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Desde Europa a Norte América y Asia: Sobrepasando los obstáculos de Equipos Interdisciplinarios y Multiculturales a través del proceso impulsado por el diseño

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Résumé de l'article

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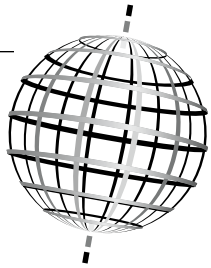

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Desde Europa a Norte América y Asia: Sobrepasando los obstáculos de Equipos Interdisciplinarios y Multiculturales a través del proceso impulsado por el diseño

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ABSTRACT

Designing a global product is complex: variations in human factors, cultural preferences, organizational patterns and production processes impact assignment complexity from design brief to product launch. Based on a longitudinal case study, this paper examines how a design-driven process enabled a multicultural distributed project team meeting high expectations and business goals. Three factors positively impacted team performance: the design-driven process that allowed for "iterative thinking", the use of shared visual communication tools and the reflective leadership style. The case study also suggests that a design-driven process offers a peculiar context for team members to build-up cross-cultural competences on past experiences.

Keywords: global design, design-driven process, multicultural teams, global projects leadership, organizational structure, product development.

RÉSUMÉ

Le design d'un produit global est complexe: les variations liées aux facteurs humains, préférences culturelles, modèles organisationnels et processus de production augmentent la complexité, depuis le cahier des charges jusqu'au lancement produit. S'appuyant sur une étude de cas longitudinale, ce papier examine comment une équipe projet distribuée et multiculturelle a atteint des objectifs exigeants en suivant un processus design-driven. Trois facteurs ont positivement influencé la performance: la "pensée itérative", l'utilisation d'outils de communication partagés et le style de leadership réflexif. L'étude de cas suggère également que le processus design-driven permet de solidifier les compétences interculturelles sur la base des expériences passées.

Mots clés : design global, processus design-driven, équipes multiculturelles, leadership de projets globaux, structure organisationnelle, développement produit.

RESUMEN

Diseñar un producto global es complejo: variaciones en los factores humanos, preferencias culturales, patrones y procesos de producción aumentan la complejidad de las asignaciones desde el problema de diseño al lanzamiento del producto. Basado en un estudio de caso longitudinal, este artículo examina como un proceso impulsado por el diseño permite a un equipo de proyecto multicultural distribuido de cumplir con los objetivos de negocio. Tres factores impactaron positivamente el rendimiento del equipo: el proceso impulsado por el diseño que permitió un "pensamiento iterativo", el uso extensivo de herramientas compartidas de comunicación visual y el estilo de liderazgo reflexivo. El estudio de caso sugiere que un proceso impulsado por el diseño ofrece un contexto peculiar para los miembros del equipo para construir competencias transculturales de pasadas experiencias.

Palabras clave: diseño global, proceso impulsado por el diseño, equipos multiculturales, proyectos globales, liderazgo, estructura organizacional, desarrollo de productos.

The use of multicultural project teams to design, develop and implement global scale initiatives has become widely spread and recognized as one of the most appropriate operating model to leverage locally distributed resources. Project teams are frequently formed to address multifaceted issues, solve complex problems and generate creative solutions as members are generally chosen based on their specific skills and competencies (Zander & Butler, 2010). The "think global, act local" mantra is a referential framework for the implementation of business processes or new organizational structures, when company growth requires strong integration of local market content in its offering and customer facing decision processes. In this quest, the path of least resistance for many organizations has led to decentralize the product and marketing management functions to local markets, granting to local teams the cultural representation of needs. Although it serves the purpose - i.e. local customers find

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local offering to their liking - it comes with the risk of brand dilution and perceived offering discrepancies over time. Hence, when global project teams are governed by strong brand identity requirements, standardization - the ability to offer the same product in any place in the world - or local needs integration -the ability to integrate local variables into the process- are either way sources of performance challenges.

To better understand the positives and negatives affecting project team performance, much of the literature dives into the sources of national cultural differences, compares cross-cultural management and the role of leadership across cultures or describes solutions to overcome communication barriers. However, there are very few case studies referenced to help multicultural project teams leaders understand the day-to-day teams conundrums or to learn about actionable, rigorous project leadership processes.

This paper is written with Donald Schön's reflective practitioner discipline in mind. "Competent practitioners usually know more than they can say. They exhibit a kind of knowing in practice, most of which is tacit. Indeed, practitioners themselves often reveal a capacity for reflection on their intuitive knowing in the midst of action and sometimes use this capacity to cope with the unique, uncertain, and conflicted situations of practice" (Schön, 1987).

It demonstrates how a design-driven process helped a distributed multicultural project team reach high levels of performance and deliver results in time.

It is drawn upon an in-depth, longitudinal case study run over twenty-four months, which highlights some patterns of behaviors and decision processes that occurred in the course of a large, product development project.

The remainder of the paper is structured as follows. First, it briefly refers back to existing literature on interdisciplinary and multicultural project teams challenges and the theoretical framework of multicultural distributed teams is discussed. Next, the case study methodology is presented and a thick chronological narrative is provided. The third part highlights the results; finally, the paper discusses the limits of the study and offers managerial recommendations.

