Systemic legislation: By what right are distinctions made?
Mirko Pečarič

Abstract: A question on the right to make legislative distinctions is important to determine the essence of legislative content. Starting with Aristotle’s question on capacity development for legislation that rests outside of it, this paper uses systems theory and investigates common principles of complex units to enhance what should be systemic in the laws and to address the right to make distinctions on which rules are based. The paper enumerates basic elements of systems theory that legislators should consider to make legislation adaptable to real-life conditions and their changes. Findings from systems theory put public accountability and integrity of public bodies and employees into a light that illuminates the whole in all its relations with different parts and environments, feedback, self-organisation, emergence and adaptation. These elements form systemic legislation.

Subjects: Law; System Theory; Information Science

Keywords: systems theory; legislation; complexity; adaptable norms

If a factory is torn down but the rationality which produced it is left standing, then that rationality will simply produce another factory. If a revolution destroys a systematic government, but the systematic patterns of thought that produced that government are left intact, then those patterns will repeat themselves ... There’s so much talk about the system. And so little understanding (Pirsig, 2009, p. 102).

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PUBLIC INTEREST STATEMENT
Reductionistic thinking or taking systems apart to better understand them also made progress in legal science, but to see a system in action, in a cycle, it must be seen as a whole in its structure, relations and the environment. Decision-makers should know and understand systems’ elements to achieve purposes reflected in the wanted outcomes. The ability to adapt should be engraved in the law, as it is in other complex and open non-linear systems. The system’s characteristics can be more successfully applied/connected in legislation. The aim is thus to advance the systemic view and hence improve legal systems in their systemic element. Based on the enumerated systemic elements the paper proposes here-called adaptable norms and controlling questions that enhance the systemic approach of legislators towards the better adaptability with the environment.

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1. Introduction
Although legal science, through the imposition of legal ideas in the environment, contravenes Cartesian dualism that separates mind and matter, it still mostly understands them separately (abstract legal notions, accountability, a free will, reason, rights and causality vis-à-vis the institutions, tools, technics, methods, sanctions), and not in their relationships and chain reactions. Reductionistic thinking or taking a whole apart to better understand it made progress (in Descartes’s rationalism, Newton’s laws of motion and gravity, Laplace’s mechanics, etc.) in legal science (especially the legal and administrative adjudication), but to see and understand the legal system in action, in iterative cycles, it must be seen as a whole (a holistic, organismic view) in its structure, relations and the environment (here the legislative enactment of statutes and their administrative implementation come to the fore). The system’s parts are easy to notice (in the law, they are articles, chapters, statutes, legal institutes and institutions), but they are not as important as their relations and outcomes, because changing one element usually leads to changed relations and outcomes. If the law is ineffective in some parts, the latter are replaced with others, but their modus operandi is structurally more or less the same: when legislators amend rules, they mostly attack results rather than rules’ relations, and thus no real change is possible (the patterns of thought remain the same). The law is based on a conditional formula (if → then): its (re)action conditionally depends on input information from the environment. It is thus important how the legal system reacts/adjusts to changes in the environment vis-à-vis its legal goals and/or purposes, i.e. how feedbacks work here. If the law (and legislation as its part) is the (legal) system, it must be addressed as such to obtain its full efficiency.

The paper’s key premise, thus, is that by using systems’ elements in legislation the efficiency of the latter can be improved. Decision-makers should know and understand systems’ elements to achieve purposes reflected in the wanted outcomes. The ability to adapt should be engraved in the law, as it is in other complex and open nonlinear systems. Properties of parts are not intrinsic properties and can be understood (but not predicted) within the embedded context of the lower and higher systems. Holistically oriented systems theory offers a way of understanding the world and behaviour in it and can explain why laws cannot be fully understood solely by reading them. Systems thinking deals with the challenges of interdependency and interconnectedness, with an iterative design that recognises choice and/or new beginning as the centre of the human condition (Arendt, 1998). People know all is more than the sum of its parts, but what is or could be all cannot be known in advance—it emerges only through interaction. The same stands for legislation. A focus of this paper is thus on a system’s characteristics that can be more successfully applied (better: connected) to the field of legislation. This paper advances the systemic view and tries to improve legal systems in their systemic element. The paper combines the existing systems theory, focused on the abstract organisation of occurrences, independent of their content, type, structure and spatial or temporal scale of presence to theorize the relationship among the system’s elements and legislation. The people and decision-makers can see a whole instead of pieces; the latter must, during decision-making, be seen only in their connections, but a lawyer could ask: How to make an open system, able to adapt and prosper without sacrificing legal certainty? To answer him, this paper enumerates basic systems’ elements (that decision-maker should know) and transfers them to legislation. It starts with the idea that systems are understood (and sometimes) made by men; the system’s elements can in the field of legislation provide more adaptable and thus relevant laws. This paper hence does not minimise the importance of rights/obligations but maximises distinctions on which the first are made, while it gives to decision-makers some controlling questions to know when the systemic approach is used.

