RELATIONS CONCURRENTIELLES ET PROCESSUS DE NORMALISATION : LE JEU DE MICROSOFT DANS LE SECTEUR DES FORMATS DE DOCUMENTS ELECTRONIQUES

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Résumé

La coexistence en ce moment de deux standards institutionnels rivaux (ODF et OOXML) dans le secteur des Formats de Documents Electroniques (FDE) est une situation intrigante. Il est inhabituel pour les économistes spécialisés sur les standards et les spécialistes en management des technologies de voir que deux standards couvrant les mêmes fonctions coexistent. Cette situation révèle une contradiction à la théorie du design dominant et semble même irrationnelle au regard de l'Organisation de Développement des Standards (ODS) dont la mission est d'aider les parties-prenantes à converger vers une référence unique pour l'ensemble du marché.

Dans une perspective stratégique, mobilisant la littérature sur les approches renouvelées des dynamiques concurrentielles, cette recherche d'essence qualitative vise à analyser le processus de normalisation des (FDE) dans le contexte institutionnel français (représenté par l'AFNOR). Le processus de normalisation représente le contexte coopératif, dans lequel nous observons la manière dont Microsoft (défendant son format OOXML) gère ses relations avec ses concurrents (défendant le format ODF) et comment il fait face à cette situation coopétitive.

Les résultats montrent, d'une part, que Microsoft, malgré sa position de leader sur le marché, est oblige de confronter ses rivaux sur le même terrain (le processus formel de normalisation) ; d'autre part, qu'en même temps qu'il se conforme aux règles du jeu, il réussit à atteindre ses objectifs individuels. Enfin, l'étude de cas ouvre sur un questionnement plus large portant sur le management de la coopétition.

Mots clés : Coopétition – Dynamiques concurrentielles – Standards – Normalisation – Microsoft

COMPETITIVE RELATIONSHIPS AND STANDARD SETTING PROCESS: MICROSOFT'S GAME IN THE ELECTRONIC DOCUMENT FORMAT SECTOR

INTRODUCTION

The current coexistence of two rival institutional standards (ODF and OOXML) on Electronic Documents Formats (EDF) constitutes an intriguing situation. Indeed, this situation seems unusual for standard economists and specialists in technology management that two standards covering the same functions coexist. This constitutes a contradiction to the dominant design theory (Abernathy and Utterback, 1978). Moreover, it seems irrational as regards the Standard Development Organization (SDO) which mission is to help stakeholders to converge to a unique reference for the entire market.

Competition between networks often generates structuring effects, in particular bandwagon and lock-in effects (Arthur, 1989; David and Greenstein, 1990) linked to network externalities (Katz and Shapiro, 1985) which have been highlighted in numerous research modelized in the economics field. These effects create an environment particularly interesting to observe for management researchers. Indeed, they favor the emergence of specific strategic behaviors that are tackled in particular by new approaches of competitive dynamics.

These behaviors privilege particularly complex relational strategies which adopt both traditional pure forms –competition (Smith et al., 1992) and cooperation (Dyer and Singh, 1998) – but also hybrid forms such as coopetition (Brandenburger and Nalebuff, 1996).

Based on the analysis of the EDF standard setting process in the French formal context (AFNOR), taken here as the cooperative context, we observe how Microsoft (defending its OOXML format) manages its relationships vis-à-vis of its rivals (defending ODF format) and how it handles this coopetitive situation. How competitive relationships more or less aggressive on the market occur in an institutional non-market frame that organizes cooperation? We question here the nature of coopetition in this frame.

We first present the literature review on standard competition and competitive relationships. Then, we develop methodological elements explaining data collection and analysis and including a description of the case study context. The results show, in the one hand, that Microsoft, despite its leader position in the market, is obliged to confront its rivals on the same arena (the formal standardization process); in the second hand, that while complying with the rules of the game, it succeeds in achieving its own individual goals. Finally, the case study entails larger issues questioning the management of coopetition.

1. THEORETICAL BACKGROUND

1.1. TECHNOLOGIES COMPETITION ENVIRONMENT

In technological environment involving networks, competition between technologies rivaling to become a standard applies according to certain specificities.

First of all, competition depends upon the sequence of choices of the users. Indeed, standardization economists have demonstrated the determinant weight of the first users' choice upon the diffusion process. The benefits associated to network externality gives an advantage to the technology that has already been elected by those determinant users and handicap the rival one. Actually, they generate superior output for the follower adopting a technology that has already been chosen. Thus, the more a technology is adopted, the more attractive it becomes, letting less and less chances for its rival to be chosen. Once a critical mass is reached, a bandwagon effect is generated which blocks the process of adoption on one of the technologies and leads to a lock-in situation: the rival one has no chance to be adopted again.

This mechanical reinforcement explains the tendency for a technology to impose itself as a single standard. It particularly happens in the situations characterized by strong network externalities benefits for customers. As defined by Katz and Shapiro (1985), a network effect exists when the utility that a user derives from consuming a product depends on the number of other agents who consume either the same brand of the product or another brand which is compatible. This is the case for all networks technologies. For example in telecommunications, computer software and hardware markets, goods and services generate network effects or externalities (Andreozzi, 2004). A lasting coexistence of two rival standards is yet observed when these benefits do not overpass the benefits associated with more variety in the offer. In the others cases, there is a

tendency towards a unique standard. This specificity makes the competition a fatal one, the rival loosing technology being condemned to disappear.

