

How Quality is Assured by Evolutionary Methods (Evo)

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EvoIntro PNSQC Portland OR 2004

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Niels Malotaux

- **Electronics 1974**
- **Development of computers, embedded systems and software**
(Army service, Philips, own company)
- **Since 1998 "Quality On Time" consultant**
 - Optimizing way of working software organization
 - Optimizing way of working R&D organization
 - Optimizing outsourcing
- **Main activities: training & coaching**
 - Evolutionary Project organization (Evo)
 - Requirements engineering
 - Reviews and Inspections

Goal for Projects

- The right product
 - The right quality
 - Within the time and budget agreed
 - Pleasantly for everyone involved
- } The right results

Quality On Time

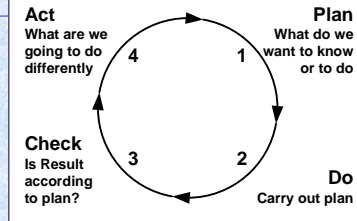
*What the customer needs when he needs it
to make more money than we need*

Higher Value for Customer Success

- **All the functions we are providing**
are already there
- **All we are adding is** *better performance*
- **The better performance should enhance the** *value*
to ensure customer success
- **Only higher value** can provide for our *customers*
success and thus for our income

We should constantly be aware: “Are we Creating Value?”

Evo



- **Short for Evolutionary Development / Delivery / Project Management**
- **Deliberately going through the PDCA cycle rapidly and frequently, for product, project and process**
- **Evo is about actively constantly learning how to do things better**
- **Continuously thinking *what to do, in which order, to which level of detail for now***
- **Delivering *what the user needs at the time he needs it, to make more money than we need***
- **Integrating Planning, Requirements and Risk management into Result Management**

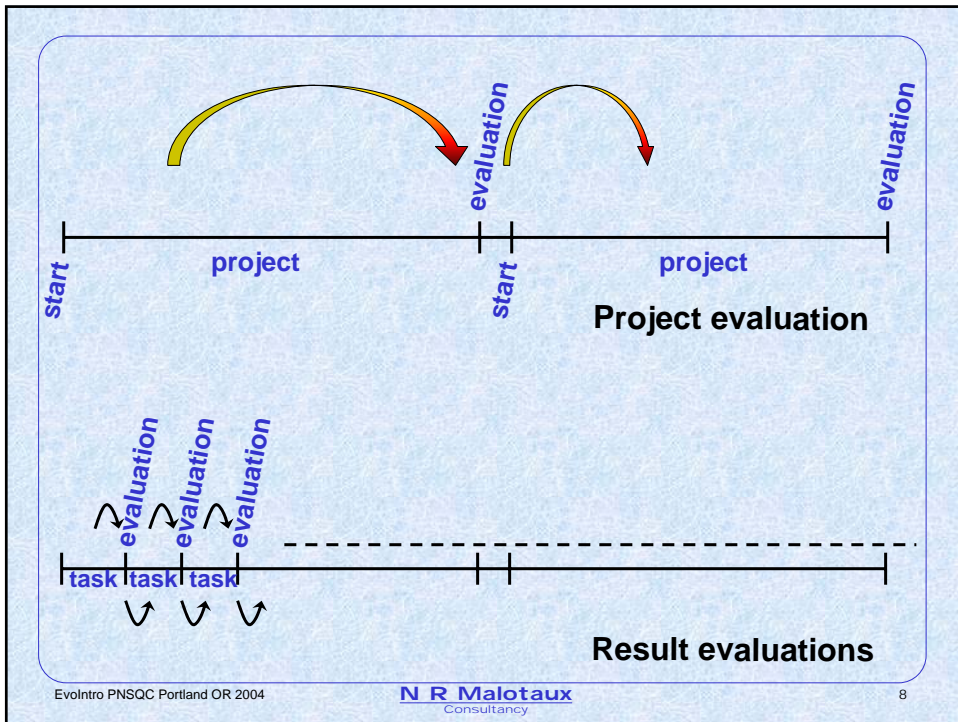
Why does a product need Evo ?

