

Restructuring of business processes for sustainability: revealing the potential of reengineering and Kaizen

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Received: 2021-02-19

Accepted: 2021-05-10

DOI: <http://doi.org/10.46489/lbsh.2021-1-1-4>

Abstract. In times of crisis, companies suffer from instability. One way to improve the situation is to restructure business processes. I aimed to explore how companies can restructure business processes for sustainable development. I used qualitative research methods to reveal reengineering and Kaizen methods as the most popular. I examined the peculiarities and general stages of redesigning business processes. After that, I researched the strategy to maximize performance while improving the quality of the business process. As I saw, the high level of risk during radical changes is understandable because most of the variables in the operation of new logistic business processes are not precisely known and, therefore, challenging in the context of forecasting. Basing on the results, I propose a new algorithm for restructuring business processes in the supply chain. Results and recommendations can be helpful for business and government during sustainability goals achievement.

Keywords: quality improvement, logistic business, sustainable development, process management

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1. INTRODUCTION

The modern dynamic world in which the openness of borders, information technologies, the rapid flow of information and the constant desire to control it create conditions of high competitiveness, whose dynamics are constantly growing. Under these conditions, the requirements of enterprises regarding goods, business processes, management, and partnership, style of coordination of activities, selection, training and qualifications of employees increase significantly become a time requirement. Environmental variability generates a large number of threats, which indicates the need to adapt to the enterprise. Adaptability, qualitative and quantitative changes, primarily in processes that threaten business operations, is a prerequisite for ensuring market competitiveness (Cheng et al., 2012). However, adaptation, a significant change in the business paradigms, is also a risky strategy in which such mechanisms of transforming enterprises from complex systems into simple require the implementation of proven management tools, business processes, or leading specialists' involvement. Reengineering is one of the most progressive, radical and effective ways to make positive changes in the company. Typically, redesigning is a fundamental review that requires some preconditions, one of which is the inevitability of a crisis in any enterprise without qualitative changes (Perez et al., 2021). Due to sustainable development goals (Resolution adopted by the General Assembly on 25 September 2015), constant modernization and restructuring of the business is inevitable.

1.1. Literature review

The business processes and supply chains optimisation attract the attention of an increasing number of scientists. The general study of the nature of business processes and their details is essential for sustainability (Fischer et al., 2021). A knowledge-intensive adaptive business process management that can be both individual and collective is crucial (Kir et al., 2021). When evaluating and developing business processes, it is essential to choose practical and efficient methods (Erasmus et al., 2020). This also applies to their implementation (Guizani et al., 2021).

Reengineering is one of the methods to make business processes more effective. A functional analysis approach for business processes reengineering must be straightforward and easy to use (Daniilidis et al., 2011). Its implementation needs a lot of knowledge and research (Omidi et al., 2016). The next step is the constant improvement of reengineering of business processes to make the whole process successful (Chen et al., 2016; Ellatif et al., 2018).

Another method that can be successfully used in restructuring business processes is Kaizen (Jimenez AÑon et al., 2019). It is widely used in management (Maarof et al., 2016).

Based on the results of previous research, I can formulate the following research question:

RQ1: Can reengineering and Kaizen be useful in business processes restructuring?

2. METHODS

The article aims to explore the theory of how companies can restructure business processes for sustainable development. To achieve this goal, I used qualitative methods of research. I researched research on business process redesign and compared the results with my observations. The study has the following structure. First, I singled out the types of reengineering. Then I established ways of using reengineering in business processes. As I have found, the main weakness of reengineering theory is the fuzzy differentiation of stages. I researched stages of the business processes' redesign based on reengineering on the example of a logistics business. This allowed me to outline the strategy to maximize performance while improving the quality of the business process. In part of the discussion, I took into account the results and my own experience in logistics companies and suggested new ways to reconstruct business processes based on reengineering and Kaizen.

3. RESULTS

3.1. Types of reengineering

There are two conceptually different types of reengineering. They are distinguished depending on the current problems and the need to introduce changes in business processes. Thus, reengineering can be helpful to improve the business processes or redesign

existing business processes into entirely new ones.

