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MANAGEMENT | RESEARCH ARTICLE

The diffusion and popularity of Lean in Norway: An exploratory survey

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Abstract: Although commentators have noted that Lean currently is receiving a great deal of attention in Norway, little is known about how and to what extent Lean is used by Norwegian organizations. The overall purpose of this paper is to present the results of an explorative survey that attempts to map the diffusion and popularity of Lean in Norway. The results indicate that the adoption rate is still quite low, but that Lean is relatively more widely used in industries such as manufacturing and accounting, auditing and finance. Furthermore, the results indicate that Norwegian organizations are relatively recent adopters of Lean. Among users there is a general consensus that Lean has positive effects on organizational performance. At the same time, a wide range of implementation challenges are reported. These findings are discussed in relation to the extant literature on Lean.

Subjects: Operations Management; Critical Management Studies; Organizational Studies; Organizational Change

Keywords: Lean; Norway; diffusion; adoption; implementation; management concept; management fashion

1. Introduction

1.1. Lean

Lean is a production concept that stems from the Toyota Production System (Monden, 1983). Lean was popularized in the early 1990s by the best-selling management book “The Machine that Changed

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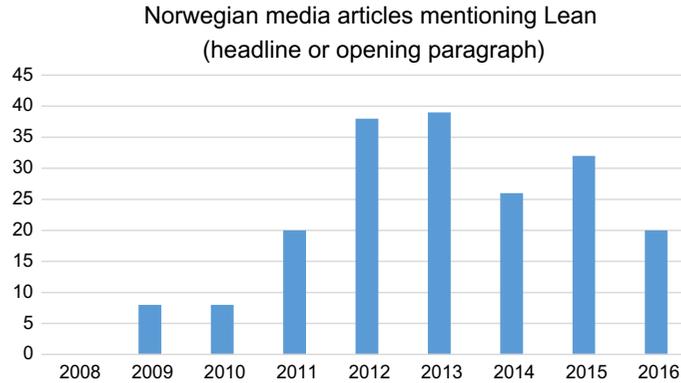
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PUBLIC INTEREST STATEMENT

Lean is one of the most influential management concepts in the world. In recent years, Lean has attracted much attention in Norway. Still, little is known about to what extent Lean is used in practice. This paper presents the findings from an exploratory survey about the use of Lean in Norwegian organizations. The results show that the usage rate is relatively low. Lean is more widespread among larger organizations, and in industries such as manufacturing and accounting, auditing, and finance. While users generally have a positive view of Lean, different types of implementation challenges are reported.

Figure 1. Norwegian media articles mentioning Lean in the headline or opening paragraph.



the World” (Womack, Jones, & Roos, 1990). During the 1990s, Lean became a buzzword in the management community (Benders, 1996). Since then, Lean has garnered a lot of attention in public management discourse, and enjoyed considerable interest in private and public sector organizations alike (McCann, Hassard, Granter, & Hyde, 2015; Radnor & Boaden, 2008; Wittrock, 2015).

In prior research, it has been shown that even though Lean has Japanese origins, this concept has “travelled” far and wide (Benders, 1996; Ingvaldsen & Benders, 2016; Ingvaldsen, Ringen, & Rolfsen, 2014; Wittrock, 2015). However, Lean is not used to the same extent or in the same way everywhere. Rather, the adoption and implementation of Lean may be shaped by local cultural and institutional factors (Wittrock, 2015). Previous studies of the Lean concept have shown that the reception and trajectory of Lean varies across countries, for instance, due to the presence of local actors and institutions that help diffusing and popularizing the concept (Benders & Van Bijsterveld, 2000; Ingvaldsen et al., 2014; Larsson, 2012).

Recently, Lean has “travelled” to Norway (Ingvaldsen et al., 2014), and the concept has attracted much interest among consultants, academics, and managers in Norwegian industry (Aspøy, 2014; Holmemo, Rolfsen, & Ingvaldsen, 2016; Rolfsen, 2014). Even unions have generally been supportive of Lean initiatives (Rolfsen & Ingvaldsen, 2012).

The current popularity of Lean in Norway has been fueled by a spectrum of supporting actors and institutions. In 2009, Lean Forum Norge (www.leanforumnorge.no) was established as a result of cooperation between actors from industry, government, and academia. Lean Forum Norge is a type of umbrella organization that spearheads, facilitates, and coordinates most of the Lean-related events and activities in Norway. Between 2011 and 2014, a total of 10 regional Lean forums sprung up, covering every part of the country. In addition, numerous consulting firms and trainers have started offering consulting services, educational courses and certifications related to the Lean methodology.

A database search reveals that Lean has attracted much attention in the Norwegian media since 2009 (Figure 1). There has been a rapid growth in the volume of media discourse on Lean in the years following the establishment of Lean Forum Norge. Although the interest seems to have peaked in the years 2012 and 2013, it is still too early to tell if the interest will stabilize at the current level, decline or resurge.¹

Overall, the Norwegian interest in Lean has been so strong that has been referred to as a “pandemic” (Aspøy, 2014). Still, we know relatively little about how and to what extent Lean is used by Norwegian organizations.

1.2. Purpose and contribution

Against this background, the aim of this paper is to map the diffusion and popularity of Lean in Norwegian organizations. Although some previous studies have looked at the diffusion of Lean in specific industries in Norway, e.g. municipalities (Dolva, 2011; Schie, 2012), manufacturing (Heien, 2012), or banking (Larsen, 2009), this survey is, to the best of our knowledge, the first broad-based survey of Lean across different industries in Norway. The data presented in this article help to sketch a picture of the impact of Lean on organizational practice in Norway.

At a more theoretical level, our study engages with the research literature on Lean as a popular global management concept (e.g. Benders & Van Bijsterveld, 2000; Ingvaldsen & Benders, 2016; Ingvaldsen et al., 2014; Larsson, 2012; Näslund, 2008; Wittrock, 2015). Our findings indicate that the Norwegian adoption and diffusion pattern differs from the pattern seen in studies carried out in some other countries. The data indicate that Norway is lagging behind some other countries in terms of adoption of Lean. While there are indications internationally that Lean is not as fashionable as it used to be (Rigby & Bilodeau, 2015; Wittrock, 2015), our data indicate that Lean is a relatively new phenomenon in most Norwegian organizations.

1.3. Structure

The remainder of the paper is structured as follows. In Section 2, we provide a brief overview of the origins and characteristics of the Lean concept, as well as a brief review of extant literature on the diffusion and popularity of Lean in different contexts. In Section 3, the methods and data are outlined. In Section 4, we present the findings of the survey. In Section 5, the findings are discussed in light of debates in the literature on Lean. Finally, Section 6 concludes, discusses shortcomings, and suggests ideas for future research.

2. Literature review

2.1. Emergence and evolution of Lean

In this section, we provide a brief account of the emergence and evolution of Lean as a management concept and practice. It is not within the scope of this paper to provide a very detailed historical review of the origins and evolution of the Lean concept. Therefore, we refer interested readers to previous contributions that provide very detailed accounts of Lean's rather complex genealogy (e.g. Hines, Holweg, & Rich, 2004; Holweg, 2007).

As noted in the introduction, Lean is a Japanese production concept that stems from the Toyota Production System (Monden, 1983, 2012; Spear & Bowen, 1999). The term Lean Production was first used by Krafcik (1988) in the article "Triumph of the Lean Production System" published in MIT Sloan Management Review. Lean was further popularized in the best-selling management book "The Machine that Changed the World" by Womack et al. (1990). Since the early 1990s, the Lean concept has been further developed by researchers and other thinkers in a large number of books and articles (e.g. Bicheno, 2000, 2004, 2008; Hines, Found, Griffiths, & Harrison, 2011; Liker, 1997; Rother & Shook, 2003).

In the years following Womack et al. (1990), Lean quickly gained much attention. During the 1990s, Lean became somewhat of a buzzword in the management community (Benders, 1996). Since then the Lean concept has "travelled" all over the world (Benders, 1996; Ingvaldsen et al., 2014; Scarbrough & Terry, 1998; Wittrock, 2015). Today the use of Lean is not limited to a conventional manufacturing context. Instead, Lean has been adapted for use in a wide range of other contexts such as construction, service industries (e.g. health care or accounting), as well as in public sector organizations (e.g. municipalities).

2.2. Characteristics of the Lean concept

In this section, we analyze the characteristics of the Lean concept. Before we proceed, it is useful to briefly lay out what a management concept or idea is. A management concept or idea is a “prescriptive, more-or-less coherent view on management known under a particular label” (Nijholt & Benders, 2007, pp. 629–630). An alternative definition is that a management concept or idea is “a model for directing the activities of companies and other organizations” (Jutterström & Norberg, 2013, p. 2). Lean clearly fits both definitions being a highly prescriptive view on how to direct the activities of organizations to reduce waste and improve efficiency.

