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An attention-based view on managing information processing channels in organizations

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ABSTRACT

This paper investigates how information processing channels can be managed such that relevant and novel information about the environment is gathered despite attention biases of top managers and challenges to maintain motivation levels of information providers. We argue that organizations need open and transparent information processing channels, which make top managers accountable. Furthermore, middle managers dedicated to managing these channels who act as a bridge between the information providers and the top managers help to reduce the information overload for top managers. This increases the likelihood that top managers will take appropriate action on the information provided and give suitable feedback to the senders. Lastly, these actions will only be beneficial when they are aligned with company strategy and values.

1. Introduction

The environment of organizations is often complex and diverse - it is a challenge for organizations to notice, interpret and act upon relevant and novel information from all the various potential sources that are available (see Meinhardt, Junge, & Weiss, 2018). This information includes patterns and trends in the organization's environment, i.e. customer preferences, technological changes, political regulations, socio-economic changes, suppliers, and strategies of the competitors (Daft, Sormunen, & Parks, 1988). Generally, top managers are responsible for scanning the environment and developing channels through which they can get information about the environment as they are in control of the strategic decision making of the organization. However, they also depend on information about the environment that they receive from actors present within the organization (mainly employees) and outside it (including customers, suppliers, and competitors) (Aguilar, 1967). External actors offer a direct source of information about the environment; they can inform top managers directly about new market opportunities. Employees, however, can act as mediators of market opportunities and increase the company's ability to act on them, especially when they are at the frontline of the market. Employees can then form the link between the external actors and the top managers because they have regular contact with key actors in the external environment,

mainly with the customers and suppliers. Hence, they can provide rich and up-to-date information about the environment based on their experiences and interactions with actors in the external environment (see Sawyerr, McGee, & Peterson, 2003).

Organizations have different channels through which top managers can obtain information about the environment. These channels can be split in two categories, one relating to information from internal and the other one from external sources. A common channel for the sharing of information within the company is a suggestion system, which is an old and established "administrative procedure for collecting, judging and compensating ideas, which are conceived by the employees of the organization" (Ekvall, 1971: p. 13). For external sources of information such as customers and suppliers, companies use a wide variety of channels, ranging from online platforms for customers to suggest new product ideas (such as Dell Idea Storm and StarbucksIdea) to social media outlets such as Twitter and Facebook: modern communication platforms where customers can for instance give suggestions to companies on how to improve their product and service offerings voluntary and in an informal manner (cf. Dahlander & Piezunka, 2014; Howe, 2008). Lastly, information providers can also convey their information to top managers directly, for example in face-to-face meetings or through e-mail.

Having multiple information channels can create a challenge for top

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managers as they have limited attention: they cannot cater to all the information being made available (Feldman & March, 1981). Instead, the top managers have to be selective about the nature and extent of attention they give to the different channels (Cyert & March, 1963; Ocasio, 1997). In this scenario, however, research has pointed out that top managers are generally faced with an attention bias, where they prefer to give attention to information that relates to their existing knowledge, rather than being attracted by up-to-date information that is novel for them (Monteiro, 2015; Piezunka & Dahlander, 2015). This is rather alarming, as Rerup (2009) argues that top managers need to have a diverse attention span in order to cope well with any future business crisis. This is mainly possible when top managers can effectively direct their attention towards multiple channels or sources of information about the environment, thus increasing the possibility to obtain diverse, relevant, and up-to-date information to improve their decision-making, rather than use it only for symbolic purposes, i.e. collecting or asking for more information than what is actually useful (Feldman & March, 1981).

Attention to multiple and diverse data sources is only possible when the top managers can switch attention across the different channels, but at the same time do not exert a lot of time, effort, and resources in order to obtain information from a particular source. Extra focus on a specific source of information negatively impacts the level of attention that the top managers can direct towards other channels that can also be used to obtain information about the environment (Li, Maggitti, Smith, Tesluk, & Katila, 2013; Ocasio, 2011). In addition, attention acts as a signal for the information providers present within or outside the domain of the organization; the attention decisions by the top managers, and the way in which they are justified and communicated, can help the information providers in gauging or getting a sense of the importance given to their information that they shared with the top managers (cf. Ajzen, 1987; Kim & Mauborgne, 1993). Information providers are curious to know whether the information they have provided has reached the top managers and some form of action is being taken upon it; this has an impact on their motivation levels to continue providing information about the environment in the long run. If the information providers feel that due importance is not being given to the information provided, then they might decide to stop providing any information in the future, which can negatively affect the entire organization (cf. Steinel, Utz, & Koning, 2010).

Ocasio (1997) highlighted the importance of communication and procedural channels within the organization in directing the attention of decision-makers: attention decisions of top managers depend on whom they communicate with and through which mediums (e.g. in formal business meetings, informal face-to-face encounters, or by using e-mail) (Ocasio & Joseph, 2005; Ocasio, 1997). These communication and procedural channels (according to the attention-based view of the firm) are viewed as "pipes and prisms for information processing" (Ocasio, Laamanen, & Vaara, 2018: p. 157), rather than places where actors actively collaborate and make sense of each other's viewpoints, and where ideas are challenged and developed through active discussion (Christensen, Morsing, & Thyssen, 2017; Widen & Hansen, 2012). Hence, in this paper, we will refer to them as information processing channels, as we focus on how organizations gather, interpret, and act upon the information obtained from the environment (cf. Daft & Weick, 1984). We view information sharing as a first step in the larger and more complex communication processes in organizations (Craig, 1999; Deetz, 1992; Ocasio et al., 2018) and focus our paper on this step.

Academic research on the topic of attention has primarily focused on either the determinants of attention (e.g. the weight and voice of subsidiaries in multinational companies: Bouquet & Birkinshaw, 2008) or the outcomes of the attention patterns of top managers (e.g. social performance, Muller & Whiteman, 2016; or financial performance, Ambos & Birkinshaw, 2010). The research to date has failed to give an adequate focus to the design and management of information processing channels, especially with regard to how the attention constraints faced by the top managers can be reduced (for a literature review on attention research, see Ocasio, 2011). Hence, in this paper, we will examine the following question: *how can organizations manage and sustain information processing channels in order to obtain relevant and novel information about the environment?* This will be done using the attention-based view of the firm as the theoretical framework, because it deals with how top managers divide and sustain their attention towards different sources of information and actors present within and outside the bounds of the organization (Ocasio, 1997, 2011).

Our paper deals with two main challenges in this regard, which are at the two opposite sides of the information processing channels. First, the attention of top managers should be directed towards information obtained from multiple channels, ideally enabling them to search for information that allows them to effectively engage in future planning and strategy formulation, despite the challenges related to their own cognitive biases. Second, the motivation levels of information providers should be sustained so that they will perceive their efforts as worthwhile, inspiring them to participate in information sharing in the long run. We will address both these challenges in further detail in the next two sections.

2. Attention constraints of top managers

Quantity of attention has been a central concern for research on this topic, as top managers in organizations are faced with more information than they can easily handle (Feldman & March, 1981). Hence, behavioral theorists argue that they must be selective in terms of the information they decide to address (Cyert & March, 1963). Top managers can use multiple channels to gather information about the environment of the organization: they have to decide how much attention to give to each channel and how to prioritize them based on their strategic value to the organization (cf. Ocasio & Joseph, 2005). It is critical for top managers to distribute their attention across multiple channels of information, because the nature and characteristics of information can vary across the different sources and mediums used for information sharing (Rerup, 2009). For example, information that allows managers to improve the internal organization is likely to come from internal sources like middle managers or employees, while ideas related to the delivery or presentation of its products or services can come from internal, but also from external sources, like consumers. These different groups of information providers also likely use diverse channels for sharing the information: for instance, face-to-face communication might be more easily available for internal rather than for external actors (see Mishra, Boynton, & Mishra, 2014; Payne & Frow, 2004). This means that top managers cannot devote their resources to obtaining information about the environment from one specific channel only, they need to carefully manage time and efforts to obtain information from multiple channels or the communication system as a whole (Li et al., 2013). As a result, top managers can only devote a limited amount of time and effort to each channel and novel (relevant) information can only be noticed and acted upon when the top managers can increase their quality of attention (cf. Dane, 2013).

