

# EXPERIOR

automation research  
product  
wafer-sort **test** operations  
**enablers** development  
entrepreneurs  
**engineering**  
technology enhanced  
semiconductor

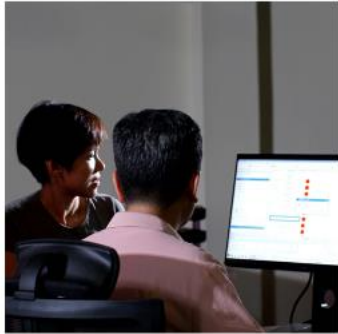


**We are dedicated to semiconductor testing**

**Founded in Sep 2014**



**Experts with 10-25 years each**



**TEST  
DESIGN**



**TEST  
OPERATIONS**



**IR4.0 SMART  
AUTOMATION**



**HARDWARE  
DESIGN**



**EDUCATION**

**We provide one-stop services in test design, validation, smart automation and volume test for new products and optimisations for existing products**



**Located in Penang's Free Industrial Zone (FIZ)**



## Facilities

- 1k, 10k & 100k clean rooms
- ATE testers, handlers & probers

## Manufacturing Improvements

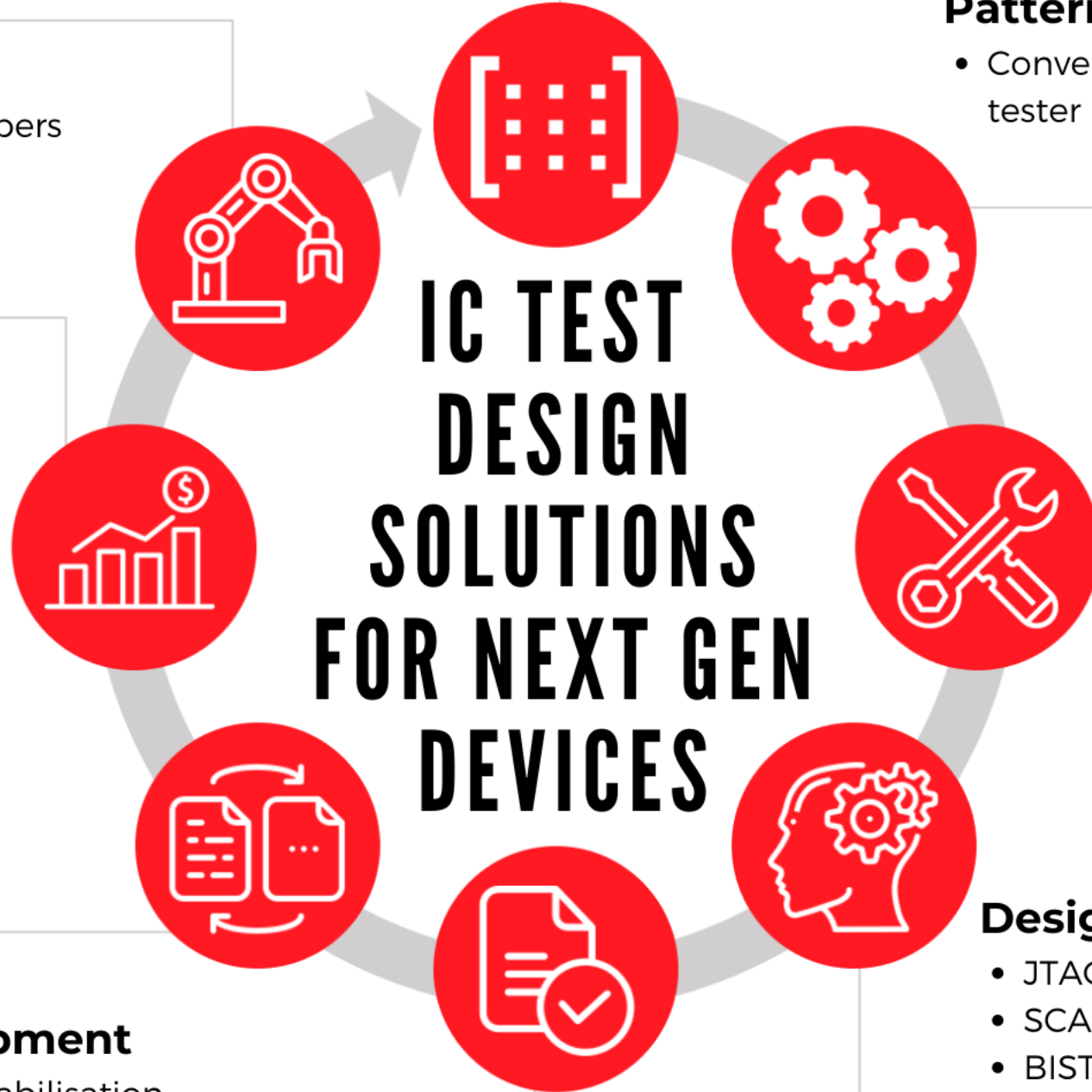
- Yield improvements
- Failure analysis
- Test time optimisation

