

Managing Creative Teams in Small Ambidextrous Organizations: The Case of Videogames

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Introduction

Organizations in the creative industries create, produce, and distribute goods and services with content that is both symbolic and aesthetic, based primarily on creativity, on human capital and now, more and more, on technology. The creative industries bring together organizations that need to manage the high level of tension involved in creative work (Townley and Beech 2010), establish innovation processes that are open to user communities and creative cities (Burger-Helmchen and Cohendet 2011; Parmentier and Gandia 2013; Simon 2009), and reinvent themselves to keep up with the transformations triggered by digital technology (Mangematin, Sapsed and Schüßler 2014). They thus manage both their exploration activities to renew their procedures and cultural products and their exploitation activities to optimize their productions and amortize their creations.

Videogame studios are emblematic of this tension between exploration and exploitation activities. They have to manage complex processes that combine development technology and artistic creation (Lê, Massé and Paris 2013), adapt and change their design process in order to work with other sectors (Gandia 2013), and renew their business model to cope with the digitalization of the creative industries (Moreau 2013). Moreover, because of the increase in the cost of the games and the need to reduce business and financial risk, publishers are more inclined towards game series while the studios try to invent new genres and new licences in order to be less dependent on the publishers. This tension

between rationalization and creativity results in the studios either alternating or developing simultaneously highly innovative games and much less innovative suites of games (Tschang 2007). This simultaneous management of exploration and exploitation activities, known as “ambidexterity,” contributes to companies’ long-term performance (Lubatkin et al. 2006; Zi-Lin and Poh-Kam 2004) by enabling the logics of repetition and renewal to be considered simultaneously.

Ambidexterity is nonetheless difficult to achieve, because exploration and exploitation activities relate to two different types of logic. The literature recommends separating these activities into either the organization (structural ambidexterity) or the network (network ambidexterity), or even developing specific management methods to manage the teams that, within the same unit, deal with both types of activity (temporal and contextual ambidexterity). However, organizations, especially small companies, come up against a number of difficulties when they try to implement ambidexterity (Alvarez and Barney 2004). They often lack the human and financial resources needed to separate the two types of activity in order to achieve an ambidextrous structure. Thus, the contextual and temporal ambidexterity models seem better suited to small and medium-sized enterprises (SMEs) in the creative industries. Contextual ambidexterity highlights the importance of developing an organizational context based on performance management (rigour, clear roles and expectations, ambitious objectives) and on

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management of the social context (confidence and interpersonal employee relations). In addition, creativity, which is inherent in the creative industries, is necessary both to improve the existing products with the help of incremental innovation in exploitation activities and to create new products through radical innovation in exploration activities (Brion, Mothe and Sabatier 2008). Nonetheless, the management of creative teams poses a number of problems: the result is not guaranteed; the process is difficult to standardize; and creative people are more motivated by the process than by the result, whereas managers are intent on controlling costs and meeting deadlines as well as on reducing the risk of failure (Gil and Spiller 2007). Ambidexterity in the creative industries therefore needs specific managerial practices, to cope with the tension between rationalization and creativity that exists within the organization and within creative teams.

While these tensions have been thoroughly explored from an organizational point of view, the management literature has contributed very little to how they can be resolved in the management of creative teams. We therefore pose the following question: *How can creative teams be managed to develop contextual and temporal ambidexterity?* An examination of ambidextrous companies in the creative industries would seem to be an interesting way to identify the management practices that are specific to creative teams.

To understand how the creative industries combine exploration and exploitation while developing creativity within their teams, we examine videogame studios. These represent an interesting

research context because the sector's publishers entrust them with the most creative publishing activities. Moreover, the studios have to constantly develop technological innovations in order to adapt to the never-ending changes in videogame devices, while at the same time capitalizing on their know-how, their methods and their technologies to recoup the costs of their previous innovations. These studios are therefore likely to be small creative and innovative companies that manage exploration and exploitation activities ambidextrously within the same structure.

In the first section below we examine the conceptual relations between ambidexterity, creativity and small organizations in order to construct our measurement tools. In the next section we present the characteristics of our method, our research context, and how these elements enable us to answer our research question. In the following section we summarize our analyses and results. We conclude with a discussion of the theoretical and managerial implications of creative team management practices.



Theoretical Framework: Ambidexterity and Creativity in Small Creative Organizations

Ambidexterity in Organizations

March (1991) identifies a fundamental and conceptual distinction between two types of organizational behaviour: explorative and exploitative.

ABSTRACT

Ambidexterity, the simultaneous management of exploration and exploitation activities, is difficult to apply in small and medium-sized organizations (SMEs) in the creative industries, because these companies need to constantly innovate to keep up with technological developments and support the creativity of their teams while at the same time continuing to rationalize production. Contextual ambidexterity, which is most suited to SMEs in this sector, relies on the management of social context and performance as well as a creative climate that is conducive to innovation. To identify the management practices of these ambidextrous companies, the authors study videogame development studios. These feature both contextual and temporal ambidexterity with specific creative team management practices, such as the combination of a wide variety of skills, development of numerous interactions between collaborators, affirmation of a creative culture, proximity leadership, empowerment, steering through objectives, strong capitalization, and knowledge sharing by and involvement of the entire staff in the design process. These practices lead to a social and creative climate that is good for creativity and also supports performance management. The small company that is subject to considerable constraints and that cannot separate the two activities becomes ambidextrous as a result of active creativity management within its development teams.