Not all management concepts become popular and fashionable (Nijholt & Benders, 2007, pp. 629–630). In the literature on management concepts and ideas, researchers have noted that management concepts that succeed in attracting attention and become popular and fashionable exhibit some essential characteristics (Benders & Van Veen, 2001; Røvik, 2002).

In the following, we will discuss the characteristics that are necessary for a concept such as Lean to have a high popularity potential. The first characteristic is related to how the concept is labeled. Management concepts are usually labeled in a distinctive and catchy way (Røvik, 1998, 2007), and often a two- or three-letter acronym is used (Grint, 1997). In this respect, Lean differs a bit from most other management concept since it is not an acronym (Sørhaug, 2016, p. 155).

However, Lean is a term that generally has positive connotations. Legge (2000, cited in Green & May, 2005) notes that “lean” is a positively charged word, whereas the words “fat” and “thin” both have negative connotations. Furthermore, the Lean rhetoric resonates with managers who like the sound of reducing waste and inefficiencies (“trimming the fat”). In addition, the term also lends itself to different variations such as Lean Construction (Alarcón, 1997; Ballard & Howell, 1994; Green, 2011), Lean Healthcare (Brandao de Souza, 2009; Mazzocato, Savage, Brommels, Aronsson, & Thor, 2010), and Lean Accounting (Brosnahan, 2008; Kennedy & Brewer, 2005).

The second essential characteristic of a management fashion is that such concepts can be interpreted in a multitude of ways, i.e. so-called “interpretive viability” (Benders & Van Veen, 2001) or “interpretive space” (Clark, 2004). This wide room for interpretation means that concepts may be “translated” (Czarniawska & Sevón, 1996) in different ways. To this point, researchers have noted that Lean is loosely defined, exists in many forms, and may be translated in different ways as it is implemented in organizations (Brännmark et al., 2012; Green & May, 2005, p. 503; Langstrand, 2012; Langstrand & Drotz, 2015; Morris & Lancaster, 2006). For example, it is possible to distinguish harder from softer versions of Lean, where the former is associated with more concrete techniques and methodologies, while the latter is associated with more intangible elements such as organizational learning and culture (Holmemo et al., 2016).

The third characteristic is related to performance improvements. Substantial performance improvements are usually promised to adopters of management concepts (Kieser, 1997; Røvik, 1998; Ten Bos, 2000). In the context of Lean, these promises are linked to reductions in waste and inefficiencies (Womack et al., 1990). In a period of increasingly tough global competition (Hamel & Prahalad, 1994), such claims tend to resonate with business managers. In other words, it becomes difficult for a “rational” manager to argue against and to resist the Lean philosophy.

The fourth characteristic is related to the notion of universality (Fincham & Evans, 1999; Røvik, 2007; Strang & Meyer, 1993). The Lean literature is full of universalist claims (Wittrock, 2015). For example, the Lean concept is often claimed to be useful for both private and public sector organizations (Bhatia & Drew, 2006; Radnor & Boaden, 2008; Radnor, Walley, Stephens, & Bucci, 2006). The myriad of different Lean variants mentioned earlier also underlines the universality of Lean.

2.3. *Lean as a management fashion*

Based on the analysis in the previous section, we argue that Lean exhibits several of the characteristics associated with fashionable management concepts. Therefore, management fashion seems like a promising theoretical lens through which to view the diffusion and popularity of Lean. Before we proceed, we will briefly delve into the meaning of the term “management fashion.”

Abrahamson (1996, p. 257) defines management fashion as a “relatively transitory collective belief, disseminated by management fashion setters, that a management technique leads to rational management progress.” Another definition is provided by Jung and Kieser (2012, p. 329) who highlight that management fashions are those “management concepts that relatively speedily gain large shares in the public management discourse.” Both of these definitions focus primarily on the supply-side of fashions. Benders and Van Veen (2001) have pointed out that a definition of management fashion should take into account not only the discourse on management concepts (“the talk”) but also what impact a fashionable management concept has on the demand-side, i.e. the fashion’s diffusion and implementation in organizations.

In previous research, it has been suggested that the popularity of Lean could be explained by theories about management fashion (Benders & Van Bijsterveld, 2000; Green & May, 2005, p. 501; Ingvaldsen et al., 2014, p. 41–42; Larsson, 2012; Näslund, 2008). For example, Benders and Van Bijsterveld (2000) studied the reception of Lean in Germany, and found that Lean was highly fashionable during the 1990s, probably more so than most other places in Europe.

Larsson (2012) studied the diffusion of the Lean Production concept in Sweden from a supply-side perspective. Focusing on how Lean has been communicated in the Swedish print-media, Larsson found that Lean went through a fashion cycle during the 1990s, but that the concept re-surged in 2004 and started a new fashion cycle, which as of 2009 was still in the growth phase (Larsson, 2012, 2015, p. 31). In a similar vein, Ingvaldsen and Benders (2016, p. 36) note that Lean has made a comeback during the last 10 years, and that the current Lean wave appears more durable than the first.

Näslund (2008, p. 276) found that Lean grew rapidly in popularity during the 1990s and that the rise continued throughout the early to mid-2000s. In a more recent study, Wittrock (2015) has a slightly different perspective on the trajectory of Lean’s popularity, pointing out that the surveys carried out by Bain & Company show that Lean is not as popular and widely used as it used to be. Lean fell out of the top 25 of Bain & Company’s *Management Tools and Trends Survey* in 2009, and has not reappeared in subsequent editions (Rigby & Bilodeau, 2009, 2011, 2013, 2015). Moreover, Wittrock (2015) cites Thawesaengskulthai and Tannock (2008) who argue that Lean could be going out of fashion and be replaced by a new, similar concept.

2.4. *Evaluation*

This brief literature review has shown that the reception and popularity of Lean varies across social and institutional contexts. In other words, the Lean concept’s trajectory has not been uniform across different countries. As noted by Ingvaldsen and Benders (2016, p. 36), Lean’s popularity has varied across different countries.

As pointed out in the introduction, Lean has in a relatively short period of time become popular in Norwegian public management discourse. This indicates that Lean, following Jung and Kieser’s (2012, p. 329) definition, currently can be considered a management fashion in Norway. However, we know relatively little about the Lean concept’s actual diffusion among Norwegian organizations.

In the next section, we outline and discuss the research approach employed to investigate the diffusion and popularity of Lean in Norway.

3. Methods and data

3.1. Electronic survey

The data in this study were collected using an electronic survey methodology (Jansen, Corley, & Jansen, 2007). The survey was administered using the survey software Questback (www.questback.com). An electronic survey was deemed appropriate given the purpose of our study, which was to map the diffusion and popularity of Lean in Norway. A large number of respondents are needed in order to be able to sketch a picture of the overall impact of Lean in Norwegian organizations. According to the research methods literature, a survey methodology is well suited for obtaining data from a large number of respondents (Ghauri & Grønhaug, 2002).

3.2. Structure of the questionnaire

The questionnaire consisted of a total of 32 questions. However, the survey was dynamic, meaning that the number of questions given to each respondent depended on their answers to previous questions. For example, a respondent who answered “no” when asked about whether he had heard of Lean was not asked any further questions about implementation, etc.

The questionnaire covered several different themes, e.g. knowledge and awareness, adoption motives and rationales, implementation, as well as positive and negative experiences. Most of the questions were closed-ended and utilized seven-point Likert scales. On some of the questions, the respondents were able to select up to three alternatives. This means that the percentages in several of the tables presented in this article add up to more than 100%.

3.3. Response rate

The survey was sent to 11,923 Norwegian organizations during the spring of 2015. The organizations’ email addresses were collected from the Norwegian company database Proff Forvalt (www.forvalt.no). Seven hundred and sixty emails were returned due to inactive, expired, or wrong email accounts. As shown in Table 1, after one reminder, a total of 1,220 completed questionnaires had been received. Another 54 respondents sent textual responses via email, but these responses were not taken into consideration in the analysis as they were typically incomplete.

One of the background questions explored the respondent’s role in the organization. The respondents were for the most part general managers (e.g. CEOs) or financial managers (e.g. CFOs). Therefore, it is reasonable to assume that the respondents were relatively familiar with their own organization and their use of Lean or other management concepts and tools. It should be noted that in the presentation of the survey data, we let the respondents speak on behalf of their respective organizations.

As Table 1 shows, the response rate was 10.9%. This is generally considered a low response rate. However, electronic surveys tend to get lower response rates than traditional postal surveys (Cook, Heath, & Thompson, 2000; Shih & Fan, 2008).

