

\*Corresponding author: Rio Abdurrahman, Accounting, Faculty Economy and Business, Mataram University, Mataram, Indonesia

E-mail: [rioabdurrahman@gmail.com](mailto:rioabdurrahman@gmail.com)

## RESEARCH ARTICLE

# Construction Service Company Value Chain Model

Rio Abdurrahman\*, Animah, & Yusli Mariadi

Accounting, Economics and Business, University Mataram City Mataram, West Nusa Tenggara, Indonesia

**Abstract:** This study aims to identify, explain, and identify the appropriate value chain model for construction service companies. This research is conducted in PT. Bangunan Unik Lombok that located in Sengkol Village, Grupuk Hamlet, Pujut District, Central Lombok Regency, West Nusa Tenggara Province. The type of research used is case study research, with descriptive data analysis methods and a quantitative approach. Based on the analysis that has been done at PT. BUL, as a whole PT. BUL had a fairly good value chain activity at the start of its operation. PT. BUL still needs to improve the performance of value chain activities to strengthen competition in the market and become a superior contractor, such as promoting and collaborating with government and private institutions, owning basic construction tools, project management and improving internal and external business. This research suggests that companies should make more use of and maintain every factor or activity that influences the success of a construction company. Maintain good relations with existing clients and try to build relationships and collaboration with prospective clients and government or private institutions. Implement and adhere to existing activity procedures. Paying attention to efficiency and effectiveness in producing construction products.

**Keywords:** Value Chain Model, Activity Value Chain, and Improving Activity Performance Value Chain

## 1. Introduction

Due to Wideasanti (2013) industry construction be one of the most developed industry in the world including in Indonesia. Growth industry construction in line with growth in a country, increasingly big industry construction so growth a country also will the more fast. Data from the Central Statistics Agency (BPS) recorded amount construction in Indonesia experienced fluctuating growth, in 2019 there were 168,868 companies construction, in 2020 as many as 159,308, and in 2021 it will increase as many as 203,403 companies construction (Central Bureau of Statistics, 2021).

Growth sector industry Construction also has an impact on development area, for one West Nusa Tenggara province. it can known moment Indonesia was selected as the host organizing the International MotoGP which will be held in 2021 at the KEK Mandalika. Acceleration development Pertamina Mandalika International Street Circuit and development road bypass from airport international Lombok to Mandalika along 17 km being one pusher growth sector construction. Based on data from the Central Bureau of Statistics (BPS), product gross regional domestic product (PDRD) sector construction grow 8.94% in 2021. Growth most contributing sector of the NTB PDRD is the highest compared to 16 sectors other.

Based on Causar (2018) impact from awakening various infrastructure to PU's have bring influence significant in support development regional economy. Improving road infrastructure encourages the growth and development of tourism and industrial areas,



including internationally, making NTB a place for world events to be held, especially sports tourism. Various infrastructure development activities that have benefited the community are opening access and better connectivity between regions. His awakening infrastructure road from and to regions tourism and areas center production other like area Mandalika, SAMOTA area, as well sections road strategic linking circumference south nor north the islands of Lombok and the islands of Sumbawa.

Constructions carried out by contractors no free from problem. Problems with the project construction can resulted happening internal material wastage work on site and causes delay in implementation. A number of problem happen Because exists change design on stage implementation, power Work not enough expert , coordination not enough Good between parties involved , error election method construction used as well as weak planning and control project the (Gusti et al., 2018).

Previously study use analysis chain mark already enough lots done , like research conducted by Mulyani & Haryadi (2018), Damayanti et al. (2021), Ayu et al. (2020), Patricia et al. (2022), Maddeppungeng et al. (2015), and Nugrahani (2016) conclusion in studies the that is How method for reach superiority compete with use chain value . The amount activities in chain mark of course will adapt with circumstances experienced by the company. So that in reach superiority compete own priority activity chain different values. Study Perera & Gunatilake (2020), and Dei et al. (2017) recommend analysis chain mark for create efficiency and effectiveness through process standardization as well know influencing activity cost project, so influence profit contractor. Study This aim for knowing, explaining, as well identify the chain model exact value for company service construction.

