Competing and Cooperate in the Context of Convergence – The Case of Sony

Nabyla Daidj
PhD, Associate Professor (strategic management)
Institut Mines-Télécom.
Telecom Ecole de Management

Keywords:

Convergence, ICT, Sony, value chain, business ecosystem, business models, coopetition.

1. Introduction

Convergence initiates changes processes in competition, business networks and economic models. Companies that specialised in one or more of ICT markets are moving into new sectors. Many new comers on the media market belong to several different business areas. The objective of this study is to explain how "media and new media" companies identify and develop new opportunities or markets, and how they attained competitive advantages over their competitors in their market segment.

This paper focuses on convergence and links with the reconfiguration of value chains in the "new media" sector and diversification strategies adopted by companies. It analyzes structural changes in the media industries as convergence enables current players in the media sector to expand their roles. It also marks the entry of powerful new players from the telecommunications and IT industries which are altering their value chains and business models. Firms are moving up the value chain to higher margin activities through both vertical integration but also and horizontal concentration, establishing numerous partnerships (strategic alliances) and cross investments.

However, even if they operate in a fiercely competitive environment, they simultaneously compete and collude thereby adopting the logic of co-opetition even in their innovation activities. Research on cooperation and competition between horizontal (and vertical) actors has been conducted within different theoretical fields. Competitive logic is no longer exclusively based on rivalry, but encourages co-opetitive practices with the emergence of one or several leaders whose position may change according to the evolution of resources and competencies of the firms involved. Co-opetitive logic may take several forms. It puts into perspective the complex ties which develop between different players from sectors whose 'traditional' barriers have gradually collapsed.

The media value chain includes several markets and strategic segments. The media business ecosystem, characterized by rapid technological advances, is more and more complex and involves an increasing number of players operating several activities. As these companies are made up of different business units, how do they compete successfully in different segments? To answer this question, special attention will be paid here to the changes for Sony, the Japanese consumer electronics group, in his strategies (cooperation and competition), value chains and business models.

2. The impact of a convergent environment on strategies

2.1 A convergence context

The convergence of information and communication technologies (ICT) made possible by digitalization has changed the strategy of ICT companies and has accelerated the erosion of the existing frontiers between the media industries (Peltier, 2004) leading to the emergence of new actors (web giants, telecommunications operators, Internet services providers etc.). These compete directly with the 'traditional' media players. The analysis of new media requires taking into account many different actors: telecom equipment manufacturers (Cisco, Alcatel), network operators (telcos), terminal manufacturers (Ericsson, Nokia, Apple), consumer electronics manufacturers (Sony), Internet giants (Google), and "traditional" media groups (Comcast, Time Warner, Vivendi, Viacom, NewsCorp, Disney).

Convergence has lead to different content and services provided in various forms via different terminals (TV sets, PCs, smartphones, video game consoles) using various networks. AnyTime, AnyWhere, AnyDevice (ATAWAD) and ATAWADAC (ATAWAD + AnyContent) have become the new motto of the convergence both for users and firms. Fransman (2000, p. 39) defines convergence as "the blurring of borders between telecoms, computing and media". The industries *ex ante* – telecom, computer, media, and consumer electronics – are still around after the ICT-convergence, though they were fundamentally transformed by the event (Lind, 2005). More generally, many authors mention the emergence of the information industries (Chon et al., 2003, p. 142) referring to activities linked with one of these three processes: content production-related services (e.g., publishing, movies, and broadcasting); content delivery-related services (e.g., telephony and cable) and data processing services (e.g., software and programming). As interactive multimedia production and delivery of content are increasingly available via networks, instead of the single-media frameworks of the past, opportunities to create value tend to be greatest for firms and change the competitive position of various players. These technological changes, in the

context of convergence (Danowski & Choi, 1998), are also accompanied by changes in common practices, consumer and the strategies of the main firms involved, this point will be analysed in part 2.

In the Green Paper, the European Commission (1997, p.1) presents a two-fold definition of convergence expresses as "the ability of different network platforms to carry essentially similar kinds of services, or the coming together of consumer devices such as the telephone, television and personal computer". These expressions of convergence reflect the struggle between computer, telecommunications and broadcasting industries for the control of future markets. As the frontiers between media and telecommunications sectors become more flexible leading to the emergence of new actors, new sources of value creation and a greater transferability of strategic capabilities (resources and competencies) to be detailed following. The two main dimensions to take into consideration in this study are mainly technology and industry.

