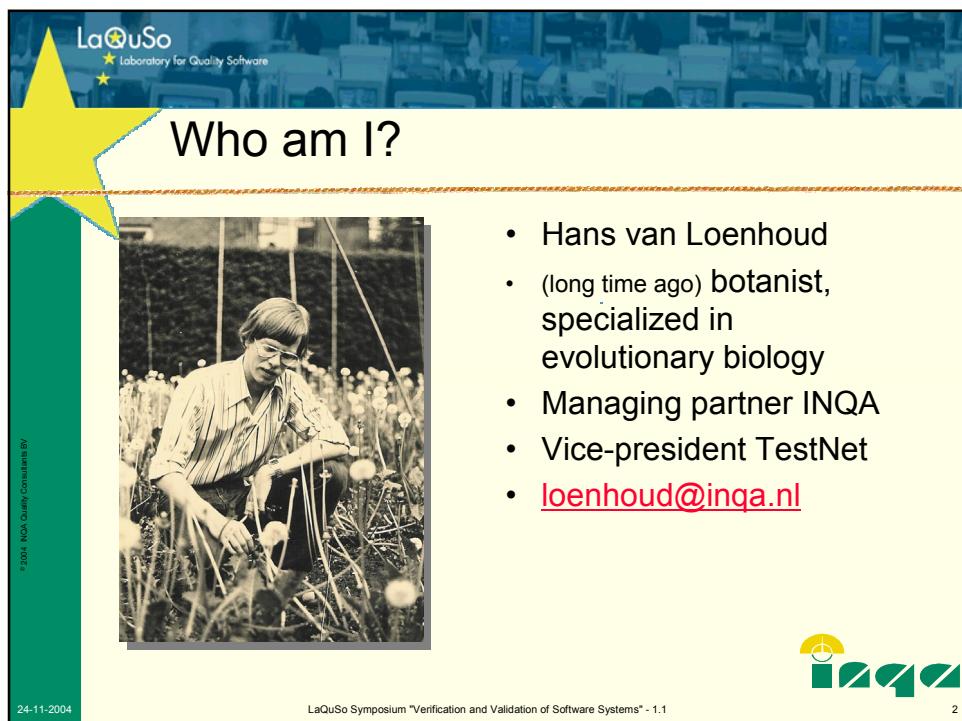


The slide features a large yellow star on the left side. At the top, it says "LaQuSo Laboratory for Quality Software". The main title "The evolution of software testing" is centered. Below it, a subtitle reads "What software testers could learn from Charles Darwin". A footer at the bottom left says "24-11-2004" and "LaQuSo Symposium 'Verification and Validation of Software Systems' - 1.1". The footer at the bottom right includes the INQA logo and the text "DE GOUDEN DRAAD DOOR UW BEDRIJFSVOERING".



The slide features a large yellow star on the left side. At the top, it says "LaQuSo Laboratory for Quality Software". The main title "Who am I?" is centered. To the right of the title is a black and white photograph of a man with glasses, identified as Hans van Loenhoud. To the right of the photo is a bulleted list of his biography. A footer at the bottom left says "24-11-2004" and "LaQuSo Symposium 'Verification and Validation of Software Systems' - 1.1". The footer at the bottom right includes the INQA logo and the number "2".

- Hans van Loenhoud
- (long time ago) botanist, specialized in evolutionary biology
- Managing partner INQA
- Vice-president TestNet
- loenhoud@inqa.nl

Who am I?



- Management & consultancy
- Process improvement in / through ICT
- 
- www.inqa.nl

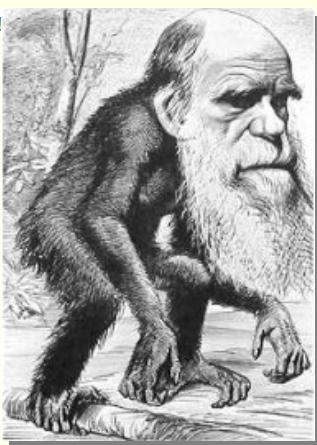


- Dutch SIG in Software Testing
- since 1997
- > 500 members
- Next conference: Utrecht, 30-11-04 "The best of ..."
- www.testnet.org

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Content



- Evolution?
- Evolution!
- The past → the present → the future
- Where do we go from here?