2. Homo mensura elements of systems and statutes design
Homo mensura design started with Protagoras’s holding that humankind is the measure of all things; in this camp, Berkeley’s immaterialism is also found, in which only things people perceive are their perceptions, or esse est percipi (to be is to be perceived) (Berkeley, 2003). It was further advanced in quantum theory: “[w]hat we [as people] observe is not nature itself but nature exposed to our method of questioning” (Heisenberg, 1958, p. 58). In the 1920s, quantum theory,
through names like Schrödinger, Heisenberg, Born and others (Feynman et al., 1965; Heisenberg, 2013; Schrodinger & Penrose, 2012) forced Newtonian physics to accept the fact that the solid material objects of classical physics dissolve at the subatomic level into wavelike patterns or interconnections of probabilities. This understanding of the (unknowable) whole fully emerged in the previous century in systems theory (Ackoff, 1978; Beer, 1966; Bertalanffy, 1968; Forrester, 1968; Luhmann, 2013) as an interdisciplinary theory on systems that investigates phenomena in their entirety.

A start towards a better understanding of systems is hence people’s attentiveness to see and apply them as such. Homo mensura applies also to systems thinking and legislation: both are relative to human apprehension and evaluation; both will be used together only when the importance of their connection is recognised. Human action is needed in political science and legislation, but how is the question. In the absence of a full answer, its predispositions are known: signals, information, feedback and control. The coordination of a whole and concern with particular statutes are the main functions of the legislative and executive/judicial branches—but only when or if they see the coordination of parts and their relations as important. Their actions should be based on reason regarding the public good, while they all depend on mental presentations in different contexts (what is [un]important and how this is estimated), i.e. how they perceive them. In the above-mentioned homo mensura approach people can re-focus their perceptions; the latter “does not control behaviour. Rather, individuals vary their behaviour as necessary to control their perceptions and thereby obtain desired outcomes and avoid unwanted ones” (Cziko, 2000, p. 253). People are the alpha and omega of human-based processes and can enhance sensory ability with systemic thinking and design. A measurement outcome depends on the state of the system: who, what, where, when and how we measure. Discovery of truths depends consequently on questions or hypotheses persons possess in their mental frames and on processes through which they try hypotheses in nature, trying to get an answer from experiments with means that are at their disposal. This can be fully applied in legislation. Systems theory is only one among approaches to legislative endeavours, but important to understand complexity, relations, feedbacks and other elements present in all systems, and the law is no exception.

Systems thinking “involves a shift from objective to ‘epistemic’ science, to a framework in which epistemology—the method of questioning—becomes an integral part of scientific theories” (Capra, 1997, p. 40). Systems thinking is focused on “design as a vehicle for enhancement of choice and holistic thinking” (Gharajedaghi, 2007, p. xx) that includes a choice while regarding the whole. “The critical classifying variable [of a system] is a purpose, and the purpose can only exist where there is a choice, and the choice is of either means or ends, that is, desired outcomes. An entity is purposeful if it can select both means and ends in two or more environments (Ackoff, 1999, p. 21). Systems theory ‘describes how environmental stimuli can have an effect on systems that changes their structure. The question is how an event ... can be noticed as such in the system and lead to a structural change—that is, to the selection of new structures and to test whether these structures can be stable or not’ (Luhmann, 2013, p. 29). In legislation the static, written forms prevail; the first is changed by amendments that try to put more (new) relations in it, while in systems thinking relations are already one of its building elements. Before (legal and other) actions are made people should know for the systems’ main elements. Legislators should be aware of the bellow-presented elements to have better legislative outcomes. With the inclusion (or at least by the awareness of their existence) of the below-given elements into legislation, the latter could better reflect and thus address complex reality to be more adaptable to changes in the environment.

2.1. Interdependence or relations among parts
The basic division is one between the parts and the whole; to better understand complex phenomena, one needs to look at parts in terms of wholes and relationships rather than reducing them down into parts and looking at them in isolation. This is systems thinking (Ramage & Shipp, 2009) and comes from the shift in attention from a part to the whole, considering the observed reality as
an integrated and interacting unicum of phenomena where the individual properties of the single parts become indistinct (Mele et al., 2010). The system as an integrative whole cannot be divided into independent parts without the loss of its essential properties or functions. “Once the components are assembled and once the system works, the system is an integrated whole. Removing or sharply changing any component will probably lead to failure. That is, solutions once found, are more or less locked in” (S. A. Kauffman, 1993, p. 13). Because the system’s properties come from the interactions of its parts rather their actions taken separately, “when the performances of the parts of a system, considered separately, are improved, the performance of the whole may not be (and usually is not) improved” (Russell Lincoln Ackoff, 1999, pp. 8–9). For the same reason, the system’s behaviour also cannot be predicted by any part of the system (recall the story of blind men holding an elephant in different places); only when a global vision of its structure, relations and functioning is used can some parts become relevant—when connected with some function. The parts connected with essential relations present the idea of leverage points. What counts is the knowledge of how these parts as a whole form synergy, what counts is the knowledge of how to change the system’s structure, connections and purpose to produce more of what somebody wants. When the feed-back of some changed parts is carried out, it will again (and again), in a way not expected from a decision-maker point of view, change the performance of the whole system: its relations—that are usually equated and evaluated in the form of results—will be ex-post evaluated again, while the system or rules will already be (again and again) at a different position. When the ex-post change is made, it will affect the whole system, and its relations and purpose will be somehow different than before. There is no point to evaluate the life of a man in his sixties to change his life in his forties.

