

Implementing 5S in a Hungarian Company

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Abstract. The methods and tools used by Lean management can be used for any activity that is specifically introduced to the company. On this basis, the objective of this paper is the implementation of a Lean office with a 5S system transformation into the traditional office environment of a private business. During the workflow, it is also planned to create new habits in this narrow space that will incorporate the organizational culture into the everyday life of the business making the administration more effective. The 5S concept is new and helps the company to operation on a larger scale with fewer inputs than before. Figures are made for better understanding and a Red Tag is created which is the first step of the process. Red Tag tells the employees about the history and the process which will be needed on it. The basic of lean thinking is the continuous improvement in the quality of the product while minimizing the wastes created during the process. The Next Broker Consultancy Ltd adopted this new way of management and made sure that all the necessary measurement are taken to insure smooth flow of the process.

Introduction

The expansion of Lean management is increasingly perceivable worldwide. In Hungary, however, it is recently present in the production sector only. In the country, it is mainly used only by larger and multinational companies. The production and the acquisition of customers, as well the provision of value-added products or services are not limited to these companies. Every small and medium-sized company is also rooted in how to improve its market position and increase its share with respect to the needs of its partners.

The methods and tools used by Lean management can be used for any activity that is specifically introduced to the company. On this basis, the objective of this paper is the implementation of a Lean office with a 5S system transformation into the traditional office environment of a private business. During the workflow, it is also planned to create new habits in this narrow space that will incorporate the organizational culture into the everyday life of the business making the administration more effective, generally, we use the PDCA cycle for continuous development [14].

The aim of the study is to support the application of lean management, regardless of the nature of the business, which has positive results in all areas. The NextBroker Consulting Ltd .started to operate since 2011 with the aim of helping developers and municipalities of the area through tenders to achieve most out of the resources they use. The company offers dealings with tenders, follow up the realization of project, arranging the project management and monitoring the project. The management skills and methods can get a higher prior in maintenance and in robotics field too. [16]

1. NextBroker Consulting Ltd.

The NEXT Broker Consulting Ltd. (in Hungarian: NEXT Broker Consulting Kft.) was established in 2011 with the aim of helping developers and municipalities of the North Great Plain through tenders to achieve most out of the resources they can expect from successful projects. The company is based in Debrecen, currently appointing four employees and working with four subcontractors. Its form is a private limited company, a company which is a type of business corporation, a legal entity, and a preferred corporate form for small and medium-sized enterprises.

The NEXT Broker Consulting Ltd. provides a complex service for its clients, dealing with the preparation of tenders in different fields of expertise, and also following the realization of the project and arranging the project management as well, monitoring the realization of the project, which may be otherwise a considerable administrative charge for the small and medium size companies. The basic financial statements are insufficient for the reports and the accounts, as the implementation of the previously elaborated business plan and the performance of the indicators specified in the grant agreement must be continuously and rigorously documented. The company's services include the preparation of the following documents: Payout Documentation (PD), Project Progress Report (PPR), Project Sustainability Report (PSR).

The NEXT Broker Consulting Ltd. has liability insurance for one of the market leader insurance companies in Hungary, which guarantees its work and gives confidence to the customers. The success rate of the company is above 95%, largely due to the proper pre-filtering. Under the general conditions of application – which allow neither bankruptcy nor liquidation, cannot have public debt, labor fine, tax debts, the equity of the previous year cannot be negative, and the company must have two completely closed (2×365 days) business years –, the applications contain a fixed set of parameters, basic criteria that must be met by the applicant. On the other hand, the company also has its own project-specific questionnaire to be forwarded to the clients. The NEXT Broker Consulting Kft. typically works only in a contingency fee scheme, i.e. no commission fee is charged to clients when submitting a tender, but when awarding a grant, a certain percentage of the applied grant applied is to be payed by the clients. [1]

2. Lean thinking

Lean intuition is a business technique that means to give another approach to consider how to sort out human exercises to convey more advantages to society and incentive to people while taking out waste. The term lean deduction was instituted by James P. Womack and Daniel T. Jones to catch the substance of their inside and out investigation of Toyota's famous Toyota Production System. [2] The thoughts behind what is presently named lean intuition can be connected to a few sources, including awesome industrialists like Henry Ford and administration scholars, for example, W. Edwards Deming. Of specific note are the thoughts initially created in Toyota's post Second World War fabricating operations - known as the Toyota Production System – under the direction of its main designer, Taiichi Ohno. These spread through its supply base in the 1970's, and its conveyance and deals operations in the 1980's.