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Evolution – in software testing?

Evolution of man...

- [[[Software testing] V&V] Quality Assurance]
- From desire to deployment through testing
- Gradual changes in software testing over the last 30 years

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Evolution – concepts

ON
THE ORIGIN OF SPECIES
BY MEANS OF NATURAL SELECTION,
OR THE
PRESERVATION OF FAVOURED RACES IN THE STRUGGLE
FOR LIFE
BY CHARLES DARWIN, M.A.,
FELLOW OF THE ROYAL GEOLOGICAL SOCIETY, ETC., SOCIETIES;
AUTHOR OF JOURNAL OF RESEARCHES DURING H.M.S. BEAGLE'S VOYAGE
ROUND THE WORLD.

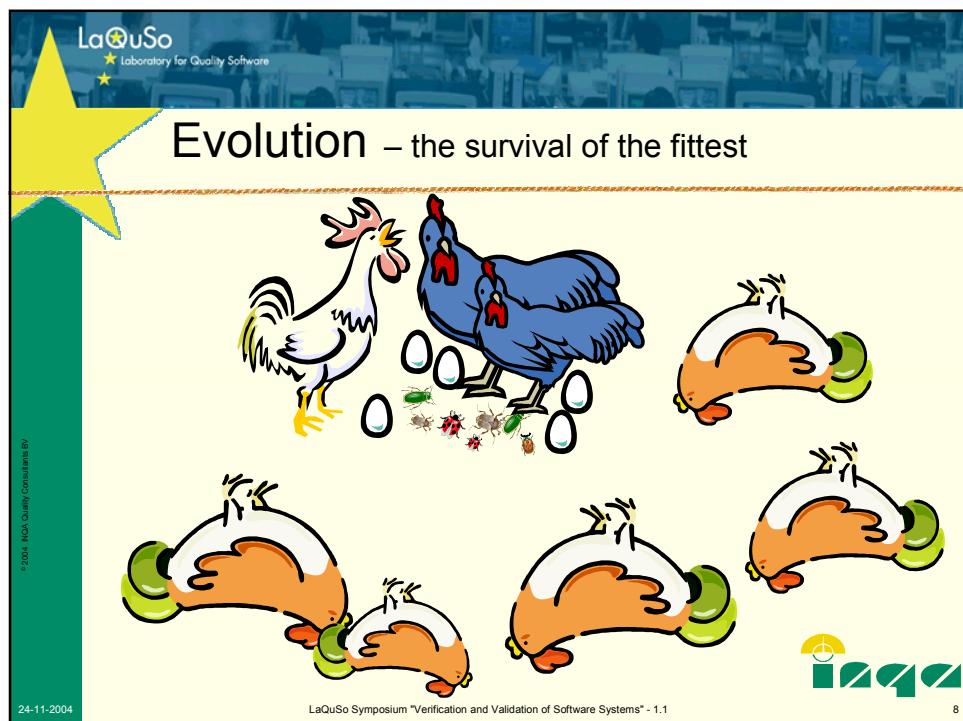
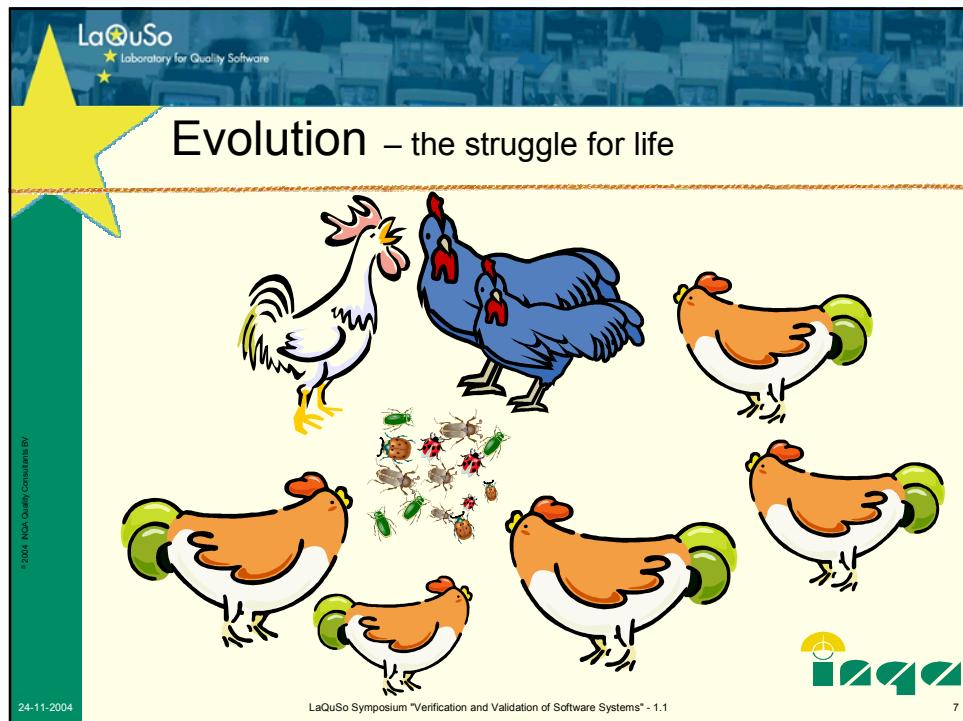
LONDON:
JOHN MURRAY, ALBEMARLE STREET.
1859.