Overall, reengineering aims to establish a new framework for process functioning, with new parameters, threats, performance, and more. Redesign implementation should give a whole new level of efficiency in redesigned business processes since otherwise, the redesign will be an irrational, unprofitable and rather harmful tool. After successfully implementing reengineering processes, business processes should receive positive changes, often of a radical nature, improvements that will not be inherent in the threats to business processes inherent in previous activities (Guizani et al., 2021). The redesign can include both individual functional units of the enterprise and its entire structure. The reconstruction of this scale also creates conditions for transforming, building and maintaining relationships with suppliers, partners, employees and more. Introducing changes in the relevant business processes involves conducting a structural analysis of the processes examined, their detailed classification and identification of critical weaknesses, opportunities and threats, and the potential of the existing system (Omidi et al., 2016). The so-called SWOT analysis of business processes before reengineering allows managers to build a harmonised strategy for implementing new business processes and avoid significant risk in their further functioning. The improvement as a kind of redesign allows managers to improve the functioning of relevant business processes to a certain level. The improvement includes strengthening some business processes that were considered promising but with explicit threats (Daniilidis et al., 2016). Given the specifics of reengineering, the improved business process can be arranged in a hierarchical model that analyses the most inappropriate but irrelevant value-added processes in the business process under review. Such a degree in processes radically changes, thus changing the system itself and eliminating its apparent weaknesses. This process is promising, and managers are more likely to report this reengineering format.

3.2. Ways of using reengineering in business processes

Reengineering is the process of transformation, improvement enterprise based on well-financed steps based on the identified targets transform business processes simple algorithms, which is difficult to control the human factor or environmental has no significant effect, and thus the level of work not be aligned.

Reengineering aims to change the function and processes, which requires a significant level of involvement of partners, employees, and clients (Reijers et. al., 2021). Changing the function allows you to quickly correct errors at work, change processes, change work rules. The added value of business process engineering is based on modern information technologies, in which it is important not to manage material flows but to have information and preventively adapt all other logistic flows: material, financial, human.

Regardless of the type, reengineering aims to introduce radical changes in business processes. In reengineering, it is typical to replace enterprise management systems with somewhat automated systems, monitoring and collecting indicators of business processes and performing analytical and forecasting functions based on established algorithms. The increase in automation processes in the company's production areas is also typical. As we know, then the human factor is reduced, quality and efficiency rise. The business process can aim at creating a finished product or service. It is a system of well-organised material flows. It has a sufficiently specific list of threats, such as technological, logistic, financial, and other processes.

3.3. Stages of the redesign of business processes based on reengineering

When grouping activities aimed at redesigning business processes, it is typical to use the following stages: analysis of business processes that potentially operate inefficiently and whose improvement is not possible without significant changes; the grouping of business processes according to a typical flow (business processes that are in contact with each other) (Zhang et al., 2020); elements are evaluated, and an ideal business process design

is created; structural comparison of *de jure* (modelled) and *de facto* (business processes currently implemented in the enterprise); a practical model is created after removing unnecessary (not included in the new model) business processes and analysing existing ones; the business project is implemented, and its results are evaluated, and the level of project return and the success of the changes received is calculated.

Reengineering is useful when there is a significant bureaucratic system in enterprises that have traditional operating rules, some tasks, but their level of logic and efficiency is not high. Typically, these are workflow processes that are becoming more and more archaic in the context of electronic workflows. Reengineering focuses on radical changes and innovative way of implementation. Traditional as a factor of "ease", the organisation of business processes in an enterprise is usually destroyed, despite significant resistance managers involved in reengineering (Erasmus et al., 2020). Despite this innovative type of change, reengineering also aims to quickly adapt employees to new processes, develop new traditions with relevant officials, and automate operations, which will increase efficiency.

In logistics, redesign opens up new opportunities for companies with many risks, limitations, low customer service, and more. Logistic as science aims to improve, this, in turn, is one of the critical elements of a reengineering process (Umeda et al., 2020). Given this fact, the restructuring of logistics business processes is usually a more efficient process than in other areas of activity because companies are already focusing on improvement, change and innovation in development.