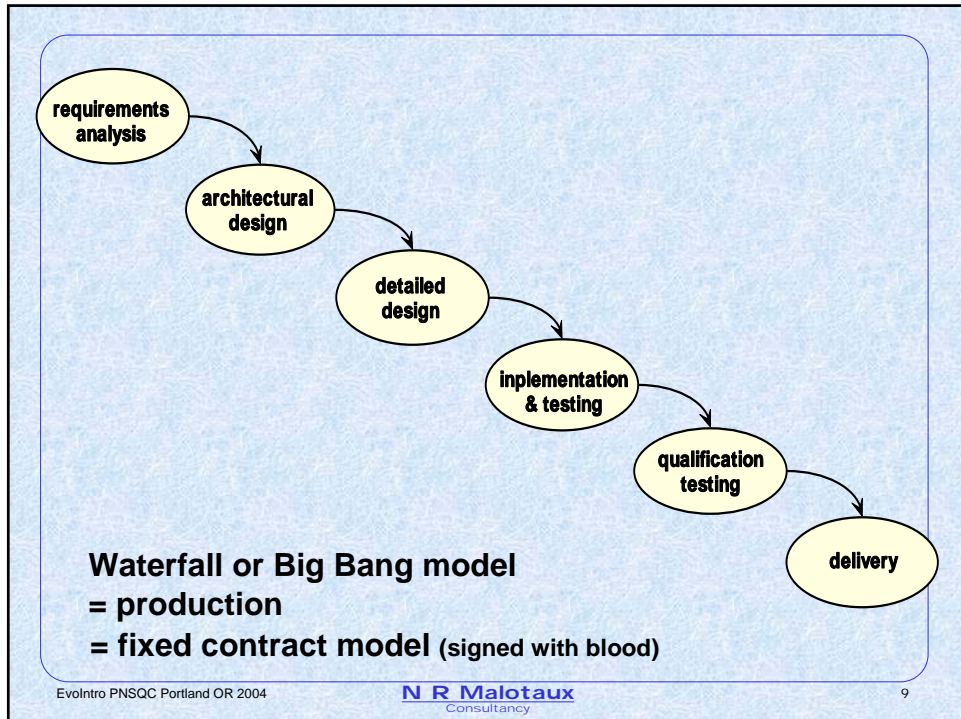
- **We don't know the real requirements**
- **They don't know the real requirements**
- **Together we'll have to find out** (stop playing macho!)
- **What the customer wants he cannot afford**
- **Is what the customer wants what he needs?**
- **People tend to do more than necessary**
especially if they don't know what to do

**If time, money, resources are limited,
we should not overrun the budgets**

Why does a project need Evo ?

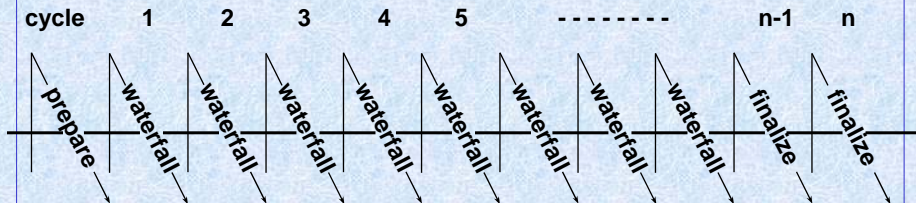
- **Are we effective?** (producing Results)
- **Are we efficient?** (optimally using the available time)
- **Are we actively learning from our mistakes?** (PDCA)
- **How do we estimate, plan and track progress?**
- **Hoe do we handle interruptions?**
- **Did we learn from feedback per project** (project evaluation)?