The fatal issue of the rivalry between potential standards makes special conditions to competition. Competitors are supposed to struggle fiercely to win a definitive battle. The winner wins everything, as the expression "the winner takes all" states it (Besen and Farrell, 1994; Shapiro and Varian, 1999; Stango, 2004). Indeed, the company which holds the "wining standard", anticipates a strong and long-term monopoly position. Besen and Farrell (1994) observe that a firm controlling a technology becoming an established standard can have an extremely profitable market position. When buyers expect network benefits from one firms' product, that other firm cannot provide, a large discrepancy in value is created which the fortunate firm may be able to extract a profit. For the looser, he is likely to irremediably disappear. A competition between technologies rivaling to become a standard is thus supposed to be definitively aggressive. Now, competitors may decide to renounce to a standard war. Competitors can choose to organize compatibility between the two standards or they can decide to cooperate and define a common standard (David and Greenstein, 1990). The institutionalized standard setting organizations constitute an ideal context to implement this cooperation. They constitute an institutional environment enabling to gather all the participants of the market, producers, customers, providers, institutions, and install conditions to guarantee a common work to produce a new standard that will facilitate the exchanges and beneficiate to the whole market. Particular institutional conditions are settled to favor cooperation: The members wishing to participate to a new standard definition are supposed to share information, exchange proposals, negotiate and finally reach a common position through consensus.

Thus, two different processes exist to set up a standard on a market: a non market and a market process. Farrell and Saloner (1988) expose the two different mechanisms with particular reference to the choice of compatibility standards. The first mechanism involves no explicit communication and depends on unilateral irrevocable choices of consumers: it succeeds if one agent chooses first and the others follow. When private standards crystallize the consumers' choice, and then appears a "*de facto*" standard. The emergence process leading to a de facto standard is named "polarization". The second mechanism takes place on the non-market environment. As defined by Baron (1995: 47-48): "The non-market environment consists of the social, political and legal arrangements that structure the firms' interaction, outside, of, and in conjunction with markets." This environment differs from the market environment because of characteristics such as a majority rule, due process, collective action and public action. The non-market mechanism involves explicit communication and negotiation before irrevocable choices are made: it represents what formal standardization

committees do. They edit "*de jure* standards". Economists of standardization describe this emergence process as "convergence" (Foray, 1990, 1993). Convergence means that each contributor to the new standard makes a step forward the alternative competitive options. The standard is thus the result of a converging movement to a unique reference that combines the precedent alternative proposals. This cooperative attitude does not eliminate competition. Researches observe the strategic choices of participants in Standard Development Organizations in order to influence the orientation of standards definition in a subtle way to reach a collective consensus defending their firms' interest (Simcoe, 2004; Chio *et al.*, 2007; Leiponen, 2008)

1.2. ADOPTION AND STANDARD SETTING STRATEGIES

From the users' perspective, buyers having to choose between two standards face a risky decision. If they make the right decision, there can be large reward of this choice, but if they make the wrong choice and have joined a loosing network, they may be in a position to switch, which may be costly, or content themselves with smaller network externalities. In the case of the eradication of the looser, they are designed as "angry orphans" (David, 1987). Buyers' decisions are therefore strongly influenced by the past and by their forecast of future. At first, they are strongly influenced by history as the proliferation of a standard is dependant on its path to a large extent. Indeed, the present market result is not only determined by the behavior and the preferences of the customers and the property characteristics of the current product generation but rather by the decisions in earlier periods or in the phases in which the entire market selected one of the two standards. Consequently, buyers take into account their expectations with respect to the future usage development (Katz and Shapiro, 1986; 1992) to elect the standard that is supposed to become dominant on the long term.

From the point of view of the competitors that hold rival standards, the choice is whether to make their products compatible with those of rivals, thus competing within a standard, or make them incompatible, resulting in a competition between standards. Firms can thus, explicitly or implicitly, agree to make their products compatible. Agreeing on a standard may eliminate competition between technologies, but it does not eliminate competition on more conventional dimensions, such as price, service, and product features. A fundamental question for firms facing horizontal competition in a network market is "competition for the market" will be more or less profitable than the "competition within the market", if rivals products are compatible. Finally, the decisions concerning standards involves a strategic position in competitive relational modes

1.3. STANDARD SETTING PROCESS AND COMPETITIVE RELATIONSHIPS

The setting of a standard constitutes a strategic stake as regards the competitive relationships. The competition between standards is depicted as a standards war (Shapiro and Varian, 1999). It directly refers to the paradigm of competition that is traditionally based upon the creation of competitive advantage through the structure of the industry (Porter, 1980) or by through the development of core competencies (Prahalad and Hamel, 1990). The capacity to conform to a standard can constitute a competitive advantage. The opportunity to determine the standard refers to the ability to define the environment. The stake is to create the rules of the game. It consists of creating the environmental conditions, influencing, modifying, disturbing the competitive conditions (D'Aveni, 1994). When the objective is to define a "*de jure*" standard, then this aggressiveness cannot appear so clearly. The institutional environment imposes a certain amount of cooperation.