Quality of attention has often been neglected, as the main focus of research has been on the quantity of attention. Quality of attention refers to the ability of top managers to look out for relevant, novel, and up-to-date information in the environment (see high reliability organizations: Weick, Sutcliffe, & Obstfeld, 1999), which is primarily possible by being open and flexible (i.e. being mindful) to any information that counters the existing knowledge and expertise of the top managers (Weick & Sutcliffe, 2006). Research has shown that top managers find it challenging to accommodate and act upon novel information (i.e. increasing the quality of attention); top managers (like any human being)

are prone to select their attention towards information that is close to what they already know or relates to their existing experience (Monteiro, 2015; Piezunka & Dahlander, 2015). In a similar vein, top managers are reluctant to search for information in distant channels – for example, employees that are in the periphery of the organization or the employees that do not have regular communication with the top managers – which can be a source of novel information about the environment (Haas, Crisculo, & George, 2015). Furthermore, information overload magnifies this problem of neglecting attention to novelty: in situations of too much information coming their way, top managers have a tendency to narrow their vision through simplifying and rationalizing the filtering of the information available to them (Dahlander & Piezunka, 2014). The result is that they solely focus on information that supports sustaining the status quo rather than facilitating any change in the organization (Piezunka & Dahlander, 2015).

3. Motivation of information providers

Motivation research has primarily focused on why people choose a particular action, rather than opting for the alternative course of actions; a key challenge for organizations is to motivate information providers, through financial incentives, leadership, culture, or structure, to continue providing valuable information about the environment to the top managers (cf. Ajzen, 1987; Mullins, 2005). Employee participation in information sharing is generally considered a voluntary activity and is not a formal part of their job description (Katz, 1964). In addition, companies like IBM, NASA, Starbucks, and Dell have established online platforms to allow external contributors to interact with the members of the company and provide suggestions to improve or introduce new products. This primarily relates to allowing customers to engage in co-creation through sharing of ideas (see for a typology of customer co-creation: OHern & Rindfleisch, 2010). Most of these companies provide negligible or no financial incentives to people who provide suggestions that are acted upon by the top managers (Bayus, 2013; Boudreau & Lakhani, 2009; Dahlander & Piezunka, 2014).

In the absence of financial incentives, intrinsic motivation - the desire to engage in a certain behavior as it is internally satisfying rather than based upon financial rewards (extrinsic motivation) - is the primary driving force for information providers, primarily employees and customers, to actively participate in the information sharing (Ryan, Kuhl, & Deci, 1997). Intrinsic motivation of information providers, both inside and external to the organization, is linked with whether their voice is being heard and actions are being taken on it by the top managers or the company in general (Morrison, 2014; Tangirala & Ramanujam, 2012). Jeppesen and Frederiksen (2006), for example, found that external contributors to an online community established by a company producing computer-controlled musical instruments, were motivated to share their innovative ideas when their contributions received explicit attention from the company. This generally applies to customer co-creation, as it only works when customers are given freedom to provide suggestions and have a realization that their voices will be heard, which depends on proper attention (both cognitively and through actual allocation of resources) being given to the customers by the top managers (see Khanagha, Volberda, & Oshri, 2017; Prahalad & Ramaswamy, 2004). Likewise, research shows that proper attention and respectful treatment by managers of information providers from within the organization enhances the motivation of employees to share knowledge. In the terminology of organizational justice research, the motivation to share knowledge increases when organizations show interactional and procedural justice (Greenberg, 1987). Interactional justice guarantees that all information providers are treated with respect and dignity by the top managers irrespective of the recognition of the value of the knowledge shared, whereas procedural justice refers to the absence of biases in the decision making procedure (cf. Greenberg, 1990; Kim & Mauborgne, 1993; Tyler, 1988).

4. Case illustration: information processing channels at Handelsbanken[1]

Handelsbanken is a multinational bank with its corporate headquarters located in Sweden and core operations in Denmark, Finland, The Netherlands, Norway, Sweden and the United Kingdom. An important aspect of the bank's organization is the autonomy of the local branch offices, especially in terms of making decisions regarding daily banking activities. Customer satisfaction is the core value of the bank, which is emphasized and shared throughout all branch offices and international locations of the bank. Hence, top management is keen on learning from the employees in the local branches about new business ideas and services that may improve the customer's experience. Handelsbanken realized that a customer driven organizational focus only works out when employees having regular contact with customers actively share suggestions or ideas on how to deliver products or services that can satisfy the customers. Hence, they have strived over the years in order to develop a system of information processing channels that ensures regular input of ideas from the employees working in local branch offices, benefitting from their close connection with the external environment, and helps to create a flat and informal organizational culture. The bank has also been able to adopt these channels at a global scale.

Information sharing within Handelsbanken is often direct and informal: employees are encouraged to simply pick up the phone, e-mail, or talk face-to-face with a top manager to discuss any business idea. Furthermore, the bank uses two formal information processing channels that systematically transfer business ideas from the local offices to headquarters in Sweden: monthly management reports discussed in managerial meetings and an online system for the distribution of business ideas. The *monthly reports*, introduced in the 1970s, are mandatory reports that all business units in the organization, from local branches to regional offices and functional units, submit upwards, to be filtered in managerial meetings, discussed, and moved up to finally arrive at headquarters in Stockholm. The reports mainly consist of reflections on ongoing activities and suggestions for business activities in the future. Furthermore, the *online idea system*, started in 2000 in Sweden, is an electronic system used for obtaining information about customers and implementing business ideas that lead to better customer service. Contrary to the monthly reports, the online idea system is not mandatory or managerially driven. All employees at the bank have direct access to the system and there are no restrictions on the business ideas entered. The system is transparent because the complete information about any particular business idea is available and is accessible to all employees.

Certain employees within the bank are given the role of acting as managers of the *online idea system* – they review all business ideas and suggestions (without filtering out any) shared in the system and direct them to the best person in top management to address it (mainly business area specialists and product owners). The top managers then interpret the suggestion, make a decision, and convey it to the employee who initially shared the business idea. The idea system managers act as intermediaries: they keep a check on the quantity of

