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Trust, mistrust and distrust as blind spots of Social Licence to Operate: illustration via three forerunner countries in nuclear waste management

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ABSTRACT

The notion of social licence to operate (SLO) has become a widely applied concept for companies in mining and resource extraction industries to manage their social and community relations, in the face of local criticism and opposition. SLO literature and practice have highlighted earning the trust of the local community as a key requirement for an SLO. This article addresses three weaknesses in how the current SLO literature addresses trust. The arguments are illustrated via examples from nuclear waste management in Finland, France and Sweden – three forerunners in implementing high-level nuclear waste repository projects. Nuclear waste management constitutes a relevant case for analysis, as an industry that faces significant risk-related challenges of local acceptance, ethics, economics, and democratic debate. Focussing on the oft-used SLO framework of Boutilier and Thomson, with its emphasis on interactional and institutionalised trust between the company and the local community, we address three gaps in the SLO literature: 1) insufficient conceptualisation of trust, in particular the dynamics between different dimensions of trust, mistrust and distrust; 2) lack of attention to the potential Virtues of mistrust and distrust; and 3) the downsides of taking the institutionalisation of trust as the ultimate criterion of a strong SLO, especially in contexts entailing significant asymmetries of power. The article concludes by suggesting ways of alleviating the identified weaknesses, via greater recognition of the multidimensionality of trust, mistrust and distrust, the Virtues of mistrustful civic vigilance, and greater attention to trust dimensions that lie beyond the community-company relations.

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Introduction: trust and the social licence to operate

Social Licence to Operate (SLO) has gained increasing popularity as a tool for companies to manage their community relations – in other words, their 'social risks' (e.g. Bice, Brueckner, and Pforr 2017). The rapid proliferation of SLO practice, from mining to other industries, including

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those in the energy sector, has been paralleled by a growing interest in the academia, where the concept is seen varyingly as a useful metaphor and advocacy measure, a or tool for critical examination of community-company relationships or Corporate Social Responsibility practices. At its simplest, SLO indicates the acceptance, approval, and ownership of a project by its local host community. As an informal 'licence', an SLO is ultimately granted by the local community, and needs to be constantly maintained and regained (e.g. Boutilier and Thomson 2011; Zhang and Moffat 2015; Jijelava and Vanclay 2017, 2018; Moffat et al. 2016; Jartti et al. 2020).

Alongside its growing adoption, the concept of SLO has faced also increasing criticism. It has been blamed for being vague and hard to measure, lacking conceptual precision and unity, and constraining the debates to a limited range of local issues, while excluding fundamental underlying aspects from the legitimate sphere of debate (Owen and Kemp 2013; Meesters and Behagel 2017; Jijelava and Vanclay 2017, 2018; Harvey and Bice 2014; Moffat et al. 2016). Just like participatory and partnership approaches in general, SLO can be used for merely instrumental purposes (e.g. Blowers 2016), to legitimise 'questionable company practices behind an SLO veneer of respectability' (Brueckner and Eabrasu 2018). Local benefit schemes – a common means of obtaining an SLO – are frequently denounced as a form of bribery (e.g. Walker, Wiersma, and Bailey 2014; Lehtonen and Kojo 2019), especially in situations with 'ontologically different worldviews' and fundamental value conflicts (Ehrnström-Fuentes and Kröger 2017). Participation, partnerships and efforts at gaining an SLO may then fail in their shared main objective of engendering trust.

This article builds on these earlier criticisms to explore the shortcomings in the ways in which SLO thinking and practice addresses trust as a key element of SLO. To do so, we draw on one of the most often used SLO frameworks – the 'diamond' or 'arrowhead' framework of Boutilier and Thomson (2011; see also Boutilier 2017) and illustrate our arguments via examples from nuclear waste repository projects in three forerunner countries: Finland, France, and Sweden. This framework highlights 'interactional' trust between the company and the local community – through communication, dialogue and partnership – as a precondition for the highest stage of SLO, that is, 'institutionalised' trust. When trust is institutionalised, the host community and the company have mutual respect for each other's interests, and trust between the two is taken for granted. We argue that while useful, this approach to trust entails three limitations.

First, we argue that the conceptualisation of trust in extant SLO scholarship remains incomplete and would do well to explicitly integrate in its analytical frameworks the dynamics between the various dimensions of trust, mistrust, and distrust (see the introduction to this special issue), in particular, their ideological dimension. Second, we illustrate the downsides of excessive trust (e.g. Warren 1999), and potential democratic Virtues of not only mistrust (e.g. Tait 2011; Allard, Carey, and Renault 2016; Lenard 2008), but also distrust, including in the attempts of nuclear waste management (NWM) organisations to obtain an SLO. Third, we highlight the dangers of considering institutionalised trust as the self-evident pinnacle of SLO, and call for greater attention to aspects beyond the community-company relationships. Given the highly conflict- and value-laden nature of NWM, involving extremely long timescales, with risk and safety as pervasive concerns, the state plays a vital yet complex role in NWM governance and often has a vested interest in promoting an SLO for NWM projects (e.g. Lehtonen et al. 2020). Institutionalised trust may in such conditions reflect highly asymmetric power relations rather than genuine approval and ownership by the local community. Further conceptual improvement could build on recent work that has sought to combine the local and societal levels of analysis within a single SLO framework (e.g., Lesser et al. 2021).

