



## Bringing Down the Walls

### **SIGiST Event**

30.04.07

Igal Levi

System Testing Section Head

# Agenda

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## Overview

- Kodak
- Output Devices products

## Testing

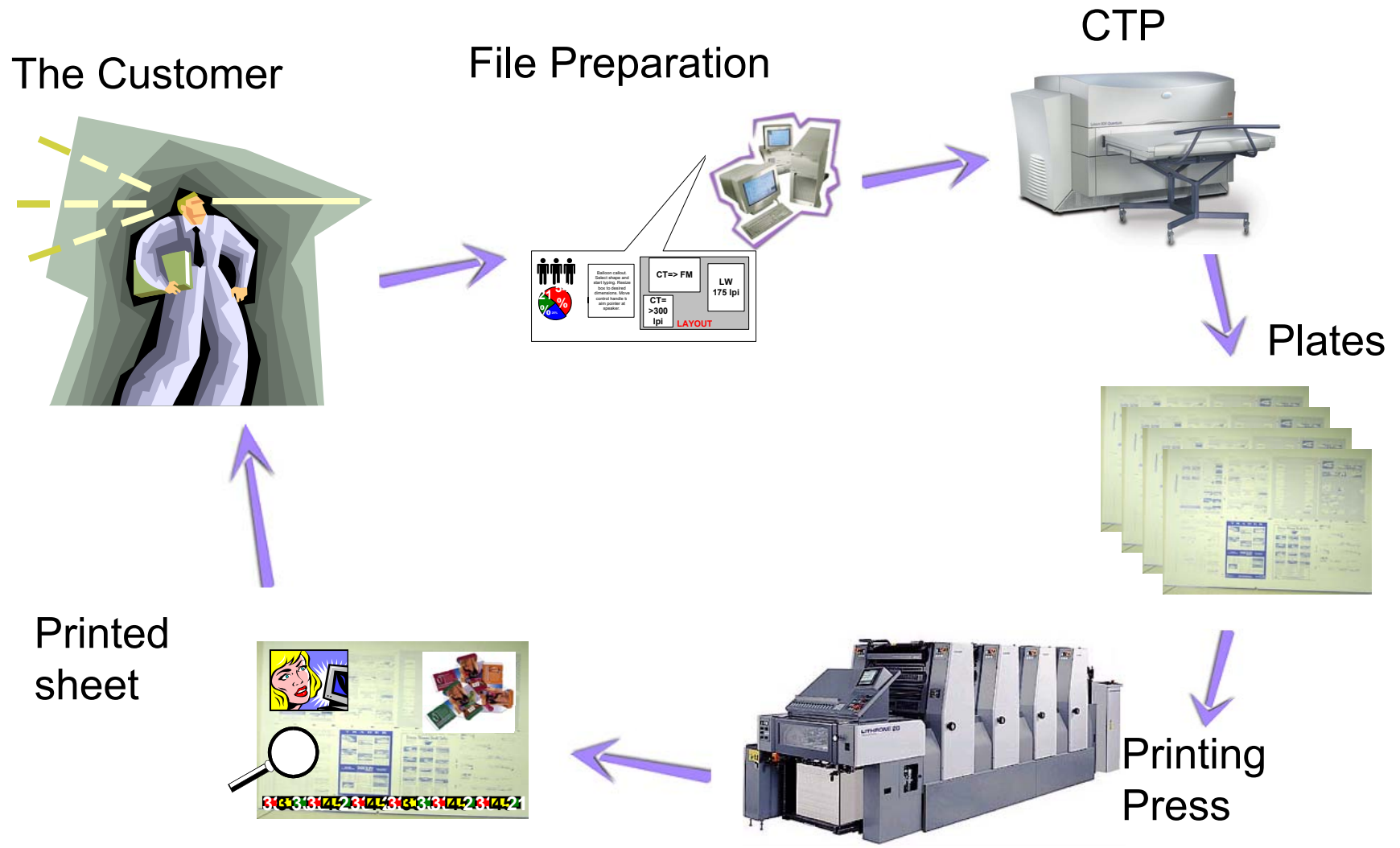
- Where we were...
- What have we done...
- Where we are today...