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[1] We used the following documentation to prepare this case illustration: (1) Annual report of Handelsbanken 2017: https://www.handelsbanken.com/shb/inet/icentsv.nsf/vlookuppics/investor_relations_en_q-reports_hb_2017_eng_annualreport/$file/hb_2017_eng_annualreport.pdf, [accessed on 10 November 2018], (2) Kroner, N. (2011) *A blue print for better banking: Svenska Handelsbanken and a proven model for more stable and profitable banking*, Harriman House, Hampshire, UK. (3) Wallander, J. (1999) Budgeting-an unnecessary evil. *Scandinavian Journal of Management*, 15(4), 405-421. We further base ourselves on eight face-to-face interviews with top managers in Handelsbanken Sweden and the UK (member of Board of Directors Handelsbanken AB, CEO UK, Senior VP Sweden, Chief Operating Officer UK, Idea system managers UK & Sweden).
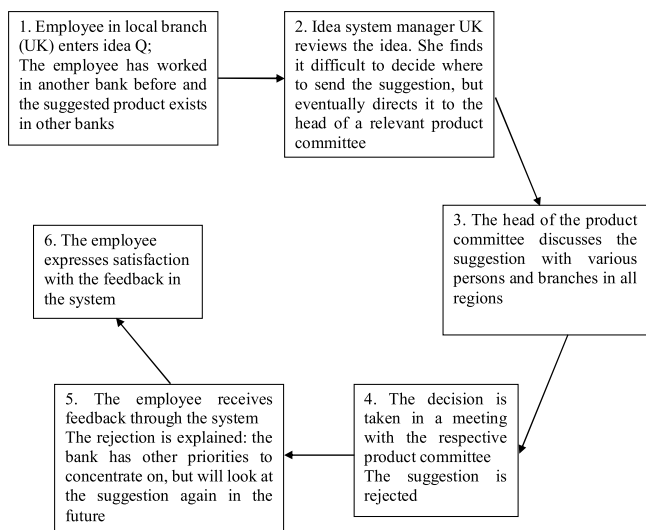
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┌─────────────────────────┐     ┌─────────────────────────┐
│ 1. Employee in local    │     │ 2. Idea system manager  │
│ branch (UK) enters      │────▶│ UK reviews the idea.    │
│ idea Q;                 │     │ She finds it difficult  │
│ The employee has worked │     │ to decide where to send │
│ in another bank before  │     │ the suggestion, but     │
│ and the suggested       │     │ eventually directs it   │
│ product exists in other │     │ to the head of a        │
│ banks                   │     │ relevant product        │
│                         │     │ committee               │
└─────────────────────────┘     └─────────────────────────┘
                                            │
                                            ▼
┌─────────────────────────┐     ┌─────────────────────────┐
│ 6. The employee         │     │ 3. The head of the      │
│ expresses satisfaction  │     │ product committee       │
│ with the feedback in    │     │ discusses the           │
│ the system              │     │ suggestion with various │
│                         │     │ persons and branches in │
└─────────────────────────┘     │ all regions             │
         ▲                      └─────────────────────────┘
         │                                  │
┌─────────────────────────┐     ┌─────────────────────────┐
│ 5. The employee         │     │ 4. The decision is      │
│ receives feedback       │     │ taken in a meeting with │
│ through the system      │◀────│ the respective product  │
│ The rejection is        │     │ committee               │
│ explained: the bank has │     │ The suggestion is       │
│ other priorities to     │     │ rejected                │
│ concentrate on, but     │     │                         │
│ will look at the        │     │                         │
│ suggestion again in the │     │                         │
│ future                  │     │                         │
└─────────────────────────┘     └─────────────────────────┘
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Fig. 1. Steps in Handelsbanken's online idea system for an Example Idea Q (total length of process: 47 days).

business ideas that each top manager must evaluate, while at the same time making sure to forward the business ideas to those top managers with related expertise, hence guaranteeing that the top managers have sufficient time and the necessary experience to appropriately interpret and take decisions on the business ideas. This ensures that a response is given on all the business ideas, which is a critical component of the online idea system. The response includes a decision on the implementation of the business idea (basically, a yes or no) and an explanation of the decision. The employees are successively asked about their level of satisfaction with the decision, and they can ask for additional explanation if not completely satisfied (see Fig. 1 for an example of an idea presented by an employee in the online idea system).

5. Attention based view of the firm

The attention-based view (ABV) is a perspective that allows us to study how decision-makers in organizations focus their attention. It tackles the question: how do top managers prioritize, select, interpret, and act upon the information that they obtain about the environment from the multiple and diverse sources available to them? ABV has gained a growing interest in the literature on strategic organization since its introduction by William Ocasio in 1997. Grounded in the work of Herbert Simon (1947) and Karl Weick (1988; 1995), Ocasio's (1997; 2011) attention-based view focuses on the cognitive and social structures that direct attention in the organization. Attention is defined as the "noticing, encoding, interpreting and focusing of time and effort by organizational decision-makers" on issues in the environment and possible solutions for how to tackle them (Ocasio, 1997: 189). Attention is a scarce resource: top managers have only limited time, effort, and resources available and therefore need to be selective regarding the issues they devote their attention to (Cyert & March, 1963). According to the ABV, not only cognitive limitations of (top) managers define which issues (and solutions) they can give attention, but also organizational structures influence which issues come to the attention of top management. These structural components are mainly the channels through which top managers obtain information about the environment and the procedures used to transfer information. Cognitive limitations affect how much information from the environment top managers can take in and interpret (cf. Simon, 1947; March & Simon, 1958). This often makes them specifically attentive to those issues that relate to their current knowledge and experience and to information supporting decisions already made (Dearborn & Simon, 1958; Feldman & March, 1981). Extra efforts are therefore needed to bring novel information

from the environment to the attention of top management (Dahlander & Piezunka, 2014), for example through using specific ways of communicating (cf. Monteiro, 2015) and other structural initiatives (Khanagha et al., 2017).

Indeed, organizations can structure the flow of information such that they can guide top managers' attention to those issues and solutions that are in the organization's best interest, despite their cognitive limitations. Ocasio defines this structural dimension as "the formal and informal concrete activities, interactions, and communications set up by the firm to induce organizational decision makers to action on a selected set of issues" (Ocasio, 1997: 194). Information processing channels, for example, can be structured such that top managers have access to and can take notice of novel or diverging information from different parts of the organization (Rerup, 2009), or its environment (Dahlander & Piezunka, 2014), instead of maintaining a focus on information that confirms existing knowledge. Ideally, these channels should ensure that managers also give attention to unfamiliar issues, thus increasing the quality of attention (Weick & Sutcliffe, 2006; Weick et al., 1999). Organizations can also develop structures and routines that allow managers to deal better with the attention load (Cohen, March, & Olsen, 1972) in case of too much information or crowding (Piezunka & Dahlander, 2015; Sullivan, 2010). Wilson and Joseph (2015), for example, suggest that organizations can use both specialization and coupling of attention to manage such information overload. Specialization refers to a division of attention within the organization that allows managers to develop routines with regard to certain issues or problems, while they neglect others (Rerup, 2009; Wilson & Joseph, 2015). If organizations in addition manage to develop linkages between managers with diverse specializations, and make sure that a certain shared focus exists among them (i.e. coupling), this will allow managers to connect with others beyond their own specialization and explore new issues and solutions in communication with them (Ocasio & Joseph, 2005; Wilson & Joseph, 2015).

The focus of attention relates to the specific issues that actually receive the top managers' attention; it can be seen as the result of the interplay between the broader strategic orientation of the organization and the routine operational activities conducted by top managers, such as interactions with employees and interpreting company documents like financial reports and strategic plans (Ocasio, 2011). Ideally, the strategic orientation and routine operational activities of the top managers should be aligned with each other, resulting in focus of attention towards meaningful issues that are indeed strategically important for the organization (Elsbach, Barr, & Hargadon, 2005), because else the organization risks to miss strategically important information (Haq, Drogendijk, & Blankenburg Holm, 2017). In general, the focus of attention depends on four inter-related factors: a) rules of the game, b) resources, c) players, and d) structural positions (of the players involved) (Ocasio, 1997). These factors will be discussed in further detail in the following sub-sections, in order to develop our understanding of the information processing channels in light of the attention-based view of the firm.

5.1. Rules of the game

Rules of the game are "the formal and informal principles of action, interaction, and interpretation that guide and constrain decision makers in accomplishing the organization's tasks and in obtaining social status, credits, and rewards in the process" (Ocasio, 1997: 196). In simple terms, rules of the game can be viewed as a combination of company strategy, organizational structure, organization culture, and values; formal organizational aspects like structure and strategy have a more direct influence on how top managers divide their attention over issues and solutions, while informal aspects may affect direction of attention through more tacit mechanisms (cf. Crilly & Sloan, 2014). Organizational values, for example, can be seen as the guiding light, which define the way things are done in an organization and which issues should

be given a higher priority – they are thus closely aligned to the strategic direction and vision that a company pursues (cf. Bansal, 2003).

