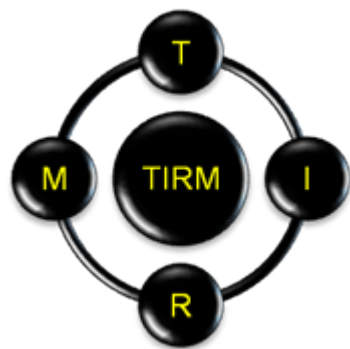


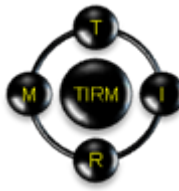


# Managing your information risks with the TIRM process



**Setting priorities for information quality  
improvements**

Alexander Borek, Dipl.-Inform.Wirt  
Doctoral Researcher  
**Doctoral Supervisor: Dr. Ajith Parlikad**



# Executive Summary

- The aim of the TIRM process is **to identify and quantify the risks that arise due to poor information quality that impact the management of physical assets** (e.g. production equipment, facilities, other important physical assets in utilities, transport, energy, and manufacturing), and **to propose and evaluate potential solutions.**
- The results can help organisations to **understand which information risks should be taken seriously and how they can be mitigated.**

1

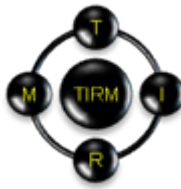


*"I think that the challenge becomes bigger when you work with large ERP systems, because people cannot see the wood from the trees, so sometimes they got lost in the depth of data."*

**Head of IT Operations of Global Top 5 Pharmaceutical Company**

# INTRODUCTION

# The TIRM Process is Relevant Across All Asset-Intensive Industries



## Transport

Public Transport  
Aerospace  
Logistics

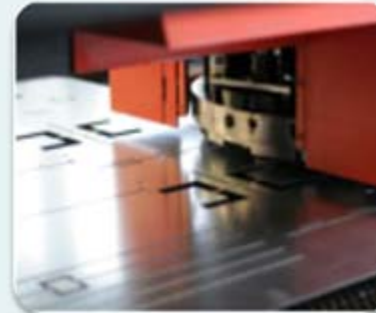
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## Energy

Coal Plants  
Nuclear Plants  
Water Power  
Solar Power  
Wind Power

...



## Manufacturing

Pharmaceutical  
Automotive  
Steel  
Semiconductor  
Machine Construction

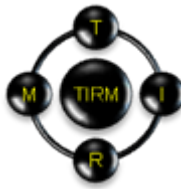
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## Utility

Water  
Electric  
Oil & Gas

...

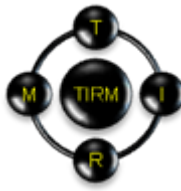


# Information Quality – A Challenge in Asset-Intensive Industries

- **Constant pressure to reduce the operating costs and optimise the utilisation of physical assets**
- **The effective use of asset information is a key success factor**
- **Studies in asset-intensive industries have shown that 75% of data users are not confident about the quality of their information<sup>1</sup>**
- **80 % of asset managers believe that information quality is very important or even critical to their business<sup>1</sup>**



# The Problem: How to Manage Risks That Arise From Poor Information Quality?



Information quality has a big impact on asset management in all asset-intensive industries.

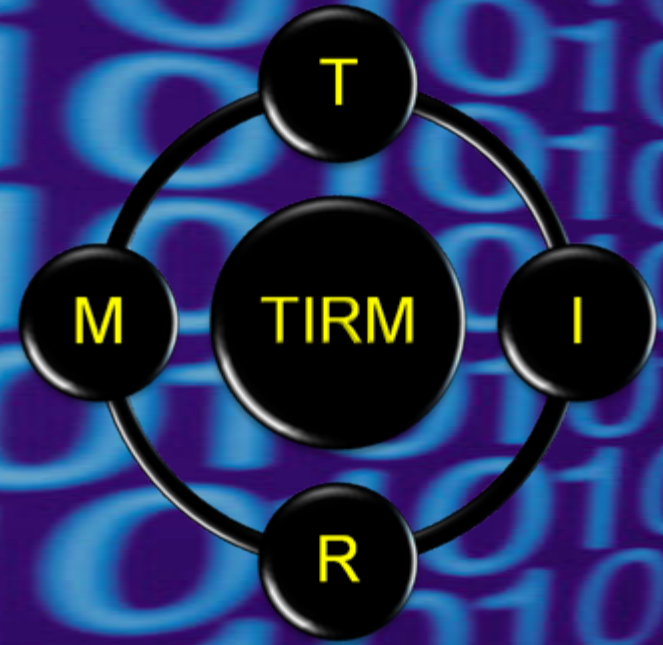
There are many ways to improve information quality.



