



Seeing the unseen: A blemish that revolts urbanities

SUBSURFACE ASSET MANAGEMENT & SURVEYING 2019
INTERNATIONAL CONFERENCE ISTANA HOTEL,
KUALA LUMPUR 25 - 26 MARCH 2019



The Institute for Infrastructure Asset Management, Malaysia, . ASIA

www.iiam.org.my

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Regional Director of Asia & President Malaysian Chapter.

Overview of IIAM Asia

- The Institute for Infrastructure Asset Management (IIAM) were established in 2013 as a non-profit professional body and committed to advancing asset management knowledge and competency.
- IIAM Services
 - ❖ - Professional Education of Asset Management
 - ❖ - Certification
 - ❖ - Membership
 - ❖- Short Technical Courses
 - ❖- Infra assets Conference, Events, Seminars and Forums
 - ❖- IIAM Best practices Awards
 - ❖- Students Scholarships
 - ❖- Infrastructure Report Cards
 - ❖- Consultancy, Research and Developments
 - ❖- Infrastructure Asset Journal

Seeing the unseen: A blemish that revolts urbanities

- This paper explains the *fundamental errors that spawned multi-million ringgit cost increases and loss of income in the progress of Infrastructure Developments*. Whereas its been a wakeup call for many urbanities facing utility services disasters in everyday of socials, economy and environment lifecycles and activities.
- Seeing the unseen: the concept of mastery of work and its importance, and the most important designating and locating of the existence of subsurface majorly ignored and repugnant its professional ethics
- Infrastructure Development is not only is the progress of architectural but also on the ability of surveyor productions, its highly depends on the quality of the surveying perfection work leads to build a strong result orientated with accuracy of survey & investigations, data of existence and information modeling and sharing.

Content of sharing

- ❖ Vision of Stakeholder's
- ❖ Urbanities wakeup call
- ❖ Utilitarian's – The wiser of 21st century
- ❖ Thoughts of Governance
- ❖ Uninvited Survey Horologist
- ❖ Inculcation the Quality of ITQAN
- ❖ Moving Forwards

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**VISION OF
STAKEHOLDERS**

**DEBILITATING
CITIES**

Vision of Stakeholders

- Cities Stake holders are define as :-

- Populace
- Local Authority
- Utilities Asset Owners
- Utilities Operators
- City Developer
- Infrastructure Professionals
- State own enterprises
- State Government
- Regulatory Bodies



The Visions of Underground Assets



Managed Underground Assets



Seeing The Unseen

Seeing The Unseen



JOHOR BAHRU - Syarikat Air Johor (SAJ) Ranhill Sdn Bhd mengesahkan berlakunya kebocoran paip utama yang mengakibatkan limpahan air di Lebuhraya Pasir Gudang

Source: <https://www.karangkraf.com>



Syarikat Air Terengganu (SATU) 70,000 penduduk di sekitar Losong, Pulau Musang, Durian Burung, Paloh, Kuala Bekah dan Pulau Rusa terjejas akibat saluran paip pecah semasa korekan

Seeing The Unseen



KUALA LUMPUR: Sebahagian daripada struktur terowong bawah tanah seliaan Dewan Bandaraya Kuala Lumpur (DBKL) di simpang empat Jalan Imbi, runtuh

Picture Source: <https://www.ohmedia.my>



GEORGE TOWN: Industri pelancongan di negeri ini sekali lagi dilanda pencemaran pantai. Tanjung Bungah dari paip pembetungan telah mencemari pantai.

The Institute Infrastructure Asset Management 2019 @ cr.
Source: Sinarharian.com.my



Seri Kembangan , tanah runtuh di Jalan 1A/2, Taman Lestari Perdana, “Hasil pemerhatian awal, kami syaki kejadian berpunca daripada ‘hydrostatic pressure’ yang menjadi punca tanah menggelongsor, mungkin terdapat aliran air namun belum dapat dipastikan sama ada ia dari paip utiliti atau penyambungan bekalan dilakukan secara haram.

Seeing The Unseen



Berlaku kelewatan kerja-kerja membaikpulih paip pembetungan yang rosak di Jalan Dato' Ismail Hashim Sg.Ara, PENANG

Source: mknaceunlimited.blogspot



kerja-kerja membaikpulih Kabel voltan tinggi yang rosak di Jalan Wawasan , Ampang SELANGOR

The Institute Infrastructure Asset Management 2019 @ cr



Slim River: Kebocoran paip air dan hujan lebat dipercayai menjadi punca sebahagian Jalan Kuala Slim di Batu 4 di sini runtuh dan terpaksa ditutup kepada lalu-lintas

Source: <http://hstp.com.my/>

Debilitating Cities



The Challenges of Subsurface Asset



What are we embracing ?

