From routine to uncertainty: Leading adaptable teams within integrated operations

The leadership behaviors found in our case study actually hinder teams in efficiently shifting from routine to crisis operations in the oil and gas industry, write Kenneth Stålsett and colleagues.

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Team performance is strongly related to leadership behaviors and the team's context (Heldal & Antonsen, 2014; Johns, 2006, R. Hogan, Curphy, & Hogan, 1994; Kaiser, Hogan, & Craig, 2008), and teamwork has become the modus operandi in most organizations (Edmondson, 2012; A. Martin & Bal, 2006). However, it is reported that up to one-third of teams are either underperforming or directly failing (Edmondson, 2012; Govindarajan & Gaupta, 2001). This tendency reveals that leaders need to improve their skills (J. Hogan, Hogan, & Kaiser, 2010; R. Hogan et al., 1994) and start focusing the interaction with their teammates in a dynamic context (Avolio, 2007; R. Hogan, 2007; Morgeson, DeRue, & Karam, 2010). Within this context, threats and crises can change the operations dramatically and demand extraordinary leadership skills to solve the situations precipitating them. Dominating and traditional crisis management practices rely on hierarchical top-down leadership perspectives, where the main focus is to execute operations founded on rigid routines, rules, procedures, and resources available in normal operations (Hannah, Uhl-Bien, Avolio, & Cavarretta, 2009; Krabberød, 2014; Rimstad, Njå, Rake, & Braut, 2014). However, such practices are based on anticipated problems and may therefore be inefficient—and maybe even harmful (see Kahneman & G. Klein, 2009; Tinmannsvik et al., 2011; Weick, 1993)—when the map no longer fits the terrain.

Modern military maneuver warfare has abandoned this approach, meaning that unconventional military teams operate as autonomous units, whereas leadership behaviors depend on the operational setting and situational task (Clemons & Santamaria, 2002; Danielsen, 2015). This new way of doing things signifies that, contrary to traditional crisis management, modern military teams are encouraged to break orders when needed and thereby adapt and innovate to achieve their missions. We aim to expand the knowledge about crisis management through a civilian setting by asking: *How do leadership behaviors affect the shift from routine to crisis operation on intra-team processes and inter-team collaboration?*

Our research is conducted by way of a multi-method single case study anchored within the team-oriented oil and gas (O&G) industry operating in the North Sea. This approach allows us to enhance both an intra- and inter-team focus, where other researchers often ignore the latter perspective due to its complexity

(McGrath, Arrow, & Berdahl, 2000; Tajfel, 1982). The offshore O&G industry creates a unique context because it uses advanced technologies and operates under highly uncertain conditions. These aspects have contextual implications for the actions of the involved teams (Johns, 2006). The normal daily operations revolve around exploitation of strict routines and procedures that not only help workers function efficiently but also minimize risk and uncertainty. It follows that the normal operational mode is built around a tight collaboration between the experts found in the onshore team and offshore-located operational teams. This collaboration is linked through advanced video and communication tools.

The normal operations, however, can—and sometimes do—change rapidly. According to Petroleumstilsynet (2013), the North Sea experiences threats on an annual basis that have the potential to escalate into major disasters. Examples of such incidents include the Alexander Kielland accident in 1980, the Piper Alpha one in 1988, and the Deep Water Horizon disaster in 2010. Team leaders can be pushed to solve problems that exist on the edges of what is possible, and performance should therefore be viewed according to the teams' ability to successfully innovate and solve the problem at hand.

Leadership and team dynamics

In the 1950s, the Australian psychologist Cecil A. Gibb used the term "distributed leadership" to emphasize the dynamic relationship between influence and group processes (Gibb, 1954). He suggested that leadership should be viewed as shared functions among all members of a group, including the leader, and not as a concept solely connected to the formal leader. His view, which was held by most group sociologists at the time (e.g., Bales, 1950a, 1950b; Mills, 1967; Parsons, Bales, & Shils, 1953), is in line with the concept of leadership we advocate in this paper. Thus, we define leadership as "the process of facilitating individual and collective efforts to accomplish shared objectives" (Yukl, 2013, p. 23). According to this definition, the leader must evaluate not only what behavior or action is appropriate in specific situations but also which team member is the most appropriate for carrying out the action (Sjøvold, 2007). Nonetheless, Zander and Butler (2010) point out that the majority of leaders believe that the formal leader is the only one who is allowed to lead. Consequently, it not straightforward to establish decentralized leadership in situations characterized by chaos and uncertainty.

We will, however, argue that it is especially important to establish such collective leadership practices in order to succeed in dangerous and complex environments —a view that is acknowledged by both modern military doctrines (e.g., Norwegian, American, Israeli, and more) (Sjøkrigsskolen, 2009; Sjøvold, 2014a) and modern maneuver warfare (Clemons & Santamaria, 2002; Danielsen, 2015; McChrystal, Silverman, Collins, & Fussell, 2015; Shamir, 2011; Sjøvold, 2014a, 2016). Leadership skills in maneuver warfare are seen as the ability to facilitate efficient team dynamics according to the operational context. Thus, they enable teams to work toward a common goal by helping team members embrace uncertainty and solve problems.

The Spin Theory of Small Groups – In this paper, we base our discussions on the

Spin Theory of Small Groups (Sjøvold, 1995, 2002, 2006a, 2006b, 2007, 2014b), which defines a team as "three or more people who share a common goal and interact to achieve this goal" (Sjøvold, 2006b, p. 17). According to this definition, we also separate groups from dyads (see Simmel, 1955). The Spin Theory attempts to integrate leadership with well-documented aspects of group dynamics as well as the group's dynamic relationship to its immediate context. Naturally, other teams are often a part of this context. While this important notion is often left out by academics, as argued, we embrace both the intra- and inter-team perspective because it doubtfully affects groups' behaviors (see Sumner, 1906; Tajfel, 1982). Thus, the Spin Theory asserts that leadership effectiveness is relative to the characteristics of the context in which the team operates. In stable and well-known situations with standardized tasks, the most effective team dynamics and leadership practices are quite different from the efficient decentralized leadership behaviors that should be used to propel the same team through chaotic situations with complex tasks and high levels of physical and mental stress.