**Asset management organisations, however, have troubles to identify, measure, and mitigate information risks effectively that threaten their organisational success.**

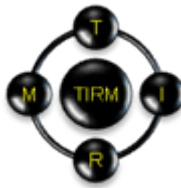


2



# A PROCESS FOR TOTAL INFORMATION RISK MANAGEMENT (TIRM)

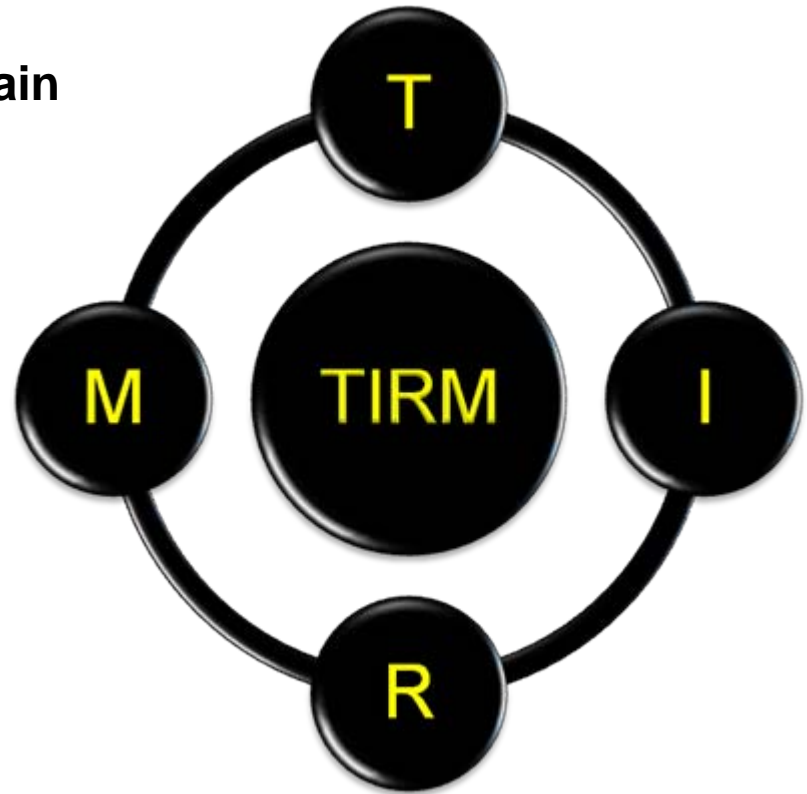
# The Total Information Risk Management (TIRM) process

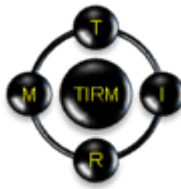


The TIRM process helps to identify the “pain points” regarding information quality.

It consists of four major process steps:

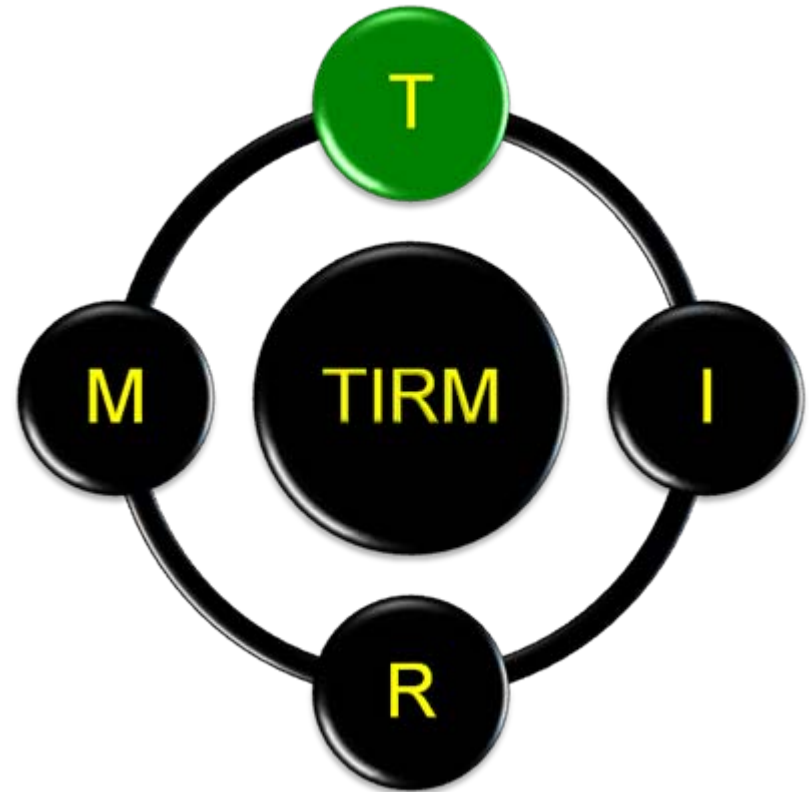
- Task analysis
- Information product quality analysis
- Risk identification and measurement
- Mitigation and management





# The TIRM Process Step 1: Task Analysis

- The first process step, “**task analysis**”, identifies major task areas (and tasks) on different organisational layers in a defined scope
  - e.g. asset management on a particular site
- and the people involved in these task areas



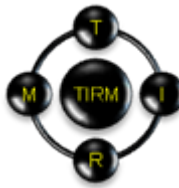
## ***Case Study Example:***

**Task area:** “purchasing of spare parts and consumables”

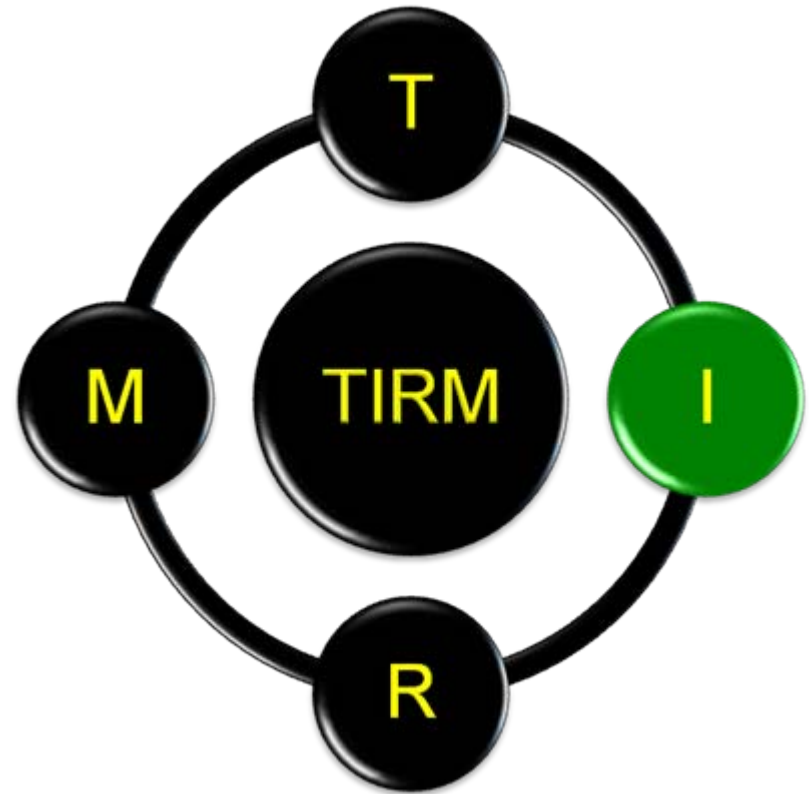
**Tasks:** finding better suppliers, get better conditions from current suppliers

**Actors:** maintenance, purchasing departm.

# The TIRM Process Step 2: Information Product Analysis



- Investigates **which information is used for these tasks**,
  - how this information is **accessed** and how it is **produced**.
- This will help in finding the root causes of potential problems.
- The **quality of information is evaluated** along several important dimensions,
    - i.e. relevance, frequency of use, completeness, accuracy, understandability and visualisation, and accessibility.