The next section presents the material and methods, and introduces our three illustrative case studies. We then outline the role of trust in SLO, drawing especially on the framework of Boutilier and Thomson. Sections 'Need for conceptual SLO work', 'Downsides of trust, Virtues', 'Virtues of mistrust and distrust', and 'Institutionalised trust as the pinnacle of SLO?' elaborate,

one by one, on the three main shortcomings in SLO thinking from the perspective of trust, mistrust and distrust. The last section concludes by summarising the key arguments.

Illustrative case studies as the research method

Material and methods

The article draws primarily on existing academic literature on SLO and on NWM in our three case study countries. The secondary NWM literature, which served as the core material for the illustrative case studies, included also our own earlier extensive work concerning the nuclear sector in Finland, France and Sweden, on SLO-related topics such as repository site selection, local community perceptions, and the role of the host municipality (Kojo 2009; Vilhunen et al. 2019; Kari, Kojo, and Lehtonen 2021); community benefit schemes (Kojo and Richardson 2014; Lehtonen and Kojo 2019); socioeconomics of NWM (Lehtonen 2014, 2016; Lehtonen et al. 2017); citizen participation and deliberation; as well as politics and regulation of nuclear energy and NWM (Lehtonen 2015, 2018; Litmanen et al. 2017a). Data from opinion surveys provided additional insights especially concerning levels of trust.

As a complementary source, especially for the French case, we used the SLO-relevant material from semi-structured stakeholder interviews conducted by the first author in earlier research on NWM, between 2008 and 2019. These interviews concerned NWM topics closely related to SLO, including notably citizen participation, socioeconomic evaluation of the repository project and the associated benefit schemes (in all three countries), public communication (Finland and France), and trust in NWM policy (Finland and Sweden). The 15 Finnish interviewees represented the NWM company, the nuclear operators, the national authorities, researchers, and NGOs. In France, 34 persons were interviewed amongst the local and departmental-level stakeholders in the repository area, and national-level representatives from the nuclear industry, central government, safety authorities, and NGOs. The 12 Swedish interviewees represented the NWM company, safety regulator, NGOs, the National Council for Nuclear Waste, local politicians, academics, and independent consultants.

The illustrative case studies

Three reasons render our case country selection particularly useful. First, these are the most advanced countries in the implementation of high-level nuclear waste repository projects, having already acquired most legal licences and to a large extent also a 'political licence' (Bice, Brueckner, and Pforr 2017) – the approval and support from national policymakers. Second, our selection contrasts the two Nordic high-trust societies with France as a 'society of distrust', both in terms of generalised trust 'in the unknown other', and institutional trust (e.g. OECD 2013; Algan, Cahuc, and Zylberberg 2012; Agacinski 2018). Third, the three countries represent highly distinct political cultures and traditions. The Nordic democracies have evolved in a context of strong trust in state institutions as guardians of public interest and common good (Arter 2008; Andreasson 2017). By contrast, the French democracy – like liberal democracy in general – has grown out of mistrust by the governed against those in power, resulting in a state-centrist political system with highly ambiguous relationships between the state and the civil society (e.g. Saurugger 2007).

Applying one of the most common indicators of SLO – the degree of overt conflict and visible opposition to the project – the Finnish and Swedish repository projects would today seem to have a relatively strong SLO, whereas the French project continues to generate conflict and controversy. The Nordic projects have advanced without notable friction since the 'participatory turn' of NWM in the 1990s (Elam and Sundqvist 2010). Finland is the first country in the world having granted a construction licence for a high-level radioactive waste (HLW)

repository (in 2015). Sweden is expected to follow soon after, pending approval by government, although decisions may be delayed, given that recent years have witnessed lively expert and public controversies over the corrosion of copper canisters used for storing the waste (e.g. Kojo et al. 2020). In international arenas, the Finnish and Swedish repository projects are frequently praised for their democratic Virtues (e.g. NEA 2002, 2010). The advancement of the French project, by contrast, seems to owe primarily to solid national-level support by the political majority. Despite efforts at introducing transparency and participation, mutual mistrust between the involved stakeholders persists, as does vigorous and persistent minority opposition at the local level.

Many non-trust related factors obviously contribute to the differences between the projects in their ability to obtain an SLO, Furthermore, distrust in the French society is not all-encompassing, and neither mistrust nor distrust is absent in Finland and Sweden. Nevertheless, the high-trust vs. low-trust distinction reflects realities that help to illustrate the relative blind spots in the ways in which SLO literature addresses trust. Table 1 presents the key features of the NWM projects and their contexts in the three countries.