Large Interdisciplinary and Multicultural Distributed Project Teams performance challenges

The virtual context has enabled teams to complete tasks more efficiently and quickly than even before, and access the best resources and people in locations around the globe (Zander et al., 2012). No matter where the members reside: North or South, East or West, as long as they have access to computing devices, high speed Internet and are able to speak a common language, they share conditions for potentially working together. While the need for high-performance global teams is a reality for many organizations, achieving desired outcomes is difficult: according to a global study from Govindaran and Gupta (2001), only 18% of 70 teams surveyed claimed to be successful. Since such teams are multicultural in composition and virtual in action, they stand at the crossroads of two literature streams: multicultural team research and virtual team research (Steers, Sanchez-Runde & Nardon, 2010). On the nature of cultural differences and the notion of distributed teams and their impact on team performance, distance and culture are generally perceived as the two aspects critical to team effectiveness in a global context, two boundaries that global organizations must cross (Cogburn & Levinson, 2003); while some findings suggest that cultural differences matter, other research suggests that they may not, particularly when it comes to teams that experience high trust or regular communication (Connaughton and Shuffler, 2007). On the multicultural aspect of such teams, Geert Hofstede and Fons Trompenaars have set a highly respected reference point in their studies of cultural phenomena impacting intercultural communications and behaviors, highly influenced by the culturalism school of thought and research from Kluckhohn (1961). Fons Trompenaars (1997) researched cultural diversity in business context and a useful way of thinking about where culture comes from: culture is the way by which groups of people solve problems and reconcile dilemmas. He defines cultural diversity under six meta-dimensions: universalism versus particularism, individualism versus communautarism, specificity versus diffusion, achieved status versus ascribed status, inner direction versus outer direction and sequential time versus synchronous time. His latest discovery highlights that cultures are not arbitrarily different or randomly different from one another. They are mirror images of one another values, reversals of the order and sequence of looking and learning (Hampden-Turner & Trompenaars, 2000). But these values-based, cultural differences are often below the level of consciousness so some of their effects may not be recognized (Stahl et al., 2010). Therefore, understanding and applying the learning from Trompenaars is grounded in an abstract, albeit descriptive, nature of differences and often appears difficult to grasp for multicultural teams and their leaders, over the length of a project life. In addition, the importance granted to cultural diversity management within a global organization varies among employees: when it comes to understanding the importance of cultural diversity in business, Joshi & Lazarova (2005) in their study of multicultural teams in a single corporation around the globe identified that managing cultural diversity was mentioned as important by 65% of team leaders, but only by 5% of members. Evidently, leaders perceive cultural diversity management as part of their responsibilities, while team members see priorities elsewhere: when asked, people tend to assume that challenges related to cultural diversity arise from differing styles of communication; but this is only one of the four categories that can create barriers to a team's ultimate success. The four categories mentioned are: direct versus indirect communication; trouble with accents and fluency; differing attitudes toward hierarchy and authority; and conflicting norms for decision-making (Brett et al., 2006).

In the distributed - also referred to as virtual - team literature, while distance amplifies dysfunction (Davis & Bryant, 2003), Chudoba et al. (2005) do not find a relationship between team distribution and team performance—to them, the latter of which includes mutual trust, effectiveness of communication, commitment and contributions of team members, and quality and punctuality of team products. But data communication and interpretation errors are one of the highest source of conflict in international multicultural teams management: virtually, all communication problems and conflicts between people, no

matter how serious they appear, are due to an accumulation of un-confronted and unresolved minor issues, each of little or no apparent importance (Mayer, 1974). Therefore, shared identity, shared context, and spontaneous communication have been found to moderate the effects of distribution on both task and affective conflict (Hinds & Mortensen, 2005). The Hinds and Mortensen (2005) study is noteworthy, for it represents one of the few empirical works that compares processes in collocated teams and in distributed teams. In fact, description of leaders "aptitudes" is often referred to as: able to provide direction and inspiration from a distance (Zander et al., 2012); facilitate interaction between team members and resolving conflicts (Hajro & Pudelko, 2010); excellent asynchronous communication skills and effective in synchronous and face-to-face communication since there are often limited opportunities for such interaction (Davis & Bryant, 2003); technology savvy, engaging, culturally sensitive and approachable by communicating often with all members (Davis & Bryant, 2003; Jonsen et al., 2012). But when it comes to understand "how to" actually lead such teams, particularly when the combination of both multicultural and distributed teams is at stake, only few scholars have researched to date, this combination: it appears under several topics including cognitive processes, communication technologies, group dynamics, homophily, human resources capital, identity, innovation, knowledge transfer, leadership, time, and trust (Connaughton and Shuffler, 2007). Many multicultural teams mention that training about cultural differences often did little more than increase awareness about why others were different from one's native culture, rather than identifying the core issues at stake. Indeed, the short life of a project, even expressed in few years, cannot inform about underlying assumptions that team members might or might not even know about themselves. Plus, the wrong kind of managerial intervention may sideline valuable members who should be participating or, worse, create resistance, resulting in poor team performance (Brett, Behfar & Kern, 2006).

