

Preventative Maintenance

Problems, Symptoms & Prevention

ICTSAS308

Contents

- Define **Problems** and **Symptoms**
- Explore how problems and symptoms relate
- Examine the **impacts on organisations**
- Identify and select **testing and preventative maintenance** techniques



What's the problem?

- A **problem** applies to a *question, issue or difficulty*
- It **prompts a solution** and/or **causes concern**
- It may be a **deviation** from normal functioning
- It may be something **desired** but not obtained
- Usually involves **pain** of some type
 - physical, psychological, financial
- Requires **effort** to correct, restore or remove

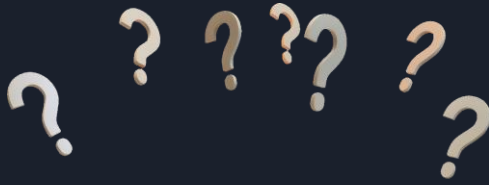


Why do problems exist?

- A question pondered by *philosophers for generations*
- Problems may arise due to an **individual's** or **organisation's**:
 - Apathy
 - Ignorance
 - Greed
- Can sometimes arise from pure **randomness**
- *There's no escaping* problems in your work & life



How we benefit from problems



- Problems are **the reason why** we develop great, innovative solutions
 - “Necessity is the mother of invention”
- Problems give birth to **change**
- They’re the primary reason for **growth**
 - So embrace the challenge!

Effects on organisations

- Problems usually create **financial pain** for organisations
 - So there's motivation to **minimise their effects**
- Better still, organisations can introduce techniques to **mitigate and prevent** problems
 - Thus saving the organisation *time & money*

Problems that can affect an organisation

- **Computer Infections** can crash a hard drive and/or bring down the office network
- **Compromised passwords** may allow infiltrators to access protected information
- **Phishing Scams** are attempts by scammers to trick you into giving out your personal/organizational information such as your bank account numbers, passwords and credit card numbers

Minimising the effects of a problem

- Organisations **introduce policies & procedures** to routinely maintain systems
 - Problems can be **detected early** and rectified ASAP
 - *Avoid cascading problems* which increase overall severity
 - Thus saving the organisation *time & money*
- Maintenance does **cost time & money**
- But the overall ROI is **worth the investment**



How do we detect problems

- We often cannot directly *'detect a problem'*
 - Cannot sense your cold virus directly
- But we **can sense & measure the symptoms**
 - Measure your temperature
 - Examine your throat
 - Check your ears & nose

So what are Symptoms?

- A **symptom** is a *discernible indication* of what's **not itself directly perceptible** (i.e. the problem/cause)
- A **problem** may cause one or more **symptoms**
- We can **sense & measure** the symptoms

How can we deduce the problem

- First we **sense/measure** any **symptoms**
 - Symptoms may be *subtle*
 - Possibly during routine *preventative maintenance*
 - Symptoms may be *severe/obvious*
 - If not *detected early*
- *Analyse the* **symptoms** to *deduce the* **problem**
 - Analysis often requires *sufficient experience* and qualifications to make the correct deductions
 - Sometimes performed autonomously using software

Example (Common Cold)

- **The Problem:**
 - A **common cold virus** has overloaded **your immune system** making *you feel unwell*
- **Symptoms** (what we, and our doctor, sense & measure):
 - Sore throat, cough
 - Runny or stuffy nose, sneezing
 - Congestion, headaches
- **Preventative techniques:**
 - **Eat healthy**, following recommended daily vitamins/minerals
 - **Limit stress** and get recommended hours of **sleep**
 - **Wash** your hands, keep surfaces **clean**
 - **Avoid sick people**

Example (ISP Lighting Strike)

- **The Problem:**

- Our Internet Service Provider (ISP) **computer servers** are **hit by lightning** & *not working*

- **Symptoms** (what we sense & measure):

- Our Web Browser **fails to access any webpage**
- Using the **ping, route** and/or **other networking** diagnostic tools fail

- **Preventative techniques:**

- Hard to prevent a random “Act of God”, but we can mitigate it’s effects
- Use **redundant (secondary) servers** at a different physical location
- Maintain **backup generators** in case primary power drops out

Summary

- *Defined* Problems and Symptoms
- *Examined* how Problems and Symptoms differ
- *Examined* the impacts on Organisations
- *Explored* testing and preventative maintenance techniques

References

- Merriam-Webster. Problem | Definition. 2019. [ONLINE] Available at: <https://www.merriam-webster.com/dictionary/problem>. [Accessed 13 June 2019].
- Merriam-Webster. Symptom | Definition. 2019. [ONLINE] Available at: <https://www.merriam-webster.com/dictionary/symptom>. [Accessed 13 June 2019].

Further Reading

- Preventive Maintenance Tips. 2019. Preventive Maintenance ROI. [ONLINE] Available at: <http://preventivemaintenancetips.com/preventive-maintenance-roi>. [Accessed 13 June 2019].