

Object lessons and invisible technologies

Edgar A. Whitley and Mary Darking
Information Systems, LSE



Claudio and the IT 'object'

- One path through Claudio's academic work
 - Large scale information infrastructures
 - Technological innovation
 - IT strategy

Object lessons: Law and Singleton (2005)

- A study of interventions in treating alcoholic liver disease
- A questioning of what we mean by “objects” inspired by post Actor-Network Theory studies

Aims

- Their analysis of complex, messy objects challenges us to think about Claudio's ideas about the nature of the technological *object*

Object problems

- L&S were asked to study the management and organization of the treatment of alcoholic liver disease in a hospital trust and beyond
- Soon found it was difficult to map the trajectories of typical patients

The first four stages of analysis

<i>Stage</i>	<i>Nature of 'problem'</i>	<i>L&S's case study</i>
1	Technical competence	Are we doing poorly implemented research?
2	Managerialism	Are we attempting to impose a tidy managerial solution onto a fundamentally messy problem?
3	Epistemological	Does the messiness arise because of different perspectives on the problem?
4	Ontological	Have we misconceived the very nature of the object?

Object solutions

- Questioning the ontological status of the object
 - From multiple perspectives on an object to multiple objects
- Parallels recent debates around Actor-Network Theory

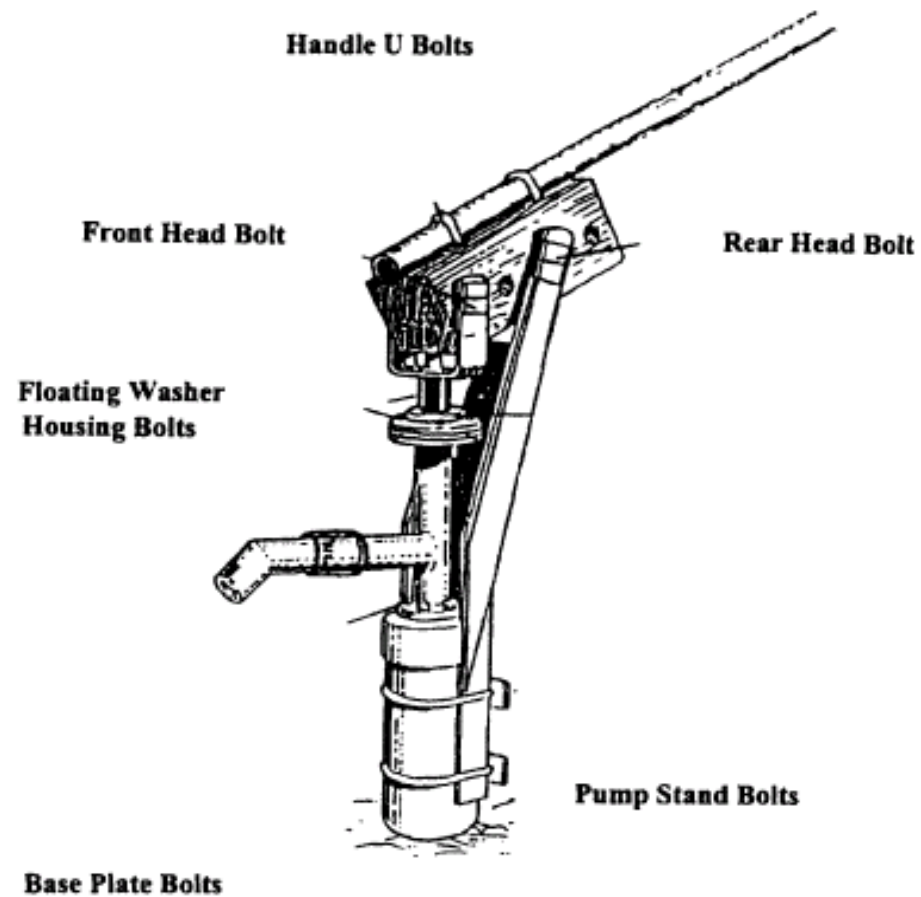
(a) Immutable mobiles

- Mechanisms of long-distance control
 - Able to maintain their shape despite being part of many (network) relationships
- Example of the pedocomparator (Latour)
 - Compares colour of soil samples in a Brazilian rain forest

(b) Mutable mobiles

- Fluid object
 - Something that both changes and stays the same
- Example of the Zimbabwean bush pump
 - Most parts can be replaced (improvised) and it still works and it is still a pump

FIGURE 1
Pump Head as Pictured in Instruction Manual



Source: Morgan, op. cit. note 12, 1.

