

Study Unit 9

IT Support II – Troubleshooting & Maintenance

Study Unit Outline

1. Troubleshooting and Documentation
2. Troubleshooting Steps
3. Documenting Ticketing systems
4. Customer service in IT support
5. ITSM service Operation

Study Unit Duration

This Study Session requires a 2 hours of formal study time.

You may spend an additional 2-3 hours for revision

Introduction

Troubleshooting and documentation are necessary skills for a sustainable IT Support management. You need to understand how to troubleshoot to identify problems correctly. In addition to IT support Management, customer service and clear understanding of the ITSM service operation are key in running a good IT service company.

Learning Outcomes of Study Unit 9

Upon completion of this study unit, you should be able to:

- 9.1 Describe the relationship between troubleshooting and documentation.
 - 9.2 Demonstrate Customer service in IT support
 - 9.3 Discuss ITSM service operation
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9.1 Troubleshooting and Documentation

'Troubleshooting' is a technological phrase used to mean fixing a problem. But chances are you've done some troubleshooting in your everyday life already! As IT Support expert, you've also heard about the infrastructure, operating systems, and device layers of the network architecture paradigm (from Introduction to Computer networks module), we've already seen how these devices and structures work. Now it's time to think about troubleshooting, the most relevant day-to-day obligation of an IT Support Staff. Troubleshooting and good customer relation, maybe one of the most complicated aspects of your work as an IT support specialist. However, you'll know the right way to treat them by the end of this session. Two basic skills that can be extended to nearly any situation in the IT world and beyond are solving challenges and developing meaningful experiences with individuals. Knowing how to interpret a situation, determining the causes and consequences, and using the data to explore alternative solutions are abilities that an IT Support professionals should hone like Physicians. Super useful are the scientific dimensions of problem solving. But don't forget that the true reason most technology works is to enrich the lives of humans. The ways that people communicate with technology are fundamental to IT, whether it is the routing algorithm that forms the foundation of the Internet, or the technological tools that enable people to make awesome art. As an I.T Support specialist, you are ideally qualified to blend technologies and people know how to develop the experiences and make a difference in the everyday lives of people.

9.1.1 Troubleshooting Steps

Ask Questions

So, there is an African saying that whoever asks questions does not go astray. True, asking questions and gathering information to solve a problem seems like such a natural thing, but it is usually one of the most overlooked steps in troubleshooting. The capacity to diagnose and fix a dilemma is troubleshooting. Not technological competence, but productive troubleshooting, whether it helps anyone face-to-face or remotely, is one of the most challenging skills to learn in an IT role. It's also not unique to the world around IT. Every day, we use troubleshooting skills.

My car is destroyed. Out goes the light bulb. I'm feeling sick. Imagine that you went to the doctor and said, 'I feel sick,' and he gave you a prescription for allergy medication without any other details. You will definitely look for a new doctor right? Although this may sound far-fetched, in the IT world, this happens pretty frequently. We are so in the habit of repairing problems that we decide to repair something occasionally, without even diagnosing it. We're going to give you the tools you need to establish good habits for troubleshooting. In troubleshooting, the first thing to do is raise questions, no matter how large or small the issue is. There are a lot of variables that can trigger an issue. Before you start to tinker with it, you want to make sure you compile all your information. We're going to show real life, in-person, and online troubleshooting situations over the next few videos.

You'll be visiting Abdullahi and Martha for the in-person scenarios. Let's see how in real-world settings these different scenarios will play out. Let's take a peek at two short scenarios: a not-so-awesome encounter for troubleshooting, and an awesome one.

Scenario 1:

Abdullahi: My PC is broken.

Martha: Yeah, this is bad looking.

Abdullahi: You'll need a new computer, I suppose. It's going to cost about 1000 dollars.

Scenario 2:

Abdullahi: My PC is broken.

Martha: Yeah, all right. Can you tell me a little more about how broken it is? Does it come on at all? Has there been any recent harm to it that you know of?

Abdullahi: Oh well, I hear a "ding," when I press the power button, but nothing shows on the screen.

Martha: Yeah, all right. May I have a look?

Abdullahi: Definitely.

Martha: All right. OK, let me see what's happening here. Oh, you know what? The brightness was turned down. These brightness controls are a little fiddly, and unintentionally, it's easy to reach them. So, see, have it.

Abdullahi: Superb. Hey, thank you.

Martha: You are welcome, anytime.

So, which situation is an enjoyable user experience? The 2nd scenario? Yes, if Martha didn't ask questions as follow-ups, she wouldn't have known that the concern was anything as tiny as a dim screen. So, it's important that you are able to capture enough data to begin troubleshooting a challenge, whether it's large or small. We are able to understand the situation and quickly solve the dilemma with a little digging. What is also very important to call out from the situation is that the IT Support did not make the client or user feel stupid for not understanding that the brightness of the displays was down. Can you think of a time when someone made you feel stupid or even dumb? It is a pretty bad experience. So don't be the person who's doing it to somebody else. IT support, note, is about operating in the interest of others. Still aim to create a good user interface. Later on, we'll dive deep into customer service.

