UNETHICAL AND CRIMINAL – PREDICTING "DARK SIDE" PHENOMENA IN THE AEC INDUSTRY

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ABSTRACT

This paper outlines prediction of "dark side" (illegal or unethical) phenomena in the AEC industry. "Dark side" phenomena pose a substantial yet unexplored threat to Lean Construction practices. Insights from criminology are used as a starting point for the analysis. A meta-study of the findings from a small research program carried out within the Norwegian AEC industry was conducted. It was enriched by an assessment of literature on crime prediction in criminology and on "dark side" phenomena in the AEC industry. Results show that predicting "dark side" phenomena in the AEC industry ought to take in temporality (when in the process challenges occur), value chain (who in projects are likely to act) and typology (what kind of actions are susceptible to occur). In addition, contextual factors (physical surroundings, geography, belief systems etc.) need consideration. Unlike criminology, predictions within the AEC industry cannot be based on AI approaches fuelled by historical data but need to be based on insights from construction process research. The preoccupation with "best practices" in the contemporary literature ought to be complemented with assessments of "worst practices" within all parts of the built environment. This is work largely left undone.

KEYWORDS

Anti-corruption, crime, ethics, prediction models, unethical

INTRODUCTION

Unethical or criminal behaviour takes many forms occurring in different contexts and phases in construction projects. Though rising, the interest in such phenomena has long been scarce in the project literature and within Lean Construction (LC) in particular. This lack of interest seems strange, given the influence such phenomena can have on LC. Gehbauer et al. (2017), for instance, maintain that concerning questions of corruption, "[l]ittle has been published or done to fight this in Lean research or practical Lean papers". However, they continue, this is strange, given that "[t]he number one waste in construction is corruption". Here, we place such phenomena under the umbrella "dark side".

By using the term "dark side", we explicitly follow the research agenda outlined in one of the most potent contributions within the field over the last years (Locatelli et al., 2022), for whom the "dark side of projects is any illegal or unethical phenomena associated with projects". One of the main attractions of this definition is its broadness. Permitting to include "systemic, group, and individual wrongdoings", to be "appropriate for macro, meso, and microlevel studies

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in projects", and to include "wrongdoings external to projects that impact their performance or affect how projects are initiated, governed, managed, and executed at any level" (Locatelli et al., 2022). In sum, the term "dark side" denotes undesirable phenomena to be combatted.

Over the last decade, many authors have underlined the need for analyses of "dark side" phenomena within the field of project management. Jonasson and Ingason (2013) call it a "neglected area", whilst Walker (2014) lament the "dearth of papers" on the subject. However, the proposals for ethical reflection have been rather general and lack the precision needed for discussing real-life challenges. The question of potential measures has received valuable contributions though. Sichombo et al. (2012), for instance, provide the outline for third-party controls over project procedures. Despite lamenting the "paucity of research on anti-corruption measures", Lehtinen et al. (2022) analyse the effectiveness of different corruption prevention efforts reported on in the literature. In addition, ethical guidelines and normative documents specify points of contagion in which the AEC industry is particularly exposed.

It seems, however, that one crucial step is missing from the analyses carried out. To a certain extent, all prevention measures build on understanding how "dark side" phenomena occur within specific contexts. Given the significance of "dark side" practices within the industry, methodological tools for effectively anticipating unwarranted behaviour are in high demand. There is, in other words, a dire lack of a *crime prediction model* in the AEC industry. To address this challenge, the following research questions are addressed, 1) What would be the attributes of a crime prediction model within the AEC industry?, 2) What are the main obstacles to establishing such a model?, and 3) What research will be required to improve the proposed model?

In the following, we first outline "dark side" phenomena in the industry. Secondly, we argue for the need for a prediction model to be able to tackle these challenges. Thirdly, we seek input from other fields to outline a model. Fourthly, we propose a model adapted to the AEC industry before, finally, we discuss further research needed to establish such a model.