The relatively low response rate in our study can be explained by several factors. For example, one possible explanation is that the survey was targeted at a broad group of respondents. An important

Table 1. Overview of responses

Respondent	Number	Percentage
Completed	1,220	10.9
Not completed	99	0.9
Declined	342	3
Non-response	9,503	84.7
E-mail response	54	0.5
Total	11,218	100

question is to what extent the low response rate threatens the validity of our results. Therefore, simple checks for non-response bias were conducted by comparing characteristics of the respondents with characteristics of the population as a whole.

4. Knowledge, awareness, information sources, and the adoption decision-making process

In this section, we present the findings from the part of the survey that focuses on Norwegian organizations' knowledge and awareness of Lean, their information sources, and contact points, as well as the adoption decision-making process.

4.1. Knowledge and awareness of Lean

More than half of the respondents (56.3%) indicated that they had heard of Lean (Table 2). Respondents from larger organizations are more likely to have heard of Lean. This question was also used to explore whether there was a relationship between organizational size and awareness of Lean. The results show that more than 90% of the organizations with more than 100 employees were familiar with Lean. Among organizations with 50–99 employees, less than 70% had heard of Lean. For organizations with less than 50 employees, this share dropped to about 50%.

4.2. Information sources and contact points

We also asked the respondents about where they first came in contact with Lean (Table 3). The data show that the conference/seminar scene, previous jobs, other organizations, business media, and educational institutions were the most important contact points. The role of conferences and seminars is not surprising since the role of the conference scene is emphasized in the management fashion literature (Kieser, 1997). For example, the annual Lean Conference in Norway attracted close to 600 participants in 2011² and 500 in 2015.³ It is also interesting that many report previous jobs and other organizations as contact points. This finding can be seen in light of research showing that management practices tend to spread via professional and organizational networks (DiMaggio & Powell, 1983).

Relatively few respondents reported consultants as a contact point. This is somewhat surprising given that consultants are generally considered the most important and central actor in relation to popular management concepts (Heusinkveld & Benders, 2012; Jung & Kieser, 2012). Lean consultants often play key roles as speakers in conferences/seminars and authors of business media articles, as well as assisting organizations in the implementation of new concepts and ideas. Given the presence of consultants at Norwegian conferences and in the business media, e.g. as speakers or authors of media pieces, it is possible that their importance could be a bit understated in the data.

4.3. Adoption among those aware of Lean

We asked the respondents who answered that they had heard of Lean whether they had in fact adopted the concept. As Table 4 shows, 21.8% of these respondents had adopted and were currently using Lean, while 77.4% of the respondents had not adopted the concept. A small number of organizations were ex-users of Lean.

Table 2. Knowledge/awareness and organizational size

Number of employees	N	Awareness (%)
1–9	128	27.3
10–49	786	51.3
50–99	135	69.6
100–249	95	92.6
250+	72	91.7
Do not know	4	25.0
	1,220	56.3

Table 3. Contact points with Lean (N = 687)

Contact points	Percentage
Conferences/seminars/courses	22.0
Previous job	20.5
Business media	20.4
Other organizations	19.9
Education	19.5
Consulting firms	11.9
Co-workers	9.3
Lean Forum Norge	1.7
Other	10.6
N	687

Table 4. Adoption among those aware of Lean

	N	Percentage
Yes	150	21.8
No	532	77.4
Used it previously, but discontinued	5	0.7
Total	687	100

Table 5. Reasons for non-adoption of Lean (N = 531)

Reason	Percentage
Using other management concepts/ideas	37.3
Not enough competence/expertise	23.4
Not needed	19.8
Potential effects unclear	19.0
Too resource-intensive	8.7
Change fatigue	2.6
Do not want to answer	1.9
Do not know	9.8
Other	16.8

We also asked the non-adopters about their reasons for not adopting Lean (Table 5). The most important reason was that they were currently using other management concepts and ideas. Other respondents cited not having enough competence/expertise as reason for not adopting Lean. In the literature on Lean, it is often pointed out that Lean requires a high level of knowledge and competence (Sayer & Williams, 2012). Some respondents reported that they did not see the need for Lean or that the performance effects were unclear to them.

It was somewhat surprising that very few mentioned change fatigue, since organizations tend to jump from one popular concept to another (see Abrahamson, 2004). An alternative explanation for this low percentage is that the first four answer alternatives in Table 5 partly reflect change fatigue.

Table 6. Participation in courses about Lean (N = 687)

Participation	Percentage
Top manager(s)	20.5
Middle manager(s)	22.9
Employee representatives	5.8
Subordinates	16.3
None	62.0
Do not know	3.9
Other	2.3

Table 7. Involvement of consultants (N = 150)

Type of involvement	Percentage
Consultants have provided a “Lean package”	11.6
Consultants have been involved in relation to top management	50.3
Consultants have been involved in relation to middle management	45.8
Consultants have been involved in relation to employee representatives	13.5
Consultants have been involved in relation to other employees	36.8
No	23.9
Do not know	1.3
Other	8.4

4.4. Participation in courses about Lean

A related question concerned participation in courses about Lean. Shorter courses is a way for organizations to learn about Lean, and there is currently a large supply of Lean-related courses in the Norwegian market. The data show that the majority (62%) of the respondents have not attended courses about Lean (Table 6). However, among those who have participated in such courses, participants have typically been top or middle managers, or to some extent subordinates.

4.5. Involvement of consultants

Consultants are sometimes involved in the implementation of Lean in Norwegian organizations (Breit & Rolfsen, 2014a). Therefore, we asked the respondents about the involvement of external consultants in the Lean adoption process. The results in Table 7 show that about 24% have not used consultants at all, while the majority report at least some level of consultant involvement. In most of the cases, consultants have been involved in relation to top management or middle management. About 11% report that consultants have provided a ready-to-implement “Lean package”. This refers to a situation where the consultants were heavily involved in the design and implementation of Lean in the client organization.

4.6. Planned future adoption

As was shown in Table 4, a large majority of the organizations that had heard of Lean were not currently using it. Thus, we asked these non-users about whether they were planning to adopt Lean or not (Table 8). The results show that only about 5% were planning to adopt Lean, but close to 25% were currently considering it. That said, a majority of the non-users reported having no plans to adopt Lean.

4.7. Adoption motives and rationales

When deciding whether to adopt new management practices, managers may be driven by different motives and rationales (Abrahamson, 1991; Sturdy, 2004). These motives and rationales may be rational or social/institutional in nature. Therefore, we wanted to explore the motives driving

Table 8. Planned future adoption of Lean (N = 532)

Planning to adopt Lean?	Percentage
Yes	5.3
No	62.6
Considering	23.5
Do not know	7.0
Other	1.6

Table 9. Adoption motives and rationales

Motives	Abrahamson's (1991) typology	Current users (N = 150) (%)	Planning to adopt (N = 28) (%)
Lean recommended by consultants	Fashion	6.0	3.6
Other organizations using Lean	Fad	2.0	14.3
Lean is an efficient way of improving operations	Efficient choice	88.7	78.6
Demanded by suppliers and/or customers	Forced selection	3.3	3.6

Norwegian organizations' decision to adopt Lean. This question was formulated based on Abrahamson's (1991) typology of adoption motives driving the diffusion of innovative management techniques.

The results in Table 9 show that a large majority of the respondents indicates that the motive for adopting Lean was to improve their operations, i.e. a rational motive. Six percent of the current users indicated that they were driven by recommendations from consultants, that they were influenced by what other organizations were doing, i.e. social and institutional motives. In addition, few indicated that they were forced to adopt Lean due to demands from suppliers and/or customers. Among the respondents who are planning to adopt Lean, we find that these are relatively more influenced by other organizations using Lean.

5. Adoption and diffusion patterns

This section presents the results from the part of the survey focusing on patterns of Lean adoption and diffusion in Norway, e.g. adoption rates, time of adoption etc.

5.1. Adoption rate

Out of a total of 1,220 respondents, only 150 reported that they had adopted Lean. This equals an adoption rate of about 12%. However, as was shown in Table 8, about 5% of the non-users are planning to adopt, while about a quarter of the non-users are currently considering adopting Lean.

5.2. Time of adoption

We asked the respondents about when they adopted Lean. Table 10 shows that a large majority of the respondents can be considered relatively recent adopters since they have used Lean for less than 5 years. While about 15% of the respondents adopted Lean between 5 and 10 years ago, only about 3% of organizations have used Lean for more than 10 years.