## Prototyping

- Device characterisation
- Validation against design & datasheets

## Test Program Development

- New product enabling & stabilisation



## Pattern Conversion

- Conversion from VCD, eVCD, STIL to tester patterns

## Tester & Equipment Selection

- Based on product & test requirements

## Hardware Design & Fabrication

- Loadbords & probe cards
- Sockets & pins

## Design of Test Methodologies

- JTAG/TAP
- SCAN
- BIST
- Cache/DAT
- IO DFT
- SBFT
- RF

# Experience Profile

## Platforms & Projects

### Mainstream Modern

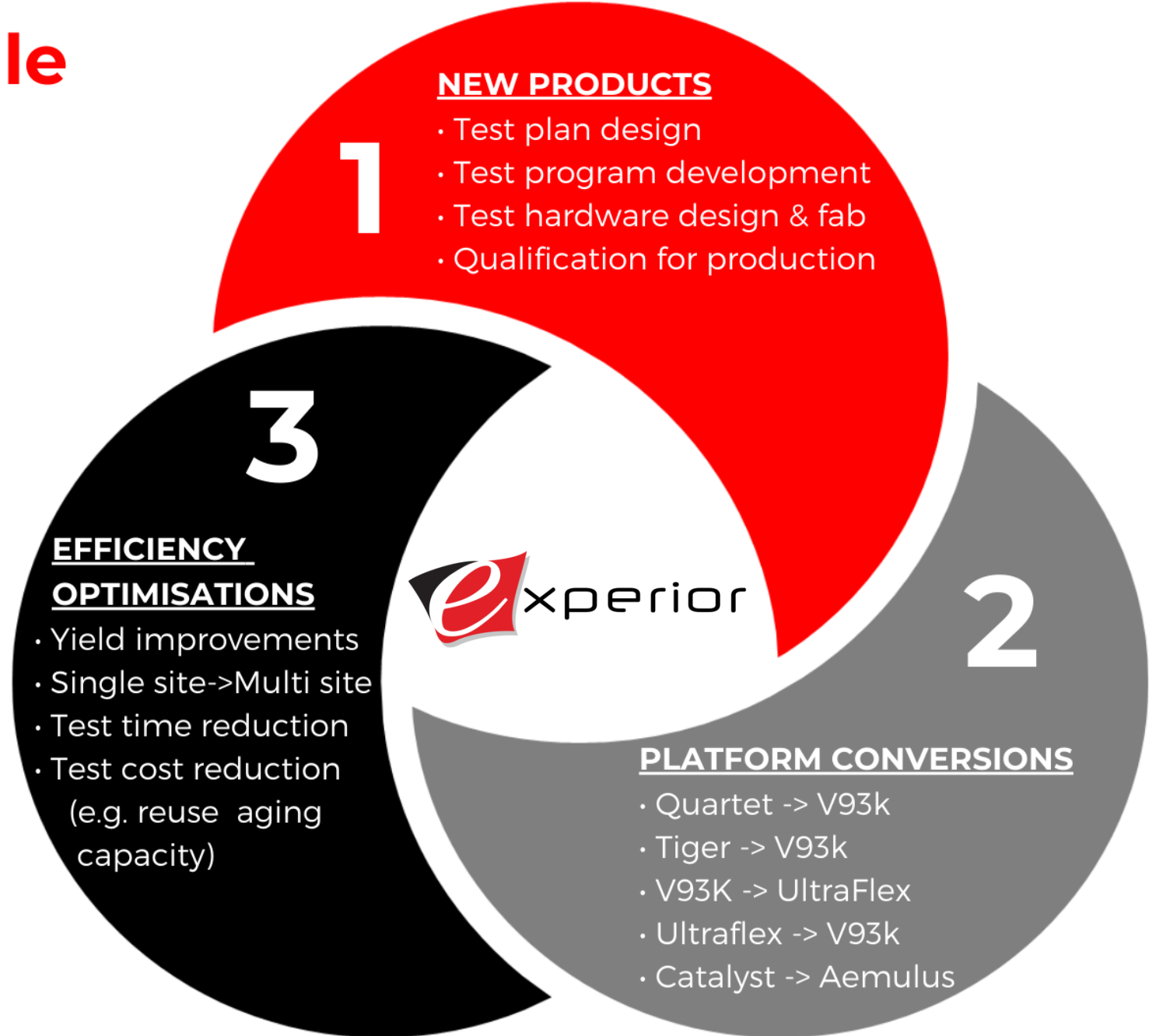
- Advantest V9300 - CPP, Java
- Advantest T2000 - CPP/OTPL
- Teradyne Uflex - VB6
- NI STS - Labview & CPP

