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# *The Impact of the Internet of Things on Supply Chains*

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***Abstract:*** Under the influence of COVID-19, the offline trading channel is gradually shrinking. However, with the help of the Internet of Things, the economy has not declined significantly and a variety of online trading platforms have come into view. This paper talks about different types of the Internet of Things, such as E-commerce platforms, P2P model, and network transportation. They have all contributed to people's lives and to the development of society. The passage compares the traditional supply chain model with the current stage of supply chain model in relation to its advantages and disadvantages, focusing on some of the new models and businesses that have been extended by the Internet of Things. Many companies have taken advantage of this business opportunity to optimise many of the traditional methods, making their labour time and labour costs much lower and realising greater business benefits. The IoT and the supply chain are progressing together, with the two reinforcing and influencing each other. However, we still need to be aware of the privacy protection issues of the Internet of Things. Further strengthening of the management of security systems.

***Keywords:*** supply chain, internet, internet of things, COVID-19, economic

## 1. Introduction

The Internet of Things is a large internet. Information can be selected and connected on this platform. Since the COVID-19 began to spread on a large scale, governments have begun to implement a variety of policies. For example, blocking off neighbourhoods, closing restaurants, ordering residents to stop going out, conducting regular nucleic acid tests and getting vaccinated for the COVID-19 on time. In this case, there was no way for people to do some of the picking and choosing that they used to do. With each city cut off from the others, it became extremely difficult to transport and circulate supplies between them. People began to worry about whether they would run out of supplies during the blockade, so most of the inhabitants initially went on a panic spending spree, which led to supplies that we didn't need to worry about becoming progressively rarer. But with the development of the internet of Things, some new e-commerce platforms are gradually appearing on the scene, such as Taobao, TikTok, Mei Tuan, and buying services on behalf of people. People can make purchases online and use couriers to get the items they want. The further development of the Internet of Things has also, to some extent, simplified many processes in the supply chain, such as sourcing, screening, processing, production, and transportation. A large amount of visual data is being further databased for faster access. People are starting to move aspects of their daily lives online to prevent the economic stagnation caused by the epidemic again.

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## 2. Typical of the Internet of Things

### 2.1. E-commerce Platforms

In the wake of the COVID-19, most of the online media have started to carry out commercial activities such as live sales, running small shops or shipping online. In this context, video conferencing, web-based education, entertainment facilities and online trading, have become particularly important. The further development of the Internet of Things (IoT) has, to some extent, given some comfort to people who are in a 'resource panic'. People can use these applications to make purchases and avoid the scarcity of resources that can result from panic consumption. At the same time, the Internet of Things has also facilitated the simplification of many parts of the supply chain. Previously, people were more likely to go out and buy things to their satisfaction, but with the support of IoT, the supply chain system has been optimized and many processes have become easier and faster. People are becoming more willing to go online to get what they need to keep their health in check. In the first quarter, the information transmission, software, and information technology services sector grew by 13.2% year-on-year, while online retail sales of physical goods increased by 5.9%. New economic drivers in industry-maintained growth [1]. According to this data, the online economy has been further boosted by the impact of the epidemic. In the traditional supply chain model, suppliers and distributors need the support and transfer of core enterprises to get a complete supply chain, and banks also need to provide a lot of financial support, which makes the supply chain process gradually lengthen and the time become very slow. With the development of the Internet of Things, small and medium-sized enterprises can directly omit the involvement of intermediate enterprises, thus saving a lot of time.

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### 2.2. P2P Model

Online peer-to-peer (P2P) lending platform is one of the emerging FinTech business models that does not include traditional intermediaries. In this platform, the lenders and borrowers do not interact face-to-face [3]. P2P supply chain finance is a type of online supply chain finance that combines internet finance and supply chain finance. Online supply chain finance is the transformation of physical capital flow into online data and docking with core supply chain enterprises to provide online financing and financial services such as settlement and finance management to enterprises in the supply chain. Supply chain finance is a systematic concept, and online supply chain finance with the application of Internet technology is a comprehensive realization of the unification of multiple streams of business flow, logistics, capital flow and information flow, forming a positive interaction between financial

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capital and related enterprises in the industrial chain, forming a sustainable industrial ecology, which has natural advantages. While promoting the revolutionary development of supply chain finance, it has also become the inevitable trend for supply chain finance to move forward. It has natural advantages, and while promoting the revolutionary development of supply chain finance, it has also become an inevitable trend for the development of supply chain finance and an important development mode of Internet finance.

First introduced in 2005, P2P finance refers to small-scale lending transactions between different network nodes, which require the use of a professional e-commerce network platform to help the borrower and the lender establish a lending relationship and complete the relevant transaction procedures. The borrower can post information about the loan, including the amount, interest rate, repayment method and time, and decide on the amount to be lent to achieve self-service borrowing. It is a newer peer-to-peer mode of operation, where money is further databased to facilitate circulation between people. In the wake of the COVID-19, people have been forced to use online transactions, and this P2P model has been highlighted as being particularly important in that it eliminates the need for large companies to intervene, thus allowing for the mutual circulation of funds between small and medium-sized businesses. P2P is a very flexible way of lending, one that can be better integrated into small and medium-sized enterprises, it is fast to review and has sufficient funds in reserve, and it is a new model that increases efficiency model [4].