KEY WORDS

Creativity, ambidexterity, creative team, creative industries

The first refers to the optimization of results and the use of existing knowledge, while the second requires the acquisition of new knowledge through creativity, testing, invention and innovation. The two kinds of activity are based on very different types of organizational behaviour: for exploitation activities the logic of short-term productivity demands focus and stability, while for exploration the logic of long-term creation and innovation demands variation and adaptability. Organizations have to manage the allocation of resources between these two types of activity. Organizations that develop new skills while using acquired skills are more innovative (O'Reilly and Tushman 2004; Tushman and O'Reilly 1996), which in turn serves to improve their long-term performance (Zi-Lin and Poh-Kam 2004). The ability to combine these two types of activity – ambidexterity – is, however, difficult for small organizations to achieve (Alvarez and Barney 2004). The two types of organizational behaviour cause tension at every level of the organization, from the creative worker in the management team through to the project team. Ambidexterity thus requires the management of four types of tension that run through every level of the organization: long-term adaptability versus short-term survival, openness to every possibility versus constraint, diversity versus coherence, passion versus discipline (Andriopoulos and Lewis 2010). In attempting to reduce these tensions, research has identified four ways of reconciling the tension between exploration and exploitation activities: organizational ambidexterity, network ambidexterity, temporal ambidexterity and contextual ambidexterity.

O'Reilly and Tushman (2004) suggest a complete separation of exploitation and exploration activities to avoid the diffusion of optimization

techniques linked to exploitation activities to exploration activities. The ability to combine the two is achieved by experienced executives who have a clear strategic vision that is both simple and easy to communicate and who are capable of engaging in both management approaches. The ambidextrous organizational model based on separation of exploration and exploitation activities into sub-entities that are structurally distinct is not, however, suited to SMEs. These companies need to manage the dichotomy between exploitation and exploration activities within the same structure, and often within the same team.

Conversely, network ambidexterity is based on a division of activities for the entire length of an industry's value chain, via mechanisms of collaboration and competition. McNamara and Baden-Fuller (2007) examine this type of ambidexterity in the biotechnology industrial sector. Based on a study of financial market incentives, they note that the risk of radical innovation is a matter for start-ups while the exploitation of research results is a matter for large companies. The videogame industry is also structured in this way. Leading videogame publishers outsource the creation of new licences to small, very creative studios. Nonetheless these small companies find it difficult to capture the value of their creation because of transaction asymmetry.

Temporal ambidexterity that alternates exploitation and exploration activities in the same business unit seems more suited to small organizations. In this type of activity, the company alternates cycles that concentrate on one sole activity. It thus avoids the tension generated by the simultaneous management of exploration and exploitation activities. The problem with this type of ambidexterity is that of managing

R É S U M É

L'ambidextrie, la gestion simultanée d'activités d'exploration et d'exploitation, est particulièrement difficile à mettre en œuvre dans les petites et moyennes entreprises des industries créatives, car elles doivent innover en permanence pour répondre aux évolutions des technologies et soutenir la créativité des équipes tout en rationalisant la production. L'ambidextrie contextuelle, la plus adaptée aux P.M.E. de cette industrie, s'appuie sur la gestion du contexte social et de la performance, et d'un climat créatif favorable à l'innovation. Afin d'identifier les pratiques de gestion de ces entreprises ambidextries, nous étudions les studios de développement de jeux vidéo. Ils sont en situation d'ambidextrie temporelle et contextuelle avec des pratiques spécifiques de gestion d'équipes créatives telles que le mélange d'une forte diversité de compétences, le développement de nombreuses interactions entre collaborateurs, l'affirmation d'une culture créative, un leadership de proximité, la responsabilisation et le pilotage par objectif, une forte capitalisation et partage des connaissances, et une implication de l'ensemble du personnel à la conception. Ces pratiques développent à la fois un climat social et créatif favorable à la créativité tout en soutenant la gestion de la performance. La petite entreprise, soumise à de fortes contraintes, qui ne peut pas séparer les deux types d'activités, devient ainsi ambidextrie grâce à une gestion active de la créativité dans ses équipes de développement.

M O T S C L É S

Créativité, ambidextrie, équipe créative, industries creatives

the transition periods when both activities are likely to be present in the company. The organization needs to develop procedures for dealing efficiently with the transition from one mode to the other and the skills required for each type of activity (Brown and Eisenhardt 1997).

Contextual ambidexterity is defined as the ability to focus on regular activities and to adapt to new activities in the same business unit (Gibson and Birkinshaw 2004). Based on a survey of more than 4,000 people in the business units of 41 international companies, Gibson and Birkinshaw (2004) examine the conditions that make it possible to develop this type of ambidexterity, and particularly to encourage individuals to make their own choice regarding the allocation of their time between the two types of activity. The authors highlight the importance of developing an organizational context based on the management of performance (rigour, clear roles, level of expectations, ambitious objectives) and the management of a social context based on confidence and interpersonal support. Contextual ambidexterity also seems much better suited to small organizations that lack the means to structurally separate their activities or to manage the transition periods between the activities.