From research the researcher interested for do study about value chain in the company construction. On study references journal national and international carried out, yet lots researchers discussing about value chain in the company construction. Study value chain more lots done in industry manufacturing and business trade. Besides that study this done with object company service construction located in Lombok, West Nusa Tenggara and yet lots researcher other do. So that study this become study new or pioneer and potential become reference study next.

## 2. Literature review

Theory of Constraints is a philosophy and method for continuous improvement and improvement with a focus on identifying limiting factors called constraints. Constraint which are continuously eliminated will minimize costs for achieving company goals in the future. Theory of Constraint (TOC) was first introduced by a physicist named Dr. Eliyahu M. Goldratt through his book entitled *The Goal: A Process of Ongoing Improvement* in 1986 (Riadi, 2022). Theory of Constraints (TOC) focuses on the weakest points that are obstacles for the company and tries to determine the relationship of the main constraints or obstacles in achieving the company's goals. In other words, anything that hinders the process of achieving company goals can be considered as an obstacle. If the company can deal with constraints and manage them, then the company has made continuous improvements in its management system which will affect its goals (Kurniasanti et al., 2022).

Application theory of constraints in study this is company construction as providing all need from beginning until the final process. Necessary preparations lots consideration from contractor for take a decision, start from inbound logistics, operations, outbound logistics, marketing and sales, and services. These processes own alternatives others can the most appropriate is selected. So, got give a model that can worn for give mark plus for customer.

Providing added value to customers based on Theory of Constraint (TOC), to support this requires analytical techniques. Technique used is analysis chain value. Analysis chain mark have three stages that is, identify activity chain value, identify cost drivers on each activity value and develop superiority competitive with reduce cost or add value. Chain mark useful

for identify related activities in a manner strategic, consists of 5 (five) primary activities for create value and cost in something business certain.

Activity chain mark according to (Porters, 1998) namely : Primary Activities (Main Activity). Primary activities (primary activity) is the activities involved in creation physique products and sales as well as transfers to buyers and also help full sell. There are five categories common to the connected primary activities in competition for all industry, every category divided become a number of activity different depending on the industries company specialization and strategy. Among them are: Inbound Logistics (Logistics in). Inbound Logistics is related activities with reception, storage, distribution of inputs to be goods production, like material handling, storage, control inventory, scheduling vehicles, and returns to suppliers. Operation (Operation). Operations is related activities with converting inputs to product so, like use machining, packin, assembling, maintenance equipment, trials, printing, and facilities operation. Outbound Logistics (Logistics Outside). Outbound Logistics is related activities with collection, storage, and distribution product on the buyer, such as storage product so, material handling, operations delivery with vehicles, ordering and scheduling processes. Marketing and Sales (Marketing and Sales) Marketing and Sales is related activities with provision goods production so you can bought by consumers and persuaded consumer for do consumption, for example like advertising product, channel selection, channel relationships, and assignment price. Final Service (Service). Service is related activities with provision service for get or maintain mark from product, for example like service installation, repair, training, supply ethnic group parts, and adjustments product.

