

# WORK TEAM EFFECTIVENESS, A REVIEW OF RESEARCH FROM THE LAST DECADE (1999-2009)

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*Teams do not always provide the diversity of knowledge, attitudes, skills and experience required to generate an innovative response to challenges or perform according to expectations. This paper summarizes the key results of research on work teams carried out over the decade from 1999 to 2009. To this end, we set out a brief explanatory framework for the effectiveness of work teams based on a differentiated analysis of inputs, mediators and outcomes. Our approach uses the SWOT technique, which identifies strengths, weaknesses, opportunities and threats in relation to teamwork research for the new decade. Finally, we integrate and discuss the key challenges facing the field if it is to turn threats into opportunities.*

**Keywords:** work teams, effectiveness, SWOT technique, inputs, mediators.

*Los equipos no siempre aportan la diversidad en conocimientos, actitudes, habilidades y experiencias que permite ofrecer respuestas innovadoras a los retos planteados alcanzando el rendimiento que se espera de ellos. Este artículo sintetiza e integra los principales resultados de la investigación sobre equipos de trabajo realizada en la década comprendida entre los años 1999 y 2009. Con este objetivo el artículo expone de forma breve un marco explicativo de la efectividad de los equipos de trabajo a través de un análisis diferenciado de insumos, mediadores y resultados. Para ello, se utiliza una aproximación basada en el método DAFO, según el cual se identifican las fortalezas, debilidades, amenazas y oportunidades que presenta la investigación sobre equipos de trabajo de cara a la década venidera. Finalmente se discuten de manera integrada los principales retos que este ámbito de investigación tiene ante sí para convertir las amenazas en oportunidades.*

**Palabras clave:** Equipos de trabajo, efectividad, método DAFO, insumos, mediadores.

Over the last forty years, teams have come to be considered as a central element in the functioning of organizations. This has been facilitated, at least partly, by a series of studies reporting the positive relations between team-based working and the quality of products and services offered by an organization (Gibson, Porath, Benson & Lawler, 2007). However, it has been the pressures deriving from the need to develop new business models in dynamic, uncertain and complex environments and the need for innovation that have led to a demand to adapt work structures traditionally revolving around individuals and to adopt organizational designs geared to change and based on teams (Lawler & Worley, 2006; West & Markiewicz, 2004). And indeed, this trend has been observed in all types of employment context, both private and public, including in the military (Kozlowski & Ilgen, 2006).

Teams provide diversity in knowledge, attitudes, skills and experience, whose integration makes it possible to offer rapid, flexible and innovative responses to problems and challenges, promoting performance and improving the satisfaction of those making up the team. This is the result of what has been called *the wisdom of crowds*: increased capacity for achieving various types of performance made possible by the interaction of team members (Salas, Rosen, Burke & Goodwin, 2009). Thus, the success of organizations and the overall production of knowledge depend to a large extent on the effectiveness of teams (Wuchty, Jones & Uzzi, 2007).

However, teams do not always act in this way, and sometimes fail to achieve the high performance expected of them (Sims, Salas & Burke, 2005). In fact, everyday experience tells us that in many cases teams, far from being mechanisms for capitalizing effectively and satisfactorily on collective effort, turn into *black holes* that relentlessly consume the physical, mental and emotional energies of their members. This tends to involve their wasting a great deal of effort to attain their goals – if indeed those goals are even met at all. Therefore, the challenge for research and intervention involves the effective integration of the contributions of

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qualified and expert people which can provide added value to the organization. Nor must we overlook the important role of the design of the organizational context in which teams exist, which should facilitate the creation of structures and lines of support, communication, consultation, feedbacks and rewards that complement the internal functioning of the team (Aritzeta & Alcover, 2006; Hackman, 1998).

At the same time as organizations have increased their experience in the use of teams, there has also been a significant increase in research aimed at the development of methods and theories for measuring the effectiveness of work teams (Goodwin, Burke, Wildman & Salas, 2009). This has brought with it a proliferation of models and constructs that attempt to describe, understand and explain the functioning of work teams, though their theoretical and methodological diversity has hindered the integration and consolidation of the results obtained (Weingart & Cronon, 2009). For example, following the review by Cannon-Bowers, Tannenbaum, Salas and Volpe (1995), more recently, Salas, Stagl, Burke and Goodwin (2007) identified 138 proposals from different disciplines that set out to define the group processes and skills involved in the performance and effectiveness of teams. And although there have been attempts to reduce this considerable dispersion – such as the imaginative proposal of Salas, Sims and Burke (2005), who suggested the possibility of identifying a construct similar to the *Big Five* related to team work –, it seems we are a long way still from achieving such integration (Salas & Wildman, 2009; Weingart & Cronon, 2009).

The main objective of the present article is to summarize and integrate the principal results of research on work teams carried out in the ten years between 1999 and 2009. To this end, using an approach based on the SWOT method, we shall identify the strengths, weaknesses, threats and opportunities presented by this research context for the coming decade. We shall briefly outline an explanatory framework of the effectiveness of work teams that will permit us to analyze inputs, mediators and outcomes. Finally, we shall discuss the main challenges for this research field if the threats are to be converted into opportunities.

### **EXPLANATORY FRAMEWORK FOR THE EFFECTIVENESS OF WORK TEAMS**

Work teams can be defined as groups that exist for performing organizationally relevant tasks, that maintain a certain degree of interdependence in terms of

goals and tasks, that manage and maintain their boundaries, and that are immersed in an organizational context which limits their activity and influences the extent of their interchange with other teams within the organization (Kozlowski & Bell, 2003).

There have been numerous reviews of research on the effectiveness of teams in the last ten years (Gil, Alcover & Peiró, 2005; Goodwin et al., 2009; Ilgen, Hollenbeck, Johnson & Jundt, 2005; Kozlowski & Bell, 2003; Kozlowski & Ilgen, 2006; Mathieu, Maynard, Rapp & Gilson, 2008; Nielsen, Sundstrom & Halfhill, 2005; Salas, Stagl & Burke, 2004; Sundstrom, McIntyre, Halfhill & Richards, 2000); despite some differences between them, they can all be considered to have been based on the Input-Processes-Output (IPO) model (McGrath, 1964). This model identifies the composition, structure and processes of teams and the key antecedents to their effectiveness. Likewise, the model considers organizational and situational factors as influencing the structure of the team as a whole, affecting the rest of the variables (input, process, output).