THEORETICAL FRAMEWORK

Eggen et al. (2017) estimate that not-reported turnover in the Norwegian AEC industry corresponds to approximately 28 billion NOK annually – just under 10% of the industry's total turnover. However, the analysis does not include counterfeit materials nor other criminal activities in the material chain, a figure Hastak et al. (2016) assumed to correspond to another 10% of the complete turnover of the AEC industry in the US. Given deep international links, it is likely that the Norwegian figures are similar. Research suggests that the Norwegian material chain is, in fact, the victim of significant fraudulent behaviour (Engebø et al. 2016; Kjesbu et al. 2017). In combination, it seems likely that non-reported activity in the Norwegian context comprises between 10% and 20% of the industry's total turnover, most likely closer to the highest number. In addition to this, other "dark side" phenomena that are clearly ethically doubtful yet not expressly condemned by law flourish; examples such as gaming (Skaarberg, 2016) and circumvention of contractual demands (Aure et al., 2020), are documented.

These challenges indicate that "dark side" phenomena significantly challenge contemporary AEC industry ventures. This is particularly true concerning lean approaches with flow and waste reduction as expressed core principles. Still, the literature on "dark side" phenomena within the LC literature, as in the IGLC papers available at iglc.net proves limited. A search for "crime" gave, for example, only three hits (Kjesbu et al., 2017; Aure et al., 2020; Lohne et al., 2021). Equally, "ethics" turned up three (Svalestuen et al., 2015; Drevland et al., 2017; Thameem et al., 2017), "collusion" only one (Stifi et al., 2014), price fixing none, whilst "corruption" gave six (Stifi et al., 2014; Stifi et al., 2017; Thameem et al., 2017; Daramsis et al., 2017; Rizk et al., 2018; Wold et al., 2019). The search function on iglc.net only considers the papers' titles, abstracts, keywords, and author names. Therefore, some other papers will

discuss "dark side" phenomena (e.g., Gehbauer et al., 2017), without them appearing in the search results. However, few IGLC papers have "dark side" phenomena as their primary focus. This appears strange, given the attention to value creation within LC context (see e.g. Drevland et al., 2018), and that "dark side" phenomena pose significant challenges to value creation. Prediction models are key to address such challenges.

PARAMETERS OF PREDICTION IN CRIMINOLOGY

Developing a prediction model for "dark side" phenomena requires insights from other fields. The field of criminology is the arena where theoretical and practical trends can best be observed.

It needs remarking that contemporary work on prediction within the field of criminology is challenging to get an overview over. In particular, what concerns work based on advances in fields such as Artificial Intelligence (AI) and big data-driven approaches, much of the state-of-the-art work is published in conference settings rather than in journals. In addition, the implications of technological advances driving the possibility conditions for the field – face recognition, register data mining, and integrated surveillance camera systems – are challenging to assess for the non-expert. Finally, much secrecy characterises the advances in the field, as precise information can be sensitive to local and international actors with malevolent intent.

Still, this is where relevant prediction models are the most mature. The essential aspect of these – the parameters according to which prediction happens – is primarily fundamental and not determined by the influence of specific algorithms. Even though the approaches below concern solely crime prediction, they are directly relevant to "dark side" phenomena.

Shamsuddin et al. (2017) present an overview of the state-of-the-art of crime prediction models. They underline how analyses can be based on both qualitative – mainly scenario analyses – and quantitative methods. It is easy to agree with the authors' call for pluralism in approaches, given that "no standard method […] can solve the problems". Less convincing is the claim that the "biggest challenge facing crime prediction is how to efficiently and accurately analyse the increasing volumes of crime data". Given the lack of data characterising the analyses of "dark side" phenomena in the AEC industry, the most pressing area of concern within this context is developing the very foundations of such analyses. The following sections review the principal axes of analysis found in the literature.

Crime prevention depends on knowing what, where, when and under what conditions crime occurs – that is, prediction; Mansour and Lundy (2019) propose spatial and temporal aspects, in addition to weather conditions, play a significant role in crime – adequate for serving as prediction parameters. There are substantial challenges to the field. For instance, studies often lack a transparent reporting of study experiments, feature engineering procedures, and use inconsistent terminology to address similar problems (Kounadi et al., 2020). However, in our context, the principal approach to the analysis of prediction factors is of concern.

SPATIAL PREDICTION

The most prominent aspect of crime prediction appears to be the spatial dimension. There is a remarkable growth in spatial crime forecasting studies due to interdisciplinary technical work (Kounadi et al., 2020).

Several authors have underlined how crime and criminogenic factors are not homogeneous across space. For instance, Boni and Gerber (2016) highlight how crime is area-specific within cities. Furthermore, crime prediction models can be established based on statistics and machine learning techniques. Barreras et al. (2016) underline the efficiency of such approaches in their study consisting of geographical identification of areas with high crime frequency in the past to prevent future crime, relying on fixed determinants of crime.