Organizational culture and values have an impact on knowledge sharing and the functioning of the information processing channels of the organization (Michailova & Minbaeva, 2012). This means that in the first place, organizational values help internal providers of information to determine their role and importance in the organization (cf. Crilly & Sloan, 2014; Weick, 1988). For example, when organizations wish to stimulate the sharing of information and learning among their employees, they should emphasize informal values and a flat organizational culture which encourages and supports information sharing (Huang, Rode, & Schroeder, 2011; Nonaka & Takeuchi, 1995). Employees who feel empowered to share ideas for improvements with management are more likely to do so, using the available channels. Similarly, organizations who wish to stimulate external actors to share their innovative ideas with them, for example through online platforms, are found to receive relatively more useful contributions when they are seen as engaging, active, and empowering (Dahlander & Piezunka, 2014), which resonates with values like openness, receptiveness, and equality in information sharing.

Second, a shared set of values can guide attention of top managers and information providers towards specific issues that are of strategic importance for the company (Ocasio & Joseph, 2005). These shared values signal to the employees what is relevant for the organization; in addition, top managers also actively search and act upon the information about those strategically important issues (cf. Cho & Hambrick, 2006). For example, organizations whose shared values emphasize that it is important to bring excellent service to the customers tend to stimulate employees to share ideas that may improve the customer's experience as shown by the case of Handelsbanken. In addition, shared values also make the top managers notice and act upon the information provided by the users or customers directly through platforms like StarbucksIdea and Dell's IdeaStorm, or indirectly through contact with employees working in the organization.

Finally, and importantly, the formal and informal aspects of the rules of the game are a means of aligning top managers' understanding and decision making when they have diverse domains of expertise. Especially, organizational values are instrumental to achieve coupling of attention, since they facilitate a shared focus for managers working in different subunits or functions: as an example, for a company with a customer driven focus, managers working in both the marketing and finance department will be striving towards providing the customers with quality products and service at an affordable cost (Wilson & Joseph, 2015). In addition, one can think of structural solutions to connect different subunits and functions; for example, by using cross-functional project teams or other lateral linkages (Mintzberg, 1979; Van Donk & Molloy, 2008). Furthermore, it is more effective when managers empower employees to act autonomously upon the core organizational values than when they pair open information sharing values with hierarchical control (cf. Stanko & Beckman, 2015). This strengthens the idea that formal and informal aspects of the rules of the game function in tandem to direct the attention of top managers towards information providers within and outside the organization.

Proposition 1. Open and flexible formal and informal rules of the game make top managers receptive to relevant and novel information, and motivate information providers to actively participate in sharing information.

5.2. Resources

Organizations have to allocate resources in order to properly manage the information processing channels, hence ensure that the desired objectives of the rules of the game materialize. An innovation driven culture can only be achieved when (financial) resources are allocated in the management of the information processing channels both

in the platform or channel used for information sharing (which will be discussed in more detail here) and the human resources (which will be discussed in a later sub-section). The ultimate objective of these resource allocations is to reduce the information overload of the top managers; this will increase the attentional slack, meaning that they can invest more time and effort (which is also a resource) in interpreting and acting upon the information made available to them (this will also be discussed in more detail in later sub-sections) (cf. March & Shapira, 1992; Nohria & Gulati, 1996).

Information processing channels are the medium (or platform) used for information sharing between the information providers and the top managers within an organization, so investing resources in having these channels helps to reduce the uncertainty faced by information providers about where to share the information and makes them confident that they can use this medium to reach the top managers with their messages (Fairbank, Spangler, & Williams, 2003), which is a first step in the communication process in organizations (Craig, 1999; Deetz, 1992; Ocasio et al., 2018). For example, if customers have a complaint or a suggestion for product improvement at Starbucks, they can use the StarbucksIdea platform to convey this information to the relevant managers within the company (cf. Bayus, 2013). In addition, top managers are able to systematically search for information about the environment through these specific mediums; in the absence of information sharing platforms, top managers are more likely to search for information from stakeholders that they regularly interact with – information sharing platforms allow an opportunity for peripheral stakeholders to raise voice and reach out to top managers with their messages (cf. Monteiro, 2015). They can also serve as repository of the information received, thus allowing top managers to properly keep track of the information rather than it popping up through the routine communication mediums present in most organizations, such as telephone or e-mail, on a sporadic basis.

Unfortunately, the mere presence of information processing channels, like the platforms discussed above, is not enough; resources also have to be used by the top managers to actively manage these channels as well to ensure that they function effectively and smoothly. Top managers can take numerous actions in this regard, but crucial is that they give due attention to the information being provided, for instance by effectively using their slack attentional resources, and by supporting the transparency of the channels (cf. Dahlander & Piezunka, 2014). Transparency refers to "the degree to which the communication network is sufficiently clear and accessible, in order to let everyone understand the input and progress made" (Moenaert, Caeldries, Lievens, & Wauters, 2000: p. 364). Transparency increases pressure on top managers to make fair and equitable decisions requiring extra investment of time and effort on their part; transparency makes the top managers more accountable for their decisions because everyone in the organization can monitor them (cf. Seligsohn, Liu, & Zhang, 2018; Watts, 2015). On the contrary, lack of transparency can potentially increase the tendency of top managers to ignore the information that does not comply with their existing knowledge (cf. Dearborn & Simon, 1958). It is important that transparency is paired with informal values and a flat organizational culture as argued above, as from an employees' point of view the disclosure that comes with transparency may be risky when not supported by the rules of the game. Transparency in information processing channels, though not a panacea to all information problems, benefits procedural and interactional justice in the decision-making of top managers. This is necessary to keep the information providers motivated and willing to participate actively in information sharing – the information providers can observe that the top managers are eager to listen and accommodate the information being provided (Tangirala & Ramanujam, 2012).

Proposition 2. Investing resources in transparent and open information processing channels leads to top managers becoming more accountable for their attention decisions and information providers becoming more motivated to actively participate in sharing information.

5.3. Players and structural positions

The final element defining the direction of attention in organizations, in addition to rules of the game and resources, are the players and their structural positions in the organization (Ocasio, 1997). The CEO and top management are the most critical players for organizational attention, but middle managers and ultimately all employees and even external individuals can contribute significantly to the direction of attention (Ocasio, 1997; Ren & Guo, 2011). The structural positions refer to the roles and identity, as well as inter-relationships of the players with others inside and outside the organization.

5.3.1. The mediating role of channel administrators

Top managers are faced with attention constraints - if CEOs are given the sole authority to notice and act upon information available to them through multiple channels, they would give greater priority to information that conforms to their existing knowledge and experience (see Dearborn & Simon, 1958; Feldman & March, 1981; Monteiro, 2015) and would ignore information that is more distant or novel (Piezunka & Dahlander, 2015). A possible solution is to delegate the responsibility of initial recognition and interpretation of information to other employees (i.e. away from top managers) within the organization, as channel administrators in line with the role of the online system managers at Handelsbanken. The benefit of having these mediating channel administrators at Handelsbanken is that they are in a neutral position with respect to the top management team, in the sense that they are neither the owner or sender of the information, nor the manager for who the information is ultimately intended or who will make decisions about it. Channel administrators can reduce the bias in attention selection decisions made by top managers, because their task is to guide the information through the system to reach the right decision-maker. This thus diminishes potential feelings of injustice or bias among information providers and strengthens the view that equity is being taken into account in decision-making by the top management (cf. Greenberg, 1990).