The IPO model has received considerable criticism focused, first of all, on its inability to incorporate the temporal and recursive aspects imposed on teams by development and feedback, so that it can overlook the adaptive and incremental learning processes that necessarily influence their effectiveness (see, for example, the proposal by Kozlowski, Gully, Nason & Smith, 1999). A second target of criticism of the IPO model has been its unitary, simplified and opaque treatment of team processes. Such criticism has led to the emergence in recent years of alternative models that better reflect the functioning of teams as complex adaptive systems operating in broader contexts (e.g., an organization). Thus, the CORE model (see McGrath, Arrow & Berdahl, 2000) explains the development of teams over time, identifying their basic processes (construction, operations, reconstruction and external relations) and considering the relations with their context, while the THEDA approach (Team Holistic Ecology Dynamic Activity) (Cooke, Gorman & Winner, 2007) can be applied to heterogeneous teams, and seeks to differentiate process-based perspectives from knowledge-based approaches. For its part, the IMO model (Input-Mediator-Output-Input; Ilgen et al., 2005), as shown in Figure 1, highlights the cyclical nature of feedback processes, so that a team's outputs at a given moment represent new inputs for subsequent activity. Kozlowski and Ilgen (2006) have integrated these ideas in a model that considers teams as multi-level systems (individual,

team and organizational levels), oriented to processes relevant for the task and which evolve over time, so that both the processes and the effectiveness of teams constitute emergent phenomena (patterns resulting from the regular and repeated interaction of their members).

The model shown in Figure 1 provides the schema that will guide our review and analysis of the literature on the effectiveness of teams from the last ten years. We shall move from left to right, analyzing each of the broad categories (inputs, mediators and outcomes) using the framework of the SWOT method. It is not our intention to transpose a strategic analysis tool to this particular research area; rather, we shall simply use SWOT analysis as a creative pretext for implementing an analysis of the strengths, weaknesses, opportunities and threats that guide us strategically in the future development of research in this context.

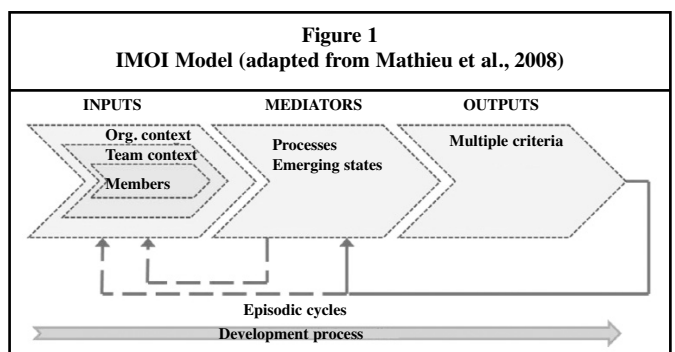
### INPUTS: RESOURCES, TASK AND TEAM COMPOSITION

Inputs represent the team's set of resources, both external (e.g., rewards from the organization, organizational culture) and internal (team composition, mainly the knowledge and skills of its members, as well as the group structure and task design). Likewise, these resources can be considered at different levels (members', group and organizational resources). It is important to bear in mind that inputs can constitute facilitating or inhibiting elements for team effectiveness. In this review we shall move from the most external level to the most internal.

**The context of the organization** plays a crucial role in the effectiveness of teams (Hackman, 2002). In the IMO model, organizational context is represented through three types of support it offers to teams: 1) Human Resources (HR) management systems (training, performance assessment, rewards, etc.); 2) an organizational design that permits inter-relationships between work teams and between teams and the organization as a whole, articulates flows of information and coordination and facilitates support, providing resources and removing obstacles; and 3) organizational climate of support for teams and organizational culture (not forgetting the national culture).

The results of recent studies reveal the extent to which the alignment of HR policies with the peculiar characteristics of teams (e.g., using individual and group rewards in complementary fashion for reinforcing team performance) has an indirect effect on their effectiveness (Hyatt & Ruddy, 1997), at the same time as being

directly related to the team's ability to self-manage (Kirkman & Rosen, 1999). As regards the impact of training policies, a recent meta-analysis confirmed a correlation of .29 for the overall influence of training on teams in the improvement of both their objective performance and their ratings from supervisors (Salas, Nichols, & Driskell, 2007). Also, there is a long tradition of identifying the role of organizational design in work teams when it comes to generating systems of high involvement and coordination between teams. In relation to coordinated or *multi-team* systems, the recent literature shows that effective coordination between teams predicts benefits for teams' performance and their internal processes, especially in high-interdependence contexts (Marks, Mathieu, Alonso, DeChurch, & Panzer 2005; Mathieu et al., 2006; van der Vegt, & van der Vliert, 2005). As regards high-involvement systems, these are highlighted as especially relevant for the designs oriented to change that are so necessary in the current socio-economic climate (Lawler & Worley, 2006). High-involvement systems have shown themselves to be good predictors of productivity from teams (Spreitzer, Cohen, & Ledford, 1999), and to be especially influential in organizational climate. Various studies have shown how a climate of openness has multi-level effects, facilitating group processes and participation in decision-making processes (Mathieu, Maynard, Taylor, Gilson, & Rudy, 2007; Tesluk, et al., 1999). Other research focusing on analysis of the role played by members' perceptions of organizational support has found them to have a positive influence on the potency of teams, even though this relationship is mediated by group processes (Kennedy, Loughry, Klammer, & Beyerlein, 2009). Finally, research on the influence of the broader cultural context on the organization is emerging, and the few studies to date reflect how national cultural differences affect the quality culture in the organization and the quality of service provided by its teams (Gibson, 2003).



**Task design and team context:** Autonomy is one of the characteristics that has received most attention in recent years. Autonomy refers to the extent to which a team has the capacity to make decisions about different aspects of its work (methods, timetables, roles, etc.). Low levels of autonomy indicate that the team has a task that is highly structured and defined by the organization, which minimizes the need to make collective decisions or manage internal processes. In contrast, high levels of autonomy imply that the team members must make numerous decisions about their work in collective fashion. The research to date concludes that autonomy is a basic characteristic of team task design that modulates the effects of both antecedent variables (e.g., team diversity) and processes (e.g., conflict management) on group effectiveness (Kozlowski & Bell, 2003). A recent meta-analysis on the relations between a team's design and its performance (Stewart, 2006) revealed that increased autonomy together with coordination within the team were associated with better performance, even if the effect size varied depending on type of task.

Interdependence, as a characteristic of the team's task, has also attracted the attention of several researchers (Stewart & Barrick, 2000). Different types of interdependence have been identified, but the principal types are related to task and goals. Task interdependence is the extent to which the members of a team depend on each other and interact to achieve their objectives. Goal interdependence is the degree to which team members share goals in their activity. Studies focusing on task interdependence have revealed its modulating effect (generally in positive terms) on many of the effects exercised by different team processes on organizational outcomes, such as helping behaviours (Bachrach, Powell, Collins, & Richey, 2005), trust (Rico, Alcover, Sánchez-Manzanares, & Gil, 2009), communication, conflict or flexibility (Stewart & Barrick, 2000). Likewise, these modulating effects extend to the direct effects exercised by other task variables on performance, such as virtuality (Rico & Cohen, 2005) or autonomy. In this regard, Langfred (2005) shows how the positive effects of autonomy on team performance only occur in conditions of high interdependence.

