

Quality Perspective on Standardization and its implication for the Adoption of Technology

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Skövde, June 17, 2008

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Outline

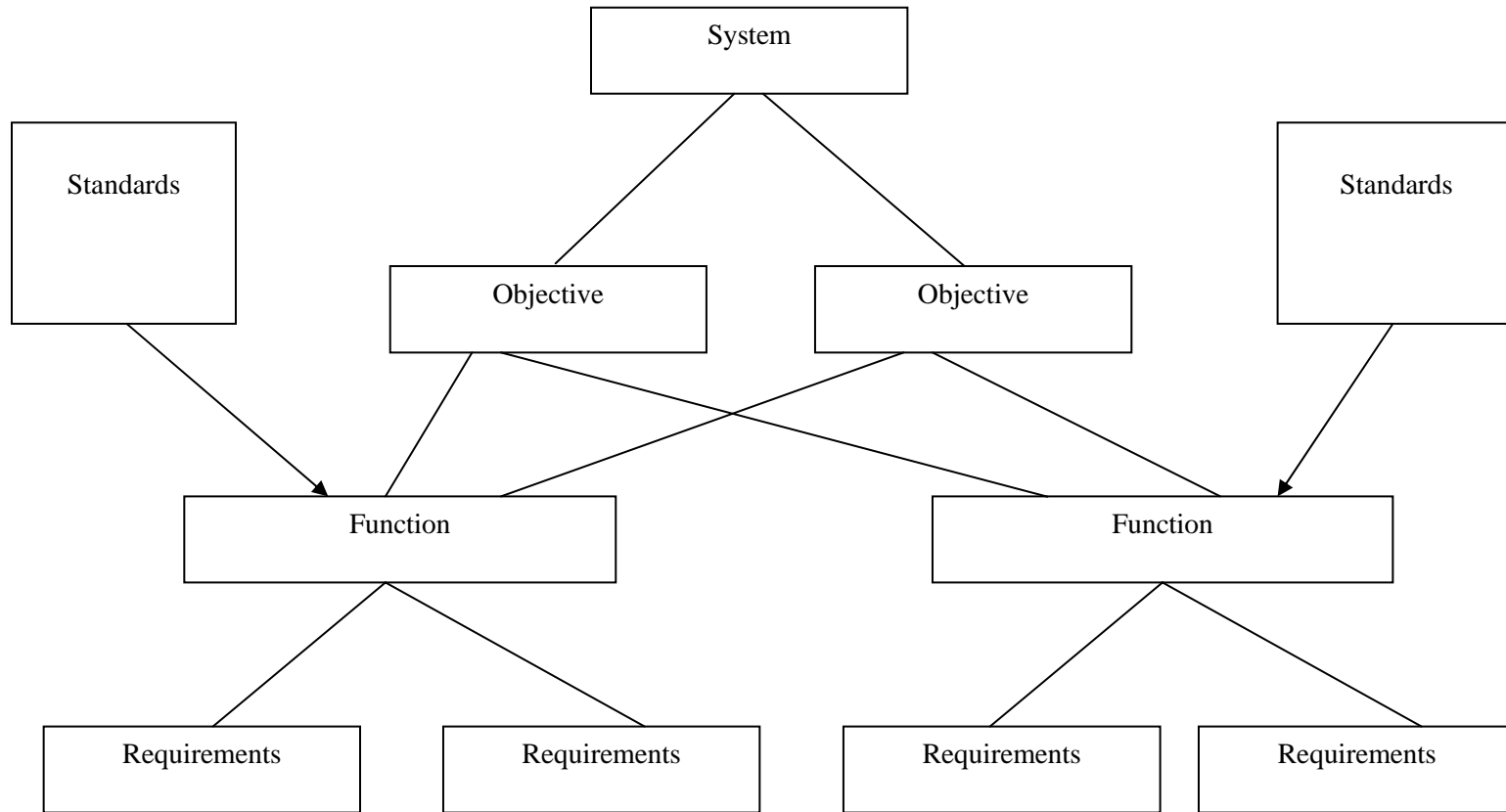
- The proof of technology is in...
- Principles for achieving quality
- RFID: application of theory
 - Problems with adoption
 - The wisdom of hindsight
- So what? Test it or lose it.



