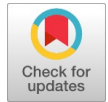


Reviewing the Concepts of Productivity Management



Hassan Afkari Idehlu, Salma Ahmed, Mohammad Idris Noori

Abstract: Experts and academics in disciplines including economics, industrial and organisational psychology, accounting, physics, engineering, and management have previously focused on productivity. They define and interpret productivity differently due to their varied understandings of knowledge, experience, fields, and environmental factors. Many factors influence the definition and views of different schools towards productivity, including how organisations, Groups, Human beings, and Machines work in various environments and how their productivity should be measured. Each discipline has its principles and insights. Considering the importance of management concepts in enhancing an organisation's productivity, managers should focus on improving productivity both in the short term and the long term to mitigate the challenges caused by stagnant productivity growth. This research systematically examines the concept of productivity and identifies factors that affect it, based on Joseph Prokopenko's model. The purpose of this article is to explore the different ways of dealing with the concepts of "productivity" in the literature and to show that the definitions used regarding productivity do not follow a standard grammar. Due to a misunderstanding of the concepts of productivity and the factors that affect it, most measurement and improvement methods are employed without a clear understanding of what should be measured or improved. Therefore, this study reviews the concepts of productivity, examines the main factors of productivity (efficiency and effectiveness), and explains the different relationships between input and output in productivity. It also describes the factors affecting productivity based on Joseph Prokopenko's model.

Keywords: Productivity, Influential Factors in Productivity, Prokopenko's Model, Efficiency, Effectiveness

I. INTRODUCTION

Since the early 1970s, productivity has been one of the most exciting topics that has attracted particular attention at the organisational and country levels. The amount and rate of productivity growth in each country significantly impact the level of life, inflation, unemployment, society's economic status, and global competitiveness.

In a survey conducted among US industry managers, improving productivity is one of two or three significant and severe issues the country faces [1]. The importance of productivity and how to improve it at the national, industrial, organisational, and individual levels is emphasised. Productivity will be realised. Productivity should connect national ideals, industry goals, and corporate and personal needs. Productivity should bring abundant benefits to a nation, industry, company, and individuals. Flourishing a country's economy depends on the high productivity of its resources. In other words, there is a need for the optimal and optimised combination of productivity of all the human and material resources available in the country. Therefore, once the concept of productivity is appropriately identified and recognised, it can benefit. Productivity is a concept that warrants further explanation. Economists and management scholars have defined it differently. Productivity has been introduced in the broadest sense as a mathematical ratio (output to input).

Additionally, productivity is defined as the relationship between resources and factors that result in corresponding outcomes. However, the concept of production has been repeatedly used instead of the idea of productivity. Productivity is not production. Productivity means more than just the product getting off the production line, regardless of its quality, cost, and production method. Productivity is not the same as the cost of production, and productivity and performance are not interchangeable, although productivity is related to all the above concepts. Then what is productivity? These days, everyone can see the value of productivity and the need to evaluate it in light of the ever-increasing levels of competitiveness, technological complexity, and variety of preferences, resource scarcity, and speed of information interchange. Productivity is a concept that matters at both macro and micro levels, encompassing a range from global productivity to individual productivity. Despite the importance and extent of productivity, it could be more transparent for many managers, who often limit their understanding to their mental views. As researchers have stated, although productivity is the most commonly discussed topic in the management circle, unfortunately, its meaning is the least sought among any other issues [2]. In other words, the position and importance of productivity in today's hyper-industrial world have extended so much that it is synonymous with the rational behaviour of the organisation and introduces management as the knowledge of increasing productivity and resources and facilities to achieve the designated goals [3].

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II. METHODOLOGY

To extract relevant publications, a sensitive search strategy (SSS) was employed. The University Library, SCOPUS, Business Source Elite, Educational Research Complete, PsycINFO, Psychology and Behavioural Science Collection, PsycArticles, Web of Science, Expanded Academic, and Student Theses were searched to find relevant publications from 1960 to 2020. These were then examined to identify grey literature. After that, further citations were gathered by looking through the reference lists of pertinent productivity-related articles.

The following keywords were utilised in the sensitive search approach to identify relevant sources: model, framework, concept, theory, holistic, antecedents, and viewpoint. The word "productivity" was combined with these.

