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Values and behaviors of effective lean managers: Mixed-methods exploratory research

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ABSTRACT

Lean Management is a managerial approach focused on enhancing customer value through the elimination of non-value adding steps from work processes. Lean Management is also enjoying a resurgence, largely because its 'do more with less' philosophy is particularly well-suited for the austere conditions of a 'Great Recession' recovery. Despite this resurgence with practitioners, however, academic research of Lean Management, in particular research on the leadership of lean initiatives, remains limited. In this study, we identify a constellation of lean values and behaviors of effective lean managers, based on extant research and the views of expert practitioners, and a field study of lean managers. In the first of two empirical studies, we produce an initial list of values and behaviors, derived from both the lean and leadership literature, and from three Delphi rounds with 19 expert lean practitioners. In study 2, we corroborate and refine the list with a sample of effective lean middle managers, through 18 interviews; a survey ($N = 43$); and fine-grained video-analyses of their *in situ* behaviors during meetings with subordinates. The values identified include: honesty, candor, participation and teamwork, and continuous improvement—all indicative of self-transcendence and openness to change. Regarding behaviors, we find that the effective lean middle managers of our sample, compared to other middle managers, engage significantly more in positive relations-oriented "active listening" and "agreeing" behaviors, and significantly less in "task monitoring" and counterproductive work behaviors (such as "providing negative feedback" and "defending one's own position"). To conclude, we put forward five new propositions intended to guide future research and a more successful practice of 'lean leadership.'

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1. Introduction

Precipitated by events in the financial sector in 2007, and fueled by the bursting of the U.S. and European housing markets, the global economy fell quickly into the 'Great Recession,' considered by the IMF (2009) as the worst global economic decline since World War II. Today, while the worst of the crisis may have passed, certain effects linger, particularly in regard to organizations' significantly reduced access to capital and credit (Bolger, 2015). Not surprisingly, Lean Management and other non-capital intensive approaches to

improving efficiency, eliminating waste and enhancing customer value, are enjoying a resurgence (Bhamu & Sangwan, 2014; Samuel, Found, & Williams, 2015). To illustrate, executive search firm Avery Point Group reported that the number of lean job postings in 2013 had more than doubled since the beginnings of the post-crisis recovery. Expanding beyond manufacturing, Lean Management is also being increasingly adopted by service and public sector organizations (Bhamu & Sangwan, 2014; Cox & Chicksand, 2005; Piercy & Rich, 2009) that face the similar challenge of 'doing more with less.' As for academic research, Bhamu and Sangwan (2014), in their review of the academic research from 75 international journals and eight conferences, document a marked uptick in lean publications beginning in 2009. Moyano-Fuentes and Sacristan-Diaz (2012) have classified the lean literature into four categories: shop floor, value chain, work organization, and geography. Papadopoulou and Özbayrak (2005) provide a six-part categorization: production floor management; product/process-oriented; production planning,

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scheduling, and control; lean implementation; work-force management; and supply chain management.

What we find conspicuously absent from these categorizations of research, however, and despite its importance, is a category focused specifically on leadership. For Liker and Convis (2012, p. xiii), “the biggest gap in capabilities in the lean movement, and the root cause of failure on many lean programs, is in leadership.” Organizational psychologist and lean expert David Mann refers to leadership as “the missing link” in lean practice and research: “implementing [lean] tools represents at most 20 percent of the effort in Lean transformations. The other 80 percent of the effort is expended on changing leaders’ practices and behaviors, and ultimately their mindset” (Mann, 2009, p. 15). The purpose of this exploratory research, therefore, is to know more about the leaders of lean initiatives. More specifically, and as called for by Glynn and Raffaelli (2010) and Lakshman (2006), we will undertake systematic research into the work behaviors of lean leaders, and the underlying work values on which those behaviors are believed to depend (Bardi & Schwartz, 2003; Connor & Becker, 1994; Deichmann & Stam, 2015; Denison, 1996; Fu, Tsui, Liu, & Li, 2010; Jonsen, Galunic, Weeks, & Braga, 2015; Lakshman, 2006; Lord & Brown, 2001; Schein, 2004; Schwartz et al., 2012; Szabo, Reber, Weibler, Brodbeck, & Wunderer, 2001; Yukl, 2012).

Following Szabo et al. (2001, p. 225), we define leader ‘behaviors’ as specific observable verbal and nonverbal actions of managers “in interaction with their followers in an organizational setting.” Similar to Schwartz (1999), ‘values’ are defined as desirable notions a person carries with him/her at all times as a guide for his/her behavior. While our intent is to explicate values and behaviors, we do not focus on the potential linkages between the two. Arguably, numerous situational factors will mediate or moderate this values-behaviors relationship, e.g. one’s intentions, choices, attitudes, and emotions (Connor & Becker, 1994; Szabo et al., 2001). Yet, compared to the more situationally-determined factors, values tend to have a relatively stable influence on behavior (Jin & Rounds, 2012). The propositions in the Discussion section provide direction for follow-up studies to more fully understand the connections between lean values and behaviors.

To derive what we will later refer to as a ‘constellation’ of lean values and behaviors, we conducted two empirical field studies—first to build a list, and second to corroborate and refine that list with *in situ*, video-based observation of lean managers in action. In study 1, based on our initial systematic review of both the lean and leadership literature, and following the approach of MacCarthy, Lewis, Voss, and Narasimhan (2013) and Marodin and Saurin (2013), we distilled a preliminary list of lean values and behaviors. To supplement this preliminary list, 19 expert lean practitioners were queried, using a Delphi process, as to the values and behaviors of effective lean managers. These activities produced a preliminary constellation of 24 values and 19 behaviors, which formed the basis for study 2.

For study 2, we chose a sample of effective lean managers from the ranks of middle management. For many and perhaps most organizations, leadership responsibilities for lean initiatives often fall upon middle managers. As noted by several authors, they bear the challenging responsibility of effectuating top-down mandates through shop-floor practices (Beer, 2003; Holmemo & Ingvaldsen, 2015; Nonaka, 1994; Scherrer-Rathje, Boyle, & Deflorin, 2009; Worley & Doolen, 2006). With this sample, we used multi-source interviewing and Q-sorting of the values, and survey and video analyses of *in situ* behaviors to address this central research question: *What are the specific values and behaviors of effective middle managers of lean initiatives?* (Fig. 1)

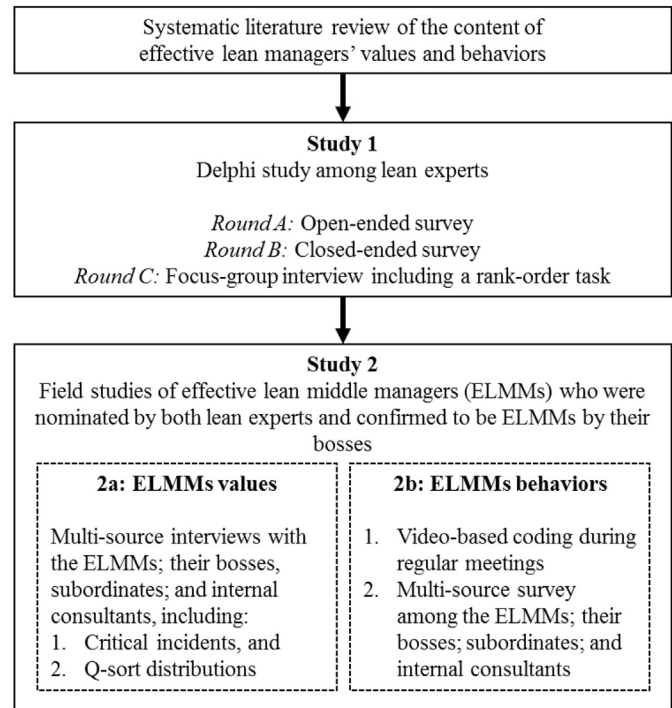


Fig. 1. Visualization of the research design, using mixed methods.