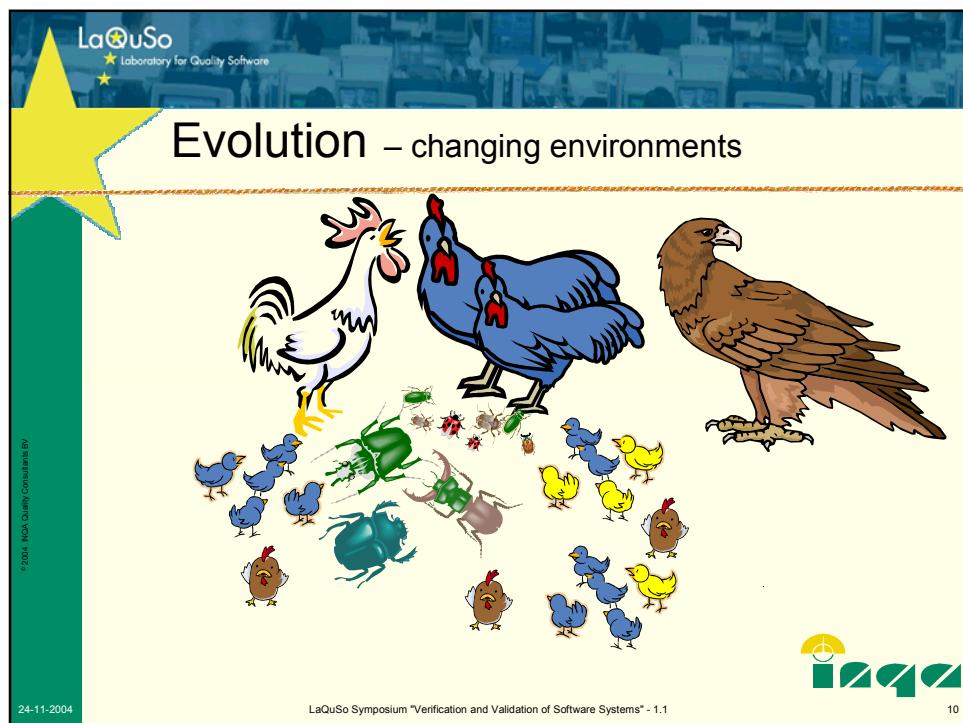
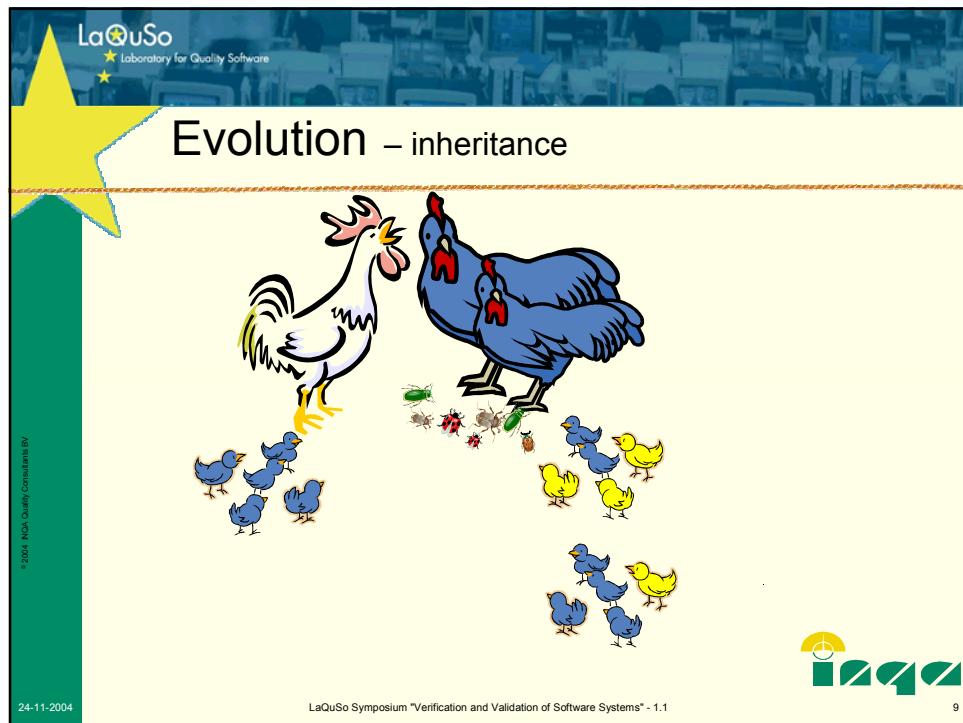
The right of Translation is reserved.

