

Experiences in Scalable Software Quality Assurance Consulting

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Experiences in Scalable Software Quality Assurance Consulting



1 Background - the ever changing technology

2 Problem - the ineffective know-how transfer

3 Approach at DATEV eG

3.1 The long way from knowledge to routine

3.2 Active collaboration

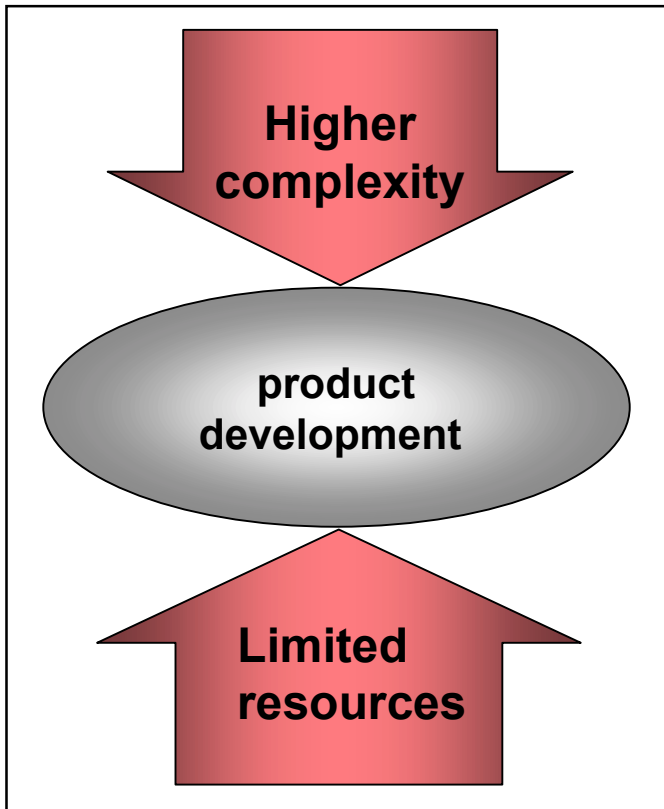
3.3 Know-how broking

4 Conclusion

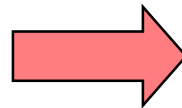
Background - the ever changing technology



Software quality assurance know-how becomes the bottle-neck!

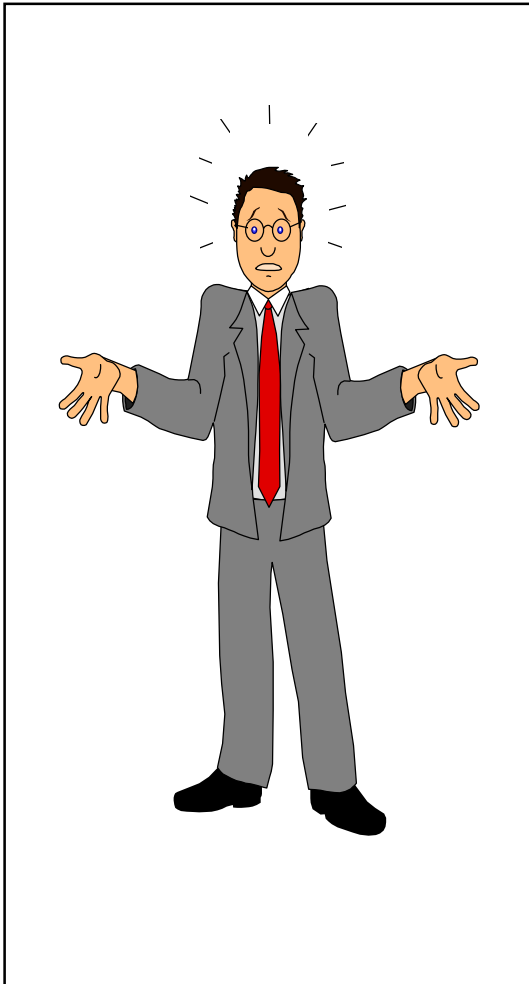


- **Higher complexity of applications**
- **New technologies any time**
- **Resources don't expand in the same way**
- **SQA-people have to do their job**



Better and more skills necessary!

Background - some symptoms



- **Forgotten seminar content after a few days**
- **Weak adoption of the seminar's stuff into day-to-day work**
- **Traditional teaching works for some people, for others not**

Background – our company

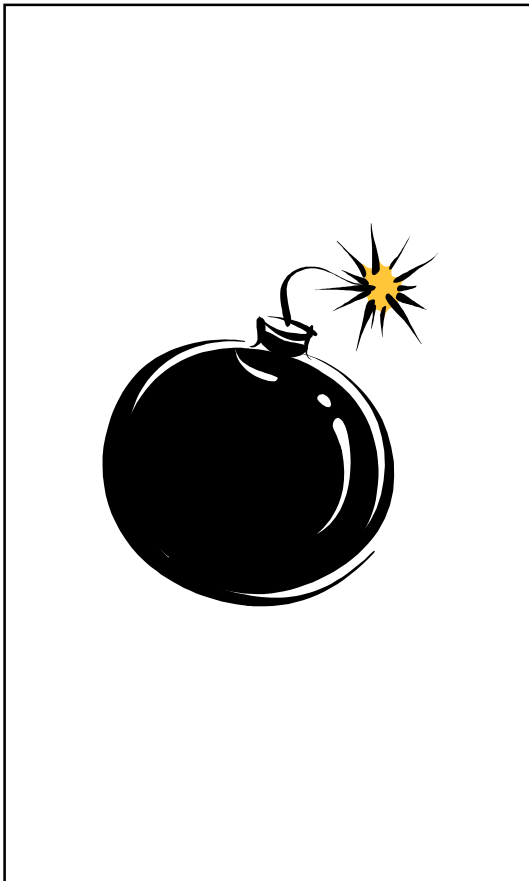


- **A registered cooperative**
- **Computing services for tax consultants, accountants and related professions**
- **Over 566 million EUR turnover in 2002**
- **Over 60 client-server applications**
- **Internal SQA consulting for developers and testers**

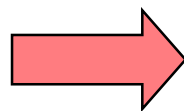
Problem - the root causes of ineffective know-how* transfer



*know-how: direct applicable problem solving knowledge for productive tasks



- Testers have different levels of know-how
- Subjective overcharge may exist while learning complete test procedures
- Teaching is only the beginning
- No systematic re-use of know-how between projects