As lean deduction battles the association must view itself as only one a player in a developed store network, it takes after that it needs to think deliberately past its own particular limits. It additionally fights that since esteem streams stream over a few divisions and capacities inside an association, it should be composed around its key esteem streams. Extending past the firm, some type of aggregate understanding or association is expected to deal with the entire esteem stream for an item family, setting basic change targets, rules for sharing the additions and exertion and for planning waste out of future item eras. This aggregate gathering of associations is Lean Thinking standards can be connected to any association in any area. Albeit lean's birthplaces are to a great extent from a car fabricating condition, the standards and strategies are being exchanged to numerous parts, frequently with little adjustment. Areas, for example, conveyance, retailing, development, medicinal services, budgetary administrations, safeguard and open organization have all started to execute lean thoughts lately.

Many apparatuses and strategies are accessible to bolster the lean rationality and to empower associations to apply the thoughts and execute change. These radiate from a few schools of thought, (for example, the quality development) and many risen up out of the Toyota Production System, while others have since been created by research associations, for example, LERC. Subsequently, there now exists a broad toolbox to help the lean expert. Illustrations incorporate 5S (five terms starting with the letter "S" used to make a work environment suited for visual control and lean creation), Kaizen (a procedure capacity to arrange and bolster concentrated blasts of leap forward exercises), Value Stream Mapping, and Policy Deployment (a visual administration apparatus that enables administration to choose the most vital goals and to make an interpretation of these into particular ventures that are conveyed down to the usage level). [4]

3. Lean in office environment

Henry Ford said it best when he stated to the world "You can have any colour you want as long as it's black" This statement optimizes the thinking behind Lean Manufacturing principles as Ford introduced this rule to speed up the production process of the Ford Model T. In nowadays uncertain financial times it is becoming more and more imperative that businesses look at their activities and focus on minimising unnecessary costs, reducing waste and improving inefficient procedures. The administration costs within any organisation represent a significant element of the total business overhead and the office environment is as targetable for process improvement as any traditional manufacturing or production procedures. Offices around the world are reaping the benefits of lean as it continues to evolve beyond manufacturing introducing it they are removing waste, saving significant money and increasing efficiency.

Lean relies on some proven tools and techniques to succeed – at the heart of these the target is to minimize wasteful activity and focus on adding value to the end product and meet customer requirement – Process waste can be understood through using the model of the 7 wastes. The 7 wastes – Overproduction, Waiting, Motion, Transport, Over processing, excessive Inventory and defects. Anything that does not add value to the product or service is waste. In order to capture the current state of the process including both value add and non - value add elements – organizations typically use a process mapping method called Value Stream Mapping. Value stream mapping provides a central

view of all business processes as they are now, mapping the material and information flows and can be used to construct a future state process portraying the process once “leaning” has taken place.

Introducing Lean Office principles has many benefits but most importantly:

- It identifies problem areas –Lean Office principles assist in identifying problem areas and bottlenecks within a business. By using lean tools and techniques problem areas are identified and can be eliminated.
- It increases business efficiency – Implementing lean office procedures will have significant impact on the efficiency of staff. You can ensure that all members of staff are spending time adding value to the customer experience – and any time saved is redirected to value add tasks.
- It saves money – Reducing the overhead in paperwork means that you may not have to take on that extra person to help with the admin. Lean Office principles allow you to identify where savings have been made.
- It simplifies processes – During the natural expansion of a business, processes can get bureaucratic, time intensive and ultimately uncontrollable. Lean Office techniques identify inefficiencies and remove them.
- It helps conform to rules & regulations and codes of conducts – If your business has to conform to Rules & Regulations or codes of conduct then through standard processes Lean Office Principles can help ensure compliance.