Isolating the Problem

Now that we have the approach of asking questions nailed down, let's discuss another effective method of troubleshooting: Isolation of the issue. The purpose of this approach is to reduce the complexity of the possible concern. Let's start with a game that's easy. I'm dreaming about a number that's less than 100. Is it possible to figure out what it is? You've got 5 questions that you can ask me. Only guessing a number is not, as you may have guessed, the way to go. Are they five? Oh, no. Are they seven? Oh, no. Your chances are super slim of finding things out this way. Instead, the spectrum of where the number may be should be limited. So, you might ask, is it greater than fifty? Oh, no. All right. So, we know 50 or less is the total. We just got our problem isolated and cut down half of the answers we started with. You may inquire, in order to narrow the reach further, is it greater than 25? Yeah. Yes. Is it in excess of 38? Yeah. Yes. Is this smaller to 45? Yeah. Yes. The number is 42. Yes, 42 is the number. Lovely work. The power of isolating a

problem will help you easily and reliably work out where the problem lies. The isolation of the problem approach is designed to minimize the complexity of your problem, so that you feel that you are searching in the right place. You'll finally end up at the root cause after you continuously isolate the problem. The main factor that causes a range of problems is the root cause. Finding a root cause is a vital principle in IT support, and it ensures that many users can avoid a problem from occurring again and again. The root cause can be hard to locate often, and incredibly vague. Don't give up if it's not clear right away. It can be tedious to find the root cause, but the endeavor is well worth it. Now, let's look at a not-so-good example of isolating a problem, and a good one.

Scenario 1:

Abdullahi: Hi Martha, I can't get to work on my laptop, especially with my email.

Martha: Hello Abdullahi, Sure, I will be glad to help. Somebody with the same concern walked in the other day. So, let's uninstall the program and reinstall it. [After this was done, Martha gives Abdullahi the laptop back]

Abdullahi: It's really not working yet.

Scenario 2:

Abdullahi: Hi Martha, I can't get my email on my laptop to work.

Martha: Yeah, yes, Abdullahi, I'd love to look at that for sure. Have you tried to use your mobile phone, iPad or something like that for your mail recently?

Abdullahi: No, it doesn't seem to work either.

Martha: [Encourage Abdullahi to try]. Huh. Wow. You know that I can't even get in too. For a second, let me dig at this [checks the email provider's website]. The email server seems to be offline. The notice notes that for about another hour, it's going to be down. How about we wait an hour, try again, and we can dive further if you still have issues.

Abdullahi: All right. Martha, thanks.

Martha: Abdullahi, you are welcome.

As you can see, in order to minimize the complexity of the problem, it is important to use the isolating the problem process. You can troubleshoot more easily if you can rule out a problem spot to look at.

Cookie Crumbs

The cookie crumbs are another powerful troubleshooting strategy. This technique allows you to go back from where the dilemma first begins and then work ahead. When did this issue start? You would be shocked by how much knowledge you would gain by asking. With these scenarios, let's explain this:

Scenario 1:

Abdullahi: Can you help me with my phone? My nice bird app has refused to come up.

Martha: Definitely. Now, by refusing to work, what do you mean?

Abdullahi: Yeah, it starts loading when I tap on the screen and then it crashes.

Martha: OK, we're going to take a look. All right, let us manage to reinstall the app to see how it helps. [Returns the phone after uninstallation]

Abdullahi: It's still not working. I need the bird app to work!

Scenario 2:

Abdullahi: Can you help me with my phone? The bird app stops working

Martha: Sure, I'd be glad to do so. You may like to tell me a bit more about how it stopped working.

Abdullahi: Yeah, it starts when I press the app and it just crashes.

Martha: That is not nice. When did this begin? At that moment, did you alter anything?

Abdullahi: Okay, it worked last night, and before the upgrade began, I was messing around with it, and it just didn't work this morning.

Martha: Maybe the upgrade had something to do with it. Let me have a look at that [checking].

All right, it looks like the update has a flaw. We should revert to an earlier edition and see how that improves. [Try it again after the roll and it worked]

Abdullahi: Many thanks.

So, the user will send you details on what they recall from Scenario 2 above, but information can also be offered by the applications you deal with. System logs are like the journal of the system, holding records on dates and incidents that occurred on the system. In the precise moment when a

malfunction occurred, you may search through logs and you could find any distinguishing incidents that may have caused the dilemma. Error alerts are incredibly important signals that will guide you in the right direction.

Many times, a single error would be lost in a sea of errors. Starting with the very first error that can trigger a cascade of errors is better. You will correct all of the other ones in the loop by correcting the root error. Any errors do not need further searching, such as an error not found on 404. You may see errors on websites that have been transferred or deleted or refused permission while viewing a secure file.

Start with the Quickest step first

In order to explain our dilemma, we asked some wonderful questions. We've separated our dilemma and looked at our cookie crumbs in an efficient field. It's time to start solving the problem now. In the I.T world, as in general, the world's challenges don't always have one correct solution. If you solve a dilemma, you're actually attempting to separate it from the root cause. You need to try some remediation measures to help you isolate a problem. If they don't work, you should rule them out as the source of this. What's next then? This is where it comes into play with the Start-with-the-fastest-step-first system. We want to effectively get to the root cause. But often, we will use different options to separate the issues. So how do we understand the choice to pursue first? It's fairly easy. First, try whatever is faster.

Let's illustrate this with a scenario

Scenario 1:

Abdullahi: I have a really strange problem with my software when I start it up. There's nothing it does and I just installed it.

Martha: Pretty interesting. During installation, it might have gotten corrupt. Again, let's reinstall it.

Abdullahi: It is still doing the same thing.

Scenario 2:

Abdullahi: I have a very odd problem with my machine when I boot it up. It is not doing anything to come up. And I had it just installed.

Martha: Do you have to remember when you updated it, whether you restarted the computer?

Oh, now it's working.

It's possible that a program reinstallation might resolve the problem in these situations. It's quite conceivable that the remedy was a reboot. Since a restart can be tested quicker than a reinstall, you should first test the restart. You want to be able to effectively and efficiently troubleshoot and resolve problems. So, remember to start with the first one, the fastest. Your time, and time for your users, is important.