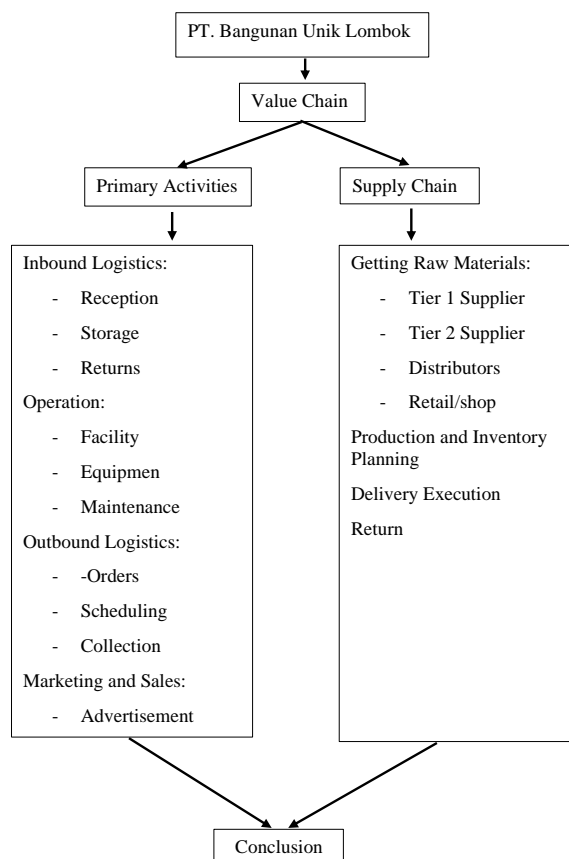
Analysis of the value chain in which there is a supply chain (supply chain). Do to Pujawan & Mahendrawathi (2017) supplychain is network companies that are together work for create and deliver something product to hand user end. Companies the usually including supplier, factory, distributor, store or retail, as well companies supporters like company service logistics. at one supplychain usually there are 3 kinds must flow managed. First, is Genre flowing stuff from upstream (upstream) to downstream (downstream). For example is material sent raw from suppliers to factory. After product finished produced. They sent to distributors, then to retailer or retail, then to user end. Second, is the same kind of cash flow that flows from downstream to upstream. Third, is Genre information that can happen from upstream to downstream or otherwise.

No one can denied that genre information plays a very vital role in create superior supply chain management. When company own performance supplychain Good sure those who can manage Genre information with transparent and accurate. Information about supply still product in each shop often required by distributors and factory. Information about availability capacity production owned by the supplier is also frequent required by the factory. Information about delivery status material raw often required by the company sender nor receiver. Company must share information like this so parties interested can monitor for interest more planning accurate.

According to Greasley (2020) activity chain supply includes, field procurement in operation, is with activity upstream, and management distribution physical, related with activity downstream like warehousing as well as transportation, procurement or purchase (procurement) and management distribution physique (physical distribution management). Do to Novitasari et al. (2022) in genre chain supply there are two very many concepts used as well as developed for increase efficiency and effectiveness genre chain supply, namely: Reducing amount supplier and develop partnership suppliers or strategic alliance.

Researcher want to solve frequent problem experienced by some big company service construction. According to Wideasanti & Lenggogeni (2013) in industry construction there is philosophical that construction and capabilities for build something is one skills oldest from human. In prehistoric times, skills build a difference Homo Sapiens from species other. Man fight for live and take refuge from hazardous environment with build place stay from various materials at the time it, like soil, stone, wood, and skin animal. In modern times broad,

projects construction can shared or classified into 3 (three) parts, namely: construction building; construction technique; and construction industry. Third matter the can described in the description following this.



**Picture of Value Chain Thinking Framework**  
Source: Data processed 2023

**Figure 1.** Framework thinking

### 3. Research Methods and Materials

Type research used is study studies case, with method descriptive data analysis and approach quantitative. According to Sugiyono (2017) study quantitative is type study with retrieve and collect data, interpret data that has been collected, as well expose results from interpretation of the data that has been done. For support writing this of course careful and accurate data is needed, so between discussion with appropriate data with what exists in the field. As for the place that was used as object study is PT. Building Unique Lombok is located in the Village Sengkol, Dusun Grupuk, District Pujut, Central Lombok Regency, West Nusa Tenggara Province. Time required in implementation study this is during year 2023.

Procedure data collection and collection will be taken with three method that is with interview (interview), observation and documentation. Interview is data collection direct with object/subject study This namely PT. Building Lombok unique. Interview conducted is interview no structured Because used in study introduction or for study more deep about respondent (Sugiyono, 2017).

In study this researcher use analysis focused internal company activities analyze activity main (primary) stages in do data analysis namely: first of all identify activity Value Chain in accordance with picture framework thinking chain value, researcher want to know all activities that occur in the BUL company. Furthermore identify Owned Cost Drivers PT.

Building Lombok unique. Affecting activity cost often called with cost drivers (cost operation). Cost operation warehouse influenced by price, weight, orders received, type stuff, and some supplier. Objective main from group behavior cost for identify cost operation, that is for differentiate causative activity emergence cost procurement.