A. Selection Strategy

To protect all relevant titles, the inclusion criteria were maintained as widely as possible. During the first stage, only titles or abstracts were included. After that, the entire manuscripts, including models, frameworks, or theories, were kept for later review. The complete article was obtained and examined before a decision was made about inclusion when the title or abstract provided inadequate information about its relation to the inclusion criteria. Manuscripts that (1) attempted to provide a comprehensive conceptualization of productivity and (2) were concerned with the notion and determinants of productivity were considered for inclusion in the review.

B. Review Strategy

Every qualified paper that satisfied the requirements for inclusion was subject to a methodical data extraction process. Every part of the conceptualization, including the parts that comprise the conceptualization, was subject to the application of the extraction form. The process of identifying components involved examining model images and utilising lists and tables provided by the authors of the assessed articles. For the current review research, components were subcategorized utilising a content analysis methodology. An examination of component definitions was conducted to identify commonalities among them, enabling cross-categorisation into distinct conceptual frameworks.

C. Procedure

Following the acquisition of complete manuscripts from publications that met the inclusion criteria, each paper underwent a methodical examination as part of the data extraction procedure. Additionally, a significant number of the retrieved documents had undergone an incomplete factor identification process and content analysis.

III. CONCEPT OF PRODUCTIVITY

The concept of productivity was initially introduced by François Quesnay, a mathematician and economist, during the 18th century. With the economic table, he considered the authority of any state subject to increased productivity in the agricultural sector [4]. Also, Adam Smith, in his well-known book "The Wealth of Nations", focused on this and considered the asset of a nation not in gold and jewellery but

in their achievements [5]. Today, one cannot find any country or organisation that does not consider improving productivity and quality. Productivity is the key to success, and therefore, there should be an accurate definition of productivity and its components so that the necessary arrangement for improving quality and productivity can be provided [6].

Officially and for the first time, the term productivity was used by Quesnay (1766) in the Journal de Agriculture [7]. Moreover, ten years later, in 1776, the concept of productivity was mentioned in "The Wealth of Nations" by Adam Smith. The idea of productivity was referred to as the division of labour as the key to increasing efficiency [7]. More than a century later, in 1883, another person, Luther, defined productivity as the power and ability to produce, and considered the desire to create the product itself a key aspect of productivity. Since the early twentieth century, this term has become more defined, and for the first time in its definition, the relationship between input and output was introduced. In 1900, O'Reilly described productivity as the relationship between outcome and appliances used to generate that outcome [8]. In 1911, Albert Aftalion defined productivity as the relationship between the outcome and the factors used to produce this output. In 1962, Fabricant presented a new definition of productivity. He said that productivity is always a function of the relationship between input and output. In 1976, Stiegel defined efficiency as the relationship between the efficiency of a specific production operation and consumed resources as input [9]. Moreover, finally, real and legal characters and essential international organisations have raised the definition of productivity as follows: The first organisations related to productivity post-World War II was initially Established in Europe as the European Productivity Agency and then in 1995 in Asia, Japan as the Asian Productivity Organization, and in 1995 in India, the National Council of Productivity, and then other Asian countries established their productivity centres over the past fifteen years. The Organisation for European Economic Cooperation (OEEC) was heavily involved in developing and promoting productivity in the 1960s; during this period, many Asian and European countries established productivity centres and councils. Efficiency in the United States was practically formed in 1970, and the country's first productivity commission was formed this year. As the core of the productivity movement in Japan's private sector in 1955, the Japanese Productivity Centre was established with this slogan: The fundamental view of productivity involves respecting people to promote and advance human welfare.

IV. NOTIONS OF PRODUCTIVITY

Although productivity is widely used today, its meaning still requires clarification, even in academic circles and among social and economic experts. It may not have many of those who play a vital role in the productivity movement, also do not have a clear inference of its concept and definition [10].

There is no particular definition of productivity that is agreed upon, but there are some definitions given below:



- Productivity is achieving goals [11].
- Productivity is the criterion for improving the existing manufacturing of goods and services [12].
- Productivity reflects the relationship between consumed resources and the final product, accompanied by efficiency, effectiveness, and quality, meaning it is not about producing more products. Instead, productivity results from less resource consumption, greater efficiency, production without task duplication, reduced production time, reduced production cost, and improved product quality [13].
- Productivity is an intellectual vision for continuous betterment and improving everything. This way of thinking has ensured the ability to do things better today than yesterday, and in general, it is a constant effort to apply new techniques and methods [14].
- Productivity is the ratio between tangible output and tangible input [15].
- Robbins: Productivity is a measure of performance that includes effectiveness and efficiency [16].
- Productivity means the level of effective use of each resource in production [17].
- Productivity is the ratio between the production output and consumed resources, compared to a similar proportion in the base period [18].
- Productivity repeatedly about disclosing organisational goals and programs, employees' job descriptions, stress levels, leave rates, and organisational commitment [19].
- Hicks considers productivity as a function of seven variables (Ability, Job recognition, Organisational support, Motivation, Performance feedback, Credibility, and Environmental compatibility) that the promotion of any of these factors will increase the productivity of human resources [20].
- Bowen, Kurtz, Monga, Robbins, Ranftel, Stoner, Freeman, Schermer, Horn and John London: believe that productivity is the effectiveness and efficiency of performance and increasing the level of productivity in the organisation is the result of management efficiency [21].
- Productivity is the deficit obtained by dividing the quantity or value of a product by the amount or value of one of the factors of production. In this regard, one can refer to capital and labour productivity [22].
- According to the Asian Productivity Organisation, productivity is defined as a ratio that represents the connection or value comparison between the quantity of products and services produced and the quantity of resources employed in their production [23].
- According to the European Productivity Agency, productivity is the level of appropriate and effective use of each factor of production. In another definition, the agency considers the productivity of an enterprise to be its intellectual vision for improving the current situation. According to the opinions of this organisation, a person can do their job better every day and achieve better results [24].
- According to International Labour Organization; in producing different products, integrating the four factors of Land, Capital, Labour, and Organization is

necessary. It is said that the ratio of the combination of these factors to products is a measure of productivity [25].

- According to Development Cooperation and Economic Organization, productivity is the output ratio of production to one of the factors of production [26].
- According to Japan Productivity Centre, increasing productivity means maximising the use of labour, facilities, and other resources; applying science to lower production costs; growing markets; creating jobs; aiming to raise real wages; and raising living standards for the benefit of staff, management, and customers as a whole [16].
- According to the Iran Productivity Centre, the goal of productivity is to make activities more intelligent to attain a better and more active life. Productivity is the rational approach to work and life [26].
- According to the Singapore National Productivity Board, Productivity is the value gained by the members of each unit of input, each dollar, each day of work, investment, and each team of natural resources [27]. The ratio between the output and the input resources (such as land, capital, and labour) to produce that output indicates the input's productivity level [28]. Reviewing the definitions provided can make any change that improves the organisation's situation productive. It is based on comparing current and past performance, which can be evaluated in terms of productivity.

Many factors influence the definition and views of different schools on productivity. Productivity has been the focus of scholars and researchers in fields such as economics, industrial and organisational psychology, and accounting, as well as physicists, engineers, and managers. They are all based on different understandings, knowledge, experience, contexts, and environmental conditions.

V. TWO MAIN COMPONENTS OF PRODUCTIVITY

Productivity, one of the key criteria for measuring activities, can be evaluated from two angles, considering both the goal and the destination. On the one hand, the effectiveness of the action in achieving the goal is assessed, and on the other hand, the efficiency of the activity is discussed [29]. Based on this, productivity can be divided into two components:

- Efficiency
- Effectiveness

In some definitions of productivity, the concepts of efficiency and effectiveness are referred to, and productivity is considered the result of these two. The purpose of efficiency and effectiveness, which are regarded as the main concepts in understanding productivity, can be explained as follows:

- Effectiveness is traditionally defined as the realisation of the goals of an organisation.
- Efficiency is defined as the correct use of resources.
- According to these two definitions, one can define productivity as doing the



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proper work, including efficiency and effectiveness.

Accordingly, the following four modes can be considered between the effectiveness and efficiency of an activity, so that an activity:

- A. Has efficiency and effectiveness
- B. Has efficiency but not effectiveness
- C. Does not have efficiency but has effectiveness
- D. Does not have efficiency and effectiveness

The worst possible state has the least productivity. This could be the B state: characterised by the presence of efficiency and a lack of effectiveness. In this case, one consumes resources at the fastest possible speed while still needing to achieve the goal. In other words, it takes us away from our destination.