### Mainstream Legacy

- Teradyne Catalyst Tiger - C
- Teradyne J973 - C
- Credence LTX - Cadence in EnVision
- Credence Quartet - C

### Boutique Platforms

- Aemulus AMB4600 - Visual Basic
- Intel HDMT - C#, VB, CPP & Python



**Breadth & Depth in Tester Platform Exposure**

# Experience Profile

## Devices

Fundamentals + Experience = 100% success for all projects thus far

>4000 pins

Complexity

### FPGA



- Scan, BIST, IO characterization

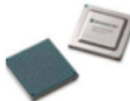
### Microprocessors

- IO/PLL, Analog Power & Thermal Validation
- Cache, Structural & Functional Tests



### Cable Gateway SOC

- Wideband ADC, USPHY and PA trimming
- RF power, phase noise, SnR, harmonic measurements



### ASIC accelerator adaptor

- MBIST, DDR, SCAN



### HDD Pre-Amplifier SOC

- Analog & mix signal testing



### Ethernet Module

- Mix-signal testing (ADC/DAC, SnR)



### Wireless Subsystem SOC

- Sub-6Ghz transceiver for 802.11acs
- RX/TX power, phase noise measurement



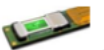
### Fiber Optic Transceivers

- Wafer Sort Structural Tests
- Fusing



### Micro Display

- Wafer Sort Structural Tests
- DDR



### Multichannel Transmitter

- Sub-1GHz with FSK/ASK modulation
- Modulation-demodulation data check
- RF power, phase noise, harmonic checks