Contextual Ambidexterity and Creativity

A study by Brion, Mothe and Sabatier (2008) enriches the model of contextual ambidexterity by identifying creativity incentives as a management practice that reinforces innovation in exploration and exploitation activities. It also identifies a positive effect on the performance management of innovation on exploitation activities and on contextual ambidexterity in general. Creativity therefore appears to be an element that makes

it possible to link the management of both performance and social context in innovating companies, not only to develop new products with exploration activities but also to improve existing products with exploitation activities. Individuals are likely to be creative when they are intrinsically motivated by their activity, when they have considerable expertise in their field and the ability to think creatively (Amabile 1988). At the organizational level, Amabile identifies group support (diversity, good communication, openness to new ideas, confidence), management practices (interest in challenges, sharing of information, support for group work, encouragement on the part of management) and access to sufficient resources as the key factors in improving organizational creativity (Amabile 1997, 1998). These approaches lead to the conclusion that creativity cannot be managed directly and that it is a question of developing an organizational climate that fosters creativity, with appropriate management practices (Ekvall 1996). This type of organizational climate brings together elements such as a high level of challenge, autonomy of action, a high level of confidence, considerable exchange and debate on ideas and problems, and strong support for the generation and evaluation of ideas (Amabile et al. 1996; Isaksen and Ekvall 2010; Isaksen and Lauer 2002). The literature on managing creativity thus contributes some interesting avenues for developing creativity in work groups. It contains little, though, on how creativity is used in a context of strong tension between exploration and exploitation activities.

Clearly, however, there are similarities in an organizational climate that is beneficial for contextual ambidexterity and an organizational climate that is good for creativity. The elements of challenge, autonomy, confidence and support can be found both in the management of the

RESUMEN

La gestión ambidextra, o sea, el manejo simultáneo de actividades de exploración y de explotación, se aplica difícilmente en las organizaciones pequeñas y medianas (PYMES) de las industrias de creación, ya que estas deben innovar constantemente para mantenerse al día con el desarrollo tecnológico y apoyar la creatividad de sus equipos, a la vez que racionalizan continuamente la producción. La gestión ambidextra contextual, que es la que mejor se aplica a las pymes en este sector, depende del manejo del contexto social y del rendimiento, y, al mismo tiempo, del establecimiento de un clima creativo propicio a la innovación. Para identificar las prácticas administrativas de estas empresas ambidextras, los autores examinan los estudios de desarrollo de videojuegos. Estas empresas demuestran ser ambidextras tanto contextual como temporalmente, con prácticas específicas de gestión de los equipos creativos, tales como combinación de gran variedad de competencias, desarrollo de numerosas interacciones entre colaboradores, afirmación de una cultura de creatividad, liderazgo de proximidad, empoderamiento, gestión por objetivos, fuerte capitalización, y compartir de conocimientos con y entre todo el personal en el proceso de diseño. Estas prácticas crean un clima social favorable a la creatividad y sostienen a la vez la gestión de desempeño. Una pequeña empresa sometida a limitaciones considerables y que no puede separar las dos actividades se vuelve ambidextra como resultado de una gestión activa de la creatividad en el seno de sus equipos de desarrollo.

PALABRAS CLAVE

Creatividad, empresa ambidextra, equipo creativo, industrias de creación

performance and social context of contextual ambidexterity and in management practices that are conducive to a creative climate. A study on the paradoxes of ambidexterity management to preserve both creativity and performance points to the need to (1) manage long-term adaptability while ensuring survival in the short term using a paradoxical vision that is both idealistic and pragmatic, (2) allow for the possibility of new developments in the constraints of a project by developing an area of improvisation and testing, (3) cope with diversity while ensuring team cohesion through shared experiences, and (4) develop employees' passion while maintaining discipline with an integrated identity that enables the alternation of creative and routine work (Andriopoulos and Lewis 2010). The paradox approach is useful for clarifying the recurrent tensions of creative team management in an ambidextrous organization, and thus confirms the strong tension between rationalization and creativity identified by Tschang (2007) in the case of videogames. However, this work at an organizational level does not shed much light on management practices that might allow for the management of ambidexterity in work groups. We therefore examine the management practices deployed within creative teams in ambidextrous companies. In small organizations in the creative industries, the project team seems to be a good level for analyzing the relationship between creativity and ambidexterity. In a small organization it is easy to identify the nature of the work deployed within the team. Likewise, ambidexterity is relatively easy to identify in an SME that integrates project teams engaged in different activities simultaneously (contextual ambidexterity) or alternatively (temporal ambidexterity).



Method

Research Context

The videogame industry is particularly suited to the study of ambidexterity because it includes small studios that need to innovate and create new publishing content to meet the needs of players, while at the same time capitalizing on their know-how and technologies to respond to the financial constraints imposed by the publishers (Tschang 2007). The project mode is the dominant management mode in videogame studios. Teams are reorganized for each project according to the skills needed for the development of a videogame. Project teams integrate creative individuals with a wide variety

of publishing and technological skills (scriptwriter, game designer, 2D or 3D graphic designer, animator, developer), for a period of just a few months up to as long as three years.

