

# A Discussion of the Factors Influencing the Activities of Network Management in Large-Scale Organizations

Pritam Kumar

Lecturer, Digital Business Management, Martin De Tours School of Management and Economics,  
Assumption University, Thailand. Email: [pkumar@msme.au.edu](mailto:pkumar@msme.au.edu)

**Abstract:** Networking is necessary for large, highly resourced enterprises to maintain their operations functioning. One of a company's major activities is networking to compete in the competitive market. To maintain their business operating, large-scale businesses with various sources need to communicate. There are various factors affecting network management in large-scale organizations. The researcher used exploratory research investigation to examine the significant factors that affect network management in large-scale organizations. Researchers review previous literature related to factors affecting large-scale organization network management. Books, peer-reviewed journals, scientific research articles, and website sources used by the researcher are properly cited and referenced in the literature. This study considers the five main variables that directly and indirectly affected the efficiency and performance of network management systems of large-scale organizations namely security, complexity, network bandwidth, network availability, and ease of access. This study showed that easy access and high bandwidth has a significant impact on network management in a large-scale organization.

**Keywords:** Complexity, Ease of access, Large-scale organizations, Network availability, Network bandwidth, Network management, Security.

## I. INTRODUCTION

Large-scale organizations are seen as the foundation of an economy, and they create and contribute to the regional growth of the country by providing employment opportunities [1].

Since large-scale enterprises are different from small businesses in terms of size, resources, and the position of the entrepreneur. One of a company's key activities is networking to compete in the competitive business market [2]. Networking is necessary for large, highly resourced enterprises to maintain their operations functioning [3]. One of a company's major activities is networking to compete in the competitive market [4]. To maintain their business operations, large-scale businesses with various sources need to communicate [5]. But just as

large companies differ from other organizations, so do their perceptions of networking and the advantages they expect to gain from it. In a company, networking is significant because it provides several opportunities [6]. In business, connections and trustworthiness are important factors that influence a company's network [7]. The concept of networks and connectivity is generally used to evaluate how businesses operate in their business environment [8].

A. J. Hoffman stated that in the modern business environment, every company intends to grow or develop its network on a national and international scale [9]. An additional topic that has received a lot of attention as of late is the importance of maintaining business networks as a means by which companies can generate new ideas [10]. Considering the benefits of networking, there are numerous reasons that a business might establish a network. The degree of networking the business is willing to maintain is controlled by factors [11]. A business owner could continue to engage in networking with existing customers in the hopes of improving their business relationship and getting the customer referenced prospective customers to the business [12]. Like this, the entrepreneur can explore strengthening relationships and connections with competitors to promote a business at the global level.

Additionally, organizations and management have successfully adapted the network approach. It is essential to understand in order for organizations to establish sustained competitiveness, various types of connections with other market players are highly imperative [13]. Even if they are of a financial, interpersonal, or social character, large-scale business organizations usually form networks with one another, which classify the business as a component of a broad and dynamic network of connections. As a consequence, a technologically advanced business in intense competition must manage and control a wide range of simultaneous different relationships, and those with customers, stakeholders in collaborative relationships, distributors, suppliers, educational establishments, and research institutions, while also starting to build its own social value [14]. Constantly shifting co-dependencies within the network and its responsiveness to the external environment, organizational networks improve the sustainability of the business team's

activities in a specific aspect while also having an impact on the advancement. The importance of the economy is predicated on the assumption that business operations are not conducted separately from each other by businesses, but instead establish a network of connections [15]. Businesses' actions are a consequence of those of other organizations and other market participants. Every activity is a component of various additional action plans. Large organizations facing some challenges like a growing number of users and technologies across each network. Maintaining network security requires constant awareness and the capacity to adjust to threats that are constantly changing. A challenging aspect of network management is configuration management, which needs gathering and managing data about each component within a computer network. This data also includes information on the installed applications and default settings on devices connected, as well as the network interface or IP address of every hardware device. Large-scale organizations are known as the important pillar of an economy, and they make a significant contribution to a nation's economic regional development by creating new job opportunities. They differ from small-scale organizations in terms of size, resources, and the role of the businessperson. In terms of comparisons with small corporations, networking is essential for large-scale enterprises.

## II. REVIEW OF LITERATURE

A. K. Lama and A. K. Shrestha explained how the integration of technical assistance and growth strategies has become critical elements for ensuring the growth and development of small and medium enterprises [17]. Researchers see that small and medium enterprises can manage their scarce resources through careful network participation. Indeed, most small, and medium enterprises require network membership in order to acquire advancements, establish special expertise in technical assistance, and obtain faster access to global markets. Researchers examine how the globalization process was facilitated by small and medium enterprises' networking potential utilizing methodological approach basis on theoretical perspectives from the subject of technical assistance and its comprehensive concepts of advancement, network, and globalization.

