



Smart Worksites, Safer Workplaces

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Deputy QEHS Director

21 Feb 2023

AGENDA

- INTRODUCTION
- KEY STRATEGIC APPROACH
- JOURNEY TOWARDS A “SMART” WORKSITE
- CONCLUSION

INTRODUCTION



Building Our Nation Together

The Singapore Contractors Association Limited (SCAL) is a not-for-profit organisation representing more than 3,300 construction firms and allied businesses in Singapore.

Since **1937**, the association has played a pivotal role in bridging the relationship between firms in the construction industry and government agencies.

INTRODUCTION

SCAL Sub-Committees

1 CONTRACTS AND PRACTICE

Review existing and new policies that are of direct relevance and importance to the practices of contractors

2 CORPORATE SOCIAL RESPONSIBILITY

Through the various programs, the sub-committee aims to encourage members to participate and foster a kind and giving heart to the community.

3 DIGITALISATION

To identify solutions to build capabilities in digitalisation with the objective to increase productivity, save cost, reduce wastage, and improve safety.

4 ENVIRONMENT SUSTAINABILITY

With the need to align the nation's plan to go green, the subcommittee was formed to implement new environmental and sustainability plans and programmes for the members.

9 STANDARDS AND QUALITY

Ensure SCAL is represented in drafting the national standards which are relevant to the industry's practice and interest.

10 PUBLIC AFFAIRS AND INTERNATIONAL RELATIONS

Aims to provide regular publications to update members on the current news relating to the construction and building Industry and more.

11 WORKPLACE SAFETY AND HEALTH

To promote safety awareness and cultivate working habits among construction workers.

SLOTS (SINGAPORE LIST OF TRADE SUB-CONTRACTORS)

Newly formed in 2021 to create a better community platform for the SLOTS members for more extensive industry engagement and feedback.

5 LU BAN 鲁班

SCAL plays an active role in carrying on the spirit as the patron saint of builders and contractors and a symbol of Chinese excellence.

6 MEMBERSHIP AND WELFARE

Provide regular updates on the construction industry to members through publications etc.

7 MANPOWER AND POLICY

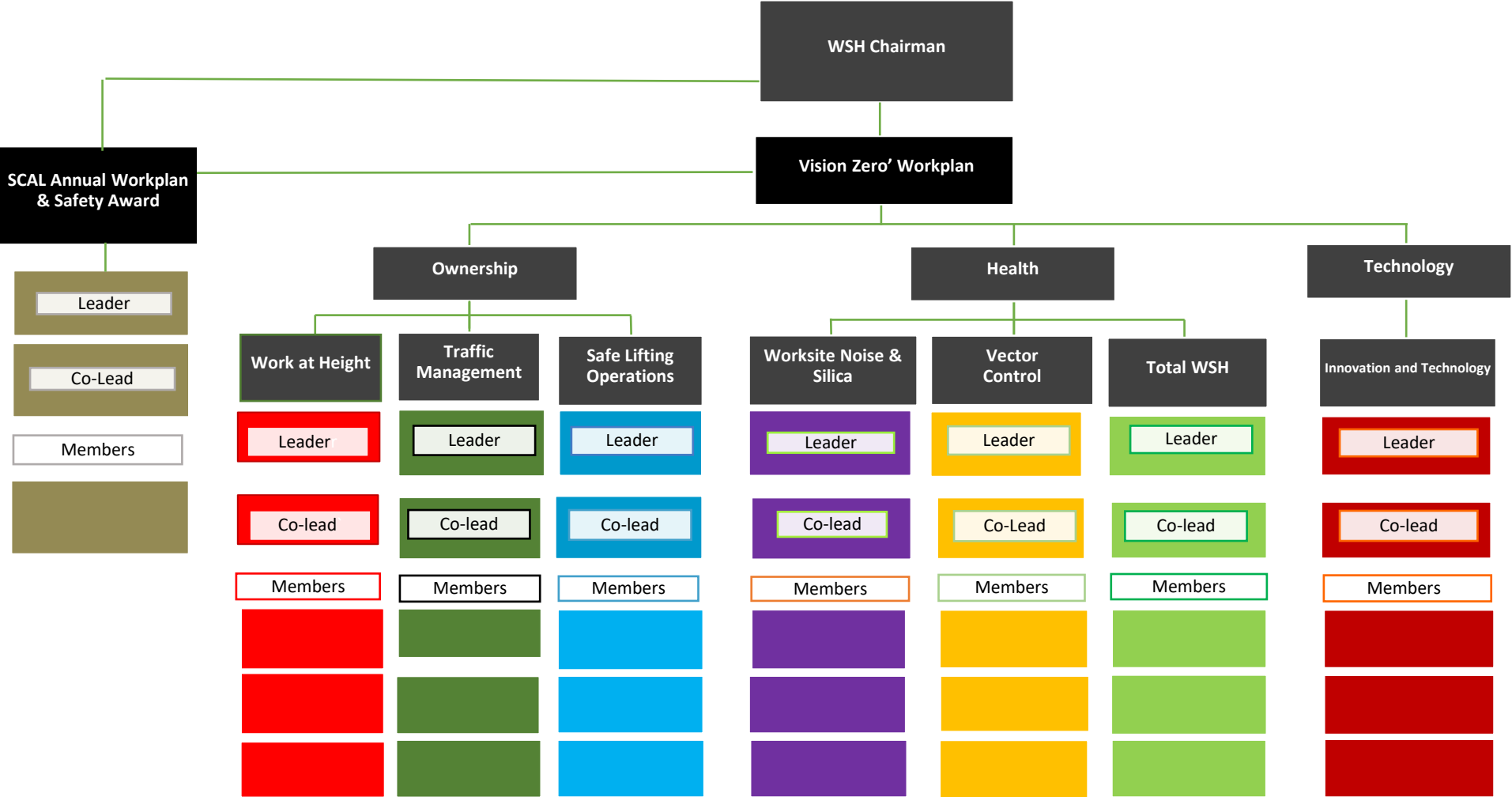
Review and deliberate on manpower issues and policies pertaining to the construction industry

8 PRODUCTIVITY AND TECHNOLOGY


Aims to introduce members the use of technology in their business with the current and latest system available in the market to achieve greater efficiency and productivity.