2. Systematic literature review

We performed a systematic search among Web of Science, Scopus and Google Scholar, using all combinations of the following search terms in the title, abstract, or keywords: “lean,” “TQM,” “leader*,” “manager*,” “value*,” and “behavior*.” From the initially identified 515 papers, we selected the journal and review-type papers and removed conference-type papers. Articles where individual managers were not the main focus were also removed. After cross-checking the 21 remaining articles, we added one relevant book (Liker & Convis, 2012). None of these sources focused exclusively on the content of managerial values and behaviors; the selected articles mostly dealt with higher-level management of lean initiatives; only nine of them were empirical studies. This situation highlights the theoretical relevance of the present study. Table 1 lists the values and behaviors that were noted by two or more of these sources. This literature-based list will be further refined in study 1 and 2.

2.1. Managerial values in the lean and leadership literature

Two of the selected empirical field studies have explored the values held by effective lean managers (i.e., Larsson & Vinberg, 2010; Waldman et al., 1998). Based on a multiple-case study, Waldman et al. (1998) inferred that “continuous improvement,” “teamwork,” “customer focus,” and delivering high product and process “quality,” are among the set of values of effective lean managers. Larsson and Vinberg (2010) noted only “management commitment.” The values emphasized in other Lean Management literature are: a manager-employee relationship of equality, based on employee participation and teamwork; respect; and a focus on continuous process improvement from the customers’ perspective (see, Table 1).

Because empirical studies of lean managers’ values are sparse, it is questionable whether Table 1’s list contains the full values set

Table 1
Specific values and behaviors of lean managers, based on a systematic literature review.

Values	Sources
Continuous improvement	Dahlgaard-Park, Chen, Jang, and Dahlgaard (2013); Dean and Bowen (1994); Emiliani (2003); Emiliani and Emiliani (2013); Hellsten and Klefsjö (2000); Lakshman (2006); Liker and Convis (2012); Sosik and Dionne (1997); Waldman et al. (1998)
Teamwork	Beer (2003); Dean and Bowen (1994); Hellsten and Klefsjö (2000); Lakshman (2006); Liker and Convis (2012); Waldman et al. (1998)
Customer focus	Dahlgaard-Park et al. (2013); Dean and Bowen (1994); Hellsten and Klefsjö (2000); Lakshman (2006); Waldman et al. (1998)
Respect for people	Emiliani (2003); Emiliani and Emiliani (2013); Liker and Convis (2012)
Information sharing	Lakshman (2006); Waldman (1993)
Management by facts	Dahlgaard-Park et al. (2013); Hellsten and Klefsjö (2000)
Management commitment	Hellsten and Klefsjö (2000); Larsson and Vinberg (2010)
Behaviors	Sources
Engaging employees	Lakshman (2006); Found and Harvey (2006); Lucey et al. (2005); Larsson and Vinberg (2010); Oakland (2011)
Celebrating and recognizing success	Emiliani (1998); Found and Harvey (2006); Lucey et al. (2005); Waldman (1993)
Designing and coaching teams	Lakshman (2006); Liker and Convis (2012); Sosik and Dionne (1997); Waldman (1993)
Getting and giving information	Lakshman (2006); Larsson and Vinberg (2010); Martínez-Jurado, Moyano-Fuentes, and Gómez (2013); Poksinska et al. (2013)
Visiting the work floor	Emiliani (2003); Larsson and Vinberg (2010); Waldman et al. (1998); Martínez-Jurado et al. (2013)
Building trust	Emiliani (1998); Larsson and Vinberg (2010); Sosik and Dionne (1997)
Structuring and controlling	Mann (2009); Nwabueze (2011); Lakshman (2006)
Committing to self-development	Emiliani (1998); Liker and Convis (2012); Larsson and Vinberg (2010)
Creating a vision and goals	Laohavichien et al. (2011); Liker and Convis (2012); Oakland (2011)
Intellectual stimulation	Doeleman et al. (2012); Laohavichien et al. (2011); Waldman (1993)
Listening to employees	Emiliani (1998); Nwabueze (2011); Waldman et al. (1998)
Long-term orientation	Emiliani (1998); Nwabueze (2011); Sosik and Dionne (1997)
Visibly apply lean	Emiliani (1998); Mann (2009); Waldman (1993)
Supporting daily continuous improvement	Liker and Convis (2012); Martínez-Jurado et al. (2013); Waldman et al. (1998)
Continuous improvement	Sosik and Dionne (1997); Waldman (1993)
Developing clear strategies	Oakland (2011); Larsson and Vinberg (2010)
Experimenting	Lakshman (2006); Waldman (1993)
Individual consideration	Waldman (1993); Doeleman et al. (2012)
Monitoring and evaluating	Found and Harvey (2006); Lucey et al. (2005)

Note. This table lists the items that were mentioned by two or more of the 22 separate content-analyzed sources.

that are, in practice, held by effective lean managers. Intriguingly, Schwartz's seminal theory on basic human values (later refined in Schwartz et al., 2012), adapted by Brown and Treviño (2009) in order to study managers in business environments, has thus far been ignored by past lean-management studies. This theory distinguishes four higher-order values clusters: "self-transcendence" and "self-enhancement," plus "openness to change" and "conservation." Schwartz et al. (2012) emphasized that the four values clusters are oblique, i.e. one may hold various values that originate from different values clusters. However, most of the lean values in Table 1 seem to fit Schwartz et al.'s self-transcendence cluster (e.g., "teamwork," "respect for people," and "employee empowerment") as well as the openness to change cluster (i.e., "continuous improvement"). Indeed, study 2 in this paper reports the specific values constellation of effective lean managers.

Noteworthy is that some of the values listed in Table 1 were also categorized as behaviors, cf. "continuous improvement," "information sharing," (Dean & Bowen, 1994; Lakshman, 2006; Liker & Convis, 2012; Sosik & Dionne, 1997; Waldman, 1993; Waldman et al., 1998). We consider these values as part of lean's knowledge set that would typically be reflected in specific behaviors which we report next.

2.2. Managerial behaviors in the lean and leadership literature

According to Yukl, Gordon, and Taber (2002, p. 17) and Yukl (2012): "Each behavior must be directly observable. It cannot be defined only in terms of attributions or outcomes." The behaviors listed in Table 1 include both specific behaviors that are observable in lean work situations, such as "listening to employees," and broad behavioral categories or attributes such as "long-term orientation." Broad categories should not replace the study of the more fine-grained manager behaviors that are also of use in practical

training (Davis & Luthans, 1980; Yukl, 2012; Yukl et al., 2002). The following five specific behaviors in Table 1 have been noted by four or more independent sources on Lean Management: "designing and coaching teams," "visiting the work floor," "getting and giving information," "engaging employees," and "celebrating and recognizing success." And while lean managers are generally seen to "build trust," they might also adopt some "structuring and controlling" type of behaviors.