Next step of this research are creating and analyzing data with SWOT method. SWOT analysis for increase awareness will the factors used for make decision business or set a business strategy. Objective from SWOT analysis is for make analysis as well as summarizes internal and external factors, identify risk as well as necessary trouble solved, set priority management, evaluate and improve opportunity as well as performance service to customer. Final that is identify the chain model appropriate value for add mark for customer. In chain mark company construction of course own different conditions and situations. Researcher want to give a chain model appropriate value with conditions and situations BUL 's projects. Fifth conclusion give conclusion from analysis BUL's value chain and deliver some related suggestions with development business company.

#### 4. Results and Discussion

Study this first of all identify activity chain value. Researcher do research at PT. Building Lombok Unique (BUL) by month March-April 2023. In this study, researchers succeeded in finding company data such as construction cost reports, statements of financial position, details of other company costs, lists of assets and various other company activities. Researcher no only act as observer but also act as participant full, so the data obtained can be accounted for answer and prove its validity. these data obtained from results interview with consisting of sources from internal accountant, consultant PT. BUL and implementers BUL project.

First step is collecting related data with activity company. Required data related with analysis to be done is report cost development and data information activity company. Report cost development building and details cost company will analyzed with identify activity value and allocate cost per activity value chains. Information data activity company used for know activity that occurs in company and identify trigger cost from each activities carried out as well as possibility in achievement decline cost.

In 2022 PT. BUL only has 2 clients in the form of foundations, class room of hope for construction of 3 (five) anti earthquake schools and 2 (two) buildings earthquake resistant house and Pelita Lombok Foundation for project development school. Following this researcher will present data PT. BUL which has grouped to in activity value chains. The list of activities at PT. BUL more concisely can be seen on Table 1.