INTRODUCTION


WSH Sub-Committee




WSH 2028



Strengthen WSH Ownership



Enhance Focus on Workplace Health



Promote Technology-Enabled WSH

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INTRODUCTION

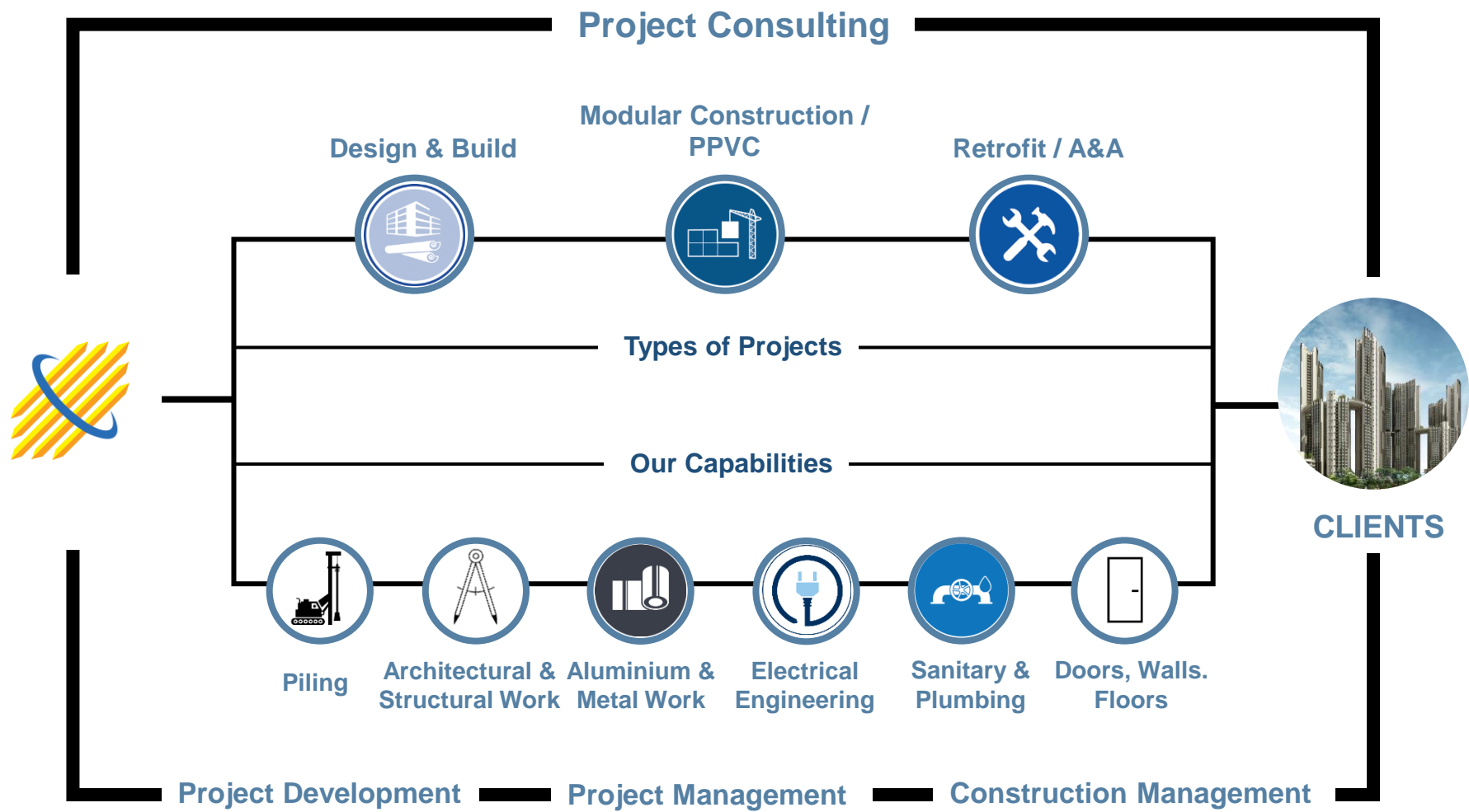
- Established in 1992
- Multi-disciplinary capabilities
- Expertise in residential, institutional and industrial building projects
- Technology and innovation driven



INTRODUCTION

Integrated Multi-disciplined Capabilities

Providing a seamless, end-to-end solution, delivering higher value for our clients



INTRODUCTION

Background 65 months ago...

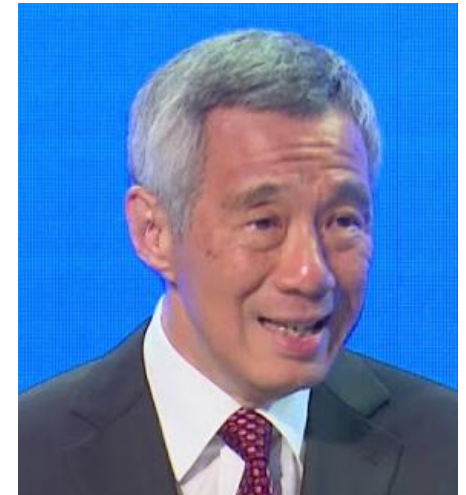
XXI WORLD CONGRESS ON SAFETY & HEALTH AT WORK 2017

... Every injury and illness means pain and suffering for the worker. Therefore, it is **our duty** to **reduce accidents and injuries** to the absolute minimum, by instilling safety and health consciousness, and safe and healthy work practices. It is not only in the workers' interest to improve workplace safety and health. It is in the interest of businesses...

... So we have decided to set a **new target**: to reduce Singapore's rate to **below 1.0 per 100,000** in ten years' time and that means **before 2028**. Other countries have made the same journey and succeeded...

... We want to **encourage** companies to use **technology** more pervasively, to reduce the risks of workplace accidents and ill-health. **Technology can help to reduce human errors which cause workplace accidents...**

... These are all avoidable accidents, avoidable fatalities, and if we put our mind to it, we will bring the numbers down. Using technology to improve all aspects of our lives, including workplace safety and health, is **part of our plans to become a Smart Nation...**



3-6 September 2017
Sands Expo and Convention Centre, Singapore

**Extract of Speech By PM Lee Hsien Loong at the World Congress on
Safety and Health at Work on 03rd September 2017**

INTRODUCTION

Background 54 months ago...

The Singapore Workplace Safety and Health Conference 2018



Extract of Speech By Mrs Josephine Teo, Minister for Manpower at The Singapore Workplace Safety and Health Conference on 29th August 2018

The WSH2028 Strategy

... To make this happen, we convened a Tripartite Strategy Committee earlier this year to develop the [WSH2028 Strategy](#), a [comprehensive 10-year plan](#) to bring Singapore towards [WSH excellence](#) ...

Using technology to advance WSH outcomes

... The [third transformation involves technology](#). Major technological advancements in areas such as data analytics, sensors, Internet of Things (IoT), artificial intelligence, and automation, present significant opportunities for us to advance WSH outcomes. [Being at the forefront of technology innovation and adoption for WSH will help us to achieve the next breakthroughs in our WSH journey](#) ...

KEY STRATEGIC APPROACH

Thoughts Process



WHERE ARE WE NOW?



WHAT DO WE HAVE?



WHAT DO WE NEED?