- The struggle for life
- The survival of the fittest
- Inheritance
- Changing environments

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Evolution: change over generations

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The past – era's

| | | | | | | | | |
|-----------------------------|-------------------------|--|---------------------------------------|--|---|--|--|---|
| | | | | | | | | |
| jagers en bieren ± 50 vC | Romeinen 59 vC - 476 | romantiek en reiktors 500 - 1000 | stadien en stations 1000 - 1500 | middeleeuws en hanzemaares 1500 - 1600 | renaissance en verellen 1600 - 1700 | prullen en reuzeliefes 1700 - 1800 | burgers en stoommachines 1800 - 1900 | wetenschapen en computers 1900 - 2000 |

- Ancient times
- The Middle Ages
- Renaissance
- Y2K/Euro

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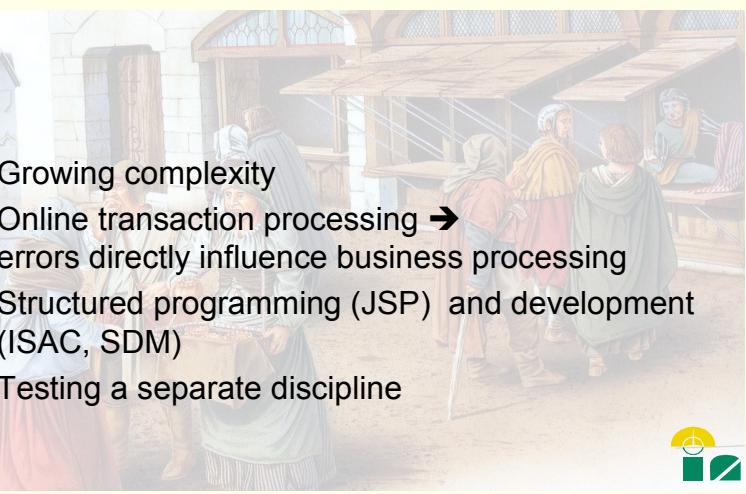
The past – '60 .. '70