The role of channel administrators can be aptly performed by middle managers - they have a central position in the organization where they are aware of the strategic direction of the organization due to close links with the top managers and have regular contact with lower level employees involved in routine operational duties within an organization (Taylor & Helfat, 2009). Middle managers are generally viewed as the critical link between the top managers and operational employees: they participate in strategy discussions with the top managers, while at the same time ensure that operational employees properly implement these strategies (Bower, 1970; Burgelman, 1983). They translate the strategic objectives of the company into objectives and goals for operational workers that they execute in their daily routine activities (Floyd & Wooldridge, 1994; 2000). Balogun (2003) argues that success of the strategies developed by the top management depends on how they are interpreted by the middle managers and conveyed to the operational employees for implementation.

Middle managers also have upward influence, where they can champion certain ideas and business opportunities in order to get them approved by the top managers. They can combine their knowledge of the company strategy and information of the operational activities, to sell issues that are aligned with the goals and strategic direction of the company (Dutton & Ashford, 1993; Wooldridge, Schmid, & Floyd, 2008). This also means that these managers could use their upward influence to engage in opportunistic actions: for example by championing ideas that are beneficial for themselves rather than the organization as a whole or by deliberately creating obstacles in the process of organizational change (Young, 1999). Kuratko and Goldsby (2004) argue that such behavior from middle managers can primarily be curtailed by having open and entrepreneurial rules of the game (as outlined in proposition 1), because such an environment reduces the incentives for opportunistic behavior. In general, having a clear vision

and strategic direction helps the middle managers to play an active role in championing ideas that are strategically valuable and aligned with the company goals (Wooldridge & Floyd, 1990). Aligning the rules of the game (proposition 1), resources (proposition 2) and the channel administrators -and their role in the process of information sharing in the organization- improves the functioning of information channels.

Channel administrators can go through and filter the information made available through the different channels, then they can put forward selected information for further consideration to the top managers (Ren & Guo, 2011). As a result, they can effectively reduce the information overload of the top managers by managing the flow of information for each individual manager in the top management team (Huy, 2002). Information overload or crowding of information has been shown to reduce the attention quality of top managers, because information is merely gathered in 'surveillance mode' (Feldman & March, 1981: 182), or by directing attention away from novel information (Piezunka & Dahlander, 2015). This way middle managers can also ensure that there is greater matching between the top managers' expertise and the information being channeled through to them by the channel administrators (Haas, Criscuolo, & George, 2015). The expectation would be that when middle managers present and allocate the issues to those top managers who are most familiar with and in the best position to judge them, the risk that top managers are overburdened with excess information decreases. This in fact increases top managers' willingness to act upon exploratory, novel information when it reaches them; excess (or slack) attentional resources have been positively associated with innovation (cf. Barnett, 2008; Yaniv & Brock, 2008). On the whole, involving middle managers in the process of interpreting and evaluating information provided by internal and external actors improves the quality of decision-making by top managers (Herzig & Jimmieson, 2006; Wooldridge & Floyd, 1990).

Proposition 3. Middle managers (as channel administrators) can filter through and champion only selected information, which reduces the information overload for top managers and increases the likelihood of relevant and novel information getting proper attention.

5.3.2. Attention and feedback from top managers

An innovation-driven culture, an open information sharing platform, and the employee function of channel administrators can facilitate the top managers to increase the attention quality (and effectiveness), but the onus of responsibility lies with the top managers to give attention to novel information in the environment and take necessary action on it when formulating future plans and shaping the strategic direction of the organization (Cho & Hambrick, 2006). Dahlander and Piezunka (2014) state that top managers can encourage participation of stakeholders in information sharing by a combination of proactive and reactive attention. Proactive attention relates to initiating interaction from the side of the top managers (or the organization in general), this can, for example, simply be done by posting their own questions or issues where they feel the stakeholders can contribute, or by giving responses and participating in the discussion themselves. Reactive attention refers to allocating time, effort, and resources in order to identify, interpret, and act upon any information that is sent by the information providers – in reactive attention, the information providers initiate the discussion rather than the top managers (Kahneman, 1973; Ocasio, 1997).

Sharing of information is a two-way communication process between employees or external information providers and the top managers (Kalla, 2005), effectively supported by middle managers (Floyd & Wooldridge, 2000). For example, customers submitting suggestions to improve existing products represents the lowest level of collaboration between the customers and a specific organization (also known as co-creation), but customers will only be willing to increase their level of collaboration if they feel that their voice is being heard by the decision-makers (OHern & Rindfleisch, 2010). In general, information providers
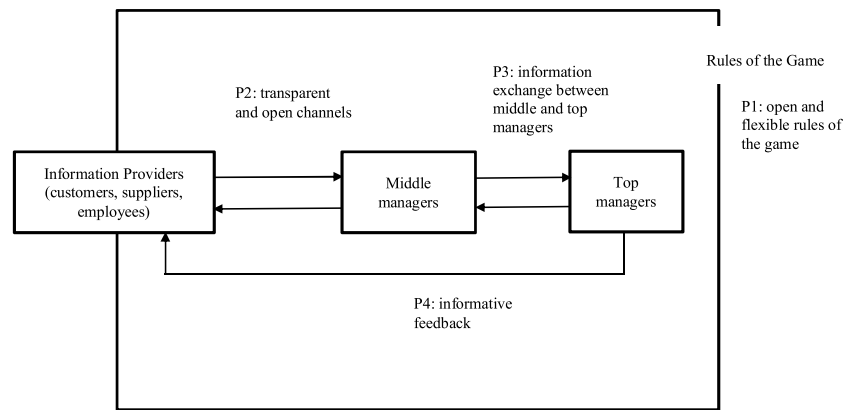
Fig. 2. An attention-based view of managing information processing channels.

want to know what actions are being taken upon the information provided, and specifically whether their ideas will be implemented by the top managers. Giving information to an individual about a decision taken in response to an action or behavior of that individual is defined as providing feedback (here: from top managers to the information providers) (Cusella, 1987). Feedback plays an important role in forming the information providers' perception of interactional and procedural justice; Ilgen, Fisher, and Taylor (1979) highlight the importance of the "information value" of feedback, which is clarity of the information provided about why a specific decision has been made by the top managers. A high information value in the feedback can enable information providers to have a positive perception of interactional and procedural justice, even when the decision taken is negative.

Top managers have to convey the message about why the information provided by internal or external actors is not being given further consideration by them – they need to provide a clear justification to the information providers which signals that a fair and just decision has been taken, so putting extra emphasis on the information value of the feedback (Jablin, 1979; Steinel et al., 2010). Consequently, this can motivate the information providers to persist with sharing business ideas and information about the environment in the long run (Van Dijke, De Cremer, Langendijk, & Anderson, 2017). For example, top managers at Handelsbanken are instructed to take special care of the satisfaction level of employees when they make a negative decision; this extra care helps as the employees are not discouraged, but instead they are motivated to continue sharing business ideas on a regular basis in the long run (cf. Manzoni, 2002). This can only be ensured when the top managers are not overloaded with information and, in contrast, have sufficient time to interpret and make sense of the information that is being made available to them (Edmunds & Morris, 2000). As argued above, middle managers play an important role in this process through allocation of information to those top managers who are knowledgeable about it.

Proposition 4. A high information value of feedback, from both middle and top managers, motivates information providers to participate in future information sharing. Information value is given higher priority when top managers do not experience attention constraints (Fig. 2).