- ☐ Bad asset management practices
- ☐ Lack of knowledge of asset management
- ☐ Responsibleness and Coordination's
- ☐ Governance and Policies
- ☐ Cost and Technology
- ☐ Level of services
- ☐ Vision and Mission of Cities / Local Governments
- ☐ Stakeholders perceptions

Embracing?

Or

Embarrassing?



URBANITIES

WAKEUP CALL



The Urbanities Assets

Classified as : Above ground utilities
Below ground utilities

Most nightmares and disasters happens
To the existing below ground /
subsurface assets

The modern cities unable to cope with rapid
Migration's demands on the fundamental
needs of these utilities

The existing ROW are being subjected to many
unwarranted guidelines and governance.

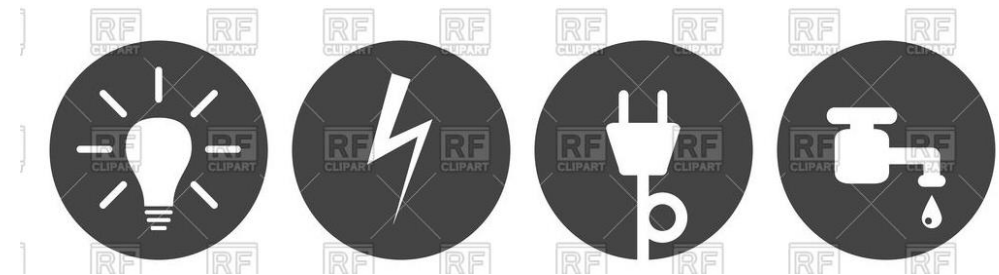


Why Subsurface Assets Fails ?

- No Surveying information modelling / BIM
- Fail to implement / apply Quality in underground Constructions
- Ignorance of supervisions
- Bad workmanship
- Unguided Right of ways
- No common sharing platform
- Design errors
- Materials

Reasons for Subsurface Assets Failures.

- Fails to apply Technology Transformations
- Quality vs Cost of works
- Professionalism slacking
- Dependable on Foreign workers
- No common sharing platform
- Fails to have Data management sharing
- Unrecognised existence of utilities
- Lack of Skills vs Technology

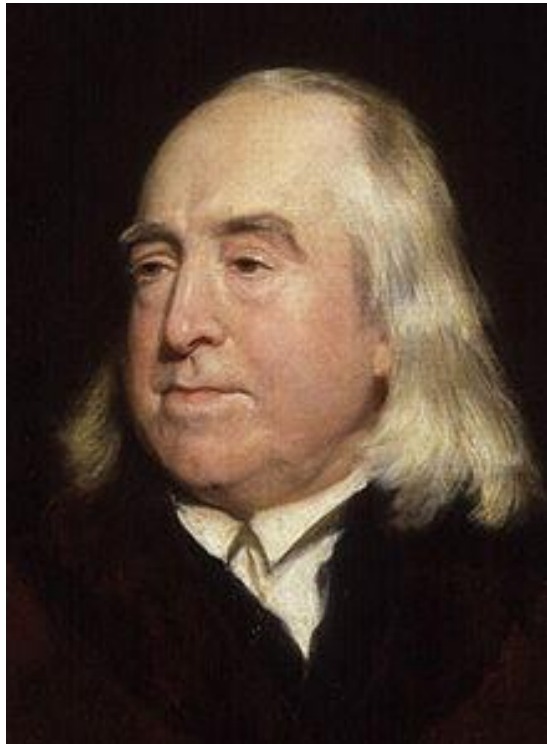




UTILITARIAN'S

THE WISER OF 21ST CENTURY

Utilitarian – Judge Jeremy Bentham 1748-1832



- The word utilitarian was coined by the philosopher and judge Jeremy Bentham, who argued that his principle of utility would create the "greatest happiness for the greatest number of people."

Source : <https://www.iep.utm.edu/bentham/>

Define as :

Moral & Ethical works

- I. To provide greatest happiness to number of people in the society is considered greatest good.
- II. An action is morally right if its consequences lead to happiness (absence of pain), and wrong if it ends in unhappiness (pain).