# Say Kodak – Say Hi-Tech

- 900 employees in Kodak Israel
- 450 R&D multidisciplinary skill set
- Divisions:
  - PODS – Digital printing
  - Output Devices – Pre-press solutions , Thermal CTP
  - Consumables - Plates
  - Digital Capture group – Cameras, Scanners
  - BWF – Business Workflow



# The Printing Chain



# Output Devices Products



RIPing



**Magnus 400 Quantum**



**Magnus 400E**



**Lotem 800**



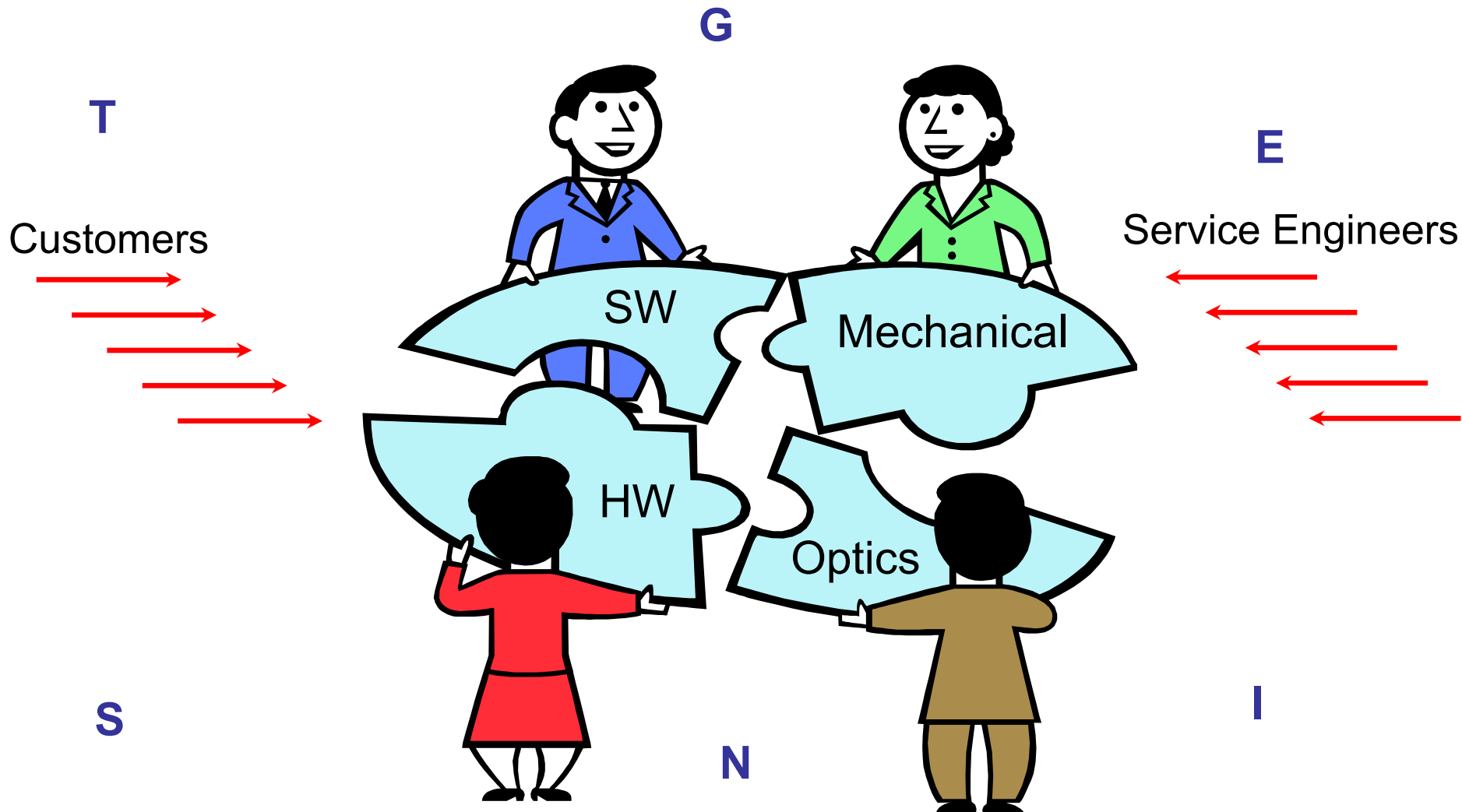
**Magnus 800 MCU**



Processing



# Where we Were





# Where we Were...

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- Project manager responsible for testing on top of their main tasks
- Integrators performed the tests
- Developers defined the tests
- Poor testing documents
- Poor records
- Short time for testing
- Many patches
- R&D busy in extinguishing fires

## Results:

- We launched products that were not tested properly
- Long periods for Beta testing
- A lot of service effort

# First Management Decision

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- Application engineer will write all testing documents
- Defined bug management system (PR's)
- Automation using WinRunner

## Results:

- The testing documents that were written were for GUI
- Few bugs were reported into the PR system
- R&D still extinguishing fires
- No major improvements in the product quality



Announcement (09/04)

“We will have a Testing Team”

# Day After the Announcement

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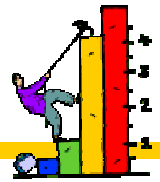
- Team = Two testers
- Testing only one product at a time (Magnus 800)

## Feedback:

- It's a slogan
- It will not last a long time
- What can they do that we didn't?