Assignment for Peer Review on Troubleshooting

What are some troubleshooting examples that you've experienced? What did you try to fix and why? Did you think about it as "troubleshooting" when you were doing it, or not? Would you think of it as "troubleshooting" now if you did the same activity today?

Share with your classmates your troubleshooting experiences and see what other individuals did to solve those issues!

**Case Study****Scenario 1**

You work in an IT support position and a user comes to you and says that their online bank account cannot be accessed. Choose the best reaction.

1. Let's try to test this on my computer by logging in.
2. Restart your computer please.
3. Could you explain in detail to me what you mean by not being able to access your bank account online? What particular part isn't working?

4. Maybe it is the Internet. Make sure first that you're wired to a network.

Scenario 2

As an IT Support staff, you have a computer machine that's not going to connect to the network. You've asked the user all the necessary questions already, and now you're starting to troubleshoot. What's the best first step that you can take next?

- a) Start the computer again. It could be a weird issue on the Internet.
- b) Ask additional questions.
- c) Isolate either the computer or the network from the problem.
- d) Wipe the machine and format it from scratch.

Scenario 3

You work in an IT support position and a user comes to you and says they can't log on to their machine. Choose the right reaction.

- Check if the user has enabled their caps lock.
- Enquire from the user, "when was the last time you were able to login? What has changed since then?"
- Restart the computer system. It could be a strange login problem.
- Check the network connection or device to which they are attached.

Scenario 4

You are working with a computer that is not correctly running your newly installed software. You've already asked the correct questions, but it seems that you can't isolate the issue from anything specific. Which of the following responses is the next best step to take?

- a. Run diagnostic software that will take an hour or two.
- b. Wipe the PC and format it, which will take a few hours, from scratch.

- c. Restarts the personal computer. It may be a concern that needs a restart of the PC, which takes about 2 minutes to restart.
- d. Reinstall the program again, which takes about 15 minutes.

9.1.2 Documenting and Ticketing Systems

Have you ever worked tirelessly on something that took a lot of measures and a long time, just three months later to have to do it again? And totally forgotten what you've done? Oh, in the IT world, it happens all the time. That's why recording the work that you do is vital. It may sound like a time drain for paperwork, but it's a complete time saver. In the IT industry, there are two key ways that we log information. The first is in the method of ticketing or glitches. Tickets are a prevalent means of reporting an issue. Bugs are device failures which have not been caused by external causes. Only think that you got an e-mail every time anything breaks. It will be impossible to keep track of and not at all scalable. Just to keep track of this for you, the IT industry uses systems. Bugzilla, JIRA, and Redmine are some examples. These are all-in-one apps that help you monitor user complaints, connect and deliver feedback to your customers. Updating the ticket with what the problem is, the actions and processes you are attempting to fix, and the approach you arrived at is a perfect way to use the method for reporting. For two factors, this is important. The first is that the customer is held in the loop by it. The second is that, if you need to look back to see what you did, it allows you to audit your steps. To create a documentation trail, you should also write down processes and policies. There are a lot of ways for you to write where you want to, and store your documentation. Via online file storage, or loads of other media, you will keep your policies and procedures on a paper webpage. Only make sure that it's open to everyone else in your company. If you have a regular job, such as installing old apps on computers, make sure you write down all the measures and only return to them as appropriate. Documentation is not a setup which forgets the condition. Systems and protocols are continually evolving, and so does the paperwork. Updating the paperwork is critical. But you're not reading anything that's ancient. The last thing I want to point out about documentation writing is that in your writing, you don't need to get creative. You're not writing a brief story. You're drafting a scientific text. You want to make

yourself as straightforward as possible. So that they can quickly find out what they need to do when someone reads the text.

Documentation Process

Let us take a look at examples of positive documentation and not-so-good. Here's the deal here. When helping a user out, you experience a peculiar problem. This problem exists so frequently

Not-so-good documentation

Problem: WidgetMaker software doesn't work.

Use a previous version of the software.

that you and your friends have experienced it. The worst evidence being no documentation at all. Just think that it took hours for you to find out a dilemma and you didn't write it down. Your colleague is having the same challenge and wants hours to work it out. Then, he does not write it down, either. This could go on and on. Creating documentation only takes a little bit of effort, and it can save you so much of your time, the time of your company, and the time of your users.

All right. This is not the best example of paperwork. The issue mentioned by the IT support specialist is not specific, and it leaves you with more questions than responses. And while it teaches you what's going to solve a dilemma, it doesn't tell you how. There should be straight and clear-cut documentation. When following the instructions that you listed, your reader should not have any questions.

Good documentation

Problem: WidgetMaker software version 4.2.1 incompatible with FuzzyMaker software version 1.3.4.

WidgetMaker pushed out an update to their software in July 2017 and it contains a new feature that breaks compatibility with the latest FuzzyMaker software version 1.3.4. Don't install WidgetMaker version 4.2.1 or higher. To go back to an older version, take the following steps:

In Windows 10:

1. In "Add or Remove Programs," uninstall WidgetMaker version 4.2.1
2. Get WidgetMaker version 4.1.0 from their website at www.widgetmaker.com/software/v/4.1.0.
3. Install the software, then restart the computer.

Now, this is a good instance of paperwork. It begins with a question that is very basic and straightforward. It provides you with background information about what the query is. It also gives you the exact guidance about how to address the problem, including which settings to navigate to and where to navigate. Know, always write documentation that makes it easier to track your reader.

Now that we've talked a little bit about documenting systems, let's talk about how ticketing or bug system reports would be written. For every ticket you handle, you don't have to leave a full example of process documentation. Just write the documentation once if you encounter the same problem, then refer back to it. In a ticket or bug, one of the more significant aspects of writing documentation is that you leave an audit trail to see what worked and what did not. Let's take a look at some instances of awesome documentation in ticketing and bug systems and not-so-awesome documentation.