Trust as a key notion in SLO literature

Trust is generally considered as a central element and requirement of an SLO (e.g. Zhang and Moffat 2015; Jijelava and Vanclay 2017, 2018; Moffat et al. 2016). In one of the most frequently applied SLO frameworks, Boutilier and Thomson (2011; see also Boutilier 2017) define the concept as a combination of four elements: economic and socio-political legitimacy, and interactional and institutionalised trust. Economic legitimacy constitutes the key minimum requirement for an SLO – and the community approval of the project – whereas for the highest degree of SLO, institutionalised trust, all four criteria need to be fulfilled simultaneously. Trust-building via interaction between the community and the company – through openness, dialogue, and cooperation – constitutes the foundation for the institutionalisation of trust. The ability and willingness of the company to keep its promises is vital for this type of 'interactional trust'. If successful, such processes of interaction would lead to institutionalisation of trust, that is, to a situation in which company–community relationships are characterised by mutual respect for each other's interests, trust being taken for granted between equal partners, and the community psychologically identifying itself with the project.[1]

The Boutilier and Thomson framework concentrates on community–company interaction. The SLO literature has recently developed further this framework, notably by seeking to integrate the community and societal level within a single SLO framework (Lesser et al. 2021), and by addressing also more general aspects of institutional trust, especially those relating to governance (e.g. Jartti et al. 2020; Zhang and Moffat 2015, 32). However, we argue that this has yet to go all the way by integrating in its frameworks the notions of trust, mistrust, and distrust, in their full complexity. The next three sections will address three main shortcomings in the ways that current SLO treats the notion of trust, illustrating the arguments via examples from the three NWM forerunner countries. In presenting our argument, we rely on the typologies of the various dimensions of trust, mistrust and distrust as defined in the introduction to this special issue.

We define *trust* broadly as a situation in which an individual accepts to 'believe without knowing', placing oneself voluntarily in a vulnerable position (Laurent 2009, 109). *Mistrust*, by contrast, stems from doubt, uncertainty, and sometimes fear. As an *attitude*, it can lead to a passive and prudent 'wait-and-see' stance, whereas a mistrustful *strategy* represents a skill or an art of dealing with a risky or uncertain reality (Allard et al. 2016, 10), for instance via anticipation and search for information. *Distrust* denotes the absence of trust. Where mistrust entails uncertainty, in the sense of a hope or an expectation that the object of mistrust might prove

Table 1. Summary of the key features of the illustrative case study objects.

	Finland	France	Sweden
Repository construction licence	Granted in 2015	Application to be submitted	Decision pending approval
Project implementer	Posiva, a joint NWM company of the nuclear operators	Andra, a state agency for NWM	SKB, a joint NWM company of the nuclear operators
Independent technical oversight	None	National Review Board; Local Information and Oversight Committee (CLIS)	National Council for Nuclear Waste
Conflict/consensus concerning the repository project	Little opposition and conflict, either locally or nationally	Persistent conflict and controversy, especially at local level; complex state-local relationships	Minor, non-violent and 'reasoned' opposition, mainly by national NGOs; party-political manoeuvring at the final decision stage
Formal local approval for the project	Necessary, obtained in 2000	Not needed	Necessary, obtained in 2020
Nuclear energy policy	Fifth reactor to go on line in 2022, sixth planned; nuclear ~35% of electricity	One reactor under construction Nuclear share of electricity to be brought down from 70% to 50% by 2035	No new-build underway or planned; nuclear ~30% of electricity
Generalised and institutional trust	High-trust society	Society of mistrust	High-trust society
Historically constituted bases of democracy	Trust-based democracy	Mistrust-based (liberal) democracy	Trust-based democracy
Location of repository	Medium-sized municipality (9000 inhabitants), hosting a nuclear power plant	Very small, rural, and remote community	Medium-sized municipality (22 000 inhabitants) hosting a nuclear power plant
Characteristics of the host region/ municipality	Prosperous, thanks to nuclear industry	Demographically and economically declining since the 1970s	Prosperous, thanks to nuclear industry

trustworthy, a distrusting individual has lost such hope and is convinced about the untrustworthiness of the other. Distrust can also manifest itself as an *attitude* – of suspicion and cynicism (Lenard 2008, 316) – or a *strategy* of challenge, rejection, resistance, distancing, and autarky (Kuryo 2011).

We further distinguish between *social*, *institutional*, and *ideological* forms of trust, mistrust, and distrust. Social trust can be 'generalised', denoting trust in 'the unknown other', or particularised, directed towards people in one's own reference group. Institutional trust denotes public trust in state and private institutions, such as the safety authorities, government, nuclear operators, or the NGOs. Ideological trust concerns higher-level institutions – 'wider abstract systems and ideas' – such as democracy, the state, market, and planning, and their legitimate roles in society, technological progress, centralisation vs. decentralised solutions, or nuclear power as an electricity-generating option (Söderbaum 1999; Tait 2011, 158-160). While ideology concerns 'ideas about means and ends' (Söderbaum 1999, 163), ideological trust is specifically directed at norms and values (Tait 2011, 160).