The latter topics call for forging a better understanding of the leadership tenets allowing multicultural distributed project teams to reach high levels of performance. Unfortunately, research on global and virtual team leadership in particular, is lagging behind (Malhotra et al., 2007). The combination of multinational, multilinguistic and multicultural team dimensions, and a geographically dispersed virtual context, leads to teams of a different kind, as team complexities and dynamics are not just amplified, but new leadership challenges are introduced (Zander et al., 2012). In their study of multicultural Global Virtual Teams from Europe, Mexico and the United States, Kayworth and Leidner (2001-2002) found that effective global team leaders act as mentors, are communicative and are able to manage multiple leadership roles. They are also empathetic and possess both a task-focus and relational skills. They must be able to instill a sense of community or personal connection in the team to develop trust (Zander et al, 2012). In fact, these leadership traits carry strong commonalities with those of leaders in charge of *design and development* projects; more precisely, leaders' ability to lead interdisciplinary Research and Development (R&D) teams, which are, almost always, distributed. Albeit not necessarily diverse by nationality, such teams are culturally diverse in the demonstration of their own set of references to values and underlying assumptions (Schein, 1985). Thus, the nationality-based cultural diversity layer, when it comes to leading globally distributed teams becomes an additional parameter to integrate, not so much in term of cultural issues to manage, but more so in term of communication barriers to overcome. To that extend, in a comparative study of European project groups, Chevrier suggests an ad hoc method to enhance the functioning of cross-cultural projects; a cultural mediator would help teams with the construction of cross-cultural patterns, based upon a structured examination of the cultural sense-making processes of project members. Such a mediator would invite participants to regularly think of problematic situations that they have encountered. Hence, the process of collective construction of local solutions would integrate cognitive understanding of others and involvement into actions (Chevrier, 2003).

A design process is best described metaphorically as a system of spaces rather than a predefined series of orderly steps (Brown, 2009), quite different from the linearity of a market-driven process. It researches and diverges into areas of potential exploration and requires relentless back and forth confrontation against a preliminary defined vision. Over time, by reducing a broad range of prospective ideas to clearly defined problems, it generates multiple concepts and solutions to promising problem areas that become the basis of design projects and business strategies. The process progresses through iterative and creative thinking, multiple modeling and prototyping and testing phases, to eventually reach a development phase and market launch. Design is a search process for prospective solutions, i.e. a search for the best possible alternative to solve a given problem (Schön, 1987). In consequence, a design driven process consists of alternative suites of divergent and convergent thinking. Divergent processes are those that bring different values and ideas into the team and juxtapose them with each other (Canney Davison & Ekelund, 2004). Some teams find ways to work with or around the challenges they face, adapting practices or attitudes without making changes to the group's membership or assignments. Adaptation works when team members are willing to acknowledge and name their cultural differences and to assume responsibility for figuring out how to live with them (Brett et al., 2006).

While the creativity phase of a design initiative requires divergence (benefiting from the variety of personalities and experiences involved), designers are actually masters at leading the part of the process requiring convergent thinking: convergent thinking welcomes conflicting views, so as to surpass the points of conflicts and allow for new solutions to emerge. What separates designers from other creative minds is their ability to know "where to start", and to see opportunities at the intersections. It is then up to the design project team to evaluate, discuss and elaborate solution sets built upon these convergences. When it comes to collaboration and team performance, teams with greater diversity tend to have a more collaborative conflict management style, and have more in-depth discussions before making decisions to understand all of the diverse contributing perspectives (Paul et al., 2005). This suggests that cultural diversity leads to process losses through task conflict and decreased social integration, but to process gains through increased creativity and satisfaction (Stahl et al., 2010).

Literature research on large interdisciplinary, multicultural distributed project teams, while recognizing its growing benefits for multinational firms, highlights that the main performance challenges appear to originate from cultural diversity management, team members' geographical distance and project team leadership. Then, how could leaders positively integrate the dilemma stemming from cultural diversity and distance, while ensuring project performance and deliverables? The following case study highlights answers to these points over the time of a real-life project.

Method: a longitudinal single-case study

The distinctive need for case study arises out of the desire to understand complex social phenomena; the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events (Yin, 2003). In particular, a major strength of case study data collection is the opportunity to use different sources of evidence, because it allows an investigator to address a broader range of historical, attitudinal and behavioral issues (Yin, 2003).

This case study research is based on qualitative data collected over a period of 24 months. The longitudinal case illustrates people and information management practices in the context of a large scale, global innovation project development, with a particular emphasis on easing collaboration between four teams distant from each other: three groups residing in mature economies, United States, United Kingdom and Germany, and one group residing in China.

Data collection has been performed under the form of different "sub-methods", namely: observations, document and record analysis - weekly meeting minutes, monthly progress reports written by the core team leader-, video captures of project team meetings and on-spot interviews with project team members.

Data analysis

The narrative strategy elaborated from raw data reports the evolution of the project team under a thick description that shall allow the reader to judge the transferability of the ideas to other situations. In particular, the chronological narrative describes how the sequence of actions stemmed from a reflection in action practice, under which the team leader analyzed the actions during the process and reflected on how new parameters would impact current knowledge.

Case study: a context for a new work chair

Between 1996 and 2003 a US-based company sold million units of what was then the most comfortable and ergonomics-friendly chair in the world, the A chair. To support the 99th percentile of the world's population, its designers had conceived three different sizes which supported the vision that everyone deserves to sit in a good chair: man or woman, tall or short, heavy or light, full time or part time worker. "No new chair can ever be, unless it betters the previous state of the art" (Stumpf, 1996).