Not-so-awesome documentation

User entry: Hi, I have an issue with my
computer, can someone
help me?

IT Support Specialist entry: Fixed

As we don't know what the problem was, or what the IT support expert did to resolve it, this is not useful at all. It would be fairly pointless if anyone stumbled across this ticket with the same dilemma.

Awesome documentation

User entry: Hi, I have an issue with my computer, can someone help me?

IT Support
Specialist

entry: Customer had error message when installing MagicSoftware version 8.0. The message said: "Unable to install software, please make sure you're using the latest version of the FuzzyMaker software." Issue was caused because MagicSoftware version 8.0 requires the latest version of FuzzyMaker software, so I downloaded and installed the latest version from their website: www.fuzzymaker.com/software/version-latest.

This is an example of excellent documentation for a ticket. A technician explained what the problem was, what triggered the problem, and the practical steps they took to fix it.



Computer Science level 1
Information Technology Support Management (ITSM)

9.2 Customer service in IT support

I can't stress it enough. Customer service is a vital ability in IT support. You may have all the technological skills in the world, but you have lost if the customer has a negative experience in the course of solving their problem. In these session, the strategies we will explore will not only benefit you with your customers, they are going to make you communicate well with your friends, your executives, and maybe even your own personal relationships. Bear in mind, in all cases, these methods don't work. The truth is that, no matter how fantastic you are at customer service, there is no good resolution in certain cases. Plus, everyone is different, so when interacting with customers, you will need to tweak your style, but the approaches we will discuss are meant to make your IT experiences more effective. You partner with customers in IT support to fix technologies and expand how people use it. You need to create trust between you and the customer to do this. Many employers claim that strong customer service, which is a gateway to profitability, also creates brand loyalty.

9.2.1 Fundamentals of Customer Service

This unit is intended to teach you the fundamental skills and practices of providing outstanding customer service. Practices of customer care can vary from business to business. So while we're going to discuss main customer service principles in every position of IT help, it's crucial to speak to the employer and clarify the customer service strategy of the business. This will also give you a sense of how much flexibility or limitations you will have in the job. Spoiler warning, great customer service includes having sensitivity, being mindful of your speech, knowing the individual you are talking to and establishing trust with the user. Notice those four points if you don't remember anything more from this lecture.

Empathy

Empathy is the most important of all of these traits. What's the distinction between empathy and sympathy? People are trying to say stuff like sympathy is saying that you're sorry, empathy is feeling sorry. That just doesn't justify it. To drive this home, let's use an example. When somebody falls down a dark, wet, filthy pit, and you bent over and said, with a sad smile, that must be a very challenging situation, so you show concern. You express their thoughts, but you do not experience

those feelings. When you have climbed through the dim, wet, filthy pit with the person who dropped and said, 'This is a very challenging situation,' that is you showing empathy. From the viewpoint of someone else, you're able to see things and appreciate their thoughts. It is also similar to the word choice of the two cases. Yet what empathy is all about is the deed, the action you take by looking at it from their viewpoint. Some days, I know from experience, it's hard to empathize. Maybe prior to work, you had an argument with a loved one. And you find yourself getting irritated or frustrated with users by the end of the day. That's the moment when empathy becomes the most important, and when it's simple, everyone can display empathy. But a kinder person, and a more competent and productive employee is anyone who persistently shows empathy despite their circumstances.

Tone

Once you have empathy, you have to think about your conversation or specifically the tone of your speech. Historically, tone is known to be how you talk out loud. Tone isn't just about how you come across during an in-person encounter in this modern age, where much of our conversations are over email, and IT help is increasingly done remotely. How you write, punctuate, and even spell is extended. The customer would feel brushed off and devalued if the tone is brief or blunt. Yet the customer is much more likely to have a good experience interacting with you if your sound politer and interested, meaning you have a good tone. It may be disingenuous, however, be careful not to go overboard with friendliness.

It is a delicate balance to express a pleasant tone. It depends how you ask a question and how you respond to a user's question. Let's say you send in an email to a user, *turn your computer off and on again and it's going to start running*. Possibly they'll never react. And your business may have lost a client, because the tone is just too brief and unfriendly. It doesn't leave the door open to discussion when it gets to the stage. What if you wrote instead, *please try turning your system off and back on again. The improvements we have made should be changed and the problem solved*. If it's not running, please let me know. This is a little wordier, but it has a better sound of questioning than saying. Inviting them back to communicate with you in case the matter is not fixed, keeps the contact lines open. When helping someone in a foreign area or nation, the tone

can be extremely challenging. Be sure that you are familiar with the local style, whether it's more conversational or simple, and change the style according to the audience.

Recognize the customer or user

It is easy to dismiss what someone means in this day and age of text and email. We prefer to shy away from answering some questions, if a statement sounds like a dig, or it's just too much detail given. Forgetting to tell the user what you're doing when you're troubleshooting is also very normal, and might leave the user standing in an awkward silence. Acknowledge the customer wherever possible. It removes the stress that might cause and encourages you to realize how you're moving towards a solution. Let's presume you're posing a lot of questions to help address the dilemma by talking back and forth with the customer. The user replies to them, but also remarks like, jeez, I've already replied to them in my last text, or, I just want to know what's causing my issue. You prefer to disregard this and continue the troubleshooting process. You think you're close to fixing the problem, and these remarks on the side are just a diversion. But then the user ceases communicating entirely with you and presents you with just half-answers to your questions. You are not going to fix the dilemma at all now. The customer is disappointed, you are dissatisfied, and the business is dissatisfied. The condition is grim. Instead of avoiding the user in that case, you may have said, I'm sorry to ask these questions, repeating them will often help to pop up new information. Or, you might say, sorry for the repetitive questions. I don't want to send you a shallow reason such that, then you won't have to talk with us again, when we can resolve the root problem if given a chance. This allows them to learn and become part of the solution for your process. If you think they might otherwise confuse the user, it's necessary to understand your own actions. In order to correct something, let's assume a customer contacts you. You go silent on the radio after collecting some details. What does a person have to do? If you're still there, will they ask? Will they wait awkwardly for you to get back in line? How long will they wait, or say something, before ending the call? How will they feel, very uncomfortable, about their relationship with you? But what if you were to suggest, I have to do some research on this topic, would you mind waiting five minutes or less while I do that? Possibly, yes, they would say, and keep themselves busy as they wait. They will probably be more relaxed with the abilities to solve the

