

Social Immune Mechanisms: Luhmann and Potentialization Technologies

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Abstract

Contemporary discourses of management are full of encouragements to ‘expect the unexpected’ and to celebrate ‘the future of the future’. Many new public managerial technologies of change – such as steering labs, future games, and managerial performance arts – promise the co-creative ‘potentialization’ of employees, citizens and organizations. This paper approaches such potentialization technologies as immune mechanisms which serve to protect the social system from itself. From a perspective inspired by autopoietic systems theory, potentialization technologies provide auto-immunity by problematizing institutional structures and providing ‘anti-structural’ space-times to facilitate transformation. There is a price to pay for this immune function, however, since these immune mechanisms cannot discriminate between productive and unproductive structures. By dissolving the certainty of the expectations that underlie the connectivity of diverse organizational operations, they risk harming the welfare systems that host them.

Keywords

liminality, Niklas Luhmann, management

Introduction

Contemporary discourses of management and governance are full of encouragements to ‘expect the unexpected’, to ‘think the unthinkable’ and to celebrate ‘the future of the future’, and their practice is now populated by a host of devices to facilitate these possibilities, including steering labs, future games, managerial performance arts, freedom letters, trust-based partnerships, and so on. Andersen and Pors (2016) call

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these ‘technologies of potentialization’ and have studied their operations in the context of the Danish welfare state. Using three such devices as examples, this article uses Luhmann’s autopoietic systems theory to reframe the broader sociological implications of these developments. In particular, we investigate Luhmann’s notion of a societal *immune system* with its *(auto)immune mechanisms* that serve to protect social systems from disturbances arising from their own structures. For Luhmann, the disturbances that warrant these defensive measures are associated with contradictions and conflicts, including the conflicts that can flare up around contradictions that are not appropriately ‘conditioned’. For this very reason, Luhmann argues, it is precisely contradictions and conflicts that serve – when conditioned by an ‘immune system’ such as law – as an immune mechanism.

By addressing technologies of potentialization using Luhmann’s immunological concepts, this article aims to open a new horizon of research problems. Specifically, we explore the value of addressing these technologies in terms of their emergence as an alternative to law and indeed as a means of immunization against law. Where the legal ‘immune system’ transforms conflict and contradiction into legal structures, potentialization technologies challenge and dissolve structure *as such*, without discriminating between productive and unproductive structures. The value of this theorization is the insight it provides into the societal costs of potentialization, and the related problem of their regulation. To this end, the paper begins with a defence of Luhmann’s relevance based upon a sketch of his arguments about law as a societal *immune system* which uses conflict/contradiction as its immune *mechanism*. A second section introduces three examples of potentialization technologies. The third section discusses the extent to which potentialization technologies serve an immune function comparable to that ascribed to law in Luhmann’s account. The conclusion addresses some of the societal implications of the spread of potentialization technologies.

Taking Luhmannian Immunologic Seriously

Despite much scepticism towards Luhmann on the part of Anglophone social scientists, there is a small but established tradition of Anglophone scholarship on Luhmann (e.g. King, 1993; King and Schutz, 1994; Thornhill and King, 2003). This work, however, rarely mentions the immunological aspects of Luhmann’s theory, which were first spelled out in the mid-1980s (Luhmann, 1995). In the context of social theory, the concept of immunity is more likely to be associated with the work of Haraway (1989), Derrida (2003, 2005), Sloterdijk (2011), and with the syntheses offered by Esposito (2011), Richter (2016), and Wolfe (2017). Our account of immunity is informed by this theoretical work, but our main concern is to concretely illuminate some recent empirical changes in

the functioning of societal immunity in a way that allows a diagnosis of the sociological present. In addition to this empirical concern, we hope also to exhibit a recent tendency to integrate Luhmann's work with alternative traditions like the psycho-social (Brown and Stenner, 2009), deconstruction (Teubner, 2001; Staheli, 2012), Deleuze (Philippopoulos-Mihalopoulos, 2013), Koselleck (Andersen, 2011), and Serres (Stenner, 2005). Still, some scepticism about Luhmann remains due to the mixture of: a) its apparent rejection of the radically progressive political stance that is often identified with sociology; b) its association with the structural functionalism of Parsons; and c) its ontological commitment to an autopoietic systems theory derived from biology. Since these are concerns indeed, before addressing our core theme of potentialization we will first unfold the theoretical basis of Luhmann's immunological perspective in a manner that addresses each criticism in turn.

Luhmann's Rejection of Sociological Radicalism: Structure Contrasted with Immune System

In contrast to sociologists who advance a critical 'no' to society, Luhmann appears to bolster a political liberalism, and to prefer a 'yes'. Indeed, his account of an immune system through which society can respond to its own alarms is itself motivated by a concern to ask how a 'necessary "yes" to society can be regained' (Luhmann, 1995: 404). Luhmann aims to short-circuit the familiar contrast between a normatively conservative legal system and critical activism aiming for unrest and supporting social movements against 'society' (p. 403). Luhmann reformulates this oppositional contrast between 'the politico-economic complex of modern capitalism' and 'the totality of the social movements stimulated by it' as precisely a distinction between societal structures and society's immune system (p. 404). From this perspective, law and social movements both show up as immune systems. They share the common feature of using contradictions to open social structure to a controlled form of instability, and hence to the possibility of structural change permitting new internal complexity. In Luhmann's account, the immune system is destabilizing of structure as much as it is conservative, and he insists that one 'must guard against the widespread error of thinking that destabilization as such is dysfunctional' (p. 367). On the contrary, for Luhmann (p. 404) modern society, 'in contrast with all historical predecessors, has destabilized its structures and considerably enhanced its potential for saying no'.