A natural benefit of Lean Office principles is the streamlining of all processes which in turn links in with the identification of problem areas in other aspects of the business. It is quite common for businesses to not only create a Lean Office but also establish lean as an improvement activity across the whole business which results in an organisation which is able to service its customers better and most importantly know that they are doing things right. [5] [15]

4.Establish lean thinking in the company

4.1 Plan

Main objective is to establish the 5s and lean thinking in the office. With these measurements overall productivity will increase while reducing the manufacturing lead time of the process. It will improve the flexibility to react to change and respond with immediate actions thus able to respond quicker, quicker set ups and fewer delays. It will improve the customer service of the company by delivering exactly to the needs of customer. It is an innovative method of management, in which whole staff is fully involved thus improving morale and participation in the business. The output waste is minimum as there is less transportation of material, most of work is done online and less paper use.

Waste can simply be defined by “Something that adds no value”. The seven wastes of Lean Manufacturing are what we are aiming to remove from our processes by directly tackling it out so the overall efficiency increase and the waste is minimum. The over production and over processing has been tackled by the introduction of Lean thinking to the company as now they know the right quantity of copies to be printed out and oriented work is done towards the goal. The transportation, motion and waiting wastes are eliminated as they are now under one department which process all these tasks

simultaneously thus reducing the waste and saving the time for the company. The number of defects are lower now as the company has train there workers and each worker has skill with special duty during the training session.

7+1 Wastes		
1.	Over production	<ul style="list-style-type: none"> • More information then the customer needs • Making extra copies then what actually needed
2.	Transportation	<ul style="list-style-type: none"> • Retrieving or storing files • Carrying document to and from different location • Going to signature from different people
2.	Action	<ul style="list-style-type: none"> • Searching for files • Gathering information • Manual entry
4.	Waiting	<ul style="list-style-type: none"> • Customer or supplier respond • A handed off file to come back
5.	Over processing	<ul style="list-style-type: none"> • Use of out dated standard form • Use of inappropriate software
6.	Defects	<ul style="list-style-type: none"> • Date entry error
7.	Skill/Talent (Unutilized)	<ul style="list-style-type: none"> • Excessive documentation • Suppressing ideas • Minimal responsibility

Table 1: 7+1 Waste of the Company [3]

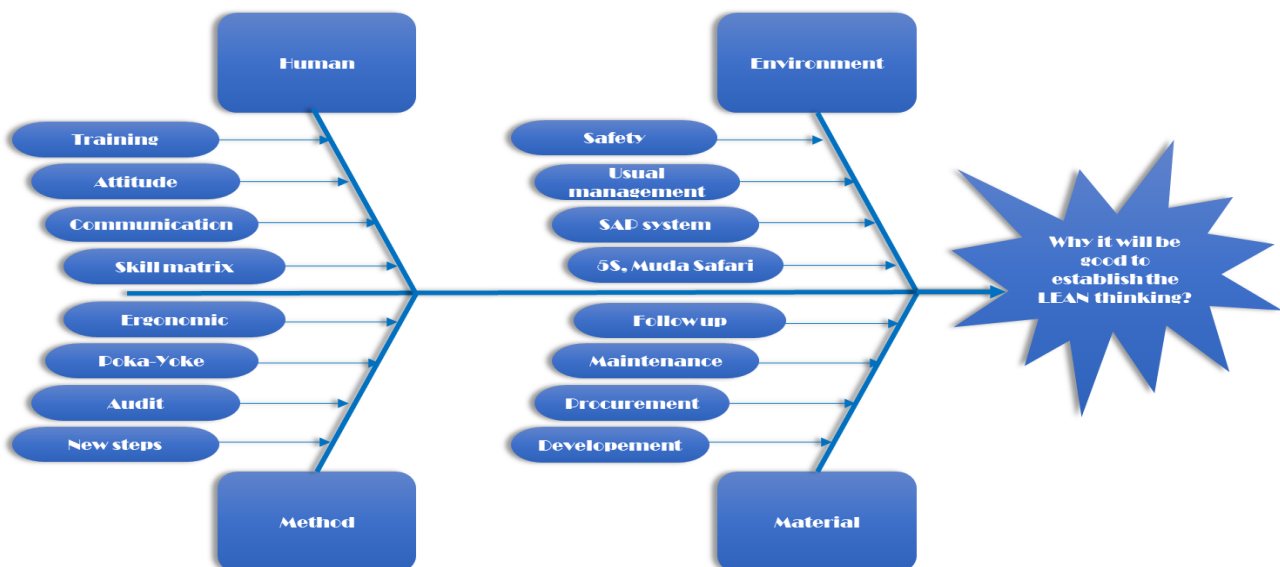


Figure 1: Fishbone diagram of the Company [6]

The significant point of a fishbone outline (also known as an Ishikawa diagram) will be that it will provide great help to the person or team in trying to determine the root cause of a problem. The real

playing point of fishbone is that it outlines and serves the cooperation toward giving a helpful, effectively and easy method for the issue that is constantly faced.