For its part, goal interdependence has shown positive associations with better learning, quantity of information shared and team effectiveness (De Dreu, 2007). In addition, the joint consideration of task and goal interdependence has given rise to so-called complex interdependence. This concept frames the congruence hypothesis that takes account of the

interactive effects of the two variables on aspects as diverse as affective responses or innovative behaviours (van der Vegt, Emans, & van der Vliert, 2005).

Virtuality received increasing research attention over the first half of the last decade. Indeed, it must be acknowledged that we all work with a certain degree of virtuality. Virtuality is defined on the basis of three dimensions: members' dependence on information and communications technologies for coordinating and executing team processes, types of information provided by technology, and synchrony in communications between members (Kirkman & Mathieu, 2005). The majority of studies on virtuality have focused on comparing traditional teams with virtual teams (Martins, Gilson, & Maynard, 2004), showing how virtuality modifies the interactions between team members. Working regularly in conditions of high virtuality limits the social contextual signals present in face-to-face communication, reduces the depth of the discussion and analysis of alternatives, and increases the time needed for making collective decisions. Different studies have shown that virtuality is related to less efficient communication and generates more difficulties for developing trust between team members (Jarvenpaa & Leidner, 1999) or increasing levels of empowerment (Kirkman, Rosen, Tesluk, & Gibson, 2004).

Once again, the effects of virtuality on processes and team effectiveness depend on the task demands (Rico, Cohen, & Gil, 2006), so that when teams are involved in complex and/or interdependent tasks it is advisable to reduce the levels of virtuality (using synchronized and richer means of communication, such as videoconferencing or face-to-face meetings). Nevertheless, it should be borne in mind that teams progressively adapt to the conditions of virtuality imposed by their work, so that as they learn to use the technology to communicate and develop new working strategies, the effects of virtuality become weaker (Lira, Ripoll, Peiró, & González, 2007).

**Leadership.** The last 10 years of research in this field have been characterized by three pivotal aspects: the consideration of leadership as something external to the team, coaching, and shared leadership. External leadership embodies the traditional paradigm in the study of team leadership, and is based on the influence of a figure external to the team and responsible for its performance. The basic assumption is that this figure generates the general lines of the team's work, coordinates its activity and links it to other units of the organization. Research has essentially focused on

identifying how leaders' actions facilitate or hinder team performance (Druskat & Kayes, 2000). In this sense, type of leadership is seen as an input that affects different team processes (learning, coordination, problem management or the extent to which information is shared), emerging states (team potency or commitment) and team performance (Chen, Kirkman, Kanfer, Allen, & Rosen, 2007). A recent meta-analysis groups external leadership behaviours according to the traditional distinction between *task* and *relation*, finding that both relations-oriented behaviours (particularly transformational and consideration-based) and task-oriented behaviours (structure initiation and extension of the team's boundaries) were positively associated with perceived effectiveness of the team (Burke, Stagl, Klein, Goodwin, Salas, & Halpin, 2006). Furthermore, Stewart's (2006) meta-analysis showed how transformational leadership and empowering leadership (facilitating members' empowerment) increase team performance.

Coaching is defined as direct interaction with a team with the intention of helping its members to use their collective resources appropriately and in coordinated fashion to perform the task (Hackman & Wageman, 2005), and includes behaviours oriented to the identification of problems in the team, consultation about processes or the identification and compensation of self-management in the team. The scientific literature has shown positive effects of such practices on the satisfaction or psychological safety of its members (Edmondson, 1999; Wageman, 2001), but research is not conclusive about its effect on team performance (Wageman, 2001). In this regard, different variables have been identified that may be modulating the effect of coaching on performance, such as factors of team design, especially autonomy, or the stability of the environment in which the task is carried out (Wageman, 2001; Morgeson, 2005). In addition, the seminal work by Hackman and Wageman (2005) develops a theoretical model of coaching that stresses, on the one hand, its functional nature, insofar as it fulfils motivational, consultative and formative functions; and on the other, its development-based nature, insofar as the different interventions would be associated more effectively with different points in the team's development. This approach to leadership, though not new, constitutes an area in which practice and research must look to develop.

Finally, shared leadership refers to an emerging property in the team resulting from the distribution of

the leadership functions among multiple team members, rather than its being concentrated in a single formal leader (Carson, Tesluk, & Marrone, 2007). Little research has been carried out on this aspect to date. The studies that there are have concentrated on identifying antecedent conditions of shared leadership, which would include coaching (Carson et al., 2007), the collectivist orientation of team members (Hiller, Day, & Vance, 2006) or their abilities to exert influence (Taggar, Hackett, & Saha, 1999). The available empirical evidence mostly supports a positive influence of shared leadership on team performance (Carson et al., 2007; Ensley, Hmieleski, & Pierce, 2006; Sivasubramaniam, Murry, Avolio, & Jung, 2002). However, there are also results suggesting that distributed leadership does not necessarily have a positive effect on the output of the team (Mehra, Smith, Dixon, & Robertson, 2006). This is giving rise to the need for a more complete conceptualization of the phenomenon through the analysis of networks and the consideration of the cyclical, interactive and temporal aspects underlying their emergence and development (Carson et al., 2007; Day et al., 2004; Mehra, et al., 2006).

**Team composition.** Composition refers to the attributes of team members and to their appropriate combination for the formation of effective teams. Two aspects of team composition have been the object of numerous studies: size (number of persons making up the team) and the characteristics of team members.

The central issue with respect to size is to ascertain the *optimum size* of the team. As the size of a team increases, so does the quantity of resources available, but also the needs of coordination. Research indicates that optimum size depends on certain contingencies. For example, when the interdependence required for adequate performance of the task is high and the external environment is unstable, it is advisable to create small teams (Kozlowski & Bell, 2003). Nevertheless, in a recent study with 329 work groups performing different types of tasks in a variety of organizations, Wheelan (2009) found systematically that teams comprising between 3 and 6 members were significantly more productive and better developed than those made up of between 7 and 10 and than those with 11 or more members, which appears to suggest that, with regard to team size, smaller is better.

Another aspect identified as being of considerable importance is *change* of the characteristics of those making up the team. Increasing numbers of studies are being published, given the impact of change on modern

teams, and the role played by size changes and the integration of new members in explaining the adaptability of teams (DeRue, Hollenbeck, Johnson, Ilgen, & Jundt, 2008). Modifying the composition of a team can have a negative influence on its efficacy, but if the changes only affect a small number of its members and are carried out gradually, its performance (innovation) can be maintained, or even improve (Perreti & Negro, 2007). Related to change, the *time* that members spend working together as a team is also a relevant factor for the development of team mental models and for coordination. Thus, the longer team members spend working together, the more likely they are to acquire accurate common knowledge about each one's working abilities (transactive memory), which will help them to better coordinate their actions (Lewis, Belliveau, Herndon, & Keller, 2007).