The issue of communicating 'yes' and 'no' is thus directly relevant to Luhmann's immunological account. He defines both contradiction and conflict in terms of the articulation of a 'no' and he states that social systems 'exist as communication systems; therefore they create contradictions by communicating rejection. This too can come under logic's

control. Somehow it must be possible to know whether a “no” that has been communicated contradicts an expectation or merely contours it’ (Luhmann, 1995: 364). Later, he makes clear that conflict, at its core, *is* contradiction:

We will therefore speak of conflict when a communication is contradicted, or when a contradiction is communicated [...] The concept of conflict is thereby related to a precise [...] communicative occurrence: to a communicated ‘no’ that answers the previous communication. (pp. 388–9)

The difference is that, unlike contradictions, conflicts form distinctive self-reproducing social systems of their own. Conflicts can flare up and quickly spread because the double contingency that underlies all communication (I expect that you expect that I expect) assumes the negative form of: *I do not do what you want when you do not do what I want*. The prevailing assumption of positive connectivity is thus reversed and takes the form: ‘everything that harms you, benefits me’ (Luhmann, 2000: 451). In this way, conflict forms a self-catalysing system which can exist *parasitically* ‘on the side’ of any other social system (Serres, 1982). It uses the contradictions at play in its ‘host’ as fuel for its own process, a process which tends to burn any social structure it encounters, de-differentiating conventional distinctions in its wake.

Even accepting that they are themselves a type of social system, conflicts pose a real danger to the long-term autopoiesis of any social system. They ‘tend to draw the host system into conflict to the extent that the attention and all resources are claimed for the conflict’ (Luhmann, 1995: 390). Conflicts are thus inherently ambivalent: they are simultaneously that *against which* social systems require immunization, and that which can serve as the very mechanisms *for* immunization. Conflicts are *made out of* contradictions, but contradictions themselves *need not* be a systematic ‘call to arms’ (*all’arme!*). Instead contradictions can, when appropriately conditioned, serve merely as *alarms* alerting the system to aspects of its structures that are proving problematic. This would be a matter of the recruitment of conflict as an immune mechanism. When recruited in this way, an immune mechanism creates expectable insecurities out of contradictions, and these structured insecurities can then be managed another way. Law, for example, recruits contradictions as exactly such an immune mechanism, and in this sense law is *meta-parasitical*: it parasites the more dangerous parasite of *unconditioned* conflict.

Luhmann argues that social movements operate in a comparable way, through recruiting and transforming the ‘no’ of contradiction. That law typically says ‘no’ from a position of power and authority while critical social movements do so from a position of oppression ought not to

distract us from the immunological implications of their common negation. If law and social movements can be ascribed this function of immunity in contrast with 'structure', this is because both provide means for the transformation of disturbances ('noise') taking the form of conflicts within social systems. In short, for Luhmann, the question of immunity within social systems is a question of the relationship a system can adopt to the threat of the disturbance of its communicative operations by conflict and contradiction.

Luhmann's Relation to Structural Functionalism: Structure Contrasted with Event

The contrast between structure and immunity described above raises the second issue of Luhmann's alleged 'structural functionalism'. In fact, Luhmann (e.g. 1995: ch. 8) repeatedly differentiates his theory from that of Parsons, and from structuralism. When he does so he stresses the *processual* basis of his theory, a basis which entails a thorough rethinking of the concepts of 'structure' and 'function'. With respect to structure, he builds on the core link made by structuralists between structure and complexity whereby 'structure transforms unstructured complexity into structured complexity' (p. 282). The question, however, is 'how?' Here, Luhmann follows the process philosophy of A.N. Whitehead in a more profound way than does Parsons, since Luhmann affirms the implications of Whitehead's thesis that the ultimate realities are not structures, but events ('actual occasions'). Luhmann calls these events a system's *elements*, which are always concrete *operations*. This Whiteheadian inspiration is fundamental to Luhmann: 'Above all', he writes, 'one must radically relate the concept of event, and with it the concept of action, to what is momentary and immediately passes away' (p. 287). If the concrete realities are events that occur and then perish and hence that do not endure in time, then structure 'loses its central position' (p. 281) and is reformulated as a concept which 'defines more precisely how elements relate across temporal distance' (p. 282). Structure is that which enables events to outlast the transiency of the moment, and it is therefore necessarily something abstracted from the concreteness of real events. Structure enhances the probability of the improbable, and consists in '*how permissible relations are constrained within the system*' (p. 283). It limits possibility by creating, for any possible event, a circumscribed realm of real, expectable, possibilities.

For Whitehead, this premise that actual occasions are a) ultimate elements and b) composed into forms possessing different degrees of enduring 'structure', applies to all systems or 'organisms', from the physical through the biological to the sociocultural. Luhmann's main concern as a sociologist is with human societies, which presuppose and exceed biological and psychic systems. If social systems 'exist as communication

systems', this means that the real occurrences composing human societies are events of communication. Since here we are dealing with a question of meaning (each communicative event being a unity of utterance, understanding and information), the question of structural constraints is a matter of the formation of expectations, and hence also of 'semantics'. Expectations provide the means for one transient communicative event to connect with another and hence to begin the process of forming a meaningful series: 'social structures are expectational structures' (p. 292). A social system, in Luhmann's terms, endures to the extent that it is an internally coherent stream of communicative events, each conditioning the next and forming a connected series which, taken in its temporal togetherness, acquires an autonomy beyond any individual person. If such a system is self-reproducing or, to use the biological jargon 'autopoietic', this is because, ultimately, the events are the self-creating realities that, in concert, and via the vivid immediacy of their arising and perishing, reproduce the structures they require. The concept of function undergoes a comparable reformulation. A function is no longer the job proper to a pre-given structure but rather a focus from which a range of potential solutions to a marked *problem* can be compared (Luhmann, 2000: 138).

