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QUALITY

Culture of Excellence:
**Advanced Product Quality Planning
(APQP) for Manufacturers**

MEET **ALI**



Advance Product Quality Planning (APQP) for Manufacturers

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A photograph of two pilots in a modern aircraft cockpit. The pilot on the left is wearing a headset and looking at the instrument panel. The pilot on the right is also looking at the panel. The cockpit is filled with various screens, buttons, and controls. The image is overlaid with a semi-transparent dark grey layer.

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HOW ABOUT A PRE
FLIGHT CHECK LIST?



- CLIMBING MT EVEREST-

When a mountaineers climbs Mount Everest, they plan every detail, from their physical health, to supplies, and ensures everything is perfect by following a checklist.

AGENDA

01 What is a APQP?

02 Importance of APQP for Customers & Suppliers

03 Expected Roadblocks of APQP

04 The 5 Phases of APQP

05 APQP Elements

06 How LPAs can assist in managing APQP?

07 Importance of
Open Communication

08 Conclusion

09 Offer – Get a \$20
Starbucks Card!

10 Questions?

QUALITY CORE TOOLS



APQP:
Advanced Product
Quality Planning



PPAP: Production Part
Approval Product



FMEA: Potential
Failure Mode and
Effects Analysis



MSA: Measure
Systems Analysis



SPC: Statistical
Process Control

Practical Leadership



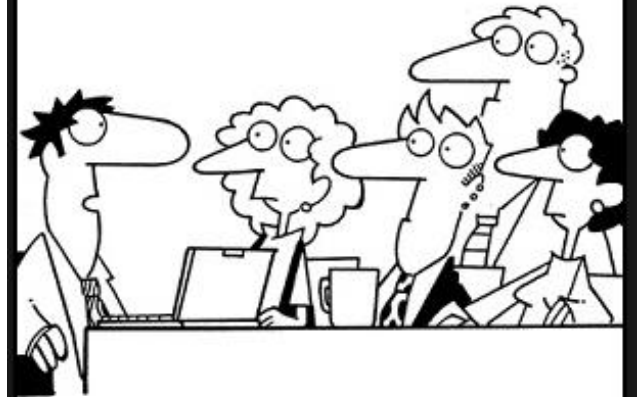
"It's not the best mission statement, but we can update it as things get better..."

Support



"I'm not getting the support I need..."

Operation



"Now that we've celebrated diversity, embraced creativity, committed to excellence, and given back to the community..."

...does anyone remember what we are actually supposed to manufacture and sell?"

What is Advance Product Quality Planning (APQP)?

Advanced Product Quality Planning is the foundation of having a structured method to define and establish the necessary steps to meet all customer requirements.

APQP covers all the prevention aspects from design to product manufacturing.



APQP considers all predictive and incidental changes.



Not using APQP for change management leads to a unsatisfied customers.



APQP steps mitigates the risks with product changes.



Objectives and goals are set by establishing a CFT, Cross Functional Team, across all departments.



Customer requirements pertaining to technical and special characteristics are well understood and documented from design to product manufacturing, utilizing standard processes and checklists.

Importance of APQP

Why is it important to the customer?



Higher quality product delivered to the customer.



Timing is significantly reduced for new product launch.



Effective communication between customer and supplier improves PPAP process.



Establishes confidence in the supplier base to deliver the product on time and at a competitive price.

Importance of APQP

Why is it important to the supplier?

Success in launching any program depends on meeting customer needs and expectations in a timely manner and at competitive prices.

Enhances customer satisfaction to launch a product on time.



Meets the customer specific requirements (CSR).



APQP enforces a structured, standardized, and well documented system.



Meets the regulatory (IATF:16949 2016) requirements, and is one of the five core tools (APQP, PPAP, FMEA, MSA, SPC).



APQP connects all stakeholders with effective communications.



Effective APQP improves profit margins!



