We are confused about what software engineering activities we are performing

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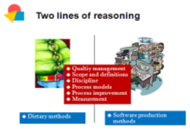


Two lines of reasoning

- Qualtiy management
- Scope and definitions
- Discipline
- Process models
- Process improvement
- Measurement

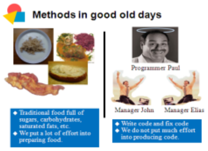
- Dietary methods

- Software production methods

Confusion

Confusion is a state of mind t is no state at all. It is confusing not to be able to think thoroughly, act meaningfully, or see things clearly.

Two lines of reasoning



Methods in good old days

- Traditional food full of sugars, carbohydrates, saturated fats, etc.
- We put a lot of effort into preparing food.

- Write code and fix code
- We do not put much effort into producing code.

- Qualtiy management
- Scope and definitions
- Discipline
- Process models
- Process improvement
- Measurement

- Diet

- Software production

Methods in good old days

Quality in good old times

- Code size ~ programmer quality
- Code quality ~ lack of bugs

◆ Large size - sign of high quality and status

◆ HAUSMANSKOST: Traditional food full of sugars, carbohydrates, saturated fats, etc.

◆ We put a lot of effort into preparing food.

Programmer Paul

Manager John

Manager Elias

◆ Write code and fix code

◆ We do not put much effort into producing code.

Scope of quality in good old times

Is it enough?

◆ Body volume

◆ Bugless code volume

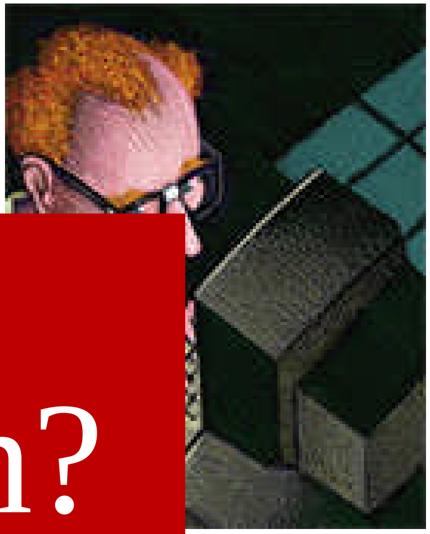
Quality in good old times

```
[illegible]

    //frame info output as file header
    OUTPUT_BYTE([illegible]);
    OUTPUT_BYTE([illegible]);
    OUTPUT_BYTE([illegible]);
    //output upper byte then upper byte
    OUTPUT_BYTE(h>>BYTE_SIZE);
    OUTPUT_BYTE(h);
    OUTPUT_BYTE(w>>BYTE_SIZE);
    OUTPUT_BYTE(w);

     order1 = order>>4;
     order2 = order & 15;

#ifdef TRACE
    if (!(fpm = fopen("ppmenc.doc", "wb"
    {
          fprintf(stderr, " \n Error: Ca
          exit(2);
     }
 #endif

       /* allocate 'order+1' elements
```

- Code size – programmer quality
- Code quality – lack of bugs

◆ Generous size - sign of high quality and status

Summing up: scope of quality in good old times



Is it enough?

- Generous size

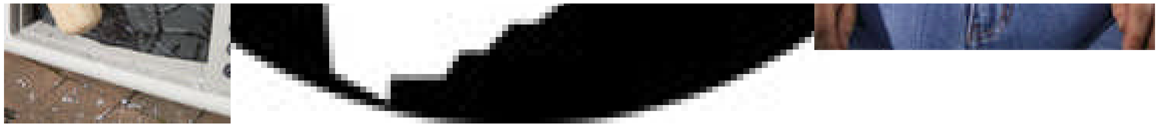
- Generous bugless size

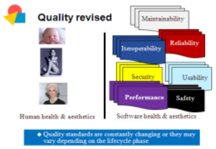
Global body and software crisis

- The term was coined by NATO group in 1968 who recommended a conference to discuss the problems of software.
- It resulted in a report, titled ***Software Engineering*** motivated in the following:

The phrase Software Engineering was deliberately chosen to be ***provocative****, in implying the need for software manufacture to be based on the types of theoretical foundations and practical disciplines that are traditional in the established branches of engineering.*

- The discipline includes knowledge, tools, and methods for software requirements, design, construction, testing and maintenance.





Quality revised

Maintainability

Reliability

Iteroperability

Security

Usability

Performance

Safety

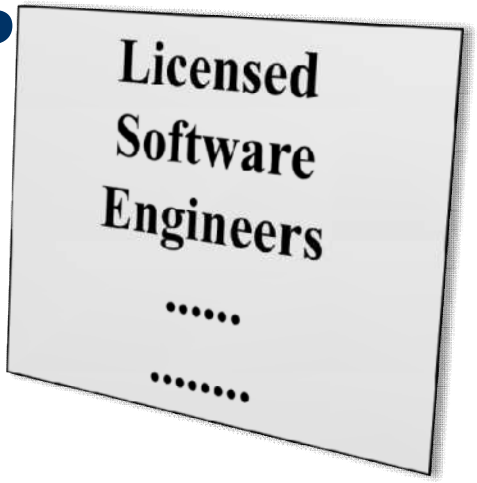
Human health & aesthetics

Software health & aesthetics

- Quality standards are constantly changing or they may vary depending on the lifecycle phase

Should I call **HIM** Software Engineer?

