

SOME RESEARCHER CONSIDERATIONS

When Conducting
Empirical Studies in Industry



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THE PROBLEM PICTURE

(IN 5 MIN?)



- › **Do you fully understand the problem at hand?**
- › Communicating with the right persons?
- › How do you relate to unpleasant results?
- › How do you treat the business aspects and validity?
- › How do you manage intellectual property?
- › How is your competence valued?

Read the paper

REAL EXAMPLE

TESTING MUST GO FASTER



> Industrial Manager:

- Testing takes too long!
- We must test less!

> Academic Researcher:

- Research on minimizing the regression test suites



TESTING OUR SYSTEM IS SO COMPLEX AND EXPENSIVE



› Industrial Manager:

- Testing is so complex
- We cannot find the real faults

› Academic Researcher:

- Model-Based Test
- Formal Verification



No, do not hire “Models” to create the test....

*WHAT THE INDUSTRIAL
MANAGER IS "REALLY" SAYING:*



*We do not really understand
this testing business, but
somehow the cost and time
spent seems to mismatch our
expectations*

INSTEAD THE PROBLEM MIGHT BE



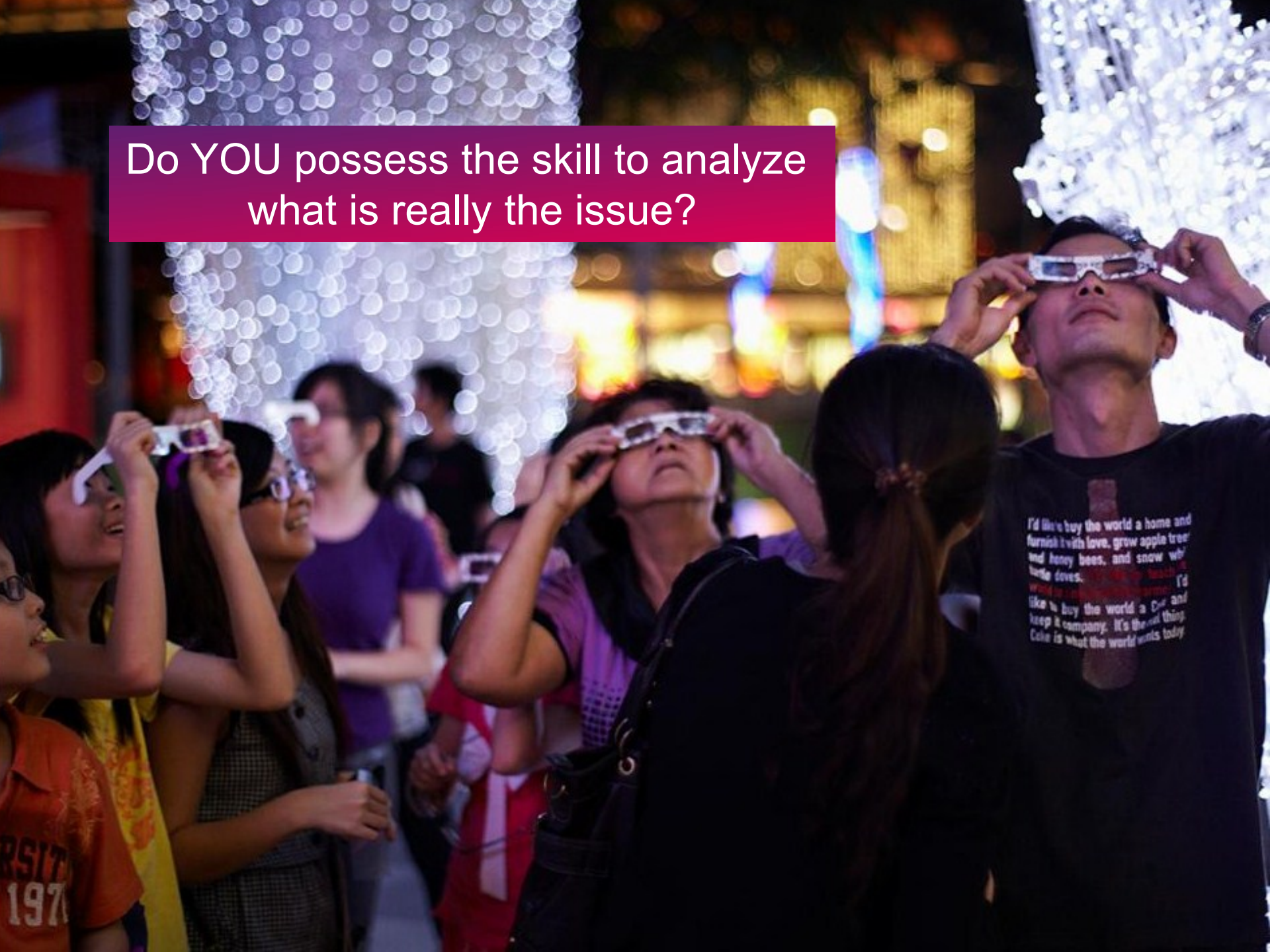
- › Wrong expectations?
- › The process of testing is poor?
- › It take too long “on the critical time line” before release?
- › The organization finds faults too late in the process delaying release?
- › Fixing the faults takes too long?
- › The test suites are not effective enough (finds enough faults) to motivate the delay?