dilemma. When dealing with others, this leads to the most important thing to consider, and that's creating trust.

Developing Trust

Developing trust is easy to do if you have repeat users. They see you every workday. One bad day isn't going to stop them from trusting that you know what you're doing. But in a transactional user base, where the user only contacts the company once or twice, how you interact with each user each time is going to break or build that trust. Why is trust so important? Without it, the user could be difficult to work with and could even ignore your advice completely. Empathy and acknowledgement are a big part of building trust. Without these, you'll find it difficult to connect with the user. By seeing things from the user's perspective, you're more likely to find the solution that will help them specifically. This lets them know that you care, and they'll be more likely to be engaged in the interaction. It's also important to follow through on your commitments and promises. If you tell someone you're going to follow up in one hour, then be sure to make it happen. And if you don't, acknowledge the oversight and apologize. Be sure that any claims you make can be backed up. Don't make something up to a user, because you think it'll help in the moment. Be honest with the user, even if you think they won't be happy about it. And never be afraid to admit when you're wrong. This might be the hardest thing to do with a user, but you'll find that your interactions a more successful this way. Being specific and empathetic with your apologies will give it more meaning. And remember, no one wakes up in the morning thinking, I'm going to be a jerk today. While you shouldn't sacrifice your self-respect, do your best to give the user the benefit of the doubt whenever possible.

Trust Growth

If you have frequent customers, building confidence is simple to do. Each workday, they see you. One poor day won't deter them from knowing that you know what you're doing. But with a transactional user base, where the customer only contacts the business once or twice, how you connect with each user will destroy or create the trust each time. Why is trust so important? The customer could be difficult to deal with without it and could even totally neglect the suggestions. A major part of building trust is understanding and appreciation. You'll find it hard to communicate

with the customer without these. When viewing it from the viewpoint of the customer, you are mostly able to discover a solution that would directly benefit them. It helps them to realize that you care, and they would be more likely to be involved in the relationship. It is also critical that your agreements and assurances are carried through. When you tell somebody that in an hour you're going to follow up, then make sure you make it happen. Even if you do not, accept and apologize for the mistake. Be confident that it is possible to back up whatever statements you produce. Don't make up for a customer for anything, because you think it's going to help at the time. Be frank with the client, even though you think it's not going to make them happy. And never be ashamed to accept that you're wrong. This may be the hardest thing to do with a customer, but this way, you may find that the experiences are more effective. In your apology, being precise and empathetic would give it more meaning. And note, nobody gets up in the morning thinking that today I'm going to be a dick. Though you do not lose your self-respect, do your part wherever possible to give the customer the benefit of the doubt.

9.2.2 Understanding Health and Wellbeing of IT Users

As IT Support, you may be approached for guidance on basic health and wellbeing tips for using computer systems. It is important to recognize ways to help ensure a user's well-being while using a computer or device. Some common tips for a healthy use of computer system include

1. Take regular breaks: Observing the 20/20/20 rule i.e. 20 seconds break after every 20 minutes of using a computer to look 20meters away from the computer system.
2. Ensure appropriate lighting and posture Lighting should be bright enough and correctly positioned.
3. Correct positioning of the computer, desk and seat will minimize bad posture.
4. Recognize computer and device energy saving practices:
 - Turning off - When not in use
 - Adjusting automatic shutdown - After a specified number of minutes not used
 - Adjusting backlight - This can be decreased Adjusting sleep mode settings - This can be activated after pre-set timings

5. Recognize that computers, devices, batteries, printer cartridges and paper should be recycled.

You may also be required to know some options available for enhancing accessibility like:

Voice Recognition Software: Translates voice commands and recognition is used in place of a mouse and software keyboard

Screen Reader: Reads aloud information from a reader computer display, for users with impaired vision

Screen Magnifier: Displays enlarged screen content magnifier

On-screen keyboard: Provides an alternative to a keyboard physical keyboard or inputting data

9.3 ITSM Service Operation

ITSM is a discipline for handling IT activities as a process-oriented service that accounts for 60 percent - 90 percent of the overall cost of ownership of IT, as opposed to conventional technology-oriented approaches to IT

9.3.1 Overview of Information Technology Service Management (ITSM)

According to Information Technology Infrastructure Library (ITIL, 2011), Information and Technology Service Management (ITSM) is defined as "The implementation and management of quality IT services that meet the needs of the business. IT service management is performed by IT service providers through an appropriate mix of people, process and information technology." This definition also suggests that a reader look at a more general definition of service management, which denotes, "A set of specialized organizational capabilities for providing value to customers in the form of services." (ITIL, 2011)

A branch of Service Science that focuses on IT tasks such as service delivery and service support [is often known to be Information Technology Service Management (ITSM)]. ITSM is a discipline for handling IT activities as a process-oriented service that accounts for 60 percent - 90 percent of the overall cost of ownership of IT, as opposed to conventional technology-oriented approaches to IT. IT service providers can no longer continue to rely on technologies and their internal

organization, and they must instead consider the nature of the product they offer and concentrate on customer relationships.