Never!

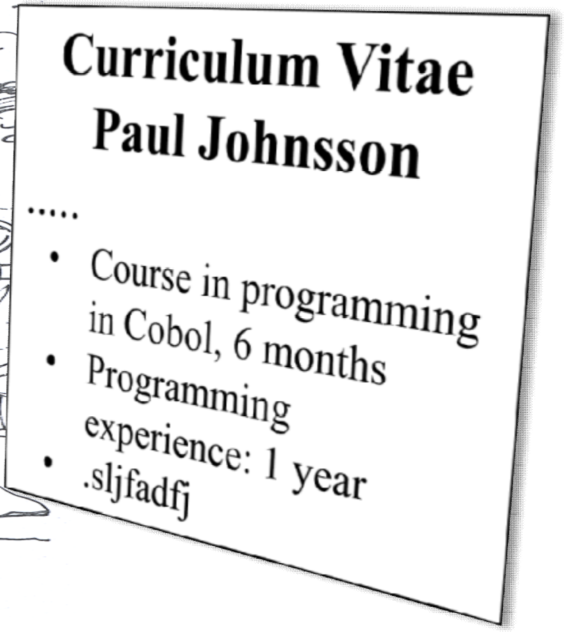


Licensed Software Engineers

......

....

The renegade knows that what he is doing is correct and necessary.



Curriculum Vitae
Paul Johnsson

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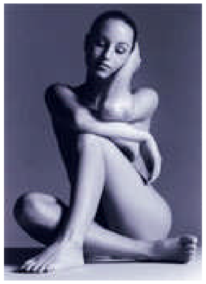
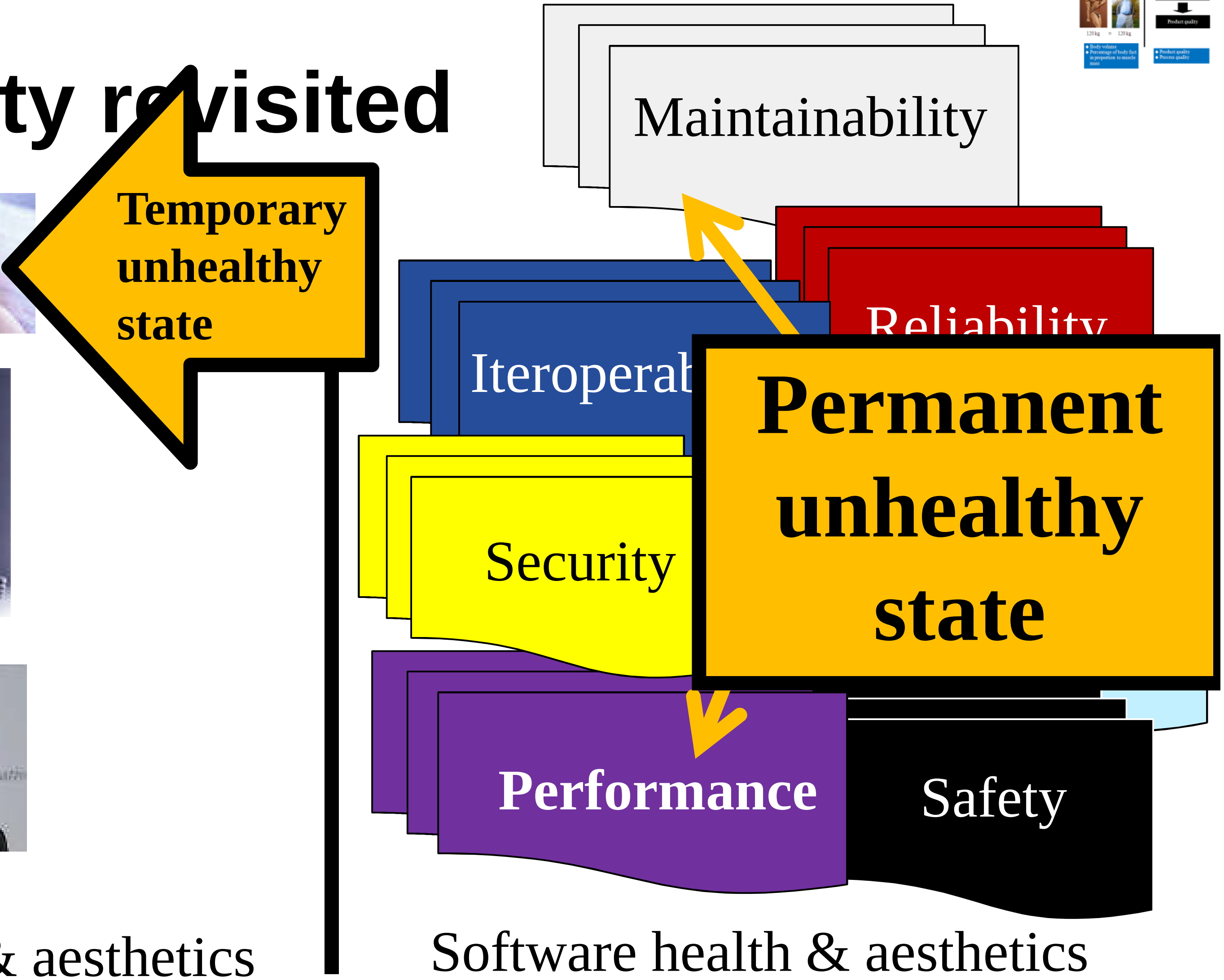
- Course in programming in Cobol, 6 months
- Programming experience: 1 year
- .sljfadfj