<10 pins

2000/micrometer processes

Vintage/Fab Technology

2020/nanometer processes



## Quality Management System

Lot and bundle level traceability from start to finish

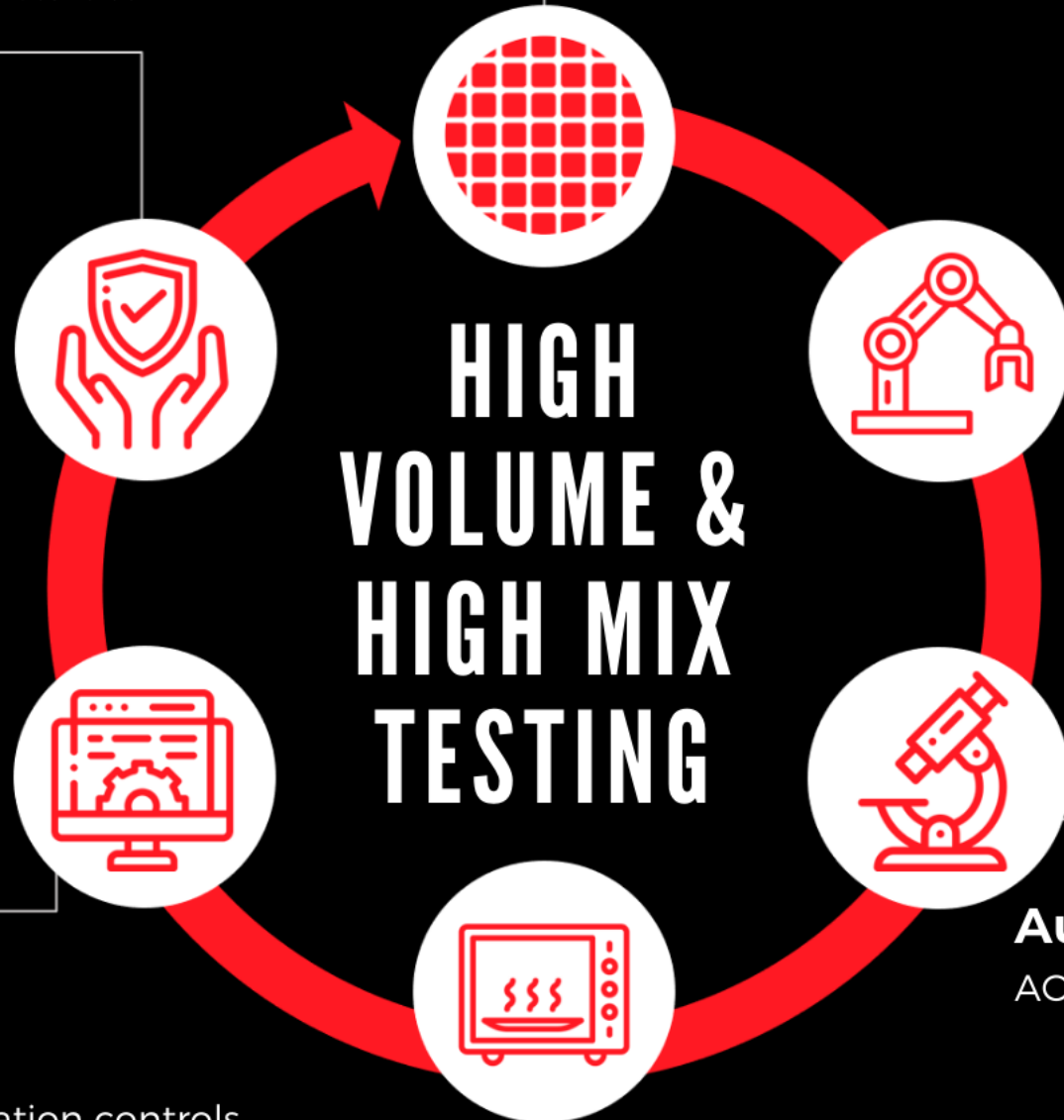
## Manufacturing Execution System

Customisable flows including multi insertion test flows with automated systems that cover

- program & recipe management
- product health indicators & yield analysis
- equipment & hardware performance management with preventive/predictive maintenance

## Bake & Pack

Complete with temperature and duration controls



## Wafer Sort

ATE Testers & Probers supporting

- 200-300mm wafers
- 350um-2000um thickness
- 350um- 100,000um die sizes
- Low noise, -55°C to 150°C capability
- Cantilever/vertical & direct/pogo tower docking

## Package Test

ATE testers & handlers supporting

- 4 to 16-sites
- active thermal control (ambient to 150°C)

## Automated Optical Inspection

AOIs supporting

- FCBGA, HSBGA, aQFN, QFN & QFP packages
- 4mmx4mm to 62.5mmx62.5mm
- tray in tray out, tray in tape & reel out

# Test Equipment

## Advantest V93000 Configurable Testers

- Slots: 8-32
- Channels: 6.6k
- Memory Depth: 224MB/pin



## Teradyne UltraFlex Configurable Testers

- Slots: 12-24
- Channels: 9k
- Memory Depth: 512MB/pin



## Keysight/NI/R&S Rack & Stack Testers

- 3G
- 4G-LTE
- 5G Sub-6



## TEL/Semics/EG Probers

- Direct Dock/Pogo Tower
- Cantilever/Vertical Probe
- Low noise capability



## Epson/Hontech/JHT Pick & Place Handlers

- Temperature: ambient to 150°C
- Power: up to 30W with ATC
- Force: up to 240kg
- Packages: 3mm×3mm to 120mm×120mm



