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# Risk and Security: Diagnosis of the Present in the Context of (Post-)Modern Insecurities

*Stefan Kaufmann & Ricky Wichum\**

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**Abstract:** »*Risiko und Sicherheit: Soziologische Zeitdiagnostik im Zeichen (post-)moderner Unsicherheiten*«. This essay claims that the upsurge of security nowadays is not caused by specific events such as 9/11, Fukushima, or similar catastrophes. Our assumption is, in contrast, that it is the constitution of functionally differentiated societies itself which allows the security and risk discourse to be applied to all types of issues and phenomena, even though security and risk have only went viral as universal societal problems in the late 20th century. We will flesh out this approach using three bodies of work essential to the German debate. With regard to social policy, Franz-Xaver Kaufmann argues that the viral nature of the security issue arises from the fact that the security concept in modern society is split into system security and self-confidence. Niklas Luhmann's concept of risk – stemming from systems theory – shows that the prominence of the topic is the result of the intrinsically modern compulsion of having to forejudge an uncertain future. In contrast, Ulrich Beck's work on (global) risk societies is centred on the catastrophic potential inherent in (post-)modern risks as a cause for the rise of security debates. The sociological analysis employed here not only explains the rise of risk and security topics; it also provides society with a characterization of itself, which in turn can re-affect society and ultimately motivate a different historiographical self-description.

**Keywords:** Security, risk, sociological theory, knowledge, governance through security.

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## 1. Introduction

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*The 19th and 20th centuries were obsessed with the problem of accidents (work or car); we are now rediscovering the existence of disaster, but with the difference that disasters are no longer, as before, attributed to God and His providence, but to human responsibility (Ewald 1999, 59).*

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The rediscovery of disaster, which François Ewald observed around the end of the 20th century, marks a radical change in the emotional balance of society. Where the idea of progress once ruled – fed by the belief that scientific and technological capabilities will steadily increase – the mere idea of the future now loomed darkly. Under the weight of many perceived bad omens, the search for security is becoming viral. The practice and the logic of security production are changing: Security is becoming the key concept to an excess of new social spheres of activity. New principles that claim to guarantee security are put forward; new forms of governance are created. There is a downright inflation of fields and topics that elevate security to a political issue. Social security, for example, is alongside the classic military and interior security, a long established field of security in modern societies. Nature conservation has become climate security; reactor safety has been expanded to infrastructure security. The public discourse includes issues such as energy security, food security, medical security, IT security, financial security, and many more. The once diagnosed “securitization” of life is no longer confined to the narrow domain of national security and public administration; it now spans so many areas of life that the idea of a “security society” (*Sicherheitsgesellschaft*) has been introduced (Singelstein and Stolle 2006; Groenemeyer 2010).

At the same time, to ensure security, the various strategies, techniques, and tactics are being further differentiated and new principles are beginning to emerge. François Ewald recognizes the precautionary principle as a central regulatory method in the context of technological, medical, and environmental risks. After 9/11, there was tremendous demand for new tactics and strategies incorporating the principle of pre-emption and the resilience approach to prevent catastrophic events or minimize their consequences. As evinced by changing forms of governance, security is no longer only a matter of the state. The expansion of the security concept implies that the involved protagonists – meaning those who are responsible for security management, who feel responsible, or are being made responsible – must be identified. This concerns not only state or public agencies and organizations, but also: infrastructural operators such as railway companies, electricity companies, water supply companies; persons or companies in charge of major events, private security firms, religious communities, and even the individual citizen. All of these are required to ensure security. Accordingly, the number of people who are actively and vocally entering the security discourse has multiplied. Security is now a theme that has permeated civil society.

Beyond any contemporary catastrophic events and scenarios – whether it is Fukushima, Ebola, Charlie Hebdo or the Lehman Brothers – the viral nature of security issues converges in the notion of the general vulnerability of modern societies, which in turn leads to general questions about the constitution of modern, Western societies and their ways of handling risks, dangers, and threats. Risk and security were already been recognized as sociological and societal problems in the 1970s and 1980s. We seek to elaborate this argument

by discussing three sociological approaches: Franz-Xaver Kaufmann's examination of welfare policy; Niklas Luhmann's systems theory approach to the rise of risk; and Ulrich Beck's works on the (global) risk society. We claim that the prominence of risk and security topics nowadays is not so much rooted in specific problems or events, as it is based in specific structural conditions of functionally differentiated societies. Contemporary societies, in other words, are highly complex, tightly interconnected and for this reason vulnerable social forms. Kaufmann traces this to the tension between system security and self-confidence, Luhmann to the increasing modern constraint of having to make decisions in the face of an uncertain future, and Beck to the potentially catastrophic reflexivity of modernity. This sociological analysis not only serves to explain the rise in risk and security topics, but it also provides society with a challenging characterization of itself which can in turn re-affect society.

In our reconstruction of this self-description we focus on three aspects. Firstly, we examine the diagnosis of the present. For this purpose we trace the relationship between the specific reference points and problems in the life-world, on the one hand, and the theoretical concepts, on the other hand. In an epistemic context, second, we contemplate the possibilities of experiencing versus not experiencing modern risks, as well as knowing versus not knowing, and the role these elements take. Thirdly, we consider the political element which comes with these diagnoses, and how conditions, possibilities and limits of planning and controlling are being discussed. The concluding chapter will sum up the findings and contrast them with our initial thoughts.

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## 2. Franz-Xaver Kaufmann: Security as a Sociological Problem

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### 2.1 Sociological Diagnosis and Theoretical Perspective

At the end of the 1960s, Kaufmann observed the upsurge of insecurity. Economic insecurity, orientational insecurity, as well as individual insecurity had become prominent topics which as a whole revealed a deficit. Kaufmann states that the flip side of that deficit is the appreciation of the term security (Kaufmann 2013 [1973], 14-24). When the talk is of economic insecurity, he further elaborates, it does not mean any acute economic plight. Instead, it refers to the possibility of future poverty and hardship (ibid., 15). The concern is not for the present situation but the potential future. Here, Kaufmann encounters one of many security paradoxes: People who are better off economically and whose situation is actually improving demand more security. Even more perplexing, the issue of social politics and security only emerged once a certain level of life security had been reached. Kaufmann points out another paradox: It seems completely plausible to us that the human need for security has universal va-

lidity, even though this perceived characterizing feature of human nature only began to stand out in the 20th century (ibid., 10-4). We could say that, with the elucidation of these two paradoxes, the sociology of security, as put forward by Franz-Xaver Kaufmann, unfolds. It highlights the problems of the social security system and its related technologies, arising from the want to control risks with insurance and calculations, and works out the underlying societal factors. Rather than looking at the responsibilities, causes, and causation of risks and threats, a sociology of security focuses on the structural and normative conditions which instilled a need for security, along with the need for methods to calculate a sociology of security in modern societies.