Quality revisited



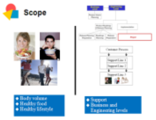
Human health & aesthetics



Software health & aesthetics

- ◆ Quality standards are constantly changing or they may vary depending on the lifecycle phase

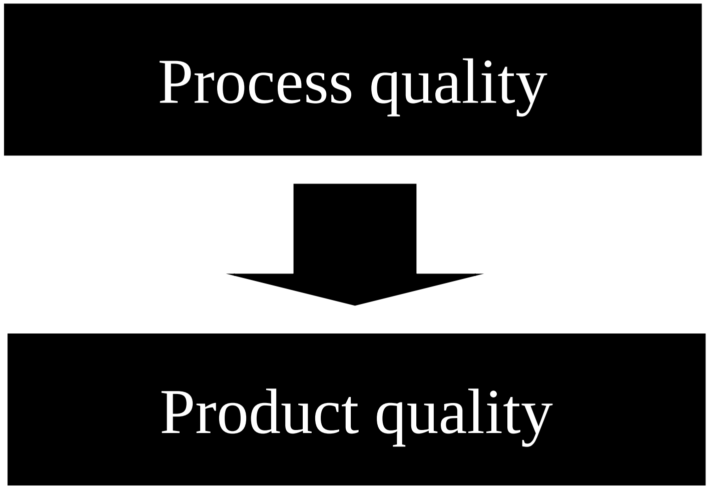
New understanding of quality



CMM
SPICE
ISO/IEC 9126
Lifecycle standards

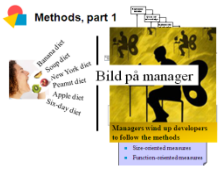
120 kg = 120 kg

- ◆ Body weight
- ◆ Percentage of body fat in proportion to muscle mass



- ◆ Product quality
- ◆ Process quality

Scope


Methods, part 1

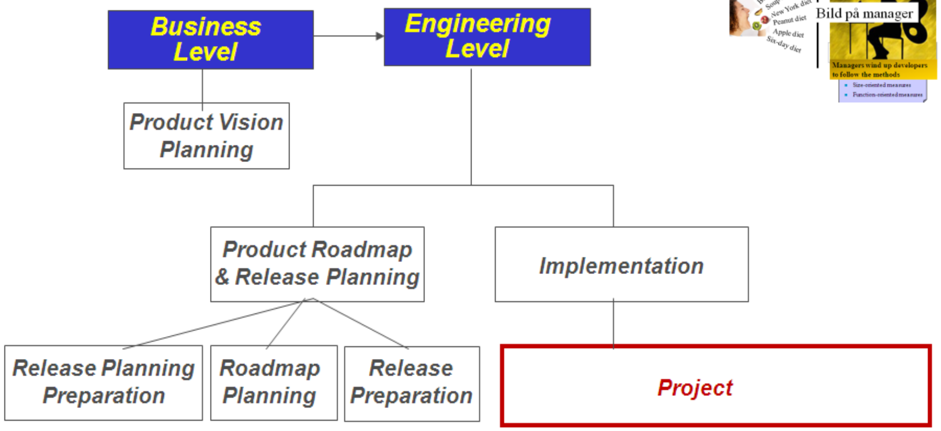
Banana diet
Soup diet
New York diet
Peanut diet
Apple diet
Six-day diet

