IT Support Challenges in Efforts to Increase Effectiveness and Efficiency in Manufacturing Companies

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Abstract: Information technology has changed the perspective of business actors, both small and large scale businesses. Most business actors have used information technology for various things, from making PO, receiving goods, planning production, production processes, sending finished goods to customers, making invoices, tax invoices and others. To support optimal computerization, adequate infrastructure is needed, starting from hardware / software, computer networks, telecommunications networks and others. Information technology infrastructure must be properly maintained and maintained so as not to experience interference during use. One part that plays an important role in maintaining information technology is IT Support. IT Support is under the IT department and is responsible for the smooth running of all devices, both hardware and software. It is undeniable that information technology is developing rapidly and this is a challenge for an IT Support. Therefore, IT Support must have technical and non-technical capabilities in order to keep up with the constantly evolving technology so that it can work effectively and efficiently. IT Support skills need to be improved starting from hardware / software maintenance, computer network installation and trouble shooting, server and client computer installation, internet / cyber security, preventive and predictive maintenance, CCTV maintenance, hardware service / repair, ISO knowledge, graphic design and maintenance PABX.

Keyword : IT Support, Information Technology, Hardware / Software

1. Introduction

Information technology has changed the perspective of business actors, both small and large scale businesses. Along with the advancement of information technology, most business actors have used information technology for various things. For example in a manufacturing company, the use of information technology is to change the way of working from conventional (done manually) to computerization, starting from making orders for goods / raw materials (PO), receiving goods, weighing raw materials, manufacturing semi-finished goods, manufacturing goods. So until the delivery of the goods to the customer everything has been done by the computer. With this change, all operational work becomes easier, more effective and efficient, both in terms of time and cost.

To support optimal computerization, adequate infrastructure is needed, both hardware (computers, printers, scanners, finger print, etc.), software (operating systems for client / server, application programs, antivirus and others), computer networks. LAN / WAN, telecommunication networks and last but not least are competent human resources.

One part of the company that plays an important role in maintaining and maintaining information technology infrastructure is the IT Support section. IT Support has a very important and central role, especially if the company operates fully 24 hours non-stop. IT Support must be ready to maintain and maintain all infrastructure which is its responsibility so that when it is used it does not experience interference.

The more hardware / software and technology devices used, it will have an impact on the amount of work that must be done by IT Support. Therefore, in order for the IT Support function to be maximized, IT Support Skills need to be improved. Based on the description above, the researcher is interested in conducting research with the title **"IT Support Challenges in Efforts to Increase Effectiveness and Efficiency in Manufacturing Companies"**.

2. Literature Review

II.1 IT Support

IT Support (Information Technology Support) is one of the fields of work that is responsible for the existing technology infrastructure in a company. IT Support is a part of the IT department. The duties and responsibilities of IT Support in general are as follows:

:
1. Checking the operating system and applications used by all users.
2. Check the computer network both LAN / WAN.
3. Checking the supporting infrastructure such as scanners, printers and others.
4. Perform data backup.
5. Checking system updates, both the operating system, application programs and antivirus.
6. Maintain the security of computer systems and data.
7. Creating documentation.

II.2 Information Technology

The definition of information technology according to Aksoy and Denardis is: "Information Technologies are system of hardware and/or software that capture, process, exchange, store, and/or present information, using electrical, magnetic, and/or electromagnetic energy" [1].

From this definition, it can be concluded that information technology is a system in the form of hardware and / or software that can capture, process, change, store and / or present information using electrical energy, magnetic energy, and / or electro-magnetic energy.

The definition of information technology according to Richardus Eko Indrajit is "a technology related to processing data into information and the process of distributing the data / information within the boundaries of space and time" [2,3].

II.3 Hardware / Software
Hardware is computer hardware, in outline it consists of three main components, namely: Processor, Memory and Input / Output Devices.
Input device:
- Mouse
- Keyboard
- Scanner
- Webcame
-     and others

Output device:
- Monitor
- Printer
- Speaker
-     and others

II.4 Software
Software is a program created by programmers to run computer hardware. The software contains a set of instructions for processing data.
The software will translate human language into machine language so that the computer hardware understands and executes the instructions given by the user and gives the desired results. Software is generally used to control hardware devices (often called device drivers), perform computation processes, interact with other more basic software (such as operating systems and programming languages) and others.

3. Method

This research is a descriptive research using a qualitative approach. Descriptive means giving an overview of what **abilities an IT Support** should have based on the questionnaire results. While the qualitative approach aims to explain, summarize various situations and conditions regarding what capabilities a company IT Support must have in order to work effectively and efficiently in achieving company goals.