The turn towards security cannot be understood as an answer to a commonly felt insecurity caused by a rise of new threats. Instead, the pursuit of, and need for, security must simply be accepted as a fact of our present times, and the goal of sociological reflection is to explain this fact and to determine its sociopolitical meaning (ibid., 16). This leads Kaufmann to differentiate his approach from anthropological definitions of a human need for security.

The theoretical field in which Kaufmann's sociological approach to security unfolds is Arnold Gehlen's philosophical anthropology, particularly his theory of institutions. For Gehlen, institutions vouch for security. At present, however, they are in a state of collapse. In his book *Urmensch und Spätkultur* (2004 [1956]), he deemed (life) security in the context of institutional theory to be a basic concept of his anthropology (see Eßbach 2007; Fischer 2008, 152-76, 292-9). The fundamental idea is that institutions – be they family, church, property, law, or the state – allow the “being which is exempt from instinct, but excessively motivated, liberated from nature, and cosmopolitan” to stabilize its life (Gehlen 2004 [1956], 46). Institutions transfer basic human needs in relation to nature, to the social environment, and to oneself, into a state of “background fulfilment.” The fulfilment of any need is institutionally guaranteed at any time, which at the same time changes the need significantly by “pushing it back from the foreground of affectivity, [...] where in borderline cases, the original need does not even require immediate and timely action” (ibid., 55).<sup>1</sup> It is not necessary to struggle with faith; committing to a church community is taken for granted. It is, however, crucial that institutions vividly demonstrate their permanence and the thereby guaranteed fulfilment of the primordial need to the individual. The mere existence of family, property, and church has a calming, reassuring effect. As an anthropological term, security thus signifies the institutionally provided relief from having to worry about the imperative of urgent and instant need fulfilment. Security constitutes the fundamental requirement for humans to not only be natural beings, but cultural beings. Institutions provide security because of their self-perpetuating, obligatory character,

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<sup>1</sup> All quotes from Gehlen and Kaufmann are translated by the authors.

which appears irreducible. Institutions create stable behavioral guides; they regulate emotions, thoughts, and moral attitudes.

In the modern industrial age, Gehlen observes a dual development. Life security has tremendously increased due to mechanized environments and the emergence of highly differentiated, functional organizations. At the same time, functional organizations are losing their institutional character. As organizations, institutions are taking on a goal-oriented character and losing their intrinsic value. As a result, the stability of the inner worlds is no longer guaranteed and they collapse. Using the formula that “the place of institutions is taken by organizations” Gehlen highlights the loss of relief from having to secure primordial need fulfilment, and the general tendency towards permanent reflection and rational, goal-oriented decision-making (Gehlen 1980, 162). With the collapse of institutions, stability can only be created subjectively and originate in the individual.

While Kaufmann’s sociology of security follows the basic concept of Gehlen’s anthropology, it does not interpret our present times as the end of institutions, but rather perceives social security systems as a contemporary form of institution, congruent with the state of society:

Modern systems of collective life care seek to guarantee virtually constant human need fulfilment, insofar as it is purchasable, by providing amounts of money in, for example, the form of pensions and benefits, for those who cannot obtain the necessary purchase power through other, standardized means, such as work or assets (Kaufmann 2013 [1973], 280).

Kaufmann breaks with the anthropological security concept when other types of security – which cannot be characterized by immediate need fulfilment in a material, spiritual, social, communicative, introspective way – are introduced. The anthropological security concept does not satisfy a theory which includes the types of relief provided by a welfare state, and by economically-operating risk technologies.

From a sociological standpoint, the security problem has shifted. In modern society, the need for security can no longer be characterized in the sense of “a still insufficient fulfilment of the original need,” but rather as a “consecutive need resulting from the institutionalized saturation of that original need” (ibid., 255). The institution of social security offers new ways to ensure systemic relief through instrumental goal-setting, thereby providing “available courses of action and a level of technologically mediated reliability, which were completely unknown to previous cultures” (ibid., 217). Yet its incidental consequences also create a problem in regard to their meaning, which marks the difference between social security and the former (anthropological) type of security.

## 2.2 Insecurity as Losing the Experience of *Geborgenheit*<sup>2</sup>

Owing to their bureaucratic structures, the generality of their procedures and media, their abstractness and their impersonal nature, organizations of social security<sup>3</sup> impede the subject's identification with these external guarantors of security. Generally speaking, an anthropologically understood life security, which results from the immediate unambiguity of the institution and from the guarantee of external stability, which is in turn accompanied by an internal security, is absent from modern technical systems and organizations. More specifically stated, life security can only be experienced in the form of the lost, or in the form of loss.<sup>4</sup> Precisely therein lies the value that the anthropological security term has for sociology: This feeling of loss alludes to a bygone self-conception of humanity in which one's own actions are perceived as the enforcement of an unquestioned order, in which the possible is limited by an also unquestioned horizon, and in which the world in general is understood to be a perception independent of the subject. At the core of the anthropological concept lies a meaning of security which is still sought by modern societies: the unchallenged unity of "external" and "internal" security. Kaufmann describes this state as safety (*Geborgenheit*): "Safe (*geborgen*) are those who know they are protected and who can feel inside themselves a soothing feeling of reassurance because of it" (ibid., 145).

Kaufmann outlines three levels on which the modern concept of security developed during various modernization movements. The first level is the formation of a modern world view, which brought with it a change towards an open timeframe and a move towards secularization. In the modern understanding of time, the future is no longer a continuation of the present, but rather something that is "inherently uncertain, unavailable and, therefore, insecure" (ibid., 159). In other words, contingency is now a firm part of social life, and with it comes a general sense of insecurity. At the same time, secularization widens the theoretical horizon to include secular world interpretations, such as scientific world views, natural law-based views, political-utopic models, etc. What all these philosophies have in common is that they do not attach values to specific guarantors of order, namely, objectives such as "family, property, church" (ibid., 220), but rather to abstract ideas. Values like freedom, equality,

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<sup>2</sup> There is no exact equivalent term to the German "*Geborgenheit*," which combines the meaning of feeling at home, safe and warm.