The institutional process imposes consensus and not a simple majority rule which encourages collective strategies and clearly refers to the cooperative paradigm. This paradigm is based on the development of a collaborative advantage (Contractor and Lorange, 1988; Kogut, 1989; Hamel *et al.* 1989; Dussauge and Garrette, 1995). The collaborative advantages constitute a consistent way to manage interdependences in aiming at mutual benefits (Astley, 1984; Borys and Jemison, 1989; Thorelli, 1986). Firms elect this strategy to obtain a superior benefit than they would have earned without collaboration or alliance As far as *de jure* standards are concerned, their collective nature necessitates a certain amount of cooperation. According to the main philosophy of the formal standard setting, the standard is supposed to result from the global interest of the market and competitors are expected to cooperate in order to define the medium solution sparing a minimum effort for any competitor, each of them making an effort towards the others.

Yet, the situation is paradoxical. Competitors have to integrate antagonist objectives between their individual versus their common fate (Baumard, 2000). Indeed, the competitors may be tempted to push the standard towards some specific direction where the firm has expertise and core competences and still have to keep in mind the interest of the whole market, not only because this is their mission of the standardization organization process, but also because he has to convince the other participants of the technical committee. The neologism coopetition enables to depict such ambivalence. Today, firms are involved in both competitive and cooperative strategies simultaneously (Brandenburger and Nalebuff, 1996; Dawling *et al*., 1996; Park and Russo, 1996; Lado *et al*., 1997; Bengtsson and Kock, 2000; Luo *et al*. 2006). When the interdependence is strong between companies, they have to assess their collective interest and still defend their own benefits.

Thus the standard setting process offers a stimulating context to observe these competitive configurations. In this process, we can see traditional competitive modes: competition (direct or indirect, substitutes), since firms defend their own interests; cooperation within the negotiation phases, since firms seek consensus in order to define the rules of the market. These modes take place simultaneously and create a coopetitive situation. This coopetition context entails the following research question: To which extent do firms cooperate and compete in the institutional standardization process? In other words, how do firms manage this duality?

In this research, we choose to focus on the sector of office electronic document formats in which we observe the leader, Microsoft, destabilized by the market requirement for a "*de jure*" open standard (ODF- Open Document Format for Office Application). After the methodology section hereafter, we will present the reaction of Microsoft and its specific management of the standardization process in terms of competitive modes.

2. METHODOLOGY

2.1. DATA COLLECTION AND ANALYSIS

The current research is based on an exploratory perspective upon a deep case study analysis (Eisenhardt, 1989; Yin, 1994). The case study tackled here concerns the context of two rival "*de jure*" standards which means that they are developed at the level of an institutionalized International Standard Setting Organization (ISO).

As regards the data collection, secondary data comes from the analysis of Web sites and from the reviewing of archival documents. Primary data were collected from interviews[1] of experts of standardization, users and people who attended the standard setting process on office documents format. We first interview the experts for standardization programs within AFNOR[2], CEN[3] and OECD[4] before the working sessions in November 2006. But the major source of information comes from the analysis of mail exchanges between whole participants in the technical works session in the standardization commission of electronic documents formats from May 2007 to April 2008. One of the authors participated in the working group as a user and computer specialist. This working

[1] With an average duration of 2 hours in several moments
[2] AFNOR : Association Française de Normalisation (French Standard Setting Organization)
[3] CEN : Commission Européenne de Normalisation (European Standard Setting Organization)
[4] OECD : Organization of Economic and Commercial Development

group was in charge of defining the French position on the standardization of OOXML. The data analysis is mainly qualitative and is based on thematic content analysis.

2.2. THE ELECTRONIC DOCUMENT FORMAT (EDF) STANDARDIZATION: GENERAL CONTEXT

2.2.1. Standards in Electronic Document Format

The electronic version of office documents spreads both in the individual use and in the private or public organizations. This implementation leads to the multiplication of tools that allows protecting, broadcasting and correcting those same electronic files. However, these exchanges of documents are limited by a technical restriction: How use documents that were created with software we do not necessarily have now? Actually, documents created with a text processing would be opened with a Web browser or with an application unknown by the creator of the document. Practically, the document belongs to the user and should not depend of software. However, the computer software market has intimately linked these two aspects during decades. Even more, this link used to constitute a selling point: a customer would not change his software and risks to loose access to his documents. From these customer's needs was issued the requirement of electronic document format standardization.

2.2.2. ODF versus OOXML

The first offer of standardized format, in office documents, was made by the Consortium OASIS. It is Open Document Format (ODF - Open Document Format for Office Application), an opened standardized format stemming from the office automation suite: OpenOffice. It is the fruit of a coopetition and from its launch it was accepted by different and rival software as: Open Office, Koffice, Star Office, the Google on-line tools, etc… This proposal was validated by ISO in 2006 (ISO 26300).

We present hereafter the different phases of the ODF standardization process.

1999	The development of a XML file format for office automation (by default) begins within StarDivision, the editor of StarOffice. Acquisition of StarDivision by Sun Microsystems
2000	Starting of the open source project "*OpenOffice.org*" by Sun Microsystems
05/ 2002	OpenOffice.org 1.0 and StarOffice 6 are published: those two softwares use the default file format OpenOffice.org XML..
12/ 2002	The OASIS Open Office TC (technical Committee) held its first conference call
08/2003	KOffice decides to use ODF as default file format
2003/ 2004	The original OpenOffice.org XML file format specification is amended to reflect the latest developments of XML and desktop applications.
12/2004	The Technical Committee (TC) approves interim version of the work. The name of the project change from "OASIS Open Office Specification" to "OASIS open document format for Office Applications (OpenDocument)".
05/2005	OpenDocument format (ODF) is officially finalized as OASIS standard
10/2005	8.0 StarOffice and OpenOffice.org 2.0 are published with ODF full support. Sun announces a clause concerning patents on ODF: "Sun's public non-assertion declaration may be summarized unofficially as an irrevocable covenant not to enforce any of its enforceable U.S. or foreign patents against any implementation of the OASIS OpenDocument specification" (http://xml.coverpages.org/ni2005-10-04-a.html)"
03/2006	ODF Alliance is launched with 35 founding members with the purpose to promote ODF format in the public sector.
05/2006	ISO approved ODF as a standard ISO/IEC 26300.