Need for conceptual SLO work on the interacting dimensions of trust

Institutional and ideological trust – the state and the private sector

Recent scholarship has addressed citizens' trust in governance and institutional arrangements as a factor that shapes interactional trust-building (e.g. dialogue, citizen participation) and

thereby the SLO processes and outcomes (e.g. Petts 2008; Litmanen, Jartti, and Rantala 2016; Jartti et al. 2020; Lesser et al. 2021; Heffron et al., in press). Trust in the adequacy of legislation and regulatory authorities to hold companies accountable and ensure that they 'do the right thing' (Zhang and Moffat 2015, 30; Measham and Zhang 2019, 365) is particularly crucial in the area of NWM, given the entanglement of state and private sector interests and the key role of national safety authorities in ensuring trust in the safety of the projects (Lehtonen et al. 2020). However, SLO literature tends to treat these aspects as external or secondary to the vital community-company relationship, often as determinants or drivers of community acceptance (e.g. Luke 2017; Walton and McCrea 2020). Lesser et al. (2021) constitute an exception, offering a useful step towards integrating the community and societal dimensions of SLO within a coherent framework inspired by the Thompson and Boutilier model. These studies provide a useful basis for further work in that they elaborate on factors such as worldviews and values, as well as trust in government's ability and willingness to regulate industries, as among key determinants of SLO (see also Luke 2017; Measham and Zhang 2019). As recognised by Lesser et al. (2021, 7), clarification is needed on the interaction between the community and societal SLO. We argue that further work should seek to integrate the interpersonal, institutional, and ideological dimensions of trust, mistrust, and distrust within a coherent SLO framework. Examples from our case study countries illustrate some of the associated challenges relating to the interplay between institutional and ideological trust.

Measured on the basis of the presence or absence of conflict, the three projects reveal a complex picture, and highlight the need to address the institutional and ideological dimensions of trust. The near absence of opposition and criticism against the repository project in Finland follows partly from the exceptionally high (82% at both national and local levels) trust in the nuclear safety authority (Finnish Energy 2018; Vilhunen et al. 2019), and would seem to suggest that the project has earned a strong SLO. Yet, the significantly weaker trust that local citizens hold in the safety of the repository (41%), and in the reliability of information provided by the project implementer (57%) indicates a weaker SLO (Kari, Kojo, and Litmanen 2010). In France, the situation appears to be the reverse: weak SLO – if measured by the presence of conflict – but relatively high institutional trust. Despite enduring protests and contestation movements, in 2017, 57% of the local citizens trusted in repository safety and 60% in Andra as the implementer (Ifop 2018). Local-level trust in the competence of the involved engineers (d'Iribarne 2005) and national-level trust in the safety authorities (IRSN 2020, 52-53) is high, yet the locals show concern about socioeconomics, notably about the future of the region, distribution of harm and benefits, and the fairness and legitimacy of compensations (e.g. Ifop 2018; Lehtonen and Kojo 2019). The discrepancy between weak SLO and strong local-level institutional trust can partly follow from the fact that opposition comes partly from outside of the region, yet this is the case also for the Finnish and Swedish projects. Only in Sweden seem survey figures to align with the observed low degree of conflict: 86% of local citizens trust in the project safety, 76% in the implementer, and 61% in the safety authority as a source of information on nuclear (Demoskop 2017; SKOP 2012; Novus 2018).

The historically shaped *ideological trust* can help to explain why, despite the nearly identical repository concepts and seemingly similar politico-cultural contexts in Finland and Sweden, only in Sweden has the project generated significant controversy. First, obtaining an SLO seems to require highly dialogical multistakeholder processes in Sweden, but not in Finland. The Swedish local authorities and NGOs actively participate in technical safety analysis, in the spirit of 'civil regulation' (Litmanen et al. 2017a), whereas the Finnish municipal authorities are happy to fully delegate technical scrutiny of the project to the safety authority (Kari, Kojo, and Lehtonen, 2021). Both countries boast strong ideological trust in the state, their democracies can be defined as 'trust-based' (Jasper 1990; Arter 2008; Andreasson 2017), with citizens often endorsing views such as 'we are the state' (e.g. ECE 2007, 5). Yet, this trust is focussed on the political sphere and corporatist political representation in Sweden, and on the state administration in Finland (Säynässalo

2009; Kettunen 2012, 78). Finns also show greater tolerance than their western neighbours to authoritarian governance and leadership style. (Kettunen 2012, 78; Pettersson and Nurmela 2007, 22–26), and the Finnish press frames nuclear waste issues in a more consensual tone than its Swedish and French counterparts (Kojo et al. 2020; Lehtonen et al. 2021).

Also the French tradition is characterised by solid ideological trust in the state (e.g. Saurugger 2007; Lehtonen et al. 2020), to such an extent that attributing the implementation of NWM to a state agency was the only option likely to be considered legitimate by citizens.[2] Yet, much more than in the Nordic trust-based democracies (Jasper 1990), this trust is ambiguous, and combined with enduring mistrust of specific state institutions, especially when these fail to live up to the high expectations placed on the state (e.g. Saurugger 2007; Lehtonen, Prades, et al. 2021). Despite survey data showing strong local and national-level trust in Andra (the implementer) and the safety authorities, the discourses in the French host region are characterised by 'us vs. them' constellations – with the state simultaneously as a target of great expectations and significant mistrust (Lehtonen and Kojo 2019).