## Existech Turret Handlers

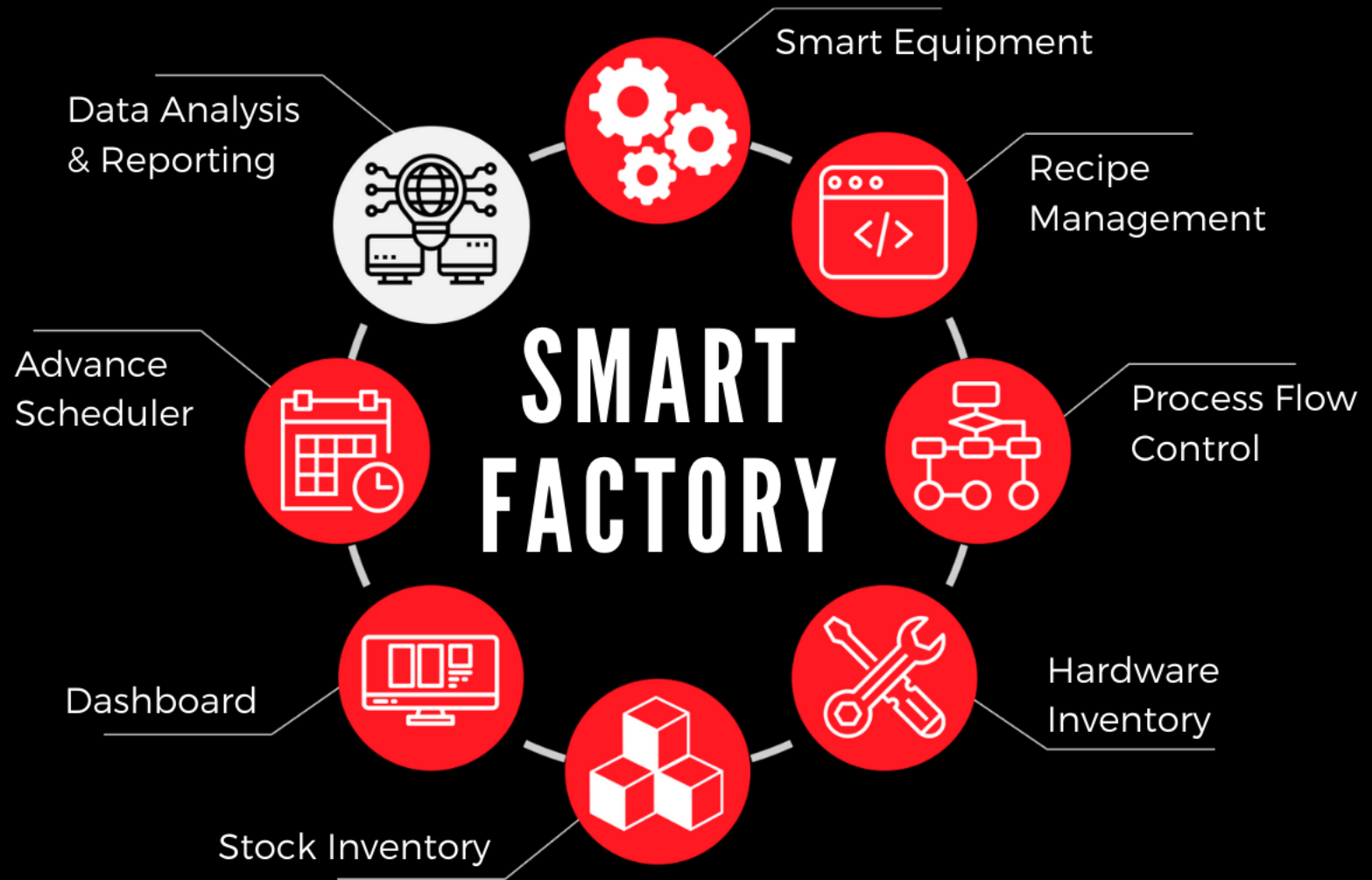
- Flexible Modular Configuration
- Integrated Test & Vision Inspection
- Voice Coil Z-axis for Precise Handling
- Tray/Bowl/Tape to Tape/Tray



# EXPERIOR SYSTEM AUTOMATION

**ExSA** is...

- a modular and flexible smart factory system
- designed for factories by engineers who run factories





## Data Analysis & Reporting

- Production status & product health indicators
- Configurable data query system with analytical ability to auto-hold lots when outliers are detected
- Automated Key Performance Indicator (KPI) reporting

## Advance Scheduler

- PM calibration system with integrated alert, auto-shutdown and management approval

## Dashboard

- Production control center for web-based live monitoring of product and equipment indicators

## Hardware Inventory

- Linked to MES for error-free assignment and setup
- Live tracking of all hardware status, location and lifespan