Table 1: Main milestones of ODF
(Source: White book of Oasis ODF Adoption TC, Dec. 2006)

3. THE EMERGENCE OF OOXML PROJECT AND MICROSOFT DECISIONS

Microsoft, which dominates the market of the office software since the 1980s, proposed an alternative format, stemming from its software Pack Office, to ECMA (before 1994: European Computer Manufacturers Association - Since 1994: European Association for Standardizing Information and Communication Systems). Microsoft justifies the second standard by the differences of use between ODF and OOXML.

A specific workgroup, chaired by Microsoft, was specially created within ECMA (ECMA TC45) and validated OOXML as official standard ECMA 376 on December 7th, 2006. ECMA, then, subjected this format to ISO by using the usual procedure of fast track which takes place in two times:

- A first phase - closed since February 2007 -: A survey to identify possible contradictions between the proposed text and the existing international standards.
- The second phase is a survey of five months on the opportunity to give to this document the status of standard ISO - closed since August 2007 -: If the competent committee would not reach a decision by consensus (approval, duly justified disapproval, abstention), they organize a probationary survey.

In April 2, 2008, ISO announces that OOXML has been approved as IS 29500. ODF and OOXML are now both *de jure* standards (ISO / CIS 26300 and ISO / CIS 29500). Finally, two institutional standards, approved by ISO, coexist on the same market.

The different phases of the OOXML standardization process are described in the following table.

1998	Microsoft begins to dabble with XML in file formats
2000	Microsoft releases first XML-based format for Excel. Word later added (in 2001).
2003	Office 2003 software first to include XML formats for Excel and Word
2005	Microsft seeks standardization of file formats through ECMA standards body.
12/2006	ECMA standardizes format under title "ECMA 376 Office Open XML" and agrees to submit it to the ISO for fast-track standardization
01/2007	ISO accepts ECMA submission of OOXML
09/2007	OOXML fails to win approval at ISO and moves to final vote at a Ballot Resolution Meeting
02/2008	Weeklong Ballot Resolution Meeting filled with controversy but final votes cast
04/2008	ISO announces OOXML has been approved as IS 29500

Table 2: Main milestones of OOXML

Finally, our analysis shows that the global process evolved throughout 10 years. We, now, focus on the specific *de jure* standardization process which took place at the international ISO process, composed by the aggregation of the national formal positions (national bodies). After the presentation of the international standardization process (ISO), we focus on the French process (AFNOR) in which we will tackle the analysis of Microsoft management of competitive relationships.

3.1. THE STANDARDIZATION PROCESS AT THE ISO LEVEL AND THE ROLE OF AFNOR

The question here is to understand the articulation between the ISO phases and the national processes. Table three shows that the AFNOR process concerns only phases 3 and 4. The chronology of the whole process is divided in six phases with specific deadlines.

According to the ISO specifications (see in details Annex A), an International Standard is the result of an agreement between the member bodies of ISO. It may be used as such, or may be implemented through incorporation in national standards of different countries.
International Standards are developed by ISO technical committees (TC) and subcommittees (SC) by a six-step process:

- Stage 1: Proposal stage
- Stage 2: Preparatory stage
- Stage 3: Committee stage

- Stage 4: Enquiry stage
- Stage 5: Approval stage
- Stage 6: Publication stage

If a document with a certain degree of maturity is available at the start of a standardization project, for example a standard developed by another organization, it is possible to omit certain stages. In the so-called "Fast-track procedure", a document is submitted directly for approval as a draft International Standard (DIS) to the ISO member bodies (stage 4) or, if the document has been developed by an international standardizing body recognized by the ISO Council, as a final draft International Standard (FDIS, stage 5), without passing through the previous stages.

ISO Stages	**1 Proposal**	**2 Preparatory**	**3 Committee**	**4 Enquiry**	**5 Approval**	**6 Publication**
Dates	January 2007			Deadline 1: September 2, 2007 Deadline 2: March 29, 2008	April 2008	June 2008
Main features	ECMA submission to ISO	Beginning of ISO member bodies works	Beginning of Technical committees works (AFNOR CT FDR / "Revisable Document Format")	Deadline 1 result: ISO refuses OOXML standard Deadline 2: ISO accepts OOXML standard.	Stage 4 result: Approval of IS 29500 under the condition of absence of official contest from ISO national bodies or IEC (International Electrotechnical Commission) within two months.	OOXML standard publication. IS 29500.

Table 3: ISO stages

The AFNOR standardization process takes place in ISO Stages 3 and 4. Table 4 shows the main features and decisions we observed from September 2007 to April 2008.