The historically shaped ideological trust in nuclear power significantly conditions SLO processes. In the West, nuclear technology was in its early days seen not only as a source of jobs and wellbeing, but also as a symbol of modernisation, progress, national pride, and national identity (Kaijser et al., in press). This overwhelmingly positive portrayal has in France evolved into a complex mixture of trust in the 'national patrimony' and mistrust or even outright distrust fuelled by the growing technical, economic and organisational problems and perceived secrecy in this sector (Lepage 2014; OPECST 2019). In Finland, the generally positive storyline has persisted, and historical experience has been used to reinforce both institutional trust in specific nuclear-sector actors and ideological trust in nuclear power.[3] In the pursuit of a local-level SLO for the repository, the Finnish and Swedish NWM authorities, industry and local authorities have successfully exploited these ideological elements by employing discourses of duty and responsibility (e.g. Yli-Kauhaluoma and Hänninen 2014). In the French rural and sparsely populated repository host area – lacking experience of nuclear industry – similar ideological persuasion has met with less success, despite support from the local mayors – the category of politicians most trusted by the French citizens (Rouban 2018).

Downsides of trust, Virtues of mistrust and distrust

Existing SLO literature has hitherto paid insufficient attention to the downsides of excessive trust, and the potential Virtues of mistrust and distrust. Our case examples illustrate the downsides of trust-based 'inner circles' as well as the Virtues of mistrustful civil vigilance and distrustful civic action.

'Inner circles' of excessive social trust

Strong ties built over time – often since their university years – bind together NWM expert communities (Litmanen 2009; Wärnbäck, Soneryd, and Hilding-Rydevik 2013; NEA 2019). This *particularised social trust* (Introduction to this volume; Bäck and Christensen 2016) amongst tightly-knit 'inner circles' fosters coherence and interaction. It helps build *institutional trust*, when citizens come to perceive these elites as competent and even as harbingers of progress (Lammi 2009; d'Iribarne 2005; IRSN 2020; NEA 2019). Expert communities are bound also by *ideological trust* in shared professional values and principles. However, strong bonding within communities can also breed self-sufficiency and complacency, exclude alternative perspectives and actor groups, and ultimately undermine citizens' trust in institutions (van Deth and Zmerli, 2010).

Undue influence of an 'inner circle' of experts has engendered criticism in all three case countries (e.g. Wärnbäck, Soneryd, and Hilding-Rydevik 2013; Lehtonen and Kojo 2019). French

local stakeholders frequently denounced the power wielded by few individuals occupying multiple key governance positions (Lehtonen and Kojo 2019), yet citizens in the repository region have expressed trust in the country's engineers as 'the best in the world' (d'Iribarne 2005, 37). In Finland, a powerful network of experts congregated around the Ministry of Economic Affairs and Employment includes members from the state R&D institute VTT, the safety regulator STUK, the nuclear operators TVO and Fortum, and the operators' jointly-owned NWM company Posiva (e.g. Litmanen 2009). Even members of this 'inner circle' recently evoked potential downsides involved (NEA 2019). However, high trust in the ethical behaviour of nuclear experts, in the institutions involved, in technology, and in the engineering profession persists (e.g. Lammi 2009; Litmanen 2008, 2009; Finnish Energy 2018; NEA 2019).

Mistrustful civic vigilance

Active and institutionalised practices of mistrust in the form of 'civic vigilance' (e.g. Lehtonen et al. 2020, 2021) – control, oversight, analysis, and questioning – can be vital for SLO. In France, this has taken the form of nuclear-sector counter-expertise, whose roots date back to the 1970s (e.g. Topçu 2008; Lehtonen, Prades, et al. 2021). Examples include citizen associations measuring and controlling radiation levels around nuclear installations, local information and surveillance committees (CLIs), inclusion of civil society representatives in expert advisory committees, and co-construction of expertise jointly by institutionalised and citizen experts. The evaluation of the costs of the repository project, in turn, builds on a system of mutual vigilance between Andra, the government, and the waste producers.

The Swedish 'civic vigilance' has also its origins in the 1970s (Sundqvist 2002). Today, it includes government support to the host municipalities and NGOs for their dissemination activities, the efforts by the National Council for Nuclear Waste to foster diversity of views in public debate, and the active role adopted by host municipalities in reviewing the technical, safety, and socioeconomic aspects of the repository project (Sundqvist 2002; Kari, Kojo, and Lehtonen 2021). The two-track licencing system has institutionalised mistrust, thus helping to build public trust in the project: SKB's licence application is scrutinised under both the Nuclear Energy Act (the remit of the safety authority), and the Environmental Code (the Environmental Court). Mistrustful scrutiny by an institution external to the nuclear sector has strengthened the role of environmental NGOs, placed on a more equal footing the 'planning' and 'precaution' -oriented paradigms (Keskitalo, Nordlund, and Lindgren 2009), and reinforced public trust in the project and in decision-making.[4]