Table 1

OVERVIEW OF DEFINITIONS OF CONVERGENCE

Authors	Level of analysis	Main characteristics
Adner & Levinthal (2000); Shepard (2000); Yoffie (1996); Mueller (1999); Herkman (2002)	Technology/ digitization	Digital convergence, digitization, media industry specific
Fransman (2000); Steinmueller (2000) Borés, Saurina & Torres (2003)	Industry	Blurring of industry and market borders between telecoms, IT and media industry.

Source: Adapted from Nyström (2008)

3. CHANGES IN THE MEDIA VALUE CHAINS

As the media industry is by nature and by design a "portfolio" business serving multiple audiences through multiple distribution channels with

multiple technologies, media companies have to acquire complementary assets and adopt vertical integration. In order to secure needed assets (tangible and intangible), large firms moved "upstream" and "downstream" in the industry value chain (Table 3). The dramatic evolution of the media landscape has strengthened the "content-production" vertical integration process in the 1990s.

It is the case of Sony: its core business has been consumer electronic devices (see Table 2) and step by step the group has operated a related diversification of its activities including content.

Table 2

Consumer electronics business:
main competitors in 2011

Ranking	Group	Turnover* ($m)
1	Samsung Electronics (South Korea)	133 781
2	Panasonic (Japan)	101 491
3	Sony (Japan)	83 845
4	Toshiba (Japan)	74 706
5	LG Group (South Korea)	70 308
6	Sumitomo (Japan)	36 218
7	Sharp (Japan)	35 283

* All segments

Source: Global 500 (*Fortune*, 2011)

Sony is currently a diversified group (electronics, video games and consoles, films, financial services and music). Sony was a very competitive group at the international level and benefited from a strong brand image until the end of the 1990. But since the beginning of the 2000s, the Sony group has recorded disappointing results and has launched several structuring plans: in 2004, "Transformations 60" based on the suppression of almost 20,000 jobs (13% of total manpower) and of a third of all plants and in 2012 with "One Sony". All these plans aimed at reducing fixed costs and at defining a new growth strategy to restore its cost effectiveness

in the face of ever increasing competition from electronics firms and more broadly from ICT firms. The main objective of Sony is to maintain its competitive position as a global provider of networked consumer electronics and entertainment.

Table 3

STRATEGIC POSITION OF MEDIA MAJORS ALONG THE VALUE CHAIN

Group	Content	TV Network	Distribution	Consumer electronic devices
AOL Time Warner*	☒	X	X	
NBC-Universal*	X	☒		
News Corp.	☒			
Sony	**X**			☒
Viacom	X	X		
Vivendi	X	X	X	
Walt Disney	☒			

* Since mid-2000, the names of these companies have changed.

☒ Core business & initial activity / X Active in the activity

Source: adapted from IDATE News n°283, 2003

Progressively, the notion of "media" has broadened in parallel to the restructuring of value chains and the emergence of new comers in the media sector. Consequently, since the end of the 2000s, Google is considered as a global media group as shown by table 4.

Table 4

The main media groups in 2007
(Ending May 2007)

Ranking	Group	Activity	Market Capitalization (USD billions)	Estimated PER (Price earning ratio) 2007
1	Google	Internet	108.5	31,7
2	Time Warner	TV, Movies, newspapers, Internet	60.3	21
3	Disney	Divertissement	52.8	19
4	News Corp.	Newspapers, TV	52.6	21
5	Vivendi (France)	TV, music, tele-coms	36.1	13
6	Yahoo	Internet	29.6	51
7	Viacom	TV	21.9	18,6
8	Clear Channel	TV, radio	18.9	26
9	BskyB (UK)	TV	16.5	20
10	WPP (UK)	Advertisement	13.9	16

* Market capitalization ranking (ending May 2007)

Source: Adapted from Bloomberg, 2007

More generally in the 2000s, technological changes have encouraged growing interest in the media from: telecommunications groups (both operators and manufacturers); Internet operators such as Internet Service Providers (ISPs); Internet Protocol Television operators (IPTV), and IT companies (equipment and software). Like other "traditional" media groups, Sony has to compete with large ICT groups such as Google and Apple which have decided to enter the media/entertainment market (see Tables 5, 6 and 7).

