

Risks-Benefits perception of digital supply chain finance platform in the context of Bangladesh

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Keywords

Bangladesh, challenges, digital, economy, finance, risk, supply chain, technology

Abstract

In this modern era of globalization and advancement of technology, the urgency of automation in the financial sector is increasing day by day. To meet the increasing demand of an expanding population, modern supply chains need to be more dynamic, robust and scalable. In developing economies, the need for supply chain financing in basic level of production and distribution lifecycle is growing day by day. But in Bangladesh, due to lack of funding and technical knowledge, a proper ecosystem has not been developed for structured supply chain financing (i.e. factoring, work order and distributor financing). This paper primarily investigates some of the key risks and challenges in implementing a digital supply chain platform through questionnaire-based research. Moreover, this paper develops some risk mitigation strategies that would be useful for any organization planning to implement a digital supply chain platform.

Introduction

In Bangladesh suppliers and distributors operate in the lower segment of production and distribution lifecycle. Based on the extent of their business the ticket size for supply chain financing is relatively small. MSEs (Medium & Small Enterprises) have very limited access to structured financing, thus revert to inflated cost, irregularity in financing which hinders their business growth. Large corporates that are termed as Original Equipment Manufacturers (OEMs) prefer to deal with selective number of suppliers and distributors to ensure ease of operation in a manual environment. However, MSEs generally cannot directly engage with OEMs in business due to shortage of funds and presence of agents/middlemen. MSEs also lack substantial collateral which restricts their access getting financing in the current environment or ecosystem.

The present need instigates the demand for a proper supply chain ecosystem to support the growth of MSEs. This system will make MSEs' financial inclusion easier so that they can complete operational process with proper funding. The transformation of manual to digital platform will save time, money and resources and increase the overall efficiency of the business process. The reduction in operational costs will cover up the interest expense of financing. In recent years, Non-Banking Financial Institutions (NBFIs) have played a remarkable role in introducing supply chain finance to big suppliers and distributors in the domestic market. NBFIs are proactively stepping forward to offer supply chain financing services. More research and analysis need to be conducted for the upgradation of the existing system from a manual to digital platform.

New age Fintech companies emphasize on cloud-based technologies and they are being more interested to invest in supply chain finance. It helps them provide more options to potential clients who are eager to sell their payables and receivables. This process ensures early payment in exchange for discounts. The involvement of technology and digitalization can help financial institutions to reach out to the target segment.

Literature review

The digitalization of financial services is likely to increase competition and security risk for information sharing. Cloud-based infrastructure indicates the reduction of fixed costs in hardware (Corporation, 2017). Schlüter, Diedrich, and Güller (Schlüter, et al., 2017) emphasized the impact of digitalization on supply chain risk management cycle. Based on literature analysis they have discussed supply chain risk management phases.

Monostori (Monostori, 2018) summarized some risk mitigation strategies considering the robustness of the supply chain. In their study they introduced a framework for evaluating structural and operational robustness of supply chain. On the other hand, Bahroun and Harbi (Bahroun & Harbi, 2015) proposed a new framework for risk categorization based on literature review and case study of a leading retail company in Tunisia. They outlined a numerical analysis of supply risk and indicated new opportunities for research in supply chain arena.

Houshyar, Muktar, and Sulaiman (Houshyar, et al., 2010) investigated the probable reasons for supply chain disruptions and classified the risks associated with it. Based on the classification they have developed strategies that can mitigate the risks. Finally, they used an automotive supply chain case study in Malaysia to support their findings. Meixell and Norbis (Meixell & Norbis, 2011) developed a two-part assessment methodology that uses a combination of individual risk and element interaction to assess the security risk of global supply chain practices. Their framework results in a single supply chain risk index value for a specific supply chain.

McFadden and Arnold (McFadden & Arnold, 2010) Focused on the market of IT electronics to analyze the risk associated with the IT supply chain. In their study they discussed deployment of test suite that will significantly reduce the threat of malicious implants in digital system. Kobayashi, Tamaki, and Komoda (Kobayashi, et al., 2003) proposed a solution for business process integration involving workflow and enterprise application integration. According to them their proposed solution will reduce manpower, cost and process complexity of supply chain management

Korpela, Dahlberg, and Hallikas (Korpela, et al., 2017) studied the requirements and functionalities of supply chain integration and concluded that integration with the blockchain network will benefit supply chain ecosystem and accelerate growth potential. Mathis and Cavinato (Mathis & Cavinato, 2010) explored the best practices of global supply chain financing and management. According to them, decentralized approach creates inefficiency for the overall supply chain process. Neubert, Ouzrout and Bouras (Neubert, et al., 2004) studied the methods used for supply chain collaboration and highlighted the importance of integration with technological platforms in supply chain process.

Silvestro and Lustrato (Silvestro & Lustrato, 2014) assessed the role of banks in enabling supply chain integration. Their research analyzed the perspective of buyers and sellers to develop a model of physical and financial supply chain integration.