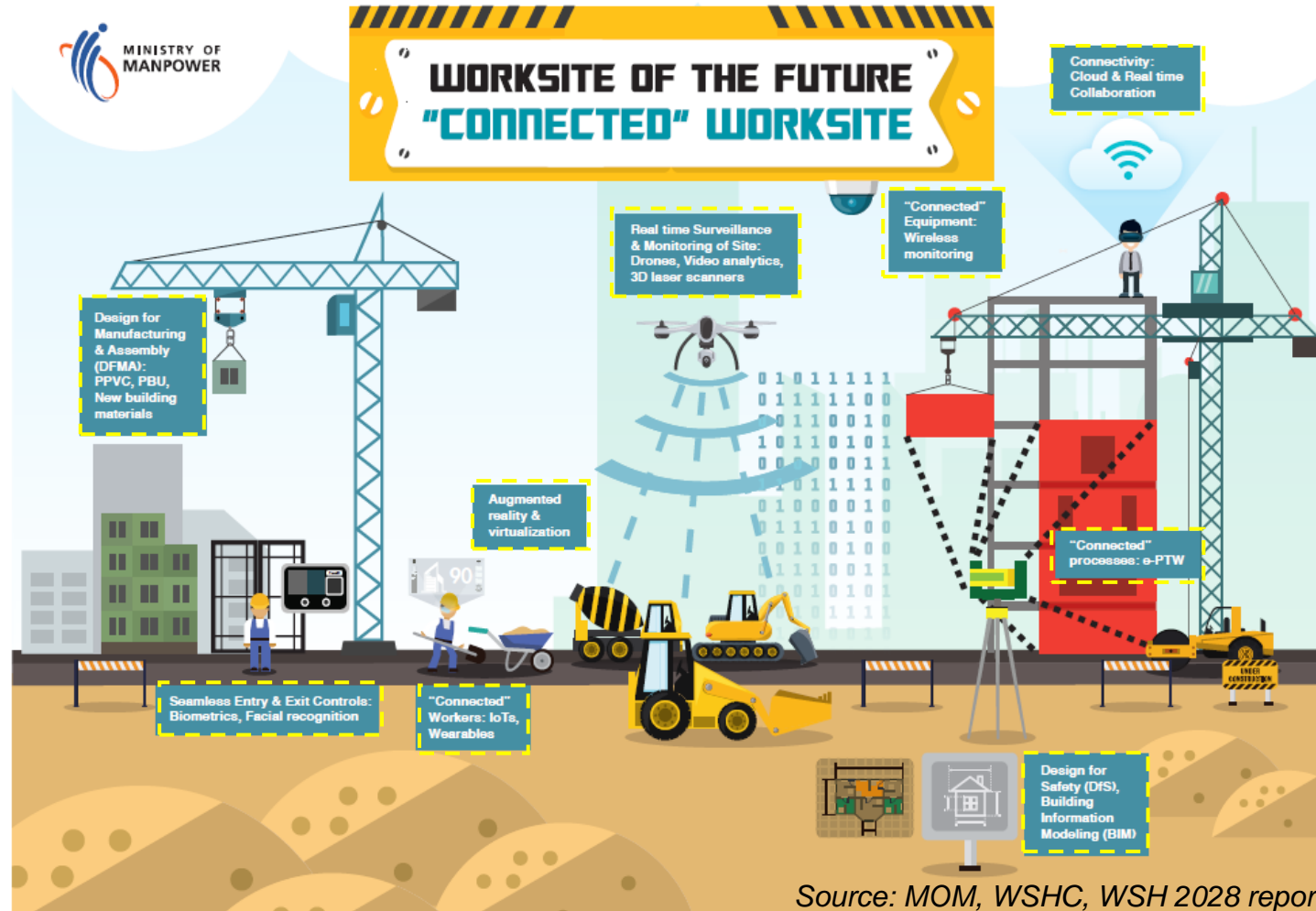
HOW SHOULD WE START?



KEY STRATEGIC APPROACH

Thoughts Process

SOMETHING LIKE THAT.....



Source: MOM, WSHC, WSH 2028 report

KEY STRATEGIC APPROACH

Teambuild “SMART Worksite” is built upon this 3 Key Elements

HOLISTIC AND SEAMLESS

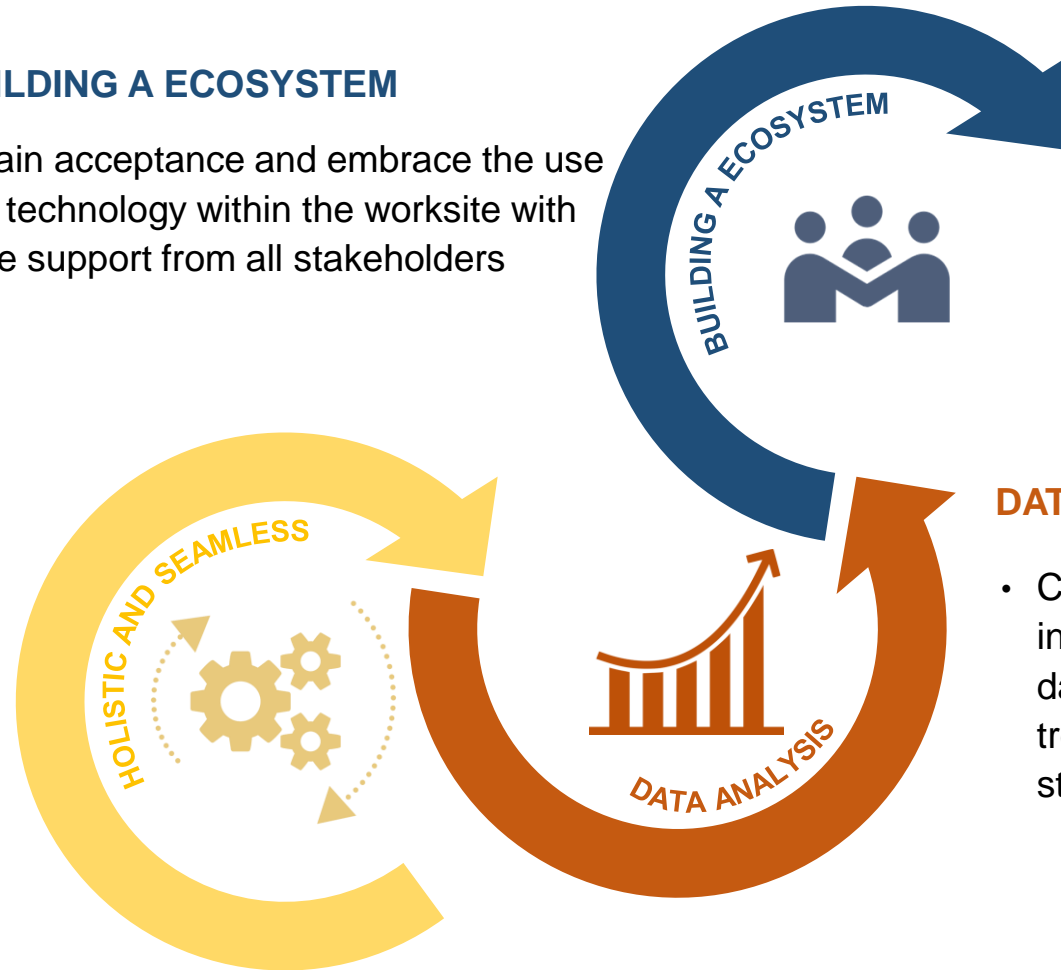
- Expand and strengthen the technological adoption and seamless integration into work process

