

Disruptive Business Model in Logistics A Case Study on Unanu Technologies, Chennai

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Abstract

Disruptive technology is not only applicable for hardware or software, but the latest addition is logistics. The proposed case study will bring to light on how disruptive technology can change the outlook of logistics and supply chain management through UNANU, which can be considered as a blessing in disguise for the logistics industry. When the entire universe is going digital, so also is the dire need for logistics to go digital, which saves a lot of time and helps the service providers to make a good business. A detailed discussion will be conducted on UNANU, its model, U-DHAN, SWOT and the future ahead.

Keywords: Disruptive technology, UNANU, logistics.

INTRODUCTION

The term "logistics" describes the total process of controlling the acquisition, storage, and delivery of resources to their intended location. Choosing potential distributors and suppliers and evaluating their efficiency and accessibility are all part of logistics management. The term "logistics" is used to describe logistics managers. The term "logistics" was originally coined by the military to describe the methods used by military personnel to acquire, store, and transport equipment and supplies. The phrase is increasingly frequently used in the corporate world, especially by organisations in the industrial sectors, to describe the management and movement of resources along the supply chain.

In order for materials and completed goods to be moved through supply chains smoothly, freight transport and logistics, or FTL, is essential. The FTL sector is going through a new era of digitalization, just like many other businesses. The term "digitalization" describes the application of digital technologies to assist both traditional and cutting-edge logistics and freight transport services. Significant changes are frequently involved: 1) within the organization, such as adjustments to business models and procedures; 2) between the organization, such as adjustments to relational, technical, and governance structures; and 3) at the ecosystem and industry level, such as upheavals to the status quo and the introduction of new suppliers of goods and services. (Yingli Wang, Joseph Sarkis 2021). FTL digitalization has a wide range of effects. It has a significant chance of enhancing organizational competitive advantage (Gunasekaran et al., 2017)

IMPORTANCE OF LOGISTICS

Technology is advancing at a rate never seen before in fields including artificial intelligence (AI) and machine learning, 5G, blockchain-distributed ledger technology, pervasive computing, data analytics, and immersive technologies. The FTL sector's status quo is being altered and disrupted by these advancements, which gained momentum during the COVID-19 epidemic. The industry has seen significant transformation due to changes in consumer behavior, expectations, and access to information, e-commerce, and digital services.

The total process of controlling the acquisition, storage, and delivery of resources to their intended location is known as logistics. A company's bottom line may be impacted by poor logistics. The term "logistics" is now frequently used in the business world, notably by organisations in the manufacturing sectors, to describe the management and movement of resources along the supply chain.

LOGISTICS & MANAGEMENT

Simply said, logistics management aims to have the necessary quantity of an input or resource at the suitable time, deliver it to the proper internal or external client, and get it to the right location in good shape. Since the 1960s, the idea of corporate logistics has changed. Supply chain logistics are needed due to the complexity of providing businesses with the goods and resources they require as well as the globalisation of supply networks.

The complexity of logistics procedures and the growth of technology in the contemporary period have led to the development of logistics management software and specialist logistics-focused businesses that hasten the transfer of resources through the supply chain. The entire inventiveness and effectiveness of their logistics along every step of the supply chain is one factor contributing to the huge online merchants like Amazon's rise to dominance in the retail sector.

DISRUPTIVE TECHNOLOGY

Any improved or entirely new technology that disrupts and displaces a current technology, making it obsolete, is referred to as disruptive technology. It is intended to outperform existing technology of a similar nature. Hardware, software, networks, and a combination of technologies are all included in disruptive technology. Regardless of the industry they work in, organizations encounter a range of new technologies that present both opportunities and challenges for their businesses (Tongur & Engwall, 2014). Thus, businesses concentrate on developing Technology continuously produces new goods, services, and procedures that impact market and company structures (Sainio, 2004; Bueno and Balestrin, 2012). Nonetheless, businesses must consider if existing business models are appropriate in light of the new technology, in addition to the opportunity to innovate in the provision of goods and services (Pacheco et al., 2016). The reason for this is that, as the core of a business model is in defining the way the enterprise is organized to deliver value to customers, recognizing the opportunities or threats posed by new technologies introduced in the market for the business model allows the company to react by realigning its products or services, processes, skills, logical forms of profit, and value network relationships (Sainio, 2004 & Teece, 2010).