Working Point of view	Vállalati perspektíva
✓ More comfortable, ergonomic, cleaner working environment, better working conditions	✓ Easier to recognize problems, Accuracy, compliance with deadlines
✓ Opportunity for self-realization	✓ Easier to recognize problems
✓ Easier work, eliminating search	✓ Higher productivity
✓ Clear tasks and responsibilities	✓ Fewer complaints, satisfied partners
✓ Safer work	✓ Accuracy, compliance with deadlines

Table 2: Benefits and disadvantage of lean office [7]

Activities	Processes
✓ Unnecessary work	✓ Unorganized workflows
✓ Time consuming process	✓ Unclear responsibilities and jobs
✓ Duplicate work	✓ Excessive bureaucracy
✓ Unfinished tasks	✓ Unbalanced processes
✓ Repeating work flow	✓ Excessive fragmented tasks
✓ Non targeted activity	✓ Avoidable activity

Table 3: Major losses in the administrative area [7]

Applying the lean office, the condition to be achieved is that the losses shown in Table 3 are eliminated from the system or are reduced at least as much as possible. With reducing costs and maximizing value-creating processes the aim is to achieve consistency in adapting business and customer needs, having efficient use of resources. In bureaucratic fields, the solution is the „kaizen” which means including a continual improvement. It systematically helps to detect all the „muda” (loss) rooted in the system and reduce them by creating standards. [8]

Improving processes are always reasonable in the system of „a necessary evil” provided by an office, although office processes can be used to track transactions, and bureaucracy also supports the function of leading management, there is no concrete direct income. Hence, with the adequate work environment its operating costs can be reduced in the range of which the needed tools, machines, and equipment to perform work are still maximized. However, changing the applied structures and habits, it should be taken into consideration that hygienic and basic needs of the employees in the work environment are not compromised. In addition to getting the operation organized and raising workplace morale, an environmentally conscious atmosphere is also prevailed by deliberately focusing on office activities. The sense of comfort is on the rise for both employees and incoming customers. Its implementation and the sustainable development is based on three main pillars:

- 1 – Selection of loading tools, materials and workflow of the office environment
- 2 – Developing the community into a workgroup, countering the opposition
- 3 – Applying reasonable, effective solutions to the economic potential [9]

4.2 Do

The 5S method was named after the initials of the Japanese words. Every step describes a specific process preceded by the previously accomplished stage. The table 4 demonstrates the 5S method.

Information	Resources
✓ Less information on task	✓ Poorly utilized human resources
✓ Inaccurate and outdated data	✓ Unused capacities
✓ Useless information	✓ Disequilibrium use of skill
✓ Unclear and doubtful information	✓ Storing outdated data
✓ Excessive documents	✓ Loss of time

Table 4: 5s [11]

As the first step, we want to use only a minimal resource to limit the size of the area and to create a clean and organized work area. The introduction was started within the framework of a Kaizen. After developing the new approach, a project team was formed. We considered it very important to involve the staff in this team. Our goal was to familiarize the participants of the project with the methodology and the technique of the application. As a next step, we defined the tasks and competence of the group members.

- Management: Their role is decisive in the introduction, without their full support the employees may not regard the implementation of the system as important.

- 5S leader (manager): the task is to coordinate the project, to assist in the application of methodology and techniques. The manager will continue to contact the management and report on the state of the project and on the progress achieved.

- External consultant: his / her job is to help the 5S leader and the realization of the project work with experience and knowledge. It is important to have an objective and independent attitude, thus promoting the removal of undesired and inefficient conditions.

- Team 5S: the team is assigned the processes, tasks, and deadlines specified in the project.