It seems that the reviewed studies of the behaviors of lean managers hardly benefited from the managerial work and behavior (MWB) literature (Davis & Luthans, 1980; Stewart, 2008; Tengblad, 2002, 2006; Vie, 2010; Yukl, 2006). Typically, MWB studies report on the types, frequencies, and durations of managerial activities and roles, rather than an exhaustive analysis of a set of mutually-exclusive behaviors. It is our view that lean managerial studies would gain from an approach in which more (video-based) observation of managers at work takes place in order to examine the micro behaviors of lean managers during their everyday reality (Tengblad & Vie, 2012; Yukl, 2006). In this study, we will adopt a systematic micro-behavioral observation method. Hence, in what follows below, we review relevant leader-behavioral literature.

A characteristic of effective managers is that they are seen to combine both transformational and transactional leadership behaviors (Podsakoff, MacKenzie, & Bommer, 1996; Wang, Oh, Courtright, & Colbert, 2011). Both transformational and transactional leadership have been associated with lean or organizational process renewal, including higher efficiency (e.g., Doeleman, Ten Have, & Ahaus, 2012; Jung, Chow, & Wu, 2003; Kanji & Sá, 2001; Laohavichien, Fredendall, & Cantrell, 2011; Lloréns-Montes & Molina, 2006; Northouse, 2010; Poksinska, Swartling, & Drotz, 2013; Sosik & Dionne, 1997; Waldman, 1993; Waldman et al., 1998). Effective managers tend to show behavioral flexibility across a broad spectrum of three behavioral domains, as specified

in Yukl's seminal behavioral taxonomy (2006; 2002). First of all, transactional "task-oriented behaviors" tend to focus on "high efficiency in the use of resources and personnel, and high reliability of operations, products, and services" (Yukl et al., 2002, p. 17). Secondly, in the "relations-oriented" domain, transformational behaviors aim for "strong commitment to the unit and its mission, and a high level of mutual trust and cooperation among members" (Yukl et al., 2002, p. 17). Thirdly, transformational "change-oriented" manager behaviors foster "major innovative improvements (in processes, products, or services), and adaptation to external changes" (Yukl et al., 2002, p. 17). These insights are congruent with those of 'positive organizational scholarship' (Dutton, 2014; Youssef-Morgan & Luthans, 2013). Yukl's three domains span a full behavioral repertoire of an effective lean manager (Larsson & Vinberg, 2010), with a focus not only on task efficiency, but also on positive human relations and change.

Beyond these positive behavioral domains, even effective managers occasionally demonstrate so-called counterproductive behaviors (Aasland, Skogstad, Notelaers, Nielsen, & Einarsen, 2010; Conger, 1990; Hoozeboom & Wilderom, 2015; Liu, Liao, & Loi, 2012; Yammarino, 2013). Examples are: making negative comments about a subordinate (or their ideas) in front of their colleagues, or defending their own position by blaming others (Liu et al., 2012). Study 2 also includes such counterproductive behaviors of effective lean managers. Before we report on a wide range of mutually exclusive behaviors that may be observed in the field, study 1 will first supplement the specific lean managerial values and behaviors found in the literature review thus far (Table 1).

3. Study 1: Delphi study

In order to refine and potentially supplement the literature-based list of values and behaviors associated with effective lean managers, a Delphi study, a "method for consensus-building" among a group of experts (Hsu & Sandford, 2007, p. 1), was conducted.

3.1. Method

3.1.1. Sample

Nineteen senior lean experts employed by a single Dutch medium-sized management consulting firm specializing in lean implementation were queried. Selection of these senior lean consultants was based on the recommendation of one of the consulting firm's founding partners. The consultants included 14 men and five women; $M_{age} = 34$ years; $M_{organization\ tenure} = 4$ years and one month. In other words, the experts that were queried in this study had on average four years of consulting experience in implementing lean principles within multiple organizational settings, including the manufacturing, service, and public sectors. The firm advocated many approaches to lean, and individualized approaches were also encouraged, thus mitigating the concerns for selection bias and groupthink.

3.1.2. Procedure and data analysis

The Delphi took three rounds: The experts were first asked to complete an online survey, including open-ended and closed-ended questions on both values and behaviors. A sample open-ended question was: "In your opinion, what values do managers of lean initiatives need to hold to be effective?" The closed questions listed the values of Table 1. The leading question was: "Please tick the boxes of all the values you think an effective manager of a lean initiative must possess." The same method was used to extract from these experts the behaviors of effective lean managers.

In a second online round, the 19 experts were given a summary

of the first round of results after which they were asked to respond on a scale of 1 (*disagree*) to 7 (*agree*) (Hsu & Sandford, 2007) to, for example: "Continuous improvement is a value that effective managers of lean initiatives must possess." A similar wording was used for the behavioral items.

A third Delphi round entailed a 1-h transcribed 'focus-group' meeting with seven of the 19 experts, four males and three females ($M_{age} = 32$ years; $M_{organization\ tenure} = 4$ years and one month), to discuss the completeness and usefulness of the findings from round two (e.g., McDougal, Brooks, & Albanese, 2005; Morgan, 1998). The facilitator followed a set of predefined questions. At the end of the discussion, the same seven experts individually ranked their top five effective lean manager values and behaviors.

3.2. Results

In total, the lean experts associated a constellation of 21 work values with effective lean managers. Of those 21 values, the six highest ranked were: customer focus, potential of ordinary employees, participation and teamwork, and trust in people (which are also aligned with Schwartz et al.'s (2012) self-transcendence values cluster), and continuous improvement and open-mindedness (which were aligned with Schwartz et al.'s (2012) openness to change values cluster). Also three conservation type values were listed: respect for people, persistence, and humility. Only one self-enhancement value was associated with effective lean managers: achievement-orientation. In other words, the lean experts saw predominantly the self-transcendence and openness to change values as being characteristic of effective lean managers.

For behaviors, the experts converged on a set of 14. Seven of these 14 behaviors align with Yukl et al.'s relations-oriented domain (2002). They include: 1) using the capabilities of people; 2) engaging employees; 3) providing feedback; 4) recognizing, communicating, and celebrating success; 5) being on the work floor; 6) listening; and 7) building trust. The experts associated five change-oriented behaviors with effective lean managers: 8) creating time for improvement; 9) taking real action to implement lean; 10) remaining focused on improvement; 11) asking for ideas; and 12) training people in lean principles. Only two behaviors linked to the task-oriented leading domain were named: 13) task monitoring and evaluating; and 14) setting and prioritizing goals for improvement. The lean experts thus see effective lean managers predominantly as relations-oriented, and to a lesser extent change- and task-oriented.