The videogame industry brings together independent studios developing games for multiple platforms (PCs, videogame consoles, handheld consoles, tablets, smartphones) and internal studios owned by publishers but often managed independently. In peak periods these studios have staffing levels of 50 to 150 people. They either work in partnership with publishers to finance and sell their creations or finance their creations themselves and sell them by dealing directly with local distributors in each area. Despite their differences, all of these companies have the characteristic of combining various types of innovation and demand a wide variety of highly specialized skills that can be technological, artistic, or related to publishing and sales. These studios need to renew their technological knowledge and skills on a regular basis to cope with the evolution in videogame devices while developing multiple creative activities (Cohendet and Simon 2007; Simon 2006). Despite their small size, videogame studios try to manage several projects at the same time, at the same production site, at different stages of advancement, to reduce the downtime between projects and maximize work for their permanent staff. They often carry out exploitation and exploration activities at the same time on different projects, or alternate them on successive projects. Videogame studios are therefore small companies likely to present situations of contextual or temporal ambidexterity while developing numerous creative activities requiring active creativity management practices.

The study is based on a sample of 11 French development studios with a staff of under 100, most of which were founded over five years previously and which produce games for the worldwide market (Table 1). The studios were selected using the criteria of size, gaming platforms and the fact that new games were being developed. The idea was to identify a sample representative of the variety of French studios, from the small team producing PC games to the big studio with 100 people producing multiplatform games. In this regard, our sample of French studios reflects the international situation. The study was carried out over a period of technological renewal during which the studios would have to renew their methods and business models to handle the arrival of a new generation of platforms and the development of online gaming, thus increasing our chances of selecting ambidextrous studios. The studios were also chosen so as to include both

TABLE 1

PROFILE OF DEVELOPMENT STUDIOS STUDIED				
Studio	Size	Age	Gaming platform	Type
Eden	100	8	Console, Handheld console	Sport, Adventure
Ubi Color	80	7	Console, Handheld console	Action
W.S.G.	64	6	PC, Console	Adventure
Lexis	55	14	PC, Mobile	Platform, Adventure
Quantic	40	8	PC, Console	Action, Adventure
Arkane	35	6	PC	RPG
Cyanide	30	4	PC	Sport
Neko	25	6	Console, Handheld console	Platform
Kylotonn	25	3	PC	FPS
White Bird	16	2	PC	Adventure
Nadeo	12	5	PC	Sport

Legend: RPG = Role Player Game; FPS = First Person Shooter; RTS = Real Time Strategy

young and more experienced companies. We also selected in-house publisher studios if these were legally separate from the parent company.

Degree of Ambidexterity in the Videogame Industry

The new games integrate both technological innovation and publishing creation activities. The technological innovation comes in when the studio develops a new middleware or game engine making better use of the gaming platform's performance or when it develops the game on another device of the same generation. These technological innovations are more radical when a new generation of gaming platforms arrives (games console, Internet, mobile phone or computer), thus leading to considerable technological disruption in terms of both development architecture and development possibilities. Publishing creations relates to the creation of a new game concept, including the rules of the game, the characters, the scenario, interactivity, and the graphic and sound environment. Sometimes there is little change in the game between the different versions with a simple modification of the script and certain graphic elements. However, when a studio makes a change in genre and invents a completely new game concept, it is in a situation of more radical publishing innovation.

Parallel to the distinction between technological innovation and publishing creation, we distinguish between exploitation and exploration activities on the basis of the renewal and

acquisition of new skills in the project teams, as suggested in the original approach by March (Levinthal and March 1993; March 1991). The combination of the different types of innovation requires a renewal of knowledge and skills to a greater or lesser extent and thus determines their type of exploitation or exploration activity (Table 2). A game can integrate a radical technological innovation without having to develop a new game concept. Conversely, a game can offer a completely new publishing concept without having to use technological innovation. Nonetheless, one frequently comes across a mix of technological innovation and publishing creation. The generation change of a videogame console encourages designers to come up with new game concepts that will make use of the accrued possibilities of the new gaming platform (Lê, Massé and Paris 2013). Likewise, the creation of a revolutionary game concept very often calls for new technological developments. The more a studio renews both its publishing and its technological skills, the more the activity is of the exploration type. For example, at Lexis Numérique the studio has capitalized for years on a PC adventure series for children. At the same time, it has been developing a platform game for PC and videogame consoles while setting up a team to produce games for mobile phones. This studio is in an exploration situation while at the same time continuing to capitalize on its publishing licences. The two types of activity can coexist, share the same resources, and even co-create.

TABLE 2

EXPLOITATION OR EXPLORATION PROJECT, BY SKILLS RENEWAL			
Technological axis Publishing axis	No change	Evolution or game motor change	New generation of platform
No change	Exploitation	Exploitation	Exploration
Game suite	Exploitation	Exploration	Exploration
New concept or type of game	Exploration	Exploration	Exploration

Data Collection and Analysis

Data collection was carried out through semi-direct interviews with the human resources senior manager and/or the manager. The interviews lasted from one to two hours. The interview was structured to obtain data on the organization of the work and on organizational skills. This information was completed and verified by a documentary survey in the specialist press, Web sites and companies' sales brochures.