These arguments can be illustrated by reference to law. For Luhmann (1995: 374) the legal system functions 'immunologically' by processing contradictions/conflicts and hence 'law is formed *in anticipation of possible conflict*'. Since conflict and contradiction both entail the articulation of a 'no', they disturb the connectivity whereby communicative events can form a structured system: they disrupt the systems' autopoiesis. In this sense law does not avoid conflict, but feeds on it, thus transforming it. Conflict and contradiction are thus deployed by law as *immune mechanisms* precisely because they dissolve the security of social expectations (i.e. 'structure'): contradictions 'put into question the already-achieved determinacy of meaning' (p. 361) and reveal an insecurity of expectation that destabilizes a system. In this way, law greatly expands the possibilities for conflicts whilst preventing and mediating their violent resolution and uncontrolled escalation. Contradictions or conflicts that might otherwise threaten a social system's self-reproduction are thus captured, conditioned and recruited as immune mechanisms by the legal 'immune system': their disturbing potential is domesticated through a coding into legal/illegal, permitted/forbidden. Law lodges itself as the top of a parasitical chain and feeds on what conflicts have already made out of contradictions, converting both into the form of an immune mechanism that structures insecurity by rendering the unexpected newly expectable. This is why, for Luhmann, an immune system is less about preventing change by annihilating external dangers than about enhancing the system's sensitivity, and as such is a key factor in societal evolution and change. Law qua immune system functions to increase the social system's sensitivity

and to enhance its tolerance for complexity and structural insecurity. Conflict and contradiction are immune mechanisms not because they protect the system against external threats, but because they provide an ‘inwards’ means to protect the system’s continued autopoiesis from inappropriate structures created by itself over time.

Luhmann’s Commitment to Biology: Structure Contrasted with Self-Reproduction

If an immune system enables a system to *protect itself against its own structures*, then clearly immunity is always also *autoimmunity* (see also Derrida, 2003, 2005). This point is crucial and easily misunderstood. For Luhmann, immunity does not protect social *structures* or enable their continued reproduction, but protects society in a more primordial way against those of its structures which are proving sufficiently troublesome to trigger ‘alarm signals’ within an immune system. This entails a distinction between structure and self-reproduction or autopoiesis (see Luhmann, 1995: 369). In diverging from the classical biological view of the immune system as the part of the organism that defends it against external attacks, Luhmann closely follows developments within biology itself. He orients towards a systems theoretical form of biology that arguably escapes the oft-criticized biological reductionism – of which Durkheim and Parsons stand accused – that would model sociology so problematically upon biology. A turning point was the work conducted in the mid-1970s by the Danish immunologist Niels Jerne who demonstrated how the body’s production of antibodies was organized into networks. Francisco Varela reconstrued these networks as autopoietic systems. From this perspective, what constitutes an immune system is not the mere collection of antibodies and other agents, but their recruitment and linkage into a self-generating, self-referential and self-learning network (Varela et al., 1993). Varela, for example, describes a movement from an antigen-centred to an organism-centred immunology (Varela, 1979: 216). Varela (1995: 213) argues that:

Classic immunology understands immunology in military terms as a defence system against invaders. [...] If this made sense, the system would shrink to nothing if there are no invaders. Yet when mice are raised in milieus free from external challenge, their immune systems are normal!

For Varela the immune system functions as much by creating tolerance to antigens as by destroying them (see also Haraway, 1989; Esposito, 2011: 8), and it does so as a self-generating network capable of ‘observing’ and differentially reacting to events. We might say that its familiar ‘classical’ function of *hostility* (reactive destruction of antigens) has been

supplemented within systems theory by a more primordial function of *hospitality* (flexible incorporation of antigens). In fact, Varela distinguishes a central from a peripheral immune system where the former is a flexible and dynamic network of heterogeneous antibodies concerned mainly with tolerance and connectivity, whilst the latter is composed of more loosely coupled antibodies free to attack those antigens 'observed' as problematic (Varela et al., 1993: 215–16). 'Observation' here clearly does not imply vision, but a form of discrimination made possible when an autopoietic system interacts with antigens through its operations. An autopoietic system has no direct contact with its environment, but 'constructs' it only by way of its ongoing and recursive reactions and activities. It is in this sense of being directed 'inwards' that all immune reactions are also 'autoimmune':

All immune events are directed inward, not outward, and the organism perceives the penetration of foreign materials not by recognising them as foreign, but rather because the foreign material interferes with ongoing reactions that exist as links in complex network interactions... Thus, in a way, all immune reactions are 'auto-immune' (directed inward) and exogenous antigens are recognized by 'cross reactions'. (Varela, 1979: 231–2)

Hence, it is only through interacting with the antigens through its operations that the antigens become distinguishable for the system. Varela neatly expresses this changed view of the relationship between the immune system, the environment and the organism when he insists that the organism does not directly 'perceive' the 'foreign material' but rather detects *interference* within the ongoing reactions of its own network of operations.

Luhmann's orientation towards a systems theoretical form of biology escapes the usual sociological charge of biological reductionism. Indeed, his theory does not derive from biology, but is part of a broader 'trans-disciplinary' tradition of systems theory which includes the work of mathematicians, physicists, biologists, psychologists and sociologists (Pias, 2003). Employing Von Bertalanffy's (1950) distinction between a 'general' systems theory and theories of specific system types, a theory of immunologic would be a general matter with homologous manifestations in multiple system types (whether organic, psychological or social). On this basis, Luhmann's description of societal immune mechanisms is not metaphorical. Indeed, the word 'immunity' was social before becoming biological. '*Immunis*' meant 'not paying a share' and was used in Ancient Latin to indicate situations of exemption from taxes or other liabilities. This does not mean, of course, that biological, psychological and social systems are identical: Luhmann's first step is to insist that social systems are unique in that they operate with communication. It is only with social

systems that the general distinction between structure and self-reproduction takes the specific form of a distinction between expectation and action (Luhmann, 1995: 369). Social structures are based on the establishment over time of expectations which differentially sensitize the system's engagements with what it takes to be its environment. Health communication, for example, has built up, and continually renews, expectation structures (a division of roles between doctors and patients, medical diagnoses, treatments that respond to diagnoses and so on). These expectations enhance the connectivity and predictability of the systems' operations. But more fundamental to a social system than its structures is the continuation of the operations through which it secures its autopoietic self-reproduction. Structures *serve* autopoiesis but the autopoietically created system (self-reproduction through action) is more than, and irreducible to, its structures. It is in this precise sense that the logic of immunity is *anti-structural*:

The system does not immunize itself *against the no*, but *with help of the no*: it does not protect itself *against changes*, but *with the help of changes* against rigidifying into repeated, but not environmentally adequate, patterns of behaviour. The immune system does not protect structure, but autopoiesis, the system's closed self-reproduction. (Luhmann, 1995: 371–2, emphasis in original)

Synthesis: Structure and Potentialization

We hope this introduction to Luhmann's immuno-logic serves also to immunize our readers against a rapid rejection of his sociology. We have addressed three criticisms by illuminating three interconnected points of contrast with the concept of structure: self-reproduction, event, and immune system. Self-reproduction and event are linked through the concept of autopoiesis, since autopoiesis is effectively the self-reproduction of the events that fundamentally constitute any system. In turn, an immune system is that which allows autopoiesis to carry on despite disturbances that challenge its continuity. Under such conditions the system is prepared to sacrifice its structures to protect autopoiesis. Together, this interwoven skein of concepts allows us to grasp why immunity relates to structure, and why it might be implicated, not just in defensive reactions but also in the transformation of structure.

To return briefly to his primary example of law as immune system, Luhmann (2004) shows how the court-room serves to regulate the formation of conflicts by moving them into law. If law dissolves structures that have proven problematic, then clearly it is able to do so only thanks to its own form as an authoritative and highly structured system capable of imposing expectations of its own, supported by the force of the state.

In what Luhmann (1995: 374) calls the ‘modern welfare society’, however, law begins ‘to overtake itself, so to speak: new kinds of situations are introduced as conflict decided in advance, situations that no one would have thought of without law, and the resulting expectations are declared to be law’. We now raise the possibility that, at this point, law itself becomes a structure observed to be a problematic source of conflict, and not just a solution. Law’s immune function is being supplemented, and challenged, by new forms of immunity. These forms are not mechanisms based on a re-structuring of conflicts through a juridical appropriation, nor on their recruitment into social movements. Instead, devices are developed which create conditions in which structures that are judged problematic are held in suspense such that possibilities that might otherwise be structurally excluded are summoned and entertained. These new means of immunity operate with technologies of potentialization which function in spite of law. This is a significant claim in itself, but the argument matters also because there may be a price to pay for this new immune function. Since these immune mechanisms cannot discriminate between productive and unproductive structures, they dissolve the certainty of the expectations that underlie the connectivity of diverse organizational operations and risk harming the social systems that host them: they challenge structure as such. They deconstruct professionalism but leave nothing in its wake. Under these circumstances, this question of the generation and tolerance of insecurity, uncertainty and instability becomes one of the central issues of our time (Szakolczai, 2017).

Three Examples of Potentialization Technologies

Example 1: From Reality to the Ideal and Back Again

During a work away-day, a group of managers and employees from a health trust are preparing to play a game together. Following some friendly ice-breaking banter, Sally – who is a manager acting as team-leader – presents the game as a fun opportunity to reflect on their current and future practice as health professionals. She divides those present into three groups, giving each a sheet of paper containing the grid shown in Figure 1.

Each group is invited to use the grid to have a playful dialogue about how they view their health trust. They begin with the upper left cell, discussing how their health trust operates now. Conversation exhausted, they move to the top right cell and discuss what is possible for it now. They then begin to speculate about what will be the case in five years’ time, before finally turning to the bottom right cell which invites discussion about what will be possible for the health trust in five years from now. The room buzzes with different perspectives and possibilities. Sally asks each group to nominate a member to summarize their group

	What is?	What is possible?
Now		
In five years		

Figure 1. A game designed to ‘potentialize’ time.

discussion. In a plenary, she invites general discussion about the perspectives that have emerged. What does Kesi think of Pedro’s ideas about what is possible now? Does Julia agree with the things that Morten implied will exist in five years’ time but are not possible now? What does Neil think it will take to move the health trust from ‘what it is now’ to ‘what will be possible five years from now’?

Example 2: Sisters Academy: School in a Sensual Society

At the invitation of the head teacher, a school in Odense, Denmark, is taken over for a week by a group of activist performance artists called Sisters Academy. ‘The aim’, announces one of the group, ‘is to experiment with how a school might look in a society that is guided by aesthetic terms – the sensual and poetic perception of the world’ (Sisters Academy, 2013). The school’s schedule of classes continues, but the entire environment is transformed using techniques of light, sound and set design: ‘We use performance art to create an immersive otherworldly frame where we can free our minds and bodies to think and feel in radical ways’ (Sisters Academy # 3: <http://sistersacademy.dk/gallery/>). The usual school timetable is unaltered, but the practices that take place are transformed by a new ‘inspirational framework’ which foregrounds the aesthetic dimension of existence. Teachers are invited to experiment during their lessons based on the motto ‘what if aesthetics were the highest value, how would your subject and teaching look?’ For example, Peter, the English teacher, experiments with a new poetic teaching self he calls ‘blackbird’, whilst pupils sit together on the floor, wearing face paint. Teachers and Sisters wear fancy dress and explore silence, touch and other sensory experiences with their pupils. A shape-shifter gives pupils envelopes of confetti to be emptied onto their heads. Everything is ‘turned around and upside down’ and, as one pupil remarks: ‘we arrived first day and nobody knew what to expect, we had all these expectations, I had all these expectations, we didn’t know anything and it completely surprised us in a good way’.