Table 5

THE EMERGENCE OF NEW COMERS IN THE MEDIA SECTOR

Link in the value chain	Players involved
Infrastructure	Radio and TV stations; Telecom companies; Mobile companies; Network operators; IT manufacturers; Public authorities / regulators.
Communication	Telecom companies; Mobile companies; Internet providers
Information / entertainment	News agencies; Radio and TV stations; Media companies; Media right owners
Transactions	Financial services, providers; Retailers; IT systems suppliers; Public authorities / regulators
Terminal equipment	PC manufacturers; Consumer electronics companies; Retailers; Logistics companies

Source: the European Information Technology Observatory (EITO), 2004

Table 6
The main ICT groups in 2012

Global rank 2012	Global rank 2011	Company	Country	Sector	Market value $m	Turnover $m	Net income $m	Total assets $m	Employees
1	3	Apple	US	Technology hardware & equipment	559,002.1	108,598.0	25,922.0	116,371.0	63,300
4	10	Microsoft	US	Software & computer services	270,644.1	69,950.0	23,150.0	108,704.0	90,000
5	14	IBM	US	Software & computer services	241,754.6	106,916.0	15,855.0	112,930.0	433,362
17	36	Samsung Electronics	South Korea	Technology hardware & equipment	181,774.0	142,396.5	11,529.0	132,916.8	101,970
25	28	Google	US	Software & computer services	165,414.5	37,862.0	9,737.0	72,574.0	32,467
44	57	Cisco Systems	US	Technology hardware & equipment	113,912.5	43,218.0	6,490.0	85,231.0	71,825
60	77	Amazon.com	US	General retailers	92,155.8	48,077.0	631.0	25,250.0	56,200
71	101	Comcast	US	Media	81,264.5	55,842.0	4,160.0	157,818.0	126,000
74	75	Walt Disney	US	Media	78,469.5	40,893.0	4,807.0	72,124.0	156,000
141	171	News Corp	US	Media	48,971.4	33,405.0	2,739.0	61,830.0	51,000
431	**269**	**Sony**	**Japan**	**Leisure goods**	**20,802.0**	**86,477.1**	**-3,122.8**	**152,605.4**	**168,20**

Source: FT Global 500, 2012

Several cases show the convergence of the industries and technologies. Video on demand (VOD) is a good example of the change in value chains and the roles of different companies observed more widely in the IT sector and the media (Daidj & Vialle, 2011). Cinema studios, independent producers, terrestrial, cable and satellite broadcasters, telecom operators, mobile operators, electronics manufacturers are present along the value

chain to deliver on-line movies. The French mobile operator "Orange has a very offensive strategy concerning VoD. This strategy has also extended to audiovisual services, such as TV channel and content production. Orange VoD strategy must also be understood in the context of its overall strategy of "convergence operator", aiming at providing seamless services across IPTV, Internet and mobile channels" (Daidj, Vialle 2011).

The connected TV is also a prime example of convergence strategies. This "infant" industry involves also several market players: consumer electronics manufacturers, internet companies, manufacturers of proprietary internet-ready devices, etc. (see Table 7).

Table 7
POSITIONING OF CONNECTED TV PLAYERS

Main offers	Main features	Players
TV+	centred around classic broadcast TV.	Free-to-air broadcasters
Connected media center	manage all of the content in the home through a media centre since it can be transferred, accessed and consumed on any screen inside the digital home (TV, computer, mobile, etc.), and this in a transparent and streamlined fashion	**Sony (media player)**
OTT (over-the-top) video packages	These offers generally combine access to premium video services and a "best of" selection of online multimedia entertainment (music, social networking sites, photos, etc.), including a proprietary device that users have to buy or rent.	National players Apple TV connected terminal
Seamless access to all content	The TV set remains the central entertainment-delivery screen in the home, and is therefore the unified point of access for all digital content, regardless of provenance (broadcast stream, VoD, catch-up TV, Web, etc.).	Google TV

Source: adapted from Idate News 535, 22 November 2010

Towards coopetitive strategies
The emergence of a new concept?