Step 1

To determine the ambidexterity of the studios, we examined the data related to the videogames developed by the studios (type of games, platform, degree of publishing and technological novelty, technology used). Table 2 categorizes the type of activity involved in the different projects as either exploration or exploitation. Using Lavie's methodological recommendations as a base for studying ambidexterity in companies, we retained only one dimension to create a unimodal ambidexterity scale (Lavie, Stettner and Tushman 2010). Our ambidexterity scale thus consisted of five situations: the studio develops only exploitation projects (exploitation situation, weak ambidexterity); move from an exploitation project to an exploration project (temporal exploitation ambidexterity); simultaneously manage exploitation and exploration projects (contextual ambidexterity); move from an exploration project to an exploitation project (temporal exploration ambidexterity); develop exploration projects only (exploration situation, weak ambidexterity). We retained only those studios that manifested temporal and contextual ambidexterity, in order to analyze the management practices of the creative teams in ambidextrous studios.

Step 2

To identify the management practices of creative teams in the ambidextrous studios, we used inductive theoretical coding (Miles and

Huberman 1994; Point and Fourboul 2006). The data were coded manually based on our theoretical framework: company organization (hierarchical level, division of responsibilities), project management method, team management practices, team recruitment methods, team composition, creative process. Next, the data were summarized by means of two topic-based tables: company organization and management of creation and development. We then looked for similarities in the tables between the cases for each of the categories and organized these into groups so as to be able to deduce recurrent patterns and develop more reliable theoretical concepts (Eisenhardt and Graebner 2007). We were able to identify seven creative team management practices common to the nine studios in an ambidextrous situation and to deduce indicators to assess the intensity of these practices.

Step 3

We re-examined the intensity of the presence of these practices in the studios by using the indicators previously identified and matched them to the companies' ambidextrous situation.



Creative Team Management Practices

Degree of Ambidexterity

By examining past and present videogame development projects, we were able to describe each project as either exploration or exploitation, thereby obtaining a cartography of the ambidexterity level of the companies in our sample (Table 3).

Of the 11 studios, six show contextual ambidexterity, three show temporal ambidexterity and two reveal little ambidexterity. Those studios in a situation of contextual ambidexterity integrate a high level of ambidexterity by managing exploration and exploitation projects simultaneously with teams possessing wide-ranging skills

TABLE 3

AMBIDEXTERITY LEVEL OF STUDIOS, BY TYPE OF PROJECTS CARRIED OUT					
Situation	Pure exploration	Temporal ambidexterity: exploration, then exploitation	Contextual ambidexterity: simultaneous exploration and exploitation	Temporal ambidexterity: exploitation, then exploration	Pure exploitation
Ambidexterity	Weak	Moderate	Strong	Moderate	Weak
Studio	Arkane	White Bird	Eden Quantic Kylotonn Lexis Ubi Color W.S.G.	Cyanide Nadeo	Neko

in the same business unit. The teams that create new games and improve existing games need to generate new ideas and apply them while at the same time respecting significant financial and temporal constraints. In temporal ambidexterity, the tension between activities is slightly weaker but the company nonetheless needs to move from one approach to another without weakening its creation and production capacities. Nine of the 11 studios develop creative activities while in an ambidextrous situation. How do they manage their project teams in such a situation? The following sections outline the seven management practices common to the creative teams of the nine ambidextrous studios.

Characterization of Practices

The creative team management practices that are likely to develop contextual and temporal ambidexterity are constructed in an inductive way from the data collected in the field and from our knowledge of the videogame sector (see the section Data Collection and Analysis). Our contribution covers three levels: justify and describe management practices, illustrate in a concrete way how they are applied in our field, and suggest qualitative indicators enabling their intensity to be assessed.

Diversity and complementarity of skills with a common passion

It is widely recognized that diversity promotes organizational creativity (Amabile 1996; Ely and Thomas 2001; Woodman, Sawyer and Griffin 1993) just as much as individual creativity (Shin et al. 2012). The design and completion of a videogame involve a number of specific skills coordinated through an integrated development process: scriptwriter, game designer, graphic

designer, developer, project manager, marketing manager. In videogame studios the diversity of the employees can be measured by the co-existence of these different jobs and their degree of interdependence and operational involvement. Often these experts speak a very different language and come from highly diverse educational backgrounds (self-taught, art school, engineering school, university). What they have in common is a passion for the game, which unites the team. “Player or not, it’s really important . . . because we have working methods that call for passion. Recently we had quite a good engineer but he had absolutely no passion for what he was doing and it just didn’t work out.” (Kylotonn) Because of this variety of skills and the “language barrier” between the various jobs, the studios often recruit people with dual skills: “Our constant challenge is to have technicians who manage to communicate with designers and designers who manage to communicate with technicians, so if possible we recruit people of mixed culture.” (Lexis) This diversity can also be found in project management. In large production teams (over 50 people), resource management is taken on by a producer and content management by a creative director. “I’ve got a very good duo: ‘creative director’ and project manager. They both keep to their own space with mutual respect. I often check to make sure this duo is working . . . When a project manager works well with a creative director, we call them ‘the inseparables.’ They don’t even need to communicate to progress.” (Ubi Color) Socializing team members around their common passion and company values is carried out by all the studios with an organized integration period that includes some meals onsite, group outings and breaks with network games. The extent of this management practice can be assessed in terms of the variety of backgrounds, recruitment

criteria integrating the passion for videogames, and the presence of all the jobs in the production chain on the same site.