# IR4.0 SMART FACTORY SOFTWARE

## Smart Equipment

- Universal and customisable user interfaces
- Performance reporting and analytics

## Recipe Management

- Web-based customer/engineer portal
- Fool proof test program/recipe auto-check & download

## Process Flow Control

- Customisable flow with process routing configurability and flexibility for error-free execution

## Stock Inventory

- Inventory tracking & control of material with auto-triggering for reordering
- Automated matching of BOM with material forecast for on-time purchase
- Linked to MES to eliminate use of incorrect material

## ABOUT US

Experior was founded in 2014 with a team of engineers that has 15-25 years of experience each in our respective fields of product and test engineering, test development and test operations. We have broad and deep expertise in testing of digital, mixed-signal and analog devices including microprocessors, chipsets, SOCs, FPGAs, switches and transceivers on Teradyne, Advantest, Credence and LTX tester platforms.

## OUR GOALS

- 1 Move the Malaysian Ecosystem up the Value Chain**  
Expand our R&D capabilities to establish a complete turnkey development presence
- 2 Build a Test Development Hub**  
One-stop hub for all test development and prototyping needs for any semiconductor or system product(s)
- 3 Develop Talent for the Malaysian Tech Ecosystem**  
Skilled industry trained graduates in the relevant areas of technology to fulfill our growing market needs



## CONTACT US

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Phase III Free Trade Zone,  
11900 Bayan Lepas, Penang

[www.experior.my](http://www.experior.my)

## PRODUCT & TEST ENGINEERING TRAINING PROGRAMS

customisable for fresh graduates, technicians, junior or senior engineers

## IN-CLASS MODULES

Experior provides a minimum 12-day in-class training that covers all the fundamentals of product and test engineering. We believe that teaching current technologies by instructors who are using these technologies in real-world problems will greatly contribute to any learners' success. With our industry-experienced engineering instructors, we aim to impart our knowledge and experiences on the learners.

- 1 An Advanced Peek Into Product and Test Engineering (1 day)
- 2 IO Testing, DFT, and Design Verification Fundamentals (2 days)
- 3 Kitchen Sink Algorithms, BIST, SRAM Cache, SBFT (1 day)
- 4 Data Analysis Methods and How It Impacts High Volume Manufacturing (HVM) #1 (1 day)
- 5 Data Analysis Methods and How It Impacts HVM #2 (2 days)
- 6 HVM Improvements & Optimisations (2 days)
- 7 Industrial Radio Frequency (RF) Theorems in Testing (3 days)



## BUILDING A MALAYSIAN SEMICONDUCTOR TEST HUB

A test development hub is a one-stop shop for all development and prototyping needs for any semiconductor device (digital, analog, mixed signal, RF, SOC, FPGA, memory) OR System level PRODUCT to be tested on any tester platform

## WHY CHOOSE US?

### OUR PROGRAMS

Our programs are designed to meet the needs of the industry by inculcating the relevant and current technical skills. All the participants will be expected to implement the theories learned during the practical modules of the course.

### OUR FACILITIES

Our training site is equipped with the proper training rooms, labs and equipment for participants to utilise.

### OUR TRAINERS

Our trainers are gurus of product and test engineering and DFx methodologies after developing tests over the last 15 years for a myriad of devices from CPUs to high speed transceivers to augmented reality chips using all of the world's major tester platforms.

### CHIEF TRAINER



#### LEE YING YING

Chief Technology Officer of Experior:

15 years' of experience in microprocessor, FPGA, SOC and tranceiver test development which encompasses pre/post silicon validation and test program development on multiple tester platforms.

## HANDS-ON MODULES

With industry grade, high-end (Automated Test Equipment) ATE testers on-site for the learners to utilize, Experior provides a unique learning environment where the training can be directly applied to any real-world engineering job in any semiconductor company. They will develop applicable (not just theoretical) product and test engineering skills with a good grasp of the fundamentals.

- 1 Tester, Handler & Prober hardware set-up
- 2 Product Reject Validation, Debug and Yield Analysis
- 3 HVM oriented Test Design, Development, Validation, Testability and Characterisation
- 4 IP Validation and Test Methodologies



We have Fortune  
500 customers from  
IDMs, Tech Start-  
ups, Design Houses,  
Fabs and  
Equipment  
Providers

# Customers