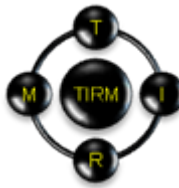


## ***Case Study Example:***

### **Consumption data**

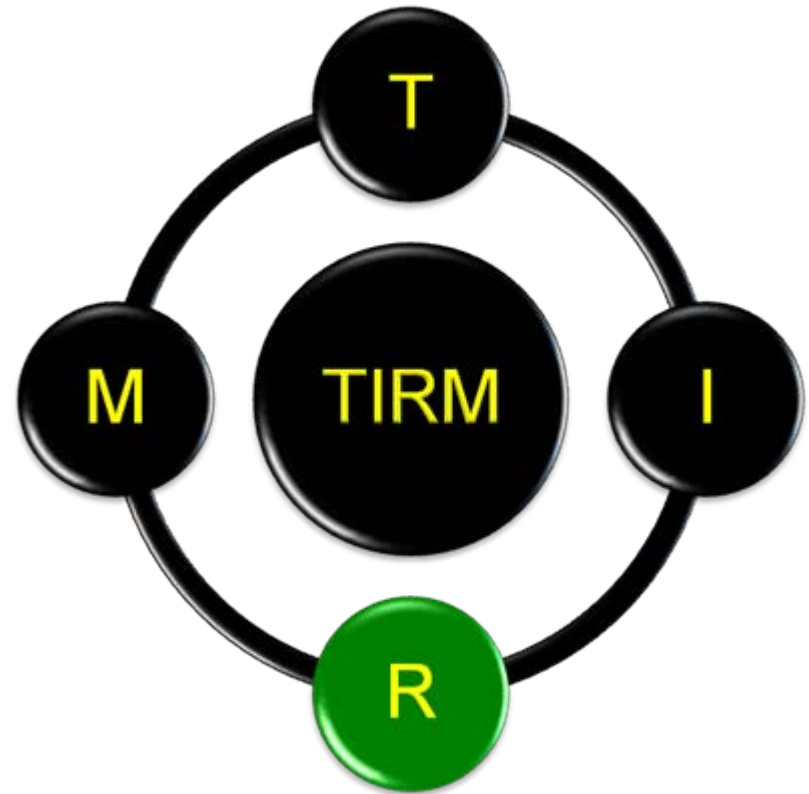
accessed via spreadsheet created by SAP-PM, entered by local maintenance

**Quality:** very important, always used, *sometimes difficult to access and incorrect, often difficult to understand and incomplete*



# The TIRM Process Step 3: Risk Identification and Measurement

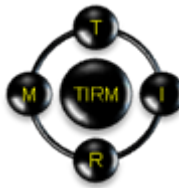
- Examines **what risks arise from poor quality of information** for the organisation
- The **risk is weighed** according to its probability and impact.
- Based on this, an **information risk map** is created, which shows all information risks in the chosen scope at one glance.
- The **significant risks are filtered and quantified** using a risk impact calculation.