Numerous interactions in dense networks

It is not enough to juxtapose diverse and complementary stakeholders. Creativity presumes numerous interactions in the teams, conducive to the transfer of ideas and resources (Perry-Smith 2006; Perry-Smith and Shalley 2003). Design activities benefit from the cross-fertilization resulting from interdisciplinary teamwork (Perry 1995). This density can be measured, for example, through the combination of the different jobs in the same place (platform, office), by holding regular meetings that bring all the jobs together, or even by creating mini-project teams involving a number of different jobs. In the videogame studios, the configuration of the work space and the interdependence of the jobs in the development process forge strong links among team members. In our sample, eight out of nine studios organized production so as to multiply the links between the different jobs: project team integrating all the skills, open work spaces for easier access to everybody concerned. Regular meetings or small work groups involve the entire team. In the big studios, teams are divided into operating units: animation, graphics display, combat, special effects and so forth. “We mix people according to the game theme . . . we’ve got an office over there that works on the characters and their animation; we’ve got a programmer, an animator and a graphic designer in the same office so that they communicate well together. Each is sensitive to the others’ problems and to solving them straight away. No need to contact their manager.” (Eden) The problems are easier to identify and ideas circulate more quickly among the members of these units. The extent of this practice can be assessed by the open layout of the production areas (project platform and large common offices), the intensity and number of formal and informal meetings, and the creation of very flexible small teams.

Culture of creativity

The culture of creativity can be evaluated by the presence of a dominant discourse of creativity, the presence of a creative leader (Amabile and Khaire 2006; Oliver and Ashley 2012), or even the possibility of risk-taking in order to study solutions or develop ideas (Isaksen and Lauer 2002). A culture of creativity is characterized in the studios by a dominant discourse of creativity – the right to make mistakes and take risks. Personal creativity is sometimes one of the evaluation criteria: “It’s really an obligation at our

place. The staff need to be creative . . . moreover, they are immediately downgraded to BE (below expectations).” (Ubi Color) At Eden, management allows anyone with a game idea or a solution to a recurrent problem to take time out from their main activity and even link up with others to form a work group. They are not subject to the obligation of result; failure is admissible, but the research is assessed and a time limit is imposed. “Everyone can be a driver of ideas or concepts; it’s proposed internally, and if one is selected we allocate time to a number of people to work on it for two weeks.” (Eden) The extent of this practice can be assessed according to the presence of creative leaders, the existence of a management discourse on creation and creativity, and the fact that everyone in the studio is viewed as being creative.

Proximity leadership is central to and supportive of creativity

The mission of middle management is to ensure broad orientation and to create an environment favourable to the emergence and application of new ideas (Isaksen and Lauer 2002; Jassawalla and Sashittal 2000). In videogames, the mission is fulfilled by the presence of a lead who, beyond the mission of local supervision, plays the role of technical and/or artistic support as well as team leader. In the companies studied, the hierarchical line is short: eight companies out of nine have less than four levels (management, project management, skills management, operator) and the work is divided horizontally, with highly specialized operators. In such a structure the lead is one of the key managers of the development studio. He or she leads the team in a way that develops confidence and motivation, two elements essential to the development of organizational creativity. “For example, the lead artist is someone with a lot of experience and complete command of the tools. Also, he is perfectly capable of leading his team and motivating people with a leadership technique that has totally grasped the ins and outs of the project.” (Quantic) Leads play a pivotal role, acting as link between the project level and the constraints of the job as well as playing a key role in putting ambidexterity into operation. These leads are much more than specialized managers. They take on a leading technical role in a profession where excellence is the rule. They also have a support role to help project team members resolve various problems. “I think the leads . . . are quite charismatic compared with the people they work with . . . They’re pillars, technically sound, and it’s important that they don’t get out of their depth with the ‘prod’ and don’t become

like project managers who don't want to get their hands dirty any more." (Kylotonn) The extent of this management practice depends on the degree to which the management method of the leads and other managers is based on support and is driven by objectives, and how much autonomy the teams have in order to achieve these objectives.