Four German designers expressed their tribute to this product by declaring that no new chair design could ever better the A chair, unless a different set of criteria was put forth. Their design criteria focused on preserving planet resources, optimizing production processes, enabling the ease of placing an order and declaring user comfort as the paramount design criterion. After 5 years of global research and development, the company launched the B chair in 2003. Comfort studies on three continents showed that the B chair was extremely highly rated, mostly for its simplicity of use "at first sit", which allowed office workers to immediately feel comfortable to perform their daily work activities. Unfortunately, as the world financial crisis of late 2008 led to the closure of millions of square feet in commercial real estate across the world, sales levels declined severely within the furniture industry worldwide. The Executive Leadership team decided to command the redesign of the B chair, to attract a larger number of at-home workers in Western countries and to support the needs of a fast growing Asian population of office workers. With the recent boom of office space in China, Korea, India and South East Asia, more and more white collars were in need of good ergonomics solutions while spending many hours of office computing work.

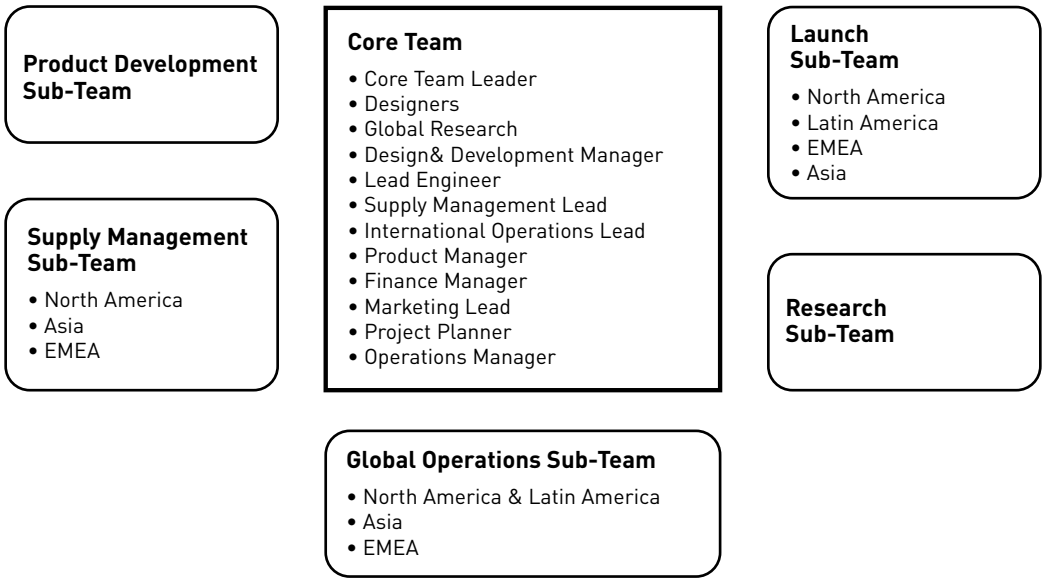
The project development proposal was approved in 2011, requiring for the new product to be ready for a global launch by June 2013 (global launch means that all countries may place orders at the same time). In that industry, the development of a product made of proprietary components is closer to a four-year time frame, mostly due to the long lead times required for tooling the parts, sometimes up to six months. Thus, a two-year timeframe, albeit in the context of a redesign, was from the outset extremely challenging.

Team forming: team composition and adoption of a modus operandi

With such an ambitious global goal and aggressive timeframe, an interdisciplinary multicultural project team was created composed of a core teams and sub teams.

A kick-off meeting in the United States mid 2011 brought all members together and a first brief was written which became the leading guide for all teams. The document outlined the strategic goals, design directions, target customers and markets, production sites, operation processes, sourcing strategies and financial objectives of the project. The team also defined its *modus operandi,* captured in a short list of operating rules, which were grounded in global management best practices and lessons learned from prior in-house projects (about 80% of the team members had already been part of a global project). Early on, it was anticipated by the project team that the main risks and challenges resided not in the commercialization process of the new design, but rather to its relevance to new marketplaces, particularly in Asia, and in the team's ability to produce and assemble the *same* product in three different locations (Americas, Europe and Asia); the designers were particularly keen on the creation of a new material, expected to offer unprecedented levels of comfort. In response to such requirements, the team followed a design-driven process and decided to integrate *possible* areas for production delocalization, before their design phase was even finalized. This approach added much time upfront. It required solid research and ideation time in local markets. But it came with the invaluable benefit of binding ties between headquarters and local teams way ahead of hitting

FIGURE 1
Core team and sub teams, (2012)



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the development phase. This also enabled a better balance of power among globally distributed teams: in this case, the project team decided early on that some parts would be produced at the three production sites (US, Europe and Asia), allowing for early integration of some cultural preferences into the manufacturing process. Such redundancy, taken separately and out of a design context, would not feel right to a financial officer: why invest three times in the same production tool? Why not invest instead in the highest volume production capability to cut costs and ship parts to the other manufacturing sites? The reason is simple: in the case of a systemic product made out of proprietary components, higher local costs on a few parts are eventually absorbed into the overall product cost structure (while other parts see their local sourcing costs decreasing) and offer the advantage to allow for key cultural preferences variations: in the end, the value added is transferred to the local customer.