As regards team member characteristics, a topic attracting a good deal of interest over the last decade is *diversity* in team composition. Diversity in teams has been identified as a facilitating element in processes of innovation, decision-making and problem-solving (Tjosvold, Hui, Ding, & Hu, 2003). However, different recent reviews have yielded a "mixed bag" of results that precludes us from asserting categorically that diversity produces better levels of performance or improves the commitment or satisfaction of team members (Jackson & Joshi, 2004; Williams & O'Reilly, 1998). This has led to the emergence of approaches such as that involving the study of faultlines (Lau & Murnighan, 1998), whereby the relevant aspect is not the distribution or average of individual characteristics in a team, but rather how such variables are aligned or interact with one another. Faultlines are defined as hypothetical lines that would divide a group into subgroups according to the alignment of one or more attributes.

It is research on team faultlines that has been guiding studies on diversity in recent years, the focus being mainly on three aspects: first, on demonstrating a curvilinear relationship (inverted U) between the potential for faultlines in a team and its performance (Gibson & Vermeulen, 2005); second, on identifying aspects of the task that modulate the impact of faultlines (Rico, Molleman, Sánchez-Manzanares, & van der Vegt, 2007); and third, on identifying those mediating mechanisms, such as conflict, group identification (Lau & Murnighan, 2005) or task-relevant information processing, that explain the effects of faultlines (Homans & van Knippenberg, 2006).

To conclude our consideration of this area of research, we can assert that only moderate levels of team faultlines facilitate the achievement of higher levels of performance (Gibson & Vermeulen, 2006). The team in these circumstances is sufficiently diverse to take advantage of its diversity and sufficiently homogeneous for the conflict not to impede its functioning. Both weak and strong faultlines will generate obstacles to team output, and for quite different reasons: in the first case because the similarity between team members will mean there is less likelihood of diverse information or perspectives within the group; in the second case, more time will be needed to integrate different knowledge and points of view, and the formation of subgroups at odds with each other will raise the conflict levels.

### SWOT ANALYSIS FINDINGS IN RELATION TO INPUTS

Throughout the previous section we have summarized the main research findings related to work team inputs carried out over the last ten years or so. In this section we shall briefly discuss the principal weaknesses, threats, strengths and opportunities that we have observed in this area of research. Table 1 provides a summary of the results of this SWOT analysis.

**Strengths.** The study of inputs in work teams has undergone notable developments, which have improved our understanding of the effects of the task characteristics on mediators and final results (Mathieu et al., 2008). Additionally, an appropriate theoretical development on team leadership allows us to see clearly the path towards distributed leadership, and to change research questions in this new field accordingly. Providing ourselves with sufficient levels of variability is possible; options are available, such as selective sampling or macro-collaboration studies of the *Globe Project* type (House, Javidan, Hanges, & Dorfman, 2002).

Likewise, after 40 years of accumulating contradictory evidence, the study of diversity is maturing and offering alternatives that combine complexity and ease of understanding, permitting a more ecological treatment of diversity in teams (van Knippenberg & Schippers, 2007).

**Weaknesses.** To summarize, we can identify four aspects of the weaknesses we identify in the study of inputs. The first of these has to do with the observation that the systematic study of work teams requires considerable efforts from researchers (Mathieu, et al., 2008). The challenge resides not so much in questions of

sample size (though this is also a factor), but more especially in obtaining sufficient levels of variability to be able to test our hypotheses.

The second weakness concerns the fact that the majority of studies work with a unitary definition of inputs at the team level, on measuring and analyzing, for example, autonomy, interdependence or virtuality. In this context, how would we describe a case in which some members work with each other with high levels of interdependence, whilst others maintain a very low level of interdependence? This leads us to think about more refined and appropriate alternatives, such as asymmetries of interdependence (de Jong et al., 2007).

What we have just said about the characteristics of task designs is perhaps even more applicable to studies of diversity. Hidden beneath an indicator of unitary heterogeneity are two traps: a) What does an average or variance of individual characteristics represented in a team really mean? (Lau & Murnighan, 1998), and b) We assume an equivalent contribution of the different members of a team to their tasks and objectives, when this is not what we observe in reality (Katz, Lazer, Arrow, & Contractor, 2004).

Finally, for the same reason that the aspects which facilitate performance are not transferred directly to different types of teams in equivalent fashion (Cohen & Bailey, 1997), it is not clear whether certain types of behaviour associated with performance in traditional teams are maintained across different degrees of virtuality (Maruping & Awargal, 2004). An indication of this is illustrated by the extent to which virtual leadership receives attention from research. We may have to consider the possibility that the established leadership theories are not necessarily and directly applicable to teams with high levels of virtuality

**Opportunities.** Overcoming our weaknesses and converting our threats into opportunities involves research being sensitive to the complexity of work teams. In the case of diversity, we need to go beyond the mere aggregation of individual attributes and approach the study of diversity as a complex combination of such individual attributes (Lau & Murnighan, 2005). This will be helped by the future development of the diversity faultlines paradigm.

Likewise, we know very little about the interactive effects between task design variables; there are scarcely any studies, for example, on the interactive effects of different types of interdependence (congruence hypothesis) or the interactive effects of autonomy and interdependence (Langfred, 2005). In addition, taking

advantage of measures more sensitive to asymmetries and centralities, such those offered by social networks analysis (Scott, 2000), can help research respond to the differences and complexities of inputs in relation to teams.

Finally, it is surprising, given the volume of literature devoted to leadership, how little we know about how leaders create and manage work groups (Zaccaro, Rittman, & Marks, 2001). It may be that research needs to transcend the debate about the relative merits of external leadership and leadership based on team members, and consider leadership as a set of functions that need to be fulfilled and satisfied in teams (Mathieu et al., 2008; Day et al., 2004). This would probably lead to a shift in the emphasis of research questions toward an exploration of the complexity inherent to distributed leadership.

**Threats.** The principal threat we detect in this area of research concerns the apparent inability of current work to take into account the complexity inherent in the study of teams. In this regard, the role of time and changes in team composition have received scarce research attention. This becomes even more salient in view of the temporality inherent in many project teams, and multiple membership of different teams is increasingly common. This is a reality that clearly threatens our static, linear and one-directional approach to the study of work teams. In all honesty, we must take note of this reality, designing longitudinal studies that take into

**Table 1**  
**SWOT analysis for Inputs**

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>* Strong progress with the effects of task characteristics on mediators and final outcomes.</li> <li>* We now have an appropriate theoretical framework concerning the effects of leadership on teams.</li> <li>* The study of diversity has matured, presenting a complexity that is beginning to mirror that found in actual teams.</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>* The samples needed to study inputs must be sufficiently varied. It is not the quantity but the quality of the data that matters.</li> <li>* While we assume a unitary definition of inputs, we tend to pass over asymmetries and important differences (e.g. diversity, interdependence and virtuality).</li> <li>* We assume equal contributions from the different members of the team.</li> <li>* Studies of virtuality assume the direct transfer of theories developed in the area of traditional teams.</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>* Diversity will make it necessary to transcend mere aggregation and move towards a complex combination of individual attributes.</li> <li>* We know little about the interactive effects between task design variables (e.g. the interactive effects of interdependencies).</li> <li>* Analysis of networks as a response to the differences between and complexity of inputs at the team level.</li> <li>* Change in leadership research questions from the role of the leader to shared leadership. Rotation and integration of functions?</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>* The role of time on the effect of inputs has scarcely been examined to date.</li> <li>* Changes in the composition of teams and multiple team membership are common in organizations, but not on the research agenda.</li> <li>* Multinational corporations create multinational teams, which are differentially affected by diversity and culture.</li> <li>* The dynamics of today's organizations threaten our static approach to research.</li> </ul>

account non-linear dynamics as a strategy for the analysis of change.