The literature on crime prediction models sees going from the constatation of current crime (statistics) into future crime (prediction) as the critical challenge. For the case of Shamsuddin

et al. (2017), as with several others, this conception stems from a relatively simple typology of crime, proposing that it can be "divided into a few types such as crime against properties (theft, burglary, and robbery) and crime of aggression (homicides, assaults and rape)". Based on this type of typological approach, quantitative prediction models can be construed. In other words, if input values are easily grasped, output values (the prediction) become a question of technique.

TEMPORAL PREDICTION

In a fascinating study, Zhao et al. (2022) expand on the spatial dimensions of crime by illustrating the existence of correlations among different types of crime from temporal and spatial perspectives. These researchers underline the potential for contemporary analyses based on big-data approaches to construct accurate crime predictions. Such studies have also been expanded to include demographic data drawn from mobile networks, showing the where's and when's of crime (Bogomolov et al., 2014). Ramasubbareddy et al. (2020) equally identify this interrelation between the spatial and the temporal, the analysis of which can serve to predict future crime in a specific location within a particular time. Several methodological approaches are suggested; for instance, Rummens et al. (2017) argue that so-called predictive analysis can be used to predict when crime will occur.

TYPOLOGY IN CRIME PREDICTION

The overall impression from the literature review is that current prediction models are oriented towards a relatively narrow band of "dark side" phenomena. For their multi-type analysis, for instance, Zhao et al. (2022) stick to seven types – burglary, felony assault, grand theft, murder, rape, robbery, and vehicle theft. Mansour and Lundy (2019) describe how "*spatial, temporal and weather features do indeed play a significant role in crime type classification – for example, drug crimes tend to happen on sidewalks, late in the evening and in cold temperatures*". Underlying social predictors – typically based on indicators of "concentrated disadvantage" (e.g., racial heterogeneity, poverty, and family disruption) – are found to be among the strongest and most stable predictors (Pratt and Cullen, 2005).

Some authors have argued against this predominant scope of prediction. One aspect of this concerns the superposition of predication parameters. Connealy (2020) found that risk factors for crime are not generalisable and that different types of crime need to be considered separately. This notion suggests that while considering different types of crime can improve the accuracy of crime prediction, risk factors for crime are not generalisable and need to be considered separately: «*risk factors are not generalisable across crime types or across cities. Researchers and law enforcement need to examine local, crime-specific contexts when assessing crime problems and generating solutions*». Another aspect concerns the very scope of the prediction effort. As Lavigne et al. (2017) underline, "*[f]inancial crime is a rampant but hidden threat. In spite of this, predictive policing systems disproportionately target "street crime" rather than white collar crime*".

EXTERNAL FACTORS

As maintained by Tang et al. (2019), traditional crime prediction models reveal the spatiotemporal dynamics of crime but tend to ignore the environmental context of the geographic areas where crimes occur. Towers et al. (2018) underline the need to consider external factors potentially influencing crime occurrence and type, mentioning "climate, daylight hours, day-of-week, and holidays and festivals". Not surprisingly, macroeconomic, demographic, and socioeconomic factors are found to influence crime rates (Hazra, 2020). For what concerns white-collar crime (significantly less discussed in the material examined), Sajid et al. (2011) identified peer support, corporate culture, lack of accountability and reporting as the most critical prediction factors. Others have proposed the inclusion of other contextual phenomena into the analysis, such as Bhattacharya (2013), who point to how differences in the

religious composition of regions influence the occurrences of (at least certain types of) crimes. Still, approaches to this field lie at an exploratory level and are seemingly mainly concerned with simple phenomena – such as street-level misconduct.

KNOWLEDGE GAP

Rummens et al. (2017) underline, "*[p]olice databases hold a large amount of crime data that could be used to inform us about current and future crime trends and patterns.*" It is commonplace for the above-cited papers to suggest that incorporating data from multiple domains and using deep learning architectures may improve prediction models. In sum, as Garnier et al. (2018) maintain, "*[u]nderstanding how social and environmental factors contribute to the spatio-temporal distribution of criminal activities is a fundamental question in modern criminology*". The current response is to broaden the scope of data collection and to deepen the analytic techniques employed for prediction. Still, and crucial for the analysis here, is that tools for predicting crimes do not guarantee the avoidance of discrimination or bias due to human intervention when selecting the data that feeds into an algorithm.