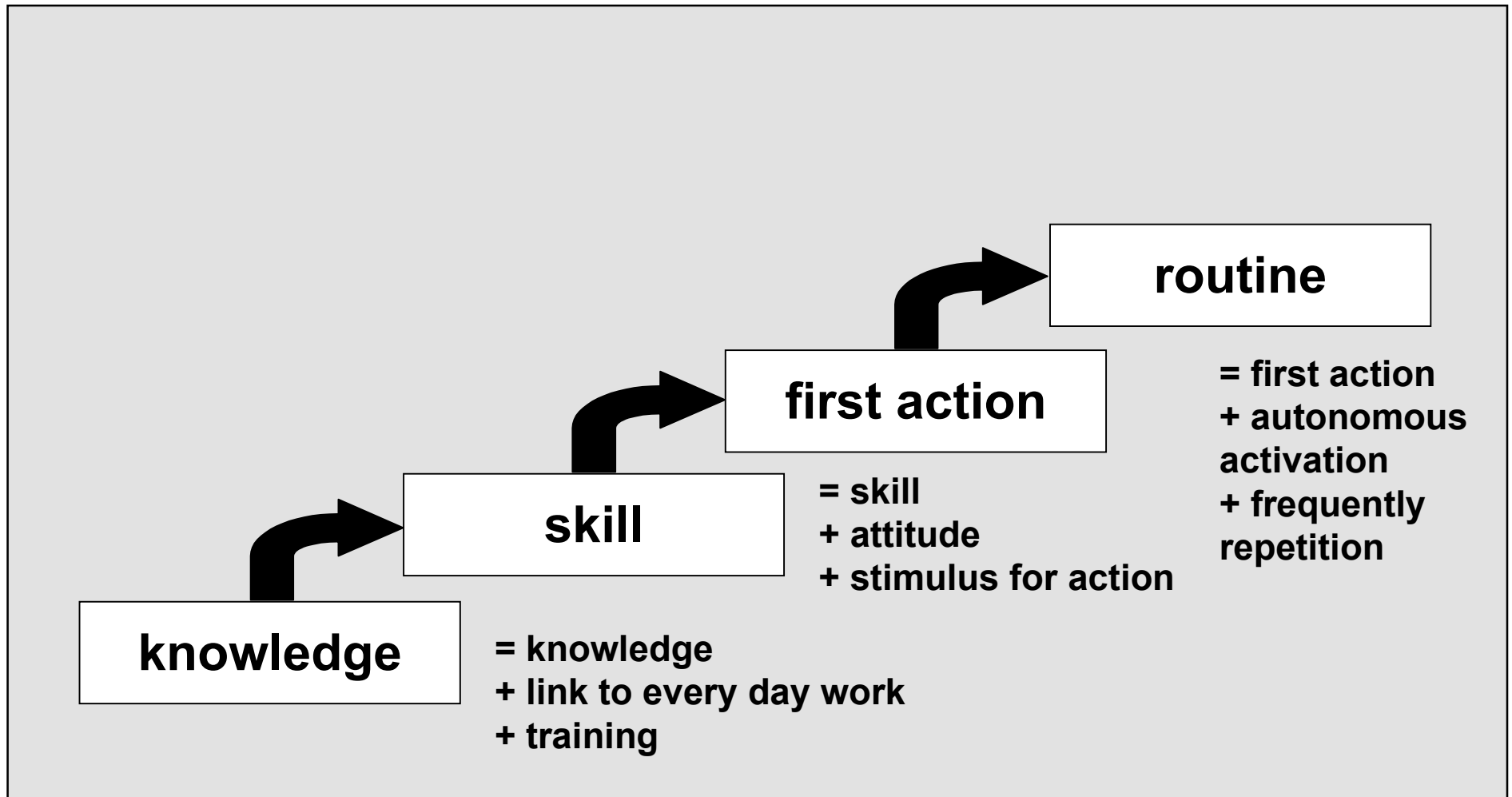
**Know-how* is the key,
not abstract knowledge!**