4. Study 2: Field study of effective lean middle managers

For study 2, we chose a sample of lean middle managers. Similar to study 1, we will narrow our focus to *effective* managers, according to a nomination process described below. Being 'caught in the middle' between executive management and front-line workers is nothing new for middle management—indeed it is one of the defining characteristics of their position (Holmemo & Ingvaldsen, 2015; Nonaka, 1994). For effective lean middle managers (ELMMs), however, this challenge is magnified, because of the non-hierarchical nature of Lean Management itself and its focus on empowering labor, while at the same time maintaining control over the total costs of labor (De Treville & Antonakis, 2006).

4.1. Method

Study 2 follows a 'convergent parallel design' (see, also, Stentz, Plano Clark, & Matkin, 2012), and also responds to calls for triangulated, inductive research (Avolio, Bass, & Jung, 1999; Bhamu &

Table 2
Context of study 2's focal six effective lean middle managers.

Industry	Department	Gender	Subordinates (in FTE)	Experience with lean (in Months)	N per method		
					Interview	Survey	Video-observation
1. Trucks	Production	M	22.50	120	3	3	–
2. Coffee	Production	M	125.00	24	1	1	–
3. Energy	Call center	M	165.00	18	3	12	1
4. Energy	Call center	M	200.00	15	4	11	1
5. Energy	Call center	M	110.00	9	3	8	1
6. Energy	HR	F	22.00	8	4	8	1
Total					18	43	4

Sangwan, 2014; Edmondson & McManus, 2007; Gardner, Lowe, Moss, Mahoney, & Cogliser, 2010; Lönnqvist, Verkasalo, Wichardt, & Walkowitz, 2013; Soltani, Ahmed, Liao, & Anosike, 2014; Yammarino, 2013; Yukl, 2012).

4.1.1. Nomination

In order to select ELMMs, we used three selection criteria: 1) the middle manager had to have more than six months experience with lean work practices; 2) the middle manager was deemed 'highly effective' by at least two external experts (i.e., not employed by the same organization as the nominee); and 3) the middle manager was deemed 'highly effective' by their boss. In addition the nomination by external experts had to be *independent* from their boss's nomination. The 19 lean experts from study 1 were provided with the list of values and behaviors of effective lean managers that they had rank-ordered in study 1; with it, they were asked to nominate names of ELMMs (similar to, e.g., Amy, 2008). Five managers were nominated. The boss of each of these five nominated ELMMs was then asked: "Who among your current middle managers do you consider to be highly effective?" Independently, all five nominated ELMMs were also chosen by their own bosses. Moreover, one boss proposed a sixth ELMM whom he found to be highly effective because he managed to implement lean much quicker than others. This person was added to our sample.³ All six ELMMs agreed to take part in the study.

4.1.2. Sample

Two of the six ELMMs worked in the manufacturing industry (a truck manufacturer and a coffee factory); the other four were employed in various service divisions of one large energy company (see, Table 2). The ELMMs were Dutch, predominantly male (five men, one woman), between 35 and 45 years of age; each one managed a department, averaging 107 FTEs. On average, their lean initiatives had been active for 32 months. Each one of the ELMMs in this sample had begun to consolidate lean tools and principles (e.g., regular Kaizen events, 5S, daily start-up meetings with employees, visual performance management, creating flow, and eliminating process waste) into their daily habits.

In order to determine the extent to which ELMMs' behaviors differ from generally effective middle managers, we compared a subset of the ELMM data with similar data from a sample of 25 effective middle managers (Van der Weide, 2007). This comparison group of 22 men and three women came from various industries: 14 were employed in the private sector (i.e., by financial services, telecommunication, and energy firms) and 11 came from the public sector (i.e., several municipalities and a regional Dutch Water Authority). These middle managers were not involved in lean initiatives, nor did other departments of their organizations implement

lean principles at the time of this study. The 25 non-lean middle managers were comparable to the ELMMs in terms of their age ($M = 41.9$) and management scope ($M = 176$ FTEs).

4.1.3. Procedure

4.1.3.1. Lean middle manager values. 18 individual audiotaped interviews were conducted: six with the focal ELMMs, and 12 with others who worked closely with them (their four bosses,⁴ six subordinate team leaders, and two internal consultants): 12 men and six women in total. In each interview, we first elicited ELMMs' values through the open-ended Critical Incident Technique (CIT) (Bonesso, Gerli, & Scapolan, 2014; Edvardsson & Roos, 2001; Flanagan, 1954). As explained by Bonesso et al. (2014) the CIT aims to retrieve real stories about specific important moments, in this case: situations 'starring' the focal middle manager. Specifically, we asked: "Could you tell about a recent critical incident during which the manager acted, in your view, very successful?" We probed to hear more details about the actual situation, e.g.: "What message did he/she pronounce especially in this situation?" and "Why do you see that he/she was particularly effective in this case?"

Then, a Q-sort rank-order exercise was conducted with a set of 24 cards, pre-printed with one value per card. Following a forced distribution procedure (see, Brown, 1996; Fu et al., 2010), the 18 respondents were asked to distribute the cards for their own ELMM: in nine separate stacks representing a 9-point scale, ranging from "not important to the focal middle manager" on the left-hand stack, to "highly important to the focal middle manager" on the right-hand stack. Each of those nine stacks should have a pre-specified number of cards in order to construct a normal distribution (i.e., 2, 2, 3, 3, 4, 3, 3, 2, and 2 cards per stack, respectively). The cards included all 21 values that resulted from study 1, supplemented with three values, because 24 values were required for a normal distribution (Brown, 1996). These three additional values were selected from the general work-values literature, insofar they seemed relevant in a lean context: high-quality performance, justice, and innovation (Brown & Treviño, 2009); the third column of Table 3 displays all the 24 values.

4.1.3.2. Lean middle manager behaviors. Four of the six ELMMs agreed to participate in the video portion of the study; they were those employed by the one large energy company. The two other ELMMs declined, due to their company's legal restrictions. Video-observation is a method whereby multiple raters code the fine-grained behaviors of managers (as suggested, for instance, by Bardi & Schwartz, 2003; Liu & Maitlis, 2014; Luff & Heath, 2012; Smith, Phail, & Pickens, 1975). We videotaped the ELMMs' behaviors in a frequently occurring, important work setting for middle

³ It appeared he did not require assistance from external consultants and, consequently, was not nominated by these lean experts.

⁴ One of the four interviewed bosses supervised two of the ELMMs. The boss of another ELMM was not available for an interview.

Table 3

Values of Effective Lean Middle Managers, Based on the Critical Incident Technique and a Q-sort used in the Interviews of Study 2.