Local adaptation and flexibility of rules under strong constraints

The development of a creative climate requires clearly defined objectives and considerable freedom in how these are to be achieved (Andriopoulos 2003; Isaksen and Lauer 2002). The studios usually separate the different stages: design, pre-production, production, post-production. The larger the game budget, the more these stages are formalized with a number of intermediate milestones. During the major stages of the project, flexibility and local adaptation are expressed by steering through the objectives rather than by allocating specific tasks. This steering relies on clearly empowering the players while also enabling flexibility of planning with the help of small deliverables or mini-milestones in which all the ideas can be expressed in order to achieve the objective. "They have a duty to schedule the team's program, but it's mini-milestone by mini-milestone . . . we try to ensure that it's done in a logical way; we highlight the problems and allow time for solutions to be found." (Quantic) The role of a manager in a videogame studio is, therefore, to give meaning to the action and define the objectives for the stage in question while at the same time striking a permanent balance between constraints and freedom (Simon 2006). Taking things to an extreme, the studio can rely on very lax planning by concentrating day-by-day on the development of the most important gameplay elements for the game. "We begin by doing what for us is the most important thing in the game, playing it, and then we gradually add things to improve it." (Nadeo) At Nadeo the constraint comes from a very active community of players that is constantly demanding improvements and game evolutions. The extent of this management practice can be assessed through a highly structured production organization (stages, budget, specifications, processes) with steering through small objectives defined as the project advances.

Capitalization and the extent of knowledge sharing

The contexts valorizing the sharing of knowledge and skills (Sung and Choi 2012) and the debating

of ideas (Isaksen and Lauer 2002) are acknowledged to be beneficial to organizational creativity. For videogames this variable is measured, for example, by the existence of formal summaries at the end of the project, the existence of an Intranet site (project journal, FAQ, procedural documents) and the availability of design documents. At the end of the project the studio team carries out a "postmortem." This is the time to bring up everything that has posed a problem and, more rarely, everything that has worked well. For two studios in our sample, the postmortem led to major changes. At Quantic it was an opportunity to rethink the technology in order to better tackle the new generation of console: "For three months there has been a complete review of the architecture and tools and so on, a document of over 60 pages has been produced . . . a really big technical postmortem . . . that will be accompanied by Next Gen specifications for what is to follow." (Quantic) At Cyanide the postmortem revealed a problem in the management of subcontracting and artistic direction, resulting in a reorganization of production teams. In other studios, knowledge capitalization was achieved by creating a project journal and making Process and FAQ documents available on the company's Intranet site. In all the studios, permanent technological and publishing monitoring was either carried out by the manager in a dedicated department (Ubi Color and Eden) or divided up among all the teams, with information sharing on the Intranet site. This management practice can take different forms. It is very intense when teams set up information-sharing systems and take the time to carry out postmortems that result in changes to production methods and processes.

Involvement of the entire project team in the creation process

In videogame studios the project team members are involved in creation throughout the various project stages (design, preproduction, production). Product design is the core business of videogame studios. It is usually the artistic manager and the studio manager who have the initial game idea, but in what follows, alongside the scriptwriters and game designer, an important role in the design is entrusted to the leads, or even to the entire project team. "Everyone gives their opinion. We often do it in a big meeting, and most of the big meetings about design are not only with game designers but with everybody. This is because the common denominator among all these people is their passion for videogames, and especially the fact that they are players. There can be

TABLE 4

INTENSITY LEVEL OF THE 7 CREATIVE TEAM MANAGEMENT PRACTICES IN AMBIDEXTROUS STUDIOS								
Studio	Total score	Diversity, complementarity of skills and common passion	Numerous interactions in a dense network	Culture of creativity	Proximity leadership central to and supportive of creativity	Flexibility of rules and local adaptation	Capitalization and knowledge sharing	Participation of entire project team in design process
1. Lexis	20	3	3	3	3	3	3	2
2. Kylotonn	19	3	3	3	3	3	1	3
3. Quantic	18	3	3	3	3	1	2	3
4. Eden	16	3	3	2	3	2	1	2
5. Ubi Color	16	3	3	2	1	3	3	1
6. W.S.G.	15	3	2	2	2	1	2	3
7. White Bird	13	2	2	2	3	1	1	2
8. Nadeo	12	1	1	2	1	3	1	3
9. Cyanide	10	2	1	2	2	1	1	1

Note: 1 = weak, 2 = moderate, 3 = strong

contributions from all the teams, whatever their trade.” (Kylotonn) When the game production phases have been formalized, the entire team is involved in the design process, especially through the availability of the different versions of the design documents and the meetings held on a regular basis. However, in studios that do not identify the various stages and that engage in a more iterative design, the latter remains in the hands of the game designers or the leads. The extent of this management practice can be assessed through the effective participation of project team members in design meetings and the consultation of trade experts by the design team.

Intensity of creative team management practices

Following our close examination of the seven creative team management practices in ambidextrous videogame studios, we classified them based on the extent to which they are applied. The score varies from 1 to 3 according to the intensity of their application in the various studios (Table 4).

Table 4 offers a wealth of information on the link among these seven practices and the performance of the application of contextual ambidexterity with creative teams. Analysis of our sample highlights two specific cases:

- The six studios in our sample that show contextual ambidexterity integrate these practices with strong application intensity (total score over 15). The six are Lexis, Kylotonn, Quantic, Ubi Color, W.S.G. and Eden.
- At White Bird, Nadeo and Cyanide, which show temporal ambidexterity for exploration or exploitation, few of the practices are at a high level (total score from 10 to 13). This can be explained by a weaker internal tension in the development of exploitation and exploration projects. Nadeo outsources part of the exploration, due largely to input from the gamers in the design of the games. Cyanide outsources the majority of its production in volume (rough, graphics and sound) and concentrates solely on the areas of creation and technology.



