

Standardisation is a serious game

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Introduction

- Standardisation as a serious game
- Lifesize, complex, not a shoot-them-up
- Objectives of the game:
 - Model situations, process, objectives
 - Training and reflecting upon approach
 - Improvements in standardisation projects & markets
- Next section
 - phenomenology of standards to be captured in “serious game”

Requirements for a standardisation game

- Keep the semantics of standards
- States, stakes, and results practical, understandable
- Scalable complexity
 - Assess model on rough easy cases
 - Allow for more completely described ones
- Efficient formalisation
 - Terminology
 - Methodology
 - Mathematics (game theory, utility theory, general dynamics of economy)
 - Rendering platform, user interface
 - Cards could suffice!
 - Open issue



Semantics & economics of standardisation

Assumptions of standardisation

- Usual assumptions in industrial economy
 - XIXth century industrial growth
 - Assumes economies of scale, benefits of mass production
 - Manageability of large scale production and delivery to the markets requires standardisation
 - Economists: concept of marginal cost

Unify or Split

- Through standardisation, homogenise, unify, federate markets
- Standard means banner
- Reference case: unification of European countries
 - Germany unified during the lifetime of Richard Wagner, from Zollverein (customs union) to the Empire
 - Italy, unified from the North, then with a move from the South to the center (Garibaldi's Mille in Sicily and upwards). Finally, trading Nice & Savoy to France against French troops support to enter Rome.
 - Standardisation performed in these countries:
 - Language (single language replacing dialects)
 - Territory with « natural » borders
 - Commonality in culture
 - Single currency (Reichsmark, Lira)
 - Legal framework
 - Other models: Switzerland, the European Union, etc...
 - Reflection on standardisation units, regions vs nations, cities, etc...
 - Game idea
 - Simulation about merging or splitting countries
 - Painful case: Austro Hungarian Empire, Belgium
 - How come France was kept unchanged after defeat of Napoleon?
 - East and West Berlin dynamics from 1945...
 - The split function needs a standardised border management!
 - System split into two subsystems with defined interface
 - Peripherals: neighbouring entities
 - Peaceful coexistence with neighbours:
 - « Bluetooth » Nordic king, and the wireless link system named after him.

Standards simplify

- Procurement
 - From multiple source, conforming to a single standard, « meta-product »
 - Interoperability, conformance
 - Ex: spare parts
 - Obtained where and when needed (logistics, maintenance)
 - They work (interoperability)
- Usability
 - Plug and play
 - Interoperability
 - Limit & risk
 - Same interface, but ... almost work, and are incompatible!

Development power of standards

- Target markets around federating standards (banners, labels!)
 - Recognised and addressed by multiple players, common solution, around which to differentiate
 - User benefit: choice of supplier, guarantee of interoperability, satisfaction of needs
 - Uncertainty removed
 - There will be a market, and after an entry cost, there will be a marginal cost...
 - Marginal cost, the other way around: even a small player enters at marginal cost the agreed large market
 - Ex: silicon circuits « standardising » functionalities, allowing everyone to create their optimised and differentiated module from the same mass produced component (cheaper, more reliable!)
 - Development concentrates on the inside of a black box, the I/O are defined in standard
 - Collaborate on interoperability
 - Differentiate on implementation
 - Coexistence, compatibility, interworking, interoperability, end to end quality of service

Development power of standards

- Manage reliability
 - Metrics possible
- Risk reduced
- Manage quality of experience
 - Ease of use
 - Quality of service
- Toolbox approach possible
- Ecosystem around standard (technology family, banner, label)
 - Ex Operating System

Critical review of standards based business cases

- The game needs not to forget that the scope is business success, not just standardisation done properly.
- Two typical cases of standards based business needs addressing
 - Market creation phase standards
 - Established market rationalisation through standards