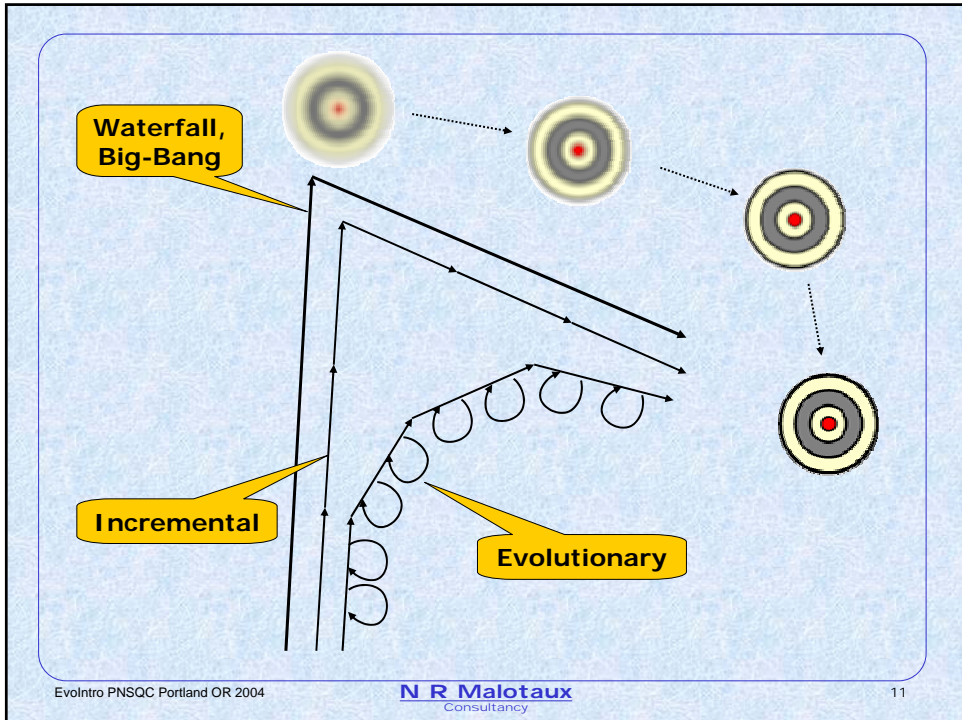




Evo is many waterfalls

of growing functionality





When do you **not** need Evo

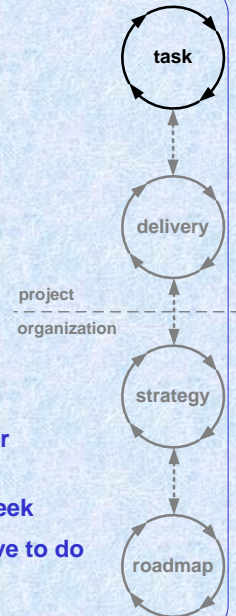
- Requirements are completely clear, nothing will change: use waterfall
- Requirements can be easily met with the available resources, within the available time (Still, Evo can make it faster)
- Everybody knows exactly what to do
- Customer can wait until you are ready
- Management doesn't know what to do with the time saved
- No Sense of Urgency

Use Evo *only* on projects you want to succeed

Cycles in Evo

- Weekly Task Cycle**

- Are we *doing* the *right things*, in the *right order*, to the *right level of detail*
- Optimizing estimation, planning and tracking abilities to better predict the future
- Select highest priority tasks, never do any lower priority tasks, never do undefined tasks
- There are only about 26 plannable hours in a week
- In the remaining time: do whatever else you have to do
- Tasks are always done, 100% done