Team norming: a shared space for physical and virtual communication

After one month of operations, the core team leader decided not to invest in cultural training, but rather reflect-in-action when cultural issues were emerging within the team. For example, any time a cultural issue would become difficult to handle, the team would discuss it and reflect on its impact onto the task at stake, or the overall project goals. Meanwhile, the Executive Vice President, Design & Development, had initiated a department-wide project aimed at capturing tacit knowledge among project teams (fourteen years before, the company had started implementing the philosophy of Japanese firm Toyota lean thinking in its production processes and was ready to apply some learning to its office processes). The core team moved into a shared space, designed after the Japanese model of an "Obeya" ("big room"). The project members designed their entire workspace: from the volume of personal and shared storage to the amount of vertical writing surface and the size of their own work surfaces. Adjacent to this workspace, a meeting room was equipped with teleconferencing technology and used twice a week to co-work with the designers, and once a week to co-work with the teams in Europe and Asia. As project matured, more "ad hoc" meetings took place, at the request of team members. Inside the project room, a large poster reminded each stakeholder of the team's operating rules, most of which were about respecting and weighting everybody's idea before discussing it, speaking up every concern and a no fear policy for asking for help. A lounge area was placed in the middle of the space, complemented with a large project table that served every Tuesday morning for what became the team's legendary "wall project reviews": the Obeya room was equipped with a large, six-meter long planner, which was designed as a matrix showing all disciplines horizontally in "lanes", and vertically, week-based schedule with key-dates to be met (see Fig.2). At inception, each team member, supported by its sub-team, was required to place white tags on his or her discipline lane, identifying the nature of the tasks to be completed at the intersection of "their lane" and the week shown vertically. As project would mature, additional tasks would be posted at the initiative of any sub-team, prior to the weekly reviews. To allow ease of communication and knowledge sharing, the European and Asia teams implemented a similar wall into their own project room, allowing them to compare their advancements against core team requirements and deadlines.

Rapidly, the flow of information sharing and large files-based collaboration patterns called for using a shared virtual space, powered by a proprietary project management platform software. This virtual shared place became over time the hub

for any team project information and data sharing. After a few weeks of training, the model became highly efficient: it allowed for a multiple-way traffic in the decision process and offered to local teams who were not in direct contact with the designers, the real opportunity to weigh in and feel included and heard, while it was still time for them to impact decisions in the making.

Team storming: qualifying project risks (other than financial)

Few months into the project, the core team leader received the request to assess the project risks. The team leader was aware of a research conducted in 1989 by Deborah J. Mitchell, of the Wharton School, Jay Russo, of Cornell and Nancy Pennington of the University of Colorado, which found that *prospective hindsight*—imagining that an event in the future has already occurred—increased the ability to correctly identify reasons for future outcomes by 30%. That way, the team could put in place measures to either avoid, or attenuate their effects. It was decided to "project the team in the future" and engage the group in a *pre-mortem* exercise, which is quite similar to a *post-mortem* analysis of a project, except that it is led at the beginning, instead of the end of a project.

The core team split into five groups and imagined "a complete project failure" by 2014. From their own discipline and cultural viewpoint, each group listed which aspects of the project could go wrong and called each issue a "disaster"; then they analyzed what could have caused every identified disaster to occur. Problems emerged from all disciplines and competencies within the core and sub-teams: whether related to customers not liking the end product, demand exceeding production capacity in the first months after product launch, a dramatic surge in costs, shipment issues, test failures, design issues, projected volumes in a given geographical location not meeting forecasts, and so on. Next step was for the team to outline preventative measures for such disasters avoidance. Each team started ideating on preventative measures development and a month later all groups reported their work. These measures were presented at the occasion of a "pre-mortem day event" and recorded for future reference.

FIGURE 2
Wall lanes, (2012)

Author's private collection

In particular, remote team members in Asia and Europe could grasp issues that would otherwise have been unknown to them, since occurring in a different region; that way, they could more easily relate to *possible* impediments outside of their realm of competencies, or geographical influence. As a reminder of such work, the list of main, agreed upon "disasters" was printed on a large format and posted in the core team project room; during Tuesday reviews, the core team leader could refer to some of these, if such risks were about to happen. This approach also informed the preparation of a corporate document required by the executives. Such a document didn't embody the view of the core team leader, nor the single view of a department or regional managers; rather, it was the work of the global team and compared to other formal documents, it was the result of experienced local players who had imagined with vivid determination, which parts of the project could fail based on their feelings, knowledge and cultural exchanges. This initiative is truly exemplar of a reflection-in-action methodology.

Team norming: Getting into routine

Having learned from previous global projects that suffered from geographical distance and impaired communications, the core team established communication and decision-making norms. As mentioned in the previous paragraph the project team held routine meetings twice a week: every Tuesday morning in front of the "project room wall" and every Thursday in the videoconference room.

The routine was as follows: each Tuesday morning, core team members would gather near the wall and comment past week planned actions; it was also expected from each member to describe the work to be done to hit the next targeted tasks posted on the wall. The planner would record any change as an agenda item for the next day team meeting and members would be tasked to discuss back the issue with their own departments. If any delays were notified, or any uncertainties evoked, the team member in charge of the task had to propose a mitigation action and negotiate the acceptance of the change with both the core team leader and all other members concerned by the delay. If accepted, the task status would show a *red dot*, carry a new date and would be shared with the teams in Asia and Europe via the intranet platform. If some members challenged the delay, the sub-team would review alternative options to be explored on the following Tuesday. As far as face-to-face interactions, it was agreed at inception of project that Asian and European operations, supply management and product-marketing teams would mostly communicate via videoconferences, share large documents on the digital platform and use email and phone for quick exchanges. It was agreed that sub team members would visit the headquarters once a quarter. As tooling would start being released and as marketing and launch activities would ramp up, the core team would progressively grant greater autonomy and power, to the local teams.