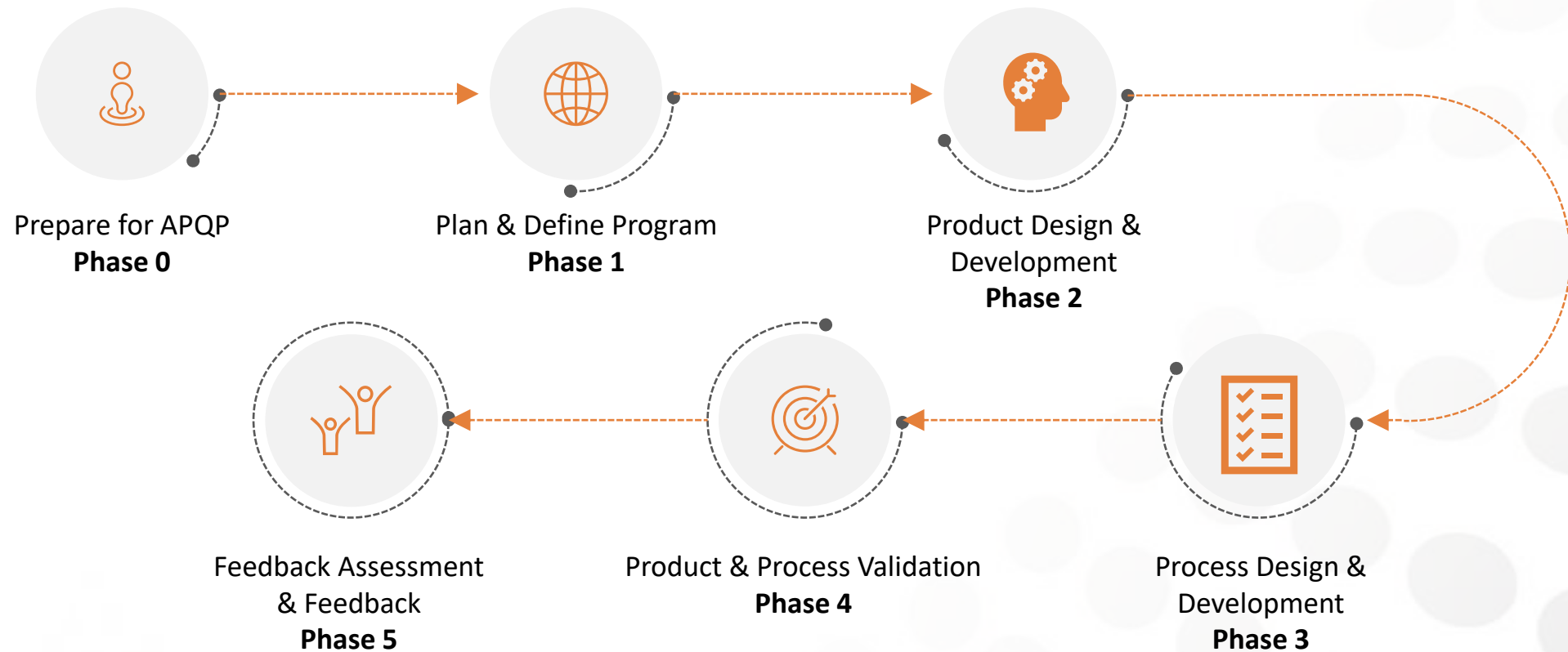
APQP is not limited to Automotive, as all industries can improve their design and process development.



Roadblocks to APQP

- No commitment nor oversight of the process by management.
- Don't understand the requirements.
- No dedicated resources.
- No targets for timing and defined KPIs.
- Priorities are not set.
- Lack of discipline and accountability.

Advanced Product Quality Planning (APQP) Process Flow



PHASE 0

Prepare for the customer



- Listen to the voice of the customer
- Competitive market research
- Review business plan
- Review lessons learned database
- Process and product benchmarking
- Complete risk analysis & reliability study
- Customer input based on CSR
- Establish KPIs

PHASE 1

Plan & Define Program



- Define project goals
- Review customer PO
- Drawings
- Design goals
- Quality goals
- Reliability goals
- Initial Bill of Material (BOM)
- Preliminary process flow
- Critical SC, CC, HIC Characteristics
- Project team selection and kick off plan
- APQP Documents

PHASE 2

Product Design & Development



- Design Failure Mode and Effects Analysis (DFMEA)
- Design for Manufacturing and Assembly (DFM/A)
- Design Verification
- Design Review
- Prototype Control Plan
- Engineering Drawings
- Engineering Specifications
- Material Specifications
- Change Control for Drawings
- New Equipment, Tooling Requirements
- Special Product & Process Characteristics
- Gages / Testing Equipment Requirements
- Team Feasibility Commitment
- Gateway Approval