Reengineering of logistic business processes should be divided into the following stages: identification of the main threats of business processes; and Identification of new, alternative, innovative approaches to creating logistic business processes; redesign of logistic business processes and training of new HR systems; introduction of new business processes in the enterprise along with ensuring operational control and regulation systems (Kumar et al., 2014).

The first stage is an analysis of the main threats, complicated business processes that slow down the flow of logistics processes, cause disruptions in the work of the company, radically different from the leading companies in the industry. The next step is to identify specific parties with those responsible for identifying the most relevant factors to overcome the weaknesses of the process (Yazan et al., 2011). After determining the main elements that affect the business logistics process, ideas and a plan to implement the best of those proposed in the enterprise will be created. According to working with ideas, a detailed plan for implementing the relevant project is being developed. The final stage is introducing innovations, changes and improvements that fundamentally change the flow of business processes in logistics. By implementing relevant innovations, control, and, if necessary, correction of distortions in the business process resulting from a given reengineering strategy is carried out.

Effectiveness of implementing innovative solutions in logistics business processes, in particular in managing material flows, forecasting the volume of deliveries, possibilities of intensifying existing logistics solutions, improving information flows, ensuring an appropriate level of consumer information security, financial flows are elements of logistics (Ellatif et al., 2018). Optimisation of production processes, its economics, finance, and logistics is to not only ensure the stability of the competitive activities of the company and its partners but also reduce costs, free up resources in circulation, providing the possibility of developing an investment plan, intensification of business processes in logistics, providing growing end product quality trends.

In order to develop logistics systems that focus on flexibility, willingness to innovate in traditional business formats, strengthen partnerships, and provide quick responses to inquiries from business microenvironment entities, it is essential to be ready to isolate the most influential business processes and balance the most inefficient processes and conduct them their structural analysis (Taymouri et al., 2020). In this formatting approach to identifying paths, reengineering examples

motivate employees from other departments' enterprises that do their work more efficiently and help train workers to avoid future errors.

Reengineering is not a continuous process, but without continuous training, self-critical analysis, and search for best practices, it is impossible to determine the level of risk in the construction and operation of existing business processes in enterprises and start engineering changes (Tan et al., 2021).

3.4. The strategy to maximise performance while improving the quality of the business process.

The company's business logistics processes integrate interdependent and related functions and logistics operations aimed at achieving and effectively implementing the company's logistics strategy.

Logistics business processes focus on planning, organisation, control and regulation of material, information, financial and human flows. Considering that all flows are interrelated and extremely important, the level of criticality of which depends on the specific activity of the enterprise, the nature of the products or services produced, the level of competitiveness of the operating environment, solutions used in the field of logistics business processes, and especially those in the field of engineering which should be based on maximising efficiency while improving process quality. This strategy is usually based on several areas of interest during business process restructuring: threats to the company's logistics system; on identification processes that are not logical and unnecessary, without creating added value to business processes; business process automation; opportunities to achieve synergistic effects through cooperation with potential partners; to shorten product life cycles through better quality control of production (achieved by reducing product life and promoting after-sales service strategy) (Ruiz et al., 2017).

Typically, redesigned business processes are as follows: reverse logistics flows; relations with consumers, partners and other contact recipients of the enterprise; services and after-sales; logistic flows during the delivery of raw materials; logistic flows during warehouse logistics; production logistics; logistic flows related to the sale of products to intermediaries

or final consumers; management of customer databases, their orders, a record of cooperation history, etc.; advanced staff training; logistic business processes related to product development and commercialisation of the project (Nabelsi et al., 2015).