Example 3: Resource Trajectory through Rehabilitation Teams

Svend is a Danish police officer seeking early retirement due to chronic pain following a traffic accident. Before 2013, the decision concerning his case for retirement would have been made on the basis of a more or less objective assessment of his health limitations. But now the law has changed and Svend must participate in a new dialogue and coordination forum involving an interdisciplinary team. His particular 'rehabilitation team' consists of a medical doctor, a psychologist, a lawyer, and a social worker, each with a specific administrative perspective on his case. Before examining his retirement rights, the team must first explore the possibilities for continued employment that are available, or might be developed, for this specific client. In this case, instead of recommending a retirement decision, the rehabilitation team draw up a 'resource trajectory' which spells out what should be made available to Svend to enable him to remain employed. Ditte, the psychologist, observes that Svend's wellbeing may be diminished by early retirement, and that counselling opportunities and a bespoke exercise routine should be made available to help him self-manage the pain. The team communicate to Svend that it is more valuable for all concerned to focus on what he *can do* than on what his limitations are.

Why 'Technologies'?: Devices for Structuralization and for Liminalization

Each of our three examples is a technology because each employs a tool, concept or some other method which can repeatably achieve, in different circumstances of application, a desired effect (in this case, the opening of possibilities). The first example uses the device of a *game*. The second uses techniques from theatre and performance arts. The third uses the method of a 'rehabilitation team' and the tool of a 'resource trajectory' which slides smoothly between any early retirement application and any legally binding decision. These devices have a form that is durable enough to be put to use on multiple occasions to engender comparable results, albeit with all kinds of adaptations tailored to the circumstances. Luhmann suggests that something can be considered a technology when it assumes the specific form of operating with a difference between the reduced complexity of repeatable cause-effect relationships and 'uncapped' causal relationships that have yet to be determined (Luhmann, 1990). Technology, in this definition, is a 'dodge to live' (Whitehead, 1929: 18). It isolates specific cause-effect relationships and deploys a methodology to bring them into a form that can produce reliably repeatable effects within the 'uncapped' domain to which it is applied.

But as technologies, these devices are clearly distinct from the forms of 'physical' equipment and machinery that are based on the application of scientific knowledge of the material, external, physical world.

From simple machines like levers and pulleys to complex engines, ‘physical’ technologies exploit demonstrable physical laws to produce effects that are predictable to a highly controllable degree. Since ‘structure’ is that which enhances the probability of the otherwise improbable, these physical technologies *structuralize* in that they amplify our capacity, not just to *expect*, but to *know* and to ‘make it so’. They are informed by scientific knowledge of repeatable causal patterns whose regularity lends its predictability to the ‘uncapped causal relationships that have yet to be determined’. Deviations, variations and accidents can be machined to a minimum of relevance, enhancing the power to ‘converge’ upon the repeatedly expectable. In comparing potentialization technologies with these familiar ‘physical’ technologies, it is unwise to reach immediately for an ‘inner’/‘outer’ distinction, or for a distinction between soft ‘social’ technologies (Foucault’s ‘technologies of the self’ [1988]), and a hard material variety. Such distinctions are not irrelevant, of course, and indeed the Sisters Academy note that ‘we only have, like, we train our outer world. But we don’t train our inner world, so you must find techniques that work for you’ (<http://sistersacademy.dk/gallery/>). They obscure, however, a more basic difference between what we call a *structuralizing* tendency (where enhanced expectations are set to enable the probability of the improbable), and a *liminalizing* tendency (where set expectations are suspended in order to increase the pool of real possibilities available to be entertained).

The structuralizing tendency is ‘convergent’, ‘conformal’ and, as it were, ‘centripetal’. Structuralizing technologies *close down upon* possibilities and constrict variability, tightening around a centre (see Valsiner, 2018). The liminalizing tendency is ‘divergent’ and ‘centrifugal’, dispersing towards a de-differentiated periphery which is tolerant of deviation (Greco and Stenner, 2017). Potentialization technologies are liminalizing in that they *open* possibilities and amplify variability. If the most familiar types of technology (including most ‘physical’ technologies) are means by which expectable patterns or forms are established and maintained, the latter type (including potentialization technologies) are the means by which patterns which have outlived their usefulness can be transformed so that new patterns can emerge. Here we contrast the two ‘tendencies’ the better to clarify their difference, but they are related and often intertwined. If expectations function to reduce complexity in the name of probabilizing a preferred outcome, for example, then removing them preserves the complexity that set expectations would eliminate.

Whilst the potentialization technologies we are discussing are a relatively recent development, it is possible to trace their connection to much older forms of practice, such as rites of passage and carnival. Stenner (2017) has called these ‘liminal affective technologies’. The concept of liminality is classically contrasted with that of structure, and indeed Turner (1982) refers to liminal occasions as *anti-structural*, precisely

because they are designed to facilitate transformation from one structured set of expectations to another. These are described as ‘affective’ for two reasons. First, because any suspension, removal or transformation of structure enhances the intensity of affective experience, which must therefore be ‘managed’ as part of the technology. Second, because these technologies directly engage the affective dimension to supply a new intensity and vitality of motivation. Historically speaking, long before law was developed to manage conflict, ‘liminal affectivity’ was summoned, managed and navigated by means of ritual and its attendant semantics of the sacred (Stenner, 2017). Although we cannot pursue the matter here, ritual can thus be considered an archaic but ever-renewed ancestor of the potentialization technologies we are here considering.

Why ‘Potentializing’?: Opening Possibilities within Temporal, Object and Social Dimensions

Barel (1979) gives the name *potentialization* to this recovery of possibilities provisionally excluded by structure (expectation), and points to its role in the emergence of new forms. Our three diverse examples evidently share in common a concern with the *opening up of possibilities beyond the horizon of existing possibilities*. We have selected examples that illustrate three different targets and vehicles through which possibilities are produced: potentialization through the *time* dimension, the *object* dimension and the *social* dimension, although each one involves all three dimensions on some level.