According to E. H. Klijn, I. van Meerkerk and J. Edelenbos, network management strategies are necessary to attain outcomes in centralized management [18]. This study looked at what factors are involved in the adoption of network management techniques. This paper uses quantitative data to analyse the effects on three main categories of network management techniques: connected directly, discovering, and organizing. According to research results, more hierarchy increases the chances of network administrators choosing interconnection;

a larger network size increases the chances of investigating and organizing, and more conflict correlates with less need for linking and discovering.

A. K. Lama and A. K. Shrestha examine the factors that encourage or generate networking activities in small and medium enterprises [17]. Researchers revealed variables such as resource-based theory, cross-functional and cross-learning through networks, and culture's impact on networking. With these factors that impact networking, researchers wanted to know if these were the reasons for small and medium enterprises' networking activities. Empirical research was carried out among small and medium enterprises in the Umea region. In explaining the rationale behind small and medium enterprises' procedures toward networking, the researcher used an inductive argument of application and a qualitative approach. The data was collected through primary and secondary sources. Researchers gathered information through face-to-face interviews with the owners and responsible persons of each company. The result of this study revealed that the degree to which factors impact small and medium enterprises differs due to the nature of the small and medium enterprises, entrepreneurs, internet backbone, and so on. As a result, several variables have a significant impact, and others have a low maybe even impartial impact.

T. Ysa, V. Sierra and M. Esteve stated that the network management literature is comprehensive [19]. This article uses empirical evidence from 119 urban renewal networks to assess the impact of management strategies on network effects. The results indicate that management strategies have an important impact on network results and build confidence. Researchers also revealed that the leadership approach helps to improve network management along with network trust. Furthermore, this study's results show that complexity has a critical influence on trust. This research concluded that managers also have more impact on connectivity than previously assumed.

S. De Klerk and J. Kroon examined the networking practices of South African companies [20]. The researchers set out to learn more about the strategies employed by Gauteng businesses when it comes to networking, as well as the views and opinions of company leaders and owners. A cross-sectional approach has been used, and that included both qualitative methods i.e., focus groups, and quantitative research namely structured questionnaires. Profit, access to productive resources, and effective implementation were defined as various kinds of business networking and intentions for developing business networks. Various aspects of working relationships were recognized, as well as different generations, with group 1 being the youngest (44 years and younger) and group 2 (people over the age of 45) demonstrating differing views on the variety of network connections. This paper can help improve networking strategies and increase awareness of business managers about the value and influence of networking in their companies.

According to E.-H. Klijn, B. Steijn and J. Edelenbos, a sizable body of knowledge and study has been amassed on the topic of network management techniques [21]. This research examined which approaches have an impact on development and tries to answer the question of whether organizational strategies matter for results. Data from a survey sent to people involved in Dutch environmental initiatives is the primary focus of this investigation. According to the results, most network management strategies have a sizable impact on the outcomes, and the effects of various structured network management strategies vary slightly. These include information investigation, communicating, organizing, and method arrangements.

### III. OBJECTIVES OF THE STUDY

Researchers want to understand what benefits large organizations want to obtain through a proper network management. Various studies have been conducted on the advantages of networking in large-scale organizations, which have been confirmed to become the implementers of communication networks. The researcher would like to examine the factors that encourage large-scale organizations to join a specific network with other stakeholders. Similarly, to the problem defined earlier in this section, we need to see if network management theories or methodologies address large enterprises. As a result, the following are the primary goals of our research:

1. To examine the factors that influence network management in large-scale organizations.
2. To understand the benefits of the proper network management in large organizations.
3. To know the effect of network management strategies on large-scale organizations.

### IV. RESEARCH QUESTION

RQ1- What are the factors that influence networking management activities in large-scale organizations?

RQ2- What are the benefits of proper network management for large organizations?

RQ3- What kind of impact does various network management strategies have on the operations of large-scale businesses?

### V. RESEARCH METHODOLOGY

The researcher used exploratory research investigation to examine the significant factors that affect network management in large-scale organizations. Because of this exploratory reason, descriptive analyses of previous literature are emphasized. Since our research is concentrated on large-scale organizations, the researcher decided to review previous literature related to

factors affecting large-scale organization network management. Books, peer-reviewed journals, scientific research articles, and website sources used by the researcher are properly cited and referenced in the literature.