(c) Fire objects

- Issues of invisible work and colonization of the 'other'
 - Objects as “sets of present dynamics generated in and generative of realities that are necessarily absent”
- Example of design of cold war aircraft wing
 - Threat of Russians 'in the design'

The next three stages

<i>Stage</i>	<i>Nature of the object</i>	<i>Example</i>
5	Immutable mobile “able to maintain its shape despite being part of many (network) relationships”	Pedocomparator
6	Mutable mobile / fluid object: “something that <i>both changes and stays the same</i> ”	Zimbabwean bush pump
7	Fire objects: “sets of present dynamics generated in, and generative of, realities that are necessarily absent”	Design of aircraft wing

Digital Business Ecosystem (DBE)

About the DBE

- The DBE is a concept, a European project and a technology
- Aims to provide a flexible, distributed infrastructure to tie economic development to the region, supporting local trade and industry through the development of software.

Components of the DBE

- DBE studio
 - a set of tools for describing a service manifest
- Service Factory
 - publishes the service, making it visible and searchable
- Execution Environment
 - where an SME user searches for and views services
- FADA
 - a P2P network providing leased storage
- EvE (Evolutionary Environment)
 - acts as a recommender, suggesting new and optimal combinations of services

Beyond research: Engagement with SMEs

- Regional catalysts to co-ordinate engagement with SMEs
 - Tampere, Finland
 - Aragon, Spain
 - West Midlands, UK
- Our involvement was to study the engagement process

SME types

- Two main types of SMEs
 - Drivers
 - Small software houses involved in the development of business systems and services
 - Users
 - Use DBE services once available
- Focus on the experiences of the Driver SMEs

Field work

- Attending DBE engagement events
 - February 2005 – July 2005
- Interviews with key actors in all regions
 - e.g. local politicians in Aragon, academics in Finland, SMEs in all three regions

Finding engagement

- Following ANT, likely sites of engagement are easy to spot
 - Process of group formation (people, material and symbolic resources) and enrolment is almost always conspicuous
- First time different elements were brought together

The missing element

- DBE technology was not present
 - Not uncommon with innovative developments
 - Need to start engagement early
- Issues in bringing together the science vision, the computing implementations and the business aspects

Concerns raised

- High level scientific and business overviews
 - So what?
- Unique technology or vapourware?

Understanding the DBE

- What sort of object is the DBE?
- Fluid objects
 - Flow and gently change shape, bit by bit
- Fire objects
 - Change takes the form of jumps and discontinuities

DBE as fluid object?

- An open source project
 - Incremental development
- Evolving infrastructure

Versions of the DBE Studio

Version	Date of release	Days since last version
Version 0.2.0	2006-02-28 06:54	34
Version 0.1.11	2006-01-25 03:15	16
Version 0.1.10	2006-01-09 15:43	19
Version 0.1.9	2005-12-21 09:10	16
Version 0.1.8	2005-12-05 08:26	14
Version 0.1.7	2005-11-21 09:17	5
Version 0.1.6	2005-11-16 03:54	20
Version 0.1.5	2005-10-27 15:21	2
Version 0.1.4	2005-10-25 15:27	14
Version 0.1.2	2005-10-11 15:47	0
Version 0.1.1	2005-10-11 15:41	6
Version 0.1.0	2005-10-05 19:35	

DBE as fire object?

- DBE is more than a non-proprietary service architecture
- What is not present?
 - Flexible combination and recombination of software services available in DBE
 - Evolutionary environment to support combination

The dilemma of engagement

- Should engagement emphasize the gradual changes in the DBE (fluid object)
- OR
- The jumps and discontinuities (fire object)?

Claudio's insights

Bricolage and platform organizations

- Tinkering and bricolage address the gentle aspects of technology development
- Creative destruction in the platform organisation addresses the jumps

Formative context

- Too much fluidity could create a formative context which could stifle the ability to engage with the later, advanced and distinctive features of the DBE
- Too much emphasis on discontinuities would be unattractive for driver SMEs as they have a particular desire to work with running code and implementable services.

A seamless fusion

- Fluid and fire objects are combined seamlessly in Claudio's account of information infrastructure
- Realities can shift and change, sometimes gently, sometimes in violent and unpredictable ways

Gestell

- Heideggerian notion, applied to give a 'light' understanding of infrastructures
 - The power to enact reality but which cannot be mastered
- A focus on what lies beyond Gestell
 - The moment of vision where insight from beyond the influence of Gestell could be experienced

The work of engagement

- The work of preparing the network that would allow the DBE technology to become visible
- Engagement was the work of creating the Gestell of the DBE before the technological components were ready

Coda: Governance of the DBE

- Process for introducing long term governance of DBE
 - Governance of what?
- Mechanisms for governing smooth changes
- Mechanisms for governing discontinuous jumps