Another aspect that emerges as a threat is constituted by the fact that multinational corporations bring into play multinational teams in which diversity and culture have differential effects (Gibson, 2003). What is surprising, though, is that there has been so little research about cultural influence on work teams.

### **MEDIATORS: PROCESSES, EMERGING STATES AND MIXED MEDIATORS**

Mediators consist in a set of psychosocial mechanisms that permit team members to combine the available resources for performing the work assigned by the organization, overcoming the difficulties involved in the coordination and motivation of their members. The study of mediators is a field likely to undergo considerable development in the coming years. Research is accumulating, and in spite of the current distinction between processes, emerging states and mixed mediators (Mathieu et al., 2008), there is still no consensus in the literature on the way in which mediators should be grouped.

**Processes.** Processes have played a central role in the most popular models of group effectiveness (Guzzo & Dickson, 1996; Hackman, 1983). Traditionally, they have been divided into task processes, which involve functions people must fulfil for the satisfactory performance of the team's task, and relational processes, which involve the interaction between team members (McIntyre & Salas, 1995). Based on this distinction, and in a multi-phase approach to processes, Marks et al. (2001) propose a taxonomy of team processes that identifies three categories: transition, action and interpersonal. We shall employ this distinction for reviewing the current state of the literature on processes.

Transition processes permit the team to prepare the stage for future action. Research efforts in this area have focused mainly on the generation of strategies and planning. In general, the empirical evidence shows how different aspects related to planning and the selection of a strategy, such as prior deliberation over plans, the anticipation of potential problems or the quantity of shared information and opportunities for participation offered to team members, correlated positively with team effectiveness (Janicik & Bartel, 2003; Mathieu & Rapp, 2009; Mathieu & Schulze, 2006; Pritchard, Jones, Roth, Stuebing, & Ekeberg, 2001; Tesluk & Mathieu, 1999).

Concerning action processes, research has essentially revolved around helping behaviours and distribution of workload, as well as coordination and communication. The relation between processes of coordination and communication and team performance has received considerable empirical support (LePine, 2003; LePine et al., 2008; Tesluk & Mathieu, 1999; Sánchez-Manzanares, Rico, Gibson, & Kearney, under review). The positive effect of coordination activities is especially significant when members are experiencing burnout (Rothrock, Cohen, Yin, Thiruvengada, & Nahum-Shani, 2009). In addition, studies about monitoring development and workload sharing have shown how such behaviours predict team performance (De Dreu & West, 2001; Porter, 2005), whilst social loafing threatens the achievement of team goals (Høigaard, Säfvenbom, & Tønnessen, 2006).

Finally, with regard to interpersonal processes, it is intrateam conflict that has captured most research attention over the last decade. There is clear consensus on the negative consequences of relationship conflict on performance (De Dreu & Weingart, 2003), whilst results on the effects of task conflict on performance are not totally conclusive (Jehn, Northcraft, & Neale, 1999), and suggest a curvilinear and more complex association with performance that would include the involvement of other emerging states, such as potency or trust (Gil, Rico, & Sánchez-Manzanares, 2008).

**Emerging states.** These are defined as cognitive, motivational or affective team states, more dynamic and variable in nature, in accordance with the context, inputs, processes and outcomes of the team (Marks et al., 2001). Studies about team potency, team efficacy, team climate, cohesion, trust and shared cognition have accounted for most of the research on emerging states.

Potency and team efficacy have been dealt with jointly, despite the fact that the former refers to a collective belief related to a team's capacity for being effective and the latter to that belief applied to particular tasks and contexts (Kozlowski & Ilgen, 2006; Shea & Guzzo, 1987). A relatively recent meta-analysis showed how the two variables maintain a moderately positive relationship with performance, on which team interdependence exercises a positive and augmentative modulation (Gully, Incalcaterra, Joshi, & Beaubien, 2002). Another recent study (Tasa, Taggar, & Seijts, 2007) provides support for the way collective (or team) efficacy, together with self-efficacy for teamwork and task-relevant knowledge, predicts members' team-oriented behaviours, which in turn increase the



perception of collective efficacy, and contribute significantly to team performance. These results are in support of the thesis defended by Marks et al. (2001), according to which emerging states are not in themselves group processes.

Team identity is defined as the degree to which a person defines him or herself as a member of a particular team. This emerging state has been proposed as a mediating variable between team diversity and voluntary reduction of group-oriented efforts (e.g., social loafing), especially in virtual work environments (Shapiro, Furst, Spreitzer, & von Glinow, 2002). Recent results have corroborated how team identity orients members toward the group as a whole, restricting unproductive behaviours and generating a larger number of cooperative behaviours than would be found in members with lower levels of identification with their team (Eckel & Grossman, 2004).

Team climate is defined as the set of perceived norms, attitudes and expectations operating in a given social context (Pirola-Merlo et al., 2002). Its study has been refined over the last ten years or so, with the emergence of concepts such as climate strength (González-Romá, Peiró, & Tordera, 2002) and the flourishing of specific climate dimensions, such as climate for innovation, safety climate or justice climate. As regards climate for innovation (Anderson & West, 1998), the best predictor of work team innovation assessed externally has been the support for innovation dimension (Burningham & West, 1995). Safety climate has provided a significant level of prediction with regard to accident rate in the group (Zohar, 2000), and also from a multilevel perspective, predicting individual-level changes related to safety motivation (Neal & Griffin, 2006). Finally, justice climate is directly and significantly related to team performance and inversely to absenteeism (Colquitt, Noe, & Jackson, 2002), and also has cross-level effects that predict commitment to the organization at the individual level (Yang, Mossholder, & Peng, 2007).

Cohesion, defined as team members' commitment to one another, or to the task, has been one of the most widely studied emerging states. Recent meta-analyses, such as that of Beal, Cohen, Burke and McLendon (2003), which examined studies carried out over the previous 50 years, showed corrected mean correlations of cohesion with general performance and performance behaviours of .17 and .30, respectively. In spite of these global results, another recent meta-analysis shows that type of team and type of organizational context influence level of cohesion and subsequent

performance, finding that the effect size for project teams working in organizational and academic contexts is greater than that for production teams and service teams (Chiochio & Essiembre, 2009). Cohesion has also been studied as a mediator in the relationship between transformational leadership and performance (Bass, Avolio, Jung, & Berson, 2003).