<http://www.businessdictionary.com>

Physical assets duty

- I. To provide good level of services to the communities is considered greatest good.
- II. Managing these assets morally ethically is right if its consequences lead to happiness and increase of economic values and wrong if it ends in unpleasant professionalism services to all.

Utilitarian's

- All urban and rural underground infrastructures should be designed to be useful / and to provide level of services to populace rather than decorative.
- <https://dictionary.cambridge.org>
- In the 21st century of Rural migrations to Urbans, Stakeholders having a major impacts into providing adequate UTILITY SERVICES.
- Many developing Asian countries are facing this challenges of recognizing the existence of present utilities life lines for the future use and to provide new needs to the growing populace.

THOUGHTS OF GOVERNANCE

POLICIES

GUIDELINES

The Policy Makers

Federal ways

FD Land Surveying

FD Public Works

GOE – CIDB

FD Town Planning

FD Fire & Rescue

SPAN

FD Sewerage Services

FD Drainage and Irrigations

State ways

Local Governments

SD – Corridor , Utility &
Planning Departments

SOE – Utility Operators

GLC Utility Asset Owners

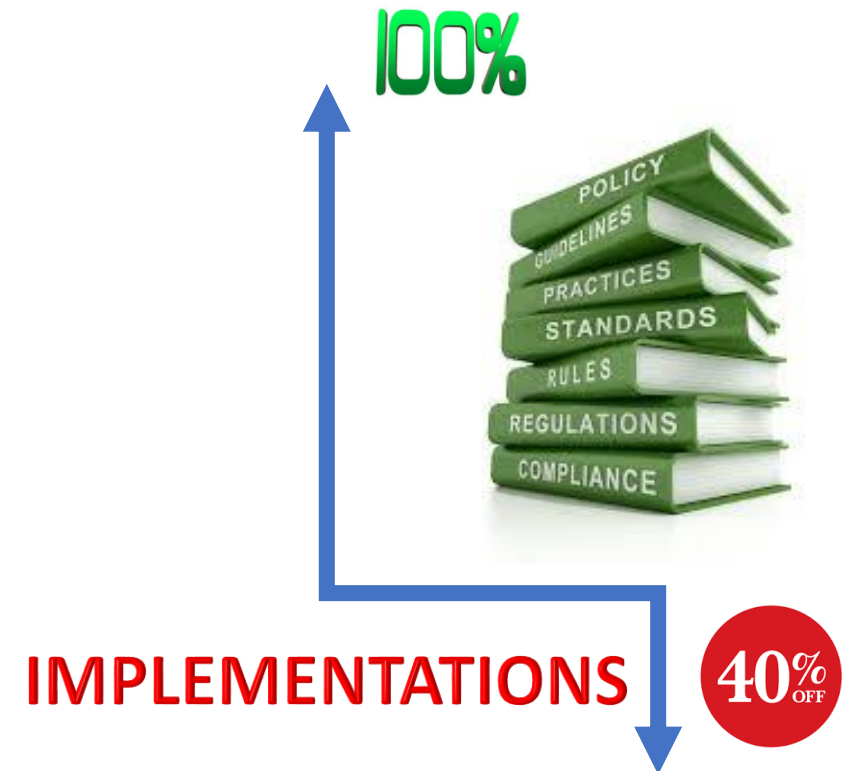
GAS Malaysia

TNB

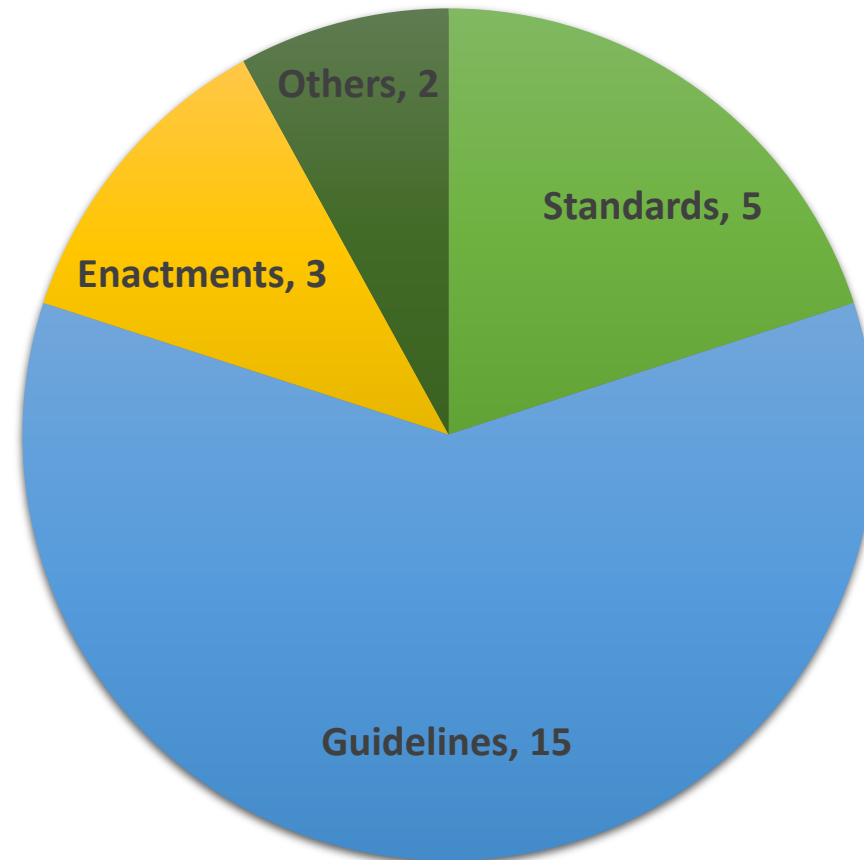
TELEKOM

Telco's

PAAB

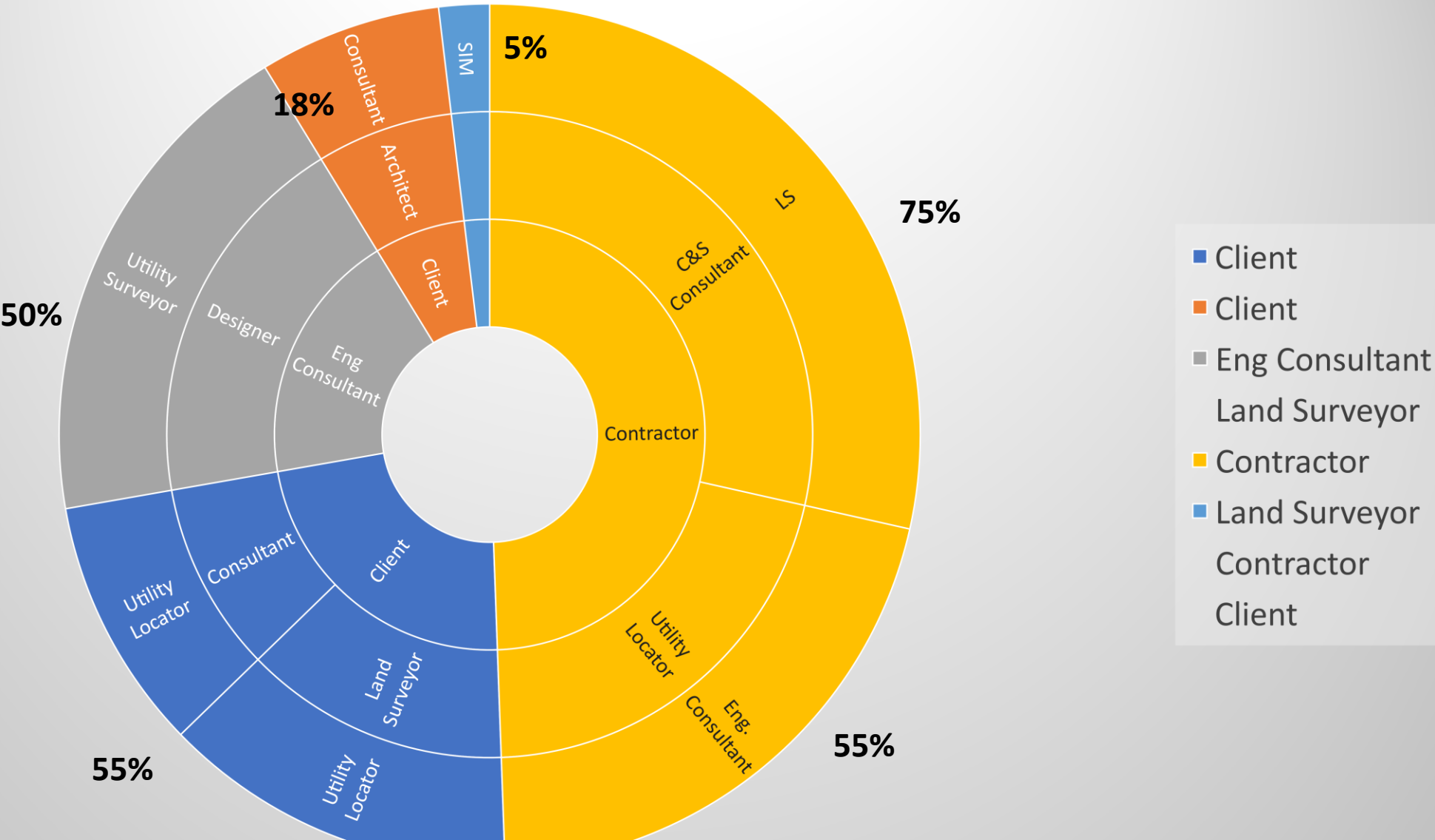


SUBSURFACE UTILITY ASSETS GOVERNANCE



The Biggest Contradicting Architectural of Urban Utility Planning