PHASE 3

Designing and Developing the Process for Product Manufacture



- Review the quality system
- Plant layout from incoming to shipping
- Process FMEA
- Significant and critical characteristics
- Process flow chart
- Pre-Launch Control Plan
- Process work instructions
- Measurement System Analysis (SPC)
- Packaging Standards and Specifications
- Preliminary Process Capability Plan
- Gateway Approval

PHASE 4

Validating the Process & the Product



- Significant Production Run
- Measurement Systems Analysis (MSA) Results
- Process Capability Studies
- Production Part Approval Process (PPAP)
- Production Validation Testing
- Packaging Evaluation
- Production Control Plan
- Quality Planning Sign-Off
- Gateway Approval

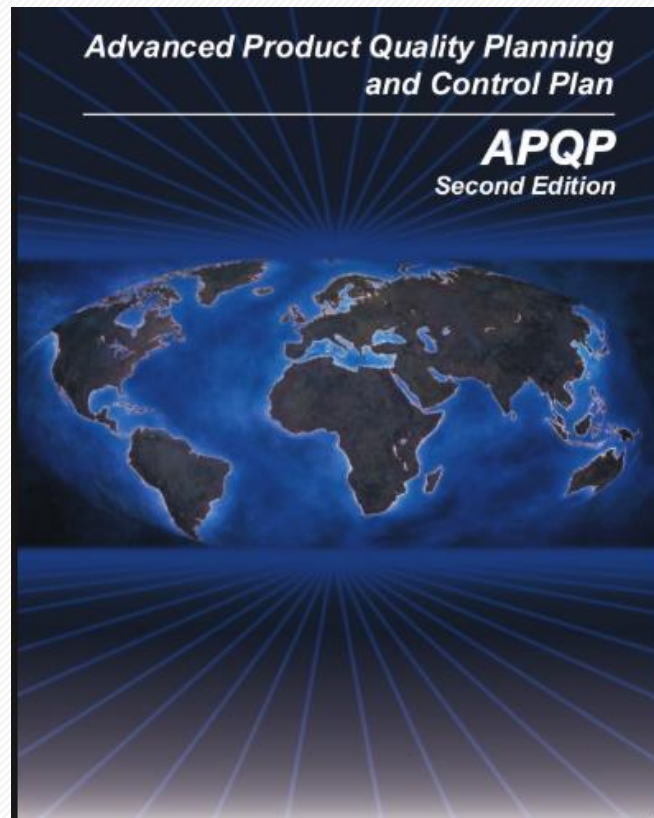
PHASE 5

**Launch,
Assessments, &
Continual
Improvement**



- Reduced Variation
- Improved Customer Satisfaction
- Improved Delivery Performance
- Effective Use of Lessons Learned
- Meet internal and external timing
- Gateway Approval

List of APQP Elements



List of APQP 23 Elements:

1. [Customer order](#)
2. [Customer specifications](#)
3. [Ability Appearance](#)
4. [Design FMEA](#)
5. [Design Review](#)
6. [Design Verification plan](#)
7. [Quality Planning](#)
8. [Inspection Method, Inspection Equipment & Tools](#)
9. [Inspection Plan / Control plan for Prototype item](#)
10. [Prototype item's production & inspection](#)
11. [Design - Drawing & Specifications](#)
12. [Confirmation of manufacturing feasibility](#)
13. [Process flow chart & Mass Production Layout](#)
14. [Process FMEA](#)
15. [Inspection Equipment Capability](#)
16. [Pre-production / Pre-release control plan](#)
17. [Process Instructions](#)
18. [Logistics Concept includes Packaging materials](#)
19. [Production First Trial Run](#)
20. [Mass Production Inspection Plan / Control plan](#)
21. [Initial Process Capability Study](#)
22. [Technical tests on Production Items](#)
23. [Initial Sampling Inspection](#)

Layered Process Audits
Perform on each element will significantly reduce error and timing to launch the program.

How can LPAs assist in managing APQP?