<sup>3</sup> Here, Kaufmann does not want to establish a history of social security as, for example, François Ewald (1993) does. He aims to find an ideal determination of a historic difference. He tries to accomplish this by analysing historical semantics, mainly the occurrence of the term "social security" in the U.S. (in the 1930s), England, France, and Germany (in the 1960s) (Kaufmann, 91-139).

<sup>4</sup> To clarify this point: we do not speak of a lower or higher level of security that can be empirically determined, but rather about the fact that the ways of seeking security, thinking about it and guaranteeing it, have changed radically.

and justice become more important in this context. In that sense, the generally felt insecurity regarding the future can be lessened as long as it is possible to view it in terms of progress: “As long as progress is certain, the idea of progress itself can actually grow into a stabilizer of expectations – meaning security – suitable as a religion” (ibid., 164).

This mentioned de-objectification of values correlates with the spread of the monetary economy. Money devalues the objective world and decreases the certainty of life-concerns. Precisely this forms the basis for insurances: To be protected and preserved are not objects, but the monetary values representing them (see Zwierlein 2016, forthcoming). Security now becomes an issue whenever the certainty of progress diminishes. Kaufmann singles out such a moment with the emergence of the term “social security.” As was later evident in the context of ecological threats, security also became an issue where a de-objectification was no longer accepted.

The second level of modernization is the transition to a functional differentiation. With this, the “chains of action,” as Kaufmann puts it in reference to Norbert Elias, become longer. We may also say that a benefit system is created, which is much more inscrutable to the individual.<sup>5</sup> Due to the efficiency of modern circulation systems, a new type of security develops: system security. This includes the aspect of safety in the technical and industrial sense, as well as the aspect of security, for example, legal security. However, system security remains non-transparent and abstract to the individual, and never provides “overall stability of life-concerns (*Lebensbezüge*)” (ibid., 218), nor does it bring about emotional or inner security. For the individual, system security can only be attained through trust. Yet this trust cannot be tied to familiarity or to personal expectations of behavior. “Only the non-distrust, the distant, calculated trust – roughly in the sense of Luhmann’s ‘system trust’ – is appropriate for the complexity of the situation” (ibid., 207). Trust in this sense means counting on the systems to work.

The third level of modernization is the individual level, where security becomes a task: “The formation of identity becomes a subject-related problem” (ibid., 223). Personal security can no longer be provided by external systems in which the individual only partially participates. While emotional stability may be sought in intimate relationships, in the end individuals are on their own. An uncertain future can only be handled within the subject, which creates a problematic identity of self: “Identity then is the problem of one’s own permanence, the problem of how to be the same in the future as I am and as I was” (ibid., 223). The issue of “self-confidence” is involved in dealing with this problem.

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<sup>5</sup> Nowadays, expert systems are being established, which are tasked solely with the review of such chains of action – for example, the labelling of organic foods or the labelling of financial products – but then fail to actually do this.

Kaufmann's definition of modern security leads him to further differentiating into three concepts: safety (*Geborgenheit*), system security, and self-confidence. He also identifies two central characteristics of security: its vagueness and its development as a value concept. In reconstructing its common linguistic usage, along with the history of the term "security" in the jargon used in different functional areas, Kaufmann points out the vagueness of the modern security term. In its usage, a process is in place where layers are being stripped from its meaning. In this process, a meaning was abstracted from a state of "being secure," which was defined in relation to goods and threats (ibid., 153-6). The most general sense of the word which remains is that of safety, of being without danger. Danger is understood as the possibility of an event occurring which would be considered negative. That future occurrence is seen as neither certain nor impossible (ibid., 152). This definition alludes to the rationality of the risk concept, and refers to a "guarantee for the future per se in regard to any and all possibilities" (ibid., 156). The structural basis of what has been diagnosed as a "securitization" of countless areas of life is revealed by this (see Buzan, Waever and Wilde 1998).

Secondly, the semantics of security include a normative guiding principle, which developed over the course of the historic process that shaped the institutionalization of social security in politics, law, and technology, and which gave meaning to these trends (ibid., 49-139). However, it also always transcends the function of a specific institution, as well as the objects and terms which symbolize it and make it explicit. The concept of security carries with it a quality of emotional appeal, which often legitimizes needs that cannot actually be fulfilled by an institution. In his analysis of historic semantics, Kaufmann reconstructs those needs that positively underscore the unity of a value concept: "Security as a value concept means safety, reliability, certainty, and a freedom from concerns; or: the subjective 'feeling of security' is supposed to be legitimate in the sense that objectively, there is no threat." (ibid., 149) Despite the vagueness of the term, it is not an empty formula without any content. As a value concept which is both abstract as well as emotionally charged, security contains "relevant ideas about what should be" (ibid., 39) in a society, ideas which are exempt from any discussion and which allow for agreements, despite divergent interests. In the form of such a societal value concept, security can determine the direction of actions. However, since its abundant possibilities cannot be exhausted with individual actions, it also exceeds any specific purpose for action. It is the socio-political punch line of the sociology of security that, accordingly, security can never be a (purposeful) political goal (ibid., 39).

## 2.3 Limits of Calculability, Constitutive Paradoxes of Modern Security

A sociology of security marks the limits of calculability and control in the social state. One integral element is the level of functional differentiation in society, which has no center of control. Kaufmann agrees with Niklas Luhmann on this point. Even more relevant to our argument, Kaufmann examines basic themes, ambiguities, and paradoxes related to the modern pursuit of security, all of which appear in later debates. Simply put, security is an effect of contingency and even of freedom. More precisely, it stems from the freedom gained from safety (*Geborgenheit*), resulting in a paradox: security is pursued in the form of safety (*Geborgenheit*), meaning a coherent unity of external and internal security, which is no longer attainable within the structures of our modern times. As a result, security – split into system security and self-confidence – has firmly settled as a structural problem of modern societies, and it can be applied to, and expanded in, virtually any context. Kaufmann's sociology of security in the 1970s thus firstly highlights essential concepts and theoretical links that are brought up in current debates. In this sense, Kaufmann indicates the starting point of ecological criticism as well as the difference between objective and subjective risk.

At the core of Kaufmann's definition is, of course, the connection between security and social politics. He does not share the pessimism of Gehlen's cultural criticism. Even though system security cannot provide the feeling of safety (*Geborgenheit*) the way pre-modern institutions did, and the modern subject can achieve stable security only by its own actions, Kaufmann ascribes to it the ability to “coordinate the areas of interests and activities, human contacts and economic safeguarding in such a way that a significant amount of orientational security and, thereby, possible courses of action, are retained” (ibid., 261). Precisely this provides the challenge a welfare policy has to address.