BUILDING A ECOSYSTEM

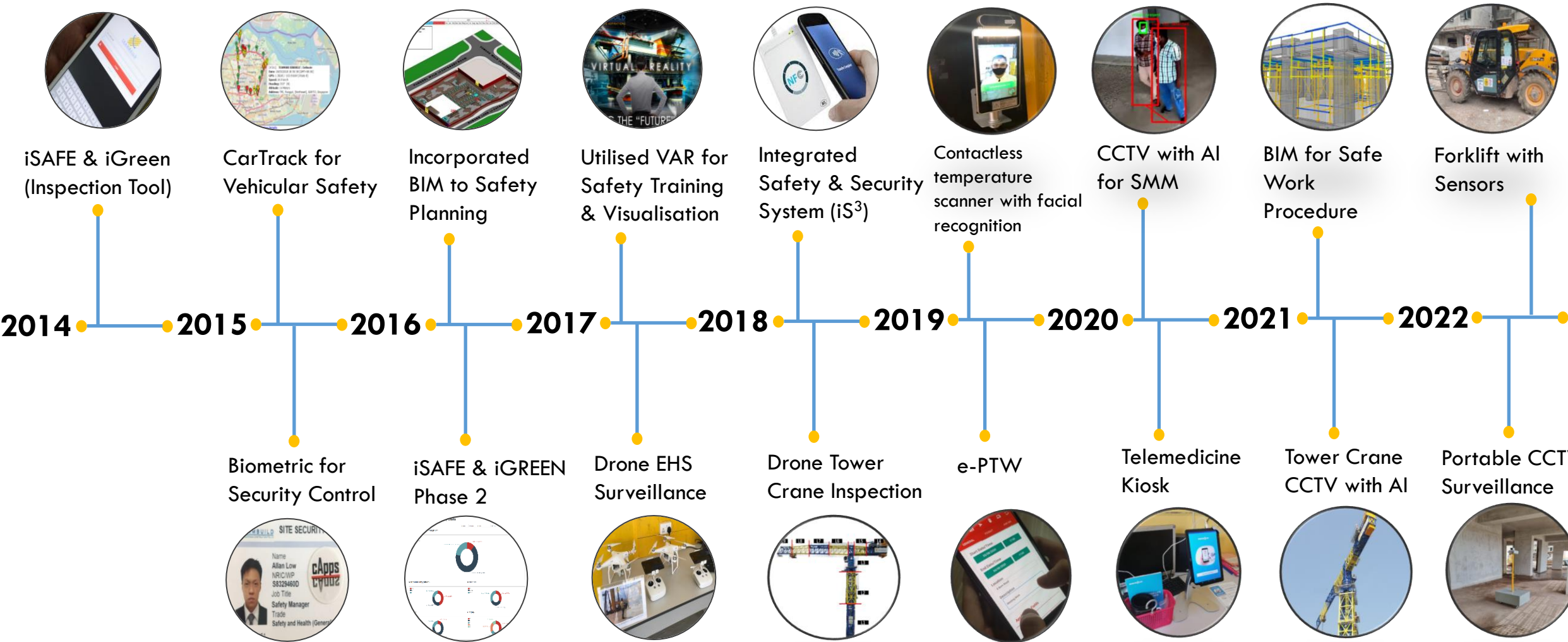
- Gain acceptance and embrace the use of technology within the worksite with the support from all stakeholders

DATA ANALYSIS

- Capable of collecting information to perform data analysis for predictive trends in improving WSH standards

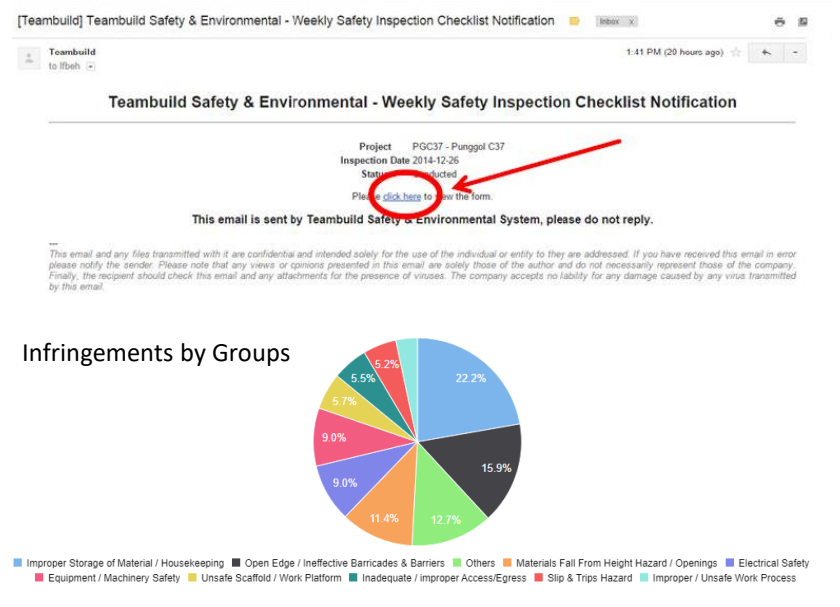
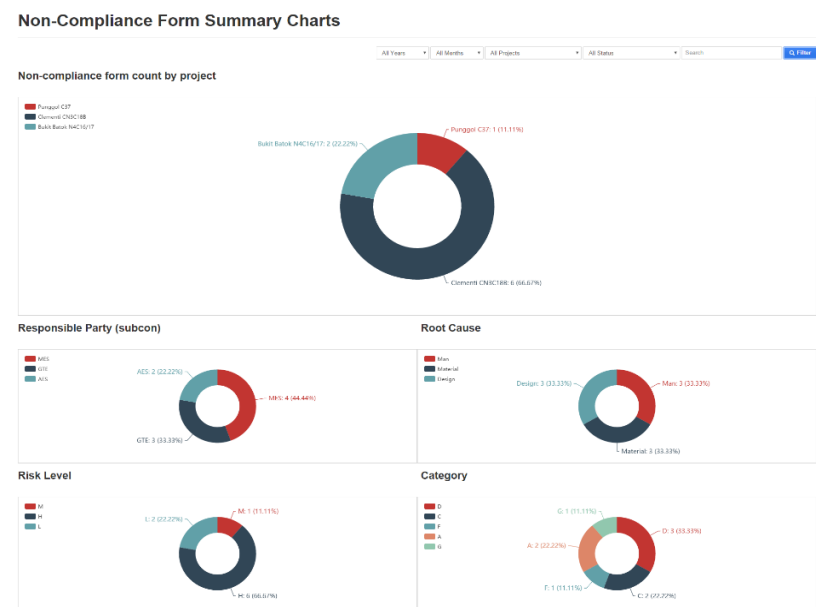
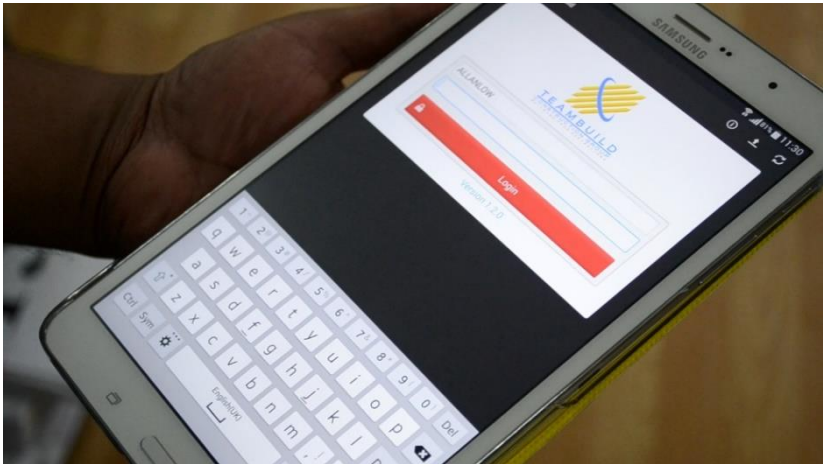


JOURNEY TOWARDS A “SMART” WORKSITE



JOURNEY TOWARDS A “SMART” WORKSITE

iSAFE- SAFETY @ YOUR FINGER TIP

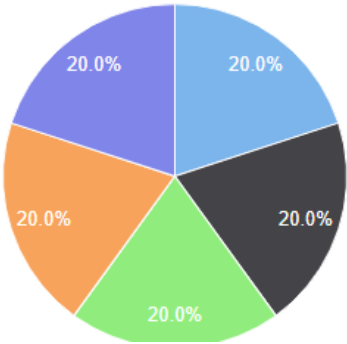


JOURNEY TOWARDS A “SMART” WORKSITE

e-PERMIT TO WORK (PTW)



No. of PTW by Contractors



12:07

Teambuild QSE

Last Sync Date/Time
19/04/2022 12:07

QUALITY

New
1

Approved
53

Revoked
0

SAFETY

Pending
8

Completed
179

Rejected
9

PTW

Permit To Work

No.