The company's activity is a multifunctional system that covers many business processes at various levels and subordination, but most of them are associated with the flow and optimisation of any of the classic flows: information, material, financial or human. A multifunctional corporate system is a system that is always more or less involved in logistic business processes, and therefore their redesign is associated with changes in many areas of the company's operations. Considering the above, generally, all logistics business processes can be grouped, and one of the traditional divisions is the division into primary and auxiliary processes. The main business processes related to logistics include processes aimed at creating value for the consumer in achieving the company's goals (Budiono et al., 2012). These processes shape the system; therefore, their organisation mainly depends on the performance of the enterprise. Ancillary processes can affect the operation of some specific operations, support the core and contribute to enterprise performance, can create bottlenecks, but their identification is often difficult because, in the case of an inefficient ancillary process, the other can compensate and eventually the problem will be challenging to identify.

The implementation of reconstruction in logistics business processes should take into account the typical goals that are set as indicators of the efficiency of reconstruction decisions: reducing production costs, both from the point of view of variables and from the point of view of fixed costs, will allow a more compelling price strategy for the company; implementation is possible at the expense of more informed decisions of those responsible; improving the quality of the final product or service; reducing the speed of order processing, in particular by creating a multi-threaded system and modularity in production; shortening the product life cycle, mainly in the area of product planning and marketing; standardisation of all logistic business processes, which will allow for

more cost-effective processes of organising the flow of goods, as well as increase the possibilities of cooperation of activities of various enterprises in the framework of partnership, outsourcing or other types of cooperation; elimination of all elements of the business process that do not create enough value for the consumer and the company compared to the size of the investment (Maarof et. al., 2016).

In this way, redesigning allows managers to analyse inefficient processes and model a relatively new project envisaged by redesigning and implementing it in an already tested, ready-to-change logistics system.

4. DISCUSSION: Reconstruction of business processes based on reengineering and Kaizen

Reengineering business processes are based on radical changes in employee behaviour and task perception within existing systems.

A radical change of approach in creating logistic business processes is impossible without systematic, cooperative, integrative transformations and continuous improvement. Changes during reconstruction often increase the system's reliability, adaptability, speed and willingness to cooperate, disseminate knowledge and experience. However, according to Kaizen philosophy, there is no limit to improvement, and therefore there are no perfect business processes. After rebuilding, the company improves performance, adapts to changes and operates at a new level (Laruna et al., 2013). At this stage, identifying a new level of business process must be started again, which can be achieved if each worker will understand the importance of further changes. Therefore, redesigning as a process and willingness to make changes in logistic business processes must be continuous. They must show the readiness of the company to realize the importance of changes and the need for their continuous implementation.

In business logistics processes, cooperation plays an important role, which in turn helps to increase company stability, reduce demand sensitivity and increase service diversity. Any significant change in engineering should include working on the company's strategy, tactics, and sometimes operational action plans (Fisher et

al., 2021). Decisions taken during the rebuilding of logistic business processes should focus on forecasting demand, and therefore flow patterns, structure, rhythm and quantity of product deliveries, host capabilities, amounts of raw materials needed to ensure continuity of production and final demand, the level of network unification as part of logistics cooperation business processes.

Reengineering of logistics business processes should be carried out according to a particular algorithm, which aims to introduce appropriate changes very close to the needs and objectives of the company. The changes can be radical and illustrate the classic reengineering or the nature of refining, refining a particular process. In this situation, we can talk about improving Kaizen. According to the algorithm, the first step is to determine the need for change, which allows us to choose the right strategy and approach to process restructuring. The next step is to identify the base model that will need modification. There are two options: to use existing business processes in the enterprise or as the best case studies of leading enterprises in the industry (Kir et al., 2021). Reengineering cannot be performed on an ongoing basis. Either way, time will be spent on adapting and identifying new bottlenecks, which indicates the interruption of engineering processes. In the case of Kaizen, these principles should be applied continuously, starting to plan further changes in parallel with the implementation of existing ones. Implementing business processes in a short period is crucial for the successful restructuring of business processes, but sometimes the market dictates the conditions for rapid change. In such a situation, Kaizen rules should apply. Supply chains are characterized by the complexity of their flows, large number and high requirements for process coherence. In the case of an established corporate strategy for radically complex changes, restructuring must be carried out using engineering. However, if the processes requiring adaptation are complementary, partial and not critical in the supply chain, Kaizen principles are recommended (Alas et al., 2012). The high level of risk during radical changes is understandable because most of the variables in the operation of new logistic business processes are not

precisely known and, therefore, difficult in the context of forecasting. The algorithm for restructuring business processes is presented in Figure 1.