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## 3. Niklas Luhmann: On the Sociology of Risk

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### 3.1 Sociological Diagnosis and Theoretical Perspective

Niklas Luhmann wrote his *Sociology of Risk* in a moment in history when modern society is confronted by the consequences of its evolution and imagines its own death as a future expectation. No later than the 1970s, with the growth of ecological problems and the related debates, did the possibility that humans “will decimate or eradicate itself through human-made catastrophe” (Luhmann 1998, 75) become a commonplace fear. However, this fear no longer remained limited to society's imagination (see Horn 2014) but principally reached the level of theory. This theory sets in at the end:

In thinking about destruction, it makes no sense to think of people and society separately. The destruction of communication can lead to the death of many. We need only consider the breakdown of the transportation system, the money economy, or medical care. The extinction of all human life means: the end of transmissions, the end of all communication, the end of society. Given this perspective, it becomes impossible to separate organic, psychic and social systems (Luhmann 1998, 83).

Sociological system theory decodes this situation as a structural crisis of a society which “can no longer exist within the structural and semantic status quo” (ibid), and thus highlights the urgent need of a sociological reformulation of risk.

Such a reformulation is defined in contrast to rationalistic decision theory and the mainstream of risk sociology. Luhmann begins with the standard rationalistic formulation of risk, which states that “possible damage is accepted for the sake of an advantage” (Luhmann 1990, 139). The rationalistic approach on risk implies that a damage is avoidable if a different decision is made. The rationalistic formulation also suggests the employment of risk decision-making in situations which allow for rational calculation, that is, when risk can be determined as a quantifiable factor in the expert formula: risk = probability of occurrence x degree of damage. Luhmann rejects this formulation of risk (see ibid, 138-149). In fact, it is not possible in modern societies to make a decision for security. Therefore, according to Luhmann’s definition, security and risk cannot be counter terms. Luhmann’s criticism is, for the most part, mirrored in a version of risk sociology, which contrasts the above expert calculation with a risk concept based on a “social rationality” (Perrow 1984, 315 et seq., 321-4). In it, risk is determined by other, non-quantifiable factors, such as intangible threats. It also alludes to a general insecurity, and raises the question of the (ir-)reversibility of damages done, for example, by large-scale technologies (see Beck 1992, 1995; Evers and Nowotny 1987; Wildavsky 1988). This effective distinction between expert calculation and social rationality in the treatment of risks parallels Kaufmann’s differentiation of system security and self-confidence in another way. For example, in criminology, this distinction is translated into “objective security situation” versus “subjective perception of security” or “subjective feeling of security” (Albrecht 2011). While all these formulations observe risk from the perspective of different social participants and establish it as a fact, Luhmann’s concept argues from the perspective of a second-level observer, and suggests a distinction between risk and threat. This distinction

works with attributions. Depending on the attribution, something appears as a risk or as a threat. One can then reconstruct that first-level observers (which always include those who make decisions and those who act) presume that there are risks or threats, and that it is possible to interpret these phenomena independent of the observer (with the consent of all observers) (Luhmann 1990, 149).

The sorting effort is made by “attributions or non-attributions to decisions” (ibid.). Thus risk and threat in Luhmann’s concept may be preliminarily defined as follows: Risk classifies future development and possible damage as the consequence of a decision, while threat is used when this development or the possible damage may occur independent of previous decisions.

### 3.2 Not-Knowing as the Foundation of Risk Sociology

Epistemologically, Luhmann follows the complexity-theory system concepts of the natural sciences. Out of this body of thought, he not only employs the concept of autopoiesis, but also other mental figures such as not-knowing or unknowingness (Luhmann 1989, 11-4). A certain form of not-knowing applies in any fora in which future is discussed. While the tools and concepts employed in futurology and any form of communication about the future, including probabilistics, prognoses, scenarios, etc., certainly create knowledge, Luhmann points out that they always involve some form of not-knowing or non-knowledge. Every prediction about the future serves to remind us that something is not known in some specific way. Moreover, with the turn towards complexity-theory thinking, completely new ways of not-knowing emerge not just in a formal sense, but also in the objective dimension. Using the example of ecology: “What causes concerns today and what defines a catastrophe in the ecological sense are rapid or slow changes that take place in huge or very small spatial and temporal dimensions, typically in both large and small at the same time” (Luhmann 1998, 85).<sup>6</sup>

This shift in the relationship between knowing and not-knowing has dramatic consequences for society and the way it communicates. Changes fraught with uncertainty

overwhelm both the ability of the individual, bound to things and causality, to imagine such a reality, and society’s communicative (linguistic) practice.

These changes can no longer be presented as manageable and relevant knowledge, despite the calculations, half-lives, and so forth (ibid, 35).

Thus, in contrast to Kaufmann’s sociology of security, Luhmann’s sociology of risk radicalizes its central question: The problem is not reaching a social consensus about system security or the stabilization of the individual, but whether or not a society which cannot know anything certain about its future, which can at most speak of the probable and the improbable, can even reach a social con-

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<sup>6</sup> One may argue that even when linear causality-based thinking was employed, we did not know that – nor how – small-scale shifts in an ecosystem can manifest effects on a higher level, and that this can even lead to the collapse of entire systems. However, the distinction is being able to consider and formulate such a not-knowing with the help of complexity theory-based thinking.

sensus (or at least a preliminary communicative understanding) (Luhmann 1993, ix).

From the perspective of a second-level observer risk is a tension between temporal and social dimensions. Risk is not a socially neutral reality independent of the observer, but rather a type of time-binding structural formation in modern society, which fundamentally operates on the level of uncertainty about the future. Two dimensions of contingency, which provoke certain social conditions, are associated with risk: The occurrence of the future event and the damaging consequences of the event are neither necessary nor impossible (*ibid.*, 16 et seq.). In these ways, risk differs from the long-tested contingency cultures of law and the economy. Law limits the scope of future possibilities with rules which stabilize the expectations of future behavior. Norms apply whether or not they are being complied with or broken, particularly in constitutional states. The economy stabilizes future expectations with shortage. Property is the central mechanism to create shortage. Property means that someone has reserved goods, which others also want to access for their own future, which creates the shortage that drives the economy (Luhmann 1990, 136). Neither type of future commitment can be applied effectively to contemporary risk issues, especially in regard to ecology: Liability only applies when obvious causalities are present, and economically, the calculation of subsequent costs, particularly of many controversial technological innovations, is not possible. Risk represents under these circumstances another form of future commitment besides rules and shortages. In Luhmann's concept of risk, future expectations are tied by the difference of probability and improbability. However, there is no instance of social regulation as is present in law and economy: "What remains are only differences, distinctions, forms permitting us to articulate it" (Luhmann 1993, 70). Thus, risk infinitely expands the possible range of present decisions, "since we know very well that no one already lives in the future, and that no one can therefore know any better" (*ibid.*, 72).