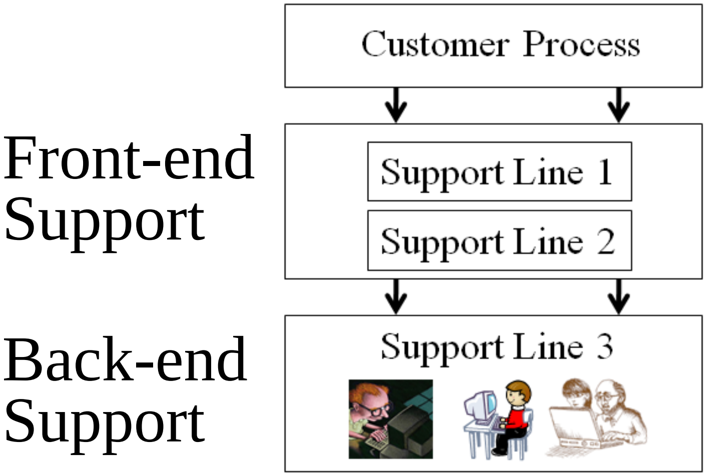
Bild på manager

Managers wind up developers to follow the methods

- Size-oriented measures
- Function-oriented measures

- ◆ Body size
- ◆ Healthy food
- ◆ Healthy lifestyle





- ◆ Business and Engineering levels
- ◆ Support

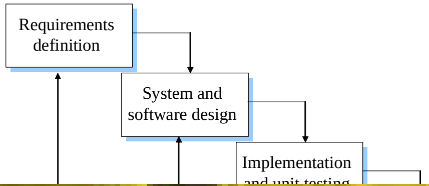
Methods

Managing quality problems

- The methods are too
  - general !
  - prescriptive!
  - misleading !
- So, we try to improve the methods!

- Quality fac sweeteners oils, trans f use carbohydrates may cause diabetes, obesity, heart disease, birht defects, cancer, malabsorption of healthy oils and vitamins.

- Difficulties to define quality factors leading to product and process quality.
- Difficulties to follow the methods.



iet

Managers wind up (clockwork) developers to follow the methods

- Function-oriented measures

Quality problems

Norwegian Strategic Toast

You hurry to drink up your wine when the waiter is approaching

- We have put a lot of effort into body/process improvement and we have not always achieved optimal results.
- When taking care of our bodies or software systems, we are having many NORWEGIAN STRATEGIC TOASTS.

- ❑ The methods are too
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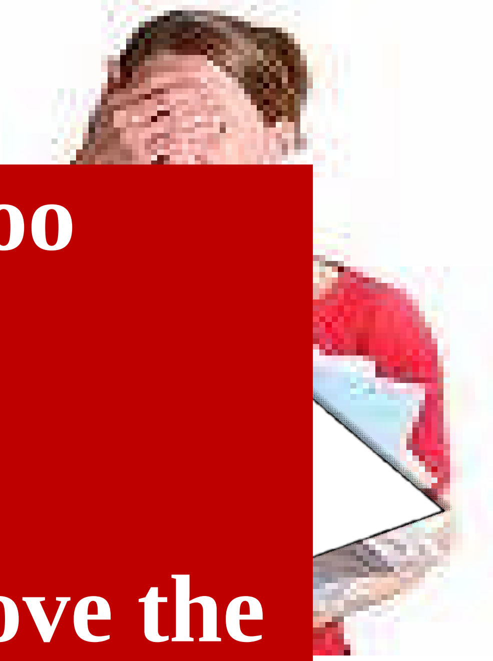


- ◆ Difficulties to follow the methods.

Norwegian Strategic Toast

As a remedy, lets go back to the good old times then

Forehead lift, please

Nose surgery, please

Cheak implant, please

Body contouring, please

Liposuction, please

Developer Paul

Manager John

Manager Elias

You are the boss of your body/code. You decide on your own plans, quality and measures

You hurry to empty your glass when the waiter is approaching

- We have put a lot of effort into body/process improvement and we have not always achieved optimal results.

- When taking care of our bodies or software systems, we are having many NORWEGIAN STRATEGIC TOASTS.

As a remedy, lets go back to the good old times then

So lets switch from *"PERFECT"* to *"JUST ENOUGH"*mentality

Good enough software

Just enough documentation

Just enough planning

Just enough measurement

Just enough other things

- Perfect diet doesn't exist. But what does exist is the good enough diet.

- We are never right from the beginning! So why bother to make things perfect.

Developer Paul

Manager John

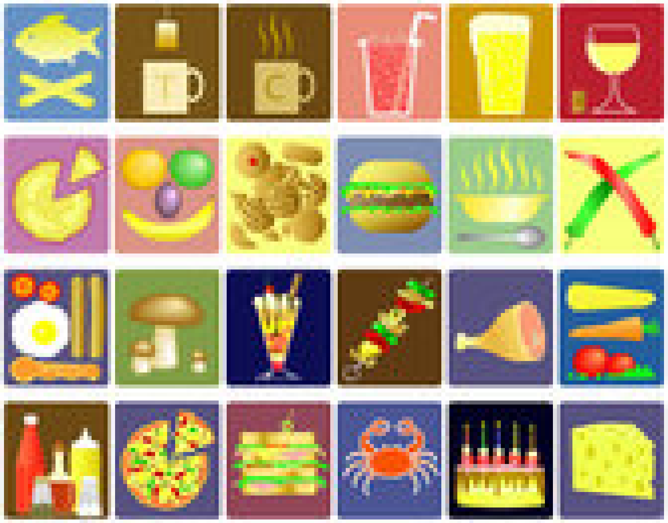
Manager Elias

You are the boss of your body/software systems.
You decide on your own plans, quality and measures

And let’s switch from *“PERFECT”* to *“JUST GOOD ENOUGH”* mentality

Software Engineering vs Good Enough Software Production

- The software engineeing discipline is important for developing complex systems.
- Good enough software is a complement to software engineeing.



