MODEL-BASED TESTING
1. Thinking segment – Is where we model something and expect it to behave in a particular manner.

2. Creating segment – Create according to the thinking aspect.

3. Learning segment – Learning with the help of operational tools and map if the created product or service has managed to deliver as predicted.
Failing Fast, Learning Rapidly & Experimentation

DIGITAL - MODEL-BASED TESTING (ISO-29119-8)

International Standards Organization (ISO) Committee

- Concepts
- Strategy Design
- Model Creation
- Test Generation
- Processes
- Modes
- Test Execution
COVID ACTIVITY DIAGRAM

1947 Vaccination in NY - 5M people in just 2 weeks

- Stay at home
- Deliveries
- Symptoms
- NOT COVID FREE
- COVID FREE
- Stay Safe

SELF ISOLATE
Digital Healthcare Example

Stay at home

Deliveries

Symptoms

SELF ISOLATE

NOT COVID FREE

COVID FREE

Stay Safe

Trouble Breathing

High Temperature

Dial 111
DIGITAL - BEHAVIORAL MODEL (BDD)

ASSURED Digital Healthcare – MIT Example

Stay at home

[lockdown(3m) EQUAL True]

[deliveries(3m) >= Daily]
IF covidKnown THEN cancel

Deliveries

covidUnknown()

[latent <= 2d]

covidFree()

Vaccination

covidVaccinated()

Incubation

[incubation >= 14d]

Contagious

[infectious = 5d | 6d]

LatentPeriod

Vaccination

[latent <= 2d]
**Whitebox vs. Blackbox**

- **Vaccine Passport**
  - `covidFree()`
  - `patentCoupon()`
  - `Vaccines Batch`
  - `scanBatchQR()`

- **Vaccines Batch**

- **Report Side Effects**

- **Issue Vaccine**

- **Machine Learning**
  - `[mode=online]`

- **Vaccine Travel Passport**
  - `vaccinated()`
  - `[badge=1 TRUE]`

- **Pfizer Efficacy = 95%**

- **Oxford Efficacy = 62%**

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TEST DATA ENGINEERING

Test Data Engineer in Test (TDET)

covidFree()

Vaccine Passport

patentCoupon()

Vaccines Batch

scanBatchQR()

[padge=1 TRUE]

Check Age & Efficacy

New Feature
Do not issue

donotissue()

Vaccine Travel Passport

[vaccine=TRUE] [AGE(0-17)]

Report Side Effects

issueBadge()

Issue Vaccine

[pFisher.Efficacy = 95%]

Oxford.Efficacy = 62%

[mode=online]

[shareDeaths = 0.06% 3.9% 47.3%]

<<EquivClass>> AGE (0-17)

<<EquivClass>> AGE (18-44)

<<EquivClass>> AGE (45-74)

[worldometer]
NEW MODEL FOR DEV & TEST

Evolution, over Revolution

Models are adequate

Exploration

Modelling

Informing

Testing

Enquiring

Modelling

Informing

Testing

System Under Test

Models are not adequate

Sources of knowledge

Challenging

Predicting

Refining

Interpreting

Applying

Reporting

Logging

WHAT IS DIGITAL TWIN?
Time to create Digital Twin: 5hrs
Total number of exploratory journeys: 9589
Use cases automatically created: 241
Helping save lives with MIT during COVID-19
DIGITAL - THE METAVERSE

https://www.ted.com/talks/jonathon_wright_cognitive_learning_digital_evolution_over_revolution
WELCOME TO THE NEW NORM

Post COVID working in the gig economy results in just in time on-demand scheduling

"Over 2012 years per day is spent reading internal emails in the US."

– Jonathon Wright, October 2012, STARWest, California
DIGITAL - DIGITAL BURNOUT

You can't sprint all the time or You can't quad videocall in four different time zones
Site Reliability Testing (SRT) and Real User Testing (RUT)

Excellent discussion on the “Future of Testing in AI” at Geekle.us QA Global Summit Vol. 2 reminding us the importance of #SiteReliabilityTesting in the real world as Windows 11 and DirectStorage caused my M2 drive to blow up during the live session! Digital Quality combines the testing of Software and associated Hardware! #RealUserTesting #RoboticTestAutomation feat rockstars Tariq King & Eran Kinsbruner stay #SafeMode
THE METAVERSE

Blurring the lines between Technology and the Real World
Unfortunately, no one can be told what The Metaverse is. You’ll have to see it for yourself.

Nodes vs. Silos

Relationships vs. Gates

Knowledge Graph
• Component / Unit Testing – AI Generated (https://github.com/EvoSuite)
• Integration Testing – Contract API / Mocks (https://github.com/up9inc/mockintosh)
• Unbreakable Pipeline – Self Healing & Remediation (https://github.com/keptn/keptn)