6. Conclusion

We started this paper by outlining the challenges related to the designing and organizing of channels for information sharing, in particular related to the limited abilities of top management to give attention to relevant and novel information and the challenge to maintain the motivation of information providers to continue sharing their ideas and suggestions. We turned to the attention-based view of the firm for guidance because of its dual focus on cognition and structure for

understanding how attention is directed in organizations. According to the attention-based view, the focus of attention results from the firm's strategy and values and from actual actions of the top management. Ideally, the strategic orientation and actions of the organization are aligned with each other so that they can achieve the desired objective by selecting attention towards relevant issues (Haq et al., 2017; Ocasio, 1997). Hence, when organizations design information processing channels in order to obtain information about the environment, their strategic message and actions need to be aligned in order to direct top managers' attention to the relevant and novel information in the environment made available to them through the multiple and diverse channels (cf. Van Dijk & Van den Ende, 2002). Our analysis aims to clarify how the rules of game, resources, and players and their structural positions can be employed to reach this ideal focus of attention.

The strategic direction and values of the organization sets the framework for the attention patterns of the top managers, guiding how they should distribute their limited attention and which issues in the environment should be prioritized (Ocasio, 2011). Open and flexible company strategy and values serve as a necessary ingredient for the success of the information processing channels; in this vein, we argue that transparency and openness of the information processing channels is essential for making the top managers accountable for their decisions. We additionally argue that middle managers should use their pivotal position in the organization as the bridge between the top managers and operational employees, to act as channel administrators and help reduce the information overload faced by the top managers (Floyd & Wooldridge, 2000; Ren & Guo, 2011). This will increase the likelihood that top managers will take equity into consideration when making their attention decisions and give due attention to the information made available to them even if it does not conform to their existing knowledge. In addition, this ensures that top managers take suitable decisions and give necessary feedback to the senders of the information in order to ensure that they remain motivated to keep sharing critical information about the environment in the future which is beneficial for the organization (Greenberg, 1990; Van Dijke et al., 2017).

6.1. Managerial relevance

This paper has important managerial implications as organizations are dependent on information about the environment for future planning and strategy formulation (Meinhardt et al., 2018). Organizations can decide to operate their information processing channels electronically or manually, off-line, using boxes to collect suggestions from customers or employees. Electronic platforms can allow for more transparency and better record keeping, but depending on their needs and resources, organizations can opt for more cost effective and simple alternatives (Fairbank et al., 2003). Using an approach that takes into account cognitive limitations of managers, influencing the quality of

attention, as well as characteristics of organizational structure that influence where attention of top managers is directed, we draw conclusions on the design of information processing channels. First, we highlight the importance of transparency and giving feedback to all the information provided in any channel, irrespective of the choice of the channel mode. This ensures not only the accountability of top managers involved, but also safeguards the motivation of information providers to continue sharing information through the channel. In addition, we emphasize that organizations should make sure that the top managers are not overburdened with information, because that negatively impacts the attention decisions made by them (Haas et al., 2015). We argue that middle managers should in this case be given the responsibility of acting as information filters, who only put forth selected information to the top managers with the right expertise and that are not yet overburdened for further action (cf. Ren & Guo, 2011). Overall, we believe that designing information processing channels with our four propositions in mind improves the quality and focus of attention to relevant and novel information about the environment.

6.2. Limitations and suggestions for future research

Undoubtedly, there are limitations to our paper, which we believe can serve as starting points for future research on managing information processing channels. In the paper, we use Handelsbanken, and in particular its online suggestion system, as an illustrative case study only; this is a conceptual paper, so future research should investigate our claims using empirical data. One possible avenue could be single case study research, where information processing channels within an organization are studied in-depth in order to get a rich understanding of the topic – what factors enable and hinder the management of the information processing channels. For example, a study of Threadless, a textile design company that allows for high degrees of customer collaboration, in which the best customer ideas result in global product offerings, would allow us to investigate how competition among the external information providers and their level of engagement affects the challenges to manage these channels (e.g. leading to more novelty, but also to higher degrees of complexity). Another avenue could be comparative case studies by which one could investigate how using middle managers in different ways to mediate the information processing in channels affects the possibility for top managers to give attention to relevant and novel information, and influences to what extent information providers keep sharing information. Further, qualitative studies could look into the combination of diverse information processing channels in companies; for example, does receiving the same information through different channels lead to an increase or decrease in the perception of urgency for top managers to deal with the specific information (see also Sullivan, 2010)? Finally, as our analysis was focused on designing and sustaining information sharing channels, future qualitative work can shed light on the influence of social and social-psychological issues in the evolving communication processes, like for example, power, status, identity, personality and emotion (Deetz, 1992; Elfenbein, 2007; Tikkanen, 2017; Vuori & Huy, 2016).

Alternatively, future studies using quantitative research methodology should examine a larger set of organizations to allow for more generalizable conclusions to be drawn on how information processing channels should be managed in an optimal manner and test our propositions. It will also be interesting to observe how our claims apply to organizations with different characteristics and in diverse contexts. For example, how do information processing channels of smaller organizations compare to those of larger organizations, especially large multinational corporations that have subsidiaries in distant and diverse different geographic locations? Or how do information processing channels of organizations in mature or stable industries compare to those of organizations that operate in rapidly changing and dynamic industries?

The channel administrators have been portrayed as central players

who attempt to manage the attention bias of the top managers and we have argued that middle managers are better positioned to perform this role in the organization. Hence, future research should study the channel administrators and their role in filtering and guiding attention of top managers in more depth – what are the expertise and qualifications required for positions like these, and how can they perform this role in an effective way? Middle managers are also faced with attention constraints (Ren & Guo, 2011), so how does this impact their role as channel administrators? In addition, how can the middle managers be incentivised to perform these actions in an effective way, reducing the possibility of opportunistic behaviour. For example, what is the impact of the rules of the game on the actions of the middle managers?

CRediT authorship contribution statement

Desirée Blankenburg Holm: Conceptualization, Project administration, Writing - original draft, Writing - review & editing. **Rian Drogendijk:** Project administration, Supervision, Writing - original draft, Writing - review & editing. **Hammad ul Haq:** Visualization, Writing - original draft, Writing - review & editing.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.scaman.2020.101106.

References

Aguilar, F. J. (1967). *Scanning the business environment.* New York: Macmillan.

Ajzen, I. (1987). Attitudes, traits, and actions: Dispositional prediction of behavior in personality and social psychology. In L. Berkowitz (Vol. Ed.), *Advances in experimental social psychology: Vol. 20,* (pp. l–63). New York: Academic Press.

Ambos, T. C., & Birkinshaw, J. (2010). Headquarters' attention and its effects on subsidiary performance. *Management International Review, 50*(4), 449–469.

Balogun, J. (2003). From blaming the middle to harnessing its potential: Creating change intermediaries. *British Journal of Management, 14*(1), 69–83.

Bansal, P. (2003). From issues to actions: The importance of individual concerns and organizational values in responding to natural environment issues. *Organization Science, 14*(5), 510–527.

Barnett, M. L. (2008). An attention-based view of real options reasoning. *The Academy of Management Review, 33*(3), 606–628.

Bayus, B. (2013). Crowdsourcing new product ideas over time: An analysis of the dell idea storm community. *Management Science, 59*, 226–244.

Boudreau, K., & Lakhani, K. (2009). How to manage outside innovation. *MIT Sloan Management Review, 50*, 69–76.

Bouquet, C., & Birkinshaw, J. (2008). Weight versus voice: How foreign subsidiaries gain attention from corporate headquarters. *The Academy of Management Journal, 51*(3), 577–601.

Bower, J. L. (1970). *Managing the resource allocation process.* Boston, MA: Harvard University.