The examination of the previously mentioned technologies and discontinuous innovations was the main emphasis of the early research on market disruptions (Christensen and Bower, 1996; Christensen, 1997). The concept of disruptive business models was added to these first analyses, connecting business models to disruptions in technology and innovation (Christensen and Raynor, 2003). Accordingly, the disruption of business models occurs when new ideas and technology are integrated into an established business model to a critical point (Moore, 2004). This is due to the fact that businesses must comprehend the cognitive function of business models in order to commercialize new technologies or innovation processes, particularly when the prospects they bring do not fit into pre-existing business models (Chesbrough and Rosenbloom, 2002).

Hwang and Christensen (2008) draw attention to the fact that a lot of businesses struggle to combine innovative and disruptive technologies with fresh business strategies. By restructuring them or developing new models with the goal of offering a distinctive value proposition to the market, disruptive business models are therefore thought to emerge to replace established business models (Mitchell and Coles, 2004; Hwang and Christensen, 2008; Wu et al., 2010).

In this vein, it should be mentioned that business model innovations alone are insufficient to generate new goods or services; rather, they only serve to clarify the nature of already-existing goods and services and the methods by which they are provided to clients (Markides, 2006). In this way, rather than just delivering a new good, service, or procedure, the focus in the context of business model innovation is on the customer (Magretta, 2002), as evidenced by the efforts made to find new methods of adding value for customers (Bashir et al., 2016).

Nevertheless, a number of businesses fail to see the necessity of modifying their current business models to accommodate emerging technologies (Markides and Oyon, 2010). Since business model innovation is one type of innovation that has the potential to have a significant impact on the market and competitors, Gassmann et al. (2013) point out that competition among companies in business ecosystems will occur through innovative business models in addition to new products,

services, or technologies (Zhang et al., 2018) and this could support the creation of a distinctive competitive advantage (Teece, 2010).

Regarding the elements of the disruptive and innovative process to business models, the literature's precise definition and conceptual boundaries remain ambiguous (Wu et al., 2010; Foss and Saebi, 2017). Because of this, this case study clarifies the disruptive business model gap and offers some opportunities for future empirical research, given that the literature on the disruptive process of business models is emerging and addressing a significant phenomenon in the market that lacks the theoretical basis to sustain it.

BUSINESS MODELS

This phrase was only clearly highlighted with the introduction of the Internet in the mid-1990s, despite the fact that business model aspects were used even in societies that participated in exchange markets (McGrath, 2010; Teece, 2010; Zott et al., 2011; Fiet, 2014). The corporate ecosystems were under pressure during this time due to the globalization process and the introduction of new information and communication technologies. As a result, many organizations turned their attention to their business models in an attempt to meet these demands and find ways to modify their organizational structures to accommodate the expanding online marketplace (Kinder, 2002).

Subsequent research revealed that the idea of business models was applied to a variety of industries, businesses, and trades, whether or not they operated online (Mahadevan, 2000; Magretta, 2002; Zott et al., 2010). In this way, while the growth of business models in the management processes of multiple organizations has been noted, scientific study on this issue has not yet produced a clear explanation and is now debating this theme from a variety of angles (Shafer et al., 2005). From this angle, Gordijn et al. (2005) note that studies pertaining to business models exhibit five distinct stages:

1. Business models are defined and categorized;
2. Their components are proposed and complimented;
3. Their components are described in detail;
4. Their components are modeled, leading to ontologies of business models; and,
5. Finally, these models are applied in management and information systems environments (up until the mid-2000s).

Considering these stages, it is possible to observe that many writers describe business models by first focusing on their definition and subsequently on the proposition and description of its components in the articles examined for this review. In order to provide a generic notion for the topic, Morris et al. (2005) examined several definitions in light of the several ways that business model concepts have been presented in the literature. They contend that a business model is an integrated collection of factors for making decisions in the areas of strategy, operations, and economics that are intended to produce a long-term competitive advantage in specific markets.

LOGISTICS & DISRUPTIVE TECHNOLOGY

It's simple to picture how much technology has altered every business when you consider how much it has advanced over the past century or even the last ten years. We rely on logistics to move products from producers to customers swiftly and to manage data effectively. With the help of technology, logistics has undergone a significant transition, going from a concentration on the advantages of manpower and space to the development of digital procedures that reduce operating costs and save time.

- ✓ 1940s - The idea of a pallet life first appeared, when logistics was heavily focused on mechanisation, how to make best use of available space, and labor-intensive activity.
- ✓ Mid-1950s - Intermodal containers were created to allow for the handling of the same containers by ships, trains, and trucks (keep in mind all transactions and record-keeping was done manually still).
- ✓ 1952 - Patent of Barcodes

- ✓ FedEx debuts in , revolutionising how logistics are handled for everyone.
- ✓ 1983 - JCPenney installs the first real-time warehouse management system and thanks to IBM's pioneering computerised inventory management system from 1967, .
- ✓ 2019: Amazon's revenue is \$280.52 billion (Digital Commerce 360).