The implication of such an insight for a prediction model for the AEC industry is that a proper understanding of the parameters of "dark side" phenomena within the industry is really the core premise for good predictions to come out. Such parameters are currently lacking.

Lohne et al. (2023) argue that the lack of an accurate understanding of the where, when, why, and how of "dark side" activities in the AEC industry leads governmental bodies and control authorities to focus their attention on only a limited part of the potential "dark side" phenomena actually or potentially occurring. Much of the literature discussed from the field of criminology discussed above has had relatively easily observable infractions as their object of analysis, such as street violence, drug dealing and theft. The "dark side" phenomena to address with a prediction model are more complex, and therefore, it is unlikely that we can apply contemporary statistical approaches to them. The knowledge gap is consequently twofold. First is the axis according to which a prediction model is to be operative. Second is the potential for prediction without recourse to statistical tools. Correctly understanding the parameters for prediction, therefore, becomes essential.

METHODS

The research presented in this article synthesises the results of a small research program carried out within the Norwegian context, "Mapping opportunities for criminal behaviour in the Norwegian BAE industry" (Kartlegging av mulighetsrom for kriminell adferd i norsk BAE-næring), supported by Project Norway. From 2014–2021, "dark side" phenomena in the Norwegian construction industry are analysed from a construction process perspective. Based on a prior scoping literature review (Lohne et al., 2019) and individual literature studies carried out for each of the research projects in the program, a new search for literature in Google Scholar and Scopus following the prescriptions of Yin (2015) was carried out.

The findings stem from a meta-analysis of peer-reviewed publications based on qualitative approaches. These publications were selected as they dealt with the spatial dimensions, the temporal dimensions, typology and/or external factors that could be used for crime prediction. The term meta-analysis is here not strict, with the use of statistical methods or based on series of structured reviews, but rather as outlined by Glass (1976) as an analysis of analyses. As such, the peer-reviewed publications are part of the outcomes of the research program. The publications identify responses to work-related crime from a construction process perspective. These responses concern both the identification of challenges and potential measures within the theoretical optic governing the research program.

The unit of analysis is the AEC-industry as a whole: The whole construction process from strategic definition to termination; the entire material supply chains, from primary producers to

wholesalers, including how illicit materials enter the workplace; the supply chain, from clients to subcontractors carrying out the physical work on the construction site. In addition, the scope includes formal and informal rules and regulations concerning product and process awareness.

Given the magnitude of this unit of analysis, 22 peer-reviewed publications have been analysed in this meta-analysis. The potential for criminal activity in the Norwegian AEC industry is thus understood in a wide range of optics, varying from white-collar criminals to illicit workers at the construction site, potentially using below-grade materials in construction projects. It also highlights the role of rules, regulations, and ethical awareness among the actors.

For presentation purposes, the presentation of the crime prediction model here is static; in reality, the nature of "dark side" phenomena is dynamic, and the stages of the construction process where such undertakings take place vary (Owusu et al., 2019).

PARAMETERS OF PREDICTION IN THE AEC INDUSTRY

Lohne et al. (2019) broadly analysed the literature, identifying areas where research on "dark side" phenomena was relatively well established (in particular corruption), others where some research endeavours had been carried out (e.g. materials management/supply chain management), and again others that had gained surprisingly little attention (e.g. gaming and identity fraud). Still, based on what is described, sufficient evidence seems brought to the fore to establish a prediction model based on a parametric understanding of "dark side" phenomena in the industry. Still, no discussion on what parameters of analysis a "dark side" prediction model for the AEC should use was found. This chapter aims to outline an understanding of such parameters based on an assessment of insights from the general research literature and the research program. Even though inspired by insights from criminology as presented above, the proposed approach is not based on statistical models, but on insights from construction process literature on where challenges typically arise. This analysis is buttressed by comprehensive if not statistically valid empirical investigations (see also Lohne et al., 2023).

SPATIAL "DARK SIDE" PHENOMENA PREDICTION – VALUE CHAINS

The value chains play a role in "dark side" phenomena, and the value chains change during project phases. Ichniowski and Preston (1989), for instance, found that criminal activity can persist in the construction industry because of barriers to entry in certain markets and because of industry characteristics such as constant changes of work sites and restricted access to them.