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Just enough other things

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Software Engineering vs Good Enough Software Production

Worldwide cold war

Traditionalists

Agilists

Dietists

Proponents for new diets

18

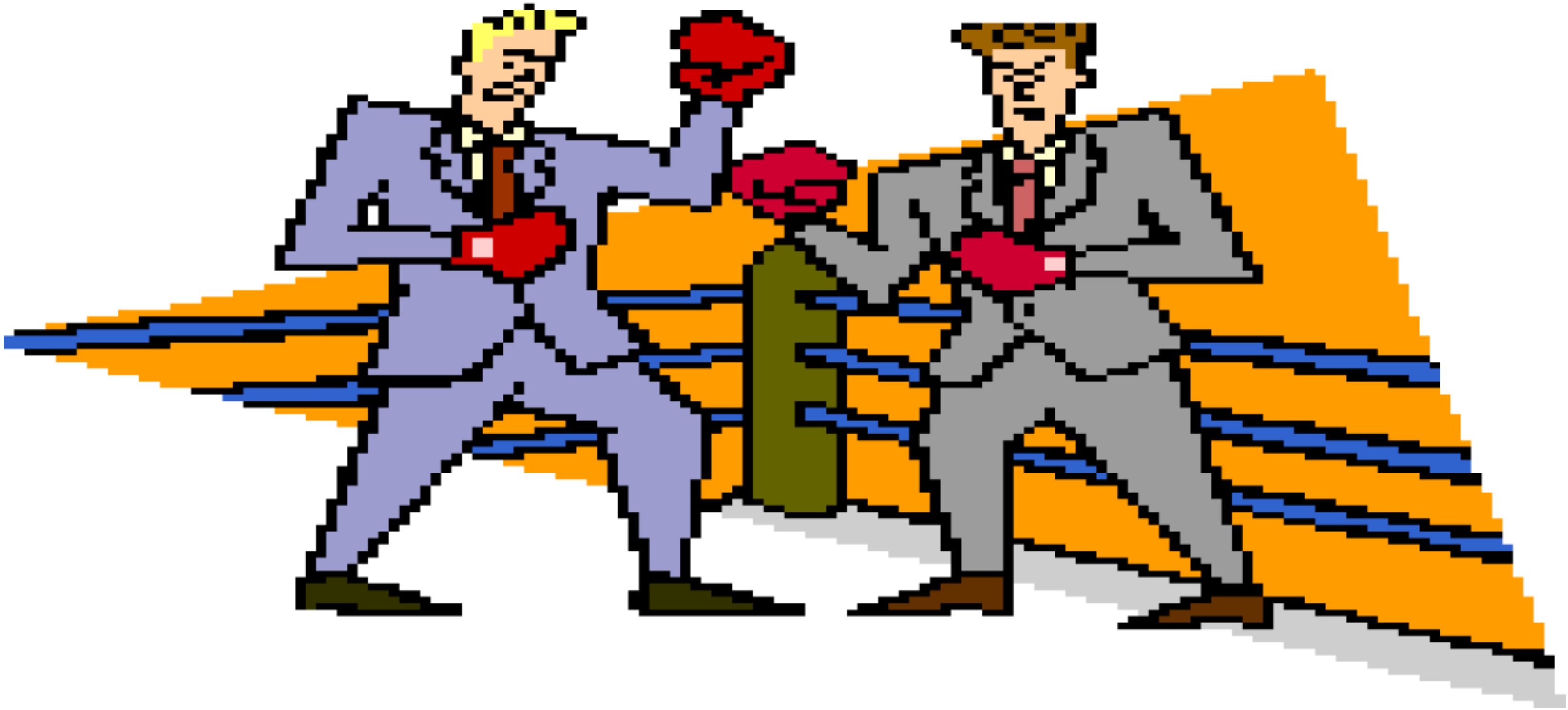
- The software engineeing discipline is important for developing complex systems.
- Good enough software is a complement to software engineeing.

The cold war has not ended yet!

Irrespective of what we still need,

we still do not possess the overall picture of the software business and its scope

Worldwide cold war



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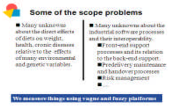
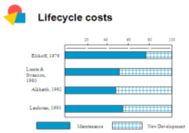


Some of the scope problems

- Many unknowns about the direct effects of diets on weight, health, cronic diseases relative to the effects of many environmental and genetic variables.

- Many unknowns about the industrial software processes and their interoperability.
  - Front-end support processes and its relation to the back-end support.
  - Predelivery maintenance and handover processes
  - Risk management
  - ...

We measure things using vague and fuzzy platforms



Unknowns

- Many unknowns about the direct effects of diets on weight, health, cronic diseases relative to the effects of many environmental and genetic variables.