Burgelman, R. A. (1983). A model of the interaction of strategic behavior, corporate context, and the concept of strategy. *The Academy of Management Review, 8*(1), 61–70.

Cho, T. S., & Hambrick, D. C. (2006). Attention as the mediator between top management team characteristics and strategic change: The case of airline deregulation. *Organization Science, 17*, 453–469.

Christensen, L. T., Morsing, M., & Thyssen, O. (2017). License to critique: A communication perspective on sustainability standards. *Business Ethics Quarterly, 27*(2), 239–262.

Cohen, M. D., March, J. G., & Olsen, J. P. (1972). A garbage can model of organizational choice. *Administrative Science Quarterly, 17*(1), 1–25.

Craig, R. T. (1999). Communication theory as a field. *Communication Theory, 9*(2), 119–161.

Crilly, D., & Sloan, P. (2014). Autonomy or control? Organizational architecture and corporate attention to stakeholders. *Organization Science, 25*(2), 339–355.

Cusella, L. P. (1987). Feedback, motivation and performance. In M. F. Jablin, L. L. Putman, H. K. Roberts, & L. W. Porter (Eds.). *Handbook of organizational communication.* California: Sage Publications.

Cyert, R. M., & March, J. (1963). *A behavioral theory of the firm.* Englewood Cliffs, New Jersey: Prentice Hall.

Daft, R. L., & Weick, K. E. (1984). Toward a model of organizations as interpretation systems. *The Academy of Management Review, 9*(2), 284–295.

Daft, R. L., Sormunen, L., & Parks, D. (1988). Chief executive scanning, environmental characteristics, and company performance: An empirical study. *Strategic Management Journal, 9*(2), 123–139.

Dahlander, L., & Piezunka, H. (2014). Open to Suggestions: How organizations elicit suggestions through proactive and reactive attention. *Research Policy, 43*(5), 812–827.

Dane, E. (2013). Things seen and unseen: Investigating experience-based qualities of attention in a dynamic work setting. *Organization Studies, 34*(1), 45–78.

Dearborn, D. C., & Simon, H. A. (1958). Selective perception: A note on the departmental identifications of executives. *Sociometry, 21*(2), 140–144.

Deetz, S. (1992). *Democracy in an age of corporate colonization: Developments in communication and the politics of everyday life.* SUNY press.

Dutton, J. E., & Ashford, S. J. (1993). Selling issues to top management. *The Academy of Management Review, 18*(3), 397–428.

Edmunds, A., & Morris, A. (2000). The problem of information overload in business organizations: A review of the literature. *International Journal of Information Management, 20*(1), 17–28.

Ekvall, G. (1971). *Creativity at the Place of Work.* Stockholm: Reklamlito. Elfenbein, H.A., 2007. Emotion in organizations: a review and theoretical integration. *The Academy of Management Annals, 1*(1), 315–386.

Elfenbein, H. A. (2007). Emotions in organizations: A review and theoretical integration. *The Academy of Management Annals, 1*(1), 315–386.

Elsbach, K. D., Barr, P. S., & Hargadon, A. B. (2005). Identifying situated cognition in organizations. *Organization Science, 16*(4), 422–433.

Fairbank, J. F., Spangler, W. E., & Williams, S. D. (2003). Motivating creativity through a computer-mediated employee suggestion management system. *Behaviour & Information Technology, 22*(5), 305–314.

Feldman, M. S., & March, J. G. (1981). Information in organizations as signal and symbol. *Administrative Science Quarterly, 26*(2), 171–186.

Floyd, S. W., & Wooldridge, B. J. (1994). Dinosaurs or dynamos? Recognizing middle management's strategic role. *The Academy of Management Perspectives, 8*(4), 47–57.

Floyd, S. W., & Wooldridge, B. J. (2000). *Building strategy from the middle: Reconceptualizing strategy process.* Thousand Oaks, CA: Sage.

Greenberg, J. (1987). A taxonomy of organizational justice theories. *The Academy of Management Review, 12*(1), 9–22.

Greenberg, J. (1990). Looking fair vs. being fair: Managing impressions of organizational justice. *Research in Organizational Behaviour, 12*, 111–157.

Haas, R. M., Criscuolo, P., & George, G. (2015). Which problems to solve? Online knowledge sharing and attention allocation in organizations. *The Academy of Management Journal, 58*(3), 680–711.

Haq, H., Drogendijk, R., & Blankenburg Holm, D. (2017). Attention in words, not in deeds: Effects of attention dissonance on headquarters-subsidiary communication in multinational corporations. *Journal of World Business, 52*(1), 111–123.

Herzig, S. E., & Jimmieson, N. L. (2006). Middle managers' uncertainty management during organizational change. *Leadership & Organization Development Journal, 27*(8), 628–645.

Howe, J. (2008). *Crowdsourcing.* New York: Crown Publishing Group.

Huang, X., Rode, J. C., & Schroeder, R. G. (2011). Organizational structure and continuous improvement and learning: Moderating effects of cultural endorsement of participative leadership. *Journal of International Business Studies, 42*(9), 1103–1120.

Huy, N. H. (2002). Emotional balancing of organizational continuity and radical change: The contribution of middle managers. *Administrative Science Quarterly, 47*(1), 31–69.

Ilgen, D. R., Fisher, C. D., & Taylor, S. M. (1979). Consequences of individual feedback on behavior in organization. *The Journal of Applied Psychology, 64*(4), 349–371.

Jablin, F. M. (1979). Superior-subordinate communication: The state of art. *Psychological Bulletin, 86*(9), 1201–1222.

Jeppesen, L. B., & Frederiksen, L. (2006). Why do users contribute to firm-hosted user communities? The case of computer-controlled music instruments. *Organization Science, 17*(1), 45–63.

Kahneman, D. (1973). *Attention and effort.* Englewood Cliffs, New Jersey: Prentice Hall.

Kalla, H. K. (2005). Integrated internal communications: A multidisciplinary perspective. *Corporate Communications an International Journal, 10*(4), 302–314.

Katz, D. (1964). Motivational basis of organizational behavior. *Behavioral Science, 9*(2), 131–146.

Khanagha, S., Volberda, H., & Oshri, I. (2017). Customer co-creation and exploration of emerging technologies: The mediating role of managerial attention and initiatives. *Long Range Planning, 50*(2), 221–242.

Kim, W. C., & Mauborgne, R. A. (1993). Procedural justice, attitudes, and subsidiary top management compliance with multinationals' corporate strategic decisions. *The Academy of Management Journal, 36*(3), 502–526.

Kuratko, D. F., & Goldsby, M. G. (2004). Corporate entrepreneurs or rogue middle managers? A framework for ethical corporate entrepreneurship. *Journal of Business Ethics, 55*(1), 13–30.

Li, Q., Maggitti, P. G., Smith, K. G., Tesluk, P. E., & Katila, R. A. (2013). Top management attention to innovation: The role of search selection and intensity in new product innovations. *The Academy of Management Journal, 55*(3), 893–916.

Manzoni, J. F. (2002). A better way to deliver bad news. *Harvard Business Review, 80*(9), 114–119.

March, J. G., & Shapira, Z. (1992). Variable risk preferences and the focus of attention. *Psychological Review, 99*(1), 172–183.

March, J. G., & Simon, H. (1958). *Organizations.* New York: Wiley.

Meinhardt, R., Junge, S., & Weiss, M. (2018). The organizational environment with its measures, antecedents, and consequences: A review and research agenda. *Management Review Quarterly, 68*(2), 195–235.

Michailova, S., & Minbaeva, D. (2012). Organizational values and knowledge sharing in multinational corporations: The Danisco case. *International Business Review, 21*(1), 59–70.