This research was conducted by taking a sampling of employees who work in the IT company and the author's observations and analysis while working in manufacturing companies. The object under study is IT Support, while the research subjects are workers who work in companies in the IT department.

Data collection is done by distributing questionnaires via google form. The questionnaire method used in this study was a closed direct questionnaire. namely a questionnaire designed to record data regarding the situation

experienced by the respondent himself, then all alternative answers that the respondent must answer are listed in the questionnaire.

The results obtained from the questions posed to a number of respondents were then analyzed and recapitulated so that the percentage of respondents' answers was clear.

4. Analysis

From the results of the respondents' answers, a diagram is produced as follows:
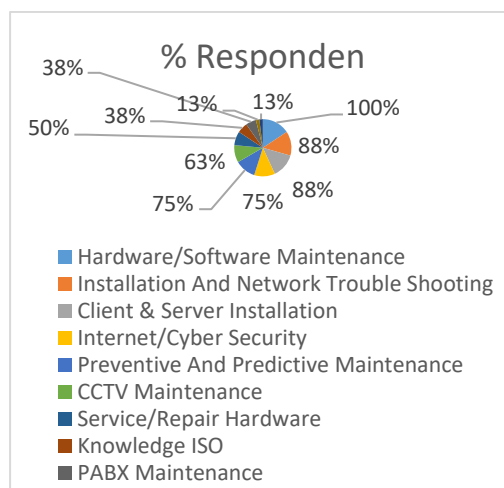1.   Characteristics of respondents based on position
From the results obtained, the characteristics of the respondents by position can be seen in diagram 1 below:
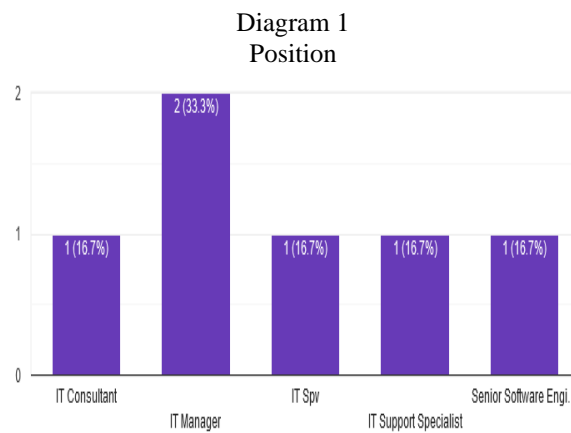
Diagram 1
Position

2.   Characteristics based on the capabilities that must be owned by IT Support
From the results obtained, the characteristics based on the ability of IT Support must have the following skills:
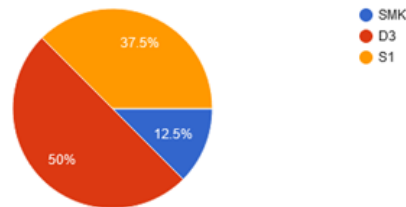
Diagram 2
The capabilities that IT Support must have

Based on the diagram above shows that IT Support must have 100% hardware / software maintenance capability, 88% network install and network trouble shooting, 88% client and server installation, the ability to secure internet / cyber security is almost the same as preventive and preventive capabilities. 75% predictive maintenance, 63% CCTV maintenance, 50% hardware service / repair, 38% ISO and Software engineering knowledge and finally the graphical design and PABX maintenance capabilities as much as 13%.

3.   Characteristics of respondents based on suitable graduates to occupy the It Support position
From the results obtained, the characteristics of the respondents who chose are as follows:

Diagram 3
Suitable graduates for IT Support positions

From diagram 3 above shows that IT graduates who can occupy positions as IT Support are D3 graduates as much as 50%, then S1 graduates are 37.5% and the least are SMK graduates.

Based on the diagrams above, the challenges for an IT Support at a manufacturing company in order to work effectively and efficiently are as follows:

A.   Technical ability
1.   Hardware / software maintenance
2.   Computer network installation and network trouble shooting
3.   Installation of server and client computers
4.   Internet / cyber security
5.   Preventive and Predictive maintenance
6.   CCTV Maintenance
7.   Service / Hardware Repair
8.   ISO knowledge
9.   Graphic Design
10.   PABX Maintenance

The technical capabilities above will be described as follows:
1.   Hardware/software Maintenance
It is a mandatory requirement for an IT Support to have the ability to maintain hardware (hardware) and software (software). An IT Support must be able to check and ensure that all devices are running properly. So that hardware / software does not have too many problems, IT Support should have a schedule when the hardware / software is checked, replaced or serviced according to the standard document format that has been made.