ISO Stages	**3 Committee**	**4 Enquiry**
AFNOR TC processes and decisions	May 2007 : Constitution of the Technical Committee and nomination of its President by AFNOR Main works: Study of the OOXML project. Meetings of TC and E-mail exchanges Implementation of a collaborative platform between TC members	1st AFNOR vote: **negative** with the proposal of a convergence between ODF and OOXML. Deposit of a letter in which Microsoft guarantees a better interoperability of the two formats ODF and OOXML. 2nd vote: **Abstention**

Table 4: The AFNOR process

The description of the process arises two questions. The first question appears at the third ISO stage, i.e. the beginning of the French TC works. This question is about the nature of relationships between the TC members and in particular the status of Microsoft according to the other members participating. The second question concerns the fourth ISO stage, located at the end of the French TC works. It is about the reasons that lead AFNOR to change its vote. We focus our analysis on the first question by developing the key moments leading to strategic options by Microsoft.

3.2. KEY MOMENTS AND MICROSOFT STRATEGIC DECISIONS

Within the standardization process, we identified three strategic moments revealing Microsoft choices: a) Antecedents of the ISO process: the decision to start the *de jure* standard process; b) During the AFNOR process: the management of the competitive relationships; c) At the end of the process: the final issue.

3.2.1. Antecedents of the ISO process: the decision to start the *de jure* standard process

The institutional standardization process starts when Microsoft decides to obtain an institutional standard in spite of the existence of a prior institutional standard on open document format. We analyze this decision as a reaction to the threat of loosing the institutional markets.

Indeed, numerous public authorities all over the world took measures encouraging and even sometimes, imposing the usage of a standardized format in administrations. In France, the RGI (Référentiel Général d'Interopérabilité – Interoperability Common Referential) defined by the General Management in the Modernization of the State, recommends that administrations adopt the ODF format, referenced as the international standard ISO / CEI 26300. Other similar initiatives exist, in Europe, with Belgium and Denmark, but also in the United States where Massachusetts, Minnesota, and Texas took similar measures. These early adopters of the public sector weight on this market, implementing a “bargaining power”. This capacity is expressed fully when many public markets eliminate the use of proprietary format in their invitation to tender.

An “e-government” department belonging to OECD (Organization for Economic Co-operation and Development) exists since 2002. This department studies the initiatives of e-government in the states participant in OECD. Initiatives are discussed and published, enabling the countries implementing an e-government to profit from the expertise of others countries. Among all topics studied for each project, there is a particular one concerning the standards of documents:

“Collaboration: which processes, standards, architectures, etc. are common and can lead to a maximum interworking?” This particular topic allows checking that standardization of the documents and interworking has been taken into account by any candidate to e-government. OECD plays a part as an institutional support giving advices to the governments. Studies undertaken by OECD have a large impact upon European countries, and the first study of e-government goes back to 2003 with Finland.

As a reaction to the threat of being rejected from these highly profitable markets, Microsoft had several options. A first one was to accept the standard and to propose software conform to this standard. A second option was to propose its proprietary “.doc” format to become a *de jure* standard; but this issue would oblige Microsoft to renounce to its present fees associated with the sale of licenses. Indeed, when conforming to a standard requires the access to patents, the holder of intellectual property rights engages to respect fear, regular and non discriminatory fees. The third option, the one Microsoft actually chose, was to propose a rival project to edict a new standard for open document format. This option surprised the market actors. Indeed, it was unexpected for the following reasons:

- First, as the leader of the market, Microsoft used to be the initiator in terms of standard creation, and absolutely not as a follower in this domain;
- Second, ICT used to exclusively consider *de facto* standards and not institutional standardization (*de jure*)
- Third, Microsoft, with its predator reputation and trials for monopolistic position, is not expected by the industry actors in a cooperative position.

Thus, the question concerns the role of institutional standardization in the ICT sector. In this specific context, because of the necessity to offer interoperability and secure public information, institutional standards became unavoidable for the market demand. But institutional standards process requires the cooperation of concerned participants in the market. Then, the question is to know to which extent Microsoft effectively cooperated? We observed the modalities of this cooperation within the French standardization setting process.

3.2.2. During the AFNOR process: the management of the competitive relationships

To understand the way Microsoft dealt with its rivals we need to appreciate the forces present at the beginning of the process and Microsoft cooperating modalities within the standard setting institutional process.

- *Forces present at the beginning of the process*

The standard setting process consists of representing the different participants on the market and organizing the institutional environment to encourage them to gather, sit around the same table, share information, defend their own interests and also take into account competitors, providers and customers' positions in order to define the best solution as regards the best functioning of the global market. This context creates real conditions of cooperation between competitors. In this situation (see Table 5), we can identify competitors by observing their position vis-à-vis of Microsoft project. We can clearly dissociate three groups according to their position[5] at the beginning of the process:

- Participants in favor of OOXML;
- Participants in favor of ODF (opponents to Microsoft project);
- Participants without a declared position[6]

