversity' and 'Resource accessibility' to rapidly expand its global reach. In the later stages of its development, partner complementarity, trust, and relationship quality may become more significant when the company consolidates the already established alliances and works to make the network more effective.

Curve Analysis in the BG Network

The S-curve analysis is a tool meant to indicate the life cycle and trends in the growth of networks inside BG. Usually, the S-curve model can be graphically represented by four stages: birth, growth, maturity, and decline. Each stage will indicate a different phase in the firm's network evolution.

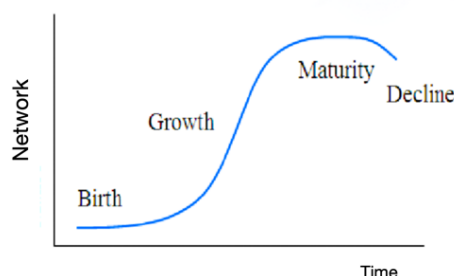


Figure 1. S-Curve Analysis of the Network

During the pivotal introduction stage, Business Groups (BGs) embark on a transformative journey, laying the groundwork to forge their nascent networks. This critical phase is marked by limited network size and restricted resource access, forcing companies to focus intently on cultivating foundational connections. As they enter unfamiliar markets, they frequently face formidable challenges related to legitimacy and recognition.

The speed of growth is intentionally measured while the firm works steadfastly to gain the confidence of potential partners and stakeholders by trying to convince them of its intrinsic value and strategic relevance. Growth is an exciting and explosive growth of the firm's network. With BGs starting to gain prestige and recognition, an exponential growth in quantum and quality is seen in their contacts. This is the very critical stage that helps them scale up operations and enter virgin markets. Expansion is often driven by forming early alliances to unlock other resources and opportunities. It can result in a dramatic increase in the global reach and competence of the firm, a rapid and profound increase in global linkages, expansion of network alliances, rapid learning, and resource acquisition.

Network growth begins to slow to maturity, and this dramatic change becomes crucial for BGs. The groups may come to realise, with increasing unease, that their strong, by now allegedly primary markets and networks are approaching a near-saturated state. Therefore, any strategic focus must shift dramatically from pure network growth to judicious optimisation and skilful management of existing relationships.

This is also the essential stage, where strategic network management is the cornerstone of maintaining a competitive advantage. It also opens possibilities to look toward secondary markets- an opportunity to diversify network portfolios- a critical juncture for the business's long-term success. An ominous decline stage might arise when the BG has not been sufficiently nimble in adapting the network strategy to changed market conditions or increased competitive dynamics.

It is usually characterised by either the stagnation of the network, which is rather disturbing, or contraction in either network size or utility, which is even more disquieting. BGs galvanise and must reinvent their network strategies in this stage through a life cycle to combat the risks associated with them proactively. This may mean boldly venturing into virgin markets, forging innovative partnerships, or investing strategically in avant-garde technologies.

Such decisive actions are advantageous and essential to secure a proven path toward long-lasting success and resilience when facing challenges.

Characterise the S-curve stage of the BG network through its characteristics and performance characteristics. This kind of analysis gives the phase of current evolution and provides a forecast of further growth. Identify signs of phase transition related to slowing growth rate and challenges signalling changes in trajectory. It is crucial to determine the position of BGs on the S curve for strategic planning and physical resource allocation to sustain growth or initiate renewal.

The 9-Windows in the BG network

The 9-Windows Tool, System Operator or Multi-Screen Analysis in TRIZ is a practical method for investigating a company's situation from various angles. Applied to BG network strategies, it becomes a profound analysis to understand and design network growth in terms of various times and tiers of systems. Table 2: 9-Windows analysis of the BG network.

Table 2

The 9-Window Analysis of the BG Network

	Past	Present	Future
Supersystem	<ul style="list-style-type: none"> ⑩ Past regulatory environments ⑩ Previous Market Conditions ⑩ Old industry structures ⑩ Historical International Trade Policies 	<ul style="list-style-type: none"> ⑩ Current Market Trends ⑩ Regulatory Landscape ⑩ Present Competitive Environment ⑩ Existing Technology Infrastructure 	<ul style="list-style-type: none"> ⑩ Anticipated market trends ⑩ Regulatory Forecasts ⑩ Emerging Technologies ⑩ Predicted Changes in Global Trade
System	<ul style="list-style-type: none"> ⑩ The firm’s historical strategies ⑩ Early Network Structure ⑩ First international partnerships 	<ul style="list-style-type: none"> ⑩ Current business strategies ⑩ Current operational processes ⑩ Current network configuration ⑩ Existing network management practices ⑩ Ongoing International Collaborations 	<ul style="list-style-type: none"> ⑩ Future Strategic Directions ⑩ Potential business model innovations ⑩ Expected Network Evolution ⑩ Planned Strategic Alliances
Subsystem	<ul style="list-style-type: none"> ⑩ Connections of the Founding Team ⑩ Initial contacts in foreign markets ⑩ Early resource providers 	<ul style="list-style-type: none"> ⑩ Current Partners ⑩ Active Suppliers and Customers ⑩ Existing Knowledge Sources 	<ul style="list-style-type: none"> ⑩ Potential new partners ⑩ Emerging Market Connections ⑩ Future resource needs

The 9-window tool provides an analytical framework that covers three systemic strata—subsystem, system, and subsystem—placed within three temporal dimensions: past, present, and future.