5.3. Adoption and organizational size

The results show that there is a tendency for Lean to be much more common among larger organizations than among smaller (Table 11). Among organizations with more than 250 employees, the adoption rate stands at about 43%, while for organizations with less than 100 employees the

Table 10. Time of adoption of Lean (N = 150)

Time of adoption	Percentage
Less than a year ago	17.3
1–2 years ago	34.0
3–4 years ago	30.0
5–10 years ago	15.3
More than 10 years ago	2.7
Do not know	0.7

Table 11. Organizational size (number of employees) and Lean usage

Employees	Adoption rate (%)
1–9	5.5
10–49	7.1
50–99	14.1
100–249	38.9
250+	43.1

adoption rate is much lower. These findings can be viewed in light of White, Pearson, and Wilson (1999) who studied the use of Just-in-Time among manufacturing firms in the US. White et al. (1999) found that large firms are more likely to use Just-in-Time than smaller firms.

Similar findings have also been found in research on management tool usage. For example, it has been shown that larger firms tend to utilize more management tools (e.g. BPR, TQM) than smaller firms (CIMA, 2009; Frost, 2003; Rigby & Bilodeau, 2015). Part of the reason for these differences could be that larger organizations seek to gain legitimacy using fashionable management concepts such as Lean (Staw & Epstein, 2000). For example, larger organizations tend to be under more scrutiny by extra-organizational actors such as security analysts (Nicolai, Schulz, & Thomas, 2010).

5.4. Industry specific diffusion

Womack and Jones (1996) argue that the principles behind Lean are useful across industries, even in service industries. Our findings show that Lean is not only used in conventional contexts, such as manufacturing or construction, but also widely used in service industry firms. However, there are considerable industry differences when it comes to the extent to which Lean is used. Table 12 shows some examples of industries where the use of Lean is most widespread.

The data show that Lean is widely used in Norwegian manufacturing firms where the adoption rate stands at about 32%. The relatively high level of usage of Lean in manufacturing is expected since Lean emerged in the context of Japanese car manufacturing (Monden, 1983).

Lean Construction was launched around 1993 as a translation of Lean in a construction context (Rolfsen & Jensen, 2014, p. 130). However, the use of Lean among construction firms (about 14%),

Table 12. Examples of industry-specific diffusion of Lean

Industry	Adoption rate (%)	N
Manufacturing	31.9	188
Construction	13.8	210
Oil, gas and energy	17.8	62
Accounting, auditing and finance	21.4	28
IT	14.9	47

however, is low compared to the manufacturing industry. The use of Lean in the oil, gas, and energy industry is a bit higher than in the construction industry.

In the accounting, auditing, and finance industry, the adoption rate is quite high (about 21%).⁴ This finding could be seen in light of the recent emergence of Lean Accounting (Brosnahan, 2008; Kennedy & Brewer, 2005). The argument made by proponents of Lean Accounting has been that the adoption of Lean leads to customer satisfaction, improved quality, and increased productivity. For example, a study conducted by Larsen (2009) found that the implementation of Lean in financial institutions resulted in increased customer satisfaction, improved customer service, and increased profitability. In addition, in the Norwegian context, we have observed that several consulting firms actively promote Lean to firms in the financial service industry. This could possibly explain why Lean has become so widespread in this particular industry.

In the IT industry, about 15% report using Lean. Lean ideas have been used within the IT industry since the 1990s (Rolfsen & Wulff, 2014, p. 149). In addition, in recent years we have seen the emergence of approaches such as Lean Software Development (Poppendieck & Poppendieck, 2003) which have popularized Lean further among IT firms.

6. Implementation and perceived effects

In this section, the focus shifts to the implementation and perceived effects. We examine the perceived level of Lean usage, how Lean is used in different organizational functions, as well as perceptions of effects and challenges.

6.1. Perceived level of usage of Lean

We asked the respondents to indicate the extent to which they perceive that they are using Lean. As Table 13 shows, the use of Lean varies between fairly low and fairly high. Only eight respondents (5.4%) indicate that they use Lean to a very low or low extent. This could possibly be seen as an indication that Lean is “translated” (Czarniawska & Sevón, 1996) and combined with existing concepts and practices in processes referred to as “hybridization” (Djelic, 1998) or “creolization” (Sahlin-Andersson & Engwall, 2002).

6.2. Use of Lean in different organizational functions

In another question we asked the respondents about the use of Lean in different organizational functions. Traditionally, Lean was presented as a production concept, and typically associated with areas of the value chain such as production, operations, and inventory. Recently, however, Lean has been translated and adapted to service industries (Aune & Holmemo, 2014). This means that Lean is increasingly used in activities such as marketing and sales, and human resources. Table 14 shows that Lean is still primarily used in organizational functions such as inventory management, production, and operations, but there are indications that many organizations are planning to implement Lean in areas such as human resource management, marketing, and sales.

Table 13. Perceived level of usage of Lean (N = 150)

		Percentage
1	Very low	0.7
2	Low	4.7
3	Fairly low	20.7
4	Medium	32.7
5	Fairly high	26.7
6	High	12.0
7	Very high	2.7

Table 14. Use of Lean in different organizational functions

Organizational function	Already implemented (%)	Planned implementation (%)
Production and operations	83	63
Inventory management	40	28
Purchasing and ingoing logistics	29	28
Human resource management	17	25
Technology and product development	17	14
Transportation and outgoing logistics	15	15
Service	15	19
Marketing and sales	9	13
Other	9	7

6.3. Perceived implementation effects

The respondents were also asked about what they perceived to be the post-implementation effects of Lean on different organizational goal areas. Table 15 shows that the most of the respondents agree that Lean implementation has had positive effects on most areas of performance. Lean is perceived to have the greatest effects on productivity and quality. This is generally in line with what it is highlighted in the Lean literature. It is somewhat more surprising that so many report a positive effect on employee satisfaction.

Although some report that Lean has “no effect,” it is notable that almost no one report Lean having negative effects. Possible explanations for the predominantly positive perception of the effects of Lean implementation will be discussed in greater depth in Section 7 below.

6.4. Perceived implementation barriers

The data in Table 15 show that the respondents perceive positive effects as a result of Lean implementation. However, in previous research it has been pointed out that implementing Lean can be a complicated process and that there are many challenges (Bhasin & Burcher, 2006; Breit & Rolfsen, 2014b). Therefore, we asked the respondents about possible implementation barriers associated with Lean implementation.

Our data indicate that there are several problems or barriers associated with Lean implementation. Table 16 provides an overview of the most common problems. These problems are related to

Table 15. Perceived effects of implementing Lean

What effect has the implementation of Lean had on the following?						
	Resource utilization and productivity (%)	Quality (%)	Customer satisfaction (%)	Flexibility and response time (%)	Employee satisfaction (%)	Average (%)
Very negative	0	0	0	0	0	0
Negative	0	0	0	0	0.7	0.1
None	2.0	7.3	15.3	14.0	7.3	9.2
Positive	58.0	64.0	47.3	48.7	60.0	55.6
Very positive	30.7	18.0	14.7	16.7	17.3	19.5
Too recently implemented to be measured	6.7	6.7	12.0	10.7	7.3	8.7
Do not know	2.7	4.0	10.7	9.9	7.3	6.9

Table 16. Barriers associated with Lean implementation (N = 155)

Barrier	Percentage
Cultural challenges	51.6
Motivational problems among employee	36.1
Lack of top management commitment	32.9
Resistance from employees	23.9
Communication problems	23.9
No challenges	14.2
Do not know	3.9
Other	7.1

cultural challenges, lack of motivation, and lack of top management commitment. The widespread cultural challenges can be seen in light of research on Lean which has shown that transforming the organizational culture is a key success factor in Lean implementation (Bhasin & Burcher, 2006). In addition, employee resistance and communication problems were mentioned by nearly 25% of the respondents. Only about 14% indicated that they had not encountered any challenges.

7. Discussion

In this section, we will discuss the findings in light of the literature on Lean as a popular and fashionable management concept. The discussion is centered around three topics. The first topic is related to awareness, contact points, and the adoption process. The second topic revolves around adoption and diffusion patterns. Finally, the third topic deals with implementation and perceived effects.

7.1. Awareness, contact points and adoption process

7.1.1. Awareness and contact points

Our study shows that the knowledge and awareness of Lean is quite high, particularly in larger organizations. This finding is not surprising given that larger organizations tend to have more educated and specialized employees and access to more resources than smaller organizations (Mitchell & Reid, 2000; Storey, 1994). Large organizations may also be more concerned about legitimacy and more likely to seek out popular management concepts (Staw & Epstein, 2000). In addition, these organizations tend to be more exposed to fashion-setting actors such as management consultants, as well as better connected to managerial and inter-firm networks, where news and information about new management ideas and practices are spread.