- Simple stand-alone batch systems
- Few errors
- Programmers to find & solve

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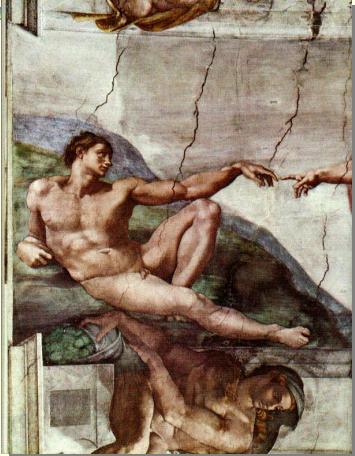
The past – '80



- Growing complexity
- Online transaction processing → errors directly influence business processing
- Structured programming (JSP) and development (ISAC, SDM)
- Testing a separate discipline

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The past – '90



- The PC arrives
- ICT invades society
- Integration of systems
- Continued growth of complexity
- Bugs cause real damage
- Structured testing

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The past – '00



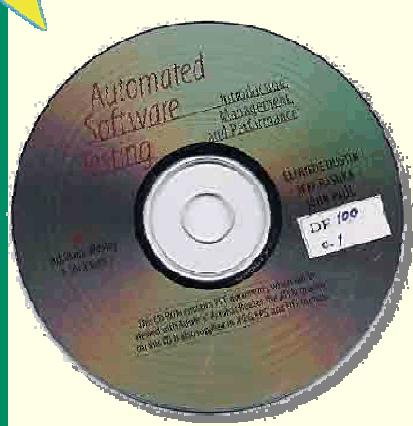
- Y2K & Euro: enormous testing efforts
- For the first time, testing was a serious issue for management
- Structured testing matured
- Automated testing emerged

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The present



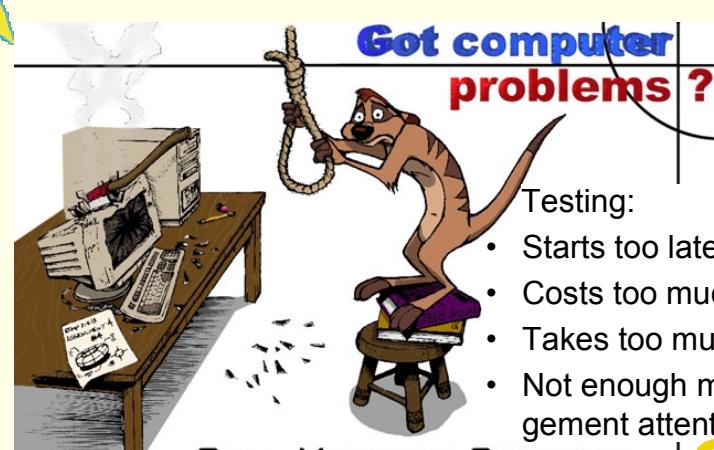
- Structured testing common practice
- Automated testing spreading
- Requirements & risk based testing emerging
- Software quality is still a problem

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The present – problems



Got computer problems ?

Testing:

- Starts too late
- Costs too much money
- Takes too much time
- Not enough management attention

CALL MEERKAT SYSTEMS
specialized in parallel computers & networks since 1994

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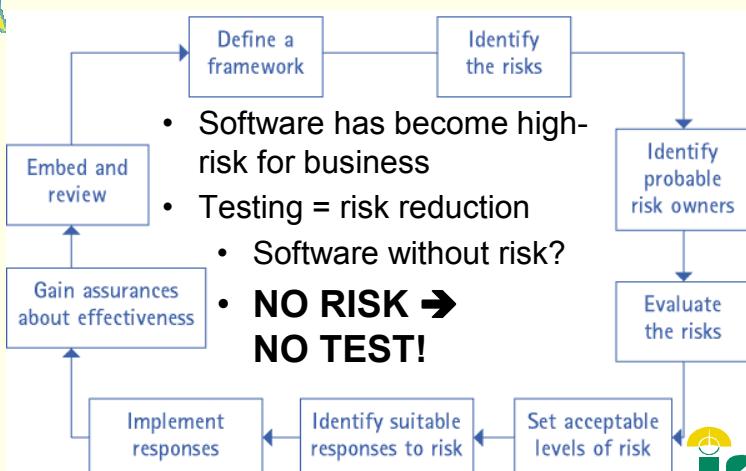
The present – changing landscape