Approach – Scalable Quality Assurance Consulting

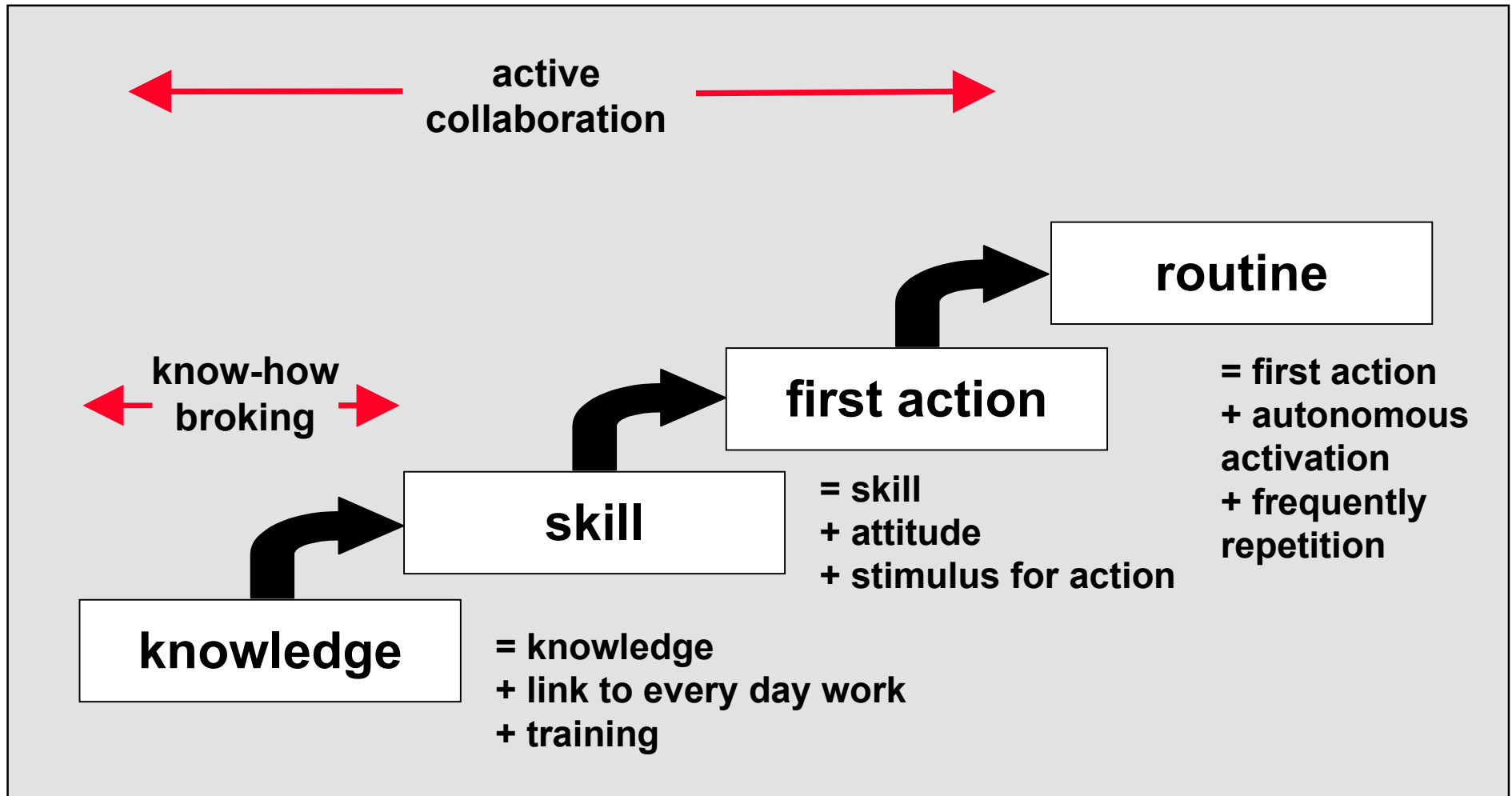


- **The long way from knowledge to routine**
- **Active collaboration**
 - Adjustment factors
 - Phases
 - People issues
- **Know-how broking**
 - Patterns
 - SQA forum

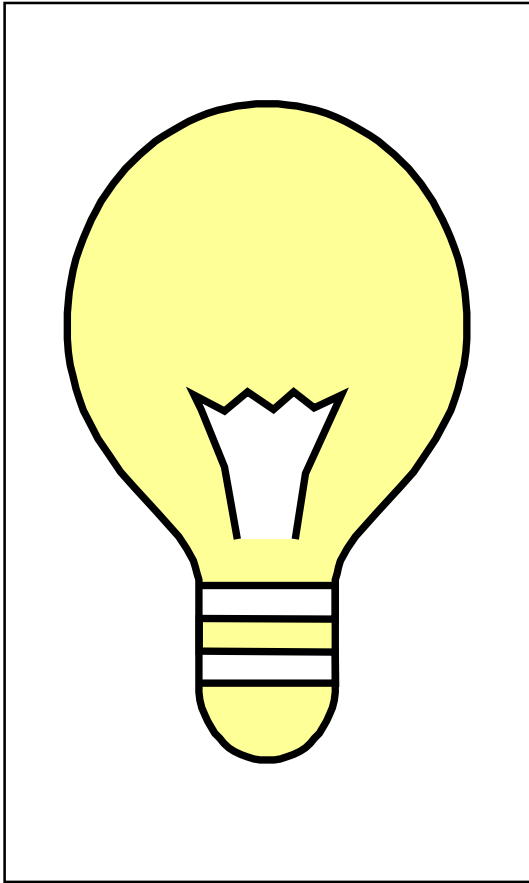
Scalable Quality Assurance Consulting - the long way from knowledge to routine



Scalable Quality Assurance Consulting - the long way from knowledge to routine



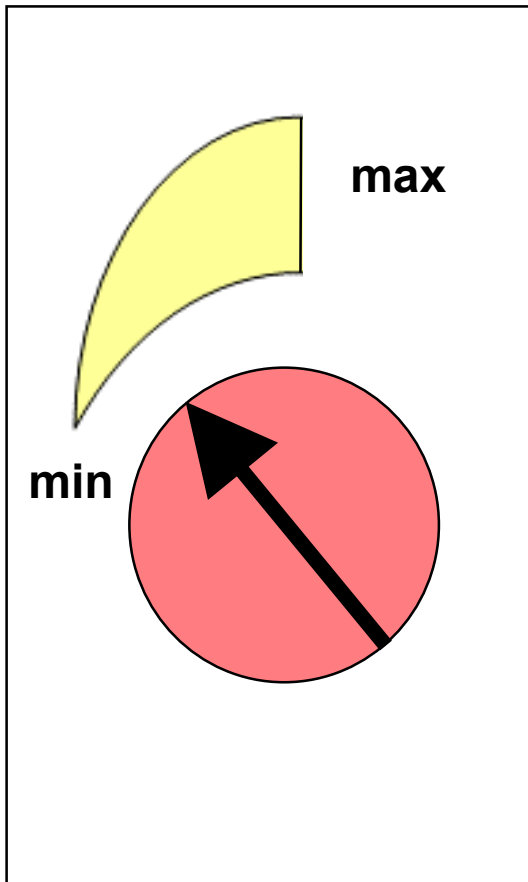
Active collaboration - the core concept



As a consultant:

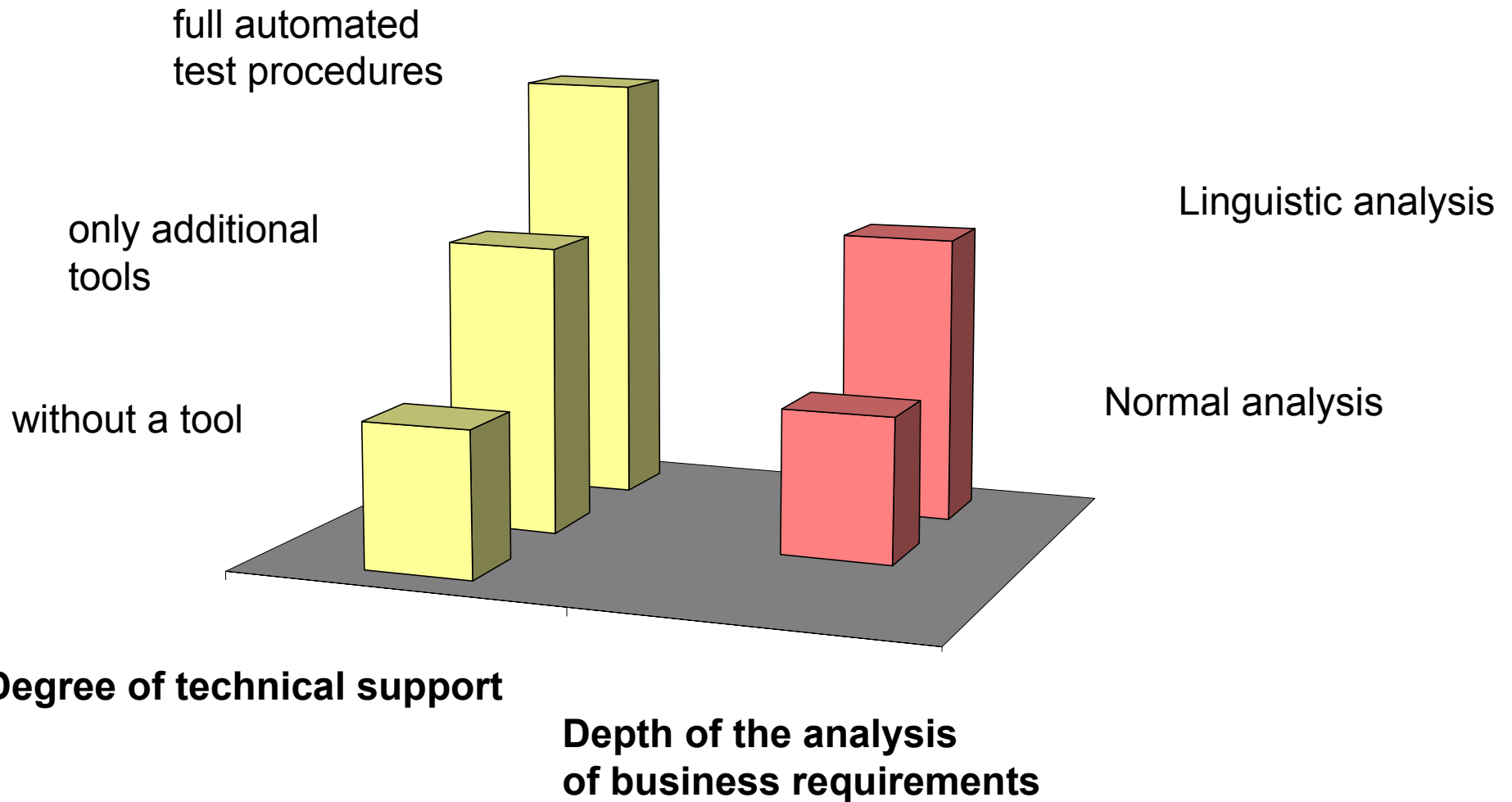
- **Work together with the clients**
- **Work on real projects, not on “prepared” examples**
- **Enable learning**
- **Act as a “safety net”**
- **Start from the clients’ knowledge**
- **Encourage first actions**

Active collaboration - the adjustment factors (overview)

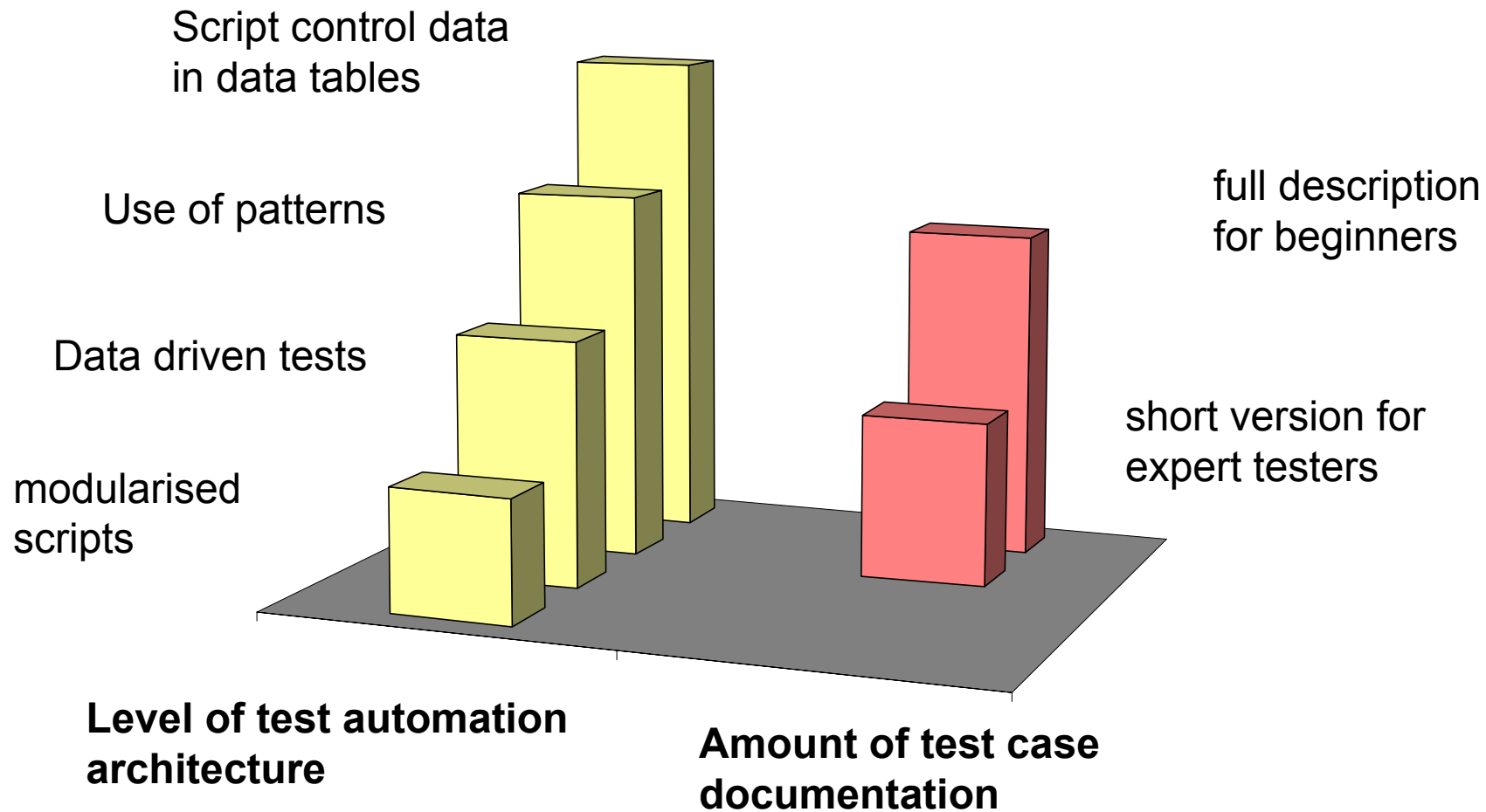


- Degree of technical support
- Depth of the analysis of business requirements
- Level of test automation architecture
- Amount of test case documentation
- Amount of ready made packages of test procedures