PERMIT-TO-WORK FOR EXCAVATION > 1.5 M (挖掘作业许可 > 1.5 米) - For Subcon - V1

2

PERMIT-TO-WORK FOR LIFTING OPERATION (升降作业许可) - For Subcon - V1

5

PERMIT-TO-WORK FOR LIFTING OPERATION (升降作业许可) - V1

1

SEE SUBMITTED PTW LIST

12:09

Permit To Work

STAGE 1: APPLICATION BY APPLICANT (Min BCSS and Lifting Supervisor Certified)

General Information

Instructions

Submitted By

GPS Location

Attached Checklist(s)

12:58

Permit To Work

GENERAL

PERMIT

Have workers been briefed on the Risk Assessment and Safe Work Procedures? / 风险评价与安全程序是否已经简要的传达于员工?

Others (其它): Pls attached the lifting plan checklist.

Attendance

Comments

STAGE 2A: EVALUATION

12:08

Teambuild QSE

PERMIT-TO-WORK FOR LIFTING OPERATION (升降作业许可) - For Subcon - V1

Pending 3 Approved 4 Completed 98 Rejected 2

Permit No.
2201045

Applicant
AWAAL RAVUL (ASIAWORLD CONSTRUCTION PTE LTD (Structure))

Location
481B

Description of Job
Reber formwork casting

Start Date/Time
18/04/2022 08:15

End Date/Time
18/04/2022 19:00

Created On
18/04/2022 08:48

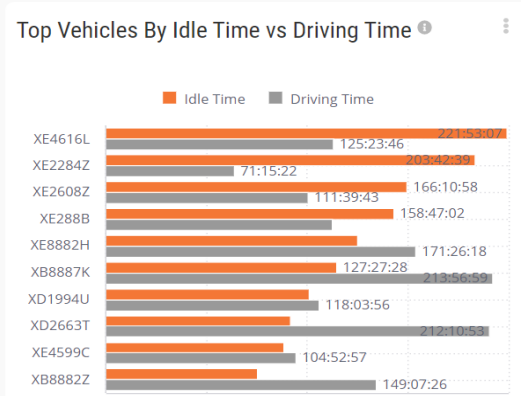
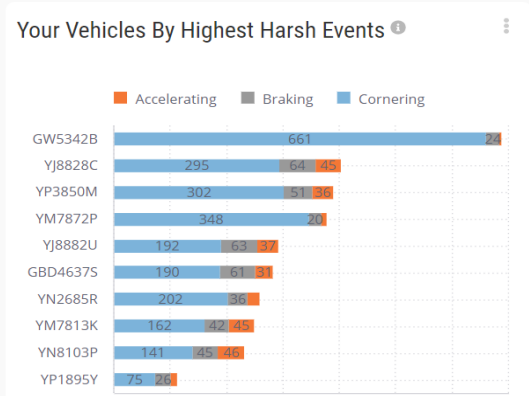
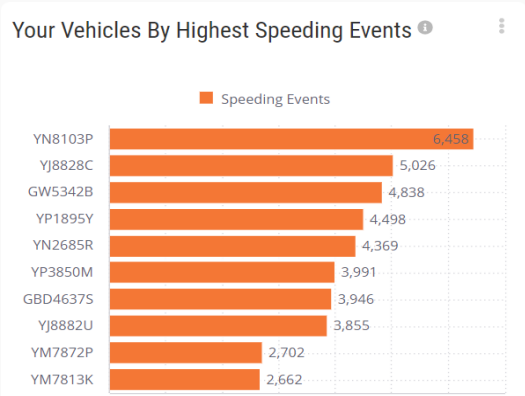
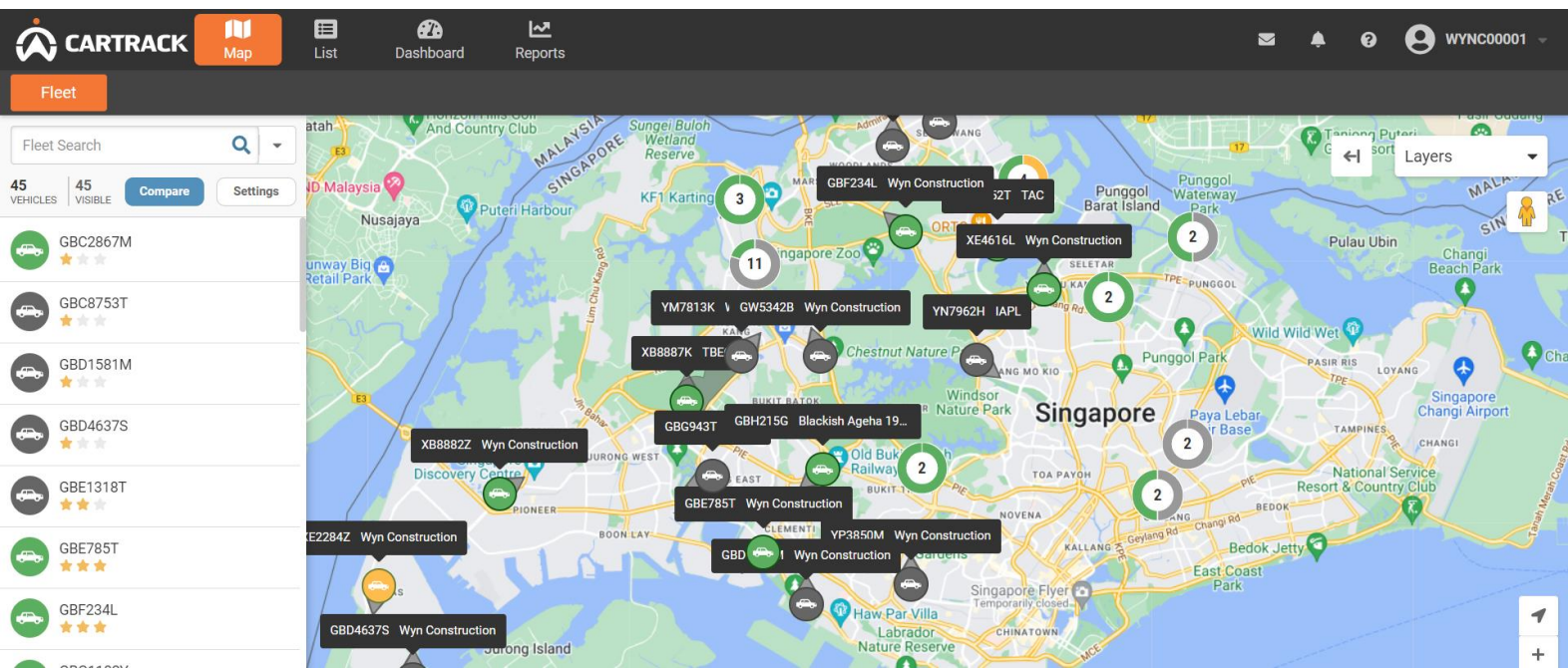
Last Updated
19/04/2022 08:26