The proof of technology is in...

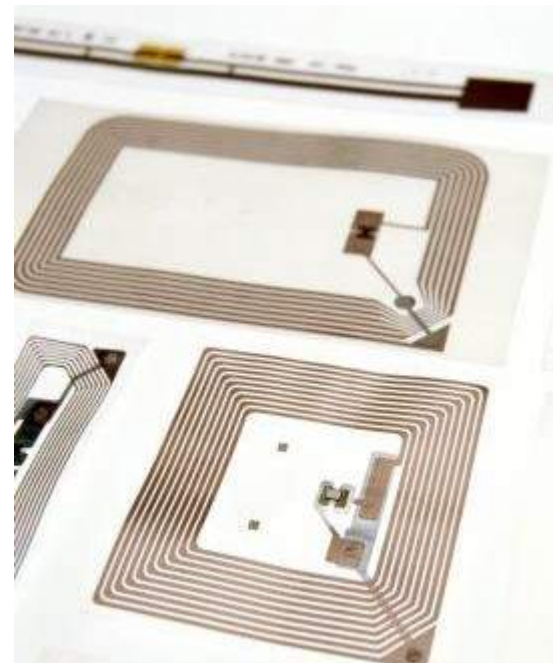
- Technology has to meet users' demand
- Ability to meet demand = quality
- Unknown future demand? = general quality principles

What's in the standard?



What is quality made of?

- Reliability
- Maintainability
- Service life
- Life cycle cost



RFID standards

- Two major players:
 - EPCGlobal consortium - Gen2 standard
 - ISO 18000 series of standards

- In July 2006 Gen2 included into ISO 18000-6 through fast track procedure

Methodology of analysis

- ICTSB workshop on RFID, Brussels, Nov. 25, 2007
- ETSI workshop on RFID, S.-A., December 2-3, 2008
- ETSI meeting on RFID, S.-A., February 25, 2008
- Interviews, input from participants, white papers

RFID: poor little thing

- Technical issues
 - immaturity of technology; < 100% reading rate
- Economic issues
 - high cost; lack of business cases; no network externalities; free rider problem
- Social issues
 - privacy concerns; lack of technology understanding; opposition to any change that doesn't jiggle in the pocket.

RFID vs barcode

Aspects	Barcode technology	RFID technology
Technological	<p><i>Advantages:</i></p> <ul style="list-style-type: none"> - 100% reading accuracy if integrity of the label is preserved - widely diffused (network effects) <p><i>Disadvantages:</i></p> <ul style="list-style-type: none"> - requires direct visibility - slow scanning process 	<p><i>Advantages:</i></p> <ul style="list-style-type: none"> - ability to scan multiple items at high speed <p><i>Disadvantages:</i></p> <ul style="list-style-type: none"> - reading difficulties, when tags are embedded on (next to) the materials which absorb radio frequencies - lack of interoperability
Social	<p><i>Advantages:</i></p> <ul style="list-style-type: none"> - businesses are familiar with technology - no concerns with public 	<p><i>Disadvantages:</i></p> <ul style="list-style-type: none"> -- “Big Brother” syndrome, constantly promoted by multiple privacy groups - overexaggerated tracking possibilities of RFID, which leads to mistrust - new, less known technology
Economic	<p><i>Advantages:</i></p> <ul style="list-style-type: none"> - very cost efficient, costs nothing to print - widely implemented, leading to positive network effects <p><i>Disadvantages:</i></p> <ul style="list-style-type: none"> - requires manual scan, which can lead to higher processing costs 	<p><i>Advantages:</i></p> <ul style="list-style-type: none"> - complete automation of scanning process, leading to reduced labor costs <p><i>Disadvantages:</i></p> <ul style="list-style-type: none"> - high cost of technology - lack of network effects

Quality principles applied

- Reliability – implementation errors
- Maintainability – localization of equipment required
- Service life – no integration with the existing infrastructure; high uncertainty
- Life cycle cost – life cycle cost is quite substantial

Quality is a social necessity

- By addressing reliability, maintainability, service life and life cycle costs standards increase the adoption potential of technology.
- The developed model can be used during standardization and to assess the adoption potential of technology.
- The involvement of users in standardization leads to understanding of potential problems.

Questions and Comments