Ray Noorda founder of Novell used the term of coopetition for the first time. As Stein underlines (2010), "Co-opetition is a neologism representing the ambivalence of competition and cooperation in business relationships" (p. 262). Several authors consider the mix of both competitive and cooperative strategies *as a paradox* (Cameron, 1986; Poole & Van de Ven, 1989; Quinn & Cameron, 1988).

The notion of co-opetition is relatively complex and multifaceted (Luo, 2007). Coopetition is often considered as an "extension" of co-operation (in the form of agreements, alliances, strategic alliances) between companies. Coopetition is a situation in which rival companies (two or more) simultaneously compete and co-operate with each other (Bengtsson & Kock, 2003). According to Dagnino and Padula (2002), "coopetition is a matter of "incomplete interest (and goal) congruence" concerning firms' interdependence" (p. 3).

Cooperation and competition occur during the same period. The nature of coopetition is dynamic: cooperative and competitive strategies do not remain constant over time (Luo, 2007). Coopetition exists between horizontal and vertical companies.

Coopetition: conceptual and theoretical approaches

An increasing number of theoretical and empirical studies, both in economics and strategic management, have focussed on coopetition between companies. These studies are based on a variety of theories including the theory of the firm (mainly the theory of transaction costs and the agency theory), the resource-based view (RBV), the Knowledge-based view (KBV) and game theory (See Table 8).

Table 8

Theoretical perspectives of coopetition

Theory approaches	Authors	Main concepts	Key contribution to coopetition
Game theory	Axelrod (1984); Brandenburger & Nalebuff (1995); Dixit & Nalebuff, (1991); Hill (1990) ; Luce & Raiffa, (1957); Parkhe (1993); Shubik (1982);	Analysis of behaviour of various players (firms, States, institutions, etc.) and relationships between them Definition of non-cooperative/ cooperative games Coalitions Mutual/unilateral cooperation Games (prisoner's dilemma, battle of sexes, chicken game) Payoffs and gains Strategies (Tit-for-tat)	Value net concept (competitors, complementors, suppliers, customers)
Transaction costs theory	Ciborra (1991) ; Dowling et *al.* (1996); Hennart (1988, 1989, 1990) ; Imai & Itami (1984) ; Jarillo (1988) ; Ouchi (1980) ; Monteverde, Quintanna-Garcia & Benavides-Velasco (2003); Teece (1982); Richardson (1972); Williamson (1985).	Governance structure Market and hierarchies Transaction costs Opportunism	Coopetition is considered as an unbalanced operation: one of the players could try to take advantage of strategic assets from another partner (Quintanna-Garcia & Benavides-Velasco, 2003). Firms can benefit from coopetitive relationships to achieve competitive advantage over competitors (Dowling et al., 1996)
Resource-based view (RBV)	Barney (1991); Rumelt (1987); Wernerfelt (1984) Penrose (1959); Teece, Pisano, & Shuen (1990); Lado et al. (1997)	Distinctive resources Core competencies Strategic assets Dynamic capabilities	Coopetitive strategies can be considered as efficient means to combine the distinctive resources and the core competencies of several organisations to achieve a sustainable competitive advantage. Lado et *al.* (1997, p. 113), "The resource-based view of strategic management provides a useful and complementary theoretical framework for the development of a syncretic model of competition and cooperation".
Industrial networks approach/ business ecosystems	Axelsson & Easton, (1992); Haakansson & Johanson (1993); Blankenburg-Holm & Johanson (1997); Bengtsson & Kock (1999, 2000)	Interorganizational networks Governance Value creation Trust Open innovation	The co-opetitive relationships could simultaneously include benefits and drawbacks of both cooperation and competition.

Source: adapted from Daidj and Hammoudi (2007), Daidj et *al.* (1991)

We propose here to focus on five conceptual approaches: game theory and the RBV for a thorough discussion on coopetition from these perspectives.

Co-opetition has its theoretical foundations in game theory. In game-theoretic models, each firm's action depends on what it believes its rivals will do (co-operative and non co-operative players' behaviour). Brandenburger & Nalebuff (1996) have modeled a structure of multiple relationships (or the value net) in which the firm is embedded. They introduce the concept of complementors and propose to add these players in a new model as shown in the following figure. They insist on the necessity to create and to capture value.