Members of the TC

Organizations	Participants	Mission	Position
Afdel	participant 1	Association Française Des Editeurs de Logiciels / French Association of Software Editors	**In favor of OOXML**
Afnor	participant 2	Association française de Normalisation / French Standardization Association	No declared position
Afnor	participant 3	Association française de Normalisation / French Standardization Association	No declared position
Afnor	participant 4	Association française de Normalisation / French Standardization Association	No declared position
Afnor	participant 5	Association française de Normalisation / French Standardization Association	No declared position
Aful	participant 6	Association Francophone des Utilisateurs de Linux et des Logiciels Libres / Francophone Association of Linux and Free Software Users	**In favor of ODF**
Agm	participant 7	SSII / Service	**In favor of OOXML**
Alka France	participant 8	Périphérique pour l'industrie / Peripheral device	**In favor of ODF**
April	participant 9	Association de promotion des logiciels libres / Association of free software promotion	**In favor of ODF**
Ars Aperta	participant 10	SSII / Service	**In favor of ODF**
Ars Aperta	participant 11	SSII / Service	**In favor of ODF**
Cgti	participant 12	Ministere Industrie - Conseil Général des technologies de l'Information / Industry Ministry	No declared position
Cgti	participant 13	Ministere Industrie - Conseil Général des technologies de l'Information / Industry Ministry	No declared position
Chu Grenoble	participant 14	Centre Hospitalier Universitaire / Hospital University Center	No declared position
Cigref	participant 15	Club Informatique des Grandes Entreprises Françaises / Computer Club of French Large Firms	
Clever-Age	participant 16	SSII / Service	No declared position
Dgme	participant 17	Ministere Industrie - Direction Générale de la Modernisation de l'état / Industry Ministry	No declared position
Ibm	participant 18	IBM	**In favor of ODF**
Ibm	participant 19	IBM	**In favor of ODF**
Inria	participant 20	Institut National de Recherche en Informatique et Automatisme / National Research Institute in Computer and Automatism	**In favor of ODF**
Isem	participant 21	Université / University	No declared position
Linagora	participant 22	SSII / Service	**In favor of ODF**
Microsoft France	participant 23	Microsoft	**In favor of OOXML**

[5] Positions declared officially via professional press, blogs, Web sites of the concerned participants
[6] AFNOR participants, TC President, different users (private and public organizations)

Microsoft France	participant 24	Microsoft	**In favor of OOXML**
Microsoft France	participant 25	Microsoft	**In favor of OOXML**
Numeral Advance	participant 26	SSII / Service	
Softfluent	participant 27	SSII / Service	**In favor of OOXML**
Softfluent	participant 28	SSII / Service	**In favor of OOXML**
Thales Group	participant 29	Groupe industriel / Industrial group	No declared position
Wygwam	participant 30	SSII / Service	**In favor of OOXML**
Wygwam	participant 31	SSII / Service	**In favor of OOXML**

Table 5: position of the participants at the beginning of the process

Among 31 participants to the Technical Committee, 9 persons were in favor of OOXML, and 9 persons in favor of ODF, and 13 persons without a declared position[7]. This number is likely to express that an equilibrated debate is going to take place. However, if we gather participants in terms of affiliation to the same organization, we observe that 5 organizations represent clearly OOXML position, and 6 represent clearly ODF position. Then, we could consider at least the "battle" is going to be tight, and that ODF had a relative majority. Finally, at the beginning of the process, both positions were represented and there was no obvious disequilibrium between rival positions.

- *Microsoft cooperating modalities within the standard setting institutional process*

The exchange of information via E-mails during the process enables us to analyze the cooperative or competitive attitude of participants in the negotiation process. We take into account the following opposite situations: 1) a monopolistic central position consisting in sending huge amount of information, orienting the discussion and the advancement of the technical work; 2) the absence of any participation, the reluctance to send information, to answer the questions, and thus conducting to impeach the negotiation process.

As far as Microsoft is concerned, this was not the case. It adopted the rules and strictly respected the formal process. Indeed, we evaluated the number and direction of exchanged emails[8]. We chose to dissociate organizers, IT professionals, non-IT professionals, and institutions. Table 6 presents the exchanges of E-mails between these organizations.

[7] We remark here that this group of participants comprises the TC President nominated by AFNOR, who animated the works.

[8] One hundred and fifty nine E-mails were exchanged. After the analysis of contents of E-mails, we reject sixty six E-mails on the questions of meetings organization, confirmation of presence, etc… The ninety three remaining E-mails contain discussions, proposals for corrections to be brought to the documents, opinions on the draft standard, the advisability of treating such and such aspects, etc. Their contents are technical and correspond to a true influence on the draft standard. To give a righter representation of the parts concerned, we aggregate the senders and the receivers according to their statutes

exchanged mails from march 2007 to november 2007					
		Receivers			
		IT professionals	non-IT professionals	Organizers	Institutions
Senders	IT professionals	219	90	37	37
	non-IT professionals	60	21	7	10
	Organizers	276	115	0	46
	Institutions	36	15	3	3

Table 6: Number of E-mails exchanged within actors categories

It highlights the dominating role of IT professionals. Professional-organizers exchanges are the more numerous, followed by exchanges between IT professionals. In terms of centrality of degree (Freeman, 1979) –which means that a category having sent and having received many emails is perceived like a central actor, whereas a category with few emails is a peripheral actor–, we observe that there is no category without any exchange of emails (isolated actor).

Above all, the most important relations appear between Organizers and IT-Professionals (276 and 37 exchanges). The number of E-mails sent by the Organizers to every category of members (276, 115 and 46 exchanges) is composed by global E-mails and individual response. The number of E-mails sent by IT-Professionals to all the members is the most well brought up of all exchanges (219, 90, 37 & 37 exchanges).

This analysis testifies the importance of standardization of electronic documents formats for Professionals. Swann (2000, p. 12) evokes an old saying according to which “the one who writes the document (the standard) wins”. These IT-Professionals exchanges are in most cases accomplished by Microsoft, an IT society, IBM and the President of the commission. Competition between both studied standards appears clearly in the exchanges. The analysis of E-mails shows the collaboration effort of contestants validating the situation of coopetition.