### 3.3 Aporias of Regulation

Luhmann differentiates between risk and threat at the point where the distinction between risk calculation and risk perception is usually made. Attributions of risk or threat therefore not only refer to the difference between decision and non-decision. Moreover, the question is

who or how can possible damages be attributed. When attributed to oneself, we speak of risk. When attributed to someone or something else, we speak of threats. [...] These may be natural disasters or decisions made by other persons, groups, or organisations (Luhmann 1990, 160 et seq.).

Thus, risk has an explosive nature in a social context. In modern societies, the risks for the individual can become threats for others. The resulting conflicts seem barely resolvable.

Luhmann's complex lines of argumentation concerning the dynamics of this development contain four elements. The first element refers to the changing assessment of risk over time. Decisions can only be made in the present, and every decision – even the decision not to decide anything – may be a risk in itself. “With hindsight, we evaluate risk in terms of on whether a loss has occurred or not” (Luhmann 1993, 42). Since Chernobyl and Fukushima, the risks of the nuclear industry have been evaluated differently. Since 9/11, terror risks have been judged in other ways. Since the global financial crisis, the risk of speculation has been treated differently. For epistemological reasons, risk assessment has no objective standpoint.

Nonetheless, the second element is the fact that there are continually more situations in which decisions are being made with regard to the future. More things appear to be consequences of a decision. Future and decision-making enter a circular relationship. The future only seems accessible when decisions are made, and can always be explained by previously made decisions. The thinning of the ozone layer, for example, appears to be a consequence of the decision to use CFC as a refrigerant, propellant and dissolvent, even though no one imagined these consequences when CFC was introduced. The problem of decision-making is only exacerbated by the fact that decisions are inherently risky, even when they are risk-averse. For instance, additional security systems in large-scale technologies increase the complexity of these facilities or machines. This may cause more interference, which does not decrease but increase control issues. When a technology is governed by controlled causal processes, a permanent issue exists to prevent uncontrolled processes. The correct functioning of technology maintains and explains the risk (*ibid.*, 90 et seq.; see also Perrow 1984). Giving up such technologies, however, can increase risks on other levels, such as that posed to welfare.

The third element is the conflict potential of decisions. This potential results from the fact that “the willingness to accept a threatening future” is heavily dependent on “whether or not the problem is viewed as a threat or a risk” (Luhmann 1990, 144 et seq.). Both viewpoints become even more irreconcilable when reflected upon reflexively: if the ego knows that a threat for itself is ‘only’ a risk for the alter ego. Luhmann speaks about a build-up of threats and risk by a “re-entry” of difference into communication. With “the spectacular upsurge of ecological risk in technological development” (Luhmann 1993, 71) the difference between risk and threat enters the social perception of risk. In an ecological context, attributing risks to decisions can, in most cases, only be done without any guarantee for rational decidability and without regard to the rationality of risk calculations (*ibid.*, 119). Ecological problems, in particular, are a poignant example of how one person's risk is another person's threat. That is why the risk problem completely overlays the classic threat problem (*ibid.*, 107 et seq.).

The fourth element is the difficulty to place attributions in the context of ecological crisis:

A given threshold being passed, an irreversible shift in ecological balance or the occurrence of a disaster is often not attributable to any particular individual decision. [...] In other words, in the accumulation of the effects of decision making, in long-term consequences of decision no longer traceable casual relations, there are conditions that can actuate considerable losses or damage without decision having been made such detrimental effects would never have occurred (ibid, 26).

The possibility to attribute to risks or threats collapses. Differentiating between risks and threats previously had the effect that there were ways to ensure order by using legal liability and economic reparation as compensation for damages. This no longer works under the circumstances explicated above (ibid, 119 et seq.). It is unclear who is even affected by consequences of decisions, because these possible effects are not limited to those who decided for or against the implementation of a certain measure. The effects of risks become universal, even when the immediate experience of risks decreases. This experience sometimes has to be replaced by abstract ideas about possible repercussions of risks, molded by mass media. The result may be twofold:

The elimination of opportunities for experience encourages the development of socially inflammable fears that cannot be countered. Or vice versa, it gives rise to a reassurance fostered by the circumstances that ‘so far nothing has ever happened’ (ibid, 110).

The communication of risks either heats up, receives too much of a response that cannot be transferred into law, education, or economy, and ultimately results in a loss of trust in the appropriate systems; or there is no response and the debate remains a background noise which disappears without any effect.

Risk becomes a way of stabilizing the uncertainty of the future by distinguishing the likelihood and the unlikelihood of damages as a result of present decisions. Luhmann sees a problem in the fact that these decisions are difficult to organize. That problem cannot be resolved by standard calculations or by a unifying ethos, for example, environmental ethics. Security is no more an option than the liberal notion of “everyone carries their own risks.” A single institution that can make decisions on risks does not exist. Functionally differentiated societies do not have a center of control; thus, demands to the contrary only serve to overburden politics. Concerning the ecological crisis, which runs perpendicular to societal subsystems, Luhmann stated the following: This crisis cannot be blamed on political and economic misconduct or an insufficient ethical sense of responsibility, and it cannot be solved by appropriate political provisions, legal restrictions, or a further development of ethical standards. Instead, “[t]he problem for me lies much deeper in the differentiation of the function systems themselves” (Luhmann 1989, xviii).

Luhmann’s *Sociology of Risk* describes a social reality which radically doubts the previously used modes of attribution and compensation of side effects. It characterizes risk as a prominent category of social reflection, at a time of social evolution in which ecological risks cannot be extinguished or

diminished by any of the functional systems at the center, be they law, politics, the economy, or science. Luhmann remains ambiguous: On the one hand, he speaks about an internal logic of the subsystems, which complicates the treatment and predicting of ecological crises. On the other hand, he states that systems possess a remarkable capability for learning (ibid., 111). In 1986, Luhmann warned the reader about protests and a potentially destructive build-up of problems. Later his argumentation was markedly calmer. He suggested temporary agreements between decision-makers and the affected (see Luhmann 2008). In a world that thinks of its future in terms of probable and improbable, it may be advisable to “cultivate parallel and quite distinct communication channels that are able to function regardless of whether and to what extent participants can mutually reconstruct the universes of their observations” (Luhmann 1993, 231).