The value map represents the interdependencies between all the players. They analyse the value created by vertical chains of suppliers, firms and buyers, the added value of a specific player "defined as the value created by all the players in the vertical chain minus the value created by all the players except the one in question" (Brandenburger & Stuart, 1996, p. 6) and the creation of asymmetries between the firms. The vertical dimension designs the company's suppliers and customers (two of the five forces identified by Porter) and "along the horizontal dimension are the players with whom the company interacts but does not transact. They are its substitutors and complementors. Substitutors are alternative players from whom customers may purchase products or to whom suppliers may sell their resources (…). Complementors are players from whom customers buy complementary products or to whom suppliers sell complementary resources (…). The Value net describes the various roles of the players. It's possible for the same player to occupy more than one role simultaneously" (Brandenburger & Nalebuff, 1995, p. 60). Firms may identify those parties that are possible complementors rather than just competitors. In the value net model, firms can be considered, in some situations, as both competitors and cooperative partners, describing a coopetition context.

Introduced by Wernerfelt (1984, 1989), the resource-based view (RBV) has become an influential framework for analyzing corporate strategy (Barney, 1991; Peteraf, 1993; Hoopes et al., 2003). This approach considers the firm as a "collection" of resources which are tied to the firm's management: firms are heterogeneous with respect

to their resources and capabilities. According to Lado et *al.* (1997, p. 113), "The resource-based view of strategic management provides a useful and complementary theoretical framework for the development of a syncretic model of competition and cooperation". Finally, idiosyncratic organizational competencies are relevant for explaining the formation of interfirm competition and cooperation.

From "coopetition" to business ecosytems

If the 1990s have seen significant growth in international strategic alliances, paralleling the increase in cross-border mergers and acquisitions (M&As), the 2000s are characterized by the emergence of a "new form" of network organization: the business ecosystem (based on the ecological metaphor). This network crosses a variety of industries.

Co-opetition is more and more associated with the notion of business ecosystems (see Table 9). Moore (1993) emphasises the phenomenon of co-opetition which is inherent in ecosystems. "Members of a business ecosystem work co-operatively and competitively to support new products, satisfy customer needs, and eventually incorporate the next round of innovations" (Moore, 1993, p. 76). Moore (1996) defines the business ecosystem as a coalition which brings together actively involved people who belong to different sectors, but share the same interests, values and common goals. In business ecosystems, firms turn to greater openness in innovation (some platforms are free and open) and at the same time develop "coopetitive" strategies.

Table 9

Perspectives on inter-firm interdependences: the issue of the number of players

Dyadic coopetitive relationships	Inter-organisational networks Business ecosystems	Collective strategy
Dagnino and Padula (2002) "*In most strategic partnerships, each of these dyadic relationships is neither strictly competitive nor strictly cooperative: they are simultaneously competitive and cooperative".*	Dagnino and Padula (2002) "*Network coopetition concerns a structure of complex relationships among more than two firms at the same time*" "*Coopetition does not simply emerge from coupling competition and cooperation issues, but rather it implies that cooperation and competition merge together to form a new kind of strategic interdependence between firms, giving rise to a coopetitive system of value creation*"	Astley & Fombrun (1983) *"The collective strategy corresponds to "the joint mobilization of resources and formulations of actions within collectivities of organizations"*
	Gnyawali *et al.* (2007) : *« Co-opetition refers to simultaneous cooperation and competition between different individual or organizational actors »* (p. 386)	
Bengtsson and Kock (2000) *« the dyadic and paradoxical relationship that emerges when two firms cooperate in some activities, such as in a strategic alliance, and at the same time compete with each other in other activities »* (p. 412).	Moore (1993) "*Members of a business ecosystem work co-operatively and competitively to support new products, satisfy customer needs, and eventually incorporate the next round of innovations*" (Moore, p. 76).	

SONY CASE STUDY

METHODOLOGY

Box 1 – Research methodology

The nature of this qualitative research is therefore exploratory and descriptive. It is supported by the case study method (Yin, 1994). Yin (1989) defined the case study as "an empirical study that investigates a contemporary phenomenon within its real life context, when the boundaries between phenomenon and context are not clearly evident and in which multiple sources of evidence are used" (p. 23). Case studies can be exploratory, explanatory or descriptive. They can be used to provide description, test theory or generate theory (Eisenhardt, 1989).