We introduce three central constructs to grasp the core of the Spin Theory:

1) Basic group functions – Albeit under different labels, the existence of four quite similar functions is well documented in theories of group development (e.g., Bales, 1950a, 1950b, 1985; Bales, Cohen, & Williamson, 1979; Bion, 1961; McGrath, 1991; Mills, 1967; Parson, 1953; Parsons et al., 1953; Schutz, 1958; Tuckman, 1965). In the Spin Theory, these *four group functions* found the first construct and are labeled: *control, nurture, opposition, and dependence* (Sjøvold, 2006a, 2006b, 2007, 2014b). The *control* function enhances allocation of group resources and goal achievement and is supported by active, analytical, task oriented, or even autocratic behavior. Meanwhile, the *nurture* function enhances the social glue that creates group identity and is supported by active, caring, empathic, or even spontaneous behaviors. The *opposition* function represents the group's corrective means and is supported by active, critical, assertive, or even self-sufficient behavior. In comparison, the *dependence* function upholds the group norms and is supported by passive, conforming, and obedient behaviors. The group functions that predominate in a specific group will vary according to the situation and task at hand as well as to the team leader's overt behavior.

2) Balance and group dynamics – The second construct, *balance,* refers to these shifts of active functions and should not be confused with the idea of equilibrium, which would indicate that all functions are present in equal strength at all times. Balance is better described through the term "on the edge of chaos" from complexity sciences (Langton, 1989). It represents a third state that is not chaos and not order, but where both chaos and order seem to appear simultaneously. The usefulness of the construct balance is seen when observing the often hard-to-explain abrupt changes in team dynamics (Sjøvold, 2014b). Such changes are vital for teams that continuously adopt to novelty.

Group dynamics are therefore defined as the constant shift in polarization and unification between subgroups or individuals within the group (Bales, 1950a, 1950b, 1999; Polley, 1987), and the four group functions represent poles in the

polarization (Sjøvold, 1995, 2007). How well a team handles these polarizations depends on how the leader facilitates the group's role structure. Group members display these social roles depending on what they feel comfortable with (Hare, 2003). If teammates hold strong beliefs about an individual's role structure, they usually alter their own behavior automatically to effect this behavior in their teammate. This propensity means that the individual role preference can develop into a self-fulfilling prophecy and thereby lead to stereotypical presumptions from the rest of the group (Word, Zanna, & Cooper, 1974). For example, a likable person tends to take on a nurturing role in the team and a bossier person a more controlling role. If such a fixed role structure becomes part of the group's normal function, the team will suffer since the execution of the group functions depends on the actions of specific individuals whose social roles meet the functional requirements. It follows that such less advanced group dynamics contain more permanent polarizations, which can also induce conflicts within the team. In contrast, if all members are able to perform behaviors that support all four group functions—and are not restricted by the expectations of others or the constraints of social roles—the speed of communication and decision making will significantly improve as the group dynamics advance. In the latter case, we say that the group displays a flexible role structure and advanced dynamics where the polarizations are frequent, brief, and without any fixed pattern of poles or members. Consequently, an essential part of a leader's job is to fill or bring to the team whatever functions are needed to accommodate the team's operational needs (McGrath, 1962; Parson, 1953; Zaccaro, Rittman, & Marks, 2002). This task is challenging in nature, and Stogdill and Bass (1981) refer to the balancing of productivity optimization in conjunction with caring for employees as the "leadership dilemma."

3) Level of purpose – How efficiently the social roles shift within the group forms the core of the third construct, *level of purpose* (LoP). This construct is defined in relation to the context the group confronts. In a well-known situation and with standardized tasks, fixed role structures are often the most effective. At the same time, they enable the flexible role structure that is mandatory when confronting complex tasks in chaotic situations. A group with a fixed and more restricted role structure is said to operate on a *low LoP*, while a team with a flexible and advanced role structure is said to operate on a *high LoP* (see Sjøvold, 1995, 2006a, 2006b, 2007, 2014b). It should be noted, however, that the LoP should not be confused with phases of group development or similar concepts.

The leader is supposed to enable the team to change between different dynamics to match the situation at hand. Thus, comparing the dynamics of basketball teams that play in a stable, predictable context with the dynamics found in adaptable police Delta Force teams (see Dyer, Dyer, & Dyer, 2013) can be misleading and lead to inefficient leadership practices. Importantly, a group operating on a high LoP is able to switch leadership practices and dynamics to adapt to routines and standardized tasks. Conversely, leaders who enforce fixed and strict role structures, interaction patterns that are found at low LoP, will most likely see their team fail to adjust to novelty and uncertainty. The team leader is therefore responsible for

enabling and facilitating group functions that are best suited to the context at hand (Marks, Mathieu, & Zaccaro, 2001).

How well the team leader succeeds in this effort depends on how advanced the group dynamics—or the group's LoP—is. A group operating on a low LoP needs a demanding and authoritarian leader who is also responsible for supporting and balancing the four group functions. When teams operate on low LoP, they also tend to establish an intra-team focus, failing to learn and exploit the resources found in their context. Conversely, within a team operating on a high LoP, the formal leadership role diminishes because most members contribute to this function and responsibility. High LoP dynamics are therefore slower (but more advanced because they include all social roles) than low LoP dynamics. But they do also include an external perspective that includes a focus on inter-team collaboration and attempts to decrease eventual mental barriers between teams. This means that high LoP teams are better suited to accumulate learning and utilize their resources to adapt, learn, innovate, and solve their tasks.

