

## OPERATING SYSTEM AND DECISION MAKING

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**ABSTRACT-** The variety of operating systems offers users a greater choice of options. The purpose of this study is to understand the aspects that influence the decision, which are based on the context of the user and the key factors that determine his choice of operating system. Five things must be considered before a decision is made. The following factors and models were developed from literature reviews of convenience, capacity, security, interface and recovery. These elements and this model provide an excellent opportunity to acquire an operating system based on surveys and analyzes for an organization. The market is affected by customer satisfaction. Meeting the needs of consumers is one of the ways to improve the business and can be satisfied by many aspects, including education, pricing, simplicity, support and security. We evaluate factors and name some minor causes based on employee motivation and company philosophy. Reading the result that prompts the user to select the operating system contains suggestions for the normal user to understand the designer's view by the designer. Manufacturing policy and the influence of the market contribute to the popularity and penetration of companies. The document provides an overview of the most popular operating system, taking into account both the advantages and disadvantages.

**Keywords- Operating System (OS); performance; security; interface; capability.**

**INTRODUCTION-** An operating system is software that contains a wide range of definitions and is considered a bridge between human control and physical response. In simple terms, an operating system can be synthesized in the best possible way to bring to life the spirit that animates silicon and wire objects. This can be as simple as software that interacts with simple hardware installed in children's toys. What complicates the operating systems is that they have the ability to respond to a human order called intelligent operation [1]. Since many operating systems were invented to perform certain tasks, our document focuses on operating systems running on computers, whether it is a personal computer or a host computer. [2]

There are many operating systems developed around the world. some are for private use at home or at school, others for government use, for example in the military, while others are distributed in a larger market for businesses. The most popular published operating systems are Windows, Mac, UNIX and Linux. Users choose the operating system they want based on expert recommendations, background experience and needs [3].

Operating systems are classified in many secondary actors because of the provider. As a result, each operating system has a strong and weak side that makes it unique and diverse. These small elements of diversity distinguish them from their competitors. However, many elements play an important role that affects the denervation of people. These factors typically include: usability, costs, support, confidentiality, integrity, capacity, and availability [4].

**RESEARCH METHOD-** Research papers are assessed based on the source of information. University of Bridgeport provide its members whether, they are faculty members or students, access to thousands of digital resources via digital library [5]. Digital libraries have permission to access a collection of articles, journals, and books which gain access to secure databases, such as IEEE Xplore, ScienceDirect, and Routledge Encyclopedia of Philosophy. The academic needs of students and faculty are taken into account when considering which databases to purchase rights to and, then, make accessible to the University's population [6].

This method of research has led to a precise understanding about comprehensive factors behind people's decisions toward an operating system after analyzing data according to technique suggested by LePine [7]. This paper represents the new vision-inspired user based on evaluating the elements according to Irani's example [8].

**MODEL- FACTOR 1:** Clients concern about the advantages and the disadvantages of an operating system is based on their needs. For normal users, it is focusing on an application which works with an operating system. Secure operation motivates business consumers to ensure the information is protected from adversary intruders [9]. People naturally tend towards convenience. Many average users like to own an operating system that is well known and available most places. This is in order to avoid confliction and better facilitate replacements and trouble-shooting help when needed [10].

**FACTOR 2:** Processing graphic demands, robust Circuit Process Unit (CPU), and comparison with the compiling programs require enough Random Memory (RAM). Having enough memory to store and perform all tasks efficiently is

important to most users. However, certain operating deals with hardware are better than other operating systems which make them unique and different [11].

FACTOR 3: Security level is one side of an effective decision, and it ranges from personal use to business managing. Sometimes the operating system is known for a high standard of security which may compensate for small shortcomings in features and flexibility. As a consequence, the operating system is not secure enough. In this case, a third party third party may provide a security application, such as Norton [12].

FACTOR 4: Graphic User Interface (GUI) delight people’s senses because visualization is a language that can be understood by a normal operating’s user. When consumers are skillful, they look at interface as minor issue. They see themselves with a command screen where they can interact deeply with the machine [13]. Therefore, the ascetics of a machine are judged based on the user’s needs and level of expertise, in most cases.