A. Different Relationships Between Input and Output in Productivity

All available resources are included in this definition of resource since productivity measures the relationship between the quantity of goods and services produced (output) and the quantity of resources used to create them (input) (including workforce, capital, production raw materials, time, science and new technologies, etc.). Productivity is about the relationship between the inputs (Raw Materials) of a system (Organisation) and its outputs (Products/ Services) [16]. Therefore, a change in the amount of each case can affect productivity. Increased productivity

can be due to the following five relationships between input and output:

- A. Output and input have increased, but the increase in input is relatively less than the increase in production.
- B. The output increases, but the input is the same as before.
- C. Increase output despite decreasing input.
- D. The output is the same as before, but the input is reduced.
- E. The output decreases, but the input falls much more.

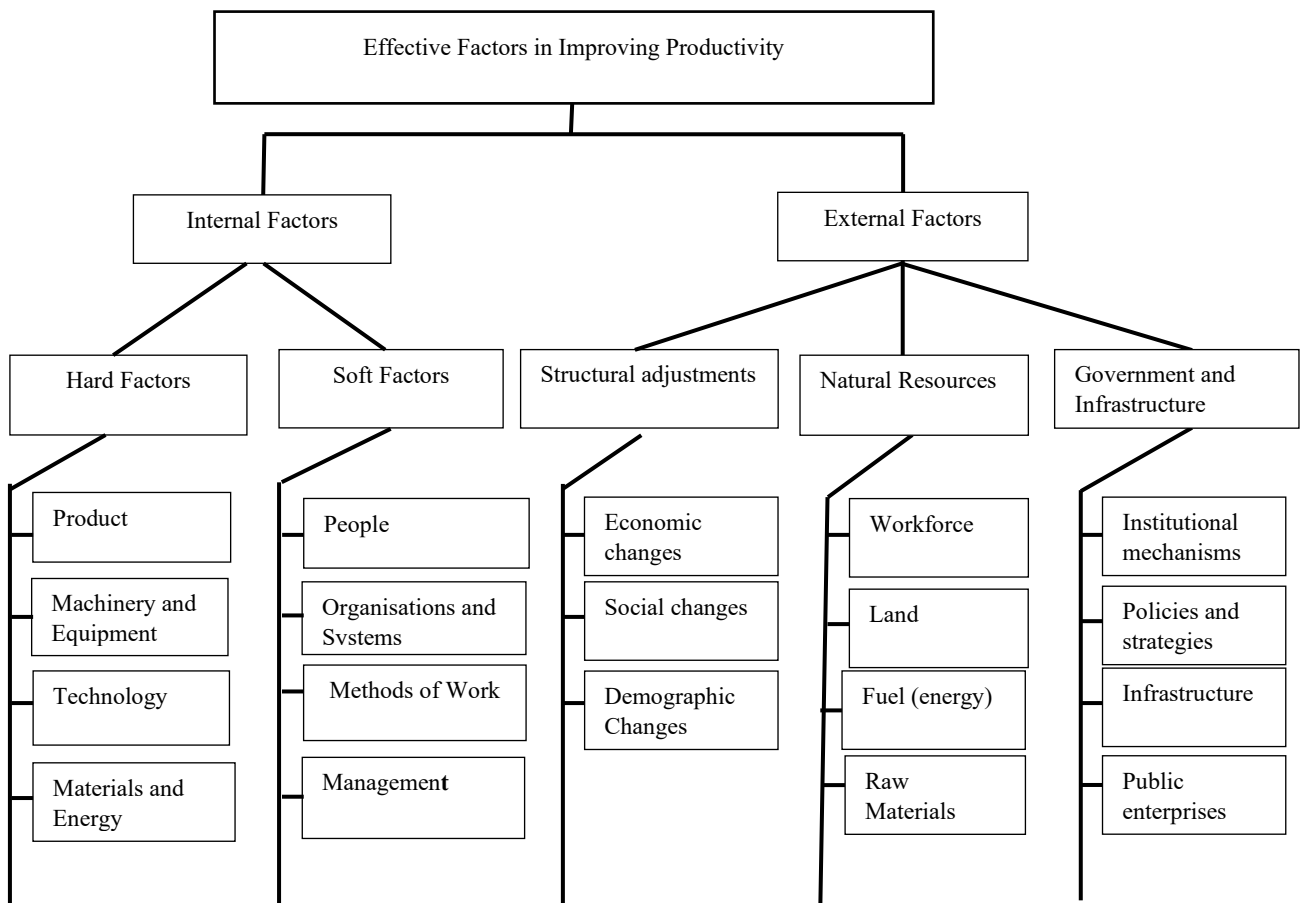
B. Factors Affecting Productivity Improvement

According to the literature presented, improving productivity means doing the right thing. According to this definition, improving productivity means doing the right thing and, more importantly, doing it correctly. Therefore, productivity improvement aims to identify the factors that productivity experts should consider [30].