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## 4. Ulrich Beck: Security and Risk in a (Global) Risk Society

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### 4.1 Sociological Diagnosis and Theoretical Perspective

In advanced modernity the social production of wealth is systematically accompanied by the social production of risks. Accordingly, the problems and conflicts relating to distribution in a society of scarcity overlap with the problems and conflicts that arise from the production, definition and distribution of techno-scientifically produced risks (Beck 1992, 19).

Beck’s theory, that we are transitioning from an industrial society to a risk society, and which he later expanded to a global risk society, has not only generated a broad response in sociology, but also in the public. “Risk society” quickly became a buzzword in the press. Published shortly after the Chernobyl incident, the volume had its finger firmly on the pulse of the time, owing to a pointed diagnosis of contemporary society a dramatic tone, an often polemic style, and its political and normative engagement. Despite all criticisms, Beck’s approach also remained a reference point for academic and scientific discussions in the field, especially in the English-speaking reception. He applies the theoretical label of reflexive modernization to his work. This primarily means that risk and security strategies do not refer to the handling of nature, but the consequences of successful modernization. As a risk society, we face our unintended side effects in three ways: in the form of produced risks, we face the side effects of unbridled production; with the demand for risk definitions, we are faced with the side effects of scientification processes; and with the constraint of having to decide over the distribution of risk, we face the political side effects of risk production.

As a side effect of unbridled industrial production, Beck observes the development of a specific type of risk. The sword of Damocles, a future catastrophe,

is the starting point of his diagnosis. When society speaks of risk, it does so in a very specific way. Where risk used to mean taking a chance, making a decision that may go wrong and cause damage, it now connotes “the threat of self-destruction of all life on Earth” (ibid, 21). Unlike Luhmann’s interpretation, chances or opportunities are no longer part of the concept. Risk has to be correlated to disaster: “Risk is not synonymous with catastrophe. Risk means the anticipation of the catastrophe” (Beck 2009, 9). This anticipation is not specified in space or time, or at a social level, and floats freely at an objective level.

In *Risk Society* (1992) and *Ecological politics in an age of risks* (1995), Beck talks about the risk of large-scale technology and ecological problems, such as nuclear energy, genetic and reproduction technology, forest decline, loss of biodiversity, climate change, and AIDS. In the edition of *World at risk* published in 2009, he effortlessly expands the thematic field to global financial crises, Western “risk wars” (Beck 2009, 149 et seq.) and terrorist threats. The latter constitutes the catastrophic as an intentional side effect of growth (ibid., 13 et seq.), in contrast to unintentional side effects, as in ecological and economic threats. The latter constitutes the catastrophic as an intentional side effect of growth (ibid., 37 et seq.), in contrast to unintentional side effects, as in ecological and economic threats. It destroys basic forms of trust, and it makes the legitimation of scientific and technological innovations harder because society now has to consider that such technology may intentionally be used as a weapon.

In a typological approach, Beck distinguishes between current threats and risks of the modern industrial age (see Beck 1992, 1995, 75-9; see also Bonß 2011, 61 et seq.). In this context, as in many others, reflexivity means primarily that boundaries begin to blur. Potential damages brought about by industrial risks used to be limited in their local, temporal, and social scope. In a risk society, they tend to be global, are irreversible and thus permanent, cannot be attributed to an initiator, and they can potentially affect everyone. “[P]overty is hierarchic, smog is democratic” (Beck 1992, 36), is Beck’s oft-quoted dictum.<sup>7</sup> Beck’s essential criterion for the argument that we have crossed the threshold into a risk society is that new risks, in contrast to the classic industrial risks, are not insurable. They cannot be compensated with money. Regarding the debate about residual risks, Beck writes: “‘Residual risk society’ is a society without assurance, those insurance cover paradoxically diminishes in proportion to the scale of the hazard” (Beck 1995, 85).<sup>8</sup> Beck explicitly contrasts his definition

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<sup>7</sup> Ultimately, Beck is less interested in clear typologies and concepts, and more interested in the description of problems; he uses Luhmann’s distinction between risk and threat to conceptualise classic forms of risk distribution – waste export, dangerous products, controversial research – into peripheral regions (Beck 2009, 140-2, 160-8), even though he doubts the validity of the distinction at another point (ibid, 12 et seq.).

<sup>8</sup> For a discussion of the criticisms of this theory, see Beck (2009, 129-39).

with two other positions. One is what he calls the “[n]aturalistic objectivism about hazards” (ibid, 75). Similar to Luhmann, he uses a common sociological criticism of technological and scientific risk calculations. He criticizes that objectivistic approaches “does not recognize the independent political dynamic of large-scale hazards” (ibid, 75).

He also rejects a “cultural relativism of danger” as proposed by Douglas and Wildavsky (1982), which parallels pre-modern and contemporary perceptions of risk. This relativism misjudges the specificity of modern large-scale threats that are based on one’s own actions and constitute decision-based risks (Beck 1995, 75 et seq.). In this way, Beck identifies risks as an objective problem of contemporary times. Modern risks, in contrast to its pre-modern forms, are being dealt with in other ways, both semantically and epistemically.

#### 4.2 Reflexivity of Science: Definitions of Risk, Non-Experience, Not-Knowing

Contemporary risks are put as a problem of knowledge, or, more precisely, as a problem of definition. While new risks are facticities, as he points out, they are by no means obvious. The immediacy of social poverty, which determined the risks of industrial society, is different from the current “intangibility of threats from civilization” (Beck 1992, 52). Radioactive contamination, DDT residues in tea leaves, or toxic substances in the air cannot usually be perceived – they cannot be experienced, yet one needs to be aware of them. Since they are conveyed through knowledge, “they are particularly open to social definition and construction” (ibid., 23). From the perspective of the individual, “not having been able to know” becomes an irrevocable part of daily life. Beck calls it an “expropriation of the senses” (Beck 2009, 116). Similar to Luhmann, not-knowing becomes a central category for Beck: “Living in world risk society means living with ineradicable non-knowing [*Nichtwissen*] or, to be more precise, with the simultaneity of threats and non-knowing” (ibid., 115). Unlike Luhmann, who derives the relationship between risk and (not-)knowing from cybernetic theory, Beck extracts it from (first order) empirical observations. Science, he reveals, is confronted with the side effects of his own success. Essentially, two movements can be identified.