This structure provides a comprehensive perspective on the evolution of business groups' (BGs) networks and their prospective trajectories.

The supersystem level examines the wider business environment, from the historical contexts of regulation and markets to an assessment of current trends and competitive landscapes, including forecasts of the future market shifts that may occur along with technological developments. This perspective allows firms to take a retrospective and prospective look at the influence of external factors on the development of their networks. The system level focuses on the firm's internal strategy and network configuration. It maps the development from the network's basic structure and international partnerships to contemporary business

strategies and network management practices. We also look forward to potential business models and strategic alliance innovations. This layer allows firms to align their network strategies with general business goals, enabling them to adapt to changing circumstances.

At the subsystem level, it involves the concretisation of network components: analysing the journey from the foundational team's first connections through the current partners and sources of knowledge to anticipate future resource needs and potential partnerships. Each deep analysis would give the firms a clear picture of the vital relationships and resources that lead their internationalisation processes.

By observing these interlinked "windows," business groups can gain deep insight into how their networks have changed.

This will help them discover what is essential in strengths, recognise crucial weaknesses, and create imaginative strategies for future development and change. Therefore, a BG is ready to apply this approach in determining which of its current network or system links best fits the excellent trends appearing in the marketplace as the supersystem.

By identifying these alignments, a group is thus best able to strategically restructure its partnerships or subsystems to better secure 'big, hairy, and audacious' organisation goals concerning its future network or system. A second way BGs may use the insights from previous industry frameworks is past supersystems to inform their own future systems or network designs.

The lessons that can be learnt from how these past architectures functioned have become precious insights to guide strategic decisions that BGs are making today. This holistic approach helps them navigate the competitive landscape more efficiently and facilitates building robust networks for sustained success. Furthermore, this dynamic and comprehensive understanding can unlock extraordinary potential for BGs to adapt and thrive in a rapidly changing business environment.

Integration of TRIZ Tools into the BG Network

By peering through these linked "windows," BGs can learn how their networks change, where strengths and weaknesses lie, and where growth is forecast. In practical terms, a BG company might use this tool to discover which present network relationships (current system) match up with upcoming market trends (future supersystem) and work out how to adapt particular collaborations (subsystem) to support the company's future network objectives (future system).). Alternatively, BG can use it to find out how previous industry frameworks provided a context shaping the potential for future network design, which forms part of the future system.

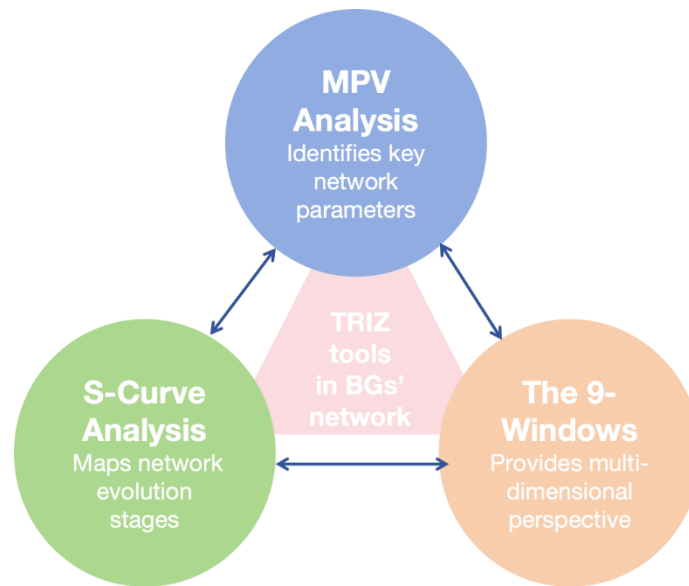


Figure 2. TRIZ Tools in the BGs Network

Conclusions

By meticulously examining these interconnected "windows," BGs can profoundly grasp the evolution of their networks, pinpoint existing strengths and weaknesses with precision, and craft visionary strategies for future development. In practice, a BG firm could adeptly deploy this tool to discern which current network connections (present system) resonate with emerging market trends (future supersystem) and ingeniously determine how to recalibrate individual partnerships (subsystem) to fortify the firm's aspirational network goals (future system). Additionally, BG can use it to uncover how past industry architectures (past supersystems) might astutely illuminate future network configurations (future systems).

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