MANAGING INDUSTRY

Audit questions in every phase can be designed to ensure checks are made. For example, you can schedule LPAs for:

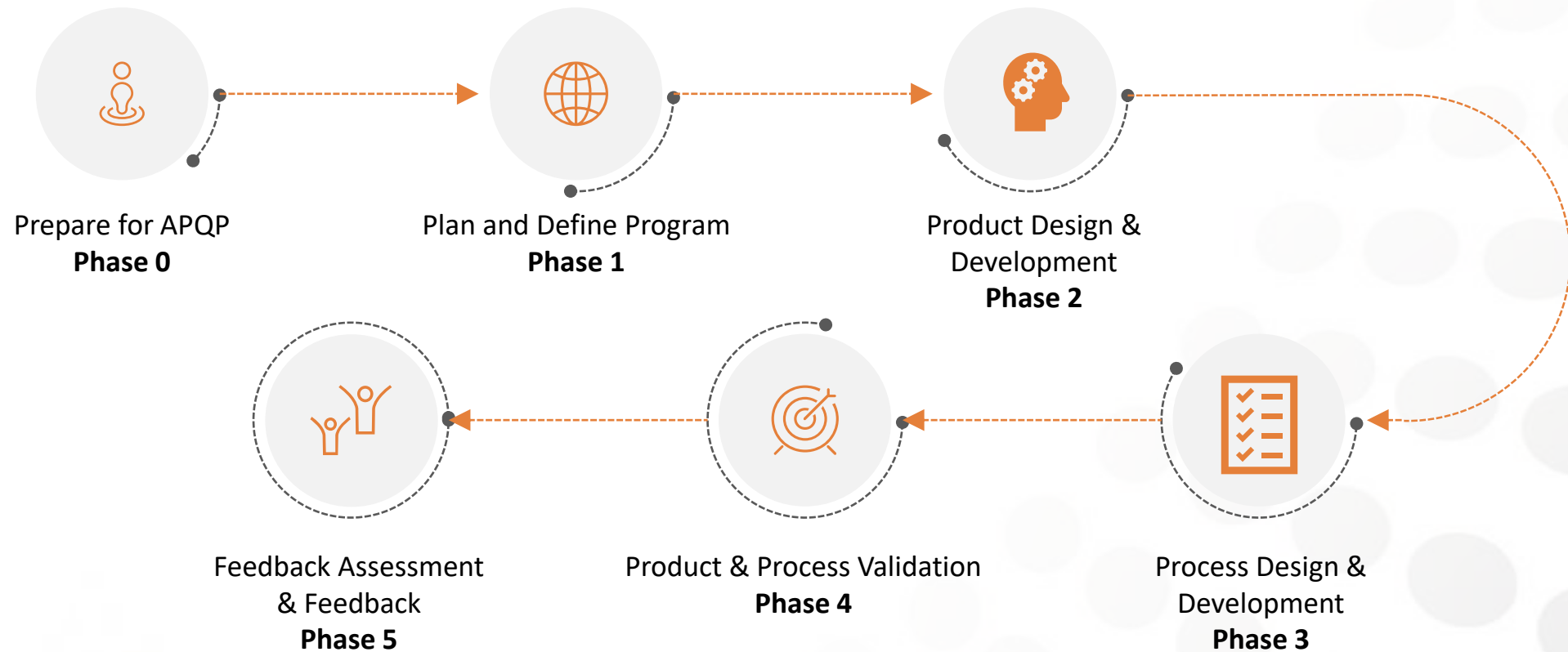
- Production Part Approval Process (PPAP)
- DFMEA
- PFMEA
- Lessons Learned
- Warranty Analysis

LPAs MANAGEMENT

- LPAs are quick process audits conducted by every layer of the organization.
- LPAs will significantly reduce the errors and timing, and increase cost saving, during the launch of the programs.
- Management can effectively use LPAs to ensure the program is running on time, and clear any possible roadblocks.
- Learn more about LPAs at bit.ly/WhatAreLPAs



Advanced Product Quality Planning (APQP) Process Flow



OPEN COMMUNICATION



- How does each level understand quality?
- Is quality an important part of mission and vision?



- Are customer needs understood?
- Is customer satisfaction calculated by time cost and quality delivered?



- Has LPAs been established at all levels of APQP process?
- Has management reviewed the KPIs (RYGs) of the planned project and cleared all road blocks?

CONCLUSION



- For effective value added APQP organization MUST establish a cross functional team and follow QFD standard procedures for effective implementation of APQP phases.



- Establish timing charts and KPIs.
- Use LPA audits at every phase to reduce errors with checks and balances.



- Using the LPAs will significantly help program management to ensure the product is launched in time.
- Customer and supplier timings are met by reducing variation and costs.