Albrektsson (Albrektsson, 2011) also studied supply chain finance from a bank's perspective and outlined the benefits and challenges involved in digital supply chain solutions. According to the study, banks can reduce the inefficiency of resource allocation through holistic automated supply chain services.

Wang and Yang (Wang & Yang, 2016) studied the structure of different loans in the supply chain ecosystem and analyzed the risk associated with it. According to them some of the major risks of microloans include but not limited to higher financing cost, loan default, business transfer, internal control etc.

More and Basu (More & Basu, 2012) examined the challenges of supply chain finance and developed a hierarchical model to understand the complexity of them. Their research on Indian firms revealed that the most critical challenge in way of supply chain finance is the lack of common vision among supply chain partners. He concluded that collaborative approach among all supply chain partners can improve the stability of the process. Similarly, an article by Supplychainbrain

emphasized on collaborative approach of supply chain managers for successful implementation of supply chain finance services (SupplyChainBrain, 2015).

Ivanov et al. (Ivanov, et al., 2019) studied the impact of digitization on supply chain risk management. Their study focused on digital supply chain twins and proposed supply chain risk analytics framework. They have suggested virtual reality supported simulation to resolve disruptions in the system. Their claim is also supported by Banker (Banker, 2018) who proved that the supply chain twin maintenance model will help to minimize the forecasting errors and unplanned failures in supply chain.

Manuj and Mentzer (Manuj & Mentzer, 2008) conducted 14 interviews and FGD meetings with top supply chain executives and outlined six risk management strategies for global supply chain of the manufacturing industry. Olson and Wu (Olson & Wu, 2010) also studied supply chain risk management. They focused their studies on risks of supply chain in China. They concluded their research with a framework that can categorize risks associates with Chinese enterprise supply chains. Similarly, Büyüközkan and Göçer (Büyüközkan & Göçer, 2018) emphasized on existing digital supply chain literature to identify the key limitations and prospects of digital supply chain management. The importance of all these analyses was reflected by Zsidisin and Henke (Zsidisin & Henke, 2018). In their research they showed how traditional concept of supply chain risk can bridge the gap of existing risks and prospects.

A new digital revolution in the supply chain field is brought by Blockchain technology. Ying, Jia and Du (Ying, et al., 2018) researched Blockchain enabled E-commerce platform of Hainan Airlines and found that blockchain can add value by issuing cryptocurrency, ensuring information security and eliminating organizational intermediaries. Kshetri (Kshetri, 2018) highlighted how blockchain can help to achieve supply chain objectives. According to him the incorporation of IoT in blockchain technology will positively impact current supply chain management process.

Saberi et al. (Saberi, et al., 2019) examined blockchain technology with respect to supply chain management. They divided technology adoption barriers into 4 categories: inter-organizational, intra-organizational, technical and external. On the other hand, Min (Min, 2019) focused on how blockchain can be leveraged to minimize organizational and technical risks associated with supply chain process. According to his research blockchain can create competitive advantage by preventing risk occurrence, reducing system disruptions, improving flexibility and changing conventional risk management processes. Giannakis, Spanaki, Dobey (Giannakis, et al., 2019) examined the effects of cloud-based supply chain management on supply chain responsiveness. They developed an architecture of cloud-based systems and proved that it enhances supply chain responsiveness.

Research methodology

For this study, we have followed web-based questionnaire methodology. A standard online questionnaire was prepared comprising questions regarding critical risk and challenges of digital supply chain platform and proposed mitigation strategies. The questionnaire was then circulated among 20 suppliers/distributors and 10 Original Equipment Manufacturers (OEMs). Research findings were developed based on their responses.

Secondary data was collected from refereed journals, articles, websites, etc. We linked the secondary data with our primary research findings and found positive correlation.

Findings and Results

Benefits of implementing a digital platform

From the 30 companies who submitted their responses, we have found the following benefits to be most evident and common among suppliers, distributors, and OEMs.

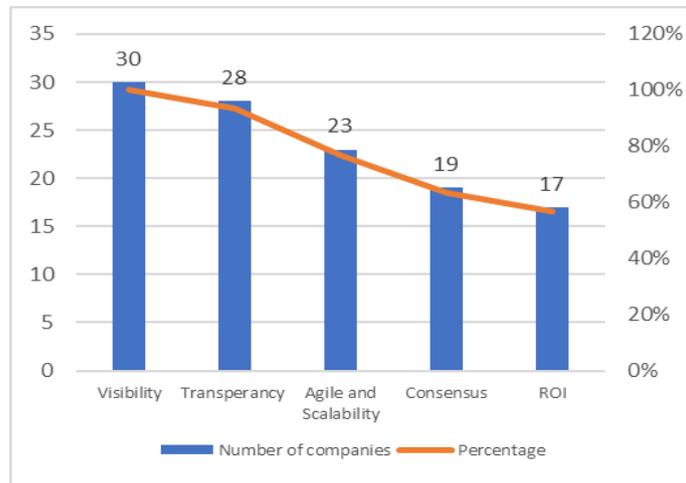


Figure 1: Benefits of digital supply chain platform identified by the sample population