The history of ITSM best practice standards, beginning with the Information Technology Infrastructure Library (ITIL) and most recently the International Organization for Standards (ISO)/International Electro Technical Commission (IEC) 20000 standard of December 2005, as well as the other standards (such as COBIT, etc.) that inspired the establishment of ISO/IEC 20000, is shown in Figure 1.

ITSM	Information Technology Service Management
ITIL	Information Technology Infrastructure Library
GITIM	Government Information Technology Infrastructure Management,

History of ITSM

The United Kingdom's National Standards Agency is the British Standards Institute, which has been functioning since 1901 under a Royal Warrant to act as the British Government's standards organization. BS (British Standard) 15000, ratified in 2000, was the world's first ITSM standard.¹⁰ The standard lays out a series of interrelated management procedures that form a basis for the establishment and assessment of processes and programs. BS 15000 is mainly focused on IT activities and is dependent primarily on ITIL. In the process of international adoption of a single set of best standards, ISO/IEC 20000 is the next step after BS 15000. The first international standard for ITSM is ISO/IEC 20000 and it consists of two publications.

Difference between ITSM and ITIL

A common question posed by many new IT Service Management (ITSM) individuals is: "What is the difference between ITSM and ITIL?" The simple response is that ITSM is the practical practice of handling IT activities as a service, or technical discipline, whereas ITIL is a collection of best practices that provide guidelines for ITSM, typically covering the basics. In practice, by looking at the past of IT organizations and how IT has progressed over time, there is much more to tell about the variations between ITSM and ITIL.

In fact, ITSM is also related to the ITIL of the British Government. ITIL's ITSM subsection focuses on service support and distribution in IT activities, and in these two regions, roughly 80% of the cost of an infrastructure.

The IT Infrastructure Library (ITIL) is a compilation of best practices in IT service management developed to support organization requirements. The difference between company and technology can be bridged by depending on the guidance offered by ITIL and incorporating the processes that meet your business needs.

With each point of the IT service lifecycle, ITIL is made up of five specific publications that define best practices:

1. ITIL Service Strategy—defines business goals and customer requirements
2. ITIL Service Design— specify transitioning strategies into plans that help the business
3. ITIL Service Transition—explains implementing services within the business environment
4. ITIL Service Operation—highlight key processes related to IT service management
5. ITIL Continual Service Improvement—helps ITIL users evaluate and plan IT service improvements

Bear in mind, all ITIL process does not have to be applied completely, nor do you have to follow each process exactly as defined by ITIL; rather, set up and adjust processes depending on the company requirements.

ITSM processes

In this section we'll analyze four of the most commonly implemented ITIL processes—Incident, Problem, Change, and Configuration Management—and determine how to assemble appropriate team members in an effort to align processes with business goals. Following this discussion, we'll provide guidance to help you choose the appropriate software solution to automate your ITSM processes.

Incident Management

Incident Management is an ITSM process an ITSM mechanism intended to recover as soon as possible "normal" service activity and mitigate adverse consequences by managing events as quickly as possible.

Incident Management provides the following business benefits:

- Reduces IT expenditures by reducing the frequency of accidents
- Maintains high levels of operation for quicker identification and resolution of occurrences
- Increases efficiency in the company by rapidly restoring regular operations
- Identifies opportunities for training and changes to the service
- Reduces the effect of accidents on company and consumers with enhanced tracking
- Eliminates "lost" events
- Improves user fulfillment
- Records IT service value retention

The Team for Incident Management-The People

By restoring service as soon as necessary, the Incident Management Team plays an integral part in maintaining the running of IT services in a company. The team for Incident Management is composed of:

Incident Manager-Through staff leadership, reporting Key Performance Measures (KPIs) to management, overseeing first and second line assistance, controlling the incident management system, and applying the procedure workflow in incident management, the Incident Manager guides and continuously enhances the incident management process.

First Line Support-First Line Support or Service Desk Technicians are the single point of touch for information finding and documenting service interruptions by end users. These tech support staff perform initial support and aim as soon as possible to repair a broken operation. They regularly monitor the settlement, check the status, and coordinate with the end user, if appropriate, they escalate the event to other support staff.

Level 2 Support-Typically, Second Line Support Technicians have more technical experience and will be able to become responsible for accidents that cannot be handled by First Line Support. To help restore regular service as quickly as possible, they can work with third party experts.

The Incident Management Process

An incident can arise from anywhere and will follow a process intended to restore service as quickly as possible:

- Logging
- Categorizing
- Prioritizing
- Diagnosis
- Escalation (if necessary)
- Resolution
- Closure
- Communication

Measure Achievement

Establishing the correct benchmarks and KPIs helps you to assess if your goals, the fields in which you succeed, and those in which you fail, are being reached. Each enterprise is special, and the metrics and KPIs you track can be tailored to the priorities, scale, and market importance of your organization. Furthermore, as the organization matures, these will change.

Some important Incident Management metrics/KPIs include:

- Total incidents reported (per category, priority, person, organizational unit, etc.)
- Status of incidents
- Time between incident creation and resolution
- Incidents and SLA (reached, breached)
- Average cost per incident
- Re-open rate
- Incidents handled without escalation
- First call resolution
- Configuration Items (CIs) experiencing recurring incidents
- Incidents by time of day

Problem Management

Problem Management addresses the lifecycle of problems. In order to reduce the effect on the enterprise and avoid its recurrence, success is accomplished by rapidly detecting and presenting alternatives or workarounds to challenges.