### VI. CONCEPT OF NETWORK MANAGEMENT

The primary goal of network management is to provide end-users, including business users in the large-scale organization a secure, reliable, and high-performing network. The procedure of preparation and administration, maintaining, and working a data network to use a network infrastructure is called network management. Existing network methodologies utilize hardware and software components to gather information on a regular basis, as well as to try and force out configuration adjustments to enhance efficiency, reliability, and security. It involves customizing tracking and potentially rearranging network components to provide excellent effectiveness, minimal downtime, adequate security, responsibility, and adaptability.

The International Organization for Standardization (IOS's) defined "Network Management as a set of mechanisms for monitoring, controlling, and coordinating the resources of an open system interconnection environment in order to facilitate information exchange between these resources".

C. Basu Mallick "Network management is the process of orchestrating network traffic and data flow across the enterprise ecosystem through the use of network monitoring, network security, network automation, and other on-premises or cloud-hosted tools" [16].

### VII. IMPORTANT FACTORS INFLUENCING NETWORK MANAGEMENT IN LARGE ORGANIZATIONS

In general, network management is an activity that covers a combination of protocols, techniques, implementations, and systems to assist network architecture managers in measuring and managing the appropriate system resources, both software, and hardware, to identify service requirements and connectivity expectations. A network management system is a set of applications that regulate and monitor system components. Network management structure is comprised of two key elements: a managing component known as a central controller or an administrator, and the various information sources identified as managerial intermediaries or essentially representatives.

- *Security*: Network infrastructure devices in large organizations are network components that transmit data, implementations, assistance, and cross-communication systems [22]. Adapters, security software, routers, data centres, network equipment, security devices, website domain systems, and data backup are descriptions among

this equipment. Most of the large organizations are an ideal target for malicious cyber-attacks. A hacker with connectivity to a business's access point can regulate, alter, and reject traffic from and to the organization [23]. Attackers generally target internet infrastructure systems [24]. Few network components in large-scale organizations have antivirus, integrity-maintenance, and other security tools that assist in the safeguard of overall hosts [25]. Since security planning should always be associated with larger organizational objectives, supportive leadership for security is necessary. Managers must ensure that company's wider strategies are considered, and security plan complies to the established regulations and laws. True security generally requires strong, visible support from overall management, as well as participative decision making and exemplary behaviour from management teams. Maintaining network security in large-scale organization requires close monitoring and the capacity to react to ever-changing threats. In large organization network boundary has become increasing, making it difficult to safeguard against attacks [26]. Blockage of unauthorised outside traffic is inadequate for data security because attacks can access the network using phishing emails and malicious insiders. While cryptography helps to protect relevant information, it also makes changing pattern on the IT network more complicated [27]. Large businesses use multiple data protection tools and must ensure that they all work together to improve efficiency and productivity. Using multiple tools in this manner necessitates more management and monitoring.

- *Complexity*: Network structures have become an essential feature of everyday administration to face the challenges of an increasingly unpredictable nature in large organization [28]. Thus, network management is a key concern for large-scale organizations. Network management in a large-scale organization is regarded as a process of managing complexity [29]. However, network collaboration potential can be inversely associated to network complexity. The definition of complexity represents the number of participants in the system who reflect multiple interests, perceptions of difficulties, and solutions. In large-scale organization, networks are formal and permanent, but they differ significantly in complexity. Large corporations rely on their networks for a wide range of activities, most of which are critical. Internal communications, e-commerce sites, and marketing strategies all depend on them. There is much more activity such as video conferencing, which necessarily requires substantial network bandwidth. Large organizations must be able to handle increased information from multiple directions [30]. With more traffic on the network and larger travel times between service providers and users, the risk of poor network performance increases. Since large-scale organization ensured consistent high levels of reliability, businesses must have the right equipment and network

management processes in place.