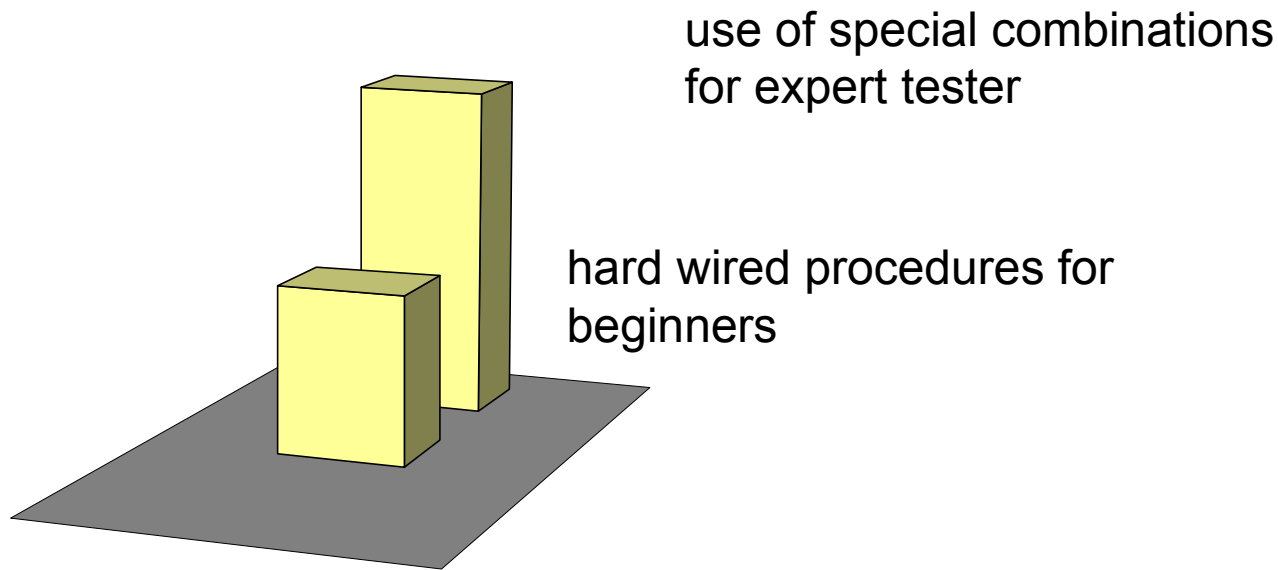
Active collaboration - the adjustment factors (I)



Active collaboration - the adjustment factors (II)



Active collaboration - the adjustment factors (III)



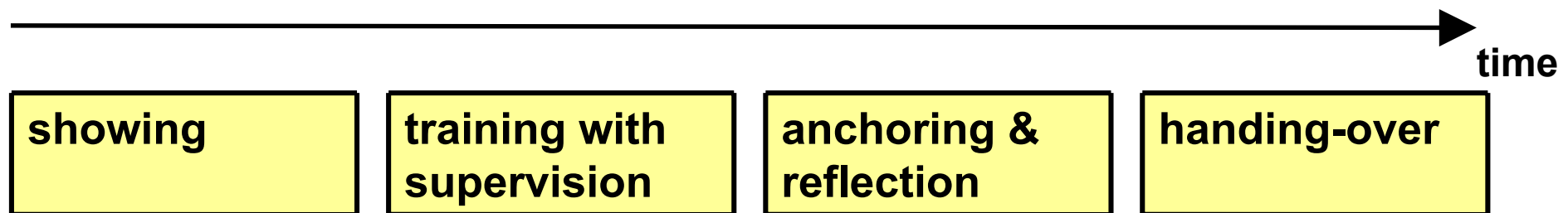
**Amount of ready made packages
of test procedures**

Active collaboration – the phases

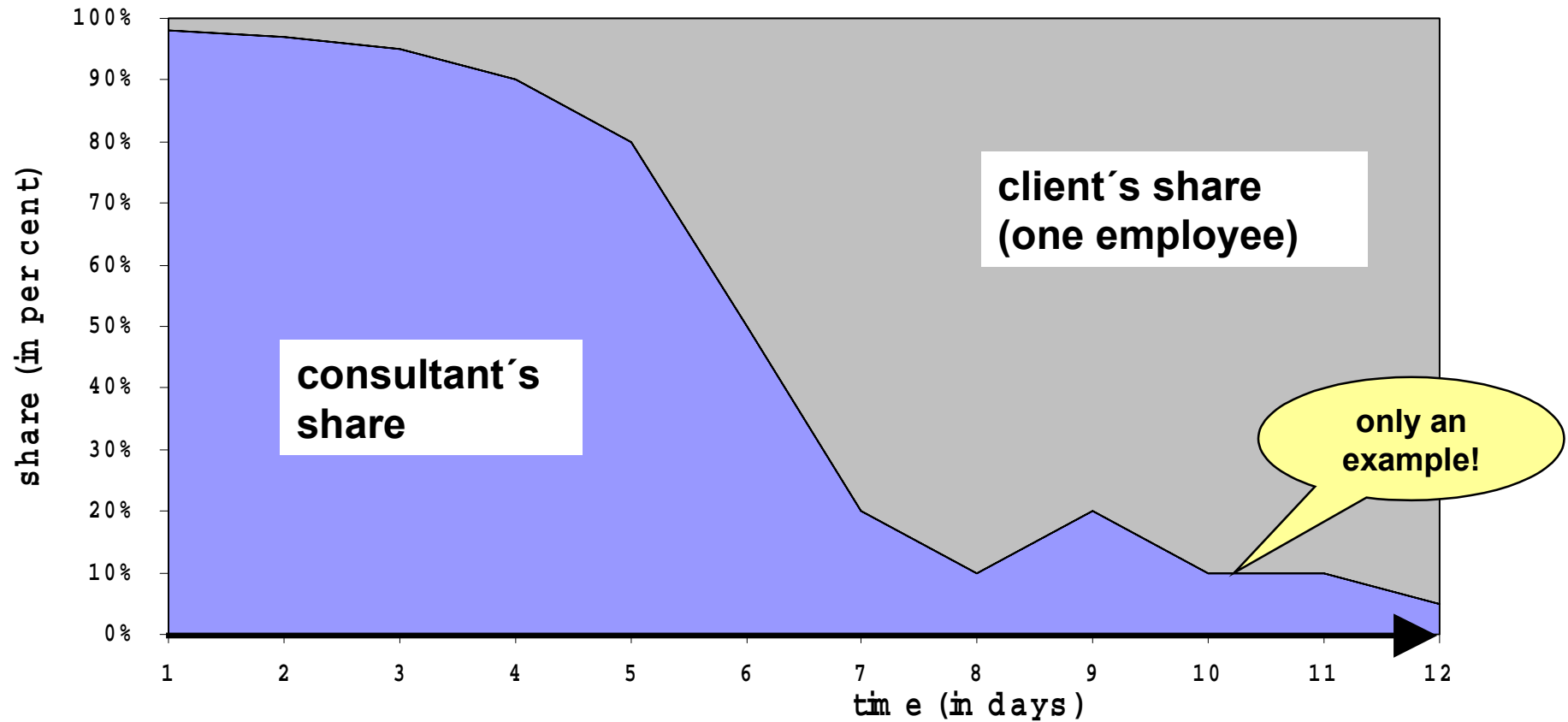


As a consultant:

- Explain the idea
- Show how it works
- Let them practise
- Give support
- Discuss pro's & cons's of the solution



Active collaboration – from an observer to a responsible worker



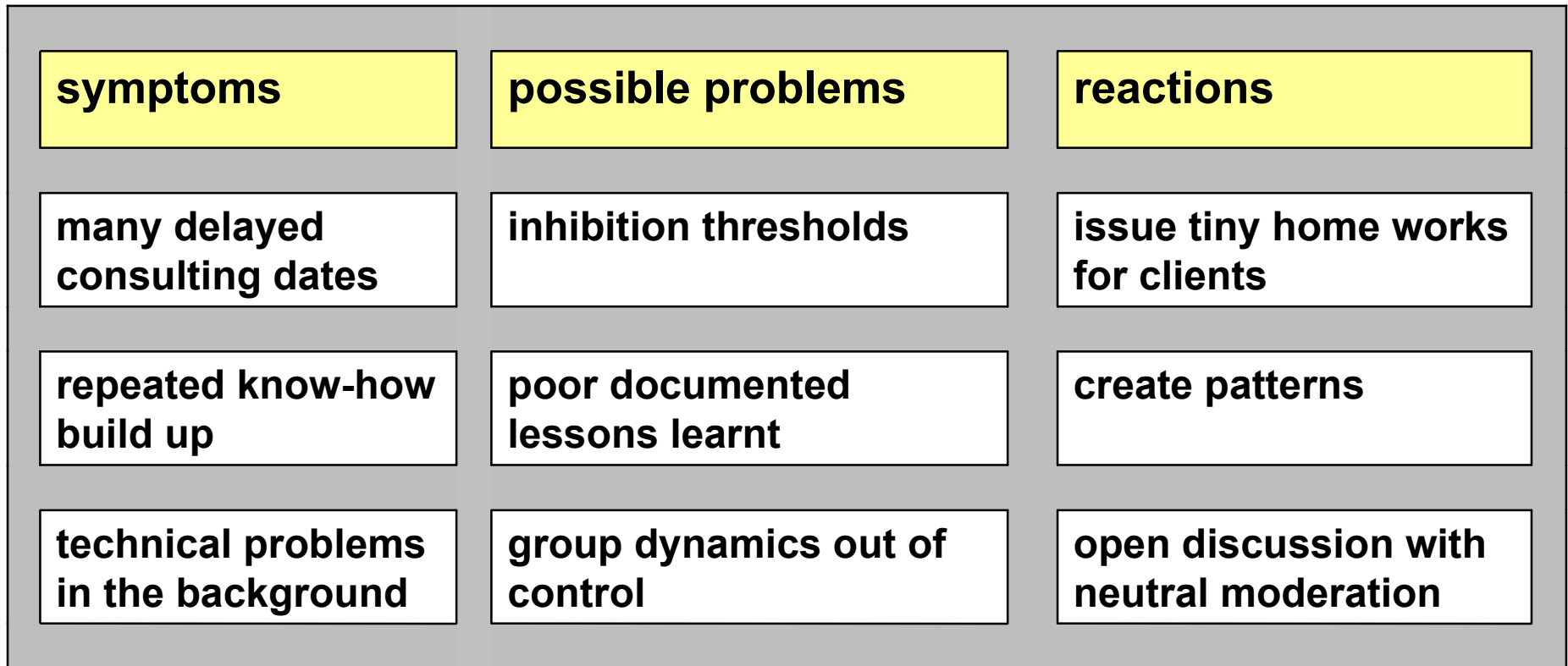
showing

training with supervision

anchoring & reflection

handing-over

Active collaboration – people issues



Know-how broking – the components

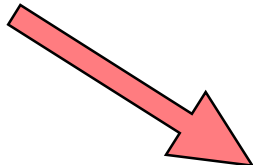
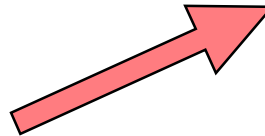
Patterns



SQA forum



Know-how broking



Know-how broking – the power of patterns



Purpose

Context

Consequences

Solution

test pattern

- **A not obvious solution for a recurring problem in a context**
- **Patterns:**
 - not only a poor “cooking recipe”
 - document the “what”,
 - but also the “why”, “how” & “when”
- **Units of reuse and know-how transfer**
- **Vocabulary of proven concepts – a new language**

Know-how broking – the origin of patterns



Purpose

Context

Consequences

Solution

test pattern

- **Patterns in architecture**

- C. Alexander: "The timeless way of building"

- **Design patterns:**

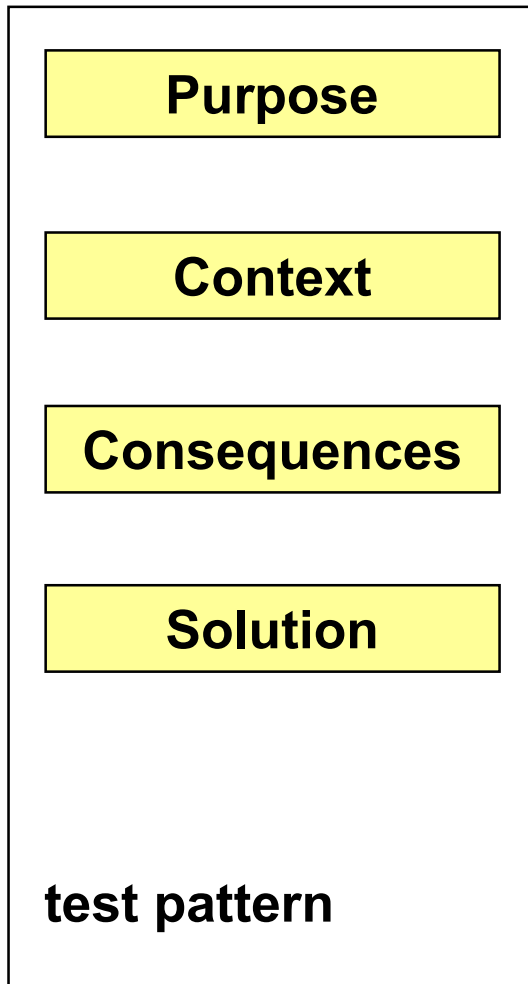
- OOP: well known patterns from Gamma et al