Market creation phase standards

- Maximum risk and/or benefit
- Winner takes all
 - Is this a standard, then?
 - Winning standard takes all
 - Ex GSM in Mobile Communication
 - Open Ecosystem
 - Early bet rewarded
 - First entry of Sony in GSM market failed: no originating R&D and patents to trade... High licensing cost
 - Solution found with Ericsson: Sony Ericsson
- May fail brutally: « too early », « no demand »
 - Ex of early investor in CD-ROM computer programme titles

Standards rationalise established markets

- Migrate from (old) proprietary to (new) standard
 - Early bets become obsolete
 - Recognise sunk costs for what they are
 - Disruptive investment needed
 - Ex collapse of US steel industry not seeing the oxygen oven technology come and dominate market



Intellectual property rights, the currency of standards

Gunpowder, currency of standards trade is Intellectual Property

- If « Standards are the language of trade » as a US government official of the Department of Commerce once said, then « Intellectual Property is the currency of Technology »
- Licensing agreements are essential to using standards in products or services
- Patent pools (formed around one standard family)
- Patent portfolios (of company)
- There is no innovative product without IPR
- IPR is also a business in itself

Patenting

- The early patent schemes (XVIIIth-XIXth century)
 - Granted innovators license to exploit their invention in monopoly during a limited time, in a defined geographic area
 - See history of steam, coal, steel
- Today's patent
 - Tradeable asset
 - Right to play at the table
 - Monetisation of R&D
- Patent in standards
 - Needed by all standards users
 - Standards organisations have requirements on when/how patents known to be relevant for a technical specification need to be disclosed



The process of standardisation

The process

- The standardisation game goes through steps, which build a process
- A need is identified, a research is made with an innovation as a result
- A product embedding a standard is delivered to the market
- In-between, a specification has been developed, reviewed, approved, and implemented

Step 1: market requirements

- Experts convene in a standards organisation or forum
- They agree on needs specifications
- They produce a market requirement document

Step 2: specification development

Step 3: approval process

- Based on the market requirements document, a group of technical experts develops a specification
- This is made usually by calling for technical proposals
- Technical contributions are reviewed and commented
- Multiple possibilities are considered, discussed, merged or put as parallel options
- A technical specification supported by the technical experts participating is finalised
- A standards management board of the organisation checks all aspects, technical and legal in particular (including IPR rules), and endorses (or not) the proposed specification
- The specification may then be approved or go for voting as in most international standards organisations
- Ballots may bring new issues, comments, amendments
- The comments are reviewed by experts, comments incorporated in modified consensus version
- Back to the vote
- Endorsement (or not)

The working group is an agora

- The standards committee, WG, or Steering Board, an AGORA
 - A place where different views are expressed or exist in the background
 - Consensus is built by negotiation
 - Finding a compromise suitable to all
 - Democracy
 - Not necessarily the « best » technology
 - Technology acceptable to all
 - This may urge some companies to develop proprietary systems, with uncompromised technical choices
 - The risk to go alone
 - The reward to be alone controlling an ecosystem in case of success

Utility: modelling the players' interests

- The economic utility is a function describing the preferences and interests of economic agents
- Who is the player?
 - In which role?
 - Company employee: reflect corporate priorities
 - Engineer and innovator: pursue own « happiness »
 - WG member: play as a team. Sometimes identity of committee determines action of individuals: common views. Committees may compete (e.g. for home network: with priorities from white products or brown products or telecom connectivity, or energy management)
 - Ad-hoc grouping of interests (I help you, you help me)?
- Model different perspectives as they intervene

The game

- Criteria
 - Assets
 - Achievements of objectives
 - Player priorities
 - Alliances
- Time line
 - The standardisation process
 - Events (see steps)
 - Agreements/negotiation in developing specification
 - Voting event
 - Adoption of standards
 - Market game (extension)
 - Market share
 - Overall market value
 - Success/value measured on time horizon

Manual mode game

- Developing and testing the game
 - With dice?
 - Card based
 - Like a monopoly game...

Stochastic model

- This allows running the game in automated mode.
 - Either all players in model
 - Or all players but one: you
 - You play against all others (they are in the stochastic model)



- Contact

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