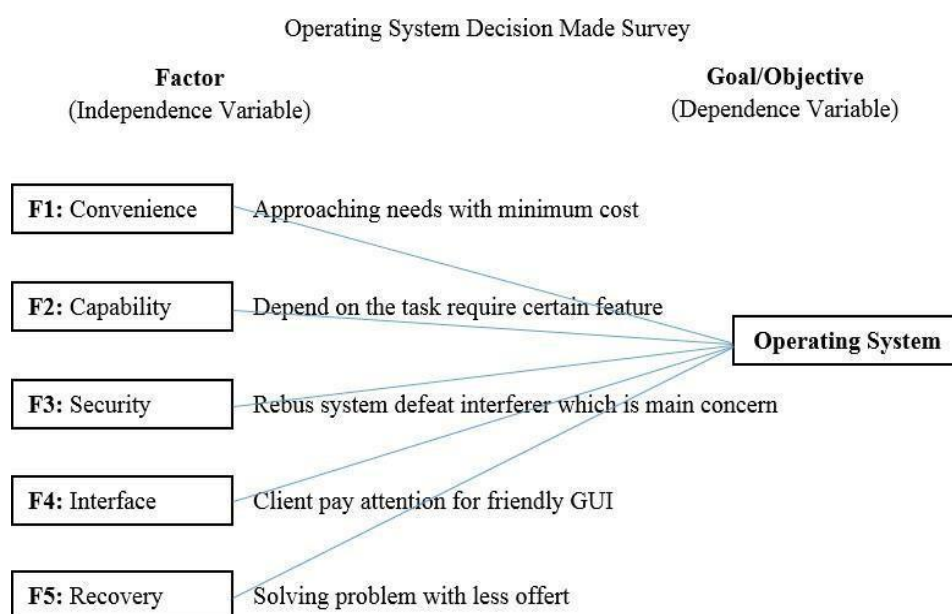
FACTOR 5: Format is the last solution that users want to go with because they do not want to lose their data. Some operating systems need to be renewed for many reasons and some of them are to get rid of a virus, or systems start too slowly [14]. The older models of operating systems have added new features to recover without using a Compact Disc (CD). Other operating systems are stable and have capabilities to restore documents internally through the operating system itself [15].

**OPERATING SYSTEM**

**i.UNIX**

In 1969, a group at AT&T developed a small operating system with a limitation function at Bell Labs. They called their innovative new system UNIX. The UNIX operating system has been on the market over the past 44 years. They wrote it in C programming language, and UNIX has the capability to run on both Macintosh and Personal Computer (PC) [16]. After that, UNIX became a robust operating system for the multiuser computer to do multitasking, and many companies ran their business depending on UNIX’s reliability. UNIX became the backbone for running businesses and many applications such as e-commerce and managing phone systems [17].

Many operating systems are root built based on UNIX with some modifications and developments, and some of them are Macintosh, Windows, and Linux [18], but UNIX is an open source, working with the developer community. UNIX has many versions such as UNIX 93, UNIX 95, UNIX 98, and the latest version is UNIX 03. UNIX is a powerful operating system used to do complicated tasks, where programmers need to work with command line, even if it has a graphical user interface. Because of that, UNIX is categorized for serious programmers using shell interface. UNIX is so sensitive to mistakes because it’s hard even for an expert user to debug the mistake easily [19], which requires high patience and plenty of time.



## ii.Windows

This new global operating system domain has taken place (and, according to many people, it still is) for several reasons [21]. Windows 95 was the first version to have the graphical user interface on the front and DOS on the back and this was seen as a revolution for non-computer scientists because they can interact with graphics instead of storing commands [22]. It was an economical operating system compared to the others that costs \$ 50. It had the possibility of being installed on any computer, built by any manufacturer.

Since then, they have maintained their success [23] and adapted the editorial style of operating systems every two years. The latest operating system launched on 26 October 2012; It's called Windows 8 and it's a personal operating system. Every Windows operating system has many versions, for example versions for students, residential, professional, unlimited and professional [24]. These distinctions allow users to choose the system that best suits their specific needs. They launched another type of server operating system in 2003. With a company edition and a home edition, they were named Server 2003 or Host server respectively. Currently, its participation in the server market is around sixty-four percent.