Web ID: 2261

Permit No.
2201040

JOURNEY TOWARDS A “SMART” WORKSITE

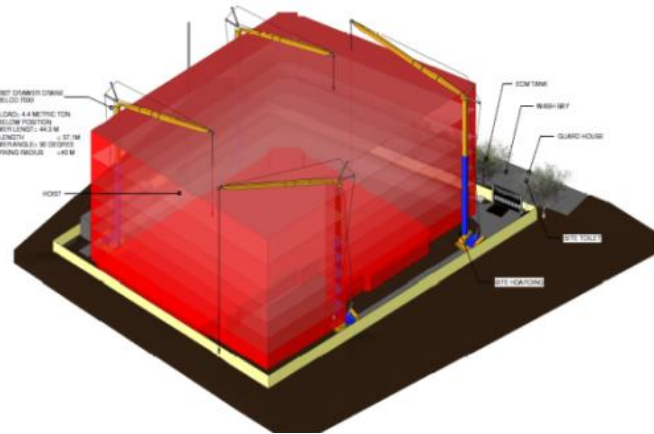
CARTRACK FOR VEHICULAR SAFETY



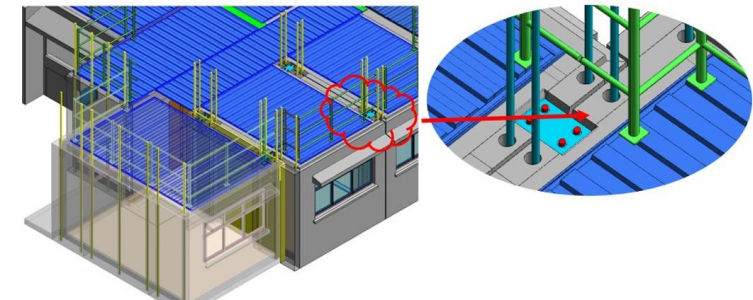
INCORPORATED BIM FOR SAFETY PLANNING



Site Utilisation/Construction Sequencing Planning



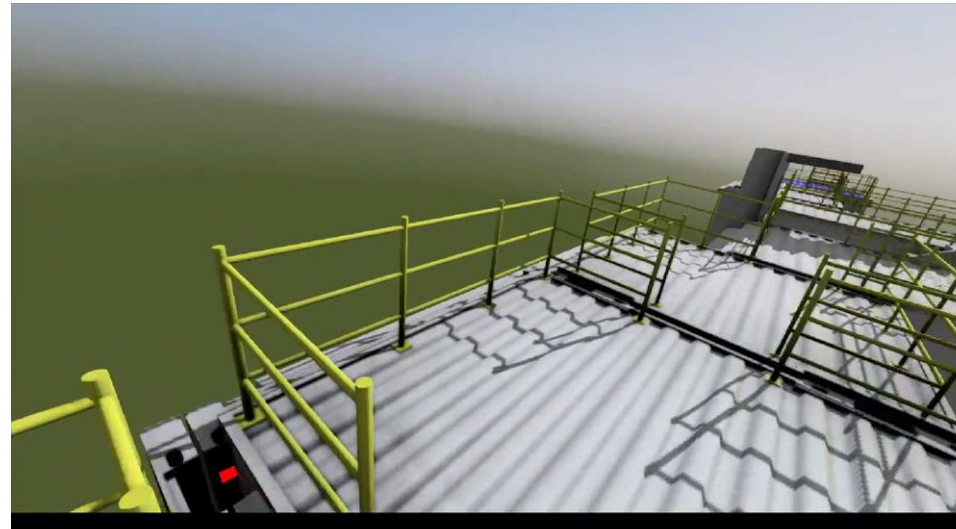
Crane Capacity Study



Fall Prevention Development

JOURNEY TOWARDS A “SMART” WORKSITE

VIRTUAL REALITY FOR SAFETY TRAINING & VISUALISATION



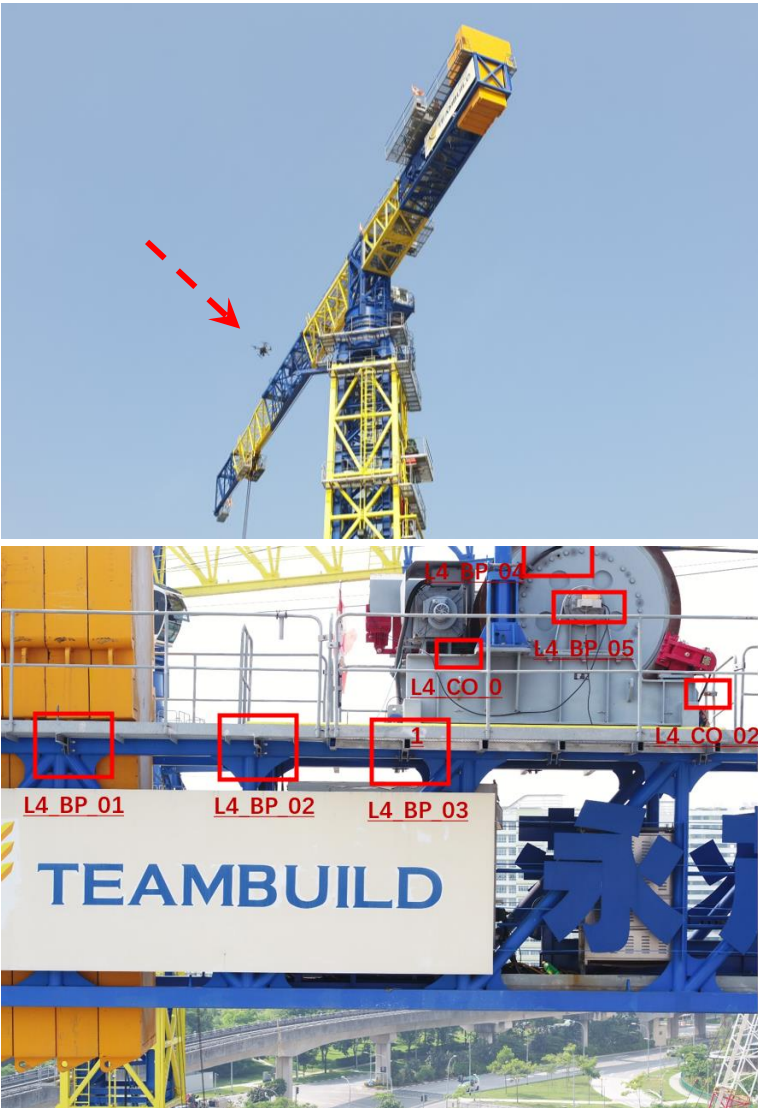
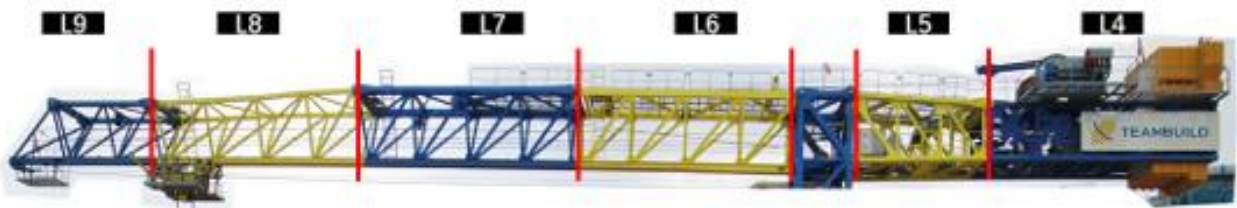
JOURNEY TOWARDS A “SMART” WORKSITE