# Challenges

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- How to create the recognition for the testing team?
- What can be done with two testers?
- Building the team from zero
- How to stop the automation activities?
- No functional requirements, only system requirements
- How to start testing a multi-disciplinary product?
- Methodology – most are for SW, how we transfer it to M.D products
- How can I harness the project team and the R&D teams?
- Management recognition - Need time for writing STD's, test cycles...

One thing was clear:

**We can't fail!**

# What we have done

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- Created an infrastructure
  - Bug system – Clear Quest
  - Used the Test Director for managing the tests and requirements
- Reverse Engineering – prepared an ASRL
- STP, work plan
- Prepared testing labs
- Stopped automation activities
- Test only one product at a time (Magnus 800)
- Focused on the main sub system (loading system)
- Weekly bugs meetings
- Weekly reports

# Two Months Later...

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- More than 500 bugs were found
- Product management understood that we are far from the level of quality that we need in order to be ready for customers.
- Added additional two integrators from the production line and R&D
- More testing machines
- The programmers started to sweat

There is still suspicion around the testing team.....

# Five Months Later...

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- More than 1200 bugs were found
- The product management understood - we will delay the release date
- Added one additional integrator from R&D
- Worked in two shifts
- The programmers work very hard

There is still suspicion around the testing team (most of the team are on loan).....

The management started to believe that there is progress:

- As a result, additional project to test (Magnus 400)!
- Still using testers on loan from R&D and production line

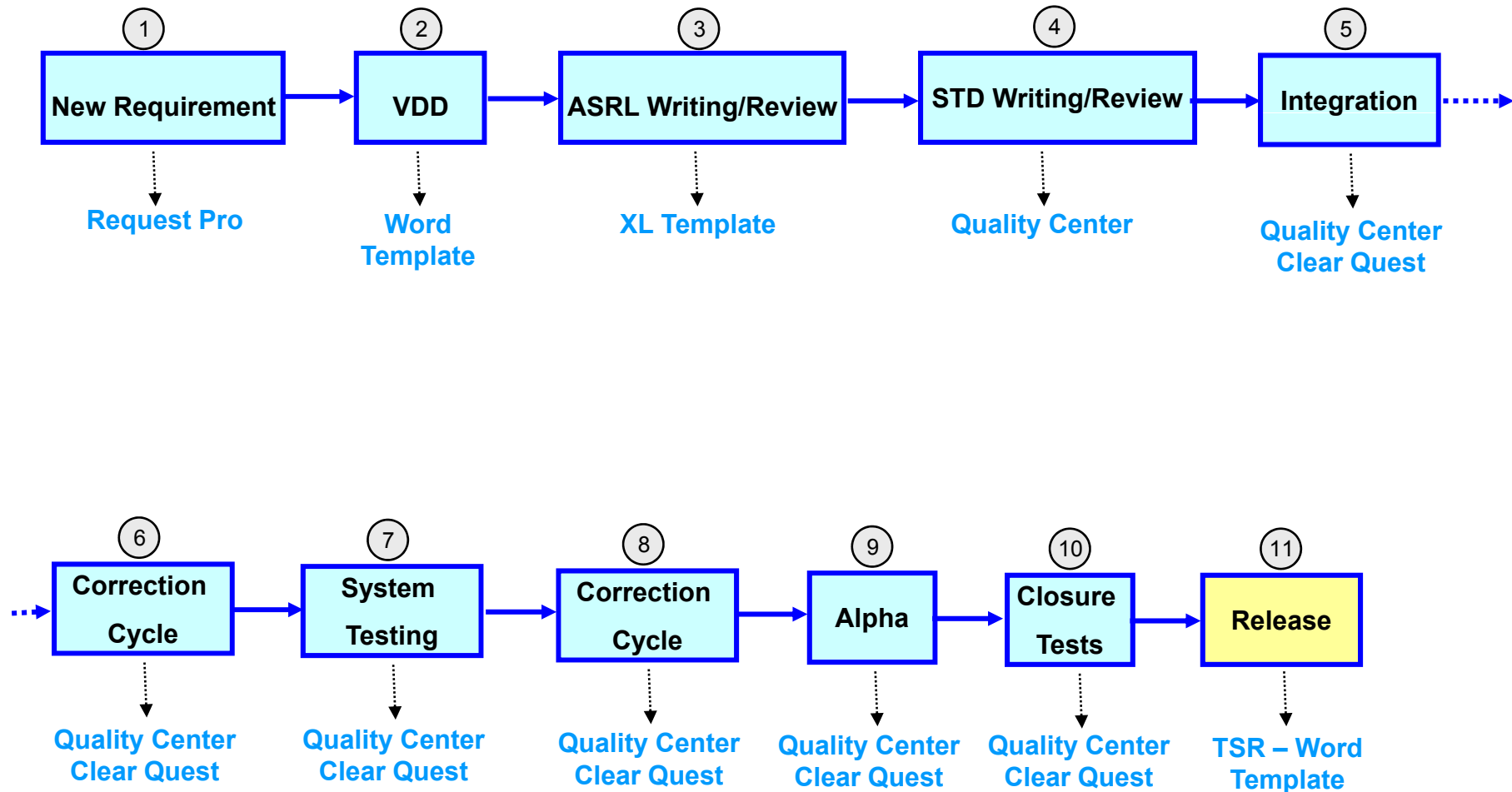
# 18 Months Later...

