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# **MODELLING AND MEASURING THE SOCIAL LICENSE TO OPERATE: FRUITS OF A DIALOGUE BETWEEN THEORY AND PRACTICE**

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*Abstract:*

This outline traces the development of a conceptual model of the social license to operate. The development process was a conversation between theory and practice over a number of years. An original study of the levels of acceptance of a local mine across a 15 year period led to the conceptualization of the social license presented in the Thomson and Boutilier (2011) chapter. That was followed by attempts to measure the social license quantitatively in a survey of the stakeholder of the same mine. On a 5-point scale, representatives of stakeholder group for the same mine rated their agreement or disagreement with an initial pool of two dozen statements. Stakeholders' verbal statements of support or opposition provided criterion validation for the whole set of statements as an additive scale of the social license. However, sub-scales meant to measure Thomson and Boutilier's levels of social license did not conform with the hypothesized cumulative nature of the levels. Over the past three years, the pool of statements was refined in studies of stakeholder networks in Australia, Bolivia, and Mexico. The latest version consists of 15 statements, which were used earlier this year at the original mine in Bolivia. A factor analysis revealed four factors that did conform with the cumulative nature of the levels of social license, but which, in the process, suggested a modification to the model. Continuing the dialogue between theory and practice, we present the modified model and suggest ways it can focus mine management on a chronically neglected aspect of stakeholder relations, namely, the role of the corporation in fostering more equitable social contracts at local and regional levels in both developed and developing countries.

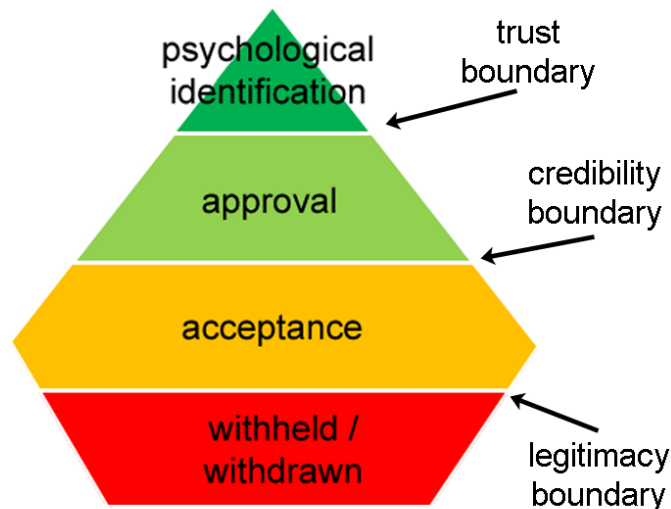
## Development of a Model and Measure

According to Thomson and Boutilier (2011) a social license to operate (SLO) is a community's perceptions of the acceptability of a company and its local operations. Based on extensive interviews with resettled villagers about the ups and downs of their relationships with a Bolivian mine over a 15 year period, Thomson and Boutilier identified four levels of the SLO. They claim that the level of SLO granted to a company is inversely related to the level of socio-political risk a company faces. A lower SLO indicates a higher risk.

The lowest level of SLO is having the social license withheld or withdrawn. This implies that the project is in danger of restricted access to essential resources (e.g., financing, legal licenses, raw material, labour, markets, public infrastructure). Losing a social license represents extremely high socio-political risk.

The next highest level of SLO is acceptance of the project. On Figure 1 this layer covers the greatest area in order to indicate that it is the common level of social license granted. If the company establishes its credibility, the social license rises to the level of approval. Over time, if trust is established, the social license could rise to the level of psychological identification, where the level of socio-political risk is very low.

**Figure 1: The “pyramid” model of the SLO proposed by Thomson & Boutilier (2011)**



### Political Differences in Stakeholder Networks

Speaking of a social license as granted by a community is a shorthand for a more complex situation. Thomson and Boutilier prefer to speak of stakeholder networks rather than communities. They adopt Freeman's (1984) definition of stakeholders as those who could be affected by the actions of a company or who could have an effect on the company. The stakeholder network, therefore, could include many parties outside a geographic community,

such as ethical investment funds, international human rights activists, international financial institutions, and national governments.

The stakeholders may or may not agree on what level of SLO should be granted. Usually there are political differences of opinion within the network of stakeholders. An understanding of how the various levels of SLO are proportionally distributed throughout the network provides the basis for strategies for changing the overall SLO (e.g., alliance formation, issue reframing, etc.). Anti-mining activists of various stripes (e.g., anti-capitalism, anti-development, anti-globalization, anti-mining) will use such knowledge to lower the SLO while mining companies will use it to try to raise their SLO. In many villages of the developing world, local stakeholders use the opportunity to try to negotiate a better micro-social contract with the mining company than the one they currently have with their national government.