Team storming: a pressing request and... some more hurdles

Six months into the project, during the monthly executive review a first incident started to disrupt the team routine. The Executive team challenged the project team to "reduce the time to launch"

by 6 months: what would the team *not do* within the array of product options and what tradeoffs would the team consider? Such a request provoked lots of anxiety and divergence of points of views across regions. To help the team deal with stress and prepare a meaningful answer for the executives, the core team leader engaged into a coaching contract; an internal consultant specialized in team dynamics and an external consultant expert in improvisation were hired. Over a period of three months, the consultants helped identify how team members would relate to each other in case of high level of stress and team members learned each other's communication preferences. Practically, the team integrated the "minus six-month deadline" into the project schedule and all efforts were made to meet this new requirement. Time to market reduction actually received positive welcome by all regional sales teams in Asia, United States and Europe, since the product would be available for sale sooner... but it reversely triggered high discomfort levels in local operations teams. Asian operations were ready to put extra efforts to meet the new deadline, but United States and European operations were highly concerned with their ability to ramp up and implement reliable service levels. The core team leader asked all sub teams to revisit their plans and propose ideas to meet this new requirement. Product and marketing teams accepted to reduce the scope and number of product options available at launch, which allowed the design and development team to re-allocate resources to the development of the main parts. A key solution actually came from the supply management team, recommending to not release all tools at the same time in order to reduce the risk of replicating potentially deficient tools in the three locations. Therefore, main investment would be made in the United States, from which assembled products would be shipped worldwide. Over time, as confidence in tooling performance would grow, a progressive transfer of parts production would be initiated at the other production sites.

On the marketing front, the project was exhibiting misalignments between market price positioning targets and product options choices within the three regions. The core team was comfortable leaving these misalignments "open" since project inception (per its design-in-action paradigm), until the Asian marketing team advocated for an aggressive market-driven pricing, allowing them to fight local price pressure from competition. During the next virtual team meeting, the Chinese sub team shared being highly pressured by their Asian sales management to lower the market price. At their own initiative, the Asian marketing team sent a comprehensive document to the core team and required a review and discussion at the team's earliest convenience. The document was well articulated and duly documented. Some elements were to be expected: i.e. price positioning lower than in Western markets or a different color palette… But others points were a surprise to the core team: the request for a very high rate of local content to meet sustainability goals, and an aggressive launch program all over Asian showrooms (while a staggered launch across Asia had been previously agreed upon). The document triggered numerous concerns, as lead times commitments to the Asian sales organization were not ready to be made at that stage. The core team leader understood that the team's credibility was at stake and decided to take a step in their direction. Over the following weeks the core team worked in concert with operations and finance teams but came to the conclusion that the cost levels required could not be met. Few days after the information was communicated to the Asian team, the Asian managing director required a direct conversation with the core team leader, which led to a major cost review including leaders from all markets. After difficult conversations, the outcome of this review became the starting point of a broader sourcing assignment for the global supply manager (see below). This event triggered the need for a tighter communication with the local sales teams, not included in the project sub teams; it also led to the decision for the UK team to send their product-marketing director for a period of 6 months to the United States, in order to take part of all marketing related decisions. Unfortunately, the Asian marketing lead, at the head of a much smaller team, could not afford staying 6 months away from day to day business needs. This incident caused stronger intimacy between UK and Asian teams, both sharing a similar position of being based "abroad".

Team performing: team delivers results and prototypes meet requirements

The team reached early on high performance levels and by mid 2012, the project was ahead of schedule and "on budget". The Executive team was pleased with the project team financial discipline and started citing the team in example to others. Many other project teams came to visit the Obeya space, including customers interested in learning about the layout of a space conducive to team collaboration. Within the following months, the project team pursued its highly collaborative work and was at the height of its performance levels. The design and development manager, albeit still facing major design challenges, stayed in control of the schedule. Pre-tests, prototypes and performance testing were showing positive results and CAD (Computer Assisted Drawing) files were well underway. The global supply manager, in charge of manufacturing several hundreds of components, established a master plan with his local operations subteams in Asia and Europe. He prepared a complex risk analysis matrix, based on investments in all regions allowing the core team to decide where the team would be better off investing in tooling: consolidated into a large table, it was visually relevant to assess all aspects of upcoming trade-offs. Asian teams and European teams took control over their own plan and production responsibilities. To finalize these propositions, the supply management teams met in the United States and agreed on a global plan. This meeting happened to be highly productive and demonstrated a genuine common effort to meet both company and market expectations. The agreed upon operations plan became the new reference point, was introduced on the "wall project lanes schedule" and within the following months, these data drove decisions until project launch. Only one component remained under a single source of origin in the United States, essentially due to the complex nature of its requirements and its radical innovation content. This part, which required higher upfront investment than expected, happened to be the Achilles' heel of the project and prevented the team from finishing six months earlier. Eventually, a winning technology emerged and met performance tests; that part was the last component to be finalized and the team could hit its performance trajectory. On June 2013, the team successfully launched a promising global product, in all markets, at the same time.