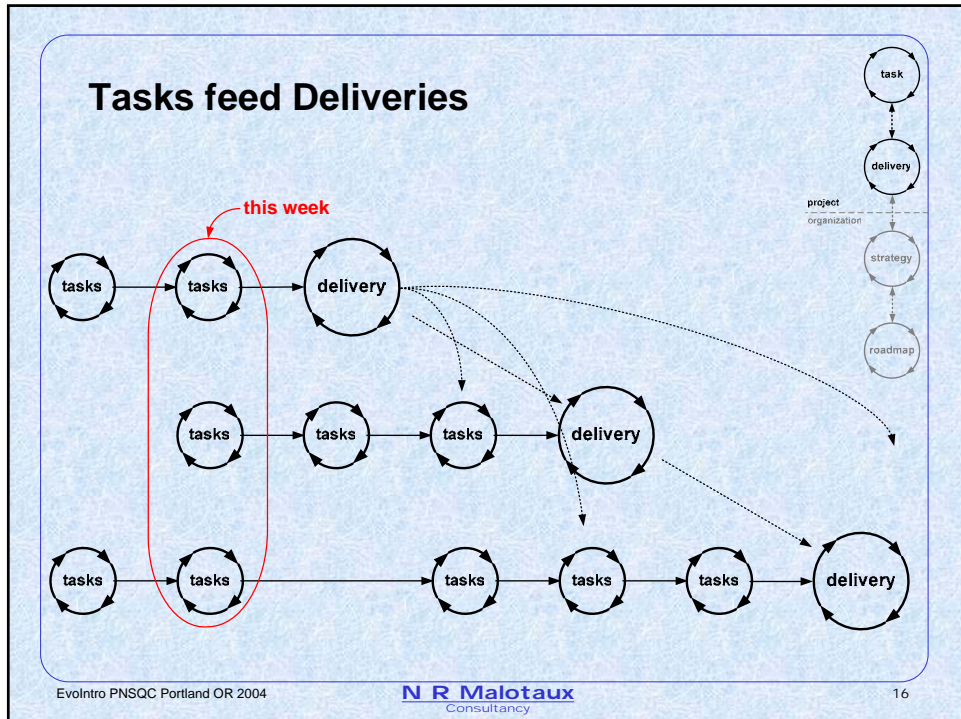
What to plan and what not to plan

- **We plan any task that does not get done unless it is planned**
- **We do not plan any tasks that don't have to be planned to get done.** Such planning costs more than it saves
- **Account for these tasks as “unplannable tasks”**
- **Default we allocate 2/3 for plannable tasks and 1/3 for unplannable tasks**
- **Plan *all* plannable hours**

Cycles in Evo

- **Weekly Task Cycle**
- **Value Delivery Cycle**
 - Are we *delivering* the right things, in the right order to the right level of detail
 - Optimizing requirements and checking assumptions
 - Delivering the juiciest, most important stakeholder values that can be made in the least time
 - What will make Stakeholders more productive
 - What will generate the optimum feedback
 - Not more than 2 weeks





Task selection criteria

- **Most important requirements first**
- **Highest risks first**
- **Most educational or supporting for development first**
- **Actively Synchronize with other developments**
- **Every cycle delivers a useful, *completed*, result**

Delivery selection criteria

1. What will generate the optimum feedback
2. What will make Stakeholders more productive *now*
3. Delivering the juiciest, most important stakeholder values that can be made in the least time
 - **Every delivery must have a useful set of stakeholder values (features, qualities), otherwise the stakeholders get stuck**
 - Delete ↔ Add
 - Copy ↔ Paste
 - **Every new delivery must have clear extras, otherwise the stakeholders won't keep producing feedback**
 - **Every delivery delivers smallest clear increment, to get the most rapid and most frequent feedback**
 - **If a delivery takes more than two weeks, it can usually be shortened: try harder**

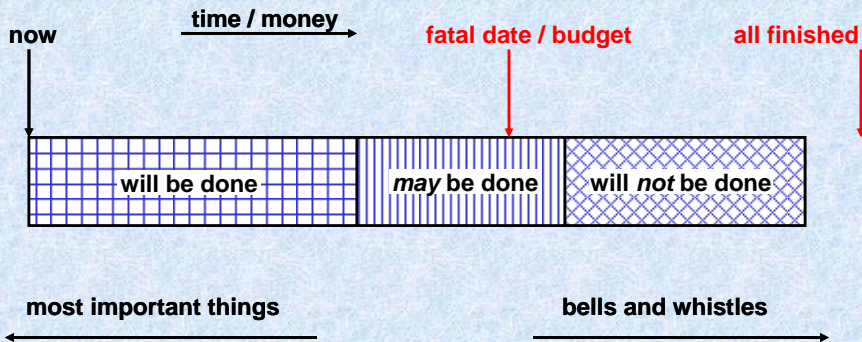
My project is different

- **On every project somebody will claim:**
“Nice story, but *my* project is different.
It cannot be cut into two week deliveries”
- **On every project, it takes less than an hour
to define the first short deliveries**
- **This is one of the less easy issues of Evo.
We must learn to turn a switch**

TimeLine: the *design of the project*

- Write down whatever you have to accomplish
- List in order of priority
- Write the same down in chapters of Results
- List chapters in order of priority
- Translate chapters into Tasks: what you have to do
- Estimate the Tasks in hours of effort
- Cut most urgent Tasks into work-Tasks (max ~6 hrs effort)
- Review the order of the list
- Ask team to add forgotten tasks and add effort estimates
- Get consensus on large variations of estimates (Delphi process)
- Add up the number of effort hours
- Divide by number of available effort hours
- This is the first estimate of the project duration
- Now we know what, at the *fatal date*, will be:
 - Surely done
 - Surely not done
 - May-be done
- Define Deliveries of max. two weeks at the top of the list
- Decide on first few deliveries

What the customer thinks he wants, he cannot afford



Two options

1. Conventional option

At the fatal day we'll tell we didn't succeed

2. Evo option

We already know we won't succeed, so we can tell it now, then together we can decide what to do

Which option do you want?