In the literature on fashionable management concepts and practices, an important research question concerns how organizations and managers are exposed to and encounter new management concepts and ideas (Madsen, 2014; Powell, Gammal, & Simard, 2005; Van Rossem & Van Veen, 2011). Our data show that Norwegian organizations came in contact with Lean through actors such as conference organizers, business media organizations, and consultants; actors that all are considered important fashion-setting actors (Jung & Kieser, 2012). Although consultants were not the most important contact point, most organizations reported having used consultants at least to some extent in the implementation process.

7.1.2. Adoption process

When it comes to the adoption decision-making process, a large majority of the users indicated that they have implemented Lean to improve performance, or what Abrahamson (1991) calls “efficient choice.” Very few of the current users (2%) and those considering Lean were motivated by what other organizations were doing. At the same time, many users (20.5%) encountered Lean in their previous jobs or via other organizations (19.9%). The fact that organizations have been exposed to Lean via fashion-setting actors or as a result of contact with other organizations does beg the

question of whether the adoption of Lean is partly driven by “fad and fashion” motives. As pointed out by Røvik (2007), imitation could be perceived by managers as passive and “weak.” Therefore, survey respondents may have been inclined to portray the adoption decision as less driven by fad and fashion motives than was perhaps the case.

7.2. Adoption and diffusion pattern

7.2.1. Adoption rate

Overall, the adoption rate is relatively low. However, the survey responses show that most are recent adopters, and there are also many respondents that are currently considering adopting Lean. This could indicate a possible future rise in the use of Lean. Having said that, a majority still report that they do not have any plans of adopting Lean. In addition, many of the users are recent adopters and most report implementation challenges, something that could potentially lead to future abandonment if not addressed or resolved. There is also reason to believe that a larger portion of the non-responders are non-adopters and not considering using Lean. Therefore, at this point, it is difficult to make predictions about the future adoption or rejection of Lean in Norway.

7.2.2. Diffusion

The data indicate that Lean is diffused in most industries. However, there are some industry-specific differences in the adoption and diffusion of Lean. The use of Lean is particularly widespread in the manufacturing industry and among service firms focusing on accounting, auditing, and finance. The “travel” of Lean to service industries such as accounting, auditing, and finance is particularly interesting. This finding indicates that the Lean concept has spread to most industries in Norway. It is possible that the relatively positive attitude of Norwegian unions toward Lean (Rølfesen & Ingvaldsen, 2012) has facilitated the travel of Lean between different industries.

7.2.3. Life cycle

The findings indicate that Lean is still in the early phase of its life cycle in Norway. Most respondents are relatively recent adopters of Lean. Our findings indicate that manufacturing is the only industry with more than 10 years of Lean experience. The majority (72%) are still in an early phase of Lean implementation, having adopted the concept less than 5 years ago. Only 18% of the Norwegian users adopted Lean more than 5 years ago.

These findings indicate that the life cycle of Lean in Norway differs in some way from what has been observed in other countries. Although some organizations implemented Lean more than 5 years ago, the main wave of Lean adoption started around 2010/2011. In other words, Norway appears to have lagged behind other countries in terms of Lean adoption. For example, Lean was very popular in Germany and Sweden during the 1990s (Benders & Van Bijsterveld, 2000; Larsson, 2012).

7.2.4. Management fashion

Internationally, Lean has previously been referred to as a management fashion, e.g. in countries such as Germany and Sweden (Benders & Van Bijsterveld, 2000; Larsson, 2012). Therefore, an interesting question is whether Lean is currently a management fashion in Norway. Arguing that there is a fashion aspect to the rise of Lean is reasonable given the many observations of a Lean “pandemic” in Norway (Aspøy, 2014; Sørhaug, 2016). Lean is currently taking up a lot of public management discourse in both print and social media in Norway. This means that Lean fits Jung and Kieser’s (2012) definition of a management fashion since it relatively quickly has gained large shares of the public management discourse in Norway. Our data also show that organizations report having been in contact with many types of fashion-setters and are generally very enthusiastic about Lean and its effects.

Our findings suggest a Norwegian adoption and diffusion pattern that in some ways diverges from the international trajectory of Lean. At the international level, there are indications that Lean

currently is not as popular and fashionable as it used to be. Wittrock (2015) points out that there are indications, e.g. the aforementioned Bain & Company survey, that Lean is on a downward trend internationally. Wittrock (2015) also cites Thawesaengskulthai and Tannock (2008) who argue that Lean could be replaced by a new, similar concept. Our data on media discourse, however, suggest that Lean at the moment is possibly the most popular management concept in Norway and has yet to hit a clear downturn phase in terms of popularity.

7.3. Implementation and perceived effects

7.3.1. Implementation

Our results show that the respondents generally perceive themselves to be moderate users of Lean. As of now, Lean is for the most part implemented in primary activities, but there are indications that organizations increasingly are planning to use Lean to improve supporting activities. Since most of the current Lean users are recent adopters, it is likely that the way Lean is implemented and applied will change over time. For example, Womack and Jones (2003) argue that it may take 5–10 years to implement a Lean culture and support structures. Similarly, a number of organizational factors play important roles in shaping the success of Lean implementation (Bhasin & Burcher, 2006).

7.3.2. Benefits and barriers

The survey results show that very few respondents have negative experiences with Lean, and generally perceive Lean to have positive performance effects. This high level of satisfaction could be due to a “honeymoon phase” effect where the Lean users find it hard to be critical of a new concept that they have recently adopted (cf. Malmi, 2001, p. 213). Sørhaug (2016, p. 158) notes that users of management ideas such as Lean tend to be “religious”, almost to the point of being fundamentalists. This means that users of concepts such as Lean become almost immune to criticism, and will tend to censor critical voices (Sørhaug, 2016, p. 158).

However, over time it could prove difficult to “keep the faith.” In the management fashion literature, it has been pointed out that negative stories tend to surface later in the life cycle of fashionable management concepts (Benders & Van Veen, 2001; Heusinkveld, 2004). Stories about implementation failures may spread via print or social media platforms (Madsen & Slåtten, 2015). Over time, when a fashionable concept fails to live up to the (perhaps overly high) expectations, this could lead to disillusionment among its followers (Benders & Van Veen, 2001).

Wittrock (2015) points out that internationally, Lean has received more than its fair share of criticism, e.g. starting with Harrison (1994) and others (Green, 1999; Mehri, 2006). Røvik (2007) argues that the authors of practitioner-oriented management literature tend to be very optimistic with respect to effects of implementing management concepts and ideas such as Lean. However, a review of peer-reviewed research on Lean in ranked academic journals shows that only a small number of studies reports positive effects of Lean (Stentoft Arlbjørn & Vagn Freytag, 2013). Seen in light of this research, the generally positive perception among Norwegian organizations is striking. It will be interesting to see if this perception of Lean will remain as positive in the future.

8. Conclusion

8.1. Contributions

In the current paper, we have by means of an explorative, cross-sectional survey mapped the diffusion of Lean in Norway. To the best of our knowledge, this study is the first to provide a broad-based overview of the diffusion and popularity of Lean in Norway.

The findings presented in our paper have implications for the academic literature on Lean as a popular management concept. First, with respect to the overall adoption and diffusion pattern, the findings reported in this paper suggest that most Norwegian organizations started their “Lean journeys” only a few years ago. Lean seems to be in a relatively early stage of the management concept

life cycle in Norway. Therefore, the local adoption pattern of Lean differs from what has been seen in several other countries.

Second, our findings shed light on how Lean is implemented in Norwegian organizations. Lean is generally used to a moderate degree. This could possibly indicate that Lean is translated and combined with existing concept and practices. While researchers have struggled to document positive effects of Lean (Stentoft Arlbjørn & Vagn Freytag, 2013), our data indicate that most Norwegian organizations use Lean quite enthusiastically. Despite implementation problems, they generally perceive positive effects on many areas of organizational performance.

8.2. Limitations and future research areas

The present paper has several limitations that should be addressed in future research.

First, a major limitation of our study is the cross-sectional nature of the design. A longitudinal, time-series design would be preferable. For instance, it would have been preferable to conduct a study of the diffusion of Lean at regular intervals, e.g. similar to the 2-year intervals used in Bain & Company's survey of management tools and trends (Rigby & Bilodeau, 2015). However, such longitudinal studies are, in practice, difficult to carry out. Not surprisingly, there are few, if any, such studies in the literature on fashionable management concepts and ideas (Madsen & Stenheim, 2013; Røvik, 2007).

A second limitation is related to the fact that the survey was answered by a single respondent from each organization. As a result, we cannot know whether the respondent's views are shared by other organizational members. Moreover, there could be bias due to function, length of service or knowledge. For example, the respondent may not have sufficient knowledge of Lean. However, this problem was partly mitigated by asking the respondents if they had knowledge and awareness of Lean, as well as a background question about their position in the organization.