From figure 1 we can see out of the 30 companies 100% of them agreed that the digital supply chain platform will bring visibility in their day to day operations. In manual process due to delay in documentation and approval of the whole operation gets hampered. An integrated digital platform provides scope for cross-sectional data transfer and ensures visibility in the process. 28 companies (93%) pointed out transparency to be a major benefit of digital supply chain platform as invoices are uploaded in a shared platform and visible from all ends. 23 companies (77%) emphasized on the cost reduction feature and scalability of the digital system as it will reduce documentation and transportation cost. 19 companies (63%) agreed that through the digital system it is easier to reach mutual agreement if transparency is maintained. 17 companies (57%) highlighted return on investment to be a key benefit of supply chain finance platform.

In Table 1 we can see details of the mutual benefits of implementing a digital supply chain finance platform from different stakeholders' standpoints.

Benefits from supply chain management	Finance provider	Supplier/distributors	Corporate/OEMs
Visibility	-Enables development of performance scorecard of clients -Improved understanding of business performance and intricacies	-Faster access to working capital -Line/rejection correction management	-Market insights and sales data reports -Improved inventory management
Transparency	-Improves risk management -Provides cross-selling opportunities	-Reduced documentation -Improved funding rates	-Better management of receivables and payable
Agile and Scalability	-Short lead and development time -Faster expansion to ecosystem participants	-Easy and standard setup across various OEMs and other stakeholders	-One common ledger across all suppliers and dealer
Consensus	-Reduce disputes -Reduce operational risk	-Reduce invoice disputes -Efficiency on operational tasks (e.g. reconciliation, invoice matching, etc.)	-Useful for procurement and invoice processing -Reduction of stock audit costs
ROI	-Quick return on investment -Penetration into new markets	-Increase in production cycles -Reduction in operational errors	-Focus production based on market data -Reduction of operational risks

Table 1: Benefits of Digital Supply Chain Platform for Different Stakeholder

Risks of implementing SCF platform

4.2.1 Internal risks

Lack of executive support: Risk arises from lack of management policies and internal control. Change in management policies, inadequate internal control structure, lack of knowledge and organizational skills may result in this type of risk.

Fraud/ corruption: Collusion among parties, dishonest staff, lack of audit trails, control systems, proper product guidelines open ways for fraud and corruption.

Data protection and compliance: This risk arises from inadequate security measures, lack of comprehensive IT policies, failure to ensure data integrity in the system etc. This risk also results in internal audit and compliance issues.

Treasury management: Failure to maintain proper cash flow, unavailability of proper reconciliation system creates risk for SCF platform implementation.

Human error: Lack of training, resistance to change, lack of technical knowledge can possess serious risks for any organization in new systems implementation.

4.2.2 External Risk

Breach of contract: Due to commitment issues among stakeholders, organization can suffer through the process of establishing a digital platform. Failure to provide services or inability to complete payment on time creates a lot of complications for organizations.

Electronic banking: Risk arises from not being able to meet the funding commitment due to lack of alternative payment methods.

External environment: Risk arises from the change in economic, social, political, regulatory environment and new tax inclusion.

Recommendation

Based on our research findings we have formulated some risk mitigation strategies in table 2 for the key risks identified.

The Key Risks	Risk Mitigation Strategies
Treasury Management	-Up to date procedural manual; -Monitoring daily fund requirements & positions;
Supplier's commitments	-Create adequate provisions; -Monitor the supplier's activities on utilization of funds;
OEM's Commitment	- Develop a proper MoU with the OEMs; - Incorporating the exit clause in the agreement;
Data protection & Compliance Breach	- Adequate training & awareness program for the users; -Develop a comprehensive IT security policy; -Continuous monitoring of critical data within the system
Internal Audit & Compliance	- Prioritization Mechanism - Buy in resources; - Peer review of audit plan
External Environmental	- Continuous dialogue with the regulatory bodies & policymakers; - Monitor the competitor's business & role in the market;
Relationship with third parties	- Develop a proper MoU with the OEMs; -Incorporate adequate exit clause in the agreement;
Electronic Banking	- Ensure multiple arrangements with different Banks;

Table 2: Risk mitigation strategies

Conclusion

Globalization and the expansion of supply chain financing will set a new trend in the industry. The supply chain financing scope is expanding as a result of globalization, direct sourcing, automated production, and distribution. Financial companies must come up with innovative ideas to

keep pace with the expansion of the economy. In Bangladesh, most of the large businesses are digitalizing their systems like ERPs and SAPs. As world becomes increasingly digital, financial services providers are looking to offer customers the same services to which they're accustomed, but in a more efficient, secure, and cost-effective way. Proper assessment of risk will help organizations evaluate the future course of action in adopting digital supply chain finance platform.

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