Trust is another emerging state that has received a good deal of research attention in recent years. It is defined as the willingness of a trustor to be vulnerable to the actions of a trustee based on the expectation that the trustee will perform a particular action relevant for the trustor, regardless of the trustor's ability to control the actions of the trustee (Mayer, Davis, & Schoorman, 1995). Research efforts have focused on revealing its modulatory nature between different organizational inputs, such as the benefits of training or the team's levels of autonomy, and performance (Kirkman, Rosen, Tesluk, & Gibson, 2004; Langfred, 2005). Likewise, in the context of research on virtuality, there has been considerable interest in how trust develops (Jarvenpaa & Leidner, 1999; Jarvenpaa, Shaw, & Staples, 2004; Wilson, Strauss, & McEvily, 2006) and on the modulating role of task interdependence on its development (Rico, Alcover, Sánchez-Manzanares, & Gil, 2009).

Collective cognition is another area on which there is a large body of research (Mathieu et al., 2008), being especially notable in the field of team mental models (TMMs). TMMs are defined as the mental representation of knowledge that is shared by the members of a team (Mathieu et al., 2005). They are classified in two main types, task-related and team-related, and whose positive effects on performance are indirect and direct, respectively. Also, field studies have shown the interactive effect between the two types of TMM on safety at work and efficiency (Smith-Jentsch, Mathieu, & Kraiger, 2005). Recent developments in the study of TMMs have revealed the importance of a further distinction: the extent to which TMMs are shared and accurate (Lim & Klein, 2006). In this connection, research has shown how greater accuracy of TMMs increases predictive capacity more than greater similarity ("sharedness") (DeChurch & Mesmer-Magnus, in press; Edwards, Day, Arthur, & Bell, 2006). Finally, TMMs have been postulated as a key element for understanding the mechanisms of both implicit and explicit coordination in work teams (Rico, Gibson, Sánchez-Manzanares, & Clark, 2009; Rico, Sánchez-Manzanares, Gil, & Gibson, 2008).

**Mixed mediators.** There is a group of mediators which are not easily classified in the two above categories, given that they involve a mixture of processes and emerging states. In our review we shall consider two of them: learning and transactive memory.

Team learning represents a continuous process of reflection and action through which teams acquire, share, combine and apply knowledge (Edmondson, 1999). The literature on team learning has shown its positive associations with quality of the relations among team members and with performance (Zellmer-Bruhn & Gibson, 2006). Likewise, research has revealed the mediating role of such learning between psychological safety and performance (Edmondson, 1999) and the degree to which it is facilitated through coaching mechanisms (Hackman & Wageman, 2005).

Transactive memory systems (TMSs) are made up of the knowledge and skills contributed by different members of the team, as well as the knowledge they possess on the distribution of that knowledge and those skills among them (*who knows what* in the team). Recent works reveal that teams which communicate more frequently generate more potent TMSs (Lewis, 2004; Yoo & Kanawattanachai, 2001), which are related to both performance and viability (Lewis, 2004). The construct has developed in such a way that, as in the case of TMMs, there are considered to be different types of TMSs, related to the task and to the team's external relations (Austin, 2003). Finally, recent research

developments have extended the role of TMSs to the transfer of team members' previous learning (Lewis, Lange, & Gillis, 2005), and have shown the mediating role it plays in the relation between task overload and team performance and between functional communication and performance and satisfaction (Ellis, 2006; Sánchez-Manzanares et al., 2006).

## SWOT ANALYSIS OF FINDINGS RELATED TO MEDIATORS

While the previous section provided an account of the principal research results on the mediating mechanisms of team effectiveness from the last decade, in the present section we shall briefly analyze the main weaknesses, threats, strengths and opportunities presented by research in relation to mediating mechanisms in work teams. Table 2 offers a summary of the SWOT analysis carried out.

**Strengths.** Fortunately, models are available that provide an integrative and temporal framework for team processes (Kozlowski & Bell, 2008; Marks et al., 2001), which can guide us and give greater temporal sense to the measurement of mediators. We also know that some indicators are more reliable than others in the assessment of mediators (Tesluk et al., 1997); for example, emerging states such as potency or cohesion can be evaluated through self-assessments, monitoring or coordination behaviours can be identified through observation of the team's usual functioning, and planning or communication processes can be assessed on the basis of archives in which the team's activity is recorded.

**Weaknesses.** Research on team processes is fragmented, with only two works that have proposed and substantiated an integrative framework for them (Marks et al., 2001 and LePine et al., 2008), and there are scarcely more than three articles that consider in joint fashion more than one global dimension of processes (Mathieu et al., 2008). One of the most notable weaknesses is the high correlation between team processes, between emerging states and between the latter and the former, especially when they are measured at the same time and using the same informants (LePine et al., 2008). Such a situation should lead us to reflect seriously on techniques and time points for the measurement of the different processes.

**Opportunities.** Studying the moments in time at which different processes and emerging states are critical for understanding team performance provides a clear opportunity for developing research and designing

**Table 2**  
SWOT analysis for Mediators

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>* We have models that provide an integrated framework for team processes, and models of evolutionary phases.</li> <li>* We know that some indicators are more reliable than others:</li> <li>* Emerging states such as potential and cohesion can be measured using self-assessments.</li> <li>* Monitoring and coordination behaviors can be observed.</li> <li>* Planning and communication processes can be obtained from archive sources.</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>* Research into team processes remains fragmented.</li> <li>* Research results suggest that team processes are highly correlated.</li> <li>* Emerging states also appear to be highly correlated.</li> <li>* Processes and emerging states are also correlated, especially when they are measured at the same time through the same informants.</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>* Investigate the moments when different processes are critical for our understanding of team performance.</li> <li>* Time-based and multi-level studies are urgently needed.</li> <li>* Triangulation would help us eliminate problems derived from the use of unique information sources.</li> <li>* Different sources could be used for different constructs.</li> <li>* Emerging states. How do they emerge? How do they develop? How long do they head off problems given their stage of development.</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>* The high level of multicollinearity observed causes problems with regard to hidden variables.</li> <li>* Problems of discrimination validity hinder theoretical and empirical progress.</li> <li>* These problems compromise the degree to which research design allows us to understand the explanatory capacity of mediators.</li> </ul>

applied solutions that respond to the demands of work teams. In addition to incorporating temporal designs in our research proposals, it is necessary to use measurement techniques based on the triangulation of indicators that minimize single data source problems and maximize the discriminant and predictive validity of different mediators.

Finally, being more sensitive to temporal aspects requires making progress in the study of the emergence and development of emerging states. If emerging states do not develop in linear fashion, should we consider inflection points? If emerging states emerge, how do they do so? How does trust emerge? How does it develop? How resistant is it to violations that may occur as the team develops?