Firstly, science has a principle of doubt which is also applied to its own way of knowledge production. Unambiguousness in scientific statements is contested by the understanding of its own conditionality of decision, dependence on methods, and relation to context (Beck 1995, 118-22). With the acceleration of science production, the dominant experience is not the positivity of knowledge, but how quickly knowledge becomes obsolete. What is more, science is increasingly becoming an area of conflict between expertise and opposing expertise, not only in a competition of opinions but also in a competition of rationalities, for instance, in the clash of scientific and sociological risk definitions

(Beck 1992, 57-71; 1995, 111-8). The uncertainty of knowledge becomes normal; it becomes a central problem (see Bonß 2011). Ultimately, Beck reaches a definition of the problem, similar to Luhmann:

World risk society is a non-knowledge society in a very precise sense. In contrast to the premodern era, it cannot be overcome by more and better knowledge, more and better science; rather precisely the opposite holds: it is the product to more and better science (Beck 2009, 115).

Secondly, the boundaries of science are becoming blurred. Research is going beyond the laboratory, as is the case with nuclear power plants whose safety can only be reviewed by building them, or genetic and reproduction technologies whose consequences are not foreseeable. The world is becoming a laboratory (Beck 1995, 122-4). This constitutes a dissolving of the boundaries of science, particularly where the central questions of technological and scientific risk production are being negotiated. Science advances into more areas of life, it more often forms the basis for decisions and, at the same time, the politization of scientific knowledge is inevitable. Debates about threshold values are paradigmatic. They very clearly demonstrate scientific, media, and political powers of creating definitions. Different disciplines fight over the power of interpretation, the significance of research results can no longer be determined within science, numerous interest groups are in dispute about it and, evidently, the decision is ultimately made by political regulations. In turn, politics can only refer to – contested – scientific expertise (Beck 1992, 64-9). Risks become an effect of the scientific, media, and political staging.

#### 4.3 Political Control: Organized Irresponsibility and Cosmopolitanism

Similar to Luhmann, Beck states that the (global) risk society is characterized by the increasing constraint to make decisions, that these must increasingly be informed by (scientific) knowledge, despite this knowledge becoming more uncertain. He observes two tendencies as consequences of this disorientation: organized irresponsibility, on the one hand, and the rise of sub-political and cosmopolitan thinking, on the other.

For Beck, organized irresponsibility in a narrow sense means that the logic of the legal assignment of guilt, which is based on the costs-by-cause principle, can no longer be applied in the context of contemporary risks (Beck 1995, 2 et seq.; 2009, 27-9). Who can be blamed, and singled out as causally responsible for climate change? When causal chains and cycles of damages are the result of highly differentiated work distribution, a “general complicity” (Beck 1992, 33) is created. An abstract system concept is dominant, which recognizes a sort of natural fate, but no responsibility in the classical sense. Organized irresponsibility also means that the classic forms of precaution fail: Insurances cannot compensate, nor can emergency, rescue or supply systems provide adequate

aftercare in case of irreversible damages. Beck again comes to similar conclusion as Luhmann: Neither law, provisional systems, nor traditional politics can sufficiently deal with the ecological threats of scientifically and technologically produced risks. There is a predominant “logic of institutionalized non-coping” (Beck 2009, 29).

At the same time, two counter-movements are becoming apparent. Beck states that at the transition from an industrial society to a “second modernity,” all areas of life – including science, the economy, public life, politics, private life – are under new negotiation. The political becomes ubiquitous, there is a general pressure to make decisions, and decision-making problems allude to questions of power (see Beck 1997). This also means that political power is no longer only being fought over in traditional political arenas, and this also applies to political debates about risk. Beck observes the emergence of a sub-political culture, in which citizens’ initiatives and social movements conquer a broader basis for public negotiations and new forms of participation, to open up the search for alternative paths of modernization (Beck 1992, 183-236). With that, a boundless and uncontrolled risk production could be managed with the help of more complex structures that include new forms of control (see Beck, Bonß and Lau 2001, 42-7). This sub-political element is complemented by a turn toward cosmopolitanism. Beck points out that the global risk society contains a “cosmopolitan element” – you may say that society is compelled to find ways for cosmopolitan enlightenment, communication, and action (Beck 2009, 47-66). To handle the problems of a “global community of threat,” a cosmopolitan form of politics, supplied by sub-political culture – meaning civil society – and by governments, could emerge from a dialectic movement and it could “realize a resilient diversity and a postnational order” (ibid., 8, 66).

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## 5. Conclusion – Diagnosis of the Present: Security and Risk

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The time after 9/11 was characterized by a surge in security topics. Widely distributed policies and political programs, such as the homeland security concept, were paradigmatic, and the surge was reflected in self-descriptions of, for example, a “security society.” This only becomes fully understandable in its basic structures when viewed in the context of specifically modern forms of defining and producing security and risk. Limited to the German debate, we consulted three sociological approaches – Kaufmann, Luhmann and Beck – who have developed theoretical reflections on security and risk.

All three authors very specifically relate the pursuit of security and the treatment of risks to modern – meaning functionally differentiated, as opposed to stratified – societies. Kaufmann postulates that a general need for security, which defines security as a guiding principle and as a value concept, could only

develop in modernity. To him, security is correlated with the unique freedom of modernity, and to the release from classic institutional attachments. Security, as a term and as a need, no longer refers to primordial adversities, but to insecurities, which arise from systemically assured basic capacities. Luhmann and Beck also do not understand security and risk as something tied to primordial needs. For Luhmann, risk is connected to the problem of having to make decisions in the face of a generally open future. The prominence of risk in social communication, which includes the thought that damages can be caused with a decision, is increased by the number of options and by the pressure to make a decision. The question of what is probable and what is improbable, who acts riskily and who may be endangered, becomes explosive. The future is increasingly negotiated with these questions. Beck begins his reflections at the point where the problem of decision-making combines with the knowledge of the catastrophic potential of decisions. Risk serves to confront modernity with its own problems: through the specific forms of new risks, through the way science becomes more reflective, and the shortcomings of previous democracies.