Quality On Time is also being honest as soon as you can

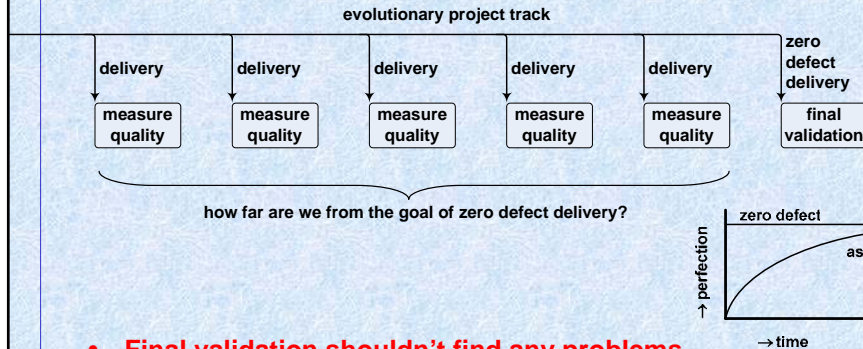
The challenge is to find out as soon as you can

Priorities

Better 80% 100% done, than 100% 80% done

Let it be the most important 80%

Testing in Evo



- **Final validation shouldn't find any problems**
- **Earlier verifications mirror quality level to developers: how far from goal and what still to learn**
- **Evo has *no debugging phase!***

Results of Evo

Solid control of development projects

by doing the *right things* in the *right order* to the *right level of detail*

- **Early results** regular, frequent deliveries of stakeholder value: right order
- **Better results** rapid, frequent feedback: do right things right
- **Faster results** only what is needed in the right order
- **Risk reduction** no missed deadlines, no unusable results
- **Less stressed developers** stress disappears *while producing more*
- **Happy customers** getting early and regular deliveries that can be *used*
- **More profits** better results in 30% less time saves costs
- **Magic bullet** remarkable results, no better alternative

Elements of Evo

- Focus on delivering *value* and *productivity gain* to stakeholders
- Constantly, actively learning. To optimize our Results
- Task Cycles to organize the work (estimation, planning, tracking, priority)
- Delivery Cycles to verify the requirements and assumptions
- Delivery Cycles to provide early productivity to the stakeholders
- Analysis Tasks to find out what we don't know yet
- TimeLine to keep vision and control over the whole project
- Working in a strict time box mode:
Solving the estimation-planning-tracking weakness
- Active synchronization with related parties (e.g. hardware, other team, suppliers)
- Requirements and Risk Management are part of daily life
- Working on a strict priority basis
(Why are we doing this? Why now? Who's waiting for this?)

Elements of Evo

- **What we've done is done, we cannot change it any more**
- **What we do from now, we can control**
- **Constantly asking ourselves:**
*What should we do now, in which order,
to which level of detail for this moment*
- **Don't ostrich, we deliberately pull the head out of the sand**
- **The methods really work (otherwise we would discard them)**
- **No other method delivers better results faster (otherwise we would be using that method; nothing is sacred)**
- **You can start saving time, saving money immediately**
- **Relaxed working, yet higher productivity, no need for excuses any more**
- **Happy developers, happy customers, happy management**
- **Customer has choice in the time-to-market and features battle**
- **Quality is cheaper**

Links

- www.gilb.com
Tom Gilb's website: Evo guru
- www.malotaux.nl/nrm/English
Niels' activities: Evo evangelist
- www.malotaux.nl/nrm/Evo
Evo pages
- www.malotaux.nl/nrm/pdf/MxEvo.pdf
Evolutionary Project Management Methods
(2001 experience)
- www.malotaux.nl/nrm/pr/Booklet2.pdf
How Quality is Assured by Evolutionary Methods
(more recent experience)
- www.malotaux.nl/nrm/Evo/ETAF.htm
Evo Task Administrator (ETA) tool
(expects MSAccess2000~2003)

Monday October 18

Evo workshop

**OGI School of Science and Engineering
OHS University, Beaverton, OR**

Morning: Evo tutorial

Afternoon: Optional hands-on training

Link: <http://cpd.ogi.edu/class.asp?n=05-PM-15> and -16

Phone: 503-748-7567

Can you afford not to use Evo?

If Quality On Time is your goal

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