Critical incident technique (N = 18)		Q-sort (N = 18)		
Values	f ^a	Values	M ^b	SD
1. Honesty	13	1. Continuous improvement	6.78	1.52
2. Participation and teamwork	8	2. Responsibility	6.78	1.44
3. Responsibility	6	3. Honesty	6.50	1.76
4. Persistence	6	4. Respect for people	6.39	2.35
5. Achievement-orientation	5	5. Integrity	6.28	1.60
6. Trust in people	5	6. Participation and teamwork	6.28	2.30
7. Open minded	4	7. Achievement-orientation	6.28	2.93
8. Respect for people	4	8. Trust in people	6.22	1.86
9. Continuous improvement	3	9. Customer focus	5.89	2.17
10. Information sharing and analysis	3	10. High quality performance	5.67	2.14
11. Equality	3	11. Self-reflection	5.17	1.92
12. Integrity	2	12. Constructive feedback	4.94	1.89
13. High quality performance	2	13. Information sharing and analysis	4.83	1.69
14. Potential of ordinary employees	2	14. Justice	4.83	2.18
15. Freedom of choice	2	15. Potential of ordinary employees	4.50	1.47
16. Humility	2	16. Helpfulness	4.44	1.79
17. Self-reflection	1	17. Persistence	4.44	2.12
18. Justice	1	18. Innovation	4.22	2.37
19. Helpfulness	1	19. Courage	3.78	2.34
20. Courage	1	20. Open minded	3.67	1.88
21. Creativity	1	21. Freedom of choice	3.61	2.28
22. Customer focus	0	22. Creativity	3.44	1.65
23. Constructive feedback	0	23. Equality	2.61	1.38
24. Innovation	0	24. Humility	2.44	2.12

^a f = Absolute frequency, which signifies how many respondents spontaneously mentioned this value during the Critical Incident Technique part of the 18 interviews with six middle managers, six subordinate team leaders, their four bosses, and two internal consultants.

^b The Q-sort entailed a 9-point rank-order answering scale, carried out with 18 persons: six middle managers, six subordinate team leaders, their four bosses, and two internal consultants.

managers: a regular meeting with their subordinates (Allen & Rogelberg, 2013; Vie, 2010). A fixed camera on a tripod captured a total of 8-h of footage: on average, 119 min per manager (ranging from 89 to 137 min). Immediately after each video-taped meeting, the four ELMs and their 29 participating subordinates were surveyed about the extent to which the ELMs' behavior had been representative; this was 94%.

The behaviors of the six ELMs *outside* meetings were examined via a survey which was administered to 47 respondents (i.e., the six ELMs and those who worked closely with them such as their bosses, all their subordinate team leaders, and internal consultants), generating 43 completed responses from 26 men and 27 women (91.49%). The survey included behaviors from Yukl's three domains, on a 7-point Likert scale, from *never* to *always* (Yukl, 2006, 2012; Yukl et al., 2002): *Task-oriented behavior* (three items, e.g., "Actively monitors operations and performance;" $\alpha = 0.69$); *Relations-oriented behavior* (five items, e.g., "Actively listens attentively to a person's concerns;" $\alpha = 0.72$); and *Change-oriented behavior* (four items, e.g., "Studies other projects to get ideas for improvements;" $\alpha = 0.67$). A confirmatory factor analysis indicated a good model fit of the three domains: $\chi^2 = 54$, $df = 51$, $p = 0.37$, CFI = 0.97, RMSEA = 0.04, PCLOSE = 0.564; however, our results were not significant.

4.1.4. Data analysis

4.1.4.1. *Lean middle manager values.* All the transcribed critical incidents were content-coded, line-by-line, with a values-codebook consisting of the same set of 24 values included in Table 2's Q-sort result. The multi-source Q-sort data was averaged, per ELM, and analyzed through descriptive statistics.

4.1.4.2. *Lean middle manager behaviors.* Eight raters were trained to code the video-based behaviors. The coding scheme consisted of 19 specific, mutually exclusive behaviors (developed by

Hoogbeem & Wilderom, 2015; Van der Weide, 2007), which are clustered around Yukl's (2002) three behavioral domains (five task-oriented behaviors; seven relations-oriented behaviors; and two change-oriented behaviors), supplemented by a set of five counterproductive behaviors (Van der Weide, 2007). The behaviors resulting from study 1 were incorporated into this scheme insofar as they could be observed in a meeting-type setting. Most of these behaviors overlapped with Van Der Weide's original coding scheme (e.g., "listening," "asking for ideas," and "providing feedback"), whereas other behaviors (e.g., "monitoring and evaluating") were slightly rephrased in order to keep the mutual exclusiveness of the coding scheme (Table 5 reports the utilized list of 19 behaviors). Then, two independent raters minutely coded the behaviors using The Observer software (Noldus, Trienes, Hendriksen, Jansen, & Jansen, 2000). Similar to Liu and Maitlis (2014) and Van der Weide (2007), the first author was the principal rater. Inter-rater reliability was 99%. With a Mann-Whitney U significance test, the standardized behavioral frequencies of the four observed ELMs were compared to the identically obtained and coded video data from a sample of 25 effective, but non-lean, middle managers (Van der Weide, 2007).

In exploring the multi-source survey data, we split the sample into middle managers' self-reports and views provided by their bosses, subordinates, and internal consultants. One-sample T-tests were done for each of the subsamples, as well as Pearson correlations.

4.2. Results

4.2.1. Lean middle manager values

Table 3 shows the ELMs' rank-ordered values, based on the CIT as well as the Q-sort. The CIT resulted in the following three most-coded values: honesty; participation and teamwork; and candor. Even though candor was absent in the Tables 1 and 3, it was

spontaneously mentioned by eight of the 18 respondents. One of them noted candor as follows: “Through lean you try to uncover everything that is currently below the waterline. [...] You cannot improve if you are not willing to be vulnerable.” Furthermore, six of the 18 respondents added “responsibility” and “persistence” as ELMMs’ values. The forced ranking or Q-sort revealed a very similar set of values among the ELMMs, albeit in a different order: Continuous improvement; responsibility; and honesty were ranked by the same respondents as the ELMMs’ main values. In line with the CIT outcomes, participation and teamwork was also ranked highly in the Q-sort: in sixth place. Continuous improvement was more prevalent in the Q-sort compared to the CIT. Thus, combining both value-capturing methods, the ELMMs’ core values are: Honesty, participation and teamwork, responsibility, continuous improvement, and candor.

Four of these five values resemble Schwartz et al.’s (2012) self-transcendence values; continuous improvement fits Schwartz’s values cluster openness to change. Although the other 20 values may not be so readily apparent to ELMMs, they are likely to have a supportive role when playing out the content of the core values (Schwartz et al., 2012); these peripheral work values include predominantly self-transcendence (e.g., “helpfulness” and “equality”) or openness to change values (e.g., “courage” and “creativity”). Moreover, the ELMMs endorsed a few conservation values: “persistence” (i.e., self-discipline in order to conform to set goals) and “respect for people” (i.e., showing deference to other people). The ELMMs’ full values constellation even contains a few so-called self-enhancement values: “achievement-orientation” and “high quality performance”.

4.2.2. Lean middle manager behaviors

The specific meeting-behaviors demonstrated most often by the four ELMMs were (see, Table 4): 1) active listening (39.83%); 2) structuring the conversation (11.56%); 3) visioning (11.12%); 4) informing (8.42%); and 5) agreeing (6.24%). The other 14 behaviors

in the coding scheme were observed as well, albeit much less frequently. ELMMs predominantly displayed positive relational behavior in meetings; the set of seven relations-oriented behaviors accounted for more than 50% of the observed behaviors. ELMMs’ task-oriented behaviors occurred about one-third of the time (Table 4), while their change-oriented behaviors consisted primarily of visioning (more than 10% of the time) and to a minor extent, asking for ideas (1.89%). They also displayed counterproductive behaviors, such as showing disinterest (2.63%) and disagreeing (1.49%).