Many factors influence productivity, and extensive research has been conducted in this field. Here, the most important of these factors are briefly stated. Factors affecting productivity improvement can be divided into two categories:

- A. Internal factors
- B. External factors

The enterprise manager can control internal factors into two categories: complex factors and soft factors.



Source: (J Prokopenko, 1987)

Complex Factors: Hard factors do not change quickly and are relatively stable in the short term, including products, machinery and equipment, technology, materials, and energy. These have been described below:

Product: Product means the extent to which the product meets the needs of the output. Product value can be increased through better design and better product specifications. Since research and development, marketing, and sales are key factors in productivity, management's efforts to improve productivity must focus on delivering the product in the right place, at the right time, and at the right price. Implementing this will increase the product range and realise the principle of economies of scale.

Machinery and Equipment: By observing the following items, machinery and equipment can be used to the best of their ability, and the level of productivity can be increased. Observing points such as good and timely repairs, the efficiency of factories and equipment in favourable conditions, increasing the capacity and efficiency of the factory by eliminating deficiencies and corrective measures and reducing wasted time, and more efficient and desirable use of the capacity of machinery and equipment can play a key role in increasing productivity.

Technology: One of the main factors in increasing productivity is technological innovation. Increasing the production of goods and services while improving quality can be achieved through the use of automation and information technology. Automation saves and reduces the cost of storage materials and control systems. Over the past three decades, automation and the continuous development of information technology have significantly contributed to increased productivity.

Materials and Energy: Any kind of scientific savings in the use of materials and energy, such as: using materials and providing a valuable product with less energy consumption per unit of product, proper use with less energy consumption per unit of product, use of waste, scrap And controlling them, improving the quality of raw materials for the main production processes, improving warehousing management and preventing excess storage in the warehouse, improving the return rate of the warehouse and freeing up funds for other methods, leads to production and increased productivity.

Soft Factors are easily changeable; these include people, organisations, systems, working methods and management. Changes in these factors cost less than hardware factors.

People: People as workers, engineers, managers, and employers in an organisation are the primary source of improving productivity. People are different not only in terms of ability but also in terms of desire for the employer. Workers, for example, may only do good work with hard work, but they may not have any motivation or satisfaction. Alternatively, they may do hard work with all their might and seriousness, but they are motivated and satisfied. Motivation is the main factor in the behaviour of all human beings and should be used to increase productivity. The role of material and immaterial motivations should be well recognised. Successful workers who increase productivity should be immediately rewarded materially; however, in addition to this reward, psychological and social motivation factors should also be considered, as they provide reasons

for people's satisfaction and efforts. They should be valued for their ability to increase productivity and achieve planned goals. Creating opportunities for participation and utilising their opinions in goal setting, paying attention to human behaviours, eliminating conflicts and contradictions, taking training seriously, and, in general, optimising the management of human resources are important factors in increasing productivity.

Organisations and Systems: One of the reasons for the decrease in productivity within the organisation is its lack of resilience and flexibility. Such organisations need to anticipate and respond to market changes, paying attention to the capabilities and talents of their workforce, new technology, and other external and environmental factors. In these organisations, weak horizontal and vertical communication, as well as administrative formalities, prevail, and decisions are made slowly.

Methods of Work: Relocation and replacement of labour, tools, place of production, materials used and machinery are all methods of production. The work method systematically analyses existing methods, eliminates unnecessary tasks, and performs more necessary and practical functions with less cost and effort.

Management: The management method effectively uses all resources within the firm that are under its control. In some countries, management is responsible for 75% of achieving productivity. None of the existing management methods can be considered complete, and therefore, the usefulness of management means when, where, how and for whom to use these methods. Managerial management style and performance encompass organisational design, human resources policies, job creation, scientific planning and supervision, repair and purchasing systems, capital expenditures, budget systems, and cost control techniques, all of which fall within the scope of management tasks. They are considered effective factors in increasing productivity in the enterprise.

External Factors: External factors affect the organisation from the outside. It means they are not under the control of individuals and managers of the organisation, and managers and employers can not actively control them. These factors include national and international policies, tax laws and regulations, economic, political, social, and other factors, as well as relations with other countries. By identifying external factors that affect productivity, management tries to minimise these factors' destructive effects or capitalise on their opportunities. These factors are divided into three categories: Structural, Natural resources, and Government and infrastructure.