Shared mental models – The leader's obligations include aligning the team members' understanding of their purpose and internal interaction dynamics, which is the idea of *shared mental models* (SMMs) (Cannon-Bowers, Salas, & Converse, 1993; Mathieu, Heffner, Goodwin, Salas, & Cannon-Bowers, 2000; Sjøvold, 2014b). People use mental models as a tool for systematizing the comprehensive information provided by the environment (Johnson-Laird, 1983; Sjøvold, 2006a, 2006b), thereby allowing the involved members to take action based on their interpretations and conclusions. Cannon-Bowers et al. (1993) divide the mental models into several categories and focus on separate mental models for understanding technology and social interactions patterns. In our study, we focus on the social interaction category. Therefore, we align with researchers who say that teams' understanding of interaction patterns have the biggest influence on their performance, especially when the tasks are more uncertain and novel (Cannon-Bowers et al., 1993; Marks, Zaccaro, & Mathieu, 2000; Mathieu et al., 2000; Sjøvold, 2014b). Coinciding SMMs have been found to be vital for safety, learning, communication, and efficient performance (Espevik, 2011; Espevik, Johnsen, & Eid, 2011; Espevik, Johnsen, Eid, & Thayer, 2006; Nissestad, 2008). Diverging SMMs may therefore affect the team's performance in a negative way when novelty and complexity arise. Danielsen (2015) exemplifies in her research on Special Operation Forces (SOF) units how teams at a high LoP operate. She describes them as "one living entity" where the group is more important than the individual and the team's SMMs are vital for success. Hence, the SOF teams' leadership practices and high LoP help identify efficient team dynamics in order to adapt and innovate during extreme pressure

The majority of daily leadership practices that the O&G groups in our study follow enable teams to conform to fixed procedures, comply with internal rules, and adhere to formal roles. In terms of the Spin Theory, they normally operate on a low LoP. Groups that operate most of their time on a low LoP tend to develop distinct norms that control their social interactions (Sherif, 1936; Sorrels & Kelley, 1984), a

tendency which can be hard to change (Gersick & Hackman, 1990; MacNeil & Sherif, 1976; Rohrer, Baron, Hoffman, & Swander, 1954). Often they have meta-norms dictating that members of the group should not discuss their «regular» first-level norms (Hackman & Morris, 1975). Therefore, when groups' normal operations require low LoPs for efficient operation, their leaders have an overwhelming challenge to enable the teams to move through unforeseen and complex situations. Such situations tend to appear abruptly in the O&G-industry and require leadership styles and dynamics that are quite similar to those that military SOF teams display when they work with the unknown.

Research design

We conducted an embedded single-case, mixed-methods study (Yin, 2009) to investigate our research question within a multinational O&G company.

Case context

Integrated operations (IO) has propelled into a standard way of operating within the O&G industry. This standard includes technical critical systems, defined by Rushby (1994, p. 213) as «…[systems] whose malfunction could lead to unacceptable consequences. The unacceptable consequences depend on the context and could include loss of life, damage to the environment, or disclosure of sensitive information.» The IO structure has led to new processes and routines, which include an increased usage of innovative technologies as the operational core (Andersen & Mostue, 2012), especially for ensuring efficient collaboration between offshore and onshore teams. This innovation enables the organization to perform several complex activities—which traditionally were done offshore—at onshore locations (Grøtan & Albrechtsen, 2008). Moving and centralizing knowledge bases to onshore offices set new standards for leadership and team dynamics, thus increasing the importance of efficient offshore/onshore collaboration.

The IO structure has changed the way the O&G organizations operate during normal and stable conditions—with more standardized working methods—and that may imply less critical thinking and engineering (Haavik, 2011). Nevertheless, standardization is always dependent on human interpretation, and many decisions need to be made offshore. However, most of the organizational structures utilized during crisis modes have *not* changed after the implementation of IO (Grøtan & Albrechtsen, 2008; Tveiten, Lunde-Hansen, Grøtan, & Pehrsen, 2008). As such, it is still the offshore teams that are considered the active part and who therefore both comprehend the risk scenario and implement the solutions. Subsequently, the onshore teams and resources are less active and provide feedback only if they are asked or invited (Sintef, 2012; Tinmannsvik et al., 2011).

Threats in this industry can vary from what seems to be minor human or technical errors to events arising out of the natural surroundings. An example of the latter hazard was the 15.5-meter-high wave that suddenly struck the COLS rig outside of Norway in 2015, killing one person and injuring four. It follows from such unpredictable events that creating a full understanding of all possible risks on a platform is close to impossible. Instead, highly dynamic teams and efficient

leadership are needed to hinder possible treats from escalating. The offshore teams in this IO structure follow a shift rotation where the individuals belong to a minimum of two teams, which also includes some responsibilities during night hours. Conversely, onshore team members follow normal daily working hours. Therefore, the onshore team collaborates with all the different offshore teams, while the all the offshore teams do not necessarily meet or collaborate with each other.

Data collection

Systematizing the Person-Group Relationship – The quantitative data were collected with the Systematizing the Person-Group Relationship (SPGR) instrument, which has a strong construct and predictive validity (Sjøvold, 2002, 2007). We utilized an SPGR 24-item behavior scale and sent it to all group members. Each item in this scale asks the respondent to provide self-ratings *and* ratings of all teammates to describe if s/he thinks the rated object displayed a specific behavior: (1) *never or seldom,* (2) *sometimes*, or (3) *often or always*. The SPGR tool is constructed on a factor analytical space comprising the respondents' behaviors according to the four group functions. Because the basic group functions are supported by a distinct set of behaviors, respondents' ratings, on average, yield a snapshot of a group's most predominant behavior. Therefore, the members' ratings of themselves *and* their teammates illustrate how they perceive each other's social roles based upon how often they notice a certain behavior (Sjøvold, 1995, 2002, 2007). The SPGR tool establishes a set of analyses that are extracted from fine-grained analyses of the social fields, patterns of polarization, and different team typologies (Sjøvold, 2002, 2007, 2014b). Hence, it is possible to get a visual understanding of the variance in the ratings, which makes it possible to investigate how each of the respondents perceive their own and their teammates' behaviors. In this paper, however, we have used the algorithms to create quantitative results.