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- We released the Magnus 800 for Beta after two delays
- More than 3500 bugs were found before the release
- The Magnus 800 Beta was the most successful Beta ever
- The Magnus 400 moved to Full production with exceptional sales
- Less Travel needed to customers – reduced by 60%
- We recruited six testers to our team
- There are no doubts about the testing team existence
- The R&D process has improved significantly



# Testing Life Cycle As part of the R&D Process



# What does Management Think...



**Kuty Paperny, OD KIL Manager WPE GCG:** “In the past it was very clear that the engineering disciplines like Electronic, Mechanics, S/W and Physics are parts of the R&D process, and that system testing was a necessary evil that we needed to overcome at the end of the R&D process. Today it is very clear to the entire R&D team that the testing team, process and methodologies are an integral part of the R&D from the idea to product end of life.”

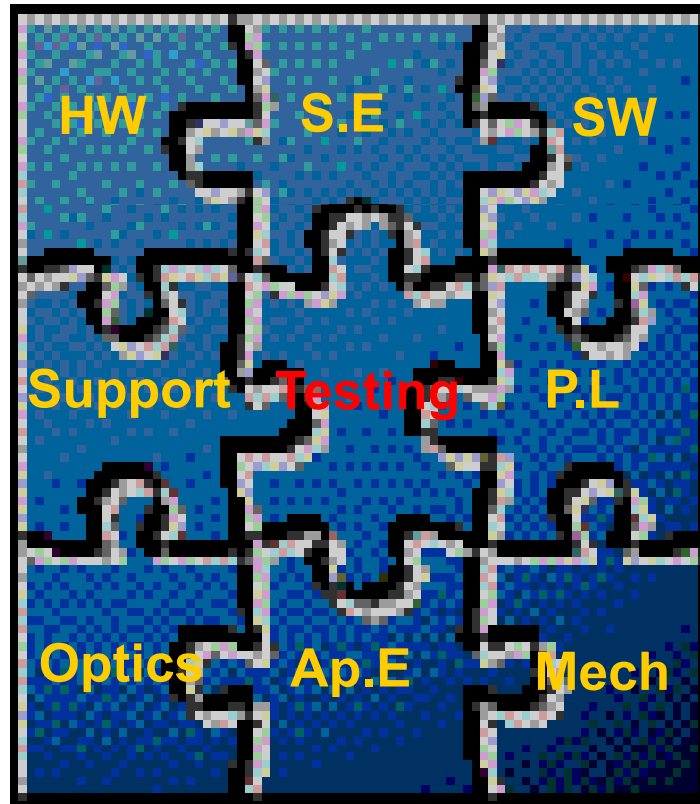
**Yehuda Solomon, OD KIL R&D Manager:** “The testing team is like the air condition in your car or your cellular phone ....Before you have it you think it is a luxury, but after you have it, you understand the real value.”

**Assaf Zach, WW OD Product Support Leader:** “ The formation of a dedicated professional testing team reduced our service costs and improved customer satisfaction. We notice a significant improvement in the quality of products and field change orders we deliver to the field service organizations. We are at the point that the Product Support people demand that their deliverables be tested by the testing team prior to release to test in the field (beta).”

# Where We Are Today

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Customers



Service Engineers



# Where We Are Today

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- The testing team is one of the professional sections
- 8 full time testers
- Every member of the team are ISTQB qualified
- Involved during the entire R&D development process (PDR,CDR..)
- Testing HW and SW components, ECO, FCO, products...
- Expanded our responsibilities to include:
  - Reliability testing
  - Plate qualification
- In pipeline:
  - More new products to test
  - Evaluating automation tools
  - Performing Unit test

# Few Tips

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- Never doubt the testing outcome
- Be attentive to the surroundings but don't let them lead your way
- Before any decision think about the other teams affected
- Be aware about management considerations
- Mutual respect
- Consistency
- Don't let the latest success put you at ease – there is always a challenge ahead



“Taking what you get and working hard for achieving respect and professionalism is a must if you want to achieve management confidence.”