In the last column of Table 4, we compared the behavioral repertoire of the four ELMMs to a sample of 25 effective non-lean middle managers (see, Van der Weide, 2007). The ELMMs showed significantly more active listening and agreeing. In other words, during regular staff meetings, the ELMMs paid significantly more positive relations-oriented attention toward their subordinates (54.97%) than equivalent managers in a non-lean sample (45.96%). Moreover, compared to the non-lean middle managers, the ELMMs showed significantly less task monitoring, negative feedback, and defending one’s own position. Altogether, the ELMMs engaged in significantly less counterproductive behaviors (5.27% versus 11.80%; see, Table 4). Thus, the ELMMs’ behavioral pattern contained more relations-oriented behaviors than task-, change-, and counterproductive-type behaviors.

The predominantly relations-oriented behavioral pattern of the ELMMs was corroborated by the survey data (see, the one-sample T-tests reported in Table 5): Both the ELMMs and their subordinate team leaders rated the ELMMs’ relations-orientation highest ($M = 6.07$ and $M = 5.46$, respectively), although the subordinates saw the ELMMs as displaying significantly less relations-oriented behavior compared to the ELMMs themselves ($t = -3.83$, $df = 29$, $p < 0.01$), whereas their bosses emphasized the ELMMs’ task-oriented behavior ($M = 6.08$). The fact that the lean middle managers rated their own behaviors similarly to their subordinates and what was video-coded by objective raters indicates that the ELMMs

Table 4

Video-coded staff-meeting behaviors of the effective lean middle managers, compared to a sample of equivalent non-lean middle managers (study 2).

Behaviors	Examples	Standardized frequency in %	
		Lean middle managers ($N = 4$)	Non-lean middle managers ($N = 25$) ^a
Task-oriented behavior		26.75	24.12
1. Structuring the conversation	“Hold on, I want to make this clear first”	11.56	7.81
2. Informing	“The budget for this project is ...”	8.42	5.90
3. Task monitoring	“What is the status of ...?”	4.81*	9.30
4. Delegating	“I’d like you to take care of that”	1.84	0.71
5. Structuring followers’ time	“Do you have enough time to perform these tasks?”	0.12	— ^b
Relations-oriented behavior		54.97*	45.96
6. Active listening	Nodding, making eye contact	39.83*	35.55
7. Agreeing	“Yes, that is the way I see it too”	6.24*	2.94
8. Encouraging – enthusing	“I am sure you will do a great job”	5.36	2.20
9. Providing positive feedback	“That was a clever decision”	1.70	0.90
10. Encouraging – cooperating	“Don’t worry, we will handle this problem together”	1.44	3.81
11. Socializing	“Did you have a good journey?”	0.30	0.20
12. Showing personal interest	“How are things at home now?”	0.10	0.36
Change-oriented behavior		13.01	18.12
13. Visioning	“I think it is best to focus on this goal first”	11.12	16.85
14. Asking for ideas	“How do you think we can solve this problem?”	1.89	1.27
Counterproductive behavior		5.27*	11.80
15. Showing disinterest	Talking to others while someone else is talking	2.63	1.08
16. Disagreeing	“I don’t think that is true”	1.49	0.93
17. Enforcing	“This decision has been made and there is no turning back”	0.55	0.40
18. Providing negative feedback	“I am not happy with the way you did this ...”	0.42*	4.07
19. Defending one’s own position	“I cannot help it, my boss wants it like that”	0.18*	5.72
Sum		100.00%	100.00%

* $p < 0.05$ (two-tailed, based on a Mann-Whitney U Two-Independent-Samples test).

^a See, Appendix 5A in Van der Weide (2007, p. 174).

^b “Structuring followers’ time” was not included in Van der Weide’s (2007) codebook.

Table 5
Descriptive statistics, results of one-sample T-tests, and Pearson correlations of the survey variables (study 2).

Variables	M	SD	N	Comparison value	95% CI for mean difference	t	df	1	2	3
1. Task-oriented behavior – total	5.21	0.97	43	5.50	–0.58, 0.01	–1.93†	42	(0.69)		
Task-oriented behavior – MM	5.00	0.73	6	6.07	–1.83, –0.30	–3.58*	5			
Task-oriented behavior – TL	5.14	1.03	31	5.46	–0.70, 0.06	–1.73†	30			
Task-oriented behavior – B	6.08	0.57	4	5.20	–0.02, 1.79	3.10†	3			
Task-oriented behavior – IC	5.17	0.71	2	4.90	–6.09, 6.62	0.53	1			
2. Relations-oriented behavior – total	5.50	0.82	42	–	–	–	–	0.22	(0.72)	
Relations-oriented behavior – MM	6.07	0.55	6	–	–	–	–			
Relations-oriented behavior – TL	5.46	0.87	30	6.07	–0.93, –0.28	–3.83**	29			
Relations-oriented behavior – B	5.20	0.63	4	6.07	–1.87, 0.14	–2.74†	3			
Relations-oriented behavior – IC	4.90	0.42	2	6.07	–4.98, 2.65	–3.89	1			
3. Change-oriented behavior – total	5.23	0.75	42	5.50	–0.50, –0.03	–2.27*	41	0.30	0.58**	(0.67)
Change-oriented behavior – MM	5.67	0.72	6	6.07	–1.15, 0.35	–1.36	5			
Change-oriented behavior – TL	5.18	0.80	30	5.46	–0.57, 0.02	–1.90†	29			
Change-oriented behavior – B	5.06	0.24	4	5.20	–0.52, 0.24	–1.15	3			
Change-oriented behavior – IC	5.00	0.71	2	4.90	–6.25, 6.45	0.20	1			

Note. Use was made of a 7-point Likert scale (*never to always*).

Diagonal entries represent the scales' Cronbach's alphas. The views on each ELMM's behavior, provided per type of respondent, are displayed as well; We split the survey sample into subsamples in order to compare the views of: MM = the lean middle managers themselves; TL = their subordinate team leaders; B = their bosses; and IC = their internal consultants.

† $p < 0.10$ (based on two-tailed, one-sample T-tests).

* $p < 0.05$ (based on two-tailed, one-sample T-tests).

** $p < 0.01$ (based on two-tailed, one-sample T-tests).

were self-aware—an attribute of effective managers (Fleenor, Smither, Atwater, Braddy, & Sturm, 2010).

Furthermore, the relations- and change-oriented behavior domains were positively correlated ($r = 0.58$; $p < 0.01$, Table 5), which indicates the behavioral domains are interrelated. All in all, on the basis of both the evidence obtained, ELMMs are shown to adopt a broad behavioral repertoire, including a task- and change-orientation, while at the same time mainly engaging in positive relations with followers.