To understand team dynamics in normal settings—meaning standard routine operations—that focus on exploitation and efficiency, we sent the survey electronically to seven teams, six located offshore and one onshore. The offshore teams comprised six members, with at least one female member in each group; the onshore team was composed of five males. Thirty-eight of the 41 members answered the survey. The six offshore teams were asked to evaluate their own team members and their specific team as a unit. In addition, they also evaluated the individuals inside the onshore team and the onshore team as a unit. At the same time, the onshore team members were asked to evaluate themselves and two of the six offshore teams. All of our respondents had a diverse academic background and were within the age range of 30 to 60 years old.

To understand how leaders perceive ideal leadership behaviors, we have also collected SPGR data on this topic. In an effort to understand and create a norm of ideal perceived leadership behaviors in standard operations, 292 leaders within the focal company answered a SPGR survey during the time span of 2011 to 2015 (a total of five years). As offshore teams also adapt to the crisis mode, we used autumn of 2015 to collect SPGR data from 14 leaders to understand how they perceive the efficient crisis leader. This collection was undertaken to investigate

whether there are any differences in how platform leaders comprehend an ideal leader during normal situations and an efficient leader during crisis modes. The demographics of those who answered the leadership behavior surveys followed the offshore and onshore team descriptions. About one-sixth were women and all respondents varied in age and academic training.

Interviews – To get an overview of and insight into the topic and context (Daft, 1983), we started with a total of 11 meetings with executives, where we read through internal information and discussed the context, problems, and our research question. During the two-year period of 2014–2015, we visited one of the organizations' administrative buildings and borrowed its video conference equipment. We used a semi-structured interview guide to conduct 12 in-depth interviews—lasting from one to one and a half hours—with different leaders, because their personal perceptions are of vital performance to this study. Four of these leaders belonged to onshore teams; the eight others belonged to offshore teams. The respondents were anonymized.

In general, our qualitative work has been anchored in the principles of McCracken, (1988). Thus, we focused on letting the respondents tell their story by discussing the topic during the interviews, emphasizing that we would not lead them to the answers. We asked the interviewees general questions about their utilized leadership style, but we also had more specific requests when we wanted more insight into certain topics. The latter strategy was used actively when respondents built the discussion around leadership during uncertainty and novel situations. It was also utilized to gain insights from the organizational structures that handle threats. The work was documented by written memos and summaries from the initial meetings, and we recorded and transcribed the interviews before the relevant data was coded to theory. This means that the data analysis has gone through a series of inductive and deductive cycles, where data and theoretical findings have been discussed among the researchers and have been connected to relevant theory (Miles & Huberman, 1994).

Results

Results during normal operations

To compare results between the offshore and onshore teams, we used the average SPGR score from the offshore teams because they consisted of six teams. As displayed in Table 1, the two-way unpaired t-test did not reveal any significant differences ($p > .05$) in the way the teams described their own intra basic group functions. Tables 1–3 use a scale from 1 to 9, where 1 is the lowest score and 9 is the maximum score of the possible behavior (see Sjøvold, 2002).

TABLE 1: Average self-evaluations of the basic group functions from the six offshore teams and the one onshore team. Standard deviations in brackets behind the average values.

	Offshore	Onshore
Control	5.26 (0.73)	5.44
Nurture	4.02 (1.31)	3.50
Opposition	1.90 (0.52)	1.81
Dependence	6.90 (0.24)	6.50

Note: No significant findings.

Table 2 illustrates how the offshore teams *perceive* and *describe* the onshore team's behaviors from their own perspective and vice versa. There was a significant difference (*p* < .001) in the teams' perception of their counterparts' controlling behavior. Each function can subdivided into two similar, but marginally correspondent, categories (Sjøvold, 2002, 2006b, 2007, 2014b). Because we found a significant difference in the perception of the control function, we subdivided this function into the categories *Ruling* and *Task Orientation*. The results of how the teams describe these categories are presented in Table 3. They show that the offshore teams perceive the onshore team as more ruling (*p* < .01) as well as utilizing more task-oriented behaviors (*p* < .05).

TABLE 2: Offshore teams' descriptions of the onshore team's basic group functions, and the onshore team's description of the offshore teams' basic group functions. Standard deviations in brackets behind the average values.

	Offshore describing onshore	Onshore describing offshore
Control	6.39*** (0.53)	4.79*** (2.23)
Nurture	3.15 (1.03)	3.82 (1.27)
Opposition	2.19 (0.75)	1.71 (0.53)
Dependence	6.78 (0.24)	6.55 (2.89)

Note: ***p* < .001

TABLE 3: Offshore teams' description of the onshore team's control functions, and the onshore team's description of the offshore teams' control functions. Standard deviations in brackets behind the average values.

	Offshore describing onshore	Onshore describing offshore
Ruling	5.56** (0.44)	3.50** (0.09)
Task orientation	7.16* (0.13)	6.10* (0.33)

Note: $*p < .05$; $**p < .01$

The t-tests revealed no significant differences in how each of the groups describes its intra-team behaviors. Instead, the inter-team descriptions of these control functions illustrate a prominent significant finding, that is that the onshore team is described with more controlling behaviors. Table 1 also illustrates that the onshore team members describe themselves as slightly more controlling than the average found in offshore teams. However, this difference in perception is not significant. Notably, the offshore teams actually perceive the onshore team as more controlling than the onshore team's own intra-team behavioral descriptions.

Level of purpose (LoP) – The SPGR tool uses intra-team evaluations to measure four elements that, combined, help to describe dynamics within teams and thereof classify if they are operating on a high or low LoP (see Sjøvold, 2002). Hereof do the three first elements—polarization, SMMs, and influence—follow a typical range from 1 to 5. This typical range stems from data from more than 200 groups in various contexts, including a significant number of teams that operate in dangerous and rapidly changing environments. The last element, level of contradiction (LoC), is described in percentages. Again, effective team dynamics, thus the LoP, depend on the task and context at hand.