- Many unknowns about the industrial software processes, their interoperablity, and their impact on software quality.
    - Front-end support processes and its relation to the back-end support.
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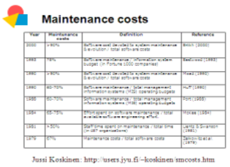
We measure things using vague and fuzzy platforms

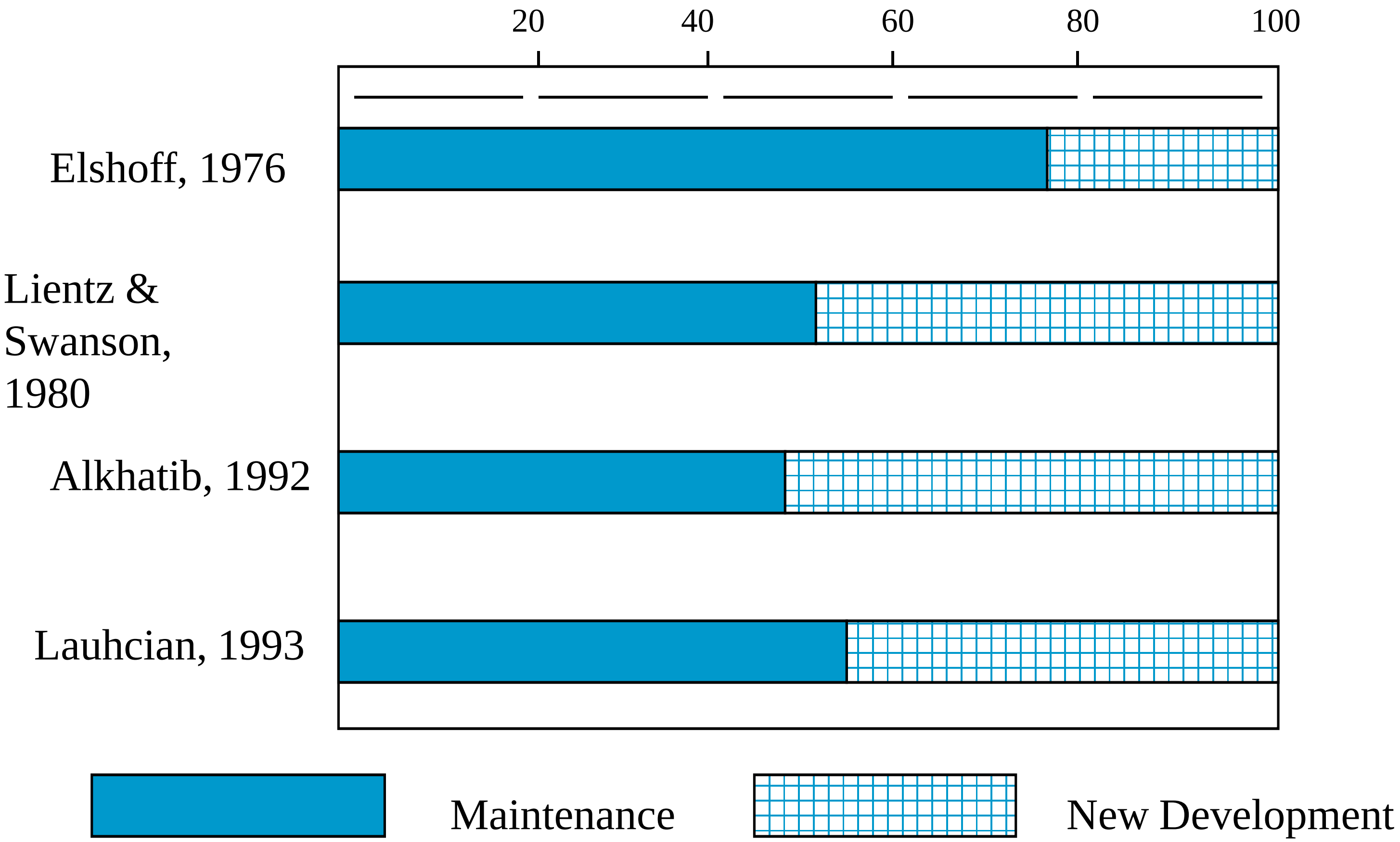
Lifecycle costs



Maintenance costs

Year	Maintenance costs	Definition	Reference
2000	>90%	Software cost devoted to system maintenance & evolution / total software costs	Erlikh (2000)
1993	75%	Software maintenance / information system budget (in Fortune 1000 companies)	Eastwood (1993)
1990	>90%	Software cost devoted to system maintenance & evolution / total software costs	Moad (1990)
1990	60-70%	Software maintenance / total management information systems (MIS) operating budgets	Huff (1990)
1988	60-70%	Software maintenance / total management information systems (MIS) operating budgets	Port (1988)
1984	65-75%	Effort spent on software maintenance / total available software engineering effort.	McKee (1984)
1981	>50%	Staff time spent on maintenance / total time (in 487 organizations)	Lientz & Swanson (1981)
1979	67%	Maintenance costs / total software costs	Zelkowitz et al. (1979)

Jussi Koskinen: http://users.jyu.fi/~koskinen/smcosts.htm



What is the scope?