**Threats.** Multicollinearity seriously threatens the validity of the results yielded by studies on different mediators, in at least 3 different ways: first, due to the existence of mediators that function as masked variables, preventing us from knowing whether the effect of a process is due to another process, not controlled in our analyses; second, we do not know whether informants are capable of making and recognizing the differences between the various processes about which they are asked; and third, the high correlations between the mediators clearly reveal our difficulties for applying temporal designs that permit us to measure the mediators strategically at the point at which they actually affect outcomes (LePine et al., 2008).

## TEAM OUTCOMES

The outcomes achieved by the team are usually considered from a multidimensional and multi-level perspective (Mathieu et al., 2008). Generally, effectiveness is analyzed in terms of work outcomes, as objectively assessed performance (using specific indicators or expert personal external to the team). But it also includes outcomes that help to maintain the group's performance over time, such as member satisfaction, viability (degree to which team members want to stay together) and innovation (Gil, Rico, & Sánchez-Manzanas, 2008). It is important to stress how systematic the literature on teams has been in identifying antecedent and mediating variables and how unsystematic it has been in dealing with outcomes (Mathieu et al., 2008). Therefore, we adopt an approach that summarizes team outcomes on three levels: organizational, team-related and role-related, and for three basic types of outcome: functioning (relevant

actions for achieving outcomes), performance (comprising the consequences of functioning) and attitudes. We propose a 3x3 matrix to account for the development of the literature on this aspect.

**Individual-level outcomes.** Here we can identify two main categories; those which have to do with the requirements of the role fulfilled by the team members, and those which inform us of their affective reactions. With regard to role-fulfilment outcomes, recent works show how this indicator can be used satisfactorily for measuring individual performance and comparing it between different teams (Chen, 2005; Chen et al., 2007). As for the affective reactions of team members, satisfaction with the team, the job and the organization, together with organizational commitment, are the indicators that have attracted most research attention (Kirkman & Rosen, 1999; Tesluk & Mathieu, 1999).

**Team-level outcomes.** At this level we could identify team performance and results (Beal, Cohen, Burke, & McLendon, 2003); and team viability (Balkundi & Harrison, 2006). Referring to performance, the most noteworthy outcomes are those related to the improvement of processes, to learning and to cognitive performance. For example, the improvement of processes is assessed by measuring the pursuit of feedback, the discussion of errors or experimentation (Kirkman et al., 2006), the processing of task-relevant information (Homan et al., 2006), learning (Edmondson, 1999), the quality of decisions (Jehn & Shah, 1997) or proactive behaviour (Kirkman & Rosen, 1999).

Considering team results, the measures used are extremely diverse, ranging from external assessment of service quality by clients (Kirkman, Tesluk, & Rosen, 2004) or supervisors' ratings of performance, quality or innovation (Langfred, 2000; Mathieu, Gilson, & Rudi, 2006; Tjosvold, Tang, & West, 2004) to archive-based indicators relating to innovation or production (Mathieu et al., 2006; Perreti & Negro, 2007). One of the aspects of team performance most widely studied in recent years has been innovation, defined as the generation and implementation of new ideas (West & Farr, 1990). Quite recently, Hülsheger, Anderson and Salgado (2009) carried out a meta-analytic review of 30 years' results of research on innovation. This work analyzed inputs and team processes as antecedent variables, and the modulating effect of different methodological aspects related to the studies. Three principal findings emerged: a) external and internal communication, support for innovation, task-orientation and cohesion are team processes related significantly and in generalizable

fashion to innovation in the team; b) goal-interdependence, job-relevant diversity and team size are inputs leading to innovation in the team, though with a weaker relation than the processes cited previously; and c) the main effects described, for both processes and inputs, are modulated by the level of analysis at which the variables are measured. Thus, the relations between the variables of team processes and innovation are stronger if we consider innovation at the team level, rather than at the individual level. In addition, the relations are stronger if self-reported indicators of innovation are used, as against objective or external indicators.

Defining viability as team's ability to stay together in the future, we find it remains a popular outcome at the team level, combined also with other affective and attitudinal measures (Balkundi & Harrison, 2006; Barrick, Bradley, Kristof-Brown, & Colbert, 2007). Nevertheless, due to its self-reported nature, it does not tend to appear as a primary criterion in research. The problems persist when viability has been assessed externally. In this case it is substantially lacking in discriminant validity on being compared with other affective responses about team performance (Mathieu et al., 2008).

**Organizational-level outcomes.** Finally, we note the very recent incorporation of this aspect into team research literature, despite the fact that for management teams it should be an essential element of reference.

Furthermore, the growing interest in multi-team systems in organizations makes it necessary to generate compilation models that show us how different team outcomes combine to produce organizational benefits (Mathieu et al., 2008). In the meantime, we can refer to how different mediators of teams, such as communication, cohesion or team goals achievement, have positive effects on the organization's financial ratios, performance and global benefits (Barrick et al., 2007; Bunderson & Sutcliffe, 2002; Srivastava, Bartol, & Locke, 2006).

### SWOT ANALYSIS OF OUTCOMES FINDINGS

Finally, we analyze the main weaknesses, threats, strengths and opportunities of work team outcomes in the last decade. Table 3 summarizes the results of the SWOT analysis carried out.

**Strengths.** Two principal strengths emerge from the analysis of the literature on team outcomes from the last decade. On the one hand, the appropriate distinction between team-level outcomes and outcomes based on role demands, which permits the comparison between different teams in the same and different organizations. And on the other, the development and presence of multi-level models (Kozlowski & Klein, 2000), allowing the creation of large numbers of effectiveness measures at the team level.

**Weaknesses.** Research on team outcomes reveals a lack of definition and development compared to the cases of inputs or mediators. Self-reported criterion variables are used profusely, but they are difficult to justify, with so many objective indicators of team performance available. Paradoxically, we can observe a limited presence in the last decade of affective measures of outcomes, which would indeed justify the use of self-report measures. Finally, considering weaknesses that have appeared in inputs and mediators, the effects of temporal dynamics on team outcomes are still not well understood. It is not clear whether performance measured a couple of months after administering a questionnaire for gauging inputs or processes means the same as if it is measured one year later (Mathieu et al., 2008). Also, despite the fact that experimental and field studies obtain repeated measures, these are obtained in "blind" fashion (Johnson, Hollenbeck, Humphrey, Ilgen, Jundt, & Meyer, 2006) and are of little use for explaining the dynamics of the team's task.