Therefore, current market conditions require enterprises to be dynamic, adaptable and ready to take risks and implement non-trivial ideas. It is up to the company to choose the path to implement it and consider the difficulties and risks of choosing the Kaizen concept of reengineering (Looy et al., 2021). In any case, the company must be in constant motion, which must restructure logistic business processes concerning forecasted,

future market conditions or consumer expectations.

Logistics business processes should work closely with the results of the company's marketing department because they allow managers to get the most current information on market trends, consumer expectations, the current shortcomings in the work of the enterprise or its products. The use of marketing information helps better establish partnerships and understand the expected results of the implementation of innovation in the enterprise in more detail.

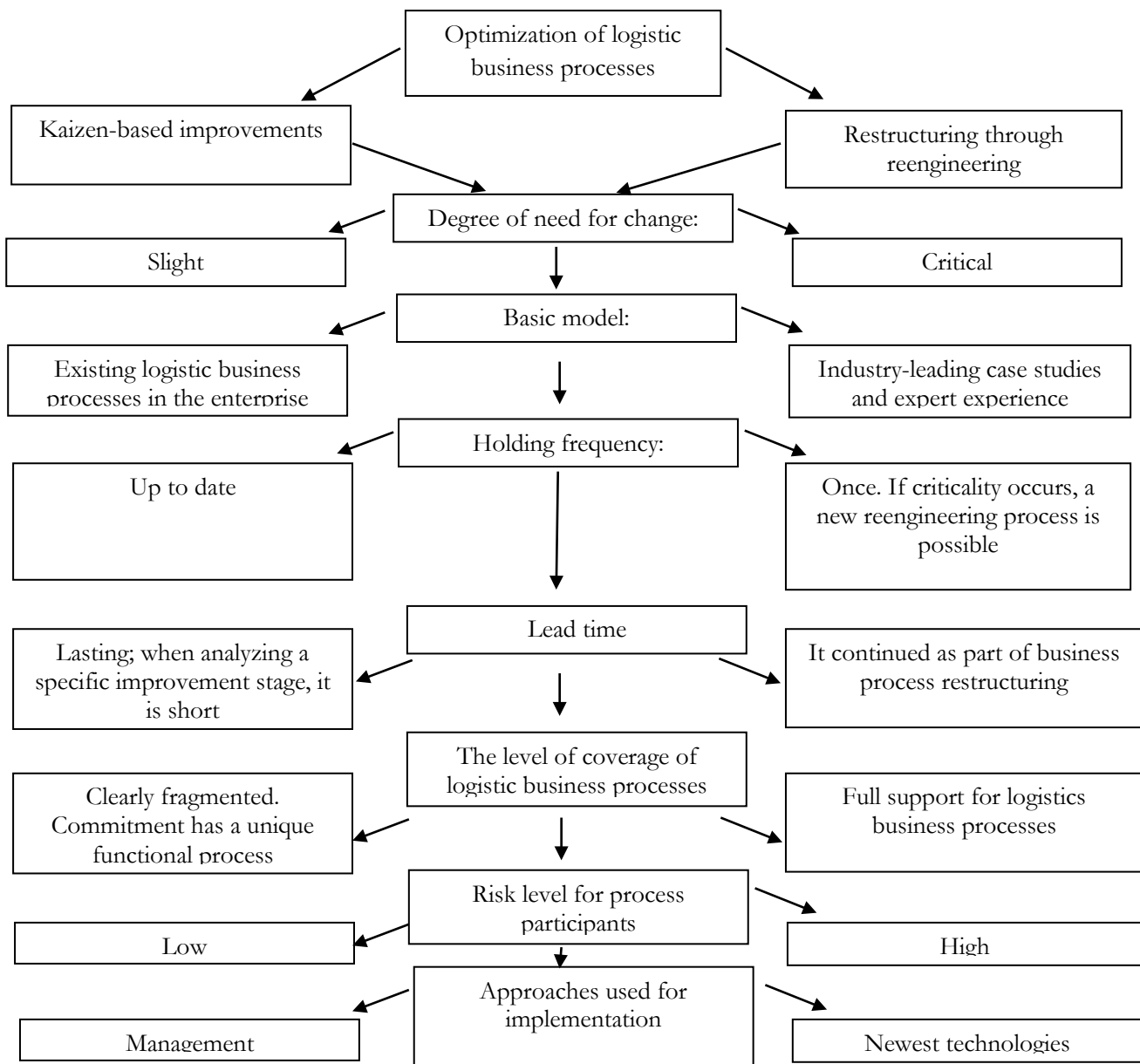


Figure 1. Algorithm for restructuring business processes in the supply chain

Source: Own research

Reengineering logistics business processes also allow for a more efficient selection of supply chain participants. Usually, the selection of potential partners in the supply chain is based on the analysis of their ability to meet the goals of the enterprise, but in the case of reengineering processes is also their assessment of the ability to make radical changes, including for robust synchronisation of business processes. The involvement of additional partners often allows expanding the scope of activities and meeting the needs of consumers in a more differentiated way (Jimenez AÑon et al., 2019). The analysis of partners in the supply chain can not be determined due to diversity as management, goals, consumer needs, features of existing interpersonal relationships. However, the analysis must be carried out and, based on it, must select partners to reengineer business processes. Who will not be able to this process?

Given that the analysis of supply chain entities is carried out in order to increase the level of competitiveness of all its participants (Chen et al., 2016), essential factors for choosing whom to conduct further reengineering are:

- an explicit specialisation of the enterprise, which fully corresponds to the life cycle of the analysed business process;
- the presence and level of conflict resolution;
- the level of structuring of areas of responsibility;
- availability and/or readiness to deploy an information system to ensure the continuity of information flow in the analysed business process;
- partially mutually cooperative logistics business processes, which involve incomplete interconnection and partial differences in goals;
- partner companies that redirect own available assets for the implementation of relevant orders, thereby implementing the required level of efficiency in small periods;