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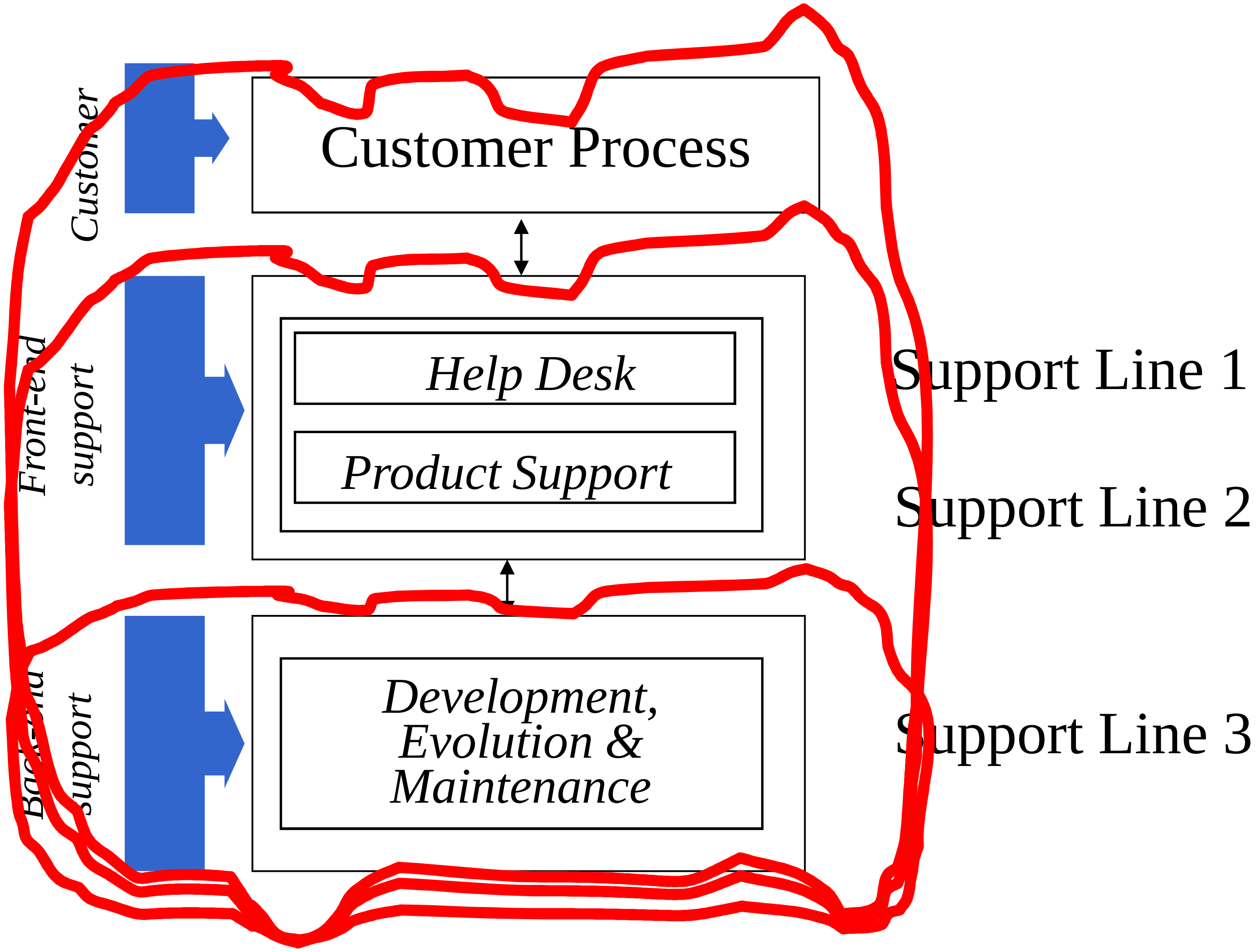
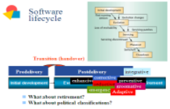
Life-cycle roadmap

- Corrective maintenance
- Perfective maintenance
- Adaptive maintenance
- Preventive maintenance

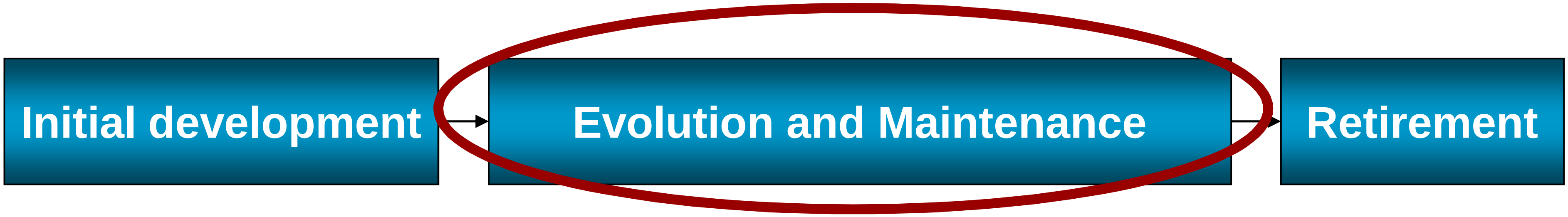
What is the scope?





- What about retirement?
- What about political classifications?