OR THE PROBLEM IS..



- › The test cases are poorly written (lacks architecture) & do not use techniques?
- › The test skills are poor ?
- › We have not understood test automation – we just automated our manual tests?
- › The understanding and measurements of what is “enough” tested for a certain quality is not yet sufficiently stated in this organization?
- › The Test Tools we use are old and too expensive (or too difficult to change)?
- › The contract situation we signed is lousy – we lose money if it is too many faults or we get delayed....

Do YOU possess the skill to analyze
what is really the issue?



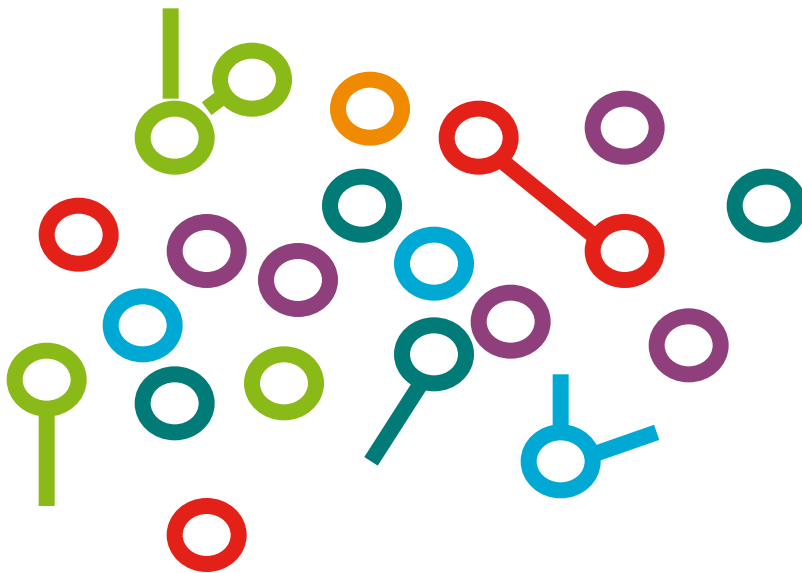
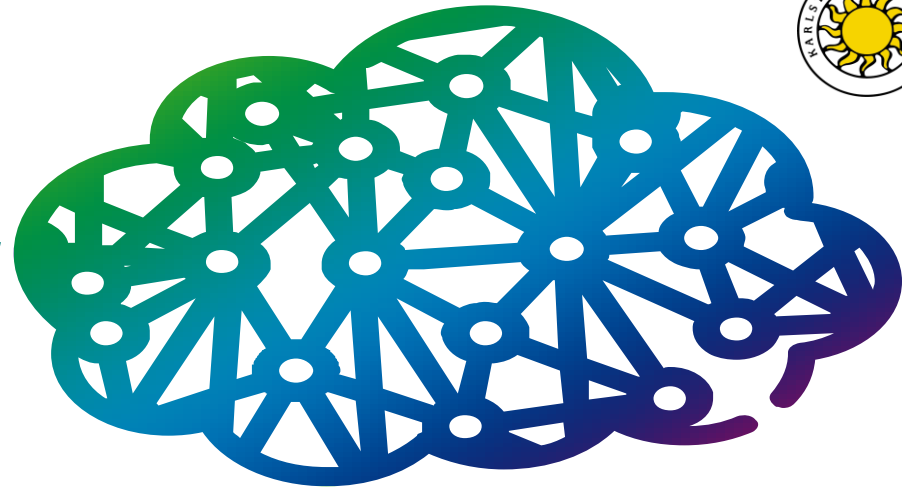
I'd like to buy the world a home and
furnish it with love, grow apple trees
and honey bees, and snow white
turtle doves. ~~I'd like to buy the world a home~~
~~I'd like to buy the world a home~~ I'd
like to buy the world a Coke and
keep it company. It's the real thing,
Coke is what the world wants today