In the Finnish nuclear sector, mistrustful 'civic vigilance' has remained underdeveloped (Lehtonen, Prades, et al. 2021). The advisory Environmental Impact Assessment procedure is mandatory, yet clearly subordinate to the Nuclear Energy Act, which governs the licencing process. Despite the practically identical technical repository concepts in the two countries, only in Sweden has lively debate ensued concerning the potential premature corrosion of the copper canisters that constitute a central element of the 'engineered barrier system'. The Swedish media has given a voice to a broader range of civil society actors, while the Finnish media has primarily reproduced industry and government views on the topic (Kojo et al. 2020; Lehtonen et al. 2021). Government funding has helped Swedish NGOs to disseminate research findings by independent 'counter-experts' highlighting copper corrosion problems (Litmanen et al. 2017b). By contrast, the Finnish municipal leaders have preferred to fully delegate safety analysis to the safety authority (Kari, Kojo, and Lehtonen 2021), wondering why they should not trust the safety authority.[5] The safety authority representatives have argued that surveilling the safety monitoring activities conducted by the implementer – a practice adopted by the authorities in some European countries – would reflect mistrust

towards Posiva, potentially engendering public mistrust of the project.[6] Interestingly, industry representatives have regretted the paucity of critique from the NGOs and academics, arguing that such critique could lend the projects greater credibility (Lehtonen et al. 2020).

Distrust in the service of democratic and societal revival?

Distrust – as an a priori suspicion in relation to 'the other' – can be highly detrimental to the functioning of democracy (e.g. Lenard 2008), as manifested in the resignation and even cynicism amongst certain local actors in the French repository area.[7] However, distrust can constitute a virtue, when frustration and loss of hope in relation to the state engenders constructive citizen action (e.g. Lehtonen et al. 2020). Opponents to the repository in the Bure area have developed projects and visions designed to promote alternative modes of life, livelihoods and regional development strategies, with young settlers revitalising local small businesses, agriculture, and services (e.g. d'Allens and Fuori 2017). Regardless of whether one is in favour or against the project, these activities augur democratic and societal revival in a region suffering from long-standing demographic and economic decline. Since distrust often has a strong ideological element – e.g. concerning the role of nuclear energy in combating climate change or compatibility of nuclear energy with democracy – it can bring to the table fundamental issues, strengthen the democratic legitimacy of the project and prevent an artificial separation between the technical and the ideological (Lehtonen et al. 2020).

Institutionalised trust as the pinnacle of SLO? Trust, mistrust, distrust, and power

Institutionalisation of trust, highlighted by Boutilier and Thomson, always takes place within a broader context of historically shaped power relations, cultural and political traditions, legacies, identities and grievances. Psychological identification – an indicator of institutionalisation (Boutilier and Thomson 2011) – may concern not only a company, but also more abstract entities such as the state, the private sector, or nuclear power as an energy option, or the values and objectives of a movement opposing the project in question (Luke 2017). Three NWM examples illustrate the problems of postulating institutionalisation of trust as the pinnacle of SLO: the enduring academic and practitioner debates on the measurement of SLO, the dynamics of local-level powerplay and dependence, and the pervasive role of the state in NWM.

Problems of measuring SLO: Acceptance, acceptability, resistance

The absence of an SLO is far easier to detect than its presence – in principle, a project has a weak SLO when it faces outright opposition. However, a project may be viable despite the existence of conflict (Owen 2016; Ehrnström-Fuentes and Kröger 2017) – as the steady advancement of the French repository project demonstrates. Conversely, the SLO can be weak despite the absence of overt conflict or dispute (Owen and Kemp 2013). SLO is also closely associated with media visibility and national-level support for the project (Ehrnström-Fuentes and Kröger 2017). Some scholars hence argue that rather than a measurable variable, SLO is mostly a metaphor that recognises the power and importance of local communities (Jijelava and Vanclay 2017, 2018).

The measurement problems are compounded by the heterogeneity of communities, which means that the project promoter in fact needs several SLOs (e.g. Jijelava and Vanclay 2017; 2018). Quantitative surveys are obviously a vital source of empirical evidence on SLO, and they

do elucidate interrelations between its determinants (e.g. Walton and McCrea 2020). As inputs into deliberative processes, surveys can facilitate collective preference formation. However, in relying on an aggregative 'one-person-one-vote' perception of democracy, quantitative surveys are less useful in examining factors such as activities by minority opposition groups that play a role disproportionate to their size, often using the media strategically (Sengers, Raven, and van Venrooij 2010, 5014). Such 'pockets of resistance' can include mistrustful counter-expertise organisations or organised radical opposition expressing outright distrust. The extremely long timeframes involved in NWM add an ethical problem: to what extent can the local community of today legitimately grant its approval on behalf of the future residents of the same locality (Vilhunen et al. 2019)?

Even in the absence of 'pockets of resistance', the lack of explicit protest may not reflect a strong SLO. Opposition groups may be in the process of reorganising their activities or lack resources and ability to protest. A conflict-averse political culture may discourage expressions of mistrust and distrust via protest and demonstrations (Owen and Kemp 2013; Ehrnström-Fuentes and Kröger 2017). Communities around nuclear installations often develop, over the years, forms of 'culture of acceptance' (Kojo, Kari, and Litmanen 2012; Blowers 2016) that tend to suppress debate, questioning, and expression of divergent views. People may then give, often for pragmatic reasons, their acceptance to a project that they do not actually consider acceptable and legitimate. Moreover, project opponents may have moved away from the area, on their own initiative, via forced migration or under social pressure. Opponents have indeed evoked cases of outmigration, outright social exclusion, and intolerance towards critique against the project in the Finnish nuclear communities (Junkkari 2003; Rosenberg 2007) and in the planned repository area in France (Lehtonen and Kojo 2019; Lehtonen et al. 2020).