Seiri: Sort

The first step in introducing the 5S is the isolation of the necessary and unnecessary things (SEIRI), as it is shown in Figure 7. The aim of this process is to get the objects, tools, and materials that are less necessary in a temporary storage until their further use is decided. This is an important Lean tool, since the basic condition of the Lean production for us that only those things (tools and materials) are need to be found in our environment, anything else are excesses. Each tool was evaluated to see whether it was necessary. Within the framework of a selection Kaizen, we determined what kind of criteria are to be used. The definition of the condition system is very important, it is a crucial element of the compilation, we must clearly define the conditions under which we store device, stock, etc. in the work area. By using the condition system and the mixed teams, we can eliminate the subjective, misguided approach during the implementation. The selection method will be determined after selecting the area and determining the points of reference. Here we have taken into account the size and weight of items, based on two criteria:

- 1) Movable items based on mass and size, so-called, labeled as "Red Tag"
- 2) Heavy, massive items or non-movable items are labeled "Red Tag".

The Red Tag (red label, with this color are those items marked, which had been removed of the operation area) is used as a justification for the previously and Red Tag-labeled items could not accidentally be mixed or returned to the workspace. The Red Tag label or card serves to gather some important information, including the name of the selector, the date, the description of the item, and further steps. We placed it on places, equipment, materials where we encountered non-conformances. The marked and selected items were sorted out by the end of the compilation, the 5S team jointly evaluated and put forward its proposal to the management for further use or possible scrapping. When the selection is done, the next step is the Seiton.

Seiton: Set in order

The step after the withdrawal of excess is the Seiton. At this stage, it is useful to consider for the items remaining in the work area a storage and placement method that can be easily, simply and unambiguously complied with and allows for easy identification, precise location and easy observation of each item. The main purpose of the system is to enable employees to acquire this knowledge without special education and to be clear about where the items are available. The process of organizing is organically linked to the sort, therefore it is important to draw the attention of the members of the 5S team to the fact that it is not simply a rendering but a thorough and comprehensive

review of the system. Accordingly, every participant, who works on the machine, must be involved in the process of systematization. It is also important to find the optimum between the previous placement methods and the creation of the new system. The definition of the primary mode of use is supported by the above described method. First, we collected the information that was used to determine what the item can be used for, what is its primary function. Further, we note the frequency and possible secondary function of the information. After defining the mode of use (information) of all batches, the items of the same function are grouped and placed with the help of the so-called rough coordination. The optimal storage method is part of the continuous development as well.

Seiso: Shine

According to the traditional approach, the shine should be the first step. These issues were raised by team members at the startup project meeting. Why do we need to sort and organize it first? Why not start with a comprehensive cleaning? Answering this question and understanding it is crucial for the Lean system. One of the pillars of Lean philosophy is to eliminate the losses. During sorting, the excess is extracted from the work area. This is reflected in the removal of unnecessary materials, components and equipment, so in the course of cleaning we get a systematic, well-transparent environment where further improvements, operations, such as cleaning can be carried out easily. Shining is not equivalent with the cleaning, improving the detected machine defects and problems play also an important role.

During the implementation, the deadlines between the different steps were set so that there could be a minimum deadline between them. It was important to us that the project was a sequence of smooth, uninterrupted steps that did not even give a chance to go back to the old routines. In the process of cleaning, the entire 5S team (also the shift managers) took part. When choosing cleaning tools, we took the specialty of the printing technology into account and decided to purchase them accordingly. During the cleaning, we sought to complete the entire work area (mobile rack, storage tank, tool and accessory cabinet), to highlight as much error as possible. We have solved most of time on site, we have also fixed the need for more maintenance and have made a timetable for remedying them. We have also captured the tools and areas that we have included in the daily cleaning and inspection tasks. These are based on the following parameters:

- 1) It causes error in the quality
- 2) It disturbs the job
- 3) Error signals can be detected

Seiketsu: Standardization

The purpose of standardization is to document the operational conditions of sorting, systematization and shining, and to develop standards for control. Standardization does not have to follow the first three steps right away, but efforts must be made to develop comprehensive preventive activities. If the preventive activities are properly performed, standardization can begin in the sorting process. However, we should not forget about standardization if this step is omitted, the routine will soon overwhelm the system that is new, and consequently it requires more attention. For standardization we have chosen two people from the 5S team who carried out the making of the standards. This task

was very important for our colleagues to be involved in standardization who are going to do the actual process.