- **Test patterns**

- Firesmith: „PLOOT – A pattern language for OO testing“

- Hendrickson: „Sharing knowledge with test patterns“

Know-how broking – the structure of patterns

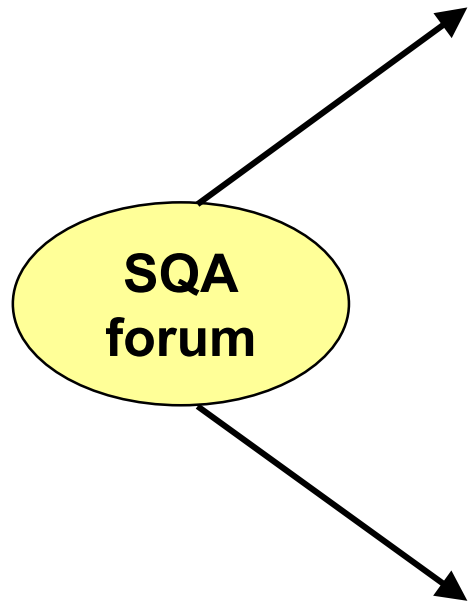


● Structure of test pattern

- Purpose (Problem to be solved)
- Context
- Consequences (+ pros; - cons)
- Solution

● **Developers can decide themselves whether to use a pattern or not (pro's vs. con's).**

Know how broking – the types of SQA forums



Presentation forum

goal:

Presentation of working solutions

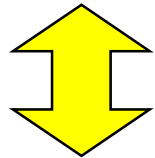
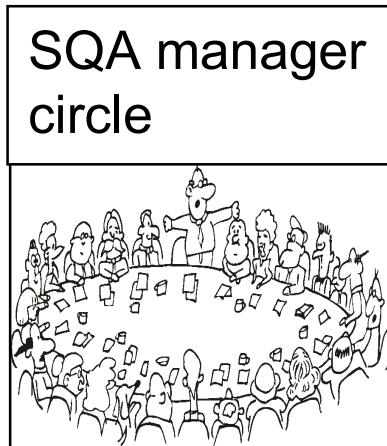


Discussion forum

goal:

Discussion of new problems

Know how broking - the SQA manager circle



● Who

- 2 SQA manager from each department
- Internal SQA consultants

● Responsibilities

- Controlboard for sqa forum
- Prioritisation of forums topics
- Control of the know-how transfer to the departments

- Discussion of overall SQA problems

Conclusion - the resources



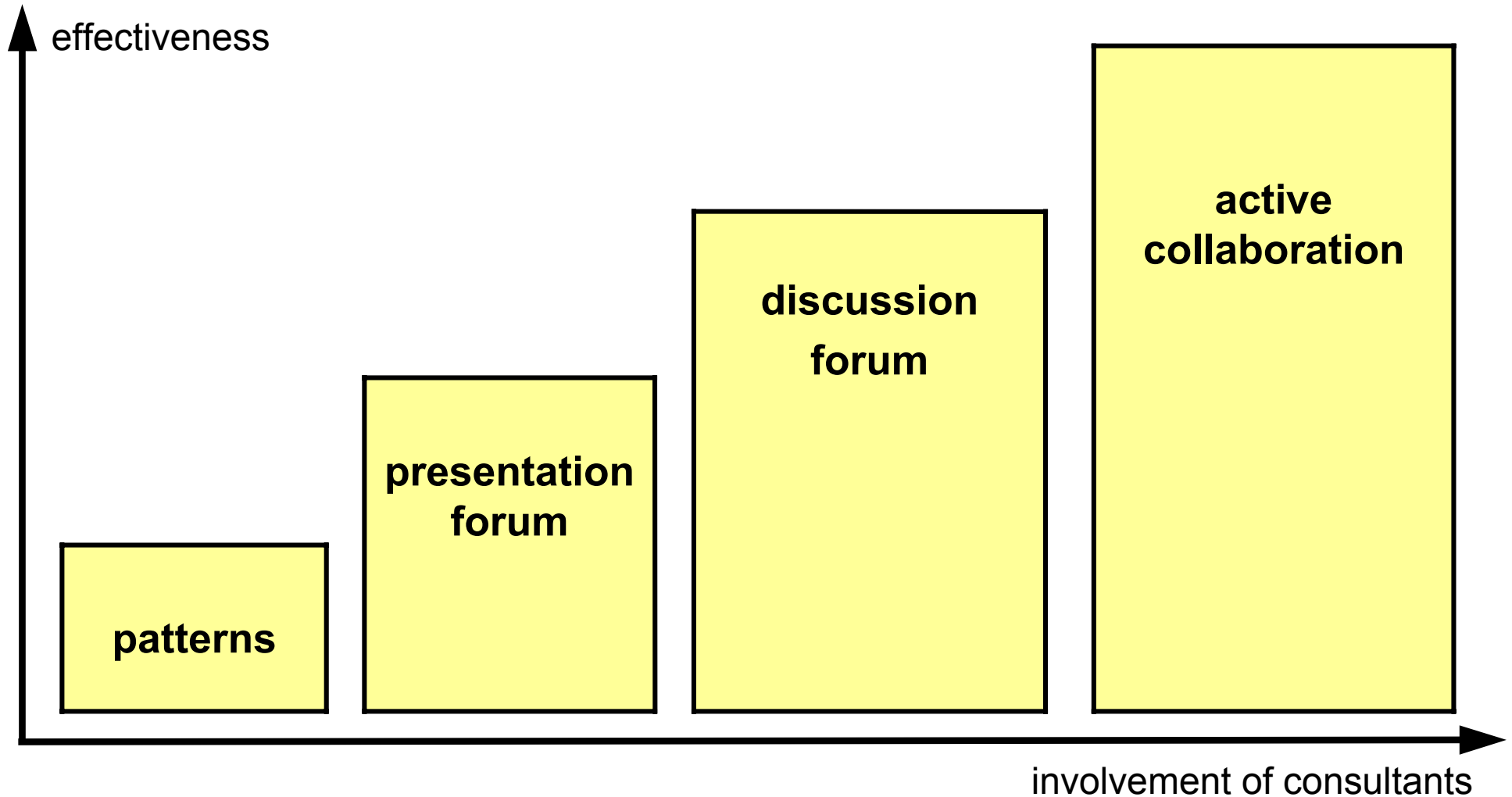
● Active Collaboration:

- Schulz, Klaus-Peter; Aderhold, Jens; Baitsch, Christof; Beelitz, Nicola: "Wie lernt man Innovation managen", Zeitschrift io-managment, Nr.11 / 2000, p. 56 („How to learn managing innovation")
- Kaner, Cem: "Teaching testing. A skill based approach", held on Quality Week Amerika Conference 2001

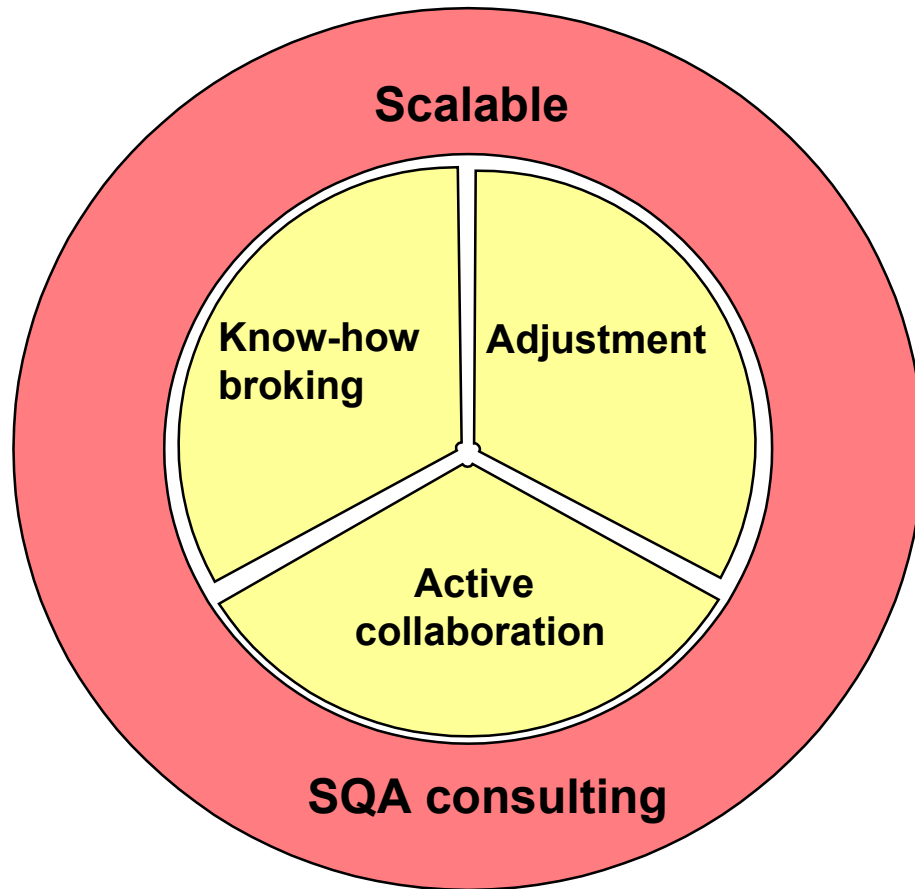
● Patterns:

- Christopher Alexander: "The timeless way of building", New York: Oxford University Press, 1979
- Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides: "Design Patterns", Addison Wesley, 1995
- Donald G. Firesmith: "PLOOT: A Pattern Language for OO-Testing, held on the OOP96-conference, Munich/Germany
- Elisabeth Hendrickson: "Sharing Knowledge with Test Patterns", held on Conference EUROSTAR 2001 in Stockholm
- Holger Hanisch: "Using Patterns for Test Script Implementation at DATEV eG", held on Conference ICSTEST 2001 in Bonn

Conclusion - overall scalability

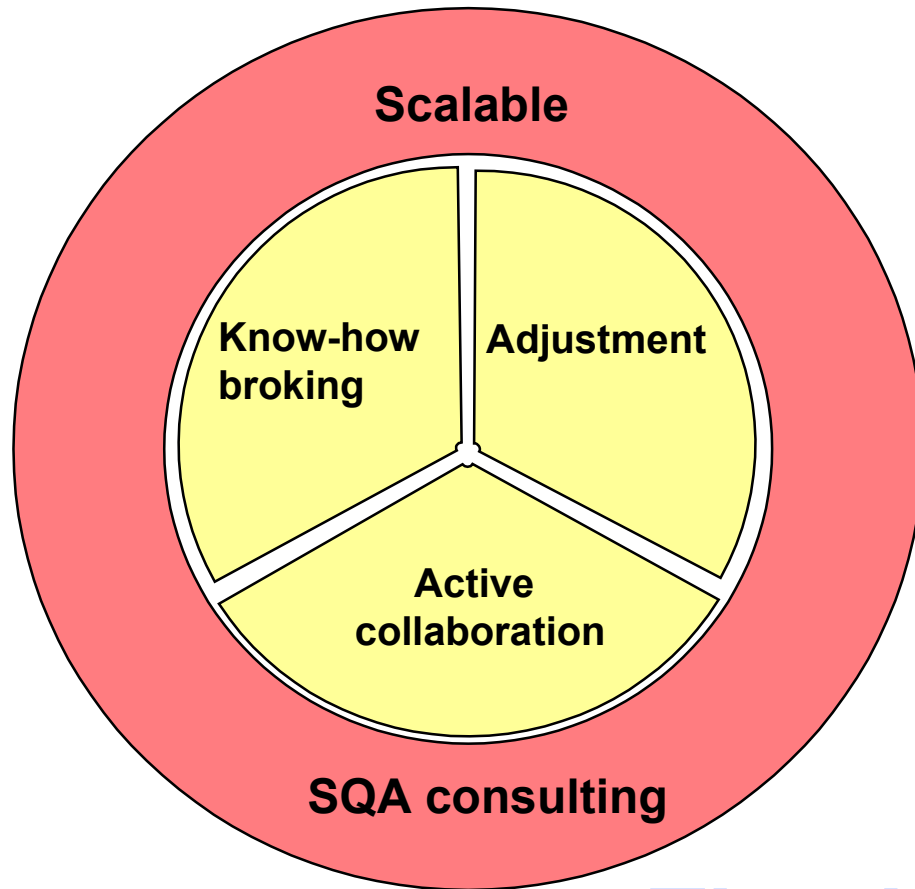


Scalable SQA Consulting – the conclusion



- Integrates single approaches
- Becomes more customer oriented
- Forsters the build-up of SQA skills
- Supports systematic transfer of SQA know-how
- Covers a wide range of skills

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Thank you for your attention!