- Software too complex
- Less development, more implementation
- ASP
- Outsourcing
- Offshoring

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The present – risk management



```

graph TD
    A[Define a framework] --> B[Identify the risks]
    B --> C[Evaluate the risks]
    C --> D[Set acceptable levels of risk]
    D --> E[Identify probable risk owners]
    E --> F[Gain assurances about effectiveness]
    F --> G[Embed and review]
    G --> H[Define a framework]
    
```

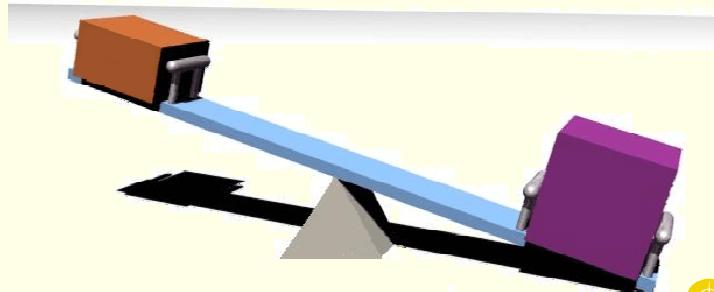
- Software has become high-risk for business
- Testing = risk reduction
 - Software without risk?
- **NO RISK ➔ NO TEST!**

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The future

What if we could get better software?

- We would do less testing
- We would do other testing

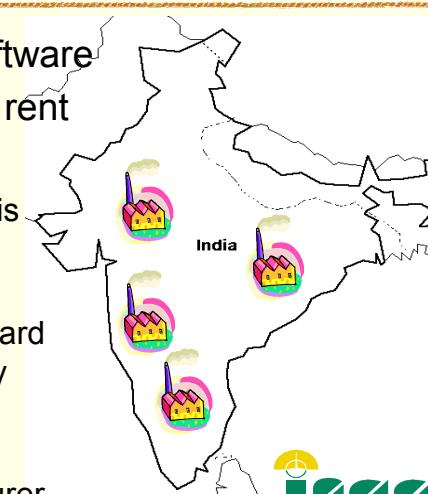


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The future – less testing

Why develop your own software at home, if you can buy or rent good software elsewhere?

- Own software development is becoming too difficult and too expensive
- Organisations will use standard software solutions offered by industrial software providers
- Large scale testing will only been done by the manufacturer



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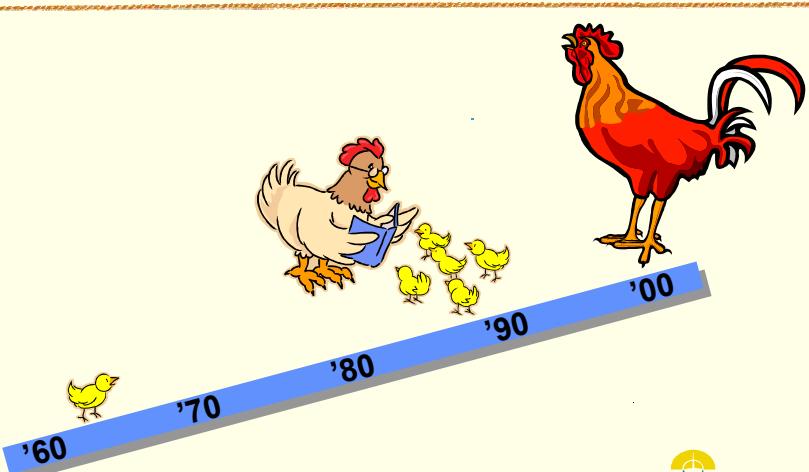
The future – other testing

- Most & worst bugs come from wrong requirements → testing part of analysis & design (inspections, prototyping, MBT)
- From specifications onwards, testing can and will be automated
- Acceptance testing will precede selection instead of finalise implementation



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Conclusion – software testing evolution exists



A cartoon illustration of chickens on a ramp. A large red rooster stands at the top right. A hen with chicks walks up a blue ramp labeled with years: '60, '70, '80, '90, and '00. A small chick is walking up the ramp towards the hen.

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