Third, future studies could follow a qualitative approach. A qualitative approach would provide richer data, and such an approach would be better suited to shed light on how Lean is actually interpreted and used, and how employees are experiencing the organizational changes associated with Lean implementation. A carefully designed multiple case study could possibly shed light on factors that explain differences in the interpretation and use of Lean. A longitudinal case-study approach could also shed light on how the Lean concept evolves over time in organizations (Andersen & Røvik, 2015; Røvik, 2011).

Fourth, post hoc rationalization (Elster, 1989) could be a source of bias in this study. Managers tend to want to appear rational (Røvik, 2007), and therefore the fad and fashion aspects associated with Lean in Norway could be somewhat understated in our data. Moreover, it is generally difficult to get managers to open up about failed management practices (Francis & Holloway, 2007, p. 177). It could be in managers' best interest to provide a glossy portrait of the implementation process to make themselves look better. This is especially true for recent adopters of Lean who are still in the "honeymoon phase" where they may find it difficult to be critical about a newly adopted management concept (cf. Malmi, 2001, p. 213). In addition, Lean is currently very timely and is referred to as a "pandemic" in Norway (Aspøy, 2014). The concept has a high degree of legitimacy and social appropriateness in the Norwegian business community, and for many followers Lean is almost a "religious conviction" (Sørhaug, 2016). Future studies could explore the fashion and "religious" aspects of Lean and related management concepts in greater detail.

Fifth, some may react to our use of the term "management fashion" in the context of Lean. Commentators have pointed out that management fashion researchers tend to use the term fashion as a pejorative (Benders & Van Veen, 2001; Clark, 2004). The fashion metaphor implies manager irrationality, and there is a risk that we have taken an overly socialized view of the Lean adoption and diffusion process, putting too much emphasis on social and institutional factors at the expense of

economic and rational influences. Moreover, it could be rational to follow fashions such as Lean, especially if organizations are able to learn from experiences of other organizations. So maybe fashion to a certain extent is necessary in order to drive practice forward, as strong rhetoric and lots of fanfare is a way to get the attention of managers and address issues of concern to managers (e.g. cost-reductions and elimination of waste).

Hence, we should point out that we are not intending to make a value judgment of the usefulness of Lean concept, or imply that Lean cannot have real performance enhancing effects in organizations. Rather, our choice to utilize management fashion as theoretical lens has been guided by its ability to explain the rise, fall, or resurgence of Lean in different countries.

Finally, this study has only examined the diffusion and popularity of Lean in Norway. A natural extension of this study could look at inter-country patterns in Lean adoption and diffusion. A study of the diffusion of Lean in a region such as the Nordic countries could potentially shed light on factors explaining similarities and differences in terms of diffusion and popularity.

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Notes

1. For 2016, the database only contains articles published until September 20.
2. http://nce-se.no/index.php/nyheter/konferanse_lean_pa_norsk.
3. <http://www.kommunalteknikk.no/lean-egner-det-seg-for-kommunene-og-tekniske-tjenester.5813403-40825.html>.
4. It should be noted that there was a low number of responses (28) from this category of firms.

References

- Abrahamson, E. (1991). Managerial fads and fashions: The diffusion and rejection of innovations. *Academy of Management Review*, 16, 586–612.
- Abrahamson, E. (1996). Management fashions. *Academy of Management Review*, 21, 254–285.
- Abrahamson, E. (2004). Avoiding repetitive change syndrome. *MIT Sloan Management Review*, 45, 93–95.
- Alarcón, L. (1997). *Lean construction*. Abingdon: CRC Press. <http://dx.doi.org/10.4324/9780203345825>

- Andersen, H., & Røvik, K. A. (2015). Lost in translation: A case-study of the travel of lean thinking in a hospital. *BMC Health Services Research*, 15, 376. <http://dx.doi.org/10.1186/s12913-015-1081-z>
- Aspøy, A. (2014). Lean tar over styringen [Lean takes over the control]. *Stat & Styring*, 4. Retrieved from https://www.idunn.no/stat/2014/04/lean_tar_over_styringen
- Aune, K., & Holmemo, M. (2014). Lean i tjenesteytende virksomhet [Lean in service industries]. In *Lean blir norsk—Lean i den norske samarbeidsmodellen* (pp. 161–175). Bergen: Fagbokforlaget.
- Ballard, G., & Howell, G. (1994). Implementing lean construction: Stabilizing work flow. In L. Alarcón (Ed.), *Lean construction* (pp. 101–110). Rotterdam: A.A. Balkema Publishers.
- Benders, J. (1996). Leaving Lean? Recent changes in the production organization of some Japanese car plants. *Economic and Industrial Democracy*, 17, 9–38. <http://dx.doi.org/10.1177/0143831X96171002>
- Benders, J., & Van Bijsterveld, M. (2000). Leaning on lean: The reception of a management fashion in Germany. *New Technology, Work and Employment*, 15, 50–64. <http://dx.doi.org/10.1111/ntwe.2000.15.issue-1>
- Benders, J., & Van Veen, K. (2001). What's in a fashion? Interpretive viability and management fashions. *Organization*, 8, 33–53.
- Bhasin, S., & Burcher, P. (2006). Lean viewed as a philosophy. *Journal of Manufacturing Technology Management*, 17, 56–72. <http://dx.doi.org/10.1108/17410380610639506>
- Bhatia, N., & Drew, J. (2006). Applying Lean production to the public sector. *The McKinsey Quarterly*, 3, 97–98.
- Bicheno, J. (2000). *The Lean toolbox*. Buckingham: PICSIE Books.
- Bicheno, J. (2004). *The new Lean toolbox: Towards fast, flexible flow*. Buckingham: PICSIE Books.
- Bicheno, J., & Holweg, M. (2008). *The Lean toolbox: The essential guide to Lean transformation*. PICSIE Books.
- Brandao de Souza, L. (2009). Trends and approaches in lean healthcare. *Leadership in Health Services*, 22, 121–139. <http://dx.doi.org/10.1108/17511870910953788>
- Brännmark, M., Langstrand, J., Johansson, S., Halvarsson, A., Abrahamsson, L., & Winkel, J. (2012). Researching Lean: Methodological implications of loose definitions. *Quality Innovation Prosperity*, 16, 35–48.
- Breit, E., & Rølfen, M. (2014a). Bruk av konsulenter i utviklingen av lean [Use of consultants in the development of Lean]. In M. Rølfen (Ed.), *Lean blir norsk—Lean i den norske samarbeidsmodellen* [Lean becomes Norwegian - Lean in the Norwegian cooperative model] (pp. 211–221). Bergen: Fagbokforlaget.