Local democracy, local power play and dependence

Because of the complex and often highly unequal power and dependency relations in local politics, institutionalised trust can reflect exercise of power, rather than genuine community approval. The stronger the economic, political, and cultural dependencies of the local community, the less reliable the absence of protest as an indicator of SLO (e.g. Rosenberg 2007a), and the greater the need to actively foster the free expression of 'healthy' mistrust and distrust.

Dependence and power can help to explain the diverging degrees of proactiveness of the candidate municipalities in our three countries. Socioeconomically highly dependent on the nuclear industry, and competing with Loviisa for hosting a new nuclear plant and the repository, the Finnish Eurajoki prioritised economic objectives and presented relatively modest demands for community benefit schemes (Kojo 2009). Although likewise economically dependent on the nuclear installations, the Swedish municipalities – Östhammar and Oskarshamn – joined their forces in bargaining with the industry. These relatively wealthy and populous (approximately 20 000 inhabitants each) municipalities essentially dictated their conditions on SKB, exploiting the company's pressing need to obtain local acceptance. By contrast, the French repository host region is rural, socioeconomically declining, and desperate for new economic activity. This makes it easier for the waste management agency, government and industry to play 'divide and rule' tactics by fostering competition for economic support – not only between a handful of communities like in Finland and Sweden – but between the large number of very small local municipalities.

Ideological trust, the state, and nuclear power

Conflicts over the desirability of projects confront opposing worldviews and ideologies. The institutionalisation of trust is therefore shaped by a combination of ideological trust, mistrust and distrust relations, asymmetries of power, and economic dependence. Earlier SLO literature

has shown that citizens often struggle to distinguish between the acceptability of a project, the company promoting it, and the industry in question (e.g. Litmanen, Jartti, and Rantala 2016). For the SLO of an NWM project, ideological trust in nuclear power and the state are crucial. Opposition movements indeed often refuse to even discuss NWM solutions as long as nuclear power plants remain in operation. Ideological trust in the state is vital. The state often has a vested interest in the project gaining an SLO, and is involved in all aspects of the nuclear sector: policy design, regulation, ownership of nuclear facilities, and sometimes – as in France – in NWM implementation (Lehtonen et al. 2020). Ultimately, as an instrument of discursive power, the very notion of SLO can be mistrusted or distrusted. For example, environmental justice movements view SLO as a market-based concept that downplays local grievances and allows the financially most influential members of community alone to grant an SLO to a project (e.g. Ehrnström-Fuentes and Kröger 2017).

Ideological trust in NGOs and civil society action further affect the institutionalisation of trust. In Finland, strong ideological trust in the state, experts, and technology has translated into relatively weak citizen trust in NGOs as a source of information on energy policy issues – as compared with most other European countries, especially France (e.g. Eurobarometer 2010, 104). A tradition of political passiveness has further undermined the legitimacy of radical citizen activism. The relatively high levels of trust in NGOs in France have, in turn, been partly buttressed by the country's long tradition of adversarial relations between the state and the civil society (Saurugger 2007). Crucially, trust in NGOs appears as particularly low among citizens in the Finnish and Swedish local host communities (Demoskop 2017; Vilhunen et al. 2019), possibly reflecting asymmetries of power, economic dependence, and long-standing local PR efforts by the nuclear industry (e.g. Elam and Sundqvist 2010; Yli-Kauhaluoma and Hänninen 2014).

Conclusions

Examples from HLW repository projects in three forerunner countries have illustrated some of the weaknesses in the ways in which current SLO scholarship addresses the questions of trust. The repository projects are characterised by three vital aspects underestimated in SLO thinking and practice: the complex and dynamic constellations of interacting trust, mistrust and distrust; the potential Virtues of mistrustful civic vigilance and distrust-based citizen action; and the problem of holding institutionalised trust as the highest criterion of SLO. Institutionalisation of trust may reflect asymmetries of power, resignation, economic dependence, and absence of a culture of openness. We argue that a seemingly high degree of SLO acquired by the Nordic repository projects does not necessarily imply a situation of all-encompassing trust. Conversely, seemingly dysfunctional conflicts, such as those in the HLW management policy in France, carry significant potential benefits, when they foster civic vigilance and autonomous citizen initiatives. SLO scholarship has begun to move away from the earlier almost exclusive focus on local-level company-community relationships, seeking to conceptualise also the societal level SLO. This work would benefit from more explicitly integrating in the analysis the dynamics between the various dimensions of trust, mistrust, and distrust.