Structural Factors: The structural changes in society affect national productivity and economic enterprises, independent of management. This effect is long-term and bidirectional; just as structural changes affect productivity, so do productivity changes. The most critical factors of structural changes are economic, social, and demographic changes.

Economic Changes: The most significant economic changes occur in the pattern of employment, the combination of capital and technology, and the firm's size and level of competition.

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In this way, in the first stage, employment is transferred from agriculture to industry. It causes the expansion of the industrial sector and its rapid growth.

The number of employees in the agricultural sector decreases, and the traditional source of productivity growth lose its position. And the continuation of this trend in developing countries shifts the labour force from the productive agricultural sector to industry. In the second stage, labour is transferred from the industrial sector to the service sector. Services include wholesale, retail, banking, finance, insurance, real estate, transportation, as well as personal and business services. Increasing productivity in the second phase differs from that in the first phase. The experience of countries that have gone through these stages shows that reduced energy and investment costs, as well as increased investment in labour training, have accompanied the transfer of employment from industry to services. Economic mobility (economic growth, monetary strength and stability, per capita income, industrial production), change in the composition of the relative increase in life expectancy and type of capital, industrial efficiency, financial mobility, competitive market presence, human resources, financial and tax laws and regulations, monetary and foreign exchange, economic resources and infrastructure, attention to exports and foreign markets, research and development, attention to innovation and inventions, saving the relative size or size of manufacturing enterprises and political and economic stability is adequate in industrial competition and increasing productivity.

Social and Demographic Changes: Structural changes in the workforce are primarily driven by social and demographic factors. The declining mortality rate and rising birth rate have increased the world's population from about 5.2 billion in 1950 to about 7043.6 billion at the end of 2000. At the same time, the number of women entering the labour market has risen. They are relocating populations from one region to improve productivity. The expansion of health facilities increases life expectancy, while increasing economic pressures force older people to work, thereby affecting productivity. Population growth leads to increased costs of health, education, social security, and housing, and these factors, along with changes in social and cultural values, directly and indirectly, impact productivity.

Natural Resources: Due to the limitations of natural resources, they are strategic resources in any society. They are essential and play a significant role in improving and increasing productivity. These resources include workforce, land, fuel (energy), and raw materials.

Workforce: Man is the most valuable natural resource. Issues such as prioritising health, recreation, and leisure can reduce diseases and prevent absenteeism from work, ultimately benefiting the enterprise by increasing the quality of human resources and enhancing productivity and continuity.

Land: Land requires proper management, rehabilitation, and national policies. The expansion of industries, population growth, and overuse of land are among the causes of its destruction. Increasing the cost of volunteering, existing land constraints, and the urgent need for livestock farming are among the issues discussed today. One thing that entrepreneurs in manufacturing companies should

consider is that land has certain limitations regarding optimal use and increased productivity.

Fuel (Energy): Energy resources are another critical consideration. Rising oil prices in the 1970s led to a decline in global productivity, and despite enormous investments, productivity did not increase. Oil demand, regardless of its political aspect, is a function of price and alternative fuel, and its supply affects the combination of capital and labour in the country's economy. Increasing and decreasing oil supply affects not only productivity but also the environment.

Raw Materials: Raw materials are also among the factors which result in increasing productivity in industries. Because the most valuable and accessible materials are mainly extracted and used, using existing mines that are not of good quality and located more profoundly in the ground requires more investment and a specialised workforce. As a result, production costs increase and productivity decreases.

Government and Infrastructure Factors: Government policies, strategies and programs through the operation and efficiency of government agencies, government regulations such as pricing policies, taxes, wages and salaries, transportation and communications, energy, financial and banking measures such as interest rates, tariffs, rules and imports and exports, competition of public and state-owned enterprises with other enterprises, currency control, the compulsion to operate in a particular region, and ultimately subsidising or cutting it, have an essential effect on firm productivity.