- Breit, E., & Rolfsen, M. (2014b). Implementering av lean [Implementation of Lean]. In M. Rolfsen (Ed.), *Lean blir norsk—Lean i den norske samarbeidsmodellen* [Lean becomes Norwegian - Lean in the Norwegian cooperative model] (pp. 198–210). Fagbokforlaget.
- Brosnahan, J. P. (2008). Unleash the power of Lean accounting. *Journal of Accountancy*, 206, 60–66.
- CIMA. (2009). *Management accounting tools for today and tomorrow*. London: Author. Retrieved from http://www.cimaglobal.com/Documents/Thought_leadership_docs/CIMA%20Tools%20and%20Techniques%2030-11-09%20PDF.pdf
- Clark, T. (2004). The fashion of management fashion: A surge too far? *Organization*, 11, 297–306. <http://dx.doi.org/10.1177/1350508404030659>
- Cook, C., Heath, F., & Thompson, R. L. (2000). A meta-analysis of response rates in web- or internet-based surveys. *Educational and Psychological Measurement*, 60, 821–836. <http://dx.doi.org/10.1177/00131640021970934>
- Czarniawska, B., & Sevón, G. (1996). *Translating organizational change*. Berlin: Walter de Gruyter. <http://dx.doi.org/10.1515/9783110879735>
- DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48, 147–160. <http://dx.doi.org/10.2307/2095101>
- Djelic, M.-L. (1998). *Exporting the American model. The post-war transformation of the American business*. Oxford: Oxford University Press.
- Dolva, M. M. (2011). *Implementering av lean i norske kommuner: har norske kommuner implementert lean, eller vurderer de å implementere det?* [Implementation of Lean in Norwegian municipalities: Have Norwegian municipalities implemented Lean, or do they consider implementing it?] (Master's thesis). Universitetet i Agder/ University of Agder, Kristiansand. Retrieved from <https://brage.bibsys.no/xmlui/handle/11250/135666>
- Elster, J. (1989). *Nuts and bolts for the social sciences*. Cambridge: Cambridge University Press. <http://dx.doi.org/10.1017/CBO9780511812255>
- Fincham, R., & Evans, M. (1999). The consultants' offensive: Reengineering—From fad to technique. *New Technology, Work and Employment*, 14, 32–44. <http://dx.doi.org/10.1111/ntwe.1999.14.issue-1>
- Francis, G., & Holloway, J. (2007). What have we learned? Themes from the literature on best-practice benchmarking. *International Journal of Management Reviews*, 9, 171–189. <http://dx.doi.org/10.1111/ijmr.2007.9.issue-3>
- Frost, F. A. (2003). The use of strategic tools by small and medium-sized enterprises: An Australasian study. *Strategic Change*, 12, 49–62. [http://dx.doi.org/10.1002/\(ISSN\)1099-1697](http://dx.doi.org/10.1002/(ISSN)1099-1697)
- Ghuri, P., & Grønhaug, K. (2002). *Research methods in business studies* (2nd ed.). Harlow: Prentice Hall Europe, Pearson Education Limited.
- Green, S. D. (1999). The dark side of lean construction: Exploitation and ideology. In *Seventh Conference of the International Group for Lean Construction*. Berkeley, CA. Retrieved from <http://www.ce.berkeley.edu/~tommlele/IGLC-7/PDF/Front%20pages%20+%201%20to%2096c.pdf#page=29>
- Green, S. D. (2011). *Lean construction: Making sense of construction improvement* (pp. 238–273). Oxford: Wiley-Blackwell. <http://dx.doi.org/10.1002/9781444341102>
- Green, S. D., & May, S. C. (2005). Lean construction: Arenas of enactment, models of diffusion and the meaning of “leanness”. *Building Research & Information*, 33, 498–511. <http://dx.doi.org/10.1080/09613210500285106>
- Grint, K. (1997). TQM, BPR, JIT, BSCs and TLAs: Managerial waves or drownings? *Management Decision*, 35, 731–738. <http://dx.doi.org/10.1108/00251749710192048>
- Hamel, G., & Prahalad, C. K. (1994). *Competing for the future*. Boston: Harvard Business School Press.
- Harrison, B. (1994). *Lean and mean: The changing landscape of corporate power in the age of flexibility*. New York, NY: Basic Books.
- Heien, V.-A. A. (2012). *Lean: Utbredelsen blant norske produksjonsbedrifter* [Lean: Diffusion among manufacturing firms]. Universitetet for Miljø- og Biotvitenskap/Norwegian University of Life Sciences, Ås, Norway.
- Heusinkveld, S. (2004). *Surges and sediments. Organization concepts between transience and continuity*. Nijmegen: University of Nijmegen.
- Heusinkveld, S., & Benders, J. (2012). Consultants and organization concepts. In M. Kipping & T. Clark (Eds.), *The Oxford handbook of management consulting* (pp. 267–284). New York, NY: Oxford University Press.
- Hines, P., Found, P., Griffiths, G., & Harrison, R. (2011). *Staying lean*. Boca Raton, FL: CRC Press. <http://dx.doi.org/10.1201/b10492>
- Hines, P., Holweg, M., & Rich, N. (2004). Learning to evolve. *International Journal of Operations & Production Management*, 24, 994–1011. <http://dx.doi.org/10.1108/01443570410558049>
- Holmemo, M. D. Q., Rolfsen, M., & Ingvaldsen, J. A. (2016). Lean thinking: Outside-in, bottom-up? The paradox of contemporary soft lean and consultant-driven lean implementation. *Total Quality Management & Business Excellence*, 1–13. <http://dx.doi.org/10.1080/14783363.2016.1171705>
- Holweg, M. (2007). The genealogy of Lean production. *Journal of Operations Management*, 25, 420–437. <http://dx.doi.org/10.1016/j.jom.2006.04.001>
- Ingvaldsen, J. A., & Benders, J. (2016). Lost in translation? The role of supervisors in lean production. *German Journal of Human Resource Management: Zeitschrift für Personalforschung*, 30, 35–52.
- Ingvaldsen, J., Ringen, G., & Rolfsen, M. (2014). Lean på global vandring [Lean migrating globally]. In M. Rolfsen (Ed.), *Lean blir norsk: Lean i den norske samarbeidsmodellen* (pp. 33–47). Bergen: Fagbokforlaget.
- Jansen, K. J., Corley, K. G., & Jansen, B. J. (2007). E-survey methodology. In R. A. Reynolds & R. Woods (Eds.), *Handbook of research on electronic surveys and measurements* (pp. 416–425). Hershey, PA: Idea Group Reference.
- Jung, N., & Kieser, A. (2012). Consultants in the Management Fashion Arena. In M. Kipping & T. Clark (Eds.), *The Oxford handbook of management consulting* (pp. 327–346). New York, NY: Oxford University Press.
- Jutterström, M., & Norberg, P. (2013). CSR as a management idea. In M. Jutterström & P. Norberg (Eds.), *CSR as management idea—Ethics in action* (pp. 1–15). Cheltenham: Edward Elgar. <http://dx.doi.org/10.4337/9781782544722>
- Kennedy, F. A., & Brewer, P. C. (2005). Lean accounting: What's it all about? *Strategic Finance*, 87, 27–35.
- Kieser, A. (1997). Rhetoric and myth in management fashion. *Organization*, 4, 49–74. <http://dx.doi.org/10.1177/135050849741004>
- Krafcik, J. F. (1988). Triumph of the lean production system. *MIT Sloan Management Review*, 30, 41–52.
- Langstrand, J. (2012). *Exploring organizational translation: A case study of changes toward Lean production* (Doctoral thesis). Linköping University, Linköping. Retrieved from <http://www.diva-portal.org/smash/get/diva2:503206/FULLTEXT03.pdf>