2.   Computer network installation and network trouble shooting
IT Support must have the ability to perform a computer network installation. IT Support must be able to install network devices starting from cabling, installing switches, routers, mikrotik and doing trouble shooting if the network is not connected.

3.   Installation of server and client computers
IT Support must be able to install computers / laptops both servers and clients. Besides being able to do the installation, an IT Support must have a way of how the installation process is done quickly and correctly so that it doesn't take a long time. The longer the installation process, let alone the installation of the computer that is being used by the user, it will usually interfere with user performance because it has to be temporarily off.

4.   Internet/*cyber security*
Computer security is mandatory, especially if the computer is connected to an outside network / internet. Computer security is intended so that computers are free from viruses and computers are also free from irresponsible parties who deliberately infiltrate. For computer security, IT Support can install an up-to-date antivirus or perform system updates, install a firewall, either the default firewall from the operating system or from a third party.

5.   Preventive and Predictive maintenance.

Preventive maintenance is an activity carried out according to a predetermined schedule for maintenance. Usually some IT Supports do not have complete documents related to maintenance or scheduling data. For companies that already have an ISO certificate, this document is usually mandatory for IT Support, starting from computer inventory data, software data used on each computer, maintenance schedules, data backup schedules and maintenance data for all devices. These documents are usually asked by the auditors when the company where they work is audited by the ISO auditors, if they are not available or incomplete, the results of the audit in the IT department have findings and must be corrected.

6. CCTV Maintenance

CCTV maintenance is usually an additional activity of an IT Support if the company has installed CCTV. Indeed, the installation is rarely done by IT Support itself, usually done by partners, but it does not rule out the installation must be done by IT Support. Therefore, to become a reliable IT Support, it is necessary to have knowledge about CCTV. If IT Support has the ability to install and / or double shooting, the company does not need to pay for CCTV installation / repair services.

7. Service / Hardware Repair

This hardware service / repair is actually not mandatory, but it would be better for an IT support to have the ability to repair damaged devices so that if any damage occurs it can be handled immediately. IT Supports who can repair devices usually have good credit points in the eyes of superiors, because this can save costs incurred by the company.

8. ISO knowledge

ISO knowledge is an added value for an IT Support, especially since the company already has an ISO certificate. Actually, the concept of ISO is simple, that is, write what you do and do what you write. If what is done and what is written is consistent, actually it has done what is required by ISO. However, this ISO has standard documents that must be followed, however these documents must be registered and numbered by document control so that one document with another document does not conflict or do not double.
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9. Graphic Design

Although this graphic design ability is not mandatory, graphic design capabilities are an additional ability if an IT Support has it, if IT Support has graphic design capabilities, the company can reduce costs, especially when making product designs and others.

10. PABX Maintenance

PABX is a useful communication tool in companies especially manufacturing companies that have many buildings and employees. PABX is used to communicate between employees in different areas. Previously, before the existence of PABX, to communicate between departments / different parts of the building, you had to use a local telephone, pager or HT, with the existence of PABX technology, communication costs could be reduced because they did not use pulses. Therefore, knowledge of PABX now is an added value for an IT Support
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B.   Non-Technical Capability

In addition to mastering the above technical skills, an IT Support must have the following non-technical skills:

- Communication

An IT Support must be able to communicate well with all users, from operators to the top level who use technology devices. IT Support must be able to explain problems and fixes that can be understood by all users, including users who are not familiar with technology. An IT Support should be a good listener on user complaints and resolve the problem as soon as possible

- Flexible

Being an IT Support company must be flexible from working time, they must be able to manage their time well, because the number of infrastructures that must be maintained and maintained increases along with the development of the company. In addition, IT Support must have a way to make the infrastructure repair process faster, precise and accurate.

- Patient

Patience is the key to an IT Support, problems every day may be there. An IT Support must be patient in doing their job, moreover, IT Support deals directly with users who may have different levels of patience for each user. Therefore IT Support needs patience and understanding from the user.

- *Problem Solving*

If you want to be a superior / reliable technician, IT Support must listen to user complaints carefully, be able to analyze according to user information, and make plans to solve problems. IT Support must have problem solving skills and be thorough in the details of the problem so that the problem can be resolved.

5. Conclusions and Suggestions

Conclusions

With the high level of business competition and company demands for operational expenses to be more effective and efficient, an IT Support must improve their abilities to be better so that all devices both hardware and software run well without any obstacles.

Suggestions

- Increase the ability of IT Support so that it can compete and be able to work effectively and efficiently by providing training both technical and non-technical training because the more advanced and large a company is, the more number of devices that need maintenance.
- From the questionnaire results, suitable graduates for IT Support positions are D3 and S1. In addition, companies need to consider age so that the IT Support function can be maximized.

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