Beacon Quality Free Trial

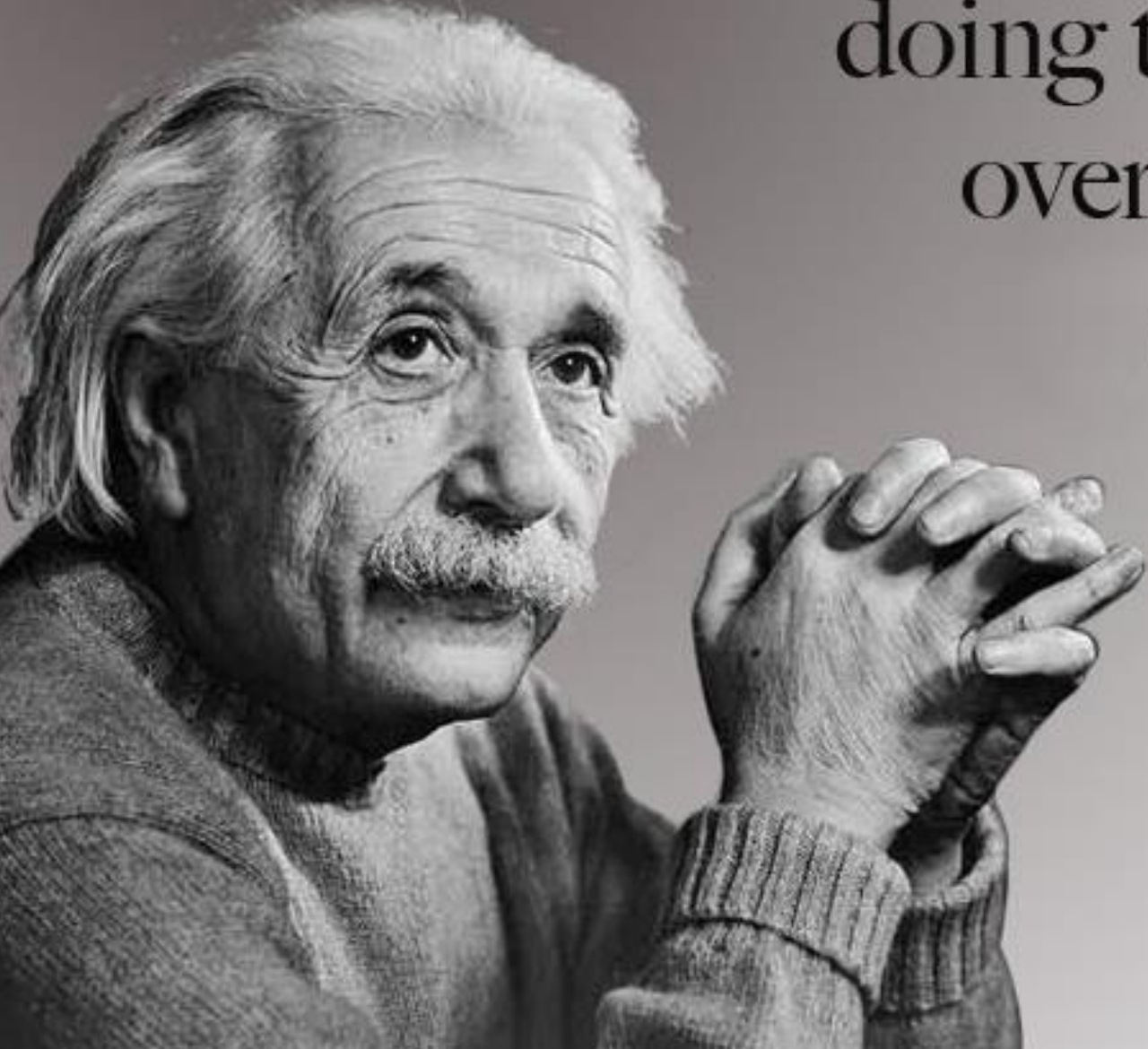
- 4-week guided pilot
- Full access to Beacon Quality iOS app, Android app, web-app, desktop
- Weekly 1-on-1 training
- Get up and running in hours!

Free Trial

bit.ly/BeaconQuality



QUESTIONS



INSANITY:
doing the same thing over and
over again and expecting
different results.

~ Albert Einstein