Findings

In this case study, performance issues met by the team originated from various sources. On the one hand some issues echoed those outlined in the literature review: geographical distance and cultural differences impacted team effectiveness and slowed down decision processes. On the other hand, challenges faced by the entire project team came from executive pressure and changing requirements or innovation-related uncertainties, all calling for rapid redeployment of resources and solutions. Such challenges have been addressed twofold:

1. The design-driven process enabled iterative problem solving, and reciprocal knowledge transfer between distant teams was quick and efficient, thanks to the digital work tools and continuous streams of communication between the core team and sub teams
2. The team leader's ability to reflect in action, to either course correct or implement new patterns of work and multi-level interactions between team members

The case also shows the benefits of a third component that emerged as particularly impactful on team performance: as the core team was based in Research & Development, it leveraged the built-up of cross-cultural competences developed from past experiences and kept developing competencies for further ones to come.

The effects of the design-driven process

Because all tasks led by the dispersed teams carried high levels of interdependencies, the design-driven process allowed the team to keep the project moving forward under an "iterative" process mode: progressing while allowing occasional steps back to reflect and redirect, without losing sight of the end goal and maintaining traction. Often, leaving some questions unanswered - for example uncertainties related to the local production of parts- could feel like leaving issues behind, in the case of project teams used to getting closure before reaching the next step. In this case, uncertainties did not appear as such high hurdles to overcome; rather, they permitted the integration of different points of views in the project and not reaching closure too early allowed for solutions sets to be pursued, until more information or data could inform the final decision.

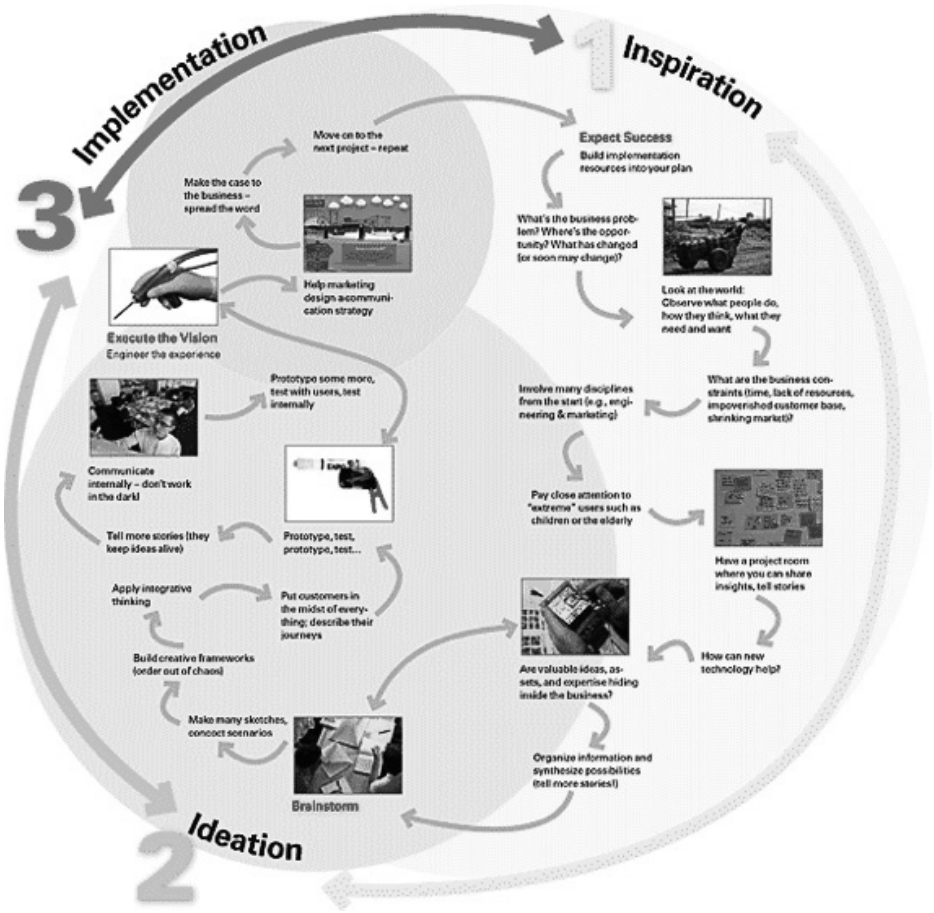
The use of web-based shared tools and the visual representation of tasks and propositions on the project wall were essential to the team performance. That way, local project teams could visualize and share the advancement of their own local project, in conjunction with the global project. In hindsight, it was most certainly one of the key factors impacting the project success, thanks to its fluidity in knowledge creation and dissemination as well as a means to discuss diverging points of view, asynchronous or in real time with local teams. This part seems to address the notions of short term/long term orientation and individualism/collectivism identified in cultural literature, as two sources of misunderstanding based on differences in multicultural communications. Interestingly, the social integration of the different cultures rarely appeared as an issue to overcome in the case: communications were eased by the iterative nature of the design process where diverging cultural bias could be discussed ad hoc, reformulated and reworked. Sub-team members in need of additional time to absorb content, or reflect on a project change, could use the virtually shared communication tools as a repository for data or comments uploading at any time, if some responses during meetings led to discomfort. Unbiased visualization of data and information was another key contributor to feelings of parity and equality.