To analyze the competitive landscape of the ICT industry, the author has collected secondary data. Information (market, competitors, and technologies) is derived from a variety of sources such as Sony press releases and presentations, materials from conferences, company annual reports and research reports on industry and company developments with review on EBSCO database. In addition, we conducted several interviews with experts of media field and Sony France managers.

Case study is known as a triangulated research. Triangulation (information and data) have be used during this research. Denzin (1984) identified four types of triangulation: *data source triangulation*, *investigator triangulation*; *theory triangulation* and *methodological triangulation*. This case study relies on theory triangulation with different viewpoints interpreting the same results.

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The application of Dagnino and Padula typology

We propose here to explain the coopetitive relationships by combining two different typologies developed by Dagnino and Padula (2002) and Koenig (2012) in the context of convergence represented by the networking situation analyzed by Luo (2007). The four examples presented previously represent the field of application.

Dagnino and Padula (2002) distinguished four types of coopetition:

- simple dyadic (i.e. alliance – consortium in the field of R&D – only two partners);
- complex dyadic (i.e. alliances in automobile sectors – many partners, different fields of cooperation – R&D, manufacturing of components);
- simple network (coopetition among multiple firms at one level of the value chain);
- complex network (i.e. Italian industrial districts).

Table 10

Coopetitive relationships in a context of convergence

simple dyadic The examples presented are "simple alliances" between Sony and Apple / Sony and Samsung / Sony and Toshiba in order to achieve a specific goal.	**complex dyadic** Relationships : Sony – Toshiba – Microsoft Sony, Apple and Google compete on this market
simple network The case of the battle of standards HD DVD *versus* Blu Ray represented by two "coalitions" of players. In 2008, Toshiba officially announced that it would stop the development of the HD DVD players. Sony and Toshiba (Microsoft) were indirectly opposed in this battle but finally only one standard has been successful (Blu Ray)	**complex network** The cases of mobile OS and connected TV: platforms. In both cases, relationships are very complex between device manufacturers, Internet giants, developers and mobile operators. Electronic platforms play a key role in creating value within the business ecosystem by sustaining input from various stakeholders In the case of mobile OS, there are several business ecosystems related to Google and Microsoft platforms. Sony has strong links with Google by the means of Android platform.

Source: elaborated by the author

Following Dagnino and Padula (2002) typology, we can consider four categories of relationships developed by Sony:

- ☞ Simple dyadic alliances with competitors
- ☞ Sony/Apple
- ☞ Sony/Samsung

COMPLEX DYADIC ALLIANCES: THE CASE OF SONY/MICROSOFT/TOSHIBA TIES

The video game industry is somewhere between the computer (software, components, peripherals) and the audiovisual (contents, rights) sectors. Relations between the different groups evolve rapidly, as does negotiating power (Daidj & Quélin, 2009). The video game sector is made up of three types of players: development studios, publishers/producers, and console manufacturers. Three large console makers, Sony (Japan), Nintendo (Japan) and Microsoft (USA), compete fiercely in this segment, but several examples show the evolution of competition in particular between Sony and Microsoft who have developed partnerships with the same firm(s):

- ☞ There are numerous game developers who work for both companies (Infogrames, Electronic Arts);
- ☞ In the third (and current) generation of consoles (2005-2009), only Big Blue (IBM) – with Toshiba – provides new processing chips (Cell chip) for Sony, Microsoft and Nintendo's consoles. Intel, whose processors powered the Xbox, is no longer in this market.

As we have already mentioned in a previous paper (Daidj, 2008), Sony's relations are entirely in keeping with the theoretical framework developed by Brandenburger and Nalebuff (1995). As mentioned in the first part, hardware and software companies are classic complementors: faster hardware increases the user's willingness to pay for more powerful software. The same is true of video consoles and games (Daidj, 2008). Similarly in some business situations, Sony may be a competitor to Toshiba (for example, in the sale of electronic products such as DVDs players). In other

situations, Sony may be a customer of Toshiba, sourcing key components for a particular product, or even a partner (in the cell ships operation). Sony and Toshiba can benefit from one another.

