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Section Contact**Engr Tunde Salihu
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oo.com](mailto:tunde_salihu@yahoo.com)Tel: 234-
8033246068.**THE EFFECT OF PRE-PAID (DIGITAL) BILLING METERS ON ELECTRIC POWER MANAGEMENT IN HOMES**

In Nigeria presently, the electrical power generated is not enough to meet the required demand. But if properly managed, will reduce wastages and help to alleviate the shortages experienced in domestic use especially in residential areas. In this article, I will focus on residential areas in Nigeria. Before the introduction and usage of the pre-paid (digital) electric billing meter, PHCN (Power Holding Company of Nigeria) was using the analog electric billing meters and fixed billing systems.

In the analog meter billing system, the meter records the amount of power consumed. Unfortunately, PHCN workers have not been consistently taking monthly meter readings. Consequently, some consumers do not get bills on time while some consumers get unrealistic estimated bills they find difficult to pay. Another group of consumers without meters get monthly fixed bills without regard to how many hours of power they received in the month.

Due to lack of customer satisfaction as a result of PHCN shortcomings, some frustrated consumers resort to illegal connections to get power. Some put on their electrical appliances once there is power even when they will not be used. This was done in order to compensate for high billing rates and irregular supply. Some leave their security lights on during the day. Few don't even bother to switch off their appliances when there is power failure.

When power is restored and they are not at home, these appliances are on throughout the day wasting useful power that could have been properly utilized elsewhere.

With the advent of the pre-paid (digital) electric billing meter, these wastages are being minimized. Firstly, the consumer no longer feel cheated as they pay for only the power they have consumed hence they pay bills regularly. They don't necessarily have to pay at month end since it's pre-paid. Since the consumer now determines the amount he spends on electric bills as a result of the amount of power consumed, he is now cautious of wastage and so tries to manage the little power his money can afford. Those who are naturally forgetful, make cautious effort to turn off their appliances before leaving their home as they pay dearly for their forgetfulness. Secondly, there are fewer cases of transformers developing fault as a result of illegal connection. Finally, landlords and tenants no longer quarrel over bills as each has their separate pre-paid meter.

Presently, not all residential houses have the pre-paid meters. I believe if they all have it installed, it will create the cautiousness to effectively manage electric power in the home and in the nation.

**BRAVO TO PHCN FOR THE INTRODUCTION OF THE
PRE-PAID METER!!**

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A Primer on Distributed Computing

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The exponential growth of nodes in computer networks from the days of ARPANET to the modern-day Internet has led to the emergence of a decentralized architecture for computing systems. This means that different network resources are now spread (often unevenly) across networks. In addition, there is also the need to evaluate and analyze large amounts of data and deliver precise results real-time. These demands led to the development of an area of computing known as **distributed computing**.

Distributed computing systems are large computer networks with unique data sharing capabilities that cooperatively solve large computing problems and in special circumstances, perform multiple related tasks in parallel. All the nodes in a distributed system possess individual microprocessors (and sometimes separate memories) but implement distinctive software protocols through applications that give the impression that their coordinated operations were running on a single computer system.

The rationale behind distributed systems could be summarized under the following:

1) Harness the power of linking computing systems together. The synergy that results from this produces a High Performance Computing (HPC) platform that reduces the basic com-

puter cycle time used in solving large problems
2) Data integrity and reliability is ensured by replication. By virtue of being linked, data is shared and copied while critical information is retrieved in essence accelerating the computing process

3) Exploit underutilized computing capacity. Idle computer resources can be employed in the data-intensive IT environment

As the data processing needs of business and scientific communities increase collaborated computing and data interactions (which involve distributed resources) will continue to be the major computing solutions employed in problem-solving domains. However, with distributed computing comes the issue of data security across the enterprise, platform interoperability and Quality of Service (QoS) tradeoffs. Presently, research groups and organizations worldwide are working around the clock to ensure that these matters and many more are not compromised.