DRONE EHS SURVEILLANCE



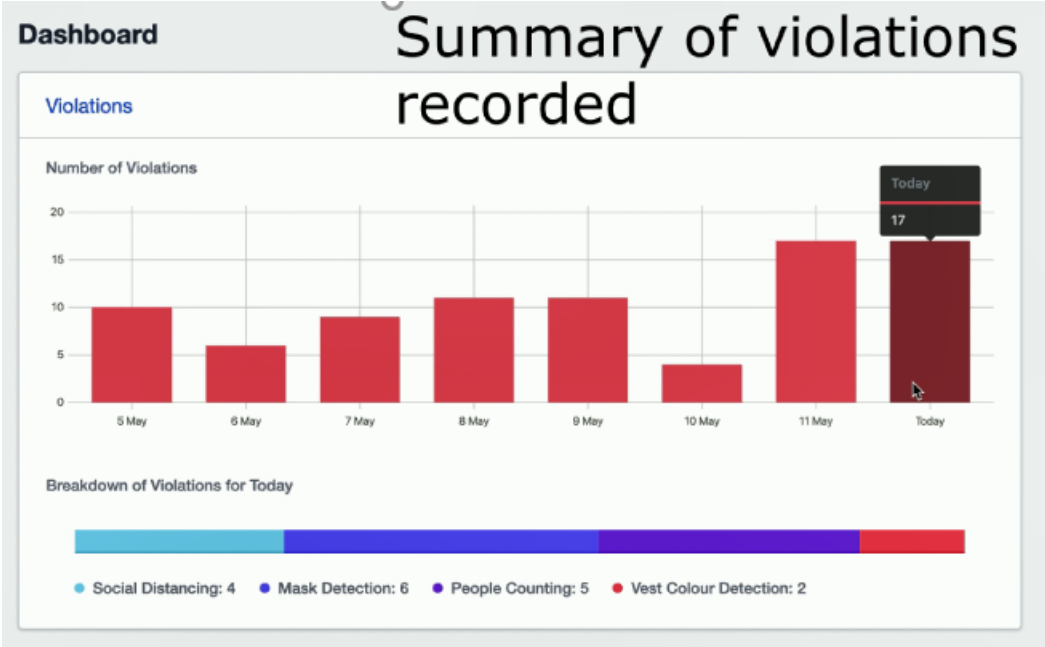
JOURNEY TOWARDS A “SMART” WORKSITE

DRONE TOWER CRANE INSPECTION

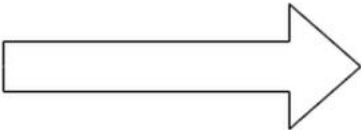


JOURNEY TOWARDS A “SMART” WORKSITE

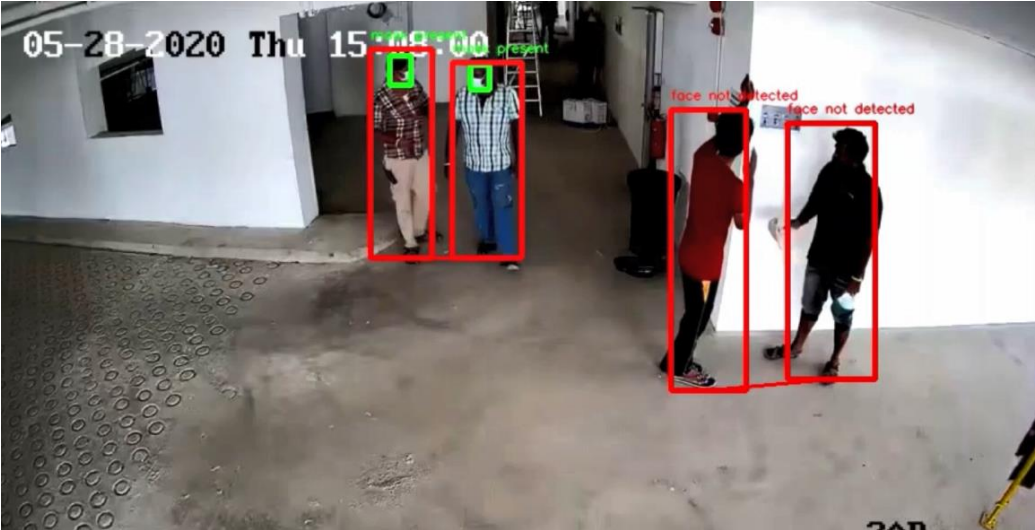
CCTV WITH AI FOR SMM



Violation Found



Immediately notify
the officer in-charge



JOURNEY TOWARDS A “SMART” WORKSITE

IMDA OIP



- Solar powered AI camera
- Camera mountable onto semi-permanent structures
- Detecting safety at work at heights

JOURNEY TOWARDS A “SMART” WORKSITE

OUT OF BOUND MONITORING SYSTEM

PreVail Technology

2019-6-4

Projects: 1

Please Input Project Name

Punggol North C5

0 0 0

Home Page

This is 1 Page

Total 1 Page

Today Warning

Today Warning: 0 Violation: 0 Safety Helmet

Time	Project	Device	Reason
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Attendances: 2 people

Tower Driver: 0 people

Lifter Driver: 0 people

Tower: 0 number

LiftersNumber: 0 number

Online tower: 0 number

LifterOnline: 0 number


Environmwt Monitoring

pm2.5: 5ugm3 pm10: 7ugm3 Noise: 51 db Temperature: 0 °C Humidity: 0 % WindSpeed: m/s Wind Direction: 0wind


OnlineTower:

LiftersNumber:

Real-Time Video



Operating



Operating

Equipment Operation

Device name:

WindSpeed: m/s Range: m/min Height: m Angle: ° Weight: kg


Property Number:

Total Use Time: h


Today Use Time: h Month Use Time: h Years Use Time: h

Now Driver:


Attendance




Kenneth Leow
06-04 10:45




Kenneth Leow
06-04 10:44




Kenneth Leow
06-04 10:44




Tay Cheo Hian
06-04 10:44




Kenneth Leow
06-04 10:43



Kenneth Leow
06-04 10:42



Kenneth Leow
06-04 10:41

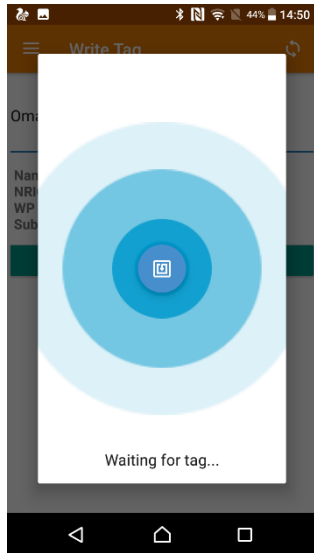
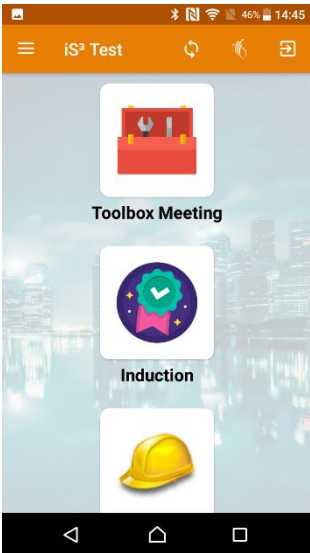