NEED FOR DIGITAL LOGISTICS

The daily structural and methodical operations of enterprises of all sizes are disrupted by digital logistics technology. With a tightly integrated supply chain operation and technology strategy that employs applications to provide effective, customer-focused process models, transparency across the supply chain cycle, and lower operating costs, digital logistics achieves what traditional logistics cannot.

EXISTING TRENDS

1. Internet of Things
2. Artificial Intelligence
3. Robotics
4. Last Mile Delivery
5. Warehouse Automation
6. Blockchain
7. Big Data and Analytics
8. Cloud Computing
9. Autonomous Vehicles (AVs)
10. Elastic Logistics

The next in the list is Digital Freight Financing

UNANU TECHNOLOGIES

UNANU is well positioned to introduce disruptive technology in logistics through a marketplace and end-to-end logistics platform since it is powered by vast data and innovation. UNANU continuously tracks the movement of freight using a large database of trucks, truckers, and intermediates to provide much-needed insights that help you make more informed and proactive logistical decisions. The mission of UNANU - "To be one of the most distinguished technology company to create a market place in the logistics space which increases the visibility and transparency for all stakeholders through innovative technology solutions and reliable service excellence."



UNANU launched in 2016 is the first company in India to have a tie up with banks and offer digital freight financing and provides a wide range of services, specifically load, truck and working capital that enables the truck contractor to dwell deep into the business. UNANU has their own model and acts as the best facilitator in logistics.

U-DHAN MODEL

- ✓ U-DHAN is a first-of-its-kind financial product designed by UNANU for Shippers and their Transport Contractors in partnership with reputed banks.
- ✓ U-DHAN offers Transport Contractors, easy access to Freight Finance enabling them to receive faster payment for transporting the goods of their clients.

- ✓ Transport contractors can submit proof of delivery to the partner banks through the UNANU technology platform to receive the payment within a few days instead of waiting for 45 to 90 days.
- ✓ It is a Collateral-Free finance at bank interest rates.
- ✓ The entire documentation from Proof of Pickup, E-Way Bill, Toll Receipts and Proof of Delivery are digitally captured and authenticated through Blockchain Technology.
- ✓ UNANU has funded the working capital requirement for Transport Contractors of >100 companies through U-DHAN and enabled them to grow business by placing more trucks and take more loads.

U-DHAN COMPARISON

CONVENTIONAL MODEL	U-DHAN MODEL
You place trucks for your contracted companies at an agreed price for placing trucks	Place trucks on your own as well as get visibility on UNANU Marketplace for truck rate comparison.
Submit the documents like e-way bills, LR Copy, and PoD to the client after delivering the goods	Upload digital documents like E-Way Bills, LR Copy, PoP and PoD on UNANU Platform
You receive the payment from client after 30 to 60 days of submitting the PoD.	Payment released by UNANU partner bank after receiving PoD and client acknowledgement.
Outstanding payments from your clients restrict you from placing more trucks	Client pays the invoiced amount to the bank escrow account and you get the balance amount in your account
	

U-DHAN ADVANTAGES & BENEFITS

- More Truck Placements
- Spot Pricing for Truck Requirements
- Faster Receivables
- Cost Savings on Transportation
- Technology Enabled Platform
- Collateral Free Funding
- Digital Documentation
- Zero Liability

SWOT OF DISRUPTIVE TECHNOLOGY

STRENGTH	WEAKNESS
Disruptive technologies have an advantage over more established technologies because they frequently reflect cutting-edge innovation. They offer tremendous growth opportunities as they have the power to completely transform or establish new markets. Disruptive technologies are attracting businesses and consumers	Disruptive technologies can have unpredictable returns on investment, particularly in the early going when adoption and market acceptance are still developing. Prior to their widespread adoption, disruptive technologies may encounter technical obstacles or limits that require attention. Employee education and training