More information on distributed computing could be obtained from IEEE Distributed Systems Online at <http://dsonline.computer.org>

KISS ME AND THE 3T'S: SECRETS OF MAKING SUCCESSFUL PRESENTATIONS

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1.0 INTRODUCTION

Some time ago, people read their papers at conferences, lecturers at the universities read their notes or copied it on the blackboard. Today, the state-of-art involves presenting the points/notes with a computer and multimedia projector. Presenting is an essential skill we all need: students, managers, job applicants, engineers, computer scientists, etc. Presentations are required when we are making proposals to management, selling new products, presenting papers at conferences/seminars, attending job interviews or defending projects at undergraduate and postgraduate levels. Making presentations is a special two way communication process. Making a successful presentation in order to achieve our targets and objectives depends on how we prepare and how we deliver the presentation on the D-day.

2.0 PREPARING THE PRESENTATION SLIDES

What to say? What to put on the slides? Here are some important factors to consider before preparing the slides.

Time – Most presentations are timed so you must find out how long you will be allowed to make the presentation. If you are to talk for 20 minutes, you should not have more than 20 slides.

Audience - Knowing the background of your audience whether they engineers, scientists, politicians, businessmen or students helps a lot. However, whatever concept or topic you will speak on should be explained as simple as possible.

KISS ME – Keep It Simple, Stupid and Memorable.

Here is a very useful acronym- KISS ME – Keep It Simple, Stupid and Memorable. According to the great scientist- Albert Einstein, there is no idea or concept that that cannot be explained in such a way that it will not be understood by an intelligent 12 year old. In other words, you must make your presentation simple enough to be understood by the target audience. This will ensure acceptance and lessen the difficult questions you may get.

The 3 T's- Presentation must be logical

A Presentation that is logical and flows like a story; will easily be understood by the audience. The best logical sequence is what I call the 3 T's:

Tell them what you are going to tell them - This is the Introduction, which must contain outline, purpose/ objectives and background.

Tell them – Detailed description of the subject matter.

Tell them what you told them- Summary, Conclusions and Recommendations.

Once the presentation slides are logical, delivery will be easier and the message will be communicated clearly to the audience. An unclear story makes audience lose confidence in the speaker.

PowerPoint slides - Keeping it Memorable

Microsoft PowerPoint has become a standard for making presentations. One of the advantages of Multimedia presentations is that people hear, see and understand more. Microsoft PowerPoint has presentation templates for various purposes. Whatever type of presentation, the first slide is for the title and presenter(s)' name(s), the second slide needs to show the Outline (i.e. bullet points of what will be covered). Usually the first bullet point in the Outline slide is the Introduction. The rest of the slides will detail the subject matter, while the last one or two slides give the conclusions and recommendations.

General advice on preparing slides

Be conservative with words and generous with diagrams (graphs, charts & photos). Ideally, do not put more than five bullets on a slide. Diagrams/photos/charts facilitate explanation/understanding and make presentation memorable. They also communicate more information faster because humans remember photos more than words (a picture is worth a thousand words).

3.0 AFTER PREPARATION OF SLIDES

You must practice with time, Try to practice with a friend. Practicing your presentation makes you intimately familiar with the subject, order of presentation and choice of words. When you know your stuff it gives you self-confidence and boosts your ego.

4.0 ON THE PRESENTATION DAY

Formal dressing – You must be smartly dressed on that day. This is important, often, young people tend to neglect dressing.

Speaking – It's Not What You Say, It's the Way that You Say It. Your body language is very important. The audience could gauge your confidence level from your body gestures. Often during interview assessments, panelists score according to the following: Visual - 55% (body language), Vocal - 38% (tone of voice), Verbal - 7% (words).

You must avoid reading your presentation. Although, few of us are born orators, you can still make a very good presentation to get your dream job, get management buy-in for new projects, etc, by careful preparation.

Enthusiasm

You need to choose your first sentences carefully and show enthusiasm and excitement while you speak. Enthusiasm is contagious; it is hard not to enjoy a presentation by an enthusiastic speaker. You must not take any presentation for granted. Endeavor to make it lively, informative and interesting.

...continued on page 3

KISS ME AND THE 3T'S: SECRETS OF MAKING SUCCESSFUL PRESENTATIONS *continued from page 2***Importance of eye contact**

Communication is more effective when there is eye contact. It is like tuning a radio to the correct frequency channel. It is the presenter who should start and maintain dynamic eye contact with the whole of the audience. This how it works in a hall: when the presenter makes eye contact with one person near the front of the audience, at least five or six people in front rows are likely to think that he is looking at them. They in turn will be motivated to listen. When the presenter turns his gaze towards the back of the audience, many more people are likely to believe that the presenter is looking at them because our field of vision appears to 'fan out' as it gets farther away. Thus, you gain the attention of many in the audience. Another advantage of maintaining eye contact with the audience is that it gives you immediate feedback if you are communicating.