### ***Case Study Example:***

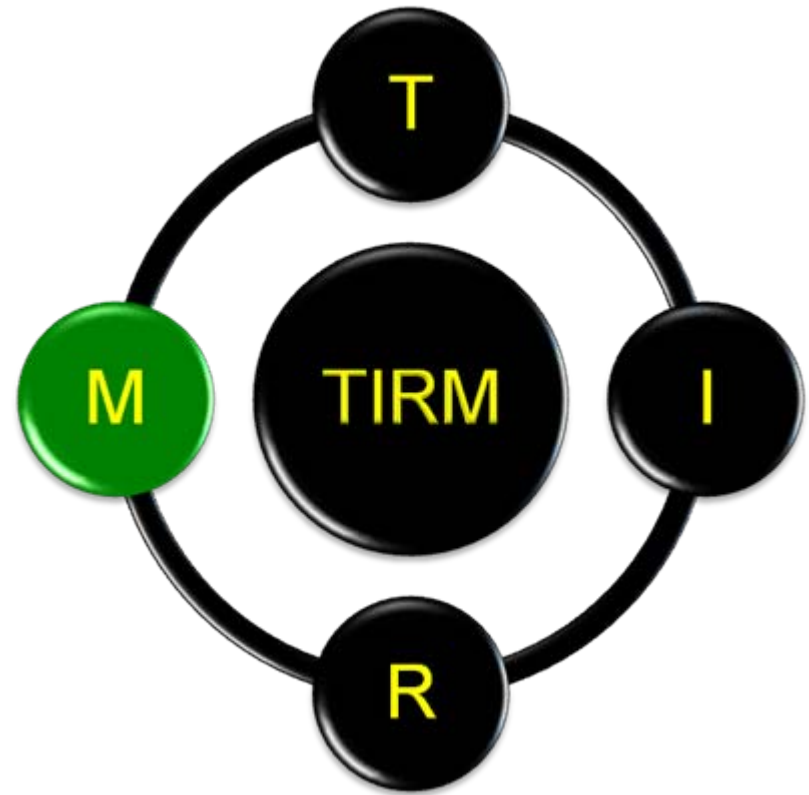
**Information Risk:** High

**Consequence:** leads to wrong decisions, 30-40% higher purchasing prices  
£2.6 million yearly average losses on one production site due to poor information quality



# The TIRM Process Step 4: Mitigation and Management

- In the last process step, “**mitigation and management**”, possible solutions for each significant risk are identified and evaluated financially.
- Based on the costs and benefits, **mitigation solutions can be chosen to be implemented.**
- The implementation needs to be **monitored**
- The **success of the risk mitigation is measured after implementation**

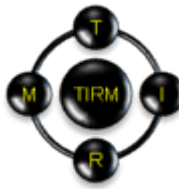


## ***Case Study Example:***

### **Mitigation**

Unify terminology of spare parts and consumables, add fields in data base to enter detailed material characteristics

# A Typical Study Looks Like This



The study starts with an **introductory discussion**, in which the methodology is explained in more detail and further questions can be posed.



If you decide to participate in the study, **the scope for the study is defined depending on your focus of interest**, for example the scope can be limited to a production site, a geographical or functional area, or a group of assets.



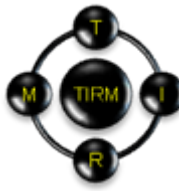
Subsequently, **the study participants are identified together with you**. The participants should altogether represent all important task areas in the defined scope.



**For each participant, a workshop is organised using the TIRM approach**, which each takes approximately 2 ½ hours, with a total of around **two to seven workshops**, depending on the defined scope.



**The results are analyzed by our team** and usually delivered within one or two months.



# Deliverables and Benefits

- The main deliverable is a ***detailed report***, which will include an **information risk map** for the defined scope of your organisation. If wished, the results can be personally presented to the management.
- The ***ultimate benefit*** from this work is to **make information less intangible**, one of your most important resources, and to provide you with a comprehensive **understanding about the “pain points”** in your company regarding information quality.
- The TIRM process has been **successfully applied in the industry**.



**Please contact me for any further questions:**

**Alexander Borek**

Institute for Manufacturing  
17 Charles Babbage Road  
Cambridge CB3 0FS  
United Kingdom.

Office: +44 (0)122337 65607

Mobile: +44 (0)7909 424442

Email: [ab865@cam.ac.uk](mailto:ab865@cam.ac.uk)

Web: [www.ifm.eng.cam.ac.uk/dial](http://www.ifm.eng.cam.ac.uk/dial)

**Thank you for your kind attention.**