The design-driven process as described fig. 3 allowed for high level of contribution and engagement from the Asian team, which had less global project experience than those in the US and UK. Because the project looped more than once back and forth through these phases—particularly the first two, hence the double-sided arrows—, ideas were refined and new directions taken based on a shared understanding. This genuine participative process positively eased intercultural management and the early integration of all team members enabled the spectrum of cultural differences to express themselves not as barriers or issues, but as natural components of the work to be done. In particular the sense of belonging, the shared repository of knowledge that anyone could consult at any time, the wall lanes, all allowed for this "collective construction" to happen in the first months of interaction and contributed to establishing a sense of trust. This proved very helpful when local operations and local supply management teams eventually received the product specifications and were tasked to identify reliable local partners: they had been part of the early stages of the initiative and knew the whole reasoning behind each request. Finally, expressions of trust, mostly intuitive-based were in place and observable: for example, as soon as the core team finance manager was comfortable with the risk level the team was undertaking, he became a coach -instead of a controller- for all sub-teams and regional finance managers.

Reflecting in action

The knowing in action helped the core team leader offer new ways of problem solving, either related to the product or to the team. Such a framework helped team members imagining and trying out solutions and allowed at the same time for a better understanding of each other. For example, the prospective hindsight method helped the project team identify risks at the outset and defeated most fears of the unknown. Experiencing and sharing different futures, combined with the discussions among culturally diverse team members invited all stakeholders to reflect on how new parameters would impact their current knowledge. Each team member could assess these parameters and proceed by eliminating options instead of *only* reacting to unexpected occurrences. Clearly, this made the knowledge transfer between distant and distributed teams an integral part of the process (they learned together), instead of having to wait for phase to close or an activity to be done. This exercise was often cited over the life of the project as the culmination of teamwork synergy personal projection into dramatic situations created stronger ties between remote team members and built a feeling of reciprocity and safety, by the mere experience of sharing the experience of a disaster that did not occur. In term of leadership, this process required a true participative leadership, comfortable with ambiguity and conflicting views within the project team and willing to let solution paths run in parallel until proven viable, desirable and feasible. Of course,

FIGURE 3
The three spaces of a design-driven process (adapted from T. Brown, 2009)



Brown, T. (2009). *Change by Design. How design thinking transforms organizations and inspires innovation*. Harper Business, US

the leader in a design-driven process needs to also have a sense of full closure and assertiveness when required, hence an "ambidextrous mind".

The team leader's ability to design solutions in action within a design and development project team, allowed for fast decision process and investment risks mitigation. The entire team, using a particular communication and planning methodology, was able to quickly address issues: when facing trade-offs and unexpected challenges, rapid deployment and reorganization of resources became easy to implement. Framing new problems consisted of "knowing in action" i.e. experience, knowledge, skills and judgments were used as problem setting criteria. The example of the price-positioning dilemma in Asia is quite relevant of a situation where the Asian team was caught between its loyalty to the project and its loyalty to local management. If the core team leader had not been able to decipher the message (i.e. "help us convince the local sales team that a higher sell price will not harm the project success") the problem would have lingered much longer. Indeed, reflecting in action helped reduce the impact of the accumulation of un-confronted and unresolved minor issues by addressing them sooner than later.

Concluding reflections and managerial relevance

The case study describes the positive effects of two peculiar dimensions of a Distributed Interdisciplinary Multicultural Teams management project, where little research is available. First, it shows a relationship between a design-driven process and a multicultural team project performance: cultural diversity, and not only nationality-based, has been described in many cases as increasing divergent processes and leading to misunderstandings and inefficiencies. But thanks to the nature of the design-driven process that welcomes cultural diversity for the richness of its contributions, the process forces the team to converge toward relevant concepts and solutions: hence, what can be considered as obstacles for non-design teams, carried positive impacts over the life of the project. It also shows how such a design-driven process made possible and maintained balance of power among distributed teams in three regions Europe, North America and Asia. In the case of partially distributed teams, the power is likely to be unbalanced, as power most often resides where the leadership resides. In the case of

multiple nationalities and demographics, the power is likely to be unbalanced, as it most often resides where the financially dominant culture resides. This is particularly perceived in the context of multicultural meetings when lack of proficiency in the dominant language can become an impediment for non-dominant cultures or sub-cultures to precise their point of view, particularly in case of disagreement. When discussions linger in meetings involving partially distributed teams with cultural differences, team members from the dominant language start inevitably showing signs of annoyance and in the worse case, mentally checkout from the meeting. Thanks to all the communication tools put in place (synchronous and asynchronous), such communications difficulties were softened.

Finally, a leader practicing reflect-in-action in the context of a multicultural distributed project team significantly helps creating shared identity, shared context, and fluid communication, which all have been found to moderate the effects of distribution on both task and conflict management.

This paper is rooted in one case study and can't shape significant answers to the numerous and often contradicting views when it comes to multinational and multicultural teams management issues; particularly, the conflicting views about the role of culture and distribution in team processes and outcomes. It however sheds light on how a rigorous design-driven process can positively impact issues described in literature as being challenging for distributed multicultural project teams.

Alternatives for managing the challenges associated with multicultural team leadership, such as the power paradox described above, for leveraging creativity and innovativeness in situations with polarized power play, or for bringing out high performance in teams, leads to wonder: could intercultural success be the product of a design-led process and a participative, reflect-in-action leadership style? Further research needs to study this hypothesis but managers can definitely start practicing "reflect-in-action".

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