- *Network Bandwidth*: Large organizations experience network failures and other issues at the time of access to the network at maximum bandwidth. Information technology administrators should focus on educating individuals on bandwidth utilization performance measures [31]. As large organizations' network size increases, so do the application areas used among its workforces. To keep a network healthy and stable, the large-scale organization must need to monitor traffic patterns, evaluate records, and minimize inefficiencies in all physical hardware resources including access points, routers, and security software [32]. However, tracking network bandwidth is challenging. In large organizations, network managers confront a common user complaint: the connectivity is so slow that they can't access the software. Software that offers network packet evaluation is necessary to get to the source of the issue and decrease troubleshooting time. A comprehensive, real-time bandwidth tracker can help to determine the core of the problem [33]. Bandwidth allocation is a common problem in many large organizations. They regularly need to assign available bandwidth to different departments to meet the organization's expanding needs. It can also be difficult to establish department-level bandwidth usage and specifications.
- *Availability*: Network availability is a performance and reliability, that purely refers to a network being operational [34]. It's evident that consumers should be able to access the network, so network availability should be preferred. Both business and user necessities are looking to expand the set of features that a network must support. Personal laptops and tablets with modern operating systems and innovative functionality are going to appear at an astonishing speed.
- *Ease of Access*: The user access technique must be simple and rational. With many different services applicable in large-scale organizations related to managing their network [35]. Large organizations having lots of network connections to their stakeholders like suppliers, customers, government, and society, creates huge transactions within the company network [36]. The growth of potentially confusing or conflicting log-in procedures could emerge, negatively impacting convenient access to the system. Numerous administrative arrangements should be recognized and managed to learn in an attempt for using computer networks. The user guide is available in different formats, with different degrees of information detail. Throughout this area, standardization, simplification of procedure, and uniformity are needed.

## VIII. THEORETICAL IMPLICATION

A large-scale organization network provides multiple opportunities for interaction and the development of

participants' knowledge, skills, and experience. Updates to the earlier employed regulations, activities, and techniques are required for network management. As of present now, there is no accepted theory for the problem of network management, which is established in the literature on many assumptions about the characteristics of the network. The concept of a network is interdisciplinary in nature, and the literature discusses studies and concepts that have helped transform network theory in management.

## IX. MANAGERIAL AND PRACTICAL IMPLICATIONS

These study findings indicate that leaders must invest more effort using a wider variety of system strategies in bigger companies. Additionally, they need to dedicate more time to technically constructing the network, as well as developing links between various stakeholders and establishing a procedure of investigation to identify practical solutions that can motivate different important stakeholders to support it. A further strategy could be to start concentrating on enhancing the level of trust between the stakeholders, shifting forward from the desired outcome. This could improve relationships and lessen conflict by setting us up for it. This study suggests that the multilateral exchange of information, understanding, experience, and best-practice must proceed to enhance relationships and improve cooperation among large-scale organizations. As a result, significant opportunities have been identified in various large-scale sectors to help improve their network management.

## X. FINDINGS OF THE STUDY

This study examined the variables that have an impact on network management in large organizations. The result of this study explored whether network management is necessary and what variables have the significant impact on networking management activities in large organization. According to the study's findings high bandwidth and easy access have a significant impact on network management in the large-scale organization. This study also revealed that proper network management have a strong relationship with number of factors including security, complexity, and network availability. Therefore, it should be said that network management does have several advantages for large businesses. Network management strategy could be to start focusing on improving stakeholder trust levels rather than immediately pursuing the intended result. This could improve relationships within organization as well as external stakeholders.

The finding of this study indicated that with proper network management strategies to the large-scale organizations businesses can control their communications systems, solve their important issues quickly, keep their operations running smoothly, and compete in a competitive market. It also aids in the development of some important network management techniques for the expansion of the large-scale organization.

## XI. CONCLUSION

The result of this study revealed that various factor has affected the network management of the large-scale organization. This study considers five main variables that directly and indirectly affected the efficiency and performance of network management systems of large-scale organizations namely security, complexity, network bandwidth, network availability, and ease of access. Maintaining network security in large-scale organizations requires close monitoring and the capacity to react to ever-changing threats. In large organization network boundary has become increasing, making it difficult to safeguard against attacks. The large-scale organization has ensured consistent high levels of reliability, businesses must have the right equipment and network management processes in place. In large organizations, network managers confront a common user complaint: the connectivity is so slow that they can't access the software. Software that offers network packet evaluation is necessary to get to the source of the issue and decrease troubleshooting time. This study also showed that easy assesses and high bandwidth has a significant impact on network management in the large-scale organization.

## XII. INSUFFICIENCIES AND DIRECTIONS FOR FURTHER STUDY

This study has several limitations. The first is that it only concentrates on large-scale organizations. By doing so, researchers consider giving up valuable research questions about specific network management circumstances in exchange for generalization across a broad range of management circumstances. Future studies should consider the perception of the factors that influence network management for large-scale organizations to confront what factors are directly affecting network management and how they engage, among other stakeholders. Possible future research must be conducted to bridge the gap and demonstrate how various factors affect network management in other organizations.

Our study results must be considered as preliminary nonetheless, within certain limitations, the results support the view that network management influences outcomes. Further comparative research studies should be conducted to identify other factors influencing network management patterns and how they relate to the business environment. Our study highlights the importance of management in network success, but it also reinforces a line of research in which several questions remain unanswered.

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