Discussion

Small videogame companies are often ambidextrous. At the same time, they develop exploitation projects based on existing technologies and videogames based on recurrent publishing (series or multiple offshoots of a game

concept), in addition to exploration projects that are based on new technologies and new types of game. In order to meet the needs of the publishers and the market, which both demand innovation, these ambidextrous companies manage creative teams whose job is to find new ideas for games, new scenarios, innovative gameplay and the application of new technologies so as to always have more interactivity, speed and graphic precision. These companies are nonetheless subject to financial and temporal constraints that force them to rationalize their production (Tschang 2007). To develop new games while at the same time capitalizing on their knowledge and know-how, they establish specific team management practices to cope with the paradoxes of creativity and ambidexterity. The practices identified foster a creative climate (variety of team members, culture of creativity, involvement in design, knowledge sharing, capitalization), support the social context (strong links, supportive leads, trust between employees) and help to manage performance (empowerment and steering through objectives). Our results show that creativity is essential for the development of ambidexterity since it encourages not only exploration activities but also exploitation activities. Creativity therefore plays an important intermediary role by relying on the management of a creative climate to generate divergence and on the management of performance to converge towards the most useful ideas according to the objectives.

Nonetheless the managerial paradoxes identified in the literature for both ambidexterity (Andriopoulos and Lewis 2010) and creativity (Andriopoulos 2003) call for a subtle balance between contradictory practices. For example, the diversity of team members, although necessary for the generation of interesting and valuable ideas, can be counter-productive if there is no common language or an absence of the benchmarks needed for group action (Harvey 2014). This team diversity is counterbalanced in the studios by the use of boundary objects (Carlile 2002) such as story boards, models and minideliverables. In addition, the numerous interactions among team members enable the various activities to adjust and thus avoid too great a divergence. Likewise, a common passion for the game is what unites the members of a videogame development team. Hence in creative teams a crucial role is played by the manager, who is both the creator of the action and an intermediary between the different activities and the project's different levels of action (Simon 2006). On the other hand, while knowledge capitalization is

important to avoid repeating past errors, it can prevent teams from "thinking outside the box" to come up with new ideas. This capitalization on the past is counterbalanced by close monitoring of the teams by the creative leaders (Quantic, W.S.G.) and strong links with external companies and communities (Nadeo, Cyanide). The monitoring and the link with external communities make it possible to gain knowledge outside the company in order to enrich the videogame project (Burger-Helmchen and Cohendet 2011; Parmentier and Gandia 2013), while capitalization is needed to develop the company's absorptive capacities. Hence, both of these capacities are present in exploitation and exploration activities. The seven management practices of creative teams thus make it possible to overcome the managerial paradoxes of ambidextrous and creative teams in the creative industries.

Our research also shows that, in small organizations, not only do company leaders play a key role between exploration and exploitation activities (Lubatkin et al. 2006), but creative team management practices also foster ambidexterity. We thus identify a way that is specific to SMEs in the creative industries to achieve ambidexterity that cannot apply the management models used by big companies to develop innovation (Boldrini 2008).

The managers of videogame studios will therefore find a concrete method in the seven management practices to support ambidexterity in the life of their organization. It starts right at recruitment, with the hiring of passionate people with very different profiles. It continues with integration and organized socialization (sponsorship, internship in several teams, breaks for network games, joint meals and outings). It is rooted in the setting up of open work spaces, in the permanent reconfiguration of teams according to needs and through information sharing. It is established on a day-to-day basis with key managers who together set objectives that are constantly reviewed based on the evolution of the project and who give the teams enough autonomy to achieve the objectives while helping them to solve problems. It is strengthened by a culture of creativity generated by management, the creative leaders and the involvement of all staff during the pre-production stages. It is continued through knowledge capitalization in the form of postmortems, periodic review of procedures, integration of new functions in the production chain, and permanent technological and publishing monitoring.

Can these management practices be applied in sectors other than videogames or the creative industries? Innovation in videogames has the

particularity of being fed from permanent evolutions in culture and digital technologies. These creative team ambidextrous management practices could therefore apply to any small company whose activities are subject to evolutions in technology and usage. However, our sample of 11 companies limits the generalization and suggests a need for further research to confirm the existence of these creative team management practices in videogame studios and the extent to which they can be applied to other sectors. Given the limited resources and the inability to separate exploration and exploitation activities, creative team management is a major issue for small organizations wishing to develop their long-term innovation capacity and performance.



Conclusion

Videogames are an interesting sector to study ambidexterity in small creative organizations, because it integrates the need to support team creativity with the need to rationalize production. This paradox leads small videogame studios to develop temporal and contextual ambidexterity. To do so they rely on specific creative team management practices such as ensuring wide skill diversity, development of a high degree of staff interaction, affirmation of a creative culture, proximity leadership, empowerment and steering through objectives, strong capitalization and knowledge sharing, and the involvement of all staff in the design process. These practices lead to a social, creative climate that is conducive to creativity while also supporting performance management. The small company that is subject to considerable constraints and that is unable to separate the two types of activity therefore becomes ambidextrous due to the active management of creativity within its development teams.

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