SUBSURFACE SURVEYING & REPORTING TRENDING 2010-2018



HELLO TO TECHNOLOGY

UNINVITED SURVEY - HOROLOGIST



Land Surveyor's versus Utility Surveyor's

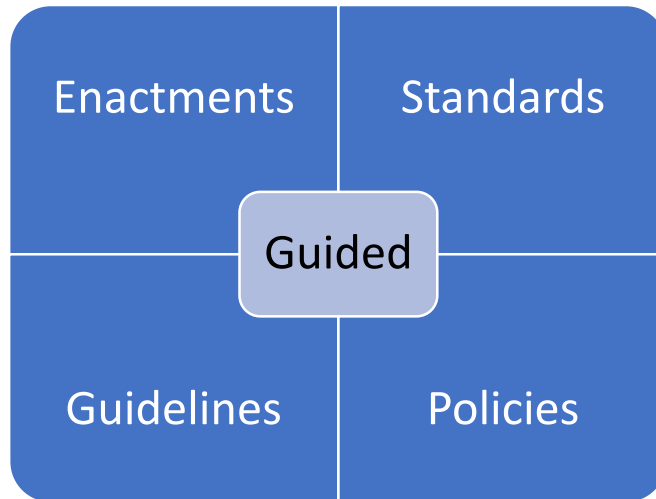


Versus

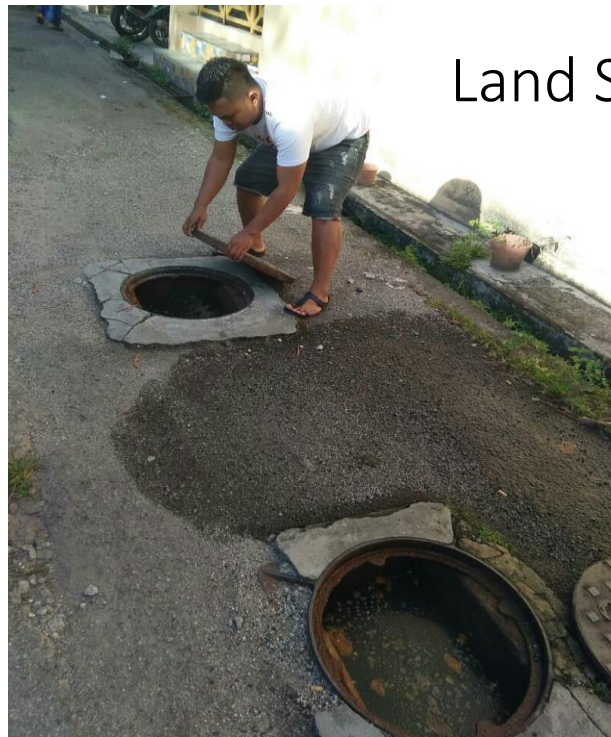


Land Surveyor's versus Utility Surveyor's

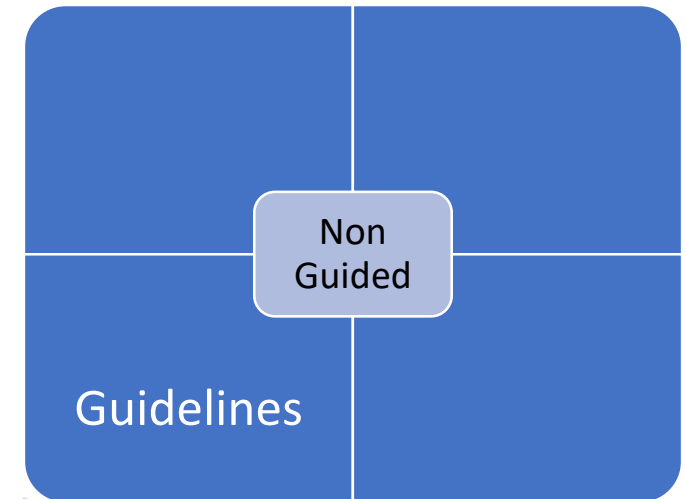
Qualifications Guided



Land Surveyor



None Qualifications & None Guided



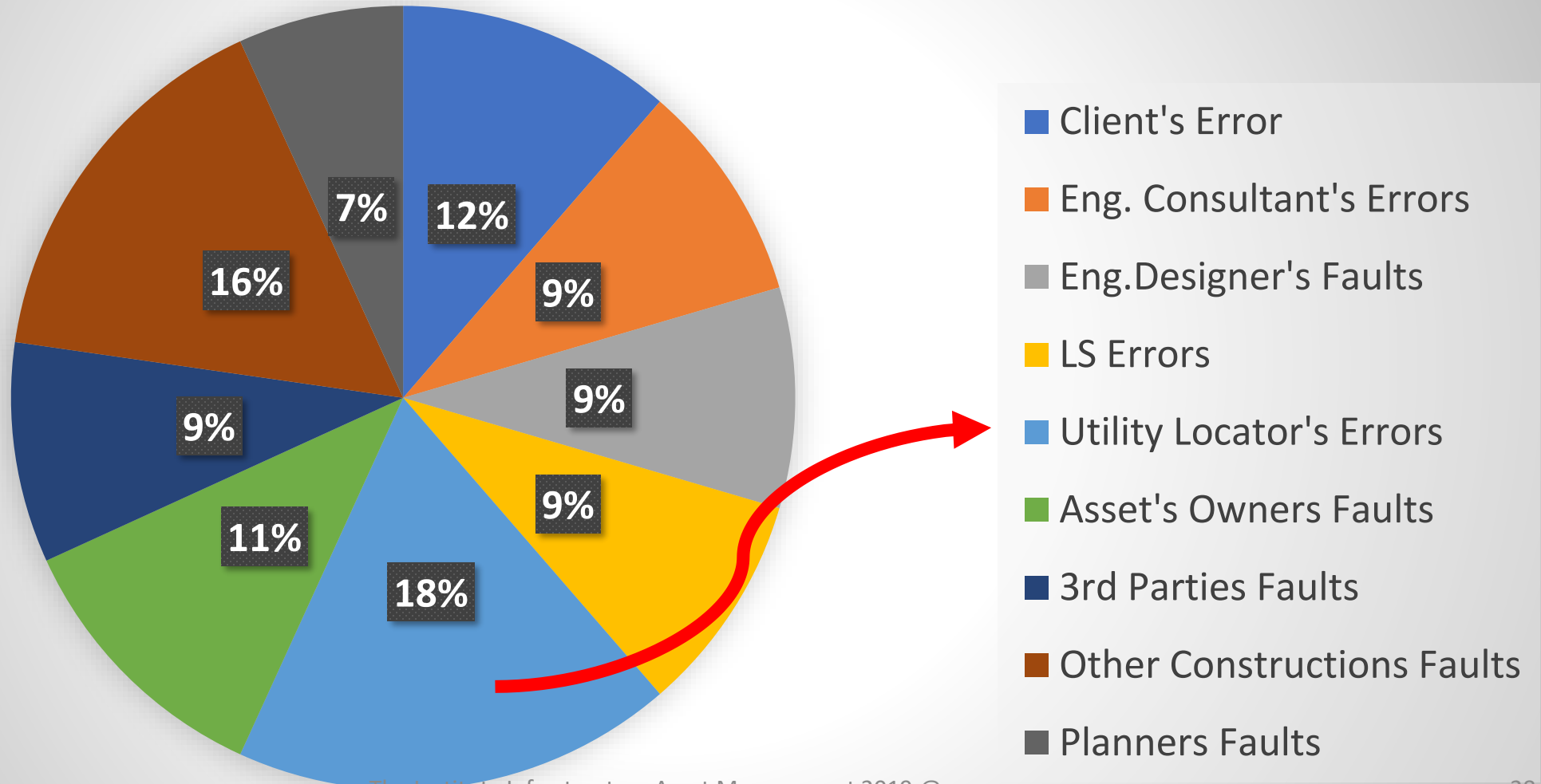
Utility Locator



What's our preferred choice ?

