Modern IO thinking

Use design craftsmanship to solve complex real world problems

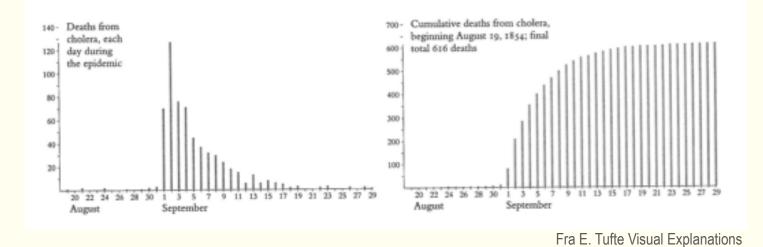
Alf Ove Braseth Designer & Principal Scientist Norwegian Institute for Energy Technology in Halden Solving complex problems (IO), it's not new but you must be a skilled craftsman

Integrating information and solving complex problems, it has been done throughout history many times by skilled people.

Working as a designer, I think you need:

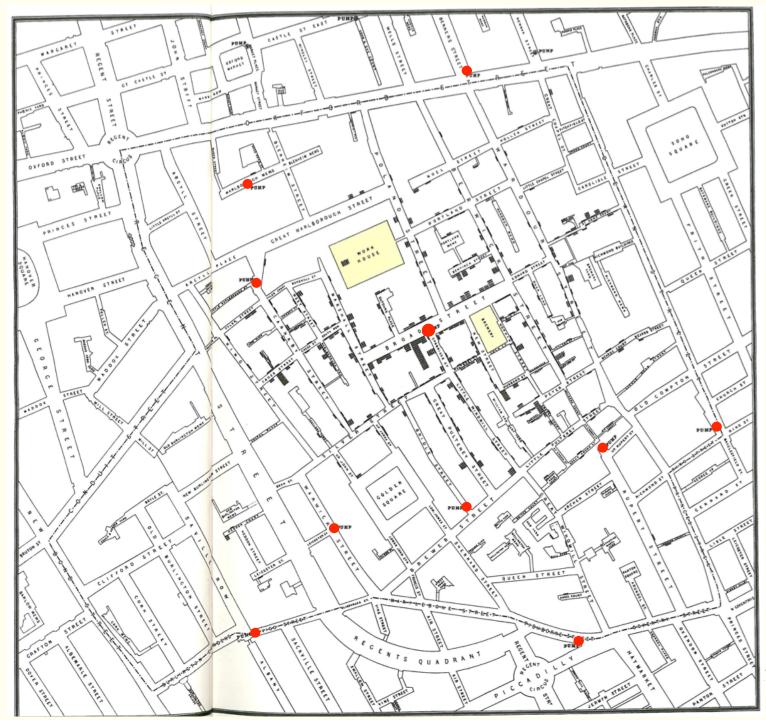
- Domain expertise
- High degree of visibility in the presented data
- Natural mapping of visible data
- Present visible data "in the world", not only "in the head"

IO 150 years ago: The Cholera epidemic in London 1854



Mechanism for disease not yet established, years before the cholera bacteria was discovered (Vibrio cholerae 1886). Several mechanisms were discussed:

- Air
- Vapor from burying grounds of plague victims from two centuries earlier
- Infected water (good idea by Dr. John Snow)



Deaths

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- Address
- Water pumps

Dr. J. Snow has domain expertise, and use natural mapping with high degree of visibility:

None at the brewery suffered from cholera (saved by the beer)

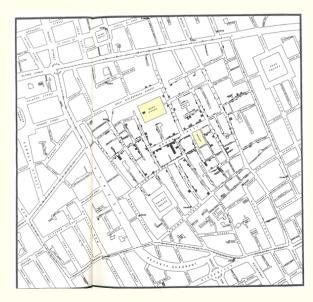
The workhouse has it's own pump-well

Tufte Visual Explanations

Borkmann's point: Solving real world problems at time through integration of information

...there came a point where no more information was needed. On reaching that point the superior detective knows enough to solve the case which depends on "some decent thinking". Borkmann's point also marked the difference between a good investigator and a bad one. The good detective tries to establish when that point is reached, or passed; a bad one, lacking this ability, carries on unnecessarily.