The non-IT Professionals are also well involved in the exchanged E-mails. They sent and receipted mails to and from all the members. The numbers of mails is balanced in terms of direction of exchanges. That tends to show that, on one hand, the users expressed their point views on the standardization of formats, and on the other hand, that the professionals listened to their expectations. We also observed that the exchanges from “Non-IT and Institutions” towards IT-Professionals were very significant. Institutions and users have convergent interests in the sense that both are representatives of the market requirement.

We notice that associations, representing the interests of OOXML and ODF standards, were not very participative. The activism, noticed on associations’ Web sites which promoted a petition

against the standardization of OOXML format, did not appear within committee works. . The works within a committee seemed not adapted to these associative movements. Indeed, a trading company such as Microsoft was able to mobilize resources to offer finalized technical documents, translated in a formal legal frame. On the opposite, OpenOffice did not offer the technical support equivalent to these associations.

Finally, Microsoft played the game. Not only did it enter the institutional standardization process, but it actually adopted a "conformist" position within the technical committee. The exchanges were technical. Neither polemics nor controversial positions impeached the whole process to progress. In September 2007, after deliberations and perusal of survey results, AFNOR settled its position. AFNOR proposed to ISO a scenario allowing the medium-term convergence between ODF and OOXML. It considers that both standards, ODF and OOXML, were to be revised to progressively converge into a common standard. Figure 1 hereafter presents AFNOR position at the end of the first process in September 2007. AFNOR's position is "no" for another open format standard. It advocates that both projects progressively converge.

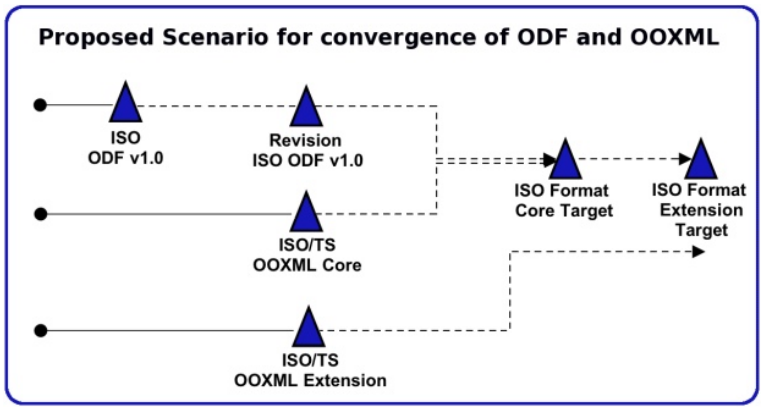

Figure 1: Convergence of ODF and OOXML.
Source: AFNOR (September, 2007)

3.2.3. At the end of the process: the final issue

AFNOR position towards convergence between ODF and OOXML formats suddenly changed at the very last moment. Microsoft offered a 6000 pages revised document that constituted the answer to the limits and restrictions opposed at the international level to its projects. This document was considered as unreadable and of a very bad technical quality according to opponents. Indeed, they consider it as "artificial" proof of cooperation. There is a clear acceleration of the process at the very late moment since the reception of this document took place at the very late moment (close to the deadline) that left no time for participants to really evaluate it.

Even if reserves were formulated towards this document, the standardization process still progressed. Members were forced to take a position. Microsoft argued that the document contains the response to the reserves highlighted all along the standardization process. This document evolved since the first version submitted to ECMA, proving Microsoft efforts to cooperate. Microsoft promised to improve this version and continue in its effort to present a better project.

In the absence of a new negotiation and a clear vote between participants to express a consensual position, AFNOR changed its position from its last negative one to abstention. Finally, the French position was not so decisive for the international ISO session that validates Microsoft standard. Yet, this new position led to important reactions that express misunderstanding and even revolt. Some rumors concern the French Ministry of Industry that is suspected to have influenced AFNOR position. From a strategic point of view, Microsoft won the game since it needed an institutional standard and it created it.

4. DISCUSSION AND CONCLUSION

This research allows considering Standard Setting Organization as a perfect locus for observing how coopetition occurs. We particularly explored the nature of relationships between competitors in this specific cooperative context. The case study set up three main elements. First of all, the standard setting organization facilitates cooperation between competitors because they do not face in a direct confrontation. The presence of different stakeholders of the market makes possible the expression of different positions and the discussion avoid conflict situations. The second point lies in the idea that we could observe competitors cooperating. In this way, we find here a perfect illustration of the simultaneity of relational modes as defined by coopetition in the sense of Brandenburger and Nalebuff (1996).

The participants are competitors as regards their position towards Microsoft project, as favorable or unfavorable to the OOXML standardization project. However, the opponents to the project had to cooperate in order to find a consensual position. We observed that Microsoft representatives entered the cooperative project and were respectful of the participative rules: they exchanged information, participated to the discussion, answered the questions, provided arguments and modified the project. Finally, they adopted the rules of the game. But, while cooperating in this standardization process, some competitive aspects remain present such as the way they tried to win time, delivering the project at the very last moment and presenting a technical complex document uneasy to read and did not attempt to facilitate the cooperative work.