Life-cycle roadmap



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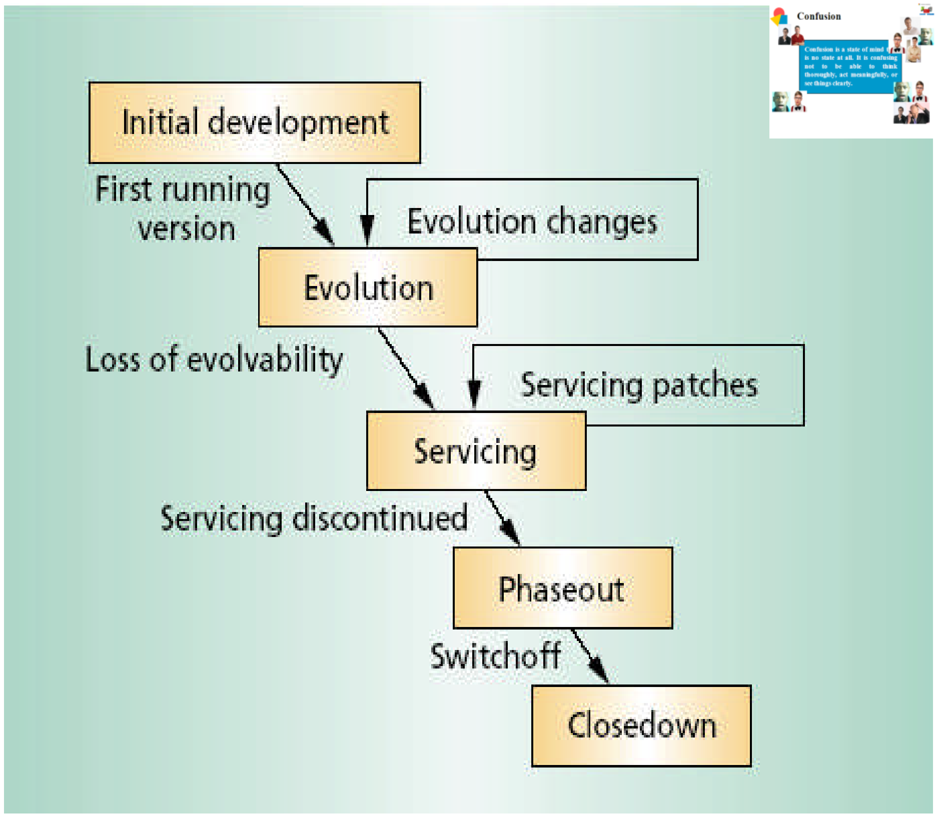
Software lifecycle



Confusion

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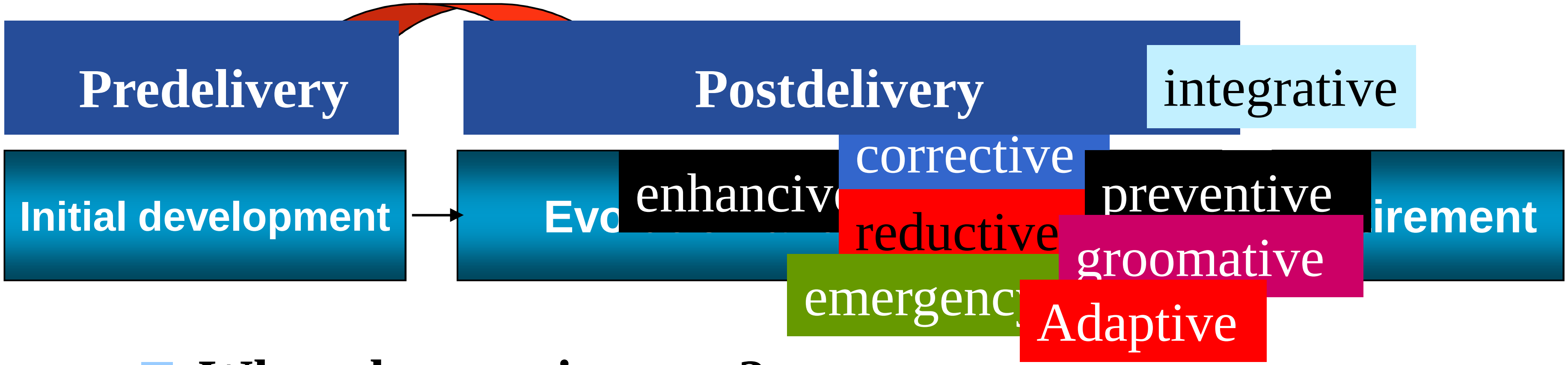
Transition (handover)



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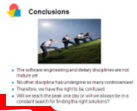

Conclusions

- The software engineering and dietary disciplines are not mature yet.
- No other discipline has undergone so many controversies!
- Therefore, we have the right to be confused.
- Will we reach the peak one day or will we always be in a constant search for finding the right solutions?

Thank you for listening to me

- Today's banquet will consist of:
  - 20% of good carbohydrates
  - 30% of bad carbohydrates
  - 25% of saturated fats
  - 10% protein
  - 15% of non-saturated fats
- Have a nice meal & you are allowed to have as many **NORWEGIAN STRATEGIC TOASTS** as you wish but make sure that Petre does not see it

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Banquet

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