Kenneth Leow
06-04 10:40



JOURNEY TOWARDS A “SMART” WORKSITE

TEAMBUILD INTEGRATED SAFETY & SECURITY SYSTEM (iS³)



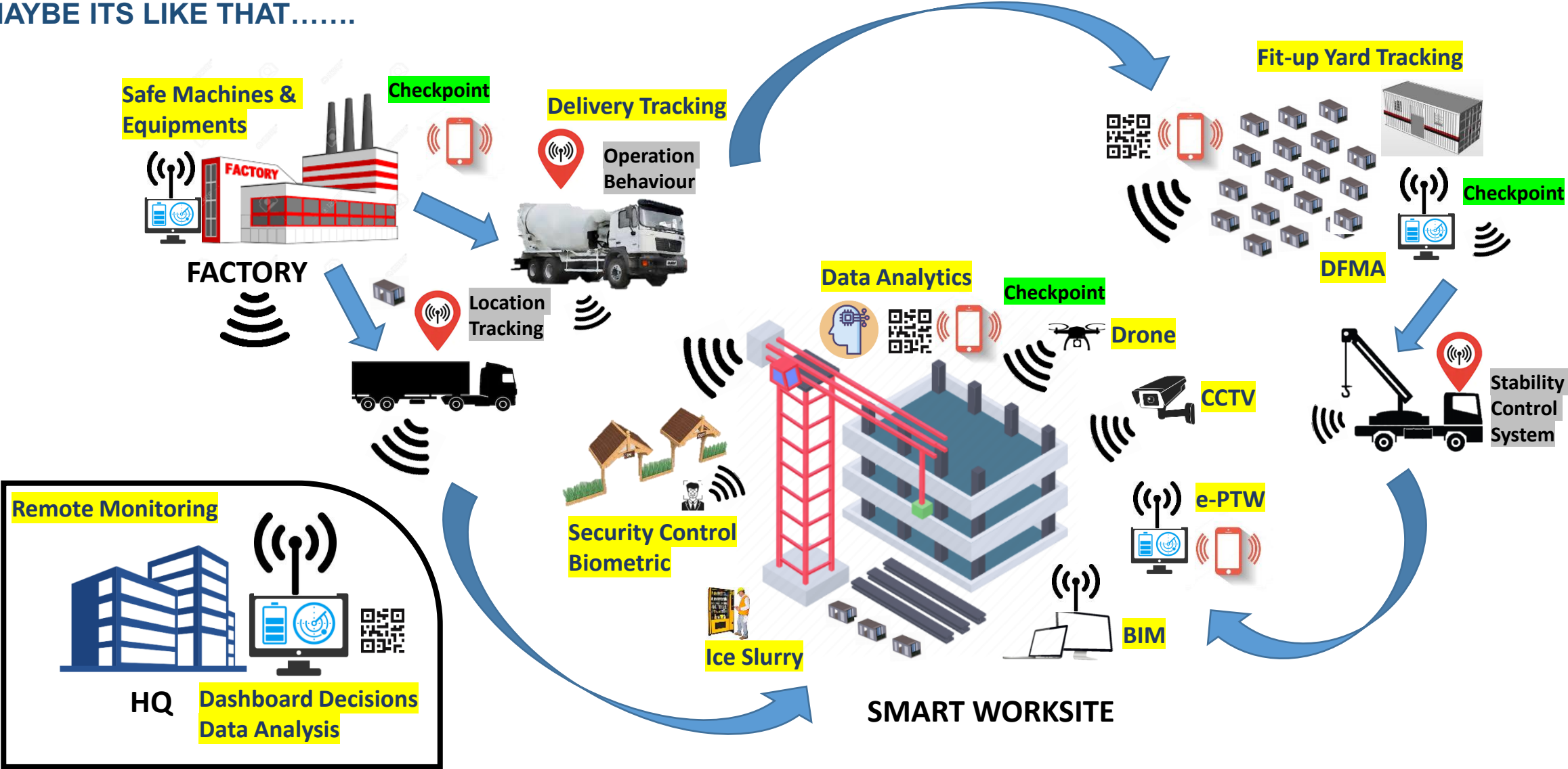
JOURNEY TOWARDS A “SMART” WORKSITE

FORKLIFT WITH SENSORS



CONCLUSION

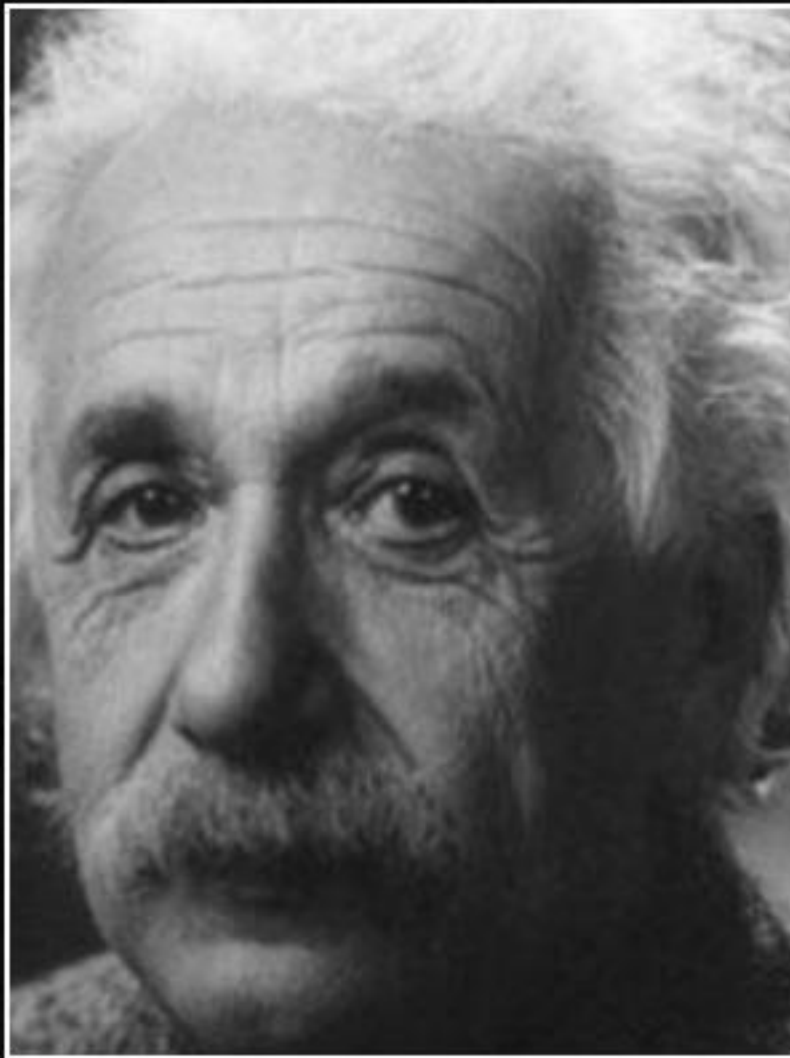
MAYBE ITS LIKE THAT.....



CONCLUSION

- Management Support (Sufficient Resources)
- Positive Leadership with Continual Driving force (Make it Happen)
- Mindset & Attitude of Individual (Belief it and Do not resist to Changes)
- Agility of the Team (Ability to adapt to the fast pace evolution of WSH)
- Inculcate a Culture of Technology (Start small, take tiny steps and keep moving)

CONCLUSION



We cannot solve our problems with
the same thinking we used when we
created them.

— *Albert Einstein* —



THANK YOU.