IIAM Research Fact and Findings of 148 Subsurface Utility Disputes from 2006-2017 (Infrastructure & Construction's Projects)

Utility Survey Disputes



Facts of Disputes in Subsurface Asset's **Traceability**

- Does not properly define surveying roles and responsibilities
- Does not properly define the objectives of utility search
- Does not define the Utility Survey Reporting Standards
- Does not define SUE methodology
- Does not apply LS Level of Service and warrants
- Does not requires Level of Accuracy
- Does not creates available ROW space
- Lack of Knowledge and expertise
- Lack of Utility Search Records
- Lack of Information Sharing
- Slack of Utility Locator's Skill and professionalism
- Surveying business processes Vs Fees
- Lack of Surveying Technology



The Ingenuity of Surveying Technology

Arts	=	Wisdom
Science	=	Earth
Engineering	=	Calculations
Technology	=	Tools





The Industry Changes & Evolution

INCULCATING THE QUALITY OF ITQAN



Inculcating The Quality of ITQAN

Professional Ethics which concern one's conduct of behavior and practice when carrying out professional work needs **Itqan**

The word **ITQAN** is an Arabic word which has a close meaning to the English word perfection. Islam as a perfect and comprehensive religion set the bases for quality work. The order of perfections domain the discipline, accuracy, beautiful work, well thought out tasks and justice are all part of quality Islamic work and performance.

❖ Therefor **ITQAN** is a word used to indicate the level of quality works in a **scientific** and **artistic** way in order to obtain the most **perfect results**

Embarking New Industry Standard's in Subsurface Utility Engineering



Perfections Process Model – Applied & Tested in 12 Utility projects from 2016-2019 - IIAM

The Quality model re-energised since 2014 and IIAM undertakes to perform business model test in the wake of Utility Surveying disasters in the past years.

i. 2014 JPP – Applied in Jalan Galloway, Pudu; a Utility designating and re-locating, which were conflicting among 3 stake holders Sewer , TNB and Water.

ii. 2015 JPP – Applied in Jalan Kuantan off Jalan Tun Razak , a Utility designating and locating , which were conflicting among 2 stake holders

Sewer and TNB

Continues...

iii. 2015/16 JPP– Applied in Jalan Raja Chulan off Jalan Pudu , a Utility designating and locating works which were facing multi conflicting among stake holders

Develop the first 2D SUE zero defect CAD drawings with 3D CAD propose new PATH WAYS in the dense and congested underground space. To lay new 250mm DI Force Main 400meters with Zero Defects in utility accidents and without increasing in Construction Cost with Zero Disputes.

iv. 2016 PNB – Applied in Jalan Syed Putra, A 4 years long due disputes in surveying traceability able to resolved in 5 months with the support of High 3D BHGPR Technology. – Able to develop a 100% Accurate Traceability with SUEng.