Mintzberg, H. (1979). *The structuring of organizations: A synthesis of the research.* Englewood Cliffs, NJ: Prentice Hall.

Mishra, K., Boynton, L., & Mishra, A. (2014). Driving employee engagement: The expanded role of internal communications. *International Journal of Business Communication, 51*(2), 183–202.

Moenaert, R. K., Caeldries, F., Lievens, A., & Wauters, E. (2000). Communication flows in international product innovation teams. *The Journal of Product Innovation Management, 17*(5), 360–377.

Monteiro, L. F. (2015). Selective attention and the initiation of the global knowledge-sourcing process in multinational corporations. *Journal of International Business Studies, 46*(5), 505–527.

Morrison, E. W. (2014). Employee voice and silence. *Annual Review of Organizational Psychology and Organizational Behavior, 1*, 173–197.

Muller, A., & Whiteman, G. (2016). Corporate philanthropic responses to emergent human needs: The role of organizational attention focus. *Journal of Business Ethics, 137*(2), 299–314.

Mullins, L. J. (2005). *Management and organizational behavior.* London: FT Pitman.

Nohria, N., & Gulati, R. (1996). Is Slack Good or Bad for Innovation? *The Academy of Management Journal, 39*(5), 1245–1264.

Nonaka, I., & Takeuchi, H. (1995). *The knowledge-creating company. How Japanese companies create the dynamics of innovation.* Oxford: Oxford University Press.

Ocasio, W. (1997). Towards an attention based view of the firm. *Strategic Management Journal, 18*(1), 187–206.

Ocasio, W. (2011). Attention to attention. *Organization Science, 22*(5), 1286–1296.

Ocasio, W., & Joseph, J. (2005). An attention-based theory of strategy formulation: Linking micro- and macro-perspectives in strategy processes. *Advances in Strategic Management, 22*, 39–61.

Ocasio, W. C., Laamanen, T., & Vaara, E. (2018). Communication and attention dynamics: An attention-based view of strategic change. *Strategic Management Journal, 39*(1), 155–167.

OHern, M. S., & Rindfleisch, A. (2010). Customer Co-creation: A typology and research agenda. *Review of Marketing Research, 6*, 84–106.

Payne, A., & Frow, P. (2004). The role of multichannel integration in customer relationship management. *Industrial Marketing Management, 33*(6), 527–538.

Piezunka, H., & Dahlander, L. (2015). Distant search, narrow attention: How crowding alters organizations' filtering of suggestions in crowdsourcing. *The Academy of Management Journal, 58*(3), 856–880.

Prahalad, C. K., & Ramaswamy, V. (2004). Co-creating unique value with customers. *Strategy and Leadership, 32*(3), 4–9.

Ren, C. R., & Guo, C. (2011). Middle managers' strategic role in the corporate entrepreneurial process: Attention-based effects. *Journal of Management, 37*(6), 1586–1610.

Rerup, C. (2009). Attention triangulation: Learning from unexpected rare crises. *Organization Science, 20*(5), 876–893.

Ryan, R. M., Kuhl, J., & Deci, E. L. (1997). Nature and autonomy: Organizational view of social and neurobiological aspects of self-regulation in behavior and development. *Development and Psychopathology, 9*, 701–728.

Sawyerr, O. O., McGee, J., & Peterson, M. (2003). Perceived uncertainty and firm performance in SMEs: The role of personal networking activities. *International Small Business Journal: Reseaching Entreneurship, 21*(3), 269–290.

Seligsohn, D., Liu, M., & Zhang, B. (2018). The sound of one hand clapping: Transparency without accountability. *Environmental Politics, 27*(5), 804–829.

Simon, H. A. (1947). *Administrative behaviour: A study of decision-making processes in administrative organizations.* Chicago: Macmillan.

Stanko, T. L., & Beckman, C. M. (2015). Watching you watching me: Boundary control and capturing attention in the context of ubiquitous technological use. *The Academy of Management Journal, 58*(3), 712–738.

Steinel, W., Utz, S., & Koning, L. (2010). The good, the bad and the ugly thing to do when sharing information: Revealing, concealing and lying depend on social motivation, distribution and importance of information. *Organizational Behavior and Human Decision Processes, 113*, 85–96.

Sullivan, B. N. (2010). Competition and beyond: Problems and attention allocation in the organization rulemaking process. *Organization Science, 21*(2), 432–450.

Tangirala, S., & Ramanujam, R. (2012). Ask and you shall hear (but not always): Examining the relationship between manager consultation and employee voice. *Personnel Psychology, 65*(2), 251–282.

Taylor, A., & Helfat, C. E. (2009). Organizational linkages for surviving technological change: Complementary as middle management, and ambidexterity. *Organisation Science, 20*(4), 718–739.

Tikkanen, H. (2017). Leader personality, managerial attention, and disruptive technologies: The adoption of the battlecruiser concept in the Royal Navy, 1904-1918. *Management & Organizational History,* 47–75.

Tyler, T. R. (1988). What is procedural justice? Criteria used by citizens to assess the fairness of legal procedures. *Law & Society Review, 22*(1), 103–135.

Van Dijk, C., & Van den Ende, J. (2002). Suggestions systems: Transferring employee creativity into practicable ideas. *R&D Management, 32*(5), 387–395.

Van Dijke, M., De Cremer, D., Langendijk, G., & Anderson, C. (2017). Ranking low, feeling high: How hierarchical position and experienced power promote prosocial behaviour in response to procedural justice. *The Journal of Applied Psychology, 103*(2), 164–181.

Van Donk, D. P., & Molloy, E. (2008). From organising as projects to projects as organisations. *International Journal of Project Management, 26*(2), 129–137.

Vuori, T. O., & Huy, Q. N. (2016). Distributed attention and shared emotions in the innovation process: How nokia lost the smartphone battle. *Administrative Science Quarterly, 61*(1), 9–51.

Watts, S. (2015). Corporate social responsibility reporting platforms: Enabling transparency for accountability. *Information Technology and Management, 16*(1), 19–35.

Weick, K. E. (1988). Enacted sensemaking in crisis situation. *Journal of Management Studies, 25*(4), 305–317.

Weick, K. E., & Sutcliffe, K. M. (2006). Mindfulness and the quality of organizational attention. *Organization Science, 16*, 409–421.

Weick, K. E., Sutcliffe, K. M., & Obstfeld, D. (1999). Organizing for High reliability:

Processes of collective mindfulness. In R. S. Sutton, & B. M. Staw (Vol. Eds.), *Research in organizational behavior: Volume 1*, (pp. 81–123). Stanford: Jai Press.

Widen, G., & Hansen, P. (2012). Managing collaborative information sharing: Bridging research on information culture and collaborative information behaviour. *Information Research, 17*(4) paper 538.

Wilson, A. J., & Joseph, J. (2015). Organizational attention and technological search in the multibusiness firm: Motorola from 1974 to 1997. In G. Gavetti, & W. Ocasio (Eds.). *Cognition and strategy (advances in strategic management* (pp. 407–435). Bingley: Emerald Group Publishing Limited.

Wooldridge, B., & Floyd, S. W. (1990). The strategy process, middle management

involvement, and organizational performance. *Strategic Management Journal, 11*(3), 231–241.

Wooldridge, B., Schmid, T., & Floyd, S. W. (2008). The middle management perspective on strategy process: Contributions, synthesis, and future research. *Journal of Management, 34*(6), 1190–1221.

Yaniv, E., & Brock, D. M. (2008). Replication strategies, knowledge and attention: A study of coffee chains. *International Journal of Service Industry Management, 19*(3), 379–399.

Young, A. P. (1999). Rule breaking and a new opportunistic managerialism. *Management Decision, 37*(7), 582–589.