Historiographically interpreted, these sociological definitions may initially be unsatisfactory. However, we can say that all three theories work with a concept that rejects the idea of a universal pursuit of security. Security and risk, defined in their current horizon of meaning, only appear after the transition to a functionally differentiated society. As such, the problem in which security and risk are rooted, is only possible in modern societies. It is becoming viral in many social areas of life, and in many forms. Luhmann, for example, traces the emergence of the risk issue to Italian seafaring in the Renaissance, where the modern insurance principle was developed. Sociology is far from providing even the basis of a history of these concepts and problems. Instead it is interested in when the security and risk issue became an urgent and general social topic which lies perpendicular to social subsystems. “Urgent,” “perpendicular,” and “general” can of course not be defined precisely. That is why the genesis and the diagnoses may be enriched by many aspects in a historiographical way of looking at these issues.

For Kaufmann, security becomes relevant as soon as the concept of “social security” reaches a viral nature, and insecurity appears as a system description in many other fields. The starting point of Luhmann’s and Beck’s reflections is the discussion of ecological and large-scale technological risks. For Luhmann, the risk formula is only one of many relevant ways to observe modern society. For Beck, risk as an anticipation of disaster, is the central turning point in the development of modernity. Beck’s diagnosis may be a better fit for the general feeling of the current day and age, which manifests in the ubiquity of the security topic.

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## References

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- Albrecht, Hans-Jörg. 2011. Neue Bedrohungen? Wandel von Sicherheit und Sicherheitsbewertungen. In *Zivile Sicherheit. Gesellschaftliche Dimensionen gegenwärtiger Sicherheitspolitiken*, ed. Peter Zoche, Stefan Kaufmann and Rita Haverkamp, 111-27. Bielefeld: transcript.
- Beck, Ulrich. 1992. *Risk Society. Towards a New Modernity*. London, Newbury Park and New Delhi: Sage.
- Beck, Ulrich. 1995. *Ecological Politics in an Age of Risk*. Cambridge and Oxford: Polity Press.
- Beck, Ulrich. 1997. *The Reinvention of Politics. Rethinking Modernity in the Global Social Order*. Cambridge and Oxford: Polity Press.
- Beck, Ulrich. 2009. *World at Risk*. Cambridge, Oxford and Boston: Polity Press.
- Beck, Ulrich, Wolfgang Bonß, and Christoph Lau. 2001. Theorie reflexiver Modernisierung – Fragestellung, Hypothesen, Forschungsprogramme. In *Die Modernisierung der Moderne*, ed. Ulrich Beck and Wolfgang Bonß, 11-59. Frankfurt a. M.: Suhrkamp.
- Bonß, Wolfgang. 2011. (Un-)Sicherheit in der Moderne. In *Zivile Sicherheit. Gesellschaftliche Dimensionen gegenwärtiger Sicherheitspolitiken*, ed. Peter Zoche, Stefan Kaufmann and Rita Haverkamp, 43-69. Bielefeld: transcript.
- Buzan, Barry, Ole Wæver, and Jaap de Wilde. 1998. *Security. A New Framework for Analysis*. Colorado and London: Lynne Rienner Publishers.
- Douglas, Mary, and Aaron B. Wildavsky. 1982. *Risk and Culture. An Essay on the Selection of Technical and Environmental Dangers*. Berkeley: University of California Press.
- Eßbach, Wolfgang. 2007. Denkmotive der philosophischen Anthropologie. *E-Journal Philosophische Psychologie* 7 <<http://www.jp.philo.at/texte/EssbachW1.pdf>> (Accessed August 8, 2015).
- Fischer, Joachim. 2009. *Philosophische Anthropologie. Eine Denkrichtung des 20. Jahrhunderts*. Freiburg and Munich: Karl Alber.
- Evers, Adalbert, and Helga Nowotny. 1987. *Über den Umgang mit Unsicherheit. Die Entdeckung der Gestaltbarkeit von Gesellschaft*. Frankfurt a. M.: Suhrkamp.
- Ewald, François. 1993. *Der Vorsorgestaat*. Frankfurt a. M.: Suhrkamp.
- Ewald, François. 1999. The return of the crafty genius: An outline of a philosophy of Precaution. *Connecticut Insurance Law Journal* 6 (1): 47-79.
- Gehlen, Arnold. 2004 [1956]. *Urmensch und Spätkultur. Philosophische Ergebnisse und Aussagen*. Frankfurt a. M.: Klostermann.
- Gehlen, Arnold. 1980. *Man in the Age of Technology*. Columbia: University Press.
- Groenemeyer, Axel, ed. 2010. *Wege der Sicherheitsgesellschaft*. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Horn, Eva. 2014. *Zukunft als Katastrophe*. Frankfurt a. M.: Fischer.
- Kaufmann, Franz-Xaver. 2013 [1973]. *Sicherheit als soziologisches und sozialpolitisches Problem. Untersuchungen zu einer Wertidee hochdifferenzierter Gesellschaften*. Münster: LIT.
- Luhmann, Niklas. 1989. *Ecological communication*. Cambridge: Polity Press.
- Luhmann, Niklas. 1990. Risiko und Gefahr. In *Soziologische Aufklärung* 5, ed. Niklas Luhmann, 131-69. Opladen: Westdeutscher Verlag.

- Luhmann, Niklas. 1993. *Risk. A Sociological Theory*. New York: De Gruyter.
- Luhmann, Niklas. 1998. The Ecology of Ignorance. In *Observations on Modernity*, ed. Niklas Luhmann, 75-114. Stanford: Stanford University Press.
- Luhmann, Niklas. 2008. Verständigung über Risiken und Gefahren. In *Die Moral der Gesellschaft*, ed. Detlev Horster, 348-61. Frankfurt a. M.: Suhrkamp.
- Perrow, Charles. 1984. *Normal Accidents. Living with High-Risk Technologies*. New York: Basic Books
- Singelstein, Tobias, and Peer Stolle. 2006. *Die Sicherheitsgesellschaft. Soziale Kontrolle im 21. Jahrhundert*. Wiesbaden: VS Verlag für Sozialwissenschaften.
- Wildavsky, Aaron B. 1988. *Searching for Safety*. New Jersey: Transaction Publishers.
- Zwierlein, Cornel. 2016, forthcoming. Sicherheit und Nichtwissen. Ein historischer Aufriss. In *Sichere Zeiten? – Gesellschaftliche Dimensionen der Sicherheitsforschung*, ed. Peter Zoche, Stefan Kaufmann and Harald Arnold. Münster: LIT.