Lohne et al. (2019) claim that the number of actors benefitting from crime in the AEC industry is surprisingly high. Owners, as well as main contractors, reap substantial benefits. However, legally organised workers, FM personnel and society tend to lose from such activities. White-collar workers tend to benefit and initiate activities related to the "dark side", while blue-collar workers at entry-level positions mostly lose. However, even though the blue-collars can lose, they also seem to experience benefits. Both Gunnerud et al. (2019) and Evjen et al. (2019) registered a continuous recruitment of newcomers that was difficult to prevent. However, countermeasures were perceived as easy to circumvent. In addition, the contractors and project managers – who hired illegal immigrant workers, avoided taxation etc. – perceived the probability and consequences of being caught red-handed as small. Øversveen et al. (2022) identified an opportunity space for criminal behaviour in construction projects – for quality assurers, among others – due to high workloads and a high level of trust. A positive outcome with limited risk and a high level of trust can explain the existence of the "dark side" phenomena.

TEMPORAL "DARK SIDE" PHENOMENA PREDICTION – PHASES

A general insight from the research program and the international literature is that crime in the construction industry is most common during specific phases of construction projects. Given the "myriad activities" encompassed at separate phases of the construction process (Owusu et

al., 2019), the notion that "[d]ifferent ethical issues […] arise at different stages of the project life cycle" (Jonasson and Ingason (2013:16)) is a view that resonates within the literature.

Several authors also underline that different phases in the process are prone to different types of "dark side" phenomena. This insight can be used as an analytic tool to search for the occurrence of specific types of "dark side" phenomena within different phases of a construction project. Kankaanranta and Muttilainen (2010), for instance, found economic crimes in the construction projects most common during the bid evaluation and tendering phases. Bowen et al. (2012) found corruption prevalent during project bid evaluation and tendering phases. Owusu (2019) found corrupt practices to be most common at the pre-construction stages. In fact, the prevalence of corrupt activities at early stages is repeatedly maintained.

Less seems to have been done to explore the characteristics of the different phases as enablers of "dark side" phenomena. In the research program, several papers examine how phase characteristics are enablers, notably at the design phase (Lohne et al., 2017; Svalestuen et al., 2015), in operations (Gamit et al., 2022), at handover (Lohne et al., 2020), at project termination (Iversen, 2020) and in phase transitions (Selvik et al., 2022). Among the findings is that sets of challenges correspond to different phases and that these are predictable to a certain degree. For instance, introducing illicit workers to the construction site is common immediately before handover. Firing et al. (2016) found that right before the handover of a shopping centre – when a need for speeding up the finishing activities appeared at the same time as all workers were working overtime – the construction site was chaotic and easy to exploit.

TYPOLOGY IN "DARK SIDE" PHENOMENA PREDICTION

There have been several attempts to establish (some sort of) a typology of "dark side" phenomena. The Chartered Institute of Building (CIOB), for instance, used quite a broad view of crime in the AEC industry and included the following themes in their list of phenomena (CIOB, 2009), notably theft, vandalism, arson, fraud, bribery, intimidation, assault, racketeering, illegal drug dealing or use, health and safety neglect, forced labour, illegal working, kidnap, illegal waste disposal, identity theft, data loss/theft, and handling stolen goods. Davies (2022) found that construction industries provide significant opportunities for criminal and harmful practices; including fraud, tax evasion, poor health and safety, and underpayment of workers. Kankaanranta and Muttilainen (2010) found that economic crimes were committed in the construction industry and mainly were related to dealing in receipts. In addition, phenomena such as collusion, corruption, and other types of organised crime are not included in the list from CIOB (2009), even though these have long been recognised as constituting significant challenges to industry practice (e.g. Locatelli et al., 2017; Thomas, 1977).

Complementing these, Bowen et al. (2007) also outline common types of criminal behaviour and add to these a set of unethical behaviours – collusion, bribery, negligence, fraud, dishonesty and unfair competition. Shah and Altabi (2018) continue this effort, listing unethical practices identified including untimely legal action, changing project manager's responsibility and delays in payment processes from the owner/client perspective etc. Though being numerous in their listing of unwarranted activities, the overall impression from the literature review is that current interest is oriented towards a relatively narrow band of "dark side" phenomena.