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Industry view

A SYSTEM

*Series of “connecting” Problems:
People/org, hw,sw,\$, process....*



Academic view

*A topic/area
A specific problem
(in a specific context)*

*DO NOT ASK PEOPLE WITH
THE WRONG COMPETENCE,
AND RIGHT POSITION!*



LET US TALK MONEY!



- › A highly distinguished professor at a US university

“I did my math, and I could prove that my algorithm saved 50 000\$” using my method – and STILL the industry was not interested?

- › The questions the professor did NOT ASK!

- How many people does this change affect?
 - › 1000nds of developers, 1000nds testers?
- Is it a relevant improvement for this project?
- How many could be trained in the new way?
- How many TIMES will this method be used or is it a one time save?
- In what way does this affect the final product? How much money is saved?



“One week in my industrial project costs 300 000\$”

The black cloud



Ethics, validity

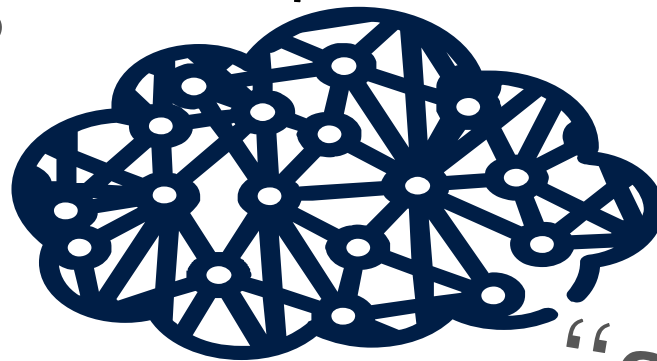
Real Problem?

Information hiding

Proportion of study?

Narrow or?

Who gains?



IPR

Skewing

“adaptation”

Data secure?

Papers &
electronic
info gone?

Consequences?

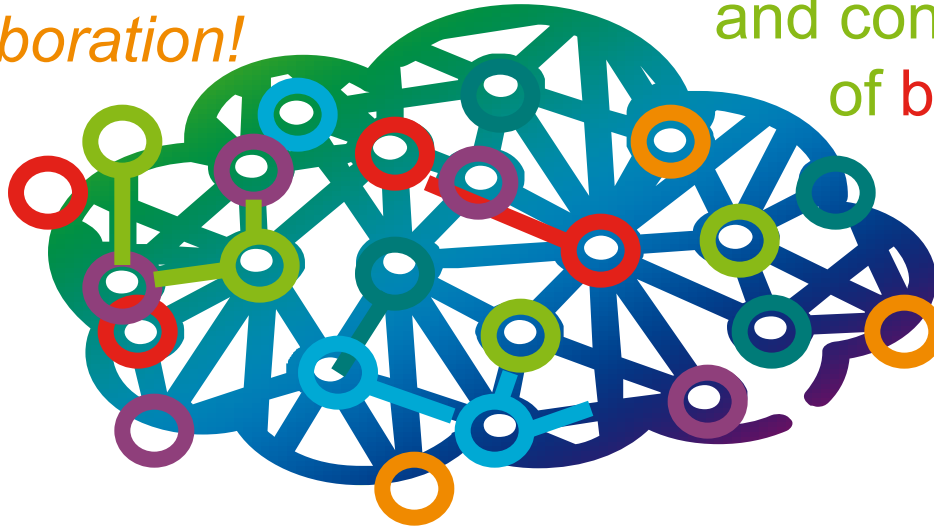
Real Data?

Successful cooperation!



*You are both returning
to the collaboration!*

Together you are **Innovating**
and contributing to a world
of better know-how



Both Industry and Academia
get their **goals fulfilled**

**Contribution is
deployed and used**

**Both Gain Recognition
(Publication)**



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