### **Development of a Measure of the SLO**

The four level concept of the SLO proposed by Thomson and Boutilier was used to devise a pool of two dozen statements intended to measure the SLO in interviews with mine stakeholders in Bolivia in 2009. The whole set was validated against verbal comments by the stakeholders and contextual information about their political campaigning for or against aspects of the mine's operations. However, the sub-sets of statements meant to measure the separate layers of the SLO did not display the cumulative nature hypothesized by Thomson and Boutilier. Technically speaking, they did not form a Guttman scale (Guttman, 1950). Moreover, although a factor analysis yielded four factors, the factors lacked some face validity in terms of matching them with the four levels of SLO.

The pool was refined in 2010 for a study in Mexico and another in Australia. Standard psychometric item analysis techniques were used to refine the set of statements. The whole set continued to receive criterion validation against verbal comments from stakeholders. A refined set of 15 statements (see Appendix A) was used at the same Bolivian mine again in 2011. The agree/disagree ratings (5-point scale) were factor analyzed. The four factors shown in Table 1 emerged from a varimax rotation. Appendix A shows which statements measured which factor. The labels for the factors were derived from the content of the corresponding statements.

### **The Modified "Arrowhead" Model of the SLO**

The modified model of the SLO is shown in Figure 2. The four factors can now be measured independently by the same statements that measure the overall level of SLO granted by the stakeholder. The conversion of the four levels into a continuum is meant to symbolize the idea that the overall level of SLO is a continuum. The average of the ratings on the 15 statements measures it. The division of the shape, which now looks more like an arrowhead than a pyramid, into four regions is meant to suggest the manner in which they accumulate as the level of SLO increases.

**Table 1: Four Factors Constituting Three Levels of SLO**

<b>Level &amp; Label</b>	<b>Description</b>	<b>Role in Determining SLO Levels as Described in Thomson &amp; Boutilier Pyramid Model</b>
<b>1. Economic legitimacy</b>	The perception that the project/company offers a benefit to the perceiver.	If lacking, most stakeholders will withhold or withdraw the SLO. If present, many will grant an acceptance level of SLO.
<b>2a. Socio-political legitimacy</b>	The perception that the project/company contributes to the well-being of the region, respects the local way of life, meets expectations about its role in society, and acts according to stakeholders' views of fairness.	If lacking, approval level of SLO is less likely. If both this and interactional trust (2a & 2b) are lacking, approval level is rarely granted by any stakeholder.
<b>2b. Interactional trust</b>	The perception that the company and its management listens, responds, keeps promises, engages in mutual dialogue, and exhibits reciprocity in its interactions.	If lacking, approval level of SLO is less likely. If both this and socio-political legitimacy (2a & 2b) are lacking, approval level is rarely granted.
<b>3. Institutionalized trust</b>	The perception that relations between the stakeholders' institutions (e.g., the community's representative organizations) and the project/company are based on an enduring regard for each other's interests.	If lacking, psychological identification is unlikely. If lacking but both socio-political legitimacy and interactional trust are present (2a & 2b), most stakeholders will grant approval level of SLO.

Preliminary analyses indicated that 85percent of the cases conformed to a modified cumulative scale (i.e., Guttman scale) as described in Table 1. The factors are cumulative to the extent that stakeholders with a high score on perceptions of institutionalized trust (factor 3) will always have high scores on all the other factors. Stakeholders with low scores on perceptions of socio-political legitimacy (factor 2a) and interactional trust (factor 2b) will never have high scores on institutionalized trust (factor 3). Similarly, stakeholders with low scores on perceptions of economic legitimacy (factor 1) will never have high scores on any of the other factors (2a, 2b, or 3).