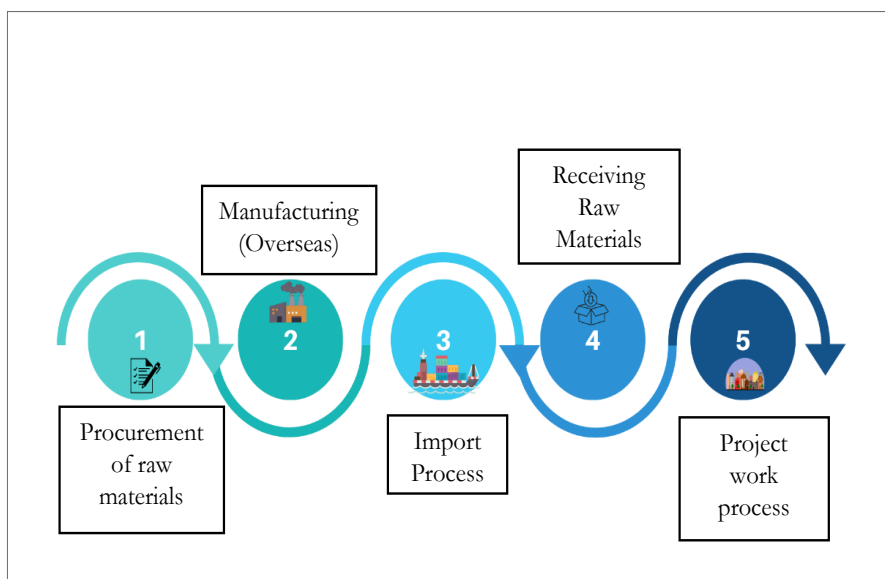


**Table 1.** List of Activities at PT. BULL

Activity Units	Activity
<b>Primary Activities</b>	
Inbound logistics	PT. BUL has not carried out many raw material purchasing activities since its inception, this is because PT. BUL has just been established and the PT. The first BUL is to build an anti-earthquake school with the dominant building material from recycled plastic or ecoblock. PT. BUL receives goods directly from clients with an import mechanism, because the ecoblock production warehouse does not yet exist in Indonesia.
Operation	There are 3 main things that PT. BUL in the process of company operations: Testing Product Quality This process is carried out to get customer satisfaction and maintain quality according to PT. BULL. Second Control of Construction Implementation. With the control of the head of construction, projects made by PT. BUL can achieve maximum results and costs incurred can be as efficient as possible. Third Productivity Company. Maintaining productivity is aimed at keeping costs low and clients also getting maximum satisfaction
Outbound Logistics	Products produced by PT. BUL is a building that is ready to use and can withstand earthquake tests.
Marketing and Sales	In the marketing and sales activities of PT. BUL carries out 2 (two) main activities, namely: First attracting customers with price fixing and payment agreements, market share performance and performance as well as negotiating salespeople. Second, direct service to customers by providing good technical services and providing special media in handling client problems
Service	This activity is the responsibility of the operational and marketing manager who is also supervised by the Corporate Director of PT. BUL places great importance on the service it provides to its clients. PT. BUL provides services with periodic on the spot surveys, direct meetings with clients, zoom meetings, email, WhatsApp and telephone.
<b>Support Activities</b>	
Firm Infrastructure	At the beginning of the establishment of PT. BUL has just deposited capital of 1.5 billion. For sustainability growing, PT. BUL must look for investors to develop its business. This aims to obtain sophisticated construction equipment, the best materials, obtain adequate human resources and produce maximum output.
Human Resource Management	Organizational structure of PT. Lombok Unique Building consists of 4 (four) main structures. Namely the Director, Commissioner, Operations Manager, Marketing Manager and Chief Builder who oversees 19 general handymen and 1 electrician, each of whom has duties and responsibilities
Technology Development	PT. BUL still didn't have a lot of construction equipment at its inception so that PT. BUL still rents construction equipment such as concrete mixers, excavators and others.
Procurement	To avoid material unavailability, PT. BUL has backup suppliers in case of problems or empty stocks at other suppliers. PT. BUL is also selective in selecting suppliers to obtain the best quality local materials at affordable prices. But PT. BUL does not carry out long-term cooperation with suppliers, so the selected suppliers are not permanent.

Next step is done researcher is identify Cost Drivers (Cost Operation). Identification cost done with analyze details cost from report details cost development in 2022 which is owned by PT. BULL. Based on report cost development there are 3 (three) components main cost, cost direct, cost operational and outside costs effort. In the cost operation there is cost direct, cost operational and external expenses effort.

First cost direct. Cost directly to PT. BUL is used for cost project construction used for cost materials/materials, accommodation, transport and costs construction other. The cost of building materials is important component in determine magnitude cost something project, more from half cost project absorbed by the material used for finish project carried out by PT. BULL. Material costs are classified to in activity logistics to in. In 2022 PT. BUL no lots buy building materials, because part most of the material comes from direct from client using eco block. As for the chain mark material PT. BUL is very simple. PT. BULL start start do procurement material raw, then material raw made by the supplier ecoblock abroad, after all material raw available material raw imported and received in Indonesia for settlement project.



**Figure 2.** Supply Chain Image PT. Lombok Unique Building

Cost accommodation. Cost accommodation at PT. BUL is used for manager operational costs consumption as well as cost operator accommodation during carry out activity. Transport costs are used by PT. BUL for buy or take building materials that will used for project construction. Transportation used form trucks, cars nor motorcycle. Cost Construction Other cost this used besides from three cost directly above. Usually PT. BUL uses cost construction other for pay service transport san, charge cleanliness around project development or handyman transport to location project. However cost construction other this no often happened.

Part of this analysis is operational cost. Operational cost owned by PT. BUL are include : wages cost wages that one of the highest costs issued by PT. BUL. Wages cost is also more big from purchase cost of building materials. It is because PT. BUL not only give wages to worker local but also the management that comes from from worker foreigner to be manager operations that have wages highest. BPJS Health Benefits PT. BUL only give BPJS Health facilities to employee. Employment BPJS will given to existing employees work one year or to employee stay. Employment BPJS is very important for workers, especially worker project that has high risk. Because that, in 2023 PT. BUL will try all employee or worker the project

get facility the. Allowances PPh 21 is given to manager operational Because own salary above PTKP (Entrepreneur No hit tax).