We make three suggestions for SLO scholarship. First, SLO toolkits should embrace the multiple dimensions of trust: interpersonal (social), institutional, and ideological. Such an approach would require (1) further qualitatively oriented work to accompany quantitative and survey-based methods of measuring SLO, needed in particular for the analysis of the difficult-to-measure ideological dimension of trust; and (2) contributing to the on-going attempts at extending SLO analysis to the societal level, by examining a broader range of trust relationships, including those that involve the multiple private and public organisations and institutions directly or indirectly shaping SLO. While institutional trust tends to be the central preoccupation of organisations seeking an SLO for their projects, it is conditioned by ideological trust, with trust in

the state vital in nuclear waste managemen. The 'taken-for-grantedness' of mutual trust at the local-level reflects broader aspects of ideological trust, as well as interpersonal social trust. For example, the degrees of trust, mistrust and distrust towards the small circles of experts in the area of HLW management depend on trust in the ethical behaviour and sincerity/competence of the experts involved, institutional trust (e.g. the proven track record of the safety regulator and operators), and ideological trust in science, technology and engineering in general.

Second, SLO should fully recognise and seek to integrate the potential benefits of mistrust and distrust in SLO-acquisition processes. In the absence of 'healthy mistrust' in the form of civic vigilance, a seemingly strong SLO can be deceiving, and reflect weaknesses in the functioning of democracy rather than truly equitable and harmonious company-community relationships. By contrast, current SLO frameworks may underestimate the degree of the SLO in a society that allows and actively encourages the expression of mistrust. Mistrustful civic vigilance that entails conflict and controversy can foster articulation between trust and mistrust, leading to conditional acceptance of the project in the spirit of 'I can trust, if certain conditions are fulfilled, or until further notice, but I remain vigilant'. In contrast with a lot of social science scholarship on trust, we argue that distrust is not necessarily dysfunctional and harmful for democracy, but that active minority opposition can contribute to local socioeconomic revival, consolidation of an open and pluralistic democracy, and broader development strategies independent of the project itself.

Third, institutionalisation of trust at the local level between the company and the community is not automatically desirable, especially when power relations are highly unequal, and powerful actors are granted the status of incontestable experts on critical aspects of the project. Common in large-scale industrial and resource extraction projects in general, such power asymmetries are particularly acute in HLW repository projects, partly because of the strong implication of the state and its interest in these projects obtaining an SLO. At a minimum, any attempt to examine the degree of SLO should include an analysis of the exercise of power, in its diverse dimensions and manifestations. Such an analysis should seek to disentangle the extent to which the project context allows, encourages, prevents or hinders the expression of diverse forms of mistrust and distrust, and how such opportunities play out over the long periods of project planning, implementation and monitoring. It should also seek to distinguish between the dysfunctional and virtuous forms of trust, mistrust and distrust. The relevant scope of analysis reaches far beyond the community-company relations, covering a wider range of public and private-sector actors, as well as various forms of power (e.g. political, economic, cultural, ideological), with particular attention to the role of the state. Through concrete policy measures, the state can alleviate or aggravate economic and political dependence, or foster civic vigilance by providing support to NGOs and municipalities. In a context of strong ideological trust in the state, a seemingly solid SLO can rather reflect resignation and passive distrust, or unwarranted and dysfunctional 'overtrust'. Dysfunctional trust can arise in a culture that discourages dissent. Such a culture can emerge in nuclear communities, when dissidents are chased away or silenced, being perceived as threats to economic prosperity and social peace. An overly distrustful local culture, in turn, can be highly intolerant towards positions expressing support for the project in question. Ultimately, the analysis of power relations should cover the power of the 'epistemic community' of SLO practitioners and scholars themselves. SLO community is not immune to the risks of groupthink within 'inner circles', partly as a result of *ideological trust* in shared professional values and principles. Perhaps more importantly, many if not most SLO experts are also policy actors, as policy advocates or consultants. In navigating the muddy waters of the policy world – between diverse private, public and community interests – an SLO expert needs awareness of her role in the policy situation at hand, as a precondition for understanding whose trust is being institutionalised and for whose benefit.

Should the institutionalisation of trust be retained as a key objective and criterion of SLO, we argue that the public interest is better served when such taken-for-granted trust is oriented

towards a broader range of state institutions, rather than towards specific private-sector or public project implementers. To embrace this view would require from the SLO scholarship and practice greater sensitivity to the multidimensionality of trust, mistrust, and distrust, integration in the analysis of the potential Virtues of mistrust and distrust, and constant attention to power relations that go beyond the mere company-community relationship, yet decisively shape the SLO processes.

Notes

1. It is worth underlining that institutionalised trust is not the same as institutional trust, as defined in the introduction to this special issue.
2. An argument also made by several of our French interviewees.
3. These narrative elements include the successful "Finlandisation" of the Soviet reactors in the 1970s, the excellent performance of the country's nuclear power plants, the absence of significant accidents, consistent implementation of the NWM project according to plans and timetable, and portrayal of the Finnish safety authority as among the strictest and most competent in the world (e.g. Litmanen 2009; Lehtonen et al. 2017, 2020).
4. Personal communication by a nuclear-sector historian and by an NGO representative.
5. A view expressed by, for example, an Eurajoki municipal councillor at a nuclear waste management seminar, 10 October 2018, VTT, Espoo, Finland.
6. Personal communication by a STUK representative at the Modern2020, 2nd international conference on Monitoring in Geological Disposal of Radioactive Waste, 11 April 2019, Paris, France.
7. A local mayor interviewed on 12 April 2013 summarised the widespread feeling of resignation by stating: "the state will do what it wants, anyhow… the project is 100% political".

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