**Figure 2: Levels of Social License with the Four Factors that Determine the Proportions of Stakeholders at Each Level**

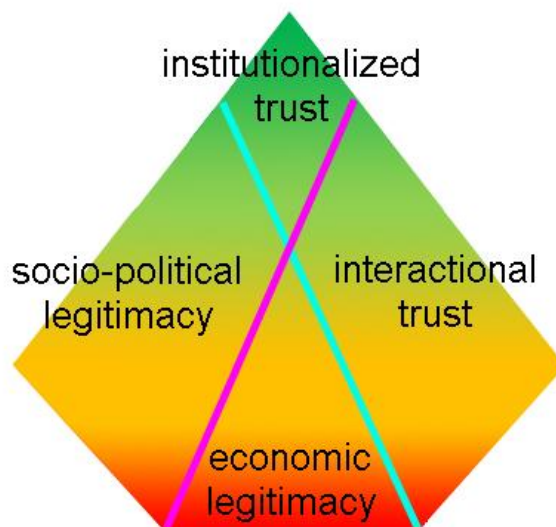


Figure 3 gives an example of how the proportions of stakeholders granting each level of SLO is altered with high or low scores on each of the four factors. In the left panel of Figure 3 the project/company is perceived as having only economic legitimacy. The company basically offers nothing more than a financial transaction with the stakeholders. The range of the SLO that could possibly be granted is therefore confined to the region under both diagonal lines. It is a predominantly red and yellow region, indicating high risk and a SLO that vacillates between withdrawal and bare acceptance. Similarly, at any one time about a third of the stakeholders will withhold the SLO while two-thirds will grant an acceptance level.

In the middle panel Figure 3 the project is not perceived to have socio-political legitimacy or institutionalized trust. The area of the pyramid corresponding to these two factors has been screened out to represent the low scores on these factors. The remaining area has a higher proportion of green than the left panel. This indicates that the SLO will likely fluctuate in and around the yellow area. At the best of times it will reach into the green approval range, but at the worst of times it will be withdrawn. At any one time, the largest block of stakeholders is likely to grant an acceptance level of SLO.

In the right panel of Figure 3, the stakeholders see the project as having all three of economic legitimacy, socio-political legitimacy, and interactional trust. It is seen as lacking in only institutionalized trust. In this case the green area is nearly doubled. The chances of the project enjoying acceptance are high.<sup>1</sup> At any one time, the majority of stakeholders would be divided between granting an acceptance level and granting an approval level.

<sup>1</sup> The model in Figure 2 can be applied at both the population level and the level of individual stakeholders. At the population level, the non-faded areas indicate proportions of stakeholders likely to grant each level of SLO. Accordingly the four factor scores are based on average perceptions in the whole stakeholder population. At the individual level, the four factor scores are based on the individual stakeholder's perceptions. At the individual level the non-faded areas represent the possible range of SLO levels the stakeholder could grant. The level could

**Figure 3: How the Proportions of Stakeholders Granting Each Level of SLO Change with the Presence or Absence of Perceptions of Each Factor**

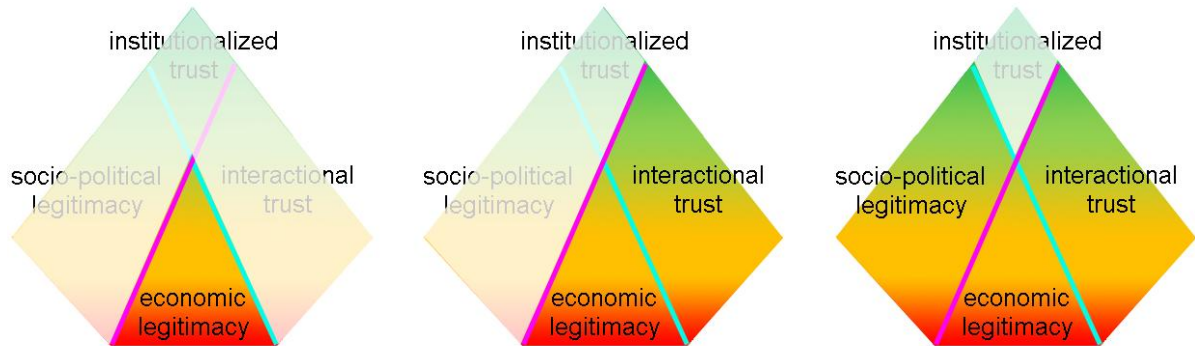
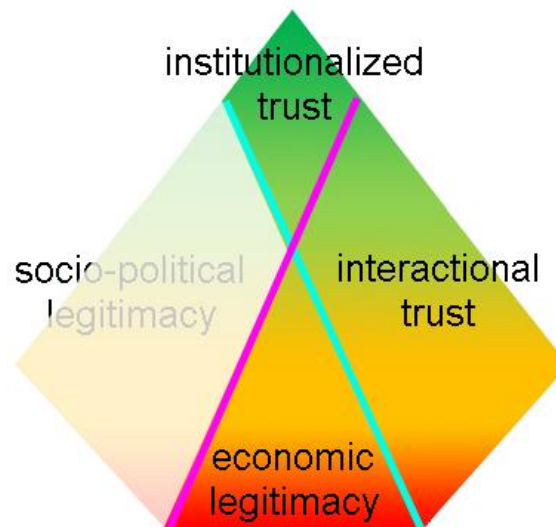


Figure 4 shows institutionalized trust being high without both socio-political legitimacy and interactional trust being high. This is a non-cumulative pattern that is hypothesized to be infrequently observed.