PT. BUL also bears PPh 21 if there is employee others who have salary above tax criteria (PTKP). Accommodation and travel expenses are not classified as direct cost, because used for operational company like for cost transportation, travel and purchasing material burn oil. Utility expenses incurred by PT. BUL only used for internet fees. Office expenses issued by PT. BUL is used for burden consumption, load tool write office and purchasing equipment for worker. Election Expenses issued if there is damaged equipment and machinery \_ or need repair. In 2022 PT. BUL no lots emit cost maintenance because of the assets they have still little and no need lots maintenance. PT. BUL uses straight line method in make depreciation of company assets. Depreciation at PT. BUL only performed on machines, equipment projects and equipment office. KITAS/DPKK expenses are used by the manager operational for extended stay in Indonesia. Management & Accounting fee PT. BUL no own accountant as well as internal auditors so use service consultant for make report financial, taxation and reports annual. Other expenses are used for other needs outside project construction or non-operating expenses carried out by PT. BULL.

Thirds Expenses outside of PT. BUL issued burden outside business only for burden banking administration. Based on report Report cost development at PT. BULL. Table 2 will allocation data is presented activity value chain assigned to the activity main and activity supporters.

**Table 2.** Value Chain Activity Cost Allocation

No	Value Chain Activities	Company Activity	Amount
1	Inbound logistics	Building material costs	269,806,750
		Other construction costs	5,060,000
2	Operation	Accommodation costs	15,300,000
3	Outbound Logistics	Kitas/DPKK expenses	141,584,000
		Management & accounting fees	17,500,000
4	Marketing and Sales	Business promotion	-
5	Service	Service via direct and telephone	-
6	Firm Infrastructure	Election burden	2,153,931
		Depreciation expense	2,557,813
		Other expenses	11,973
7	Procurement	Office expenses	8,260,500
8	Human Resort Management	Salary expense	353,300,000
		BPJS Health Benefits	14,546,016
		PPh 21 allowance	5,400,000

The next activity carried out by researchers was to analyze the SWOT at PT. BUL (Table 3).

The last activity carried out is the identification of the value chain model at PT. BULL. Based on the list of activities and costs carried out by PT. BUL, not enough activities to add value or competitive value are carried out. This is because the client owned by PT. BUL has only 2 clients for the construction of schools and private houses with relatively small project values. In addition, PT. BUL has also just started operating so it does not yet have adequate construction equipment.

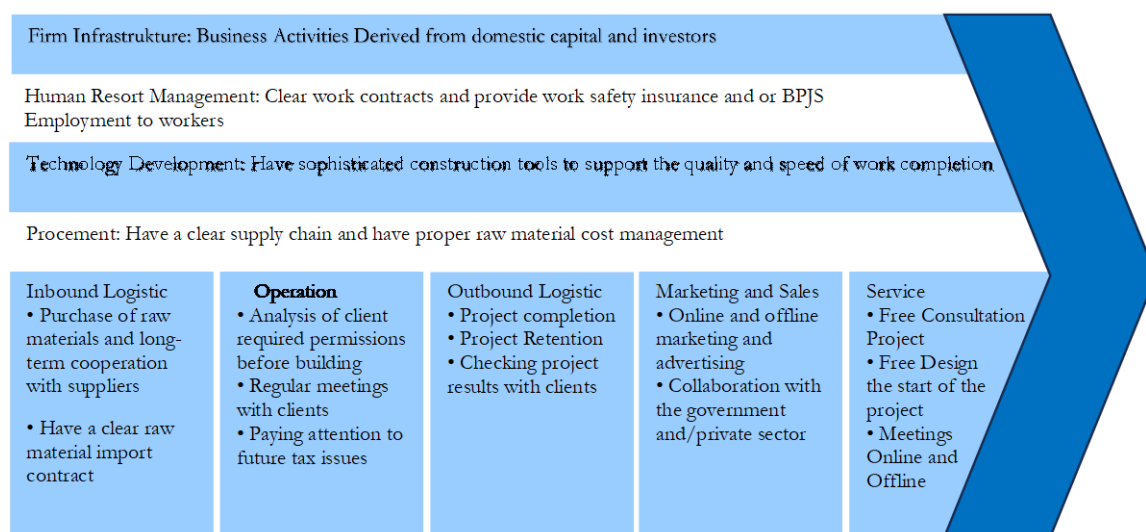
To become a superior and competitive contractor, PT. BUL must evaluate the value chain of the company it owns. In the main activity of inbound logistics PT. BUL must start building long-term partnerships with suppliers, the goal is to be able to get the best quality goods. PT. BUL must also pay attention to contracts regarding the import of raw materials with clients so that the imported raw materials arrive on time and there is no damage. In operating activities, PT. BUL must pay attention to environmental conditions by conducting an