5. Discussion and propositions

This paper reports empirical research that aimed to identify the constellation of values and behaviors of effective lean middle managers as leaders of Lean Management initiatives. Spearheading a larger constellation of 25, the following five values were ranked highest by the effective lean middle managers and their associates: “honesty,” “participation and teamwork,” “responsibility,” “candor,” and “continuous improvement.” These five align closely with two of the four values clusters of Schwartz et al. (2012) and Brown and Treviño (2009). In addition, before this study, only two of these five (“participation and teamwork” and “continuous improvement”) had been identified by either the extant literature or in the accounts of the expert lean practitioners consulted for study 1. While “honesty” seems to fit well within lean's focus on fact-based management and transparency, it is seldom noted explicitly in the lean literature (e.g., Womack, Jones, & Roos, 1990). From our perspective, this absence can be explained by the fact that lean scholars, with their focus on tool-based approaches, have yet to substantively incorporate the general work values literature into their theoretical models. Clearly, merging Operations Management with other ‘pockets’ of the more ‘softer’ leadership and change management literature is likely to further enhance both research knowledge and practitioner competency in the successful adoption of Lean Management (Bortolotti, Boscarri, & Danese, 2015; Samuel et al., 2015; Van Dun & Wilderom, 2012). Another contribution of the study was the related value of “candor” as typical of effective lean managers; i.e., being open about your own work views and feelings. Thus, in contrast to a negative ‘lean and mean’ mindset

(Mehri, 2006; Radnor & Boaden, 2004), effective lean managers encourage employees to participate in the generation and implementation of ideas by endorsing honesty, candor, and teamwork and thus building intra-team psychological safety.

Additionally, we find “responsibility” to be part of the core lean value set, most probably because lean demands the distribution of responsibilities among the lower levels in the organization (Delbridge, Lowe, & Oliver, 2000), as shown by a recent empirical study in which effective lean managers were focused on removing hierarchy and giving more responsibility to their work-floor employees (Camuffo & Gerli, 2012). Effective lean middle managers in this study were found to endorse self-transcendence and openness to change values. Bottom-up improvement demands a different set of values than those typically attributed to (middle) managers: i.e., self-enhancement and conservation. Instead, the lean philosophy sees employees as active participants in continuous improvement, together with whom managers pursue collective interests (Poksinska et al., 2013). Effective lean managers thereby transcend their personal interests (i.e., “self-transcendence,” Schwartz et al., 2012) towards attaining, step-by-step, an explicit higher goal (and thereby showing “openness to change”). A manager's endorsement of a collective mission is found to have a strong effect on followers (Shamir, House, & Arthur, 1993). Another study among lean team leaders found that when they endorse self-transcendence values their team effectiveness is higher compared to when they endorse conservation values (Van Dun & Wilderom, in press). Similarly, Liker and Convis (2012, p. 46, emphasis added) noted that at lean-exemplar Toyota leaders emphasize “developing others to continuously improve all processes.” Hence, we offer the following propositions (1 and 2) for further study and refinement:

Proposition 1. Effective lean middle managers, compared to less effective lean middle managers or other middle managers in general, are more likely to hold values of self-transcendence and openness to change.

Proposition 2. Effective lean middle managers, compared to less effective lean middle managers or other middle managers in general, are less likely to hold values of self-enhancement and conservation.

Given the fact that lean aims to increase customer value

(Emiliani, 2003; Womack & Jones, 2003), and despite its explicit mention by both the lean experts and the lean literature, it is remarkable that customer focus is not expressed as a main value by the effective lean middle managers (ELMMs) in study 2. It might well be that the ELMMs in this study are focused internally, on process efficiency, rather than externally, on customer service (Radnor & Johnston, 2013). Alternatively, the senior lean experts we had solicited for study 1 might be more involved in coaching managers to subscribe to lean and thus in promoting lean's basic underlying principle of 'creating customer value.' Hence, we do recommend "customer focus" to be studied up close: as a value of lean managers, including how it is dealt with by these managers, their subordinates and lean experts or consultants.

In terms of behaviors, the ELMMs in our study demonstrated a repertoire of concrete, predominantly positive, relations-oriented behaviors (see, also, Larsson & Vinberg, 2010). Specifically, ELMMs engage relatively frequently in actively listening and agreeing with their employees, thereby encouraging employee views (Poksinska et al., 2013). Also, compared to the effective non-lean managers, ELMMs task-monitor significantly less; give much less counterproductive negative feedback; and defend their own position significantly less often. Finally, ELMMs displayed few change-oriented behaviors. These video-based results match the survey-based reports of both the ELMMs and their subordinates, demonstrating more precisely how effective lean managers involve their followers in improving their work practices (Found & Harvey, 2006; Lucey, Bateman, & Hines, 2005). Poksinska et al.'s (2013) qualitative field study shows engagement in the form of informal chats; positive recognition; constructive feedback; delegating responsibilities; and facilitation of the employee's problem solving process. Lean managers at Toyota are exemplary in building human relations as they coach their workers to increase their capabilities and improve processes (Spear, 2004). All in all, ELMMs demonstrate mainly positive, relations-oriented behaviors.

While leadership studies report on behaviors, they often do so in broad and somewhat less-than-actionable terms, see, e.g., in Table 1, "designing and coaching teams," "engaging employees," and "building trust." These 'meta-categories,' as Yukl (2012) refers to them, are comprised of several 'micro' behaviors. Our research identifies several of these micro behaviors, e.g. "agreeing" or "active listening," and shows them to be quite important. These normal, day-to-day, even 'mundane' behaviors take on special significance because they are enacted by the leader (Alvesson & Sveningsson, 2003). Certainly, future (lean) research will benefit from further explication of similar concrete, observable micro behaviors (Davis & Luthans, 1980; Hoogeboom & Wilderom, 2015; Yukl, 2012; Yukl et al., 2002).

Our findings also show alignment with values and behaviors of the positive organizational studies (POS) literature, e.g., emotional intelligence and respectful interaction (Carmeli, Dutton, & Hardin, in press; Luthans, 2002). Positivity is generally associated with effective leadership (Youssef-Morgan & Luthans, 2013), and since positive leaders are focused on creating high-quality connections with their associates at work, they are likely to unlock more employee creativity (Carmeli et al., in press; Dutton, 2014). Clearly, positive leader behaviors are not exclusive to lean managers. Yet, as opposed to the works by some lean scholars who associate 'lean' closely with 'lean and mean' (Mehri, 2006; Radnor, 2011; Radnor & Boaden, 2004), this research shows that positive, relations-oriented behaviors at work are fundamental to effective lean leadership. Intriguingly, our video findings imply that lean middle managers adopt those positive behaviors even *significantly more* often than *non-lean* effective middle managers. In this light, Vacharkulksemsuk, Sekerka, and Frederickson (2011, p. 112) note that: "a focus on the mechanistic operations and one-time fixes to

drive production is not enough to promote the systemic and dynamic processes needed for organizations in the 21st century." Clearly, future research must chart more precisely the (types of) positive, relations-oriented behaviors undertaken by effective lean managers in various standard work settings. Hence:

Proposition 3. Effective lean middle managers show significantly more positive relations-oriented behaviors (in meetings and beyond) than behaviors characterized as counterproductive, task-, or change-oriented.

Proposition 4. Effective lean middle managers show significantly more positive relations-oriented behaviors (in meetings and beyond) than either less effective lean middle managers or middle managers who are not managing lean initiatives.