- there is diversity in certain areas of activity;
- the volume of cooperation is not significant;

– mutually cooperative logistics business processes, which in turn require changes and improvements in existing relationships within certain logistics business processes.

Optimising and improving the efficiency of business processes in enterprises requires reporting efforts using new methods. One of them is the restructuring of processes, depending on the scale and needs of the enterprise. One of the methods used may be a combination of reengineering and Kaizen or using them separately. The practical application of restructuring will improve the performance of enterprises.

Limitations.

This study is theoretical. Its results can be the basis for further empirical research on reengineering for sustainable development. The use of results in enterprise management should be limited to the development of a reform strategy and as a guide for enterprises seeking to engage in sustainable development.

5. CONCLUSION

On the way to promoting sustainable development, businesses may experience financial collapse. To support the efforts of enterprises, I suggest managers pay attention to the significant potential of reengineering tools and Kaizen. In this paper, I revealed some shortcomings of modern approaches to business process reconstruction and proposed an algorithm for restructuring business processes in the supply chain. In conclusion, I would like to express the following considerations.

Logistics reengineering of business processes is updating the rules and procedures of an enterprise in connection with new market conditions. It can present different formats for building relationships both inside and outside the company. Raising the level of computerisation speeds the exchange of information increases the level of transparency of business processes, and increases the security and trust of partners. Creating conditions for essentially other areas of activity contributes to the diversification of production and the increase of skills and employees.

The nature of operations and the supply chain makes it desirable to switch logistic

business processes from management based on functional membership to management based on the synergy of all systems and flows in one process with a simple hierarchical structure of inter-related subprocesses.

Given the urgency of making changes to companies in a regular format, using reengineering or improving business processes using Kaizen principles, managers can get benefits that are unattainable with non-systemic changes, operational management commands or changes based on the experience and knowledge of the company's employees and not on market requirements.

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