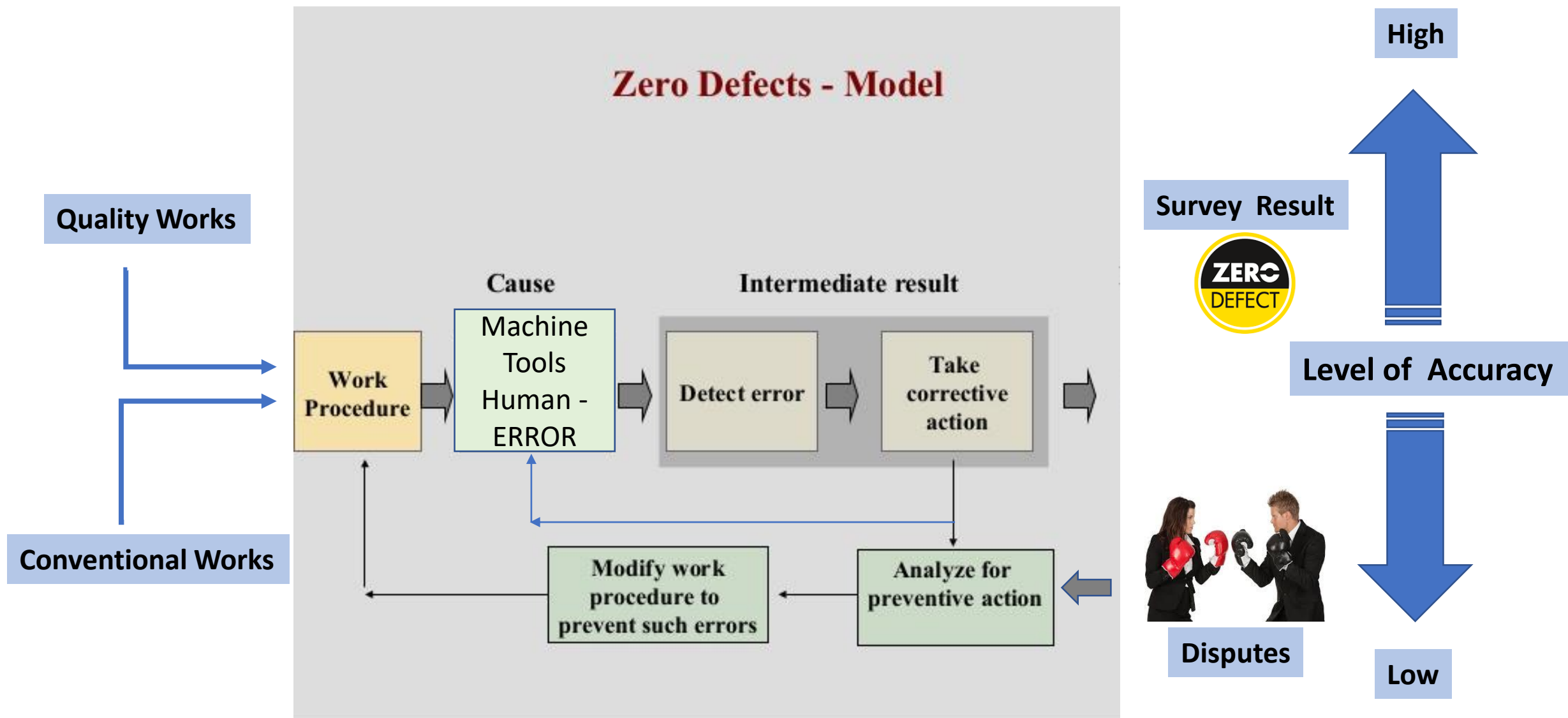
Continues...

v. 2016 PNB – Applied in Jalan Syed Putra, A 4 years long due disputes in surveying traceability able to resolved in 5 months with the support of High 3D BHGPR Technology. – Able to develop a 100% Accurate Traceability with SUEng.

iv. 2017- 2018 PKNS - Applied in Cyber Valley , A 10 years underground constructions disputes in the subsurface assets able to solve with perfect and reliable inspections technology that complementing underground survey. With No increase in Re-Engineering Cost Variations.

iiv. 2019 – 3D SUE Accuracy covering 9km ROW as built Survey information Modelling. A Research programme of USD 170,000 jointly undertakes with ***GeoCosmos Survey Consultant, SUE Diagnostic Lab (Asia) SB , Bominwell Robotics Co.Ltd Shenzhen.***

Perfections Process Model – Tested 2014-2019 - IIAM





MOVING FORWARDS WITH

IIUS



Establishing a new Technical Skill sets - TVET

The Subsurface Utility Engineers, SU.Eng.

IIAM has jointly collaborated with :-

- ❑ **IEWM College** for the -

Diploma Level 4 Subsurface Utility Engineering (SUE) a MQA approved programme

- ❑ **Utility Training Academy USA.**

Certificate Utility Damage Prevention Inspector

- ❑ **IIUS**

Technical courses - Surveying and Inspection , Building Information Modelling ,
Surveying Information Management

Embarking New Industry Standard's in Malaysia

❑ Design Selections

To define design , it is a vital role to accumulate information's and data accuracy with advance tools, e.g. ***Gyroscopic , CCTV c/w*** inclinometer system, ***3D Lidar, 3DMIRA, 3D BHGPR, BIM and SIM***

❑ Technology selections

To define ***technology selection's*** is vital for all Underground engineering works to acquire 100% nearest perfect informations and modelling prior to Contracting process.

❑ Material Selections

To define with ***design lifecycles, product specifications & standard and must be able to enforce value creations.***



The 7th ICUMAS 2019 (第七屆國際管道管理與安全會議)

The 7th International Conference on Utility Management & Safety 2019
25th – 27th November 2019 (2019年11月25日)

Venue : Kuala Lumpur, MALAYSIA

Theme: The Art of Survey Information Modelling- Seeing the Unseen

Organised By:



International Institute of Utility Surveys



Co Organised By:

Institute of Infrastructure Asset Management

A Thoughts of IIAM

“ The well defined fusion of asset management framework and implementation contributes towards achieving the goals of sustainable utility services delivery for all urbanities”



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