The offshore results are based on the average score from the six involved teams. As such, the polarization values illustrate if there are subgroups within the team. They also indicate the level of cohesion within the teams, where low scores document low levels of polarization and higher levels of cohesion. In general, Table 4 shows that all of the teams have polarization tendencies, while the onshore team is struggling with a considerably higher level of polarization than the average within the offshore teams. Following the same logic, the SMM values indicate whether the perceived behaviors within the teams are diversified or consistent. The data displayed in Table 4 shows that the team members vary in their perception of each other and, therefore, have relatively low levels of SMMs. Further, influence values show whether the team members are equally influential, where higher scores mean a more unequal distribution of influence. From Table 4, the average score tells us that the offshore team members operate with some unequal distribution of influence, which also holds true for the onshore team. The last element in Table 4, LoC, shows whether the groups contain members who struggle with raising critical concerns, a score that stems from the group function opposition. According to this component, the average offshore scores show that 57% of the team members rarely provide critique while 50% of the onshore members act in a similar manner.

TABLE 4: Measurement of the polarization, SMM, influence, and LoC as an

average value for the six offshore teams, and the intra-team values for the onshore team. Standard deviations in brackets behind the average values.

	Offshore	Onshore
Polarization	2.96 (0.69)	4.95
SMM	2.54 (0.26)	3.03
Influence	2.05 (0.53)	2.12
LoC	0.57 (0.15)	0.50

Note: SMM = shared mental models; LoC = level of contradiction.

Altogether, the quantitative findings from Table 4 demonstrate that all the involved teams operate on a fairly low LoP. This tendency is not surprising because it mirrors their daily work, which is characterized by exploitation of standardized procedures and routines.

Qualitative data – The team behaviors are displayed through the description of a generally friendly atmosphere, where daily operations are based on strict rules and procedures. These findings are especially apparent for the offshore teams, whose members see themselves as a family with strengths and weaknesses. Military jargon and referrals are prominent, especially when discussing how they use the normal settings, often mentioned as "peace time," as a foundation to prepare for crisis settings. Obviously, the offshore platform creates an environment where subordinates and leaders live closely together, which forces the leaders to understand and handle the balance between being a friend and a leader. Such a challenge is not always straightforward. Within this milieu, however, the teams have clear boundaries, indicating that team leaders tend to favor their own team and attribute negative traits to external parties. Leadership behaviors are viewed as characteristics of the leader's technical expertise and personality, which means that leadership varies from team to team. In addition, there are evident patterns of communication problems between the offshore teams. These problems are not limited to the misunderstandings caused by specific jargon within the teams; they are especially distinct during discussions of details and specialized knowledge. Expert knowledge is highly respected, and it is therefore not particularly popular to criticize or raise questions when someone has given their professional view. Problems and discussions are usually solved by the team leaders or are brought up the chain of command for a solution—ultimately ending up on the platform leader's desk.

The platform leader is expected to have the best overall understanding and is the one with the final authority, which is the equivalent to being responsible for the overall risk picture. As such, it is said that s/he has at least three roles to fill: 1) being an administrative manager; 2) being a leader by creating a common goal and

direction; and 3) being "the commander" and giving concise, definite orders and commands. The role requires an obligatory yearly training session that ensures that the platform leader is aligned with the organization's desired leadership style. Hence, the training addresses the organization's sought-after leadership perspectives from the "command and control" structure. It also imprints a focus on behaving task-orientedly and authoritatively as well as being able to make—and implement—decisions under pressure.

Evidences of negative traits are noticeable during the discussions of collaboration between offshore and onshore teams. The offshore leaders see their onshore peers as more controlling and task-oriented. Thus, the offshore teams often feel that their onshore counterparts lack the ability to fully understand the context and risk the offshore teams operate in. This type of assumption leads to the offshore teams' frequent rejection of knowledge transfer attempts and innovative solutions initiated by the onshore side. A repeating comment is «*you must have been here for a while to understand*,» which relates directly to the risk offshore team members' experience at the platform. The offshore teams often ask for customization for their specific platform, while an onshore member said, «*Innovation, it is almost ironic; it would be an innovation for us as an organization if we could use more standardization.*»

The onshore leaders claim that they are not a leadership team but rather a group of leaders, thus indicating that they are struggling with their internal cooperation. The overall perspective within this group is that platforms are a uniform context that enables the organization to standardize most of its normal operations. Moreover, because the onshore team members are located physically far away from the platform, they highlight that they lack the feeling of anxiety and stress that can arise offshore: «[…] *we do not have any risk in here; the worst thing that can happen here is that the coffee machine shuts down. Out there, however, you know you have a giant gas tank right underneath yourself, and you are more aware of what you are doing. For us (onshore), it might feel more like playing a computer game; even if you understand theoretically what is going on, you are just too distant from the possible danger—and we can therefore ask to push the boundaries more. We must be aware of that.*» Thus, onshore teams are afraid of influencing their offshore peers to take actions that might expose them to more risk than necessary.

It follows that there are rather severe difficulties with communication and knowledge transfer between the offshore and onshore teams. This complication is largely explained by the use of technological communications tools, which enable a mechanical communication style wherein the team leaders take the most influencing roles in the discussions, while humor and irony—natural parts of their normal intra-team communication—must be omitted. Additionally, while discussing this topic, the onshore leaders reflected on the previous findings by claiming that it is almost impossible to bring novel solutions offshore without either traveling there or having some solid personal relationships to utilize. This last point is also highlighted by the offshore leaders as the most important factor in accepting onshore information and knowledge: «*It does not matter if you have been onshore*

for 10 years; you do not become an expert because of that. You must be in the field, attend the operations, and learn in that way.» Having offshore experience is seen as fundamental for enabling efficient collaboration and understanding. In addition, the quote supports the apprehension of in-group favoritism from the offshore leaders because the onshore colleagues are not fully accepted as experts.