In addition, few authors discuss the systematicity of the "dark side" phenomena occurring. Certain exceptions to this exist; not surprisingly, this is typically the case of studies concerned with organised crime within the industry. An example of this is Thomas (1977), identifying theft of heavy equipment from construction sites as an organised, systematic, criminal operation sustained by contractors. In particular, there is a lack of literature seriously discussing the interrelationship between types of crime and AEC industry characteristics. Exceptions to this are Reeves-Latour and Morselli (2017), with their description of how bid-rigging activities are

feasible through conspiracies (politico-business) organised around public construction bids. Equally, Hertog (2010) explains how public construction works are vulnerable to collusion.

The individual publications from the research program report on several types of "dark side" phenomena. Though the nature of counterfeiting limits the accessibility to data, Engebø et al. (2016) still identified counterfeit materials as a well-known problem in the AEC industry that had received limited attention in the literature. Kjesbu et al. (2017) identified widespread knowledge about counterfeit and substandard steel products among a relatively random selection of construction project participants. Richani et al. (2017) found that contractors who employ labour immigrants with false identities, launder money, and avoid paying taxes achieve a competitive advantage over legit contractors.

EXTERNAL FACTORS IN "DARK SIDE" PHENOMENA PREDICTION – CONTEXT DEPENDENCY

In parallel, the development of analyses of increased precision has been observable. This concerns, for instance, an increased interest in context dependency (e.g. Locatelli et al., 2017, on the exposure of megaprojects to corruption issues).

Still, external factors have not seen significant interest from the research community. Based on the experience gained through the research program, the suggestion is that such factors ought to include owner characteristics, contract regimes, geography (both centre/periphery and other human geography factors such as gender, ethnicity, class issues, educational levels, homogeneity/not and stability/flux). Anecdotal evidence exists; in Norway, there is a predominance of "dark side" phenomena detected in the most densely populated south-eastern region; still, this is where most of the police control activity has been situated – the reliability of the figures is low. Until such factors are properly examined, it is difficult to assess the role of external factors in AEC industry projects.

Findings from the research program reveal that projects cannot be studied without regard to their context dependency. Engebø et al. (2018) found that contractors – on the outside – clearly distance themselves from work-related crime and actively prevent criminal actors from entering their projects. However, the year before Engebø et al. (2017) found that the 50 largest contractors in Norway – of which only 19 had official ethical guidelines – struggled to close the gap between operating "legally and unethically" and "legally and ethically". As a result, there seems to be room for manoeuvre for many roles in construction projects. For instance, Wold et al. (2019) found that officials issuing building permits can go far without stretching the authority delegated to them. Despite extensive contractual and contracting measures in two airport development projects, Skovly et al. (2017) found that "dark side" phenomena will probably exist as long as someone benefit.

DISCUSSION AND CONCLUSION

This paper has addressed three research questions, notably 1) what would be the attributes of a crime prediction model within the AEC industry? 2) what are the main obstacles to establishing such a model? and 3) what further research will be required to improve the proposed model have been the three research questions addressed. Given the the analysis, the answers to the questions are inconclusive, yet point towards future analytic pathways.

Firstly, the analysis has shown that a crime prediction model for the AEC industry based on statistical approaches is unsuitable. Rather, there is a need for an analytic approach taking for starting point industry characteristics. The above analysis illustrates how insights from the field of criminology might serve as the foundation for a prediction model for "dark side" phenomena within the AEC industry. Secondly, the examined literature illustrates how parameters such as place, time and the combination of these serve as input to advanced modelling approaches. Still, as Shamsuddin (2017) points out, there are limitations to current accuracy of prediction. The

main obstacle to such a model is to render it operationalisable. Prescriptions of simplicity, transparency and relevance are challenging to apply. In addition, given the lack of data, statistical models are of little help; prediction within the AEC industry needs to be based on analytic models, that is, insight into the very workings of the industry. Thirdly, what is presented in this paper is exploratory work, and the following analysis must be assessed with the clear need for such a model in mind. As described above, the processes prescribed by LC literature and practice are hampered by "dark side" phenomena – to a more significant degree than what is acknowledged. Further, the literature clearly states that the prevention methods employed today by police and other controlling agencies are far from achieving what is wished for. Future research should explore practical approaches based on the parameters identified to improve these practices, including deepening the understanding of these parameters.

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