because they can be more affordable than established solutions. When compared to established technologies, they frequently offer better performance, functionality, or user experience. Businesses can become industry leaders by being the first to adopt disruptive technology and gaining a first-mover advantage.	may be necessary for the adoption and integration of disruptive technologies, increasing the time and expense of implementation. Disruptive technologies can have high initial development and implementation costs, which may prevent smaller businesses or individuals from adopting them.
OPPORTUNITIES Disruptive innovations have the potential to upend established markets, giving up-and-coming competitors the chance to take market share. By developing novel goods, services, or business strategies, they can create new sources of income. In the era of digitization and the internet, disruptive technologies frequently have the ability to immediately reach a worldwide audience. Partnerships and collaborations can be used by businesses creating or implementing disruptive technologies to speed up innovation and market penetration.	THREATS The market becomes more competitive when disruptive technologies gain traction, which could result in price wars or margin erosion. Companies operating in regulated industries may face legal and compliance issues as a result of regulatory frameworks that lag behind technology improvements. Because disruptive technologies frequently rely on networked systems and data, there is a higher chance of privacy issues, data breaches, and cyberattacks. Businesses that invest in disruptive technology run the danger of experiencing theft or violation of intellectual property, especially in highly competitive industries.

SWOT OF UNANU

Strength – The first organization to implement disruptive technology in India	Weakness – Convincing the users and educating on the new technology is a herculean task
Opportunities – Disruptive technology offers tremendous growth in logistics. If understood properly this serves as a blessing in disguise for transporters.	Threats – Disruptive technology is gradually growing, and a new player could be a threat. The changing government norms at times could be a major threat for carrying out the projects.

CONCLUSION

Disruptive technology is the new normal in logistics. The logistics industry, as we know, is evolving from robotic trucks to drone delivery and resulting in improved customer efficiency, safer roadways, and less negative environmental effects. The use of technology-driven innovations in corporate processes will result in substantial changes that will affect the logistics industry trends. The goal of the next-generation logistics management solutions is to improve the sustainability and customer focus of the global supply chains. Workflow productivity and efficiency significantly rise when logistics procedures are automated. Improved supply chain traceability and transparency are essential for fostering flexible and dynamic connections between the many stakeholders.

REFERENCES

1. Bashir, M., Yousaf, A. and Verma, R. (2016), “Disruptive business model innovation: how a tech firm is changing the traditional taxi service industry”, Indian Journal of Marketing, Vol. 46 No. 4, pp. 49-59.
2. Bueno, B. and Balestrin, A. (2012), “Inovação colaborativa: uma abordagem aberta no desenvolvimento de novos produtos”, Revista De Administração De Empresas, Vol. 52 No. 5, pp. 517-530.

3. Chesbrough, H. and Rosenbloom, R.S. (2002), "The role of the business model in capturing value from innovation: evidence from xerox corporation's technology spin-off companies", *Industrial and Corporate Change*, Vol. 11 No. 3, pp. 529-555.
4. Atul Kathole , Dinesh Chaudhari "Securing the Adhoc Network Data Using Hybrid Malicious Node Detection Approach", *Proceedings of the International Conference on Intelligent Vision and Computing (ICIVC 2021)* pp 447–457 © 2022 The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.
5. Christensen, C.M. (1997), *The Innovator's Dilemma: when New Technologies Cause Great Firms to Fail*, Harvard Business School Press, Boston.
6. Christensen, C.M. and Bower, J.L. (1996), "Customer power, strategic investment, and the failure of leading firms", *Strategic Management Journal*, Vol. 17 No. 3, pp. 197-218.
7. Christensen, C.M. and Raynor, M. (2003), *The Innovator's Solution: creating and Sustaining Successful Growth*, Harvard Business School Press, Boston.
8. A. B. Kathole, K. N. Vhatkar, and S. D. Patil, "IoT-Enabled Pest Identification and Classification with New Meta-Heuristic-Based Deep Learning Framework," *Cybernetics and Systems*, vol. 0, no. 0, 2022, doi: 10.1080/01969722.2022.2122001.
9. Felt, E. (2014), "Conceptualising business models: definitions, frameworks and classifications", *Journal of Business Models*, Vol. 1 No. 1, pp. 85-105.
10. Foss, N.J. and Saebi, T. (2017), "Fifteen years of research on business model innovation: how far have we come, and where should we go?", *Journal of Management*, Vol. 43 No. 1, pp. 200-227.
11. Gordijn, J., Osterwalder, A. and Pigneur, Y. (2005), "Comparing two business model ontologies for designing e-business models and value constellations", *Proceedings of the Bled e-conference*, Bled, Slovenia, 18.
12. Gunasekaran *et.al.* (2017) *Information technology for competitive advantage within logistics and supply chains: A review*, *Transportation Research Part E: Logistics and Transportation Review*, Volume 99, Pages 14-33
13. K. N. Vhatkar and G. P. Bhole, "A comprehensive survey on container resource allocation approaches in cloud computing: State-of-the-art and research challenges," *Web Intelligence*, vol. 19, no. 4, pp. 295–316, 2021, doi: 10.3233/WEB-210474.
14. Hwang, J. and Christensen, C.M. (2008), "Disruptive innovation in health care delivery: a framework for business-model innovation", *Health Affairs (Project Hope)*, Vol. 27 No. 5, pp. 1329-1335.
15. Kinder, T. (2002), "Emerging e-commerce business models: an analysis of case studies from West Lothian, Scotland", *European Journal of Innovation Management*, Vol. 5 No. 3, pp. 130-151.
16. Magretta, J. (2002), "Why business models matter", *Harvard Business Review*, Vol. 80 No. 5, pp. 86-92.
17. Mahadevan, B. (2000), "Business models for internet based e-commerce: an anatomy", *California Management Review*, Vol. 42 No. 4, pp. 55-69.
18. Markides, C. (2006), "Disruptive innovation: in need of better theory", *Journal of Product Innovation Management*, Vol. 23 No. 1, pp. 19-25.
19. McGrath, R.G. (2010), "Business models: a discovery driven approach", *Long Range Planning*, Vol. 43 Nos 2/3, pp. 247-261.
20. Mitchell, D.W. and Coles, C.B. (2004), "Business model innovation breakthrough moves", *Journal of Business Strategy*, Vol. 25 No. 1, pp. 16-26.
21. Moore, G. (2004), "Darwin and the demon: innovating within established enterprises", *Harvard Business Review*, Vol. 82 Nos 7/8, pp. 86-92.
22. Morris, M., Schindehutte, M. and Allenc, J. (2005), "The entrepreneur's business model: toward a unified perspective", *Journal of Business Research*, Vol. 58 No. 6, pp. 726-735.
23. Atul Kathole , Dinesh Chaudhari "Secure Hybrid Approach for Sharing Data Securely in VANET", *Proceeding of International Conference on Computational Science and Applications* pp 217–221, © 2022 The Author(s), under exclusive license to Springer Nature Singapore Pte Ltd.