maintained and must be supplemented with services such as free consultations, free designs or other facilities.

In supporting activities, firm infrastructure must be considered by PT. BUL is primarily concerned with capital requirements and looking for investors to develop the business. HR owned by PT. BUL must also have a clear work system and contract. Benefits such as BPJS for employment or insurance must also be facilitated by PT. BUL to ensure the safety of employees. Because it has started to have several new clients in 2023, PT. BUL should consider purchasing construction equipment to support the project being undertaken so that it can be carried out on time and to be able to work on larger projects. Inventory of raw materials must be considered by paying attention to the supply chain and price management of building raw materials in order to save more on construction costs. If it is made into a new value chain, then PT. BUL will be like the figure 3.



**Figure 3.** Value Chain Image. PT. Bangunan Unik Lombok

## 5. Conclusion

Based on the analysis that has been done at PT. BUL, as a whole PT. BUL had a fairly good value chain activity at the start of its operation. PT. BUL still needs to improve the performance of value chain activities to strengthen competition in the market and become a superior contractor, such as promoting and collaborating with government and private institutions, owning basic construction tools, project management and improving internal and external business.

In the main activity, PT. BUL carries out inbound logistics activities by accepting imported products from suppliers and/or directly from clients using the import method and purchasing raw materials directly. There are three main things that PT. BUL in the company's operational process, namely testing product quality, controlling construction implementation and paying attention to company productivity. In 2022 the products produced by PT. BUL is a building that is ready to use and can withstand earthquake tests. PT. BUL carries out the process of selling project services by participating in tenders from government-owned and private companies. Marketing methods with Advertising and Promotion have not been carried out. PT. BUL places great importance on the service it provides to its clients. PT. BUL provides services with periodic on the spot surveys, direct meetings with clients, zoom meetings, email, WhatsApp and telephone.

In the supporting activities of PT. BUL only runs its business with its initial capital and does not yet have investors. PT. BUL uses local workers who are experienced and have good team work or teamwork. PT. BUL still didn't have a lot of construction equipment at its inception

so that PT. BUL still rents construction equipment such as concrete mixers, excavators and others. To avoid material unavailability, PT. BUL has backup suppliers in case of problems or empty stocks at other suppliers.

PT. BUL consists of 3 (three) main components of costs, namely direct costs, operational costs and costs outside the business. Most of the costs incurred for inbound logistics activities or the procurement and purchase of construction raw materials. As a newly established construction company, PT. BUL has strengths with adequate quality human resources, weaknesses due to the absence of construction tools, threats caused by competition between contractors. But PT. BUL has the opportunity to start building relationships with several government agencies, foundations and the private sector to build buildings. To become a superior and competitive contractor, PT. BUL must evaluate the value chain of the company it owns because the current value chain is not enough to win business competition to become a superior contractor.

The findings of this study are expected to be useful for PT. Lombok Unique Buildings to improve performance and competitiveness to develop owned construction companies. This research is also expected to be useful for future researchers as a research reference and reference for further research.

Based on the research that has been done, there are several limitations, namely. First, this study only uses case study-based research. In the future, further researchers can expand the scope of research by conducting comparative value chain studies in various companies. Both of these studies focused on only one potential client. It is recommended for future researchers to add to the observed clients and construction service companies that are larger and have a variety of clients. Finally, the sample in this study only uses construction service companies as research objects, so for further research it is advisable to add or replace objects.