Håkan Nesser (Wikipedia)

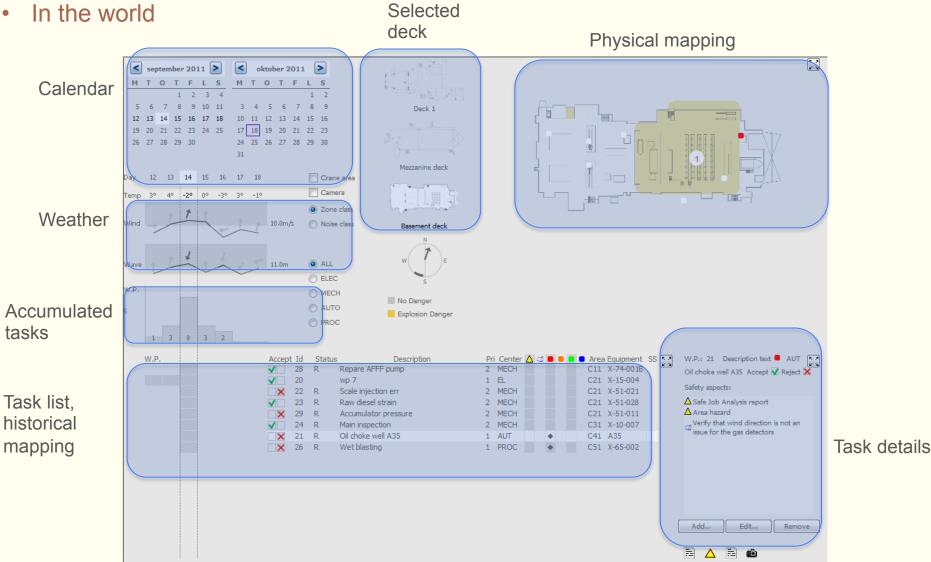


Dr. J. Snow solved the problem at Borkman's point through integration and visualization of the already existing data (map, deaths, address & water pumps)

BUT: No extensive up-front analysis or standardized work flow method solved the problem: These methods are pointing backward into the past, they often do not look into the future

The IO-map, visualizing hazards in job planning

- Visibility
- Natural mapping



What do you need:

You need a designer with a high degree of craftsmanship and that has:

Domain expertise

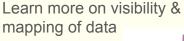
Ability to show the data with a high degree of visibility Able to natural map the visible data Present visible data "in the world", not "in the head" General ability and talent to do design thinking

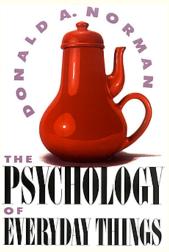
Don't fall into the abyss of forgetting the real problem and instead focus on..

- Work-methods, standards and extensive up-front analyses
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You will end up in the non-productive loop of confusion: "... we need some more analyses and to update the method and models first, and then.." You have passed Borkman's point

Ok, if you absolutely insist, user-centered design





Explains why work methods and simplified models do not solve real world problems



How Professionals Think in Action

Donald A. Schön

Responsibility extends to others and the environment.	"Dreyfus Model of Skill Acquisition"				Expert
Sense of responsibility increases with experience.			F	Proficient	
Sense of responsibility arises from actively making decisions.		Co	ompetent		
Still does not experience personal responsibility.	Advanced f	Beginner			
Only feels responsible to follow the rules.	Novice				
Scope of vision	Follows specific rules for specific situations. Rules are not conditional.	Begins to create and identify conditional rules. All decisions still follow rules.	Learns organizing principals. Information sorting by relevance begins.	Uses pattern recognition to assess what to do. Uses rules to determine how to do it.	No analysis or planning. Pattern recognition extends to plan as well as action.
Range of capability	"Only capable of following the rules"	"Rules have nuance and become conditional in nature"	"Higher order rules shape contexts and conditions"	"Intuition aides in identifying the situation; the actions are governed by the principals"	"Just does what works."