In addition, we offer some thoughts about the plausible links between managerial values and behaviors (see, also, Bardi & Schwartz, 2003; Denison, 1996; Lakshman, 2006; Schein, 2004). Others have shown that for particularly effective managers, the linkage between specific values-behavior pairings are especially strong (Bruno & Lay, 2008; Chambers, Drysdale, & Hughes, 2010; Russell, 2001). Yet, based on the systematic literature review, scholarly consensus on precisely what constitutes a lean value or a behavior is lacking. Hence, future research efforts are needed to disentangle values from behaviors so that their causal linkages can be more thoroughly examined. Our exploratory study unveils a constellation of lean work values that constitute predominantly self-transcendence and openness to change values. A concomitant repertoire of mainly positive, relations-oriented behaviors was also found. ELMMs, for example, demonstrated less task-monitoring compared to non-lean peers, who are more likely to adopt administrative type of behavior such as planning and approving (Vie, 2010). Perhaps ELMMs who value responsibility might *not* want to control their subordinates to the point of 'micromanagement' (Psychogios, Wilkinson, & Szamosi, 2009; Seddon, 2005). In other words, ELMMs may shy away from the prototypical power-over-others and related self-enhancement types of values and behaviors. Hence:

Proposition 5. Effective lean middle managers' values of self-transcendence and openness to change are positively associated with a positive, relations-oriented behavioral pattern.

To conclude, this inductive, exploratory study has three main contributions: 1) An unique focus on both specific work values and behaviors (Connor & Becker, 1994; Glynn & Raffaelli, 2010; Schwartz et al., 2012); 2) A mixed-methods, field approach especially suited for theory-building (e.g., Bhamu & Sangwan, 2014; Edmondson & McManus, 2007); and 3) A set of five propositions (including sets of precise values and behaviors) for future larger-scale research comparing effective lean managers to their less effective or non-lean counterparts.

5.1. Limitations and future research

This research has a number of limitations. The 19 participants in study 1 were all employed by a single Dutch consulting firm, which may have resulted in an idiosyncratic interpretation of lean. In order to counteract this possible firm-specific bias, we included a comprehensive array of values and behaviors from the international literature. As noted, we found some interesting communalities and differences between the outcomes of study 1 and 2. Because we do not have the data to say more about their possible linkages, they must be included in future-research work. Moreover, in future academic lean studies it is particularly recommended not to rely completely on so-called lean experts (Hicks, Nair, & Wilderom, 2009). By querying also the nominees' bosses and their subordinates, who all expressed a high degree of satisfaction with the studied managers, we did curb a possible confirmation

bias in the consultants' nominations of effective lean managers for study 2. Thus, given that we validated the experts' nomination of the focal managers of this study with evaluative data from their bosses, the selection of the effective lean managers in this study does not seem to contain much (expert-type) bias. In order to improve the knowledge on effective lean managers, we advise larger-scale follow-up studies in which one is to include objective measures of job, managerial, or team performance.

Another possible limitation pertains to the fact that four of the nominated ELMMs in study 2 work within a single company, which may reduce the results' external validity. In future studies the degree to which cultural and geographic differences affect lean managers' values constellations and behavioral repertoire, needs to be taken into account as well (Connor & Becker, 1994). Study of the adoption of new work practices showed that post-bureaucratic North-European countries such as The Netherlands and Sweden more often rely on empowerment and teamwork compared to, for instance, Latin American countries (Cagliano, Caniato, Golini, Longoni, & Micelotta, 2011). Indeed, comparable Swedish studies of leadership in lean or TQM oriented work settings did find results similar to the ones of the present study (Larsson & Vinberg, 2010; Poksinska et al., 2013). As noted by Yukl (2006, p. 431): "Values are likely to be internalized by managers who grow up in a particular culture, and these values will influence their attitudes and behavior in ways that may not be conscious." Hence, large-scale, cross-cultural studies are needed to examine the degree of generalizability of this study's propositions.

Even though study 2 was restricted in range—due to its narrowed focus on managers who were 1) at the middle management rank, 2) focused on lean, and 3) effective—significant differences were nevertheless uncovered when compared to non-lean managers, suggesting new comparative research opportunities. Such studies are proposed in order to: 1) differentiate between the most and least effective lean managers, in the same or different organizations; and 2) compare ELMMs with counterparts in non-lean settings and with lean managers operating within different hierarchical ranks. Noting that behaviors are more flexible than values, the precise behavioral repertoires of (lean) managers may vary according to experience and hierarchical positions (e.g., Mumford, Campion, & Morgeson, 2007). Moreover, studying the values and behaviors of work floor team leaders—as well as those of their leaders, including top management—might further uncover patterns of value-behavior links of effective and ineffective lean managers (see, also, Van Dun & Wilderom, in press).

Future use of our video-based methods may help to clarify effective (lean) manager behavior—including their followers' reactions—even further (Yukl, 2012). Effective managers typically adopt a complex behavioral repertoire (Denison, Hooijberg, & Quinn, 1995), which can be understood more precisely through fine-grained, video-based field-observations, as in study 2 here (e.g., Bardi & Schwartz, 2003; Hooigeboom & Wilderom, 2015; Schmenner, Van Wassenhove, Ketokivi, Heyl, & Lusch, 2009; Szabo et al., 2001; Vie, 2010; Yukl, 2012): in addition to the usual (self-rating) surveys (Davis & Luthans, 1979, 1980; Fleener et al., 2010). However, analyzing one meeting per manager is insufficient when interested in uncovering their more complete customary behavioral patterns, including those of their followers. It is recommended, therefore, to analyze video-shadowing data of lean managers' behavior at the coffee machines, in unscheduled meetings, and other less formal work settings (Czarniawska, 2007; McDonald, 2005; Vie, 2010). Also, some managers perform better in meetings, while others prefer one-on-one settings. As the field of managerial work has illustrated, moreover, numerous activities have already taken place before the formal meetings (Tengblad & Vie, 2012). Further refinement of the managers' behavioral

repertoire and linkages to values; better understanding of the same for one's associates; expansion beyond the limited setting of scheduled meetings—all these are fruitful new frontiers for Lean Management research (see, e.g., Van Dun & Wilderom, 2015).

5.2. Implications for lean practitioners

Turning finally to implications for practitioners, Lean Management, with its focus on efficiency and the elimination of waste, has proven to be a particularly effective approach for managers charged with leading their organizations to post-crisis recovery. To a large extent, this is not 'news,' having been well-documented in much of the lean research to date, which has focused heavily on lean tools and their applicability in resource-constrained conditions. In the course of conducting this particular study, however, we have identified an additional way whereby Lean Management might be especially timely and useful. And that is that the *self-transcendence* values and behaviors of lean, are well-suited for countering the *self-enhancement* values and behaviors that brought on the crisis in the first place (Board, 2010).

Yet, as we have seen, values are stable and resistant to change (Jin & Rounds, 2012). With this research, therefore, our hope is that the explication of lean values and behaviors, and with greater specificity than in previous research, will aid (senior) managers, HR officers, and consultants in their selection and development of lean managers. Specifically, our distillation of new research together with insights from experienced lean practitioners suggests that, to be effective, lean managers should: listen more actively and agree more often with their follower's suggestions in an appreciative manner. Furthermore they should engage less in command-and-control type of behaviors; welcome change efforts; and build close human relations at work. Such an effective behavioral repertoire is likely to result in psychological safety that in turn encourages employees to freely communicate, to express their reflective thoughts and ideas for improving their work practices, and to be frank, even about their mistakes. In sum, by employing and improving their own constellation of values and behaviors, supplemented with those from our research, managers may be more effective in pursuing the purpose of lean: enhancing customer value.

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