Anxiety and Nervousness – Speaking in front of a group is number one fear of many people. Everybody gets nervous. Fear, nervousness and anxiety come from the same source as all other emotions. They all have advantages and disadvantages. Many actors have come to recognize the feeling of stage fright as a positive energizing feeling that gears them up for a performance. Some describe it as a battery charging feeling that makes them alert. Once they start speaking or performing the nervousness gradually disappears.

Answering Questions – You must listen carefully before answering questions. Avoid aggression. Do not engage in arguments with the panelists but be firm when you are sure of the point you are making. If you are hot-tempered you must hide it at that moment.

5.0 CONCLUSION

In order to make a successful presentation you may need to observe the following:

- ◆ Remember to make your talk simple and understandable to even 12 year olds.
- ◆ While preparing your talk, remember time and the 3 T's (Tell **them** what you are going to tell them, **Tell them** then **Tell them** what you have told them).
- ◆ You must **rehearse** your presentation before the D-day.
- ◆ You must dress smartly on the D-day.
- ◆ While delivering your talk you must maintain eye contact with the audience, radiate confidence, enthusiasm and excitement.
- ◆ Regard the audience as your friends and always be ready to welcome questions.
- ◆ Do not worry about nerves they will calm down once you start talking.
- ◆ Conclusion is very important, always aim to finish a presentation (no matter what the subject) on a positive note. The audience/panelists will always remember the introduction and conclusion.

BENEFITS CORNER

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HOW ARTIFICIAL NEURAL NETWORKS WORK.

INTRODUCTION

An Artificial Neural Network (ANN) is a hardware or software model of biological neurons and provides a framework for circuits that could perform computational tasks. It is an information processing system based on a large number of simple processing elements known as neurons.

FUNDAMENTALS

ANNs act on data by looking for some salient statistical features. In an ANN, you put in what you know and train it to tell you what you want i.e. It can infer relationships that its developer did not originally have in mind. ANNs can recognize relationships that are spatial or temporal. The process of developing an ANN is different from software development because the network is trained and not programmed.

An ANN has processing units called neurons whose output signal is computed from adjusted input received from neighbouring neurons or external sources. ANNs follow a parallel architecture because several units may do their computations simultaneously.

NETWORK TOPOLOGIES

These are the ways in which the pattern of connections between the units and the data propagation are modeled. They are fundamentally two types of topologies:

Feed-forward Networks: The data flow from input to output is strictly in the forward direction. There is no feedback connection.

Recurrent Networks: These contain feedback connections which eventually make the network evolve to a stable state.

TRAINING

This is the process of configuring the network so that a set of input produces the desired set of outputs by combining programming, signal processing and statistical techniques. We have:

Supervised Learning: in which the network is trained by providing it with input and matching output data.

Unsupervised Learning: in which the network infers solutions from data without prior knowledge of the underlying patterns of the data.

APPLICATIONS

ANNs can be used in three major ways:

As Intelligent Simulation systems: e.g. Weather Simulation, Computational Fluid Dynamics.

Real-Time Adaptation Processors: As seen in Autonomous Robots, Industrial Process Control (which usually have complex rules or noisy historical data).

Data Analysis Systems: which include Optical Character Recognition and Facial Recognition Systems.

IMPLEMENTATION

ANNs can be implemented by

Software Simulation: i.e. which can run on different host machines

[Hardware] Emulation: implemented on general purpose multi-processor machines

Hardware Implementation: using neuro-chips specifically designed to run neural networks.

CONCLUSION

Artificial Neural Networks are used widely to solve computations involving complex non-linear systems and find patterns in data which would be impossible to describe mathematically.

They have been very successful for approximation, extrapolation, interpolation and time-prediction problems.

ANNs are discussed fully in the **IEEE** in the *Computational Intelligence Society*.

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Quote for the Quarter

"Though thy beginning was small, yet thy later end would greatly increase." Job 8:7.

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