**Figure 4: A Non-Cumulative Configuration of Factors: Hypothesized to Be Rare**



vary across time but, given constant perception factor scores would only range in the non-faded area. Moreover, the likelihood of the stakeholder granting a specific SLO level at any given time is proportional to the percentage of the non-faded area dedicated to any one colour. Therefore, interpreting Figure 3 at the individual level, the stakeholder would likely grant an acceptance level (orange/yellow) most of the time, with frequent slips into withdrawal, and occasional sallies into approval.

## Discussion

### **Short-Term Specific versus Long-Term Universal**

Several observations can be made about the “arrowhead” model in Figure 2. First, going from bottom to top, the factors correspond to the satisfaction of short-term stakeholder requirements, to the satisfaction of longer-term, organizational-level requirements.

Looking from left to right, socio-political legitimacy is a more culturally embedded perception than interactional trust. Different cultures apply different criteria to judge fairness (e.g., equality versus equity), which is central to socio-political legitimacy. The factor on the left side has parallels with Bourdieu’s concept of cultural capital (Bourdieu & Passeron, 1990).<sup>2</sup>

On the right side, interactional trust is a more universal human phenomenon. Reciprocity and mutuality are basic to all human relationships. The model’s requirement that these both be present as a prerequisite for an optimal level of SLO is, in effect, a requirement that the project satisfy both culturally specific and humanly universal criteria of credibility simultaneously.

### **Social Capital in the Middle of the Social License**

The two factors in the middle (2a and 2b) seem to have a great deal of overlap with Nahapiet and Ghoshal’s (1998) two non-structural dimensions of social capital. The socio-political legitimacy factor is a requirement that the project proponents share a cognitive framework with the stakeholders about how the project will fit into the socio-political ecosystem. In this sense it is an example of Nahapiet and Ghoshal’s cognitive dimension of social capital, which, as mentioned, also bears similarities to the concept of cultural capital. The interactional trust factor, is very much what Nahapiet and Ghoshal described as the relational dimension of social capital. In fact, the questions that loaded on this factor have been used to measure the relational dimension of social capital (Boutilier, 2009). Viewed this way, the arrowhead model says that the social license (a) begins with satisfactory low-commitment, fluid transactions, (b) improves with the growth of social capital in the relationship, and (c) finally crystallizes in the institutionalization of relationships.

### **The Asymmetry Between Legitimacy and Trust**

The positioning of the trust and legitimacy diagonals in the arrowhead model (Figure 2) suggests that an intermediate level of social license is possible if the project is perceived as having both kinds of legitimacy, but the proponents are not trusted. In other words, stakeholders are sometimes moderately satisfied with a strictly formal business arrangement,

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<sup>2</sup> Also, we speculate that future research may find the role of corporate reputation to be accommodated under this factor of the social license.

even when they do not relate particularly well with the people representing the other party to the deal. This might occur, for example, when stakeholders believe that outside institutional or legal remedies could be brought to bear upon a non-credible or untrustworthy stakeholder. However, the model suggest that trust without at least some level of legitimacy is seldom seen. For example, even if they have good set of ongoing transactions with the proponents (i.e., high interactional trust), they will not accept the project unless they can at least see how it could benefit them more than it would harm them (i.e., high economic legitimacy). Likewise, as Figure 4 suggests, it is unlikely that institutionalized trust would evolve without a foundation of socio-political legitimacy.

### **Where Did the Credibility Criterion Go?**

The diagonals in the arrowhead model (Figure 2) include two of the three boundary criteria from the pyramid model (Figure 1), namely, legitimacy and trust. What happened to credibility, the boundary criterion between mere acceptance and outright approval?