**Opportunities.** The acknowledgement of the multiple functions developed by work teams should encourage the use of composite measures (of the *balanced*

**Table 3**  
SWOT analysis for Outputs

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>* Appropriate differentiation of team-level and role-demand based outcomes, allowing comparison between teams.</li> <li>* Development of multi-level models allowing the creation of effectiveness measures at the level of the team.</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>* Use of poorly specified self-reporting criteria.</li> <li>* Scant attention to the measurement of affective outcomes over the past decade.</li> <li>* Discrimination validity problems, especially between measures of affective outcomes.</li> <li>* We do not clearly understand the dynamics of time in team outcomes.</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>* Application of compound measures and synthetic indicators to outcomes (e.g. balanced score card).</li> <li>* Development of robust, generalizable and organizationally relevant measurement criteria.</li> <li>* Appropriate definition of performance, based on the variables and organizational contexts measured in each case.</li> <li>* Longitudinal designs and models based on non-linear dynamics to help us understand and use multi-phase and team development models in our research. What and when to measure?</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>* Scant evidence for the impact of outcomes at the organizational level. What is the actual contribution made by teams?</li> <li>* Organizations are increasingly interested in understanding the effective coordination of multi-team systems with a view to attaining organizational goals.</li> </ul>

*scorecard* type) and synthetic indicators of outcomes (Kirkman et al., 2004). This will make it possible to develop robust, generalizable and organizationally relevant criteria along the lines of Pritchard's (1995) ProMES proposal, which linked in weighted fashion the multiple functions of teams and their organizational relevance.

Finally, the study of outcomes can also benefit from the design of models based on non-linear dynamics that help us to understand and link our research to multi-phase and team-development models. It is not the same to measure the extent to which a team innovates in early phases of a product's development as it is in the later phases (Gilson & Shalley, 2004). Once again, therefore, the question resides in the appropriate definition of what is measured, when, and in which organizational context.

**Threats.** In spite of advances in multilevel models, the literature has not developed models for determining how team processes and outcomes jointly affect benefits. In this regard, there is an underlying interest in identifying the real contribution of teams to organizational effectiveness (Mathieu et al., 2008).

In line with the above, there is growing concern in organizations with multi-team systems (Hollenbeck, 2009), essentially revolving around the availability of a framework for understanding how the set of teams making up an organization contribute to its effectiveness (Rico & DeChurch, submitted), be it in exceptional circumstances (teams in situations of crisis or emergency) or in normal circumstances (a constellation of design, production or sales teams).

## DISCUSSION

Strategic, economic and technological changes restructure organizations around teams as basic work units. Their effectiveness and the understanding of the challenges posed by multi-team systems constitute key factors for the success of contemporary organizations.

Current theoretical approaches coincide in considering teams as complex adaptive systems, whose efficacy depends on interactions between different inputs, processes, derived emerging states, mixed mediators and outcomes. However, studies in the field of work teams have tended to concentrate on inputs and outcomes, even though research efforts and progress have been more limited in the latter case. Also, although research into mediators has been proportionately less intense, processes and emerging states have received increasing attention from researchers in recent years. This has resulted in decisive progress in the study of team

cognition, though more research is needed on the antecedents, effects, assessment methods and improvement of such cognitive processes. Theoretical developments concerning emerging emotional states remain precarious, and few studies have examined their impact on team effectiveness. Finally, despite the importance given to the long-term functioning of teams, longitudinal studies or those focused on dynamic aspects of team membership continue to be the exception. Meanwhile, only a minority of studies use measures based on network analysis that are sensitive to the asymmetries inherent in the day-to-day functioning of work teams. A similar limitation can be observed in relation to multi-level studies, which are relatively thin on the ground. It would seem essential, then, to foster research into the ways in which individual behaviors and their interactions result in the emergence of phenomena on different levels, and how these influence behaviors at the collective or group level (Morgeson and Hofmann, 1999). The perception of self-efficacy, potency and collective efficacy, and its relationship with individual and team performance is a clear example, but by no means an isolated one in the context of team functioning (Lindsley, Brass and Thomas, 1995; Tasa et al., 2007).

In this work we have used the IMOI model as a basis for structuring our review of the state of research on the effectiveness of work teams, despite the fact that this model is not without its critics, who point to, among other aspects, the immaturity of its formulation, the scarcity of data to support it and its radical divergence from the traditional IPO model, not to mention its questioning of some fundamental notions in social science, such as the nature of causation (Salas et al., 2009). Nevertheless, it is a promising conceptual framework of great heuristic value, and bearing in mind the need for the integration of studies on team effectiveness, as demanded by prominent authors (Nielsen et al., 2005; Salas et al., 2009; Salas & Wildman, 2009; Weingart & Cronon, 2009), the IMOI model may be the candidate to meet these demands for articulating research in this new decade.

Having reviewed the scientific literature, it would seem relevant to open a debate addressing the question of whether models of work team effectiveness should take on a more contingent nature that takes account of the characteristics and peculiarities of each context. Assuming that the team variables and processes influencing effectiveness are the same in all contexts seems unrealistic, as well as contradicting the organizational literature, which for decades has

acknowledged in its modelling the importance of contingent factors in designs and analysis relating to organizational effectiveness. Some efforts are being made in this direction – such as in the development of a specific model on team effectiveness in complex contexts like the military (see, for example, the Command Team Effectiveness model, proposed in the NATO framework by Essens and cols., 2009) – but in general, authors still talk about *a team effectiveness model*, without making much distinction between different contexts.

One aspect that deserves more prominence is reflected in the recent suggestion by Moreland and Levine (2009) concerning the need to *build bridges* in research on groups – a notion easily extensible to the specific case of teams. Thus, it would be interesting to *build bridges across time*, recovering models and results from traditional research and integrating them in current approaches; to *build bridges between phenomena*, in reference to the need to include more variables (on inputs, processes and outcomes) in designs and not confine ourselves to analyzing the relations – sometimes obvious – between just a few variables; and to *build bridges between disciplines*, so that the richness of research on teams carried out in different fields becomes more integrated, and helping to avoid researchers in one discipline “discovering” phenomena that are known only too well in others. And to consider a further aspect mentioned by these same authors: what is preferable: for researchers to discover a new, “their own” phenomenon? Or to explore and understand in more depth the phenomena already identified? Although the former may seem more exciting, especially for younger researchers, some reflection might be advisable before setting out to describe (supposed) new phenomena and conceive of new constructs (Moreland & Levine, 2009).

Another need related to integration in this field concerns communication and integration between *academic* and *applied* research, with a view to overcoming the traditional *researcher-practitioner gap* (Anderson & Wheelan, 2005), whose principal consequences are, on the one hand, *atheoretical* and *empiricist* interventions, without conceptual support and in which it is difficult to demonstrate the relations between variables, and on the other, the formulation of models that are theoretically and scientifically irreproachable, but overly complex and divorced from the reality of teams in real organizations, with quite limited potential for empirical verification.

Finally, a further aspect it would be necessary to promote is the systematic study of how systems of training and education in skills and competences for team work influence the effectiveness of teams, as well as the research-intervention approach framed within techniques of *team coaching* (Tilin & Sumerson, 2005), aimed at both the training of members and the development of the team.

In conclusion, the real demands of current organizations and the new forms of work organization (e.g., teams with high degrees of virtuality, the role of culture, new styles and strategies for motivating and leading teams, multi-team systems, or the impact of teams on organizational effectiveness) are ahead of theoretical and methodological developments. Nevertheless, the enormous interest generated by topics related to work teams, as the new axis of organizational management, heralds a bright future for research in this field.

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