Results during crises modes

The difference between leadership behaviors in normal situations and crisis modes – We collected SPGR data to document how the organization perceives ideal leadership behaviors during normal operations, and how they describe an efficient leader under crises modes. In order to uncover the differences in perceived behaviors between these two modes, we conducted a two-way paired t-test based on the average group functions. The results from the t-test on the average group functions are displayed in Table 5, which shows that the respondents describe an efficient crisis leader with significantly ($p < .001$) less nurture and dependence functions than the ideal leader in normal settings. Table 5 uses a scale from 1 to 9, where 1 is the minimum and 9 is the maximum displayed behavior.

TABLE 5: Average evaluation of the basic group functions for the described ideal leadership behaviors and efficient crisis leadership behaviors. Standard deviations in brackets behind the average values.

	Ideal behavior during normal situations	Efficient behavior during crisis
Control	6.39 (1.31)	6.57 (1.22)
Nurture	3.73 (1.15)	1.86*** (1.03)
Opposition	2.18 (1.40)	2.07 (1.14)
Dependence	6.99 (1.50)	4.07*** (2.13)

Note: ***$p < .001$

Qualitative data – Because incidents and impending situations can quickly evolve into major crises within this high-risk context, preparation with continuous drill exercises is seen as an important aspect in everyday activities. To ensure the framework and formal roles are well known, everybody goes through at least one emergency drill every period they are offshore. These trainings are described as relatively standardized scenarios, with some occasional novelty introduced into the situation. In addition, the entire leadership team also attends a specific training session every second year to ensure everyone is aligned with the overall organization's procedures. The drills emulate routines and practices—sometimes with surprising consequences. Once during a real evacuation, people ran into the lifeboat with their rescue suits in their hands, still wrapped up in plastic containers, ready to do the drop into the ocean. The response afterward was that this is how

they trained and they were taught not to smudge the suits, so actually wearing them did not even cross their minds as they focused blindly on following orders. In addition, tendencies to panic arose when the person in charge of the lifeboat actually released the emergency bolt to make the drop. This had also never happened during training. Several comparable examples were described, indicating that the way the trainings are performed creates standards that are hard to change as stress levels increase during real scenarios.

During the crisis mode, the organization changes from being well-structured and possessing autonomous leadership behaviors to a more rigid command and control style: "*Effectivity is important and has the highest priority.*" In this setting, the platform manager is the undisputed leader. S/he takes full responsibility and is involved in more or less all of the decisions that are made: *"As the platform leader, you have a particular responsibility, ranging above any title. You are the Captain; you have to make decisions and handle the pressure that follows […]. The platform leader must decide!*" While leadership in standard operations was seen as dependent on the personality of the leader, the crisis setting forces the platform leader to be tightly connected with a formal leadership role, one normally associated with a traditional military hierarchy's power and command structure*: "You are the commander, meaning that you give concise commands and orders. […] you do not give messages or inform. There is little, or no, democracy. The platform leader is the boss. Nobody questions this."* Whereas the leaders, if needed, significantly change their behaviors: "*[…] if it is not how you prefer to behave, you act a bit—raise your voice and make sure that you are confident enough to create trust and safety within the team.*» Being authoritarian and focusing on rules are leadership behaviors regarded as vital to success. If a leader fails to behave according to these expectations, the risk of losing the respect and integrity of the team is profound; and trying to regain what is lost is described as close to impossible.

During a diesel fire on the helipad—quite a dramatic situation that involved 35-meter-high flames and the loss of communication antennas—the involved platform leader explains that his job was to coordinate information, make decisions, and ensure those decisions were implemented. In addition, he focused on keeping calm and demonstrating that he was on the task and working proactively. Interestingly, the frontline teams did not notice or report that the helicopter personnel were safe, because they had performed an emergency take-off when they saw the fire. And due to the lack of communication antennas, they were not able to contact the helicopter crew until several hours later. Fighting this fire was demanding and pushed the involved personnel to the edge; some members actually froze and panicked, while others performed as they were trained to, and therefore helped solve the crisis. The leader says the successful recovery was a result of some degree of luck. The incident happened at a relatively safe place—good routines and great frontline performance as well as proper leadership.

Evidently, the operational structure completely changes when the alarm sounds, and the offshore teams adjust to the routines and procedures that they have

previously drilled during the training sessions. Notably, this indicates that the onshore team withdraws from an active role into a supportive one—only becoming involved if invited. The offshore teams try, in general, to rely on the expertise they have available on the platform and are reluctant to bring in anyone else. People are expected to step into their given roles and execute their assigned tasks, without raising questions or critiquing. There is little tolerance of failures of any kind. The platform manager must approve all exceptions from established routines; however, such exceptions are definitely to be avoided. Because each crisis mode is followed by a post-crisis review, one which emphasizes the importance of executing formal routines, the involved leaders can get into serious trouble if they deviate from the standards, even if both the intention and result is seen as positive. Nevertheless, the leader in charge does whatever he thinks is necessary in the situation and deals with the consequences afterward.

Conversely, the offshore leaders claim that leadership starts when the regulations and procedures stop, hereby embracing rapid decisions and clear orders: *"Everyone can lead during normal operations. […] The crisis setting speaks the truth; it shows the real you. Some get angry, some get calm, and some even become apathetic. The best leaders are able to make the tough decisions, prioritize, and identify what to communicate and not to communicate."* As such, decisions also involve though choices and are understood as a source for error. The results and outcomes can therefore vary in quality, and negative outcomes are largely explained by external factors outside the leader's control. It is clear from the interviews that the teams find it difficult to handle uncertainty and novelty, especially due to time pressure, strict routines, and the complexity of ordering everyone in the same direction.