Example 1 opens potentials by focusing primarily on the time dimension (for other examples see Andersen, 2008, and Andersen and Pors, 2014). It assumes that a programmed playful dialogue is able to potentialize by opening up as yet unknown possibilities. The assumption in the game is that the imaginative capacity of managers and employees sets the ultimate limit to organizational change. Each part of the grid constructs time differently, and together time is made into something contingent. ‘What is now?’ constructs time as the present of the present whilst ‘what is possible now?’ constructs it as the present’s future. The question ‘what will be in five years?’ constructs the future’s present whilst ‘what will be possible in five years?’ constructs time as the future’s future. When temporal expectations are opened up through this temporal doubling, the game invites further discussion on perspectives. Here, potentialization is about dissolving the expectation of security and predictability regarding the future. Potentialization defends the organizational communication against entrenched expectations for the future and for the future of the future, and against entrenched expectations for the present and its possibilities. It articulates an implicit ‘no’ to certain time-bindings: namely those which assume a purely *conformal* relationship between past, present and future.

Example 2 focuses primarily on the object dimension. The aim is to open up new possibilities for the object 'education'. Sisters Academy draw on the anthropological concept of 'liminality': their 'takeover' creates a 'liminal zone' giving the school the opportunity to transform itself through the playful question 'what if?' Answers to this question contribute towards 'doubling' the ordinary school into an extraordinary school of virtual potentiality. In this case, potentialization is summoned by suspending the normal expectations about education and defending the ensuing communication against entrenched expectations about teaching and learning. Sisters Academy hint that the existing school is 'a school of the industrial society', and this invocation clearly questions the continued relevance of its structures for the present. The implication is that the old 'industrial school' might be transformed – via the 'liminal zone' of the intervention – into the new 'sensual school'. They play with the historical idea that society has been dominated in turns by religion, policy, and economy, but that a future 'sensual society' might take its inspiration from aesthetics. The potentialization technology thus stages a re-experiencing of the school that might usher in the 'becoming' of this 'sensual society'. If the 'inspirational framework' creates a subjunctive space-time in which education 'might' be transformed, then this is achieved by articulating a 'no' to the normal educational structures. Sisters Academy do not provide input on how to run the ordinary school: following the carnivalesque transformation it is left to the teachers and students to grasp these possibilities for the future.

Example 3 opens possibilities by focusing primarily on the social dimension by addressing the problem of early retirement (other examples would be the 'responsibility games' discussed by Knudsen and Andersen, 2014). Since 2013 the Danish procedure for granting a pension for early retirement must, by law, involve a Rehabilitation Team who inform a Resource Trajectory (RTRT).

is a dialogue and coordination forum, which shall give an assessment in all cases, before decisions regarding resource trajectory [...] and early retirement are taken. [...] Based on the individual citizen's overall situation, the aim of the rehabilitation team is to ensure interdisciplinary coordination and a holistic effort across administrations and authorities focusing on employment and education, so that the citizen as far as possible gets a connection to the labour market. (Lov, 2012: kap3a, para 25)

The older Danish law from 1965 specified a positive entitlement based on the observation of limitations: 'The entitlement to an early retirement pension depends on that person's ability to work being reduced to the extent required by the law' (Ministry of Social Affairs, 1965: 29). Hence an 'early retirement pension' involved an essentially positive decision

compensating for the consequences of an incapacity or reduced capacity to work: what a person *cannot* do (Ministry of Social Affairs, 1965: 20). But roughly at the turn of the 21st century a discussion arose expressing concern about the extent of early retirement. One official report states:

It's about people who do not get the opportunity to realise their potential in an active working life. It is about future-proofing our welfare. And it is about our community and Danish business growth and job creation and new jobs, that do not benefit from the resources and skills of the many retired young people. (Ministry of Employment, 2012: 4)

A contradiction is here articulated between the citizen's right to early retirement and their right to realize their potential. The older semantics of retirement rights based on what a person *cannot* do (i.e. a communicative form based on 'limitations of possibilities') are thus confronted with semantics stressing what, given the right circumstances, people might be able to do (i.e. a form based on 'possibilities *despite* limitations'). As put by a former Social Affairs Minister:

The main aim of the reform is to focus on people's work abilities instead of how sick they are [...] After the reform the principle of social work will be the resources and value of the single individual. What counts is not the disabilities of an applicant, but what he or she can do. (Kristensen, 2000)

Observing limitations upon potential becomes the premise for developing a citizen's resources, and we end up with two almost antagonistic gazes at the citizen: limitations/possibilities and possibilities/limitations. The reform of early retirement incorporates this paradox into the law so that the citizen's right to early retirement can be exercised only when their right to realize their potential has been exhaustively explored. The RTRT which explores this can either devise a resource trajectory which practically articulates those 'possibilities from limitations', or recommend a retirement decision (in which case the citizen is observed within the 'old' frame of 'limitations upon possibilities'). As a potentialization technology, RTRT thus says 'no' to the automatic right to early retirement whenever this right is observed to threaten the citizen's potential to remain active. This rejection is explicit in the former employment minister Mette Frederiksen's response to Parliament to the reform proposals:

The main aim of the reform is to prevent early retirements [...] Creation of rehabilitation team and resource trajectory in the

municipalities, and the establishment of clinical function in the regions presents many more opportunities to prevent early retirement than there were before the reform. (Frederiksen, 2012)