24. Pacheco, F.B., Klein, A.Z. and Righi, R.R. (2016), “Modelos de negócio Para produtos e serviços baseados em internet das coisas: uma revisão da literatura e oportunidades de pesquisas futuras”, *Revista De Gestão*, Vol. 23 No. 1, pp. 41-51.
25. Sainio, L.M. (2004), “A framework for analysing the effects of new, potentially disruptive technology on a business model case – bluetooth”, *International Journal of Electronic Business*, Vol. 2 No. 3, pp. 255-273.
26. Shafer, S.M., Smith, H.J. and Linder, J. (2005), “The power of business models”, *Business Horizons*, Vol. 48 No. 3, pp. 199-207.
27. Sonali D.Patil, Atul B.Kathole, Savita Kumbhare, Kapil Vhatkar, Vinod V. Kimbahune, “A Blockchain-Based Approach to Ensuring the Security of Electronic Data”, *International Journal of INTELLIGENT SYSTEMS AND APPLICATIONS IN ENGINEERING, IJISAE*, 2024, 12(11s), 649–655.
<https://ijisae.org/index.php/IJISAE/article/view/4486/3145>
28. Teece, D.J. (2010), “Business models, business strategy and innovation”, *Long Range Planning*, Vol. 43 Nos 2/3, pp. 172-194.
29. Tongur, S. and Engwall, M. (2014), “The business model dilemma of technology shifts”, *Technovation*, Vol. 34 No. 9, pp. 525-535.
30. K. Netaji Vhatkar and G. P. Bhole, “Self-improved moth flame for optimal container resource allocation in cloud,” *Concurrency and Computation: Practice and Experience*, vol. 34, no. 23, Oct. 2022, doi: 10.1002/cpe.7200.
31. Wu, X., Ma, R. and Shi, Y. (2010), “How do latecomer firms capture value from disruptive technologies? A secondary business-model innovation perspective”, *IEEE Transactions on Engineering Management*, Vol. 57 No. 1, pp. 51-62.
32. Yingli Wang , Joseph Sarkis, *Transportation Research Part E: Logistics and Transportation Review*, Volume 148, April 2021, 102291.
33. Zhang, W., Daim, T. and Zhang, Q. (2018), “Understanding the disruptive business model innovation of E-business microcredit: a comparative case study in China”, *Technology Analysis and Strategic Management*, Vol. 30 No. 7, pp. 765-777.
34. Zott, C., Amit, R. and Massa, L. (2011), “The business model: recent developments and future research”, *Journal of Management*, Vol. 37 No. 4, pp. 1019-1042.