Shitsuke: Sustain / Development

Although this is the last step, we can say that the preceding four steps can be gathered around this fifth stage. The purpose of this step that the attitude of finishing the work may become a daily routine. However, the short-term effects of the step mentioned above go far beyond the maintenance and development, since over time, by changing the circumstances, the standards are outdated and no longer fulfill their role, they need to be improved. The substance of the Lean philosophy can be found in this process of "improvement", as we can only do something better if we are constantly striving to find new solutions and thereby reduce our losses.

4.3 CHECK

Key performance Indicators are the quantifiable tools/measurable value that demonstrates the success of our employees/organization in achieving key business objectives. Too often organizations adopt industry-recognized KPI that does not contrast with their business goals and objectives, thus failing to affect any positive changes. KPI is a form of communication that abides by the rules, and hence it is absorb and act upon clear and relevant information.

In terms of developing a strategy for KPI, employee should start with the basics to understand organization objectives.

- Is your objective Specific?
- Can you measure progress towards that goal?
- Is the goal realistically attainable?
- How relevant is the goal to your organization?
- What is the time-frame for achieving this goal?

Each KPI should relative to specific business outcome as follow.

- What is your desired outcome?
- Why does this outcome matter?
- How are you going to measure progress?
- How can you influence the outcome?
- Who is responsible for the business outcome?
- How will you know you have achieved your outcome?
- How often will you review progress towards the outcome?

Key Performance Indicators in the Service Process:

- Value per person
- Average cost per service
- Cycle time

- Lead time
- Corporate reputation
- Customer engagement

We also need to define performance indicators in the field of information and knowledge management. These may include:

- Average time for finding the document you are looking for
- Number or age of documents
- The number of new documents in a period of time
- Data redundancy = redundant data number / total number of data
- Data accuracy = number of inaccurate data / total number of data [13]

4.4 ACT

Checking could mean any form of monitoring or measurement activity. In quality systems it might include:

- Asking customers about their satisfaction with a product or service – perhaps via a survey
- Monitoring using any of the senses – visual inspection, listening, tasting, smelling, feeling
- Monitoring or measuring with equipment – in which case the equipment may need appropriate care and calibration
- Other feedback loops – such as product reviews or media articles, complaints or returned goods, requests for refunds etc.
- An important pro-active check is performing Internal audits to verify that procedures and plans are being followed in practice – and are effective. [12]

The well-designed performance indicators can show us the mistakes and shortcomings that can be used to intervene in processes. This intervention closes and restarts the round of the process at the same time. Based on the conclusions of the audit, it may be necessary to take further measures that will transfer us to the next planning phase. If we are satisfied with the results of an area, focus on the next round of issues that have been ranked down to the rankings. [10]

Summary

The introduction of the Lean thinking in Next Broker Consulting Ltd, the aim is to support the application of lean management, regardless of the nature of the business, which has positive results in all areas. The Next Broker Consulting Ltd started to operate since 2011 with the aim of helping developers and municipalities of the area through tenders to achieve most out of the resources they use. The company offers dealings with tenders, follow up the realization of project, arranging the project management and monitoring the project.

After the introduction of Lean thinking to the company the next step is the 7+1 wastes. All the 7 wastes are indentify and steps are taken to ensure that the waste quantity will be minimal and the productive will increase. Ishikawa is made for the company, with the help of it the team can determine the root cause of the problem. Ishikawa play a vital role as it outlines and serves the cooperation towards a helpful, effective and easy method for the problem face continuously by the team. The SWOT diagram is made which helps the company to plan for long term policies. With the help of SWOT the company can combat with the issues they face duing tender auction and to strenghten their ties with customer. The revolutionary step is the introduction of 5S to the consultancy. The advantages and disadvantages are listed to the employees and how they can train themself according with it. The 5S concept is new and helps the company to operation on a larger scale with fewer inputs than before. Figures are made for better understanding and a Red Tag is created which is the first step of the process. Red Tag tells the employees about the history and the process which will be needed on it. In end the KPI is made for the company by which the effectiveness of the lean thinking and 5S can be measure.

The basic of lean thinking is the contunious improvement in the quality of the product while minimaxing the wastes created during the process. The Next Broker Consultancy Ltd adopted this new way of management and made sure that all the necessary measurement are taken to insure smooth flow of the process.

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