The trust diagonal can be interpreted as a gradient going from transactional trust at its bottom end to institutionalized trust at its top end. Transactional trust is temporary and provisional. In terms of earning a social license, a sustained series transactions can cause transactional trust to deepen and become more taken-for-granted, or institutionalized. Years of field practice show that the experience of the company and its stakeholders working together and interactively creating and fulfilling each others expectations is what produces the preception of credibility. Moreover, the process of working together also facilitates the exchange of knowledge and allows the parties to learn about each other. Again, in terms of earning a social license this learning is an essential prerequisite for socio-political legitimacy when a mining project is not already a taken-for-granted part of the local economy and culture. The credibility criterion, therefore, is retained in the arrowhead model as the implied ongoing transactions involved in the interactional trust factor and the co-constructed mutual expectations of the socio-political legitimacy factor.

### **Is the Socio-Political Side More Challenging?**

In our attempts to interpret our experiences with mining projects using this model, we have noticed a tendency for mining companies to achieve interactional trust more easily than socio-political legitimacy. For one thing, it is more under their control. Company personnel responsible for relations with various stakeholders can take initiatives that create and improve relationships, even though every relationship requires the participation of both parties. On the socio-political side, however, there are many parties implicated, including several levels of government. The task of achieving socio-political legitimacy is much less under the company's direct control, much less familiar, and much more complex.

In developing countries, individuals and groups often look to mining companies to provide what governments have not provided (e.g., infrastructure, health services, economic development initiatives). In doing so, they are implicitly proposing a revised social contract. There is obviously dissatisfaction in these stakeholder networks with the current social



contract they have with their governments. Many of these countries are marked by extremes of class systems and wealth differentials. The social contract is one sided. The rich make the rules for their own benefit and expect the mining companies to comply with the rules in order to maintain their legal license. While this reinforces the existing social contract, mining company attempts to improve their social license can at least modify the existing social contract (e.g., through local tax credit schemes and similar mechanisms). More importantly in the long term, it raises grassroots expectations about what can be expected from a social contract.

In the developed world, there is a tendency for stakeholders to want mining companies to be active global citizens by taking responsibility for global problems like, for example, carbon emissions and climate change. Here there is no existing global social contract. Mining companies are challenged to participate in creating one. Like corporations in other industries, some step up and accept the challenge while others are reluctant to commit themselves to mutual and complementary rights and responsibilities if they believe that competitors from less open societies would enjoy a competitive advantage by ignoring global corporate citizenship responsibilities. Nonetheless, earning the socio-political legitimacy aspect of the social license in the developed world is increasingly a matter of engaging with the challenge of developing a global social contract.

## Conclusions

Our concept of the social license to operate was developed to help our clients and ourselves make sense of the confusing array of challenges raised by stakeholders. The model presented here may have the added advantage of helping us make sense of the existing and potential role of mining companies in global politics.

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## APPENDIX A: THE AGREE/DISAGREE STATEMENTS MEASURING THE FOUR FACTORS OF THE SLO

The agree/disagree statements in the rightmost column measure the four factors shown in Figure 2.

The factor labelled “socio-political legitimacy” shows negative factor loadings simply because in the study that this analysis is based on happened to think the mine in question lacked socio-political legitimacy. The signs of the factor numbers in the left four columns (i.e., the factor loadings) are not as important as the magnitude (absolute value) of the numbers.

eco- nomic legiti- macy	inter- actional trust	socio- political legiti- macy	institu- tional- ized trust	
0.83	0.10	0.09	0.08	We can gain from a relationship with the mine
0.76	-0.22	-0.25	-0.13	We need to have the cooperation of the mine to reach our most important goals
0.04	0.79	-0.10	0.28	The mine does what it says it will do in its relations with our organization
0.03	0.79	-0.20	0.24	We are very satisfied with our relation with the mine
-0.10	0.62	-0.41	0.01	The presence of the mine is a benefit to us
-0.04	0.54	-0.15	0.53	The mine listens to us
0.31	-0.04	-0.81	0.31	In the long term the mine makes a contribution to the well-being of the whole region
-0.04	0.25	-0.78	0.23	The mine treats everyone fairly
0.17	0.30	-0.72	0.21	The mine respects our way of doing things
-0.09	0.39	-0.67	0.29	Our organization and the mine have a similar vision for the future of this region
-0.04	0.08	-0.38	0.75	The mine gives more support to those who it negatively affects
0.10	0.18	-0.11	0.74	The mine shares decision-making with us
-0.12	0.26	-0.43	0.70	The mine takes account of our interests
-0.17	0.34	-0.46	0.61	The mine is concerned about our interests
0.45	0.19	-0.11	0.58	The mine openly share information that is relevant to us.