- Langstrand, J., & Drotz, E. (2015). The rhetoric and reality of Lean: A multiple case study. *Total Quality Management & Business Excellence*, 27, 398–412. Retrieved from <http://www.tandfonline.com/doi/abs/10.1080/14783363.2015.1004307>
- Larsen, J. E. (2009). *Lønnsomheten av lean i Norge: fører praktisering av lean til forbedret lønnsomhet blant norske forretningsbanker?* [The profitability of Lean in Norway: Does the practice of Lean lead to improved profitability for Norwegian commercial banks?]. Bergen: Norwegian School of Economics.
- Larsson, E. (2012). *Managementmoden och popularitetssvingningar - En studie av Lean-konceptet i svensk populärpress 1990–2008* [Management fashions and waves of popularity - A study of the Lean-concept in Swedish popular press 1990–2008] (Licentiate thesis). University of Gothenburg, Gothenburg. Retrieved from http://www.ipd.gu.se/digitalAssets/1358/1358878_elin-larsson---slutmanus-f-r-lic.pdf
- Larsson, E. (2015). *Management accounting fashion setting- Studies on supply-side actors in Sweden*. Gothenburg: University of Gothenburg.
- Legge, K. (2000). Personnel management in the Lean organisation. In K. Sisson & S. Bach (Eds.), *Personnel management: A comprehensive guide to theory and practice* (pp. 43–69). Oxford: Blackwell.
- Liker, J. K. (1997). *Becoming Lean: Inside stories of US manufacturers*. New York, NY: Productivity Press.
- Madsen, D. Ø. (2014). How do managers encounter fashionable management concepts? A study of balanced scorecard adopters in Scandinavia. *International Journal of Management Concepts and Philosophy*, 8, 249–267. <http://dx.doi.org/10.1504/IJMCP.2014.066904>
- Madsen, D. Ø., & Slåtten, K. (2015). Social media and management fashions. *Cogent Business & Management*, 2, 1122256.
- Madsen, D. Ø., & Stenheim, T. (2013). Doing research on “management fashions”: Methodological challenges and opportunities. *Problems and Perspectives in Management*, 11, 68–76.
- Malmi, T. (2001). Balanced scorecards in Finnish companies: A research note. *Management Accounting Research*, 12, 207–220. <http://dx.doi.org/10.1006/mare.2000.0154>
- Mazzocato, P., Savage, C., Brommels, M., Aronsson, H., & Thor, J. (2010). Lean thinking in healthcare: A realist review of the literature. *Quality and Safety in Health Care*, 19, 376–382.
- McCann, L., Hassard, J. S., Granter, E., & Hyde, P. J. (2015). Casting the Lean spell: The promotion, dilution and erosion of lean management in the NHS. *Human Relations*, 68, 1557–1577. 0018726714561697.
- Mehri, D. (2006). The darker side of Lean: An insider’s perspective on the realities of the Toyota production system. *Academy of Management Perspectives*, 20, 21–42. <http://dx.doi.org/10.5465/AMP.2006.20591003>
- Mitchell, F., & Reid, G. C. (2000). Editorial. Problems, challenges and opportunities: The small business as a setting for management accounting research. *Management Accounting Research*, 11, 385–390. <http://dx.doi.org/10.1006/mare.2000.0152>
- Monden, Y. (1983). *Toyota production system: Practical approach to production management*. Norcross, GA: Engineering & Management Press.
- Monden, Y. (2012). *Toyota production system: An integrated approach to just-in-time* (4th ed.). Boca Raton, FL: CRC Press.
- Morris, T., & Lancaster, Z. (2006). Translating management ideas. *Organization Studies*, 27, 207–233.
- Nicolai, A. T., Schulz, A.-C., & Thomas, T. W. (2010). What wall street wants—Exploring the role of security analysts in the evolution and spread of management concepts. *Journal of Management Studies*, 47, 162–189. <http://dx.doi.org/10.1111/j.1467-6486.2009.00862.x>
- Nijholt, J. J., & Benders, J. (2007). Coevolution in management fashions: The case of self-managing teams in The Netherlands. *Group & Organization Management*, 32, 628–652. <http://dx.doi.org/10.1177/1059601106293781>
- Näslund, D. (2008). Lean, six sigma and lean sigma: Fads or real process improvement methods? *Business Process Management Journal*, 14, 269–287. <http://dx.doi.org/10.1108/14637150810876634>
- Poppendieck, M., & Poppendieck, T. (2003). *Lean software development: An agile toolkit*. Boston, MA: Addison-Wesley Professional.
- Powell, W. W., Gammal, D. L., & Simard, C. (2005). Close encounters: The circulation and reception of managerial practices in the San Francisco Bay area nonprofit community. In B. Czarniawska & G. Sevón (Eds.), *Global ideas* (pp. 233–258). Fredriksberg: CBS Press.
- Radnor, Z., & Boaden, R. (2008). Editorial: Lean in public services—Panacea or paradox? *Public Money & Management*, 28, 3–7. Retrieved from <http://www.tandfonline.com/doi/abs/10.1111/j.1467-9302.2008.00610.x?journalCode=rpmm20>
- Radnor, Z., Walley, P., Stephens, A., & Bucci, G. (2006). *Evaluation of the lean approach to business management and its use in the public sector*. Edinburgh: Scottish Executive.
- Rigby, D., & Bilodeau, B. (2009). *Management tools & trends 2009*. London: Bain & Company.
- Rigby, D., & Bilodeau, B. (2011). *Management tools & trends 2011*. London: Bain & Company.
- Rigby, D., & Bilodeau, B. (2013). *Management tools & trends 2013*. London: Bain & Company.
- Rigby, D., & Bilodeau, B. (2015). *Management tools & trends 2015*. London: Bain & Company.
- Rolfsen, M. (2014). *Lean blir norsk: Lean i den norske samarbeidsmodellen* [Lean becomes Norwegian: Lean in the Norwegian cooperative model]. Bergen: Fagbokforlaget.
- Rolfsen, M., & Ingvaldsen, J. (2012). *Unions and the Lean concept*. Stockholm: ILPC Conference. Retrieved from <http://www.ilpc.org.uk/Default.aspx?tabid=6135&absid=904>
- Rolfsen, M., & Jensen, H. C. (2014). Lean bygging [Lean construction]. In M. Rolfsen (Ed.), *Lean blir norsk - Lean i den norske samarbeidsmodellen* [Lean becomes Norwegian - Lean in the Norwegian cooperative model] (pp. 130–139). Bergen: Fagbokforlaget.
- Rolfsen, M., & Wulff, K. (2014). Lean programvareutvikling [Lean software development]. In M. Rolfsen (Ed.), *Lean blir norsk - Lean i den norske samarbeidsmodellen* [Lean becomes Norwegian - Lean in the Norwegian cooperative model] (pp. 149–160). Bergen: Fagbokforlaget.
- Rother, M., & Shook, J. (2003). *Learning to see: Value stream mapping to add value and eliminate muda*. Cambridge, MA: Lean Enterprise Institute.
- Røvik, K. A. (1998). *Moderne organisasjoner* [Modern organizations]. Oslo: Fagbokforlaget.
- Røvik, K. A. (2002). The secrets of the winners: Management ideas that flow. In K. Sahlin-Andersson & L. Engwall (Eds.), *The expansion of management knowledge: Carriers, ideas and sources* (pp. 113–144). Stanford: Stanford University Press.
- Røvik, K. A. (2007). *Trender og translasjoner - ideer som former det 21. århundrets organisasjon* [Trends and translations - ideas that are forming 21st century organizations]. Oslo: Universitetsforlaget.
- Rovik, K. A. (2011). From fashion to virus: An alternative theory of organizations’ handling of management ideas. *Organization Studies*, 32, 631–653. <http://dx.doi.org/10.1177/0170840611405426>

- Sahlin-Andersson, K., & Engwall, L. (2002). *The expansion of management knowledge: Carriers, flows and sources*. Palo Alto, CA: Stanford University Press.
- Sayer, N. J., & Williams, B. (2012). *Lean for dummies*. Hoboken, NJ: John Wiley & Sons.
- Scarborough, H., & Terry, M. (1998). Forget Japan: The very British response to lean production. *Employee Relations*, 20, 224–236.
<http://dx.doi.org/10.1108/01425459810228298>
- Schie, I. (2012). *Lean i norske kommuner: En studie om spredning av lean som styringsverktøy, og endringer i organisasjonen som en følge av implementeringen* [Lean in Norwegian municipalities: A study of the diffusion of Lean, and organizational changes as a result of implementation] (Master's thesis). Universitetet i Agder/ University of Agder, Kristiansand. Retrieved from <https://brage.bibsys.no/xmlui/handle/11250/135750>
- Shih, T.-H., & Fan, X. (2008). Comparing response rates from web and mail surveys: A meta-analysis. *Field Methods*, 20, 249–271.
<http://dx.doi.org/10.1177/1525822X08317085>
- Sørhaug, T. (2016). *Gull, arbeid og galskap: penger og objektrøbbel* [Gold, work and madness: Money and objects of trouble]. Bergen: Fagbokforlaget.
- Spear, S., & Bowen, H. K. (1999). Decoding the DNA of the Toyota production system. *Harvard Business Review*, 77, 96–108.
- Staw, B. M., & Epstein, L. D. (2000). What bandwagons bring: Effects of popular management techniques on corporate performance, reputation, and CEO pay. *Administrative Science Quarterly*, 45, 523–556.
<http://dx.doi.org/10.2307/2667108>
- Stentoft Arlbjørn, J., & Vagn Freytag, P. (2013). Evidence of Lean: A review of international peer-reviewed journal articles. *European Business Review*, 25, 174–205.
<http://dx.doi.org/10.1108/09555341311302675>
- Storey, D. J. (1994). *Understanding the small business sector*. London: International Thompson Business Press.
- Strang, D., & Meyer, J. W. (1993). Institutional conditions for diffusion. *Theory and Society*, 22, 487–511.
<http://dx.doi.org/10.1007/BF00993595>
- Sturdy, A. (2004). The adoption of management ideas and practices. *Theoretical perspectives and possibilities*. *Management Learning*, 35, 155–179.
- Ten Bos, R. (2000). *Fashion and utopia in management thinking*. Amsterdam: John Benjamins.
<http://dx.doi.org/10.1075/aio>
- Thawesaengskulthai, N., & Tannock, J. (2008). Fashion setting in quality management and continuous improvement. *International Studies of Management and Organization*, 38, 5–24.
<http://dx.doi.org/10.2753/IMO0020-8825380201>
- Van Rossem, A., & Van Veen, K. (2011). Managers' awareness of fashionable management concepts: An empirical study. *European Management Journal*, 29, 206–216.
<http://dx.doi.org/10.1016/j.emj.2010.10.005>
- White, R. E., Pearson, J. N., & Wilson, J. R. (1999). JIT manufacturing: A survey of implementations in small and large US manufacturers. *Management Science*, 45(1), 1–15.
<http://dx.doi.org/10.1287/mnsc.45.1.1>
- Witrock, C. (2015). Reembedding Lean: The Japanese cultural and religious context of a world changing management concept. *International Journal of Sociology*, 45, 95–111.
<http://dx.doi.org/10.1080/00207659.2015.1061852>
- Womack, J. P., & Jones, D. T. (1996). *Lean thinking: Banish waste and create wealth in your organisation*. New York, NY: Simon and Schuster.
- Womack, J. P., & Jones, D. T. (2003). *Lean thinking* (2nd ed.). New York, NY: Free Press.
- Womack, J. P., Jones, D. T., & Roos, D. (1990). *The machine that changed the world*. New York, NY: Simon and Schuster.



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