Problem Management differs from Incident Management in that the primary purpose is to determine the cause of an incident, minimize the effects on the organization, and eliminate recurrence. The proactive wing of Incident Management may be assumed to be problem management. Incident Management's best strategy is to restore the service as soon as necessary, but it also ensures that all information is documented. It helps problem management to evaluate the root cause (s). Fixing an issue is a first and major step, but avoiding the recurrence of the issue decreases accidents and frustration, increases performance and reduces costs

Problem Management provides the following benefits to a business:

1. Maintain continuous levels of service
 - Increase availability of service
 - Enhance the quality of service
 - Decrease resolution time
 - Reduce occurrences
 - Raising efficiency

- Workarounds that are repeatable
- Improve tracking, making it easier to reliably assess success against SLAs
- Boost management details on facets of the quality of service
- Boost productivity and utilization of workers
- Reducing expenses

2. The Problem Management Team – The People

The Problem Management team is in charge of minimizing the organizational impact and preventing recurrence of problems. The Problem Management team is comprised of:

Problem Manager

The Problem Manager is responsible for all aspects of the Problem Management process especially organizing but including:

- Liaising with relevant problem resolution staff
- Maintaining SLA compliance
- Ownership and management of the Known Error Database (KEDB)
- Closure of problems
- Coordinating major problem review

Problem Solving Team

This team may include internal technical support team members or external suppliers and/or vendors

3. Reduce Downtime and Disruptions – The Problem Management Process

In order to identify and deal with the root cause of an incident, the Problem Management team follows a process that supports a proactive approach, including:

- ✓ Detection
- ✓ Logging
- ✓ Diagnosis
- ✓ Workaround
- ✓ Known Error Record
- ✓ Resolution
- ✓ Closure

4. Measure Achievement

The main objective of Problem Management is to reduce the number of incidents, reduce business impact, and prevent recurrence. In order to celebrate process success or identify shortcomings, some important Problem Management metrics/KPIs include:

- Total number of problems during a specific period of time
- Problems reported by (category, organizational unit, person, etc.)
- Problems resolved within SLA targets
- Percentage of problems exceeding SLA targets
- Trends associated with a problem backlog
- Average cost of managing a problem
- Number of major problems during a specific period of time
- Average time to resolve problems
- Root Cause Analysis (RCA) report

Change Management

Best practices in Change Management allow the IT company to make adjustments that are sensitive to customer needs without affecting operation. It should be possible for a company to make improvements easily, but resources should stay reliable and available. Change Management is a system that introduces and monitors service enhancements and other modifications by structured processes.

Many of the advantages of an automatic method for Change Management include:

- ❖ Reduce time to execute modifications
- ❖ Estimate correct expenditures of transition
- ❖ Boost information for management
- ❖ Minimize interruption of service

The Change Management Team – The People

Members of the Change Management team must be armed with the expertise to reduce loss of operation. The team consists of:

Change Advisory Board (CAB) - A team of members from business and technical representatives who conduct changes assessments, prioritization, and scheduling updates. Usually, the Change Manager is the head of the Change Advisory Board (CAB) and its members can include clients, administrators, engineers, advisors, Professional personnel, plus staff at non-IT departments.

Change Manager-The Change Manager is the owner of the process of change management, leading the CABs meetings, selecting suitable CAB representatives, defining and maintaining the Forward Schedule of Changes (FSC), serving as a consultant to organize change, reviews changes introduced, and produces management updates.

Minimize Risk – The Change Management Process

The Change Management process prioritizes the following measures in an attempt to drive smooth change process:

A. Logging a change

- Reviewing the change
- Evaluation
- Approval
- Implementing the change
- Closure

B. Achievement Measure

It may be difficult to assess the success of Change Management, since gathering data associated with the progress of a change can become confusing. The following metrics will, however, help you assess the effect of your method of Change Management:

- ✓ Number of successful changes implemented
- ✓ Benefits of changes vs. negative impact prevented
- ✓ Reduction in the number of service disruptions
- ✓ Reduction in unauthorized changes
- ✓ Decrease in change request backlog
- ✓ Incidents associated with changes
- ✓ Average time to implement a change
- ✓ Change success rate
- ✓ Number of disruptions (incidents, problems) caused by failed changes
- ✓ Frequency and volume of change
- ✓ Ratio of planned vs. unplanned change

Configuration Management

Configuration Management guarantees that the configuration objects (CIs) used to deliver services are correctly managed and that specific and accurate information about them is available as and when it is necessary. This material provides descriptions of how the CIs have been designed, including facilities, and the interactions between them.

The relationships between CIs are monitored by a Configuration Management System (CMS). In Change Management, it is an invaluable tool because it allows you to determine the effect of a potential system-wide change, exposes latent dependencies and lets you prevent unexpected effects.

Some Configuration Control advantages include:

- Gain efficacy and reliability by improving the exposure of CIs
- Reduce risk and enhance protection by recording and tracking every CI

- Increase the speed of deployment of asset
- Improve compliance in business regulations and reporting
- Identify replication in CI

Spot errors in configuration

Establish correct budgets

1. Assemble the Team –The People

Your IT infrastructure's scale and delivery will decide the size of the Configuration Management team. The team could consist of one person who carries out all operations or several individuals who share duties. The team must, at the very least, have a Configuration Manager:

2. Configuration Manager

The Configuration Manager is responsible for the Configuration Management process implementation and either executes or assigns the duties. This includes:

- Running the process
- Overseeing interactions with other relevant processes
- Gathering requirements
- Availability of data
- Critiquing the process
- Performing process audits and continuous process improvements

3. The Configuration Management Process

For other ITIL operations, the provision of infrastructure and service information is important. Configuration Management follows these process steps in order to guarantee correct and up-to-date data:

- i. Plan CMDB and Configuration Item (CI) data
- ii. Identifying CIs
- iii. Identifying attributes for CI
- iv. Maintaining detailed and correct data
- v. Regularly audit and update data for accuracy—A discovery tool can be configured to perform this task automatically for network CIs

4. Achievement Measuring

An integral part of the duties of the IT department is to handle CIs that are crucial to the business. The following metrics/KPIs will help assess the efficiency of your method for Configuration Management and how it helps other systems for Service Management:

- ❖ Number of incidents, problems, changes associated with specific CIs
- ❖ Percent decrease in issues due to improved CMDB accuracy
- ❖ Improved speed of service delivery/service repair (for example through better identification of asset location and dependencies).
- ❖ Improved customer satisfaction
- ❖ Reduction in software and hardware costs due to better control (for example, reduction in duplication or reduction in licenses).