Simple network (coalition)

The case related to the high-definition DVD format that opposed until early 2008 Sony (Blu Ray) and Toshiba (HD DVD) representing two coalitions is relevant to understand the logic of simple networks. Sony[1] was locked in this battle with Toshiba, which, despite helping to develop the Cell chip, was pushing an alternative DVD standard (HD DVD) against the Blu-Ray optical drive (included in PS3). In January 2002, Toshiba started the race by presenting a specification proposal of the dual-layer DVD-9 disc (HD-DVD) at the DVD Forum. HD DVD's main supporters were Toshiba, NEC and Microsoft. In parallel, nine electronics manufacturers (among them: Sony) established a consortium to promote the Blu-Ray Disc format. Both formats have attracted a large number of companies (Daidj et al., 2011). HD DVD's main advocates were Toshiba, NEC and Microsoft. Behind Sony, there was a large number of consumer electronics manufacturers, such as Apple, Matsushita Electric industrial, Samsung, Philips. However, this battle involved other players: retailers (Wal-Mart Stores, Best Buy) and movie rental groups such as Blockbuster and Netflix.

The Blu-Ray/HD DVD rivalry was not a simple format war but also a battle for open software and markets. Microsoft wanted to push its own proprietary standards using Windows monopoly and to expand its proprietary control over video codec and embedded interactivity development. Finally, Microsoft's efforts to support HD-DVD in Windows Vista had a limited effect since Vista turned out a commercial failure. Finally, Sony won the battle and in 2008 the Toshiba announcement of format HD DVD defeat occurred even if two large studios (Paramount and Dream Works) were members of Toshiba consortium.

[1] Finally, Sony won the battle in February 2008.

4. Complex networks

A good example is the business ecosystems in the open-source mobile software platform Android. In 2007, Google along with an alliance of leading technology and wireless companies including T-Mobile, HTC, Qualcomm, Motorola and others announced the development of Android, the first complete, open, and free mobile platform. The strategic objective of Google with this platform is less to control the mobile business ecosystem than to be a strategic competitor to other firms. RIM and Apple have chosen to develop a "closed" OS leading to a reduction of the potential in terms of scale and reach of smart phones employing their OS (Table 11). In 2013, the global market share of the Google Android mobile operating platform is forecast to be ahead of that of Apple's iPhone, Windows Mobile and RIM's BlackBerry platforms. The acquisition of Motorola by Google shows its willingness to become market leader. Sony uses Android OS for its mobile terminals.

In order to reduce the increasing influence of Apple and Google, a new organisation was created in 2010 by leading telecom operators and supported by several terminals manufacturers (Sony, Samsung, Huawei, LG...). The aim of this new initiative, the Whole Applications Community (WAC) is to design WAP apps to be used across all platforms. Developers could deploy applications on a wider range of devices supporting the WAC specifications.

Table 11
Mobile platforms OS*

OS		Device manufacturers supporting the OS
SYMBIAN	Nokia	Nokia, LG
ANDROID	Google (2008)	Samsung, LG, ZTE, Sony Ericsson, Motorola, Huawei, HTC
iOS	Apple (2007)	Apple
Blackberry OS (close source OS)	RIM (Research in Motion) (1999)	RIM
Windows OS	Microsoft	Samsung, LG, Nokia, Huawei
Bada**	Samsung	Samsung

* Other OS exist but their market share is very limited.
** Samsung uses its own Bada OS and Android but most of its handsets include Android OS.

Source: specialised web sites

5. Discussion and conclusion

Convergence exposes both traditional media groups and operators to direct competition with IT companies. Competition in the ICT sector continues to be fierce and at the same time rivals cooperate more and more. Coopetition appears to be one of the main strategies leading to build and sustain a competitive advantage in the "new economy". The well-known motto "keep your friends close and your enemies closer" seems to be adopted by an increasing number of firms.

After two decades characterized by external growth operations and strategic alliances, the network of relations between the different groups has never been so dense, and ties have become increasingly close leading in some cases to coopetitive situations within business ecosystems. But coopetitive strategies have been developed also outside inter-organizational networks. The dimension of coopetition exists whatever the number of competitors, the structure of markets and the coopetitive situation is reinforced by the emergence of new entrants and the substantial shifts in the value chains and business models. Long-term coopetition effects on performance of a business ecosystem could be another issue for future research.

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