The computer hardware industries compete to develop computer parts that attempt to optimize performance because the Windows operating system does not bind to specific manufacturers. Some manufacturers are recognized for their global business [25], such as Dell, Asus, Toshiba, Acer and HP. All these global brands sell personal computers and servers for large companies. Now I'm between Microsoft Corporation and the client.

They provide the customer with equipment, customer service and a guarantee. Furthermore, local stores with basic knowledge can build computers and install Windows. Due to competition, industries are launching a series of identical parts with the latest technologies in a short period of time. This gives users the opportunity to build their computer [26] based on their budget and needs. It also offers people the opportunity to upgrade their machine indoors, from the screen to the motherboard, with certain rules. As a result, players prefer Windows because they can update the latest video card without having to modify the entire body [27].

The consistency of the pieces in a computer already built is not always promised. Users can hear the operational response without problems with the production device and awkwardly with another product in the industry because Microsoft has launched its operating system based on general requirements, not quality. After a while, Windows loses its performance due to the removal of an application and a folder. It must be reformatted to eliminate unwanted data [28].

## iii.Macintosh

Apple is considered a strong competitor of Microsoft Corporation. They were the first company to launch personal computers with their graphical operating system. On January 24, 1984, consumers were able to use a mouse to move the arrow and perform an action based on the selected button. His machine was called Macintosh, which people today recognize as MAC [29]. Apple has the pioneering company that produces personal computers, while International Business Machine Corporation (IBM) points to the executive class. His goal was home and education.

Apple is considered the first company to sell its operating systems [30] installed and compatible only with its own machine. For example, the Mac Air and Mac Pro [31] were quickly copied after launch because of their sleek and lightweight design. Its latest operating system was launched on July 25, 2012. It is called OS X Mountain Lion and is considered the cheapest operating system because it is closed and used for its own computer. He was released on 19 September 2012 [32].

Apple had been dealing with Motorola, which was producing a special process. While working on Mac, Apple changed its operating system to only work properly on its own machine. This has led to the spread of limitations around the world [33]. Compared to other operating systems, this factor limits Mac operating systems because consumers can't buy different machines built by manufacturers such as Dell, HP, and other companies and use these computers with Apple operating system [34]. On the other hand, Apple has managed to provide its customers with high quality machines with stable operating systems. Your product is recognized as a powerful set of operating systems and hardware supporting multimedia, as they apply new multicore processor designs that quickly manage activity and support the graphical application to provide excellent infrastructure. As a results, most photographers and filmmakers prefer the Mac machine [35].

The Apple brand is starting to hit new generations after Apple launched the fifth-generation iPod on October 25, 2005. In addition, Apple has a sleek design that makes its device exceptional and pushes other companies to reshape their product. . Apple customers have the opportunity to try Apple products in the Apple Store before deciding to

buy them [37]. Customers benefit from Apple's worldwide stores when they want to buy a new device, repair their device, or ask questions. In addition, Apple teams are well trained to advertise Apple products to offer a customer-focused course. [38] On the other hand, customers consider Apple products quite expensive compared to other manufacturers' prices and their product can only be updated in their store, otherwise the devices will lose their warranty [39].

#### iv. Linux

In 1991, Linus Torvalds, an IT student at the University of Helsinki in Finland, launched a new operating system. It's called Linux. The Linux operating systems was based on the Unix programming language [40], C and C++ [41]. When Linux was launched, it was designed to be an open source operating system, but it has attracted many developers around the world to contribute to development. In addition, Linux is available for download and does not require the installation of a license because it is a free operating system that users can use, but if an organization wishes, it must support organizational costs of Linux [42]. In addition, installing Linux on a machine is easier than other operating systems, such as Windows and Mac. Many programmers have preferred a Linux-based project for many years. The developer sees the Linux operating system as a user-friendly job [43] to develop and write application code over an access network. It does not require the latest hardware, so it can be installed and give life to old computers. In addition, many programmers have a preferred Linux operating system because it supports multiprocessing [44].