Different pricing strategies are beneficial for maximizing profit in businesses. Businesses offer pre-selling to encourage consumers to purchase when they are unconcerned about the precision of their consumption [3]. It allows sellers to reduce the waste of resources in the sales process, and this way they can see more visually the quantity demanded by buyers and its hotness, thus increasing the product revenue, and maximizing profits. Furthermore, this pre-selling strategy allows sellers to further determine their final pricing based on the number of pre-sales, thus making the final price more reasonable and relevant to the market, and making consumers more willing to buy.

## 2.3. Network Transportation

In this new business model, many applications and supply chains have developed close relationships with each other. They are using the internet more for trade transactions, and the Internet of Things (IoT) has created a great platform for them to do so. More products can be selected and purchased by customers on the internet.

Since the development of the Internet, many small and medium-sized enterprises have shifted much of their market to online sales, thus allowing more logistics to develop further. The Internet of Things, linking the logistics industry, is a great option for all three parties. Firstly, the platform gives buyers an easier and more extensive way to buy, so they can find the goods they are looking for in less time. Secondly, it gives sellers a new platform to market their products, allowing them to broaden their marketing approach and thus make more profit. Thirdly, it has also added a new profession, the familiar courier, which has increased employment opportunities from this aspect, thus increasing the employment rate for all.

The combination of the Internet and the transport industry has also accelerated the flow of goods, as there is less face-to-face communication and most of the communication has been transferred to the Internet. Problems such as travel costs and time consumption are eliminated, and people can use this time saved to form more trade chains, communicate more frequently, and, naturally, increase their earnings [5].

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## 3. Advantages and Challenges

The Internet of Things (IoT) can be integrated into every aspect of our lives, and its impact is very intuitive and obvious. Here are some of its advantages.

Firstly, it can improve visibility during transport, allowing for greater transparency in the processing and production of goods, enabling companies to better ensure transport safety. The specific example is Taobao, when customers bought their goods, they can see the location where their packages are. And this information will update very quickly, so this will make people feel more reliable of this application.

Secondly, it can be used in monitoring systems to ensure that every step is precise and in place, giving greater assurance of the safety and hygiene of the goods. Maybe sometimes there are so many people in a same factory, but people need to ensure the quality of this production, so they will use some monitors to watch them to produce.

Thirdly, it facilitates cooperation between companies. With the development of the internet, each company's information has been selected in a specific platform. In traditional communications, people should meet face-to-face with other people to complete a trade, which might take too much time. But in this way, people can communicate with their partner very easily. Wherever they are, they can do all kinds of things with each other. Fourthly, the use of Big Data for questionnaires and analysis, compiling an objective and informative data that can help sellers to better understand the needs of their buyers and thus adjust and optimize their services. Sometimes when people clicked some links, the internet will select these data and make an excel to the sellers.

Fifthly, they will use automates production. Some companies will buy some high technological equipment to apply high-end technology to parts of the production line, thus increasing the output rate of the line, and reducing the time required for labor, thus reducing the price of goods, and giving you a better competitive edge. In addition, this equipment will replace manual labor in the traditional supply chain. According to this place, many human errors will be reduced, and companies can produce more accurate productions [6].

## 4. Deficiencies and Improvements

with the development of the technology. The amount of information that users are sharing is growing. In this case, hackers can easily grasp our information. It can even cause some problems with information misuse. Although the cybersecurity department has developed a lot of security measures and protection work, there will still be some vulnerabilities. Sometimes people will receive a harassing phone call. This is because when people visit some web pages, their browsing history is recorded by the Internet. Some sellers learn about this information through specific channels to market their products

In the other hand, more and more information has been used into the Internet of Things, the number of employees will decrease. Companies would not hire a lot of human resources anymore because a lot of technical jobs are being replaced by automation. In the bank, people began to use ATMs to deposit and withdrawal their cash. In the market, people began to use self-checkout or automatic checkout because this is faster than labor charges. The rapid development of informatization has replaced many jobs with intelligence. More and more people are losing their jobs, leading to an increase in unemployment [7].

## 5. Conclusion

COVID-19 has led to the further development of the Internet of Things, where people are investing more energy, time, space, and resources in the web, resulting in the emergence of more new marketing methods and marketing tools. The impact it brings to people can be said to be two-way. On the one

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hand, it has a certain facilitating effect, the mutual development of the Internet of Things and the supply chain has reduced some of the human and material costs required by the traditional supply chain, the further data of information allows people to communicate and exchange economic trade more easily and quickly, thus increasing the cost of profitability. On the other hand, the widespread dataisation of information has also given security a certain amount of doubt. As the Internet is a widespread data platform on which people can share resources, information leakage is also a hidden danger. Weighing the pros and cons, we should further improve the network system on this basis, to ensure the development of the Internet of Things, so that the economy can be effectively improved.

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