Institutional Mechanisms: Institutions are man-made constraints that regulate and organise political, economic, and social interactions; they encompass both informal restrictions (such as punishment, cultural and ideological norms, traditions, and employee codes of conduct) and formal laws (including constitutions, regulations, and property rights). Throughout history, "institutions" have been created by humans to reduce uncertainty by creating order. These limitations, along with the conventional limitations of economics, determine the cost of production and exchanges and, as a result, the cost-effectiveness or feasibility of an economic activity. Over time, the transformation of these institutions' structures leads to the formation of a path of economic change, which can result in growth, stagnation, or decline. In ancient times, economic interactions in primitive and local economies were simple, which made interactions between economic actors possible without the presence of a regulatory body. Over time, with the development of economies, the emergence of the market economy, the expansion of cross-border trade and the specialization of economic activities, interactions took on a more complex form. In this situation, "institutions" took the most crucial role in shaping and regulating these relationships by creating restrictions (laws); Restrictions in the field of contracts and how they are enforced, protection of property rights, rule of law, government bureaucracy, financial markets, etc. [31].

Policies and Strategies: Policies and strategies, according to their compatibility with the development process, affect the process of "accumulation of production



factors" as well as the rate of "total productivity of production factors" and finally "national production."

These policies can appear as a leading factor by forming incentive structures to support production, or they can provide a suitable platform for productive activities. Alternatively, they can create a deviation from production and increase exchange costs, serving as a deterrent. Almost all developed countries and some developing countries have made significant investments to improve productivity at the national level, considering their growth and development to be due to the correct attitude and attention to this issue. Productivity primarily determines real income, inflation, and people's well-being, and the efforts of politicians are aimed at discovering the real reasons for productivity growth or decline. Obviously, with such an attitude, productivity management as a tool to control and improve productivity becomes critical in organizations [32].

Infrastructure: Infrastructure stimulates economic activities, increases the productivity of private institutions, improves financial performance and, as a result, sustainable economic development, increases public welfare and better income distribution. The financial infrastructure of any country includes the existing infrastructure in the money and capital markets, and provides the possibility of delivering essential services and a standard of living [33].

The strength of the national economy depends on the ability and availability of its infrastructure, and the quality and efficiency of these infrastructures are crucial for the continuation of commercial and economic activities in society, as well as for the quality of life and social health. Generally, infrastructure serves as the foundation for growth and development. Infrastructure can help growth in a particular area. The infrastructure of any country is a set of public facilities, with private or public investment, that provides the possibility of delivering essential services and maintaining a standard of living. If the infrastructures does not exist in a society or is not well-developed, the society suffers from weakness and failure and cannot grow well [34].

Public Enterprises : State companies of any country are considered one of the most critical components of the development of that country because they bring many economic, social and political benefits to the people and the government. Additionally, essential missions such as the optimal use of national resources, accountability, and responsibility towards citizens, as well as global competition, underscore the necessity and importance of paying attention to the design of the productivity model of public companies. Therefore, to achieve these goals, government organisations must have efficient models and structures. The study and review of productivity models shows that there are many differences in the main components of these models. For example, in Asian countries such as Japan (Deming Award), the emphasis is on the values of maintaining long-term relationships and teamwork and in American countries (Malcolm Baldrich Award), the emphasis is on results and value creation [35].

VI. CONCLUSION

Productivity is always defined as the link between the amount of resources consumed and the number and quality of goods or services produced. This is true even if various individuals may define productivity differently. The most

popular method (as opposed to definition) for creating a productivity model is to determine the correct input and output components based on the long-term, medium-term, and short-term growth objectives of the business, industry, organisation, or nation. Since productivity examines the ratio between the number of goods and services produced (output) and the number of resources used to make them (input), changes in the amount of each item can affect productivity.

Productivity refers to the effective and efficient use of actions. Among them, two components of productivity are "efficiency" and "effectiveness", and based on this, four states can be considered between the effectiveness and efficiency of an activity. The worst possible situation is one where there is efficiency but no effectiveness. In this case, the organisation's management consumes its resources as quickly as possible, but it moves away from the organisational goals. According to J. Prokopenko's model (1987), an organisation's success in achieving productivity depends on its ability to identify and utilise the key factors of the production and service system. This model includes internal and external factors. External factors are those that are outside the control of the individual firm, and internal factors are those that are within its control. The identified internal factors include two categories: "soft factors and hard factors"; soft factors are those that are almost and easily changeable. These include people, organizations, systems, work methods and management. Changes in these factors are less costly than changes in complex factors. Complex factors do not change quickly, including products, machinery and equipment, technology, materials, and energy.

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Availability of Data and Materials	Not relevant.
Authors Contributions	All authors have equal participation in this article.

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