Exploring the Creation Spectrum

June 2015

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Contents

• What and where is innovation?

• Characteristics

• Some examples and tools
Where?...

• Making < Designing < Inventing < Innovating
...Where?

- Making $\leftarrow$ Designing $\leftarrow$ Inventing $\leftarrow$ Innovating

- $p(\text{Making}_{\text{innv.}}) < p(\text{Designing}_{\text{innv.}}) < p(\text{Inventing}_{\text{innv.}}) *$
It can occur in *making* and manufacture...

...maybe the product...

...but more likely to be the way of making *
Or during design...

...most likely to be innovative design product...

(...creative, design methods (incl. s/w dev.) are often fuzzy or indeterminate)
Or during *invention* of novel solutions to problems or shortcomings...

... ditto design
Characteristics...

Innovation (like stupidity *) may be:

- unintended and unrecognized by the innovator (simply perceived as a reasonable solution)

- unrecognized by others

- unrecognized by both

- unappreciated by others (indifference or hostility – due to possibility of disruption to status quo? (See Machiavelli))
...*Characteristics*

Innovation is:

- best detected * as it happens, or very soon after (after the event it seems to be difficult to appreciate) **

- ( in s/w it seems (to me) to be more difficult to see at code level, easier at design level ('whiteboard/"boxes and lines") unless v. familiar with app/domain/tech)

- and fundamentally dependent on context
Some s/w innovations (IMHO)...

• In no particular order...
  – Evolutionary Development (really)
  – Inspections
  – Object based s/w (not so keen on OO)
  – CMM (2-3)
  – Jeremy Dick's Fault Grid
  – 'Yukikogram'

• (NB I can't think of much innovative s/w (maybe the spreadsheet) – can you?)
The Last Modified Date and Time

Date


Time

0:00 3:00 6:00 9:00 12:00 15:00 18:00 21:00 0:00
My 'innovations' 

- In time order…
  - Radiometer mount
  - Tactical Change Management (an 'Innovation Manager')
  - Profects (a method for detecting potential innovations)
  - Compass
Radiometer...

- Mounts cause problems...
  - absorb heat and melt supporting ice...
  - (or buried under snow)
  - ...resulting in sag
    - changing radiometer height
  - Cause melt streams, affecting data
Tactical Change Management

- Response to failure of SPI efforts
  - Slow progress
  - 'Big SPI' (due to CBA IPIs and maturity mania)

- Synthesis of techniques borrowed from successful teams' activities

- '...according to a documented procedure...'

- Resolved as 'AAPDC', formatted with ETVX

- Anticipated agile s/w development (prioritized lists, short cycle times...)

- Successful for a while

See www.osel.co.uk/rpi/c3.pdf
'Profects'

• “What is the opposite of a software defect?”

• Why are technical reviews and inspections prone to distraction?

• People recognize and respond to design excellence

See www.osel.co.uk/papers/profects.pdf
Compass...

What I had:

Silva type 5 'baseplate' compass

- Cheap
- Light
- Reasonably accurate
...Compass...

What I wanted:

Military prismatic compass (M-73, G150))

- Very precise ( 30 ')
- Heavy
- Expensive
- Desirable
...Compass

What I really needed:

A compass that is

• Very precise
• Light
• Cheap
• Desirable
...Radiometer...

• Solution...
...Radiometer

• Solution...

...drill deep and use ice to cool mounts

(rather than mounts melt ice)
References:

- 'What Engineers Know and How they Know It: Analytical Studies from Aeronautical History'
  - Walter G. Vincenti

- 'Invention By Design: How engineers get from thought to thing'
  - Henry Petroski
  - ISBN 0674463684

- 'Managing the Design Factory: A product developer's toolkit'
  - Donald G. Reinertsen
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- 'Technopoly: The Surrender of Culture to Technology'
  - Neil Postman
  - ISBN 0-679-74540-8
THE END