Discussion

Our findings show that the utilized leadership practices found in normal settings in our studied teams facilitate dynamics that are typical for teams operating on a lower LoP. All around, both the intra- and the inter-team collaboration points to struggles in establishing a common understanding of the risks and details of a given situation. These arguments build on both the qualitative findings and the quantitative data. As such, the low degree of SMMs is profound in the data and therefore it is important to describe the teams' LoP. The in-group bias seems to hinder the teams in their attempt to reach for, as well as accept, new information and solutions. This bias is obvious, and tendencies of groupthink (Janis, 1972) and the Not-Invented-Here syndrome (Katz & Allen, 1982) are profound in the quantitative data. Some of the trouble can be related to context, the use of technological communication tools, as well as the fact that the IO structure enforces more routines, rules, and critical data structures. Therefore, possibly less engineering and human critical thinking is involved (Haavik, 2011). The qualitative data show that team leaders are obviously influenced by and try to align with the technological-driven and routine-oriented context. That is because the quantitative data show that usage of the control and dependence functions within the groups is prominent. Relying too much on big data and critical systems, though, might

provide a false sense of security and may become problematic when threats strike (Holloway, 1997; Kozlowski, Chao, Chang, & Fernandez, 2015; Rushby, 1994; Sull, Homkes, & Sull, 2015). In comparison, the SOF teams adapt to novelty and uncertainty through leadership and team dynamics, not technology and weapon systems. Teamwork is always the core in extreme military actions, and based upon this study's findings, so should it be within the O&G settings.

The mixed data show that the displayed leadership activities, which in large build upon the control function, do not enable team efforts that can help overcome the barriers in either normal or crisis settings. Contrary to facilitating interactions that enable the opposition function to open up curiosity and critical exploration between the team members, the leaders are in charge of coordinating and assembling information, making decisions, and giving directions. Such leadership behaviors give rise to concern, because the IO structure is supposed to be a catalyst that rapidly connects and transfers relevant expert knowledge, thus facilitating inter-team collaboration, learning, and innovation. Instead, the implemented leadership style enforces team behavior that shows a limited interest in the environment outside team members' boundaries and tasks.

Although the leadership practices vary according to personal preferences, there is ample evidence in the qualitative data that illustrates the teams favor the idea of having a strong single leader. We also found that the preferred ideal leadership behaviors are theoretically capable of eliciting active participation from everyone in the team. The actual leadership findings, however, show the contrary, because the teams contain only a few influencing members and display low abilities to raise critical questions and thereby challenge established truths. Notably, the leadership behaviors seem to satisfy intra-team needs as long the context remains stable, although the qualitative data clearly document some obstacles within the inter-team collaboration. These findings can be related to a sub-optimization as the team leaders try to boost the performance within their specific group without a clear understanding of the general strategy. In so doing, proper alignment with the overall organization suffers (Sull et al., 2015).

Both the qualitative and quantitative data indicate that the onshore team is perceived as more controlling than the offshore teams. Notably, the quantitative results also show tendencies toward more polarization in the onshore team, but these findings are not significant and are profound behaviors within the offshore teams as well. Admittedly, the team members seem to be aware of the polarizations and the diversified SMMs, but due to the low will to provide critique, they fail to raise questions that help challenge and overcome these problems. In addition, the low levels of SMMs indicate that the team members hold different perceptions of their colleagues and tasks, which again relates to the tendency to look into the rules and routines for solutions. While the overall power is held by the offshore teams and the platform leader, the purpose of the collaboration with the onshore members might be seen as a bit undermined. The onshore team, in fact, works as a hub within the IO structure and is responsible for coordinating and facilitating contact with the larger network. Owing to the findings, however, the question may be raised as to

whether the offshore teams and leaders really understand the rationales and tasks of their onshore peers.

Our results also show that the respondents describe the efficient crisis leaders with less focus on nurture and dependence functions, which again contribute to more salient autocratic and task dominant leadership behaviors. This is actually contrary to the findings that show that the efficient leaders in chaotic and dangerous situations are the ones who display truly empathic and vigilant behaviors toward their subordinates (Bachman, 1988; Sjøvold & Stålsett, 2016). These studies illustrate that that one of the most important traits of leaders with supreme performances is their friendliness and genuine interest in subordinates, even in the chaos of frontline warfare. Contrarily, the average performing leaders followed behaviors more similar to the ones we have documented.

It would be reasonable to assume that the teams' LoP should be lifted upward to enable coping with complex and uncertain situations. In contrast, both the quantitative and qualitative data show quite the opposite. Instead of enabling dynamics that advance the team's LoP, the platform leader steps up as the supreme leader and forces people into fixed roles—indicating that s/he is enabling even slower and more static dynamics than those found during normal operations. The leaders in the studied company claim that this strategy is based on the military approach to uncertainty and threats. This way of interpreting advanced military strategies, however, is actually quite wrong and outdated. Alberts (2007) suggests renaming the command and control perspective "focus and convergence" to help the military—and others—eave the imprinted original ideas. Military teams that truly surpass expectations in novel and uncertain situations have clearly left the single authoritarian leader and embraced collective leadership with advanced interactions. These leadership behaviors build upon continuous training, with utilization of the full range of group functions and enablement of SMMs being fundamental.

Another consequence of the utilized crisis leadership is that the qualitative data show that inter-team collaboration between offshore and onshore teams is minimized. To try to be efficient, the offshore teams try to avoid talking with their onshore peers and handle the situation alone. This strategy, however, is the opposite idea behind the rationale of the IO structure, because many of the experts have moved to onshore locations. As noted, this structure strictly relies on procedures and routines. Deviating from the formal routines is perceived as highly negative, even during crises when thinking outside of the box in order to create innovative solutions is needed. Indeed, punishing attempts to innovate and work outside boundaries efficiently stops teams from displaying the dynamics needed to adapt to uncertainty and novelty (e.g., Edmondson, 2012; Edmondson, Bohmer, & Pisano, 2001; Garvin, Edmondson, & Gino, 2008; Sjøvold, 2006b, 2014b). A vital part of the military SOF training is to understand when it is accepted, or not, to break formal routines and orders (Danielsen, 2015). Building such situational understanding into the O&G industry's training should be fruitful to help the teams innovate and handle pressure.