Potentialization Technologies and Societal Immunity

We will now further explore how potentialization might function immunologically, not through legal regulation of spontaneous conflict but through negation of structure and entertainment of possibilities. We have seen that when Luhmann discusses law as an immune system he specifies that it puts conflict and contradiction to use as an immune mechanism, and he defines these in terms of the articulation of a 'no'. Although conflict and contradiction do not play as obvious a role with potentialization, its relevance can still clearly be discerned if we observe: a) that each of our examples expresses a 'no' to structures of some kind; b) that this 'no' is at the same time a 'no to no'; c) that this paradoxical 'double no' has a distinctly performative character; and d) that it is a generalized 'no' to structure as such. A synthesis of these features clarifies the nature of potentialization as an immune mechanism.

a) The Articulation of a 'No' to Structure

We have seen that the future reality game expresses an implicit 'no' to any expectation of a conformal relationship between the past, the present and the future of the organization. Through this 'no' to the expectation of conformal 'business as usual', it aims to open up a new horizon of possibilities beyond existing possibilities. In this respect, it is notable that the past is excluded from the game, having no place on the grid. Furthermore, through doubling both the present and the future, new contradictions can be summoned and mobilized. On the one side, new contradictions are summoned between the present present and its present future. On the other side, the future present and that future's future supply another doubling which releases contradictions enabling critique of the first pair. A possible future can, in this way, yield a resource for criticizing the future-that-otherwise-will-be. Sisters Academy likewise articulate a 'no' to the normal, conformal, expected school structures. The contrast between the 'industrial school' and its 'aesthetic' other recruits new possible conflicts and contradictions to stimulate dissatisfaction and motivate 'change'. Finally, RTRT articulates a 'no' to the expectation of an automatic right to an early retirement pension, but in this case too tensions and contradictions can be generated and mobilized between the figure of an active participatory citizen who overcomes limitations, and a legal right to retire. In the case of RTRT, then, the structure that is negated is law itself. RTRT is precisely not designed to determine pension rights but to provide a means to avoid early

retirement decisions (the social pensions Act 2014, ch. 3, article 18, par. 2). One can say that it functions as an immune mechanism that protects the work of potentialization by intercepting structural decisions and creating a zone of uncertainty about the right to early retirement. A rehabilitation team can recommend a resource trajectory lasting up to five years and it can legally recommend yet another resource trajectory. This effectively grants a buffer-zone of immunity from the legal structure of rights, meaning that citizens who have applied for early retirement have no opportunities for clear and unambiguous expectations regarding their legal possibilities for early retirement.

b) The Simultaneous Articulation of a 'No' to a '(Just Say) No'

If potentialization technologies say 'no' to the authority of social structure, then, according to Luhmann's definition, one might expect them to be in the conflictual business of contradicting structure. However, potentialization also stands opposed to the negativity ('just say no') associated both with conflicts and with law. Contradictions are recruited and mobilized with a *positive* agenda of producing new potentials and openings. Compared to the legal process of authoritatively examining *what happened* in the light of present law (aiming to restore a balance temporarily lost), potentialization technologies orient towards the imagination of an ideal future in the pedagogical name of mutual development. The Rehabilitation Team draws up its Resource Trajectory in a bespoke manner on the basis of Svend's particular possibilities and it claims to do so for the benefit of his wellbeing, balanced against that of the collective. When Sally invites her colleagues to play the future reality game, it is in the name of making the jobs of Kesi, Morten and the others more fun, interesting and dynamic whilst simultaneously future-proofing the health trust. Sisters Academy do not straightforwardly criticize the school and the teachers, but offer a temporary vision of an alternative reality that does away with teachers who 'know' and pupils who must sit down and concentrate on their work. In communicating both a 'no' to structures and a 'no to just say no', potentialization resonates with Deleuze's notion of affirmative critique (which says 'no' to the existing society whilst positively indicating the emergent virtual of the yet unknown and un-thought). Potentialization is a kind of positive critique that does not claim to stand outside everything, or to offer authoritative access to a single reality, yet seeks a 'yes' to an inherently ambivalent and polyphonic system in process of becoming other. It offers the paradox of an affirmative negation, a negation of negation (Esposito, 2011).

c) The Performative Basis of the Articulated 'No' to Structure

The affirmative negation described above is supported and afforded by the curious nature of the form typically taken by potentialization

technologies. As we have seen, the technologies often take the *ludic* form of games or sports (the ludic form of the future reality game is obvious), the *aesthetic* form of the various arts (the Sisters Academy intervention resembles a piece of theatre) or a *pedagogic* form which mixes play and education (RTRT takes a quasi-pedagogical form). Aesthetic, ludic and pedagogical practices share in common a feature of *doubling* which operates with a distinction between 'the real world' and a self-created world of the 'imaginary', 'fictional', 'playful' or 'hypothetical' (Stenner, 2017). These forms, in other words, work by 'suspending' and 'playing' with and within a liminal space/time that is removed from ordinary structural expectations. In this context, whether framed as the play of theatre or that of games, actions become *performances* enjoyed by the other players or the audience. Thanks to this performative form, the 'no' to structure is, as it were, uttered at an ironic distance, and this 'suspension' makes it hard for conflict to connect with and escalate within situations of potentialization. Potentialization technologies exploit the subjunctive mood to maintain themselves in the realm of 'possibility' and 'imagination' and to avoid actual conflict (those who get angry can be positioned as taking it all too seriously). RTRT is the least 'performative' of our examples, but it also operates within a 'hypothetical' space/time in which the multiple possible futures of the client are summoned and entertained in the ostensible name of their own development and wellbeing (adopting a *pedagogic* logic).

d) *The Generalized Nature of the 'No' to Structure*

Finally, potentialization technologies say 'no' in a generalized way to structures as such, and not just to particular structures. In the future reality game, a general 'no' is communicated to any future that remains the same as a function of a present conforming to a past. It is not a particular past present that is resisted but the very idea of being stuck in the repetition of a past. The 'no' of Sisters Academy implies the industrial school in its entirety is an institution stuck in the past and doomed to repeat its structures. No alternative pedagogical structures are offered beyond the conjuring of a structure-free ideal of permanent liminal becoming. When conflicts serve as immune mechanisms to communicate 'no' within law, by contrast, it is a specific structure that they highlight. For example, doctors in Danish psychiatric hospitals were given new legal powers to use force with patients in 1938 as a result of the legal regulation of conflicts. This legal change granting new immunity to doctors did not of course resolve such conflicts, but re-situated them onto different ground, inviting, for example, new conflicts about where the doctors' authority begins and ends. Structure *as such* is not challenged, but merely shifted. Law in this way does not simply constrain conflicts but works formatively, controlling and shifting their site and substance.