5. Find a Solution to Support Organization Goals – The Technology

Inefficiency in IT will cripple a business. Fortunately, ITIL has described procedures that will assist IT to act as a key contributor to overall business performance. It should always take priority to recognize and describe the mechanisms that serve your business objectives. IT service management software, once established, increases the ability to provide services efficiently and with less human capital by automating process procedures and ensuring compliance with processes.

It is also necessary to implement a technological approach that is versatile enough to respond to the needs for process automation. When finding a solution, consider the following:

Adaptability/configurability-To have the maximum outcome and also to encourage users, it should be adaptable to the needs and buy-in from the individuals who can use it.

Self-service portal: Allow users or clients to track accidents without being on the phone or send an email.

Knowledge Management: Provide a way to document and disseminate solutions.

Real-time analytics: By recognizing patterns and common challenges in real-time, can be found and given at a faster pace, thereby eliminating difficulties in the future.

Alignment of ITIL processes: Every approach should be consistent with best practices in the industry, which requires a shared language to be used to prevent miscommunication.

Automation: An automated approach enables systematic and repeatable operations, and facilitates convergence, with tools from third parties such as Event Management and Asset Discovery, thereby providing greater efficacy in detecting trends and common challenges.

Role-based permissions- Security control to limit entry.

Accuracy of data - Maintained in a single, unified CMDB shared by all ITIL procedures.

ITSM Functions of Organization

A. Service Desk

Service Desks is Single Point of Contact (SPOC) teams that assist organization by responding to and addressing service interruptions (incidents) and handling demands for new and updated services (request and change management). Service desks are also the core focal point for service management activities and an escalation and coordination hub for organizing and handling customer service in ITIL4, which is defined as a practice, so this could be conducted virtually

B. The Sales Desk

is the 'Store front' / flagship for a company and is an engine for quality and enhancement of service. To do a good job, the service desk needs help and coordination from around the enterprise and offers a fantastic opportunity to handle client perceptions and enhance service The efficiency of the service desk is a direct indication of whether the organization supports (or not) service and support (and customers) are appreciated by a company viz investment, empowerment, resources and measurable management support.

ITSM is not just for service desks, although these are certainly always the subject of these operations. A 'Supply Chain' of coordination and cooperation from all teams includes much of the systems involved. A good service desk is almost as good as the teams working to support it.

Processes alone cannot achieve success-these do not happen on their own and it is necessary to have effective management and governance. It is important to be transparent about how each procedure operates, the roles of each team and person in doing so, and how this will be controlled. 'Best Practice' should still be seen as guidance and guidelines-each company must determine its own adaptation and execution of these guidelines. Therefore, while there can be principles and recommendations for best practice that can be used for a general model, a particular and customized approach would result in a successful change in service.

For performance, a common, coherent and cohesive strategy is needed across teams-all it's about collaboration and mutual objectives. Continuous Service Enhancement Core Practices: The aim of all ITSM operations must be to offer reliable services in an atmosphere of continuous improvement. This is done by measurement as a way of guiding gradual improvements, applying good issue solving and also leveraging information management to boost resolution times and discourage re-work.

Some terms in ITSM

Service Management	A collection of organizational skills in the form of services that allow consumers to trust the organization.
Service	A way to co-create value by promoting results that consumers wish to achieve without trying to handle real costs and risk for customers
Value	The supposed advantages, utility and significance of something
Product	A configuration of the resources of an entity intended to provide a client with value
Organization	a person or group of persons with their own commitments, authorities and relationships to accomplish their goals
Customer	An individual who determines consumer specifications and assumes responsibility for the effects of customer use of services -A person who uses services

Sponsor	A person who authorizes the service consumption budget
Stakeholder	An person with a (vested) interest in the supply of services may include owners, directors, consumers, users, etc.
Output	An activity's real or intangible activity
Effect	A result enabled by one or more operations from a stakeholder OR a result allowed by one or more outputs for a stakeholder
Utility	Functionality provided by a product or service to satisfy a specific need. This is more easily understood as "what does the service do
Warranty	Ensuring that a product or service meets agreed requirements This is more easily understood as "how the service works
Service Offering	A structured overview of one or more programs intended to satisfy the expectations of a target community of customers. Goods, access to services and business operations can be part of a service offering
Service Relationship	Cooperation between a supplier of services and a customer of services. Service relationships include service delivery, utilization of resources and maintenance of service relationships.
Service Consumer	An organization's role in a customer relationship
Service Provider	A work conducted in a service partnership by a company to provide customers with services in the procurement of services
Service Relationship Management	Collaborative efforts carried out between a service supplier and a service user to ensure continuous co-creation of value based on negotiated service offerings available

Cost	the amount of money wasted on a given task or resource
Risk	A potential incident that may inflict injury or failure or make completing targets more difficult. Risk can also be characterized as outcome uncertainty which can be used in the calculation of the likelihood of both positive and negative outcomes.

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