In a setting where an interplay between teams is needed, the executed crisis

leadership practices displayed in both our qualitative and quantitative data cause some concerns. While these leadership behaviors obviously hinder the facilitation of inter-team collaborations, they also obstruct the teams from breaking out of drilled patterns and procedures that are often obviously inadequate for the situation at hand. This inadequacy can become especially dangerous if the teams face high levels of uncertainty when individual "heroes" fail to save the day, meaning that the teams require the strength and knowledge from all teammates to operate at a high LoP.

Indeed, changing the existing institutionalized command and control crisis procedure to a new setting with dynamic interactions between several teams will be demanding and must involve all personnel. In fact, trying to establish such teamwork without a collective organizational effort can lead to rejections (Krabberød, 2014). This propensity is exemplified in the Mann Gulch disaster, where 13 men died when they failed to follow the unexpected orders from their new leader (see Weick, 1993). Shamir (2011) explains that collective and dynamic leadership approaches are not consistent with people's leadership theories and therefore the idea of being proactive in situations missing preplanned responses seems counterintuitive. However, the benefits of team leaders who can enable high LoPs, and thereby enhance a dynamic inter-team collaboration with shared leadership, cannot be ignored. Indeed, such team leadership behaviors will be highly beneficial in both normal and crisis settings.

Limitations

We have conducted our research within one part of the IO structure in a single company. Nevertheless, based on our meetings, this setting should be representative of the whole organization. Furthermore, building on the statements from the involved executives as well as previous work (e.g., Andersen & Mostue, 2012; Tinmannsvik et al., 2011), the studied context should also be representative for most of the IO structures found in the oil and gas sector. Hence, arguing for the unique context and not generalizing the findings too broadly are similar to what several researchers have found (e.g., Johns, 2006; J. Martin, Feldman, Hatch, & Sitkin, 1983).

Another important limitation is that we did not observe or quantitatively measure the teams in a crisis setting. Still, the systematic data collection gave a clear description of how the participants expected to perceive their leaders in crisis modes. Future research might deepen and broaden the understanding of the crisis settings by using more innovative measurement solutions as sociometric badges (see Kim, McFee, Olguin, Waber, & Pentland, 2012; Stålsett & Sjøvold, 2016). Such novel electronical wearables can help display real-time interaction patterns within the teams. In so doing, they can help guide the teams and leaders to develop necessary behaviors. We also suggest that future research should expand our work into new contexts and industries. In addition, we specifically believe that the extreme settings found in the frontline of military work can supply valuable knowledge, because these teams always work with novelty and uncertainty. Their ability to innovate and solve problems should thus be of deep interest for innovative

frontline teams in civilian settings.

Conclusion and implications

The team leadership behaviors witnessed within the IO structure in our study facilitate unhealthy interaction patterns within the teams. Even if the teams seem to function relatively well during normal situations, they struggle with communication and collaboration problems. Furthermore, the leadership behaviors vary from team to team, depending on personal traits and expertise. This variation is somehow ironic since the organization tries to standardize all procedures in an effort to make their structures and collaborations as efficient and transparent as possible. Our mixed data show that the organization enforces authoritarian leadership practices that prevent inter-team collaboration and innovative behaviors during novel circumstances. In fact, the strong emphasis on procedures and routines for the sake of efficiency seems to be more important than the ability to innovate and solve problems.

By comparison, the Special Operation Forces teams in the military do have a formal leader, but the leadership activity is not necessarily bound to the formal position. These teams illustrate that leadership activities can be facilitated and shared within the team, without the loss of formal power or depriving the leader of his or her responsibility. Such military teams interact with the flexible dynamics found in teams operating at a high LoP. In such groups are individuals who are expected to challenge the status quo and even break orders if needed to solve the task at hand. These highly adaptable military teams have a clear understanding of their overall goal and recognize how they should cooperate to push forward toward innovation and better solutions. Similar mentality, group dynamics, and leadership behaviors should be implemented in the O&G teams in order to excel and innovate during a crisis as well as foster a cooperative and innovation-friendly environment during normal operations.

In sum, the leadership behaviors found in our case actually hinder teams in efficiently shifting from routine to crisis operations. As such, the established practices facilitate fewer advanced intra-team dynamics during normal operations, putting the teams in an unfavorable position for inter-team collaboration. Further, the shift into crisis operations actually reinforces this situation by creating even less flexible and adaptable teams. Meanwhile, the teams should actually become flexible if they want to adapt and innovate. Our findings suggest that leaders have a distinct responsibility to balance their behaviors in order to align their teams with their tasks and operational circumstances. This obligation is especially true in the technological-heavy, but relatively young, IO structure found in the Norwegian oil and gas industry. We found that the leaders generally struggle with this balance and that the implemented authoritarian principles actually prevent dynamic, collaborative, and innovative intra- and inter-team behaviors. Obviously, such negative traits can be dangerous in a highly dynamic and ever-changing context.

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Citation

Abstract

From routine to uncertainty: Leading adaptable teams within integrated operations

This paper investigates how leadership behaviors affect offshore and onshore teams' ability to adapt from their normal routine to crisis operations in the oil and gas industry. The industry has invested substantial resources into risk and crisis management, emphasizing evidence-based procedures, drills, and centralized leadership. Through a multi-method case study, we find that the utilized leadership practices hamper efficient intra- and intergroup cooperation during normal routine operations. In addition, and more alarming, the shift to authoritarian "control and command" leadership during crisis settings, which emphasizes rapid decisions and effectivity, hinders teams' ability to adapt to and handle unforeseen and chaotic situations. To change this situation, we argue that the oil and gas industry should look into modern maneuver warfare to innovate organizational practices. Maneuver warfare has abandoned command and control strategies and instead focuses on contextual leadership and autonomous teamwork.

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