We see here an original form of coopetition which is the combination of a contained form of cooperation, in the sense that participants are in a situation of a strict respect of the formal institutional rules, and a contained form of competition, in the way that actors seeking consensus must avoid impeaching the standardization process to progress. This means that the institutional rules could edict coopetition modalities even if we are aware that lobbying forces must be taken into account operating in other influence spheres. At this stage, we highlight some points: what are the main reasons that lead some firms to participate to the standard setting process? In fact, each participant has to pay fees to be registered in the work sessions, and contribution to the institutional standards costs money and huge time. Moreover, some participants, in particular associations, had expressed a clear position towards Microsoft dominant position. We observed that they could not really express their opposition during the exchanges. Did the technical nature of the debate erase an ideological position? Does this mean that the standard setting process is not the locus for a discussion on the “why?”, but only on the “how”?

The final result (AFNOR abstention) is also questionable. Microsoft obtained its project validated. This leads to question the asymmetry in the position of the different participants: Is coopetition possible when one of the parties has a market share superior to 80%? We supposed that the procedure of emergence of a *de jure* standard intrinsically entailed coopetition. This argument was based on the fact that rivals have to collaborate to define a shared consensual position. Now, we have to admit that the cooperative part was intentionally limited. Let’s consider the power conferred to the leader of the market. A predominant position on the market reflects within standardization committees as the leader has a significant weight on the debate over the interlocutors.

This weight is based upon a special respect naturally due to the leader, but it is also due to the imitation of numerous participants who want to know the position that is supposed to be largely adopted. These participants do not want to be "angry orphans" (David, 1987). They intend to anticipate the evolution of the market, and in this purpose, the position of the leader is supposed to draw all the market. More generally, the leader has a special weight in the institutionalized standardization process because the power of the standard depends upon its diffusion on the market. If the leader does not adopt the standard, it is likely to never be a real operant diffused standard. In another words, the adoption of the standard by the leader is required to make it efficient. Consequently, the institutionalized standardization process led in the absence of the leader takes the risk of producing a standard that remains ineffectual because marginalized.

We must admit that the situation exposes precisely the case in which the leader is forced to change its position. It is forced to engage *de jure* standardization process, and at the middle of the process, it is demanded to make another step towards its rivals. A more coopetitive work is required so that the standardized solution effectively corresponds to a convergent position of the two main standards (OOXML) and (ODF). At the end of the process, and somehow surprisingly, AFNOR changes its position and votes abstention instead of refusal. This entails another question: What kind of influences did occur?

In a welfare approach, the OOXML and ODF case has provoked a debate between Eygedi and Koppenhold (2009) and Blind (2008). Blind's position is that the welfare of the market does not suffer from the coexistence of the two standards. That was contradicted by Eygedi and Koppenhold (2009) who supports the idea that *de jure* standard are inherently different from *de facto* standards and that, in this case, competition has far-reaching consequences for public IT procurement: It will hinder innovation and counteract supplier-independent information exchange between governments and citizens. This case study provokes a debate that is not going to end rapidly.

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Annex A: Stages of the development of International Standards

Stage 1: Proposal stage
The first step in the development of an International Standard is to confirm that a particular International Standard is needed. A new work item proposal (NP) is submitted for vote by the members of the relevant TC or SC to determine the inclusion of the work item in the programme of work.
The proposal is accepted if a majority of the P-members of the TC/SC votes in favour and if at least five P-members declare their commitment to participate actively in the project. At this stage a project leader responsible for the work item is normally appointed.

Stage 2: Preparatory stage
Usually, a working group of experts, the chairman (convener) of which is the project leader, is set up by the TC/SC for the preparation of a working draft. Successive working drafts may be considered until the working group is satisfied that it has developed the best technical solution to the problem being addressed. At this stage, the draft is forwarded to the working group's parent committee for the consensus-building phase.

Stage 3: Committee stage
As soon as a first committee draft is available, it is registered by the ISO Central Secretariat. It is distributed for comment and, if required, voting, by the P-members of the TC/SC. Successive committee drafts may be considered until consensus is reached on the technical content. Once consensus has been attained, the text is finalized for submission as a draft International Standard (DIS).

Stage 4: Enquiry stage
The draft International Standard (DIS) is circulated to all ISO member bodies by the ISO Central Secretariat for voting and comment within a period of five months. It is approved for submission as a final draft International Standard (FDIS) if a two-thirds majority of the P-members of the TC/SC are in favour and not more than one-quarter of the total number of votes cast are negative. If the approval criteria are not met, the text is returned to the originating TC/SC for further study and a revised document will again be circulated for voting and comment as a draft International Standard.

Stage 5: Approval stage
The final draft International Standard (FDIS) is circulated to all ISO member bodies by the ISO Central Secretariat for a final Yes/No vote within a period of two months. If technical comments are received during this period, they are no longer considered at this stage, but registered for consideration during a future revision of the International Standard. The text is approved as an International Standard if a two-thirds majority of the P-members of the TC/SC is in favour and not more than one-quarter of the total number of votes cast are negative. If these approval criteria are not met, the standard is referred back to the originating TC/SC for reconsideration in light of the technical reasons submitted in support of the negative votes received.

Stage 6: Publication stage
Once a final draft International Standard has been approved, only minor editorial changes, if and where necessary, are introduced into the final text. The final text is sent to the ISO Central Secretariat which publishes the International Standard.

Source: http://www.iso.org/iso/standards_development/processes_and_procedures/stages_description.htm