Following the Mental Health Act (2006), however, psychiatric hospitals are now obliged to prevent coercion. This opened up new relationships between various professions at work in the hospitals, providing fertile grounds for new potentialization technologies to operate in an extra-legal manner, much like RTRT. By means of coordinating the perspectives of various professionals, RTRT communicates a general 'no' to early retirement before alternative options are exhaustively explored.

Synthesis

In sum, when potentialization says 'no' to structures in general, looking for attempts at the radically different, it does not distinguish between structures that are worth preserving and structures that are not. It starts a general deflation or dissolving of structures. In the example of the Sisters Academy, this indifference to the heterogeneity of structures is expressed when they say: 'We have no knowledge of pedagogy', even when the entire project is about experimenting with everything in the school. With reference to the aesthetic logic, it becomes possible to experiment with educational development without knowing anything about pedagogy. Similarly, in the 'from reality to the ideal' game, the value of contemporary experience is excluded. With RTRT the imperative is: think in possibilities – not in limitations and constraints. When potentialization technologies double the world, they enjoin their participants to stay on the virtual, 'playful' side of the difference. Pushing the 'real world' aside, potentialization puts everyday knowledge and work experience in jeopardy, risking the devaluation of professional knowledge and experience. The principle autoimmune danger of potentialization is thus the paradox of permanent liminality: the possibility of becoming stuck within possibility (see Szakolczai, 2017; Greco and Stenner, 2017, on 'liminal hotspots').

It is notable that potentialization technologies have emerged in a context where structures have been identified as a threat to what Luhmann (1995: 374) calls the 'modern welfare society'. Early signs of their modern emergence can be found in Mead's discussion of the increasing relevance in early 20th-century America of experimental forms of schooling and techniques used in juvenile courts to express 'in terms of affective experience' matters that would normally take the form of objective statements of problems fixed in advance by institutional norms (Mead, 1917). Mead observed that these new experimental forms help to avoid an otherwise conflictual and legally-oriented relationship between the interests of the individual and the state. Since New Public Management emerged in the 1980s, however, bureaucratic structures have been increasingly identified as a major challenge, especially to the welfare state. Constant change or some form of permanent liminality has been proposed as the solution (Andersen and Pors, 2017). In addition, since 2000, the structures that

exist in different welfare practices (teaching, healthcare, social work, etc.) have been problematized. In state schools, for example, teachers' habits, the syllabus, and the institutional categories of teacher, class and subject have been diagnosed as structures that impede innovation, and even the traditional goal orientation of professionals has been reframed as an obstacle to open 'co-creation' between different professional groups (Pors, 2011). The response to the problematization of structure *as such* is the ideal of an ever-emergent welfare organization that 'builds the road that it moves forward along' (Andersen and Pors, 2016). It seems that the potentialization technologies we are considering are formed under these conditions in which societal structures are problematized as obstructions to a fluid ideal. They share the goal of potentialization in that they aim to create new possibilities for what welfare, education, care and treatment can be.

Conclusion: When the Welfare System Protects Its Operations against Its Own Structures

In addressing potentialization technologies as a new mode of immunity, this article proposes an extension of Luhmann's observation concerning conflict as immune mechanism and law as immune system. This article has dealt with some special types of technology, most evident within the welfare sector, whose function is potentialization: creating radically new possibilities for what welfare is and can be. These potentialization technologies present themselves as positive responses concerned with 'transformation', 'radical innovation' and 'thinking the unthinkable'. The immunological analytic strategy we have offered provides a diagnosis of the present that aims to capture how these technologies work. This has enabled insights into how potentialization technologies put the very relation between operation and structure at stake in the management of welfare issues.

Social systems have, of course, always evolved by reacting to events in their internally constructed environments and creating structures that become taken for granted. What is so interesting today is that welfare institutions articulate their own structures as a threat to the continuation of their operations. The welfare state is articulated from within as its own threat. Potentialization technologies respond with the positive creation of new possibilities. They say 'no' to structures but without being negative, and in this way aim to provide space for the innovation and transformation of welfare. But in doing all this, they remain systematically blind to their destructive side. They indiscriminately attack structures in general, including those established through professionalization, through daily routines, and through legalization. In this sense they are *anti-structural*: they dissolve security around any and every expectation structure, hindering the formation and institutionalization of professional routines and

even undermining the legal certainty afforded by rights. This resonates with Opitz and Tellmann's (2015) analysis of 'future emergencies' which can serve to dissolve law's temporal structure, and Cary Wolfe's observation that a crucial problem for politics 'is the problem of controlling autoimmunity' (Wolfe, 2017: 108). For Wolf, 'the political system controls autoimmunity by allowing conflicts within the political system between government and opposition to serve the immunitary function of managing conflicts in the broader society' (p. 116). We suggest that potentialization technologies represent a new form of controlling autoimmunity with new types of effects.

This destructive side of potentialization technologies is particularly evident when we consider their relation to law. From the perspective of potentialization, legal rights and legal certainty are at best irrelevant and at worst structures that stand in the way of innovation. It is as if potentialization stood in an autoimmune relation to the legal system, protecting welfare state operations against juridification. But if law does not regulate these new immune mechanisms, who and what prevents potentialization from running amok? Who and what takes responsibility for the destructive sides of potentialization?

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