On the market, Linux was not widespread among ordinary citizens compared to Macintosh and Windows due to many factors. Today, Linux has become a serious competitor to other operating systems [47] because of the large number of developer organizations that implement the Graphical User Interface (GUI). For this reason, Linux has become easy for a user who is not a programmer, allowing him to interact with graphics instead of renting lines.

As a powerful operating system, Linux is also a lightweight operating system that runs on a machine that does not require a powerful process [48]. A comparison between Linux and Windows is that Linux stops very rarely, which is known in Windows as a blue screen or that Windows usually stops because of an overload. To protect hundreds of thousands of dollars of data against losses or attacks from opponents [49], users can get them free on the Linux market, while with Windows, you have to pay them. Linux has a very powerful firewall that makes it unbeatable in terms of attacks. He has a unique technique to reduce viral activity. The malware rate is lower than that of the Windows operating system under Linux, because the designer aimed to attack a large number of computer users. In addition, spyware and viruses designed for Windows slow it down, reducing the performance of the operating system [50].

Hardware units have been added to the new version of Linux to configure primary computing elements such as wireless cards, monitors, and secondary devices such as printers, scanners, and other similar items in the Windows operating system. In general, they are called "plug & play". These can offer benefits. For example, users can save money, even hundreds of dollars, and get most free applications, in programs that are relatively easy to install. On the other hand, users find the disadvantages of Linux, where many applications are not designed to run on Linux or exist on Linux, such as iTunes and the Microsoft program. This is considered a barrier for users who are interested in applications and do not want to replace the entire operating system simply to have a plug-and-play application they want. Some people need time to know and know the many benefits of Linux and its limitations [51].

#### v. EVALUATION

The results show that most people choose the Windows operating system when they are new operating system users. They find it easy to work with, has an intuitive graphical interface and a new user can buy an inexpensive computer on which Windows is already installed. Moreover, Microsoft is doing well in advertising. For these reasons, some people continue to use Windows even if they are aware of the weakness of their stability and sometimes of the security problem.

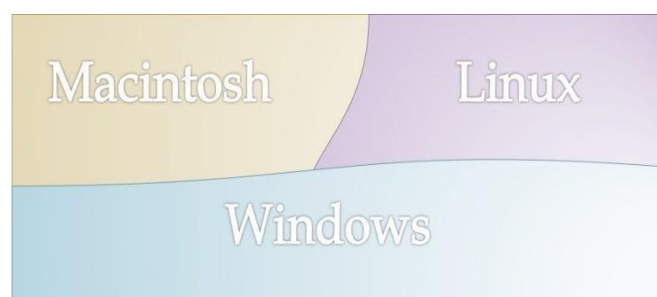


Fig. 1. Most famous Operating System in the Market.

When users deepen and deepen their knowledge of operating systems, they look for advanced features. If they want to be close to the machine language and consider using assembly language, they would prefer to use Linux operating systems because it offers them more flexibility than other operating systems. Sometimes their interests force them to choose a certain choice. If they are photographers, they prefer a Mac operating system, where they can get high quality images, thanks to the powerful processor and support applications. Fig.1 The graph summarizes the competition between OS manufacturers and their size in the service of the user, Microsoft being the owner of Windows occupying about 50% of the market and Apple the owner of Macintosh and Linux. Share the other half of the market.

## CONCLUSION

Operating systems have been invented to reduce human effort and save time. Our attention to operating systems (OS) concerns the machine and the results of our analysis show that there is no good or bad operating system. The goal was to broaden the user's understanding of the variety of systems. If their concern is security and stable operation, Mac and Linux may be the best choice; their security classification is high. In addition, in terms of application and availability, Windows and Mac are the market leaders; are supported by millions of developers. When users are concerned about the latest hardware technologies, Linux and Windows operating systems may fall into this category. In addition to personal computer knowledge, after careful analysis of industry leaders, we can conclude that the main factors that determine the choice of an operating system are the user requirements and the intended use of the system exploitation itself.

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