## Reference

- Ayu Puspitasari, Irma S., Susbiyani, Arik., and Fitriya, E. (2020). Value Chain Analysis (Value Chain Analysis) as an Effort to Increase Competitive Advantage for Companies (Empirical Study at PT Indoroti Prima Cemerlang, Jember Branch). *Jember Muhammadiyah University* .
- Central Bureau of Statistics. (2021). *Number of Construction Companies 2019-2021* . Bps. Co. Id. [https://www.bps.go.id/indicator/4/216/1/a lot of companies-construction.html](https://www.bps.go.id/indicator/4/216/1/a%20lot%20of%20companies-construction.html)
- Damayanti, Nia Amelia., Probowulan, Diah., and Nastiti, AS (2021). Value Chain Analysis as an Effort to Increase Competitive Advantage (Case Study at UD. Ijen Batik Bondowoso). *Journal of Applied And Business Accounting* , 1 (1), 12–24.
- Dei, Kadek Aditya., Dharmayanti, Candra., and Jaya, NM (2017). Risk Analysis in Supply Chain Flow in Building Construction Projects in Bali. *Spectrant Journal* , 5 (1), 1–87.
- Greasley, A. (2020). Absolute essentials of operations management. In *Absolute Essentials of Operations Management* . New York: Routledge.
- Gusti, I., Adi, Putu., Putra, Suartika., Dharmayanti, GAP Candra., Diah, AA A., and Dewi, P. (2018). Handling of Waste Materials in Multi-storey Building Construction Projects. *Spectrant Journal* , 6 (2).
- Kausar, M. (2018). *Building Infrastructure for a Brighter NTB* . Dpu.Ntbprov.Co.Id. <https://dpu.ntbprov.go.id/web/post/Membuild-Infrastruktur-untuk-NTB-yang-Makin-Gemilang>
- Kurniasanti, E., Lutfillah, QN, and Muwidha, M. (2022). Identify Constraints With Thory of Constraints Collaboration and Supply Chain Management. *Journal of State Taxes and Finance* , 3 (2), 220–235.
- Maddeppungeng, Andi., Suryani, Irma., and Herlambang, F. (2015). Analysis of the Effect of Value Chain on Competitive Advantage in Achieving Contractor Satisfaction in Ready Mix Concrete Companies in Banten. *Foundation Journal* , 4 (1).

- Mulyani, Endang., and Haryadi, H. (2018). Analysis of porter weights and ratings to determine the most influential activities in the iron ore mineral value chain in Indonesia. *Journal of Mineral And Coal Technology* , 14 (2), 127–139.
- Novitasari, Dwi., and Wiwaha, W. (2022). *Operations Management: Concepts and Essence* . Yogyakarta: STIE Widya Wiwaha.
- Nugrahani, N. (2016). Value Chain As A Tool to Analyze Profit and Loss Reports in Efforts to Create Competitive Advantage. *EL-Muhasaba* , 7 (1).
- Patricia, Eunike., and Andono, AF (2022). Strategy Evaluation Based on Value Chain Analysis in Realizing Competitive Advantage: A Case Study at UD XYZ. *Surabaya University* .
- Perera., and Gunatilake, S. (2020). Value chain management in Sri Lankan construction industry: contractor's perspective. *International Journal of Construction Management* .
- Porter, ME (1998). *Competitive Strategy: Techniques for Analyzing Industries and Competitors* . New York: Free Press.
- Pujawan, I Nyoman., and M. (2017). *Supply Chain Management* . Yogyakarta: ANDI Publisher.
- Riadi, M. (2022). *Theory of Constraints (Theory of Constraints)* . Kajianpustaka. Com. <https://www.kajianpustaka.com/2022/07/teori-kendala-theory-of-constraint.html>
- Sugiyono, S. (2017). *Business Research Methods* . London: ALPHABETA.
- Widiasanti., Irika., and L. (2013). *Construction Management* . Bandung: PT REMAJA ROSDAKARYA.