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Standards and Standards Development – an OGC and Education Perspective

NIST Workshop on Standards and the Digital
Economy/loT

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Introduction



- Who am I?
 - Open Geospatial Consortium graybeard, interoperability engineer, geosemantics researcher, entrepreneur
- What are standards?
 - Agreed models, agreed interactions, layering (standing on the shoulders of giants or buoyed by the mosh pit)
 - Organic standards versus collaborative standards vs de facto standards
 - Consensus versus mandated standards
 - Does a standard codify or enable practice?
 - Standards vis-a-vis community - within and between community interoperability and semantics

What is OGC?



- Encodings and interfaces interoperability standards for geospatial information.
- OGC History: Vision of network effect -> common abstraction -> network experimentation -> specifications -> conformance testing
- OGC standards vs interoperability programs
- OGC development methodology - "coop-etition": cooperation to provide a playing field for competition

Standards and the Internet of Things (IoT)



- OGC: world to Web. IoT: Web to world. Things are features! 10 years of SWE (Sensor Web Enablement).
- IoT Pilot: agility, awareness, clash of information and physical standards
- IoT vs Web of Things
- local PAN vs global WAN
- Security versus access in low-cost, lightweight devices

Standards and Academia



- Interoperability is a science - related to network science and network effects
- Standards are like geography - touch science, economics, politics, psychology, culture
- Should a standard specification be considered a research publication?
- Collaborative versus competitive research
- Teaching standards as existing technology versus ongoing collaboration process / skill
- Should standards for education include standards and the skills for standards?

Standards and Business



- Does innovation oppose or benefit from standards?
- Interoperability and interchangeability - market size and level playing field, small vs large firms
- Market behavior “standards + customization” - beltway bandits but also INSPIRE
- Component innovation between standard interfaces, versus system innovation that disrupts standardization
- Interoperability and trust: expecting behavior by contracting for it

Observations



- Standards are an essential if often un-recognized framework for innovation - so that not everything has to be re-invented all the time
- Standards are not just a “technology” to be utilized but a collaboration / negotiation process to be learned and practiced. Progress is not well served by neglect of the process and its results, whether in education or in research.
- It seems that at least a portion of the developer community use free and open software as a standards development and documentation process. Is a hybrid of reference software, narrative, and model languages a productive direction for OGC and other SDO's? Does OGC need to reach out and contribute (some) standards formalism to open source development processes?