2.2. Feedback—First affected by the last

The first comprehensive discussion of feedback loops or circular causality was published by Wiener, Bigelow, and Rosenblueth. The basis of the concept of purpose (the attainment of a goal) is for them the awareness of voluntary activity: “[p]urposeful active behaviour may be subdivided into two classes: feed-back (or teleological) and non-feed-back (or non-teleological). The concept of teleology shares only one thing with the concept of causality: a time axis. But causality implies a one-way, relatively irreversible functional relationship, whereas teleology is concerned with behaviour, not with functional relationships” (Rosenblueth et al., 1943, p. 24). Feedback is a circular procedure of connected elements, in which an initial state circulates the links of the loop so that each element affects the next, until the last (output), “feeds back” into the first (input) element of the cycle (past action controls future action). The first is affected by the last; this results in self-regulation of the entire system because the initial state is (re)modified each time it travels around the cycle. Feedbacks are nevertheless close to causality—the first in circular motion non-stop affects the second. Within (self)regulation or general rule-making, classical, one-way causality cannot be used (because the future is always in the future), so there are substitutes of causation at work. They can be found in systems, in their structure, processes and purposes. They all are connected with feedback loops. If the latter is absent, there is no purpose, no attainment of goals and no real regulatory awareness of what is going on. Feedback, in Wiener’s words, is the “control of a machine based on its actual performance rather than its expected performance ... It is the function of these mechanisms to control the mechanical tendency towards disorganisation” (Wiener, 1989, p. 24). Actual performance is the sine qua non for system effectiveness, and the sole presence of feedback loops does not guarantee it:

The presence of a feedback mechanism doesn’t necessarily mean that the mechanism works well. The feedback mechanism may not be strong enough to bring the stock to the desired level. Feedbacks—the interconnections, the information part of the system—can fail for many reasons. Information can arrive too late or in the wrong place. It can be unclear or incomplete or hard to interpret. The action it triggers may be too weak or delayed or resource-constrained or simply ineffective. The goal of the feedback loop may never be reached by the actual stock (Meadows, 2008, p. 30).
Feedback is tightly connected with a system of information, i.e. with decision-making (Forrester, 1968). Information should not go through the system without being noticed; this wish depends on the model’s structure and its positive and negative feedback. Positive feedback reinforces or escalates decision-making that leads to exponential results and extremes very quickly. To prevent collapse, there must be some precautionary measures (sensors, indicators, thresholds) installed, which is the task of the meta-feedback loop. In physical, exponentially growing systems, there must be at least one reinforcing loop driving the growth and at least one balancing loop constraining the growth, because no physical system can grow forever in a finite environment (Meadows, 2008) People do not always follow Newton’s second law of motion, as a classic example of one-way cause-effect thinking; Carnap already claimed that causality “is not a thing that causes an event, but a process ... [in which] certain processes or events cause other processes or events” (Carnap, 1966, p. 190). This is circular causality in which causes are also effects, and the effects are also the causes. Feedback is also “essential for the continuation of life and is found in homeostasis or the self-regulation that allows living organisms to maintain themselves in a state of dynamic balance” (Wiener, 1961, p. 114). Correlations can often thus only be apparent causes and a chain of influence so complex to be impossible to follow. “There are negative (balancing), positive (reinforcing) and meta-feedback loops (loops that alter, correct, and expand loops). These are policies that design learning into the management process” (Meadows, 2008, p. 177), which cause (self-) organisation, different from a planned one.

2.3. System performance over time, stocks and flows
Systems thinking is focused on structure and relations; the first is the starting point of the latter, while both are revealed in patterns and/or a series of results over time. This disclosure is possible through feedback loops, i.e. their subsystem of stocks and flows. Forrester refers to them as levels and rates: “the level (or state) variables describe the condition of the system at any particular time and accumulate the results of action within the system. On the other hand, the rate (action) variables tell how fast the levels are changing” (Forrester, 1968, p. 6). The focus is nowadays primarily on events at a specific time (the evaluation of political scandals, tragic events, criminal acts cannot change them) and not on relations that have caused events over an interval of time. System flows (e.g., crime rates, GNP, number of decisions issued) are usually overemphasised and stocks (e.g., economy or other accumulated material or information that had formed in a system over time) underemphasised. Focus on relations is more promising, but here a caveat is also present: the matter (structure) and process (relations) or a static ground (a stock or a quantity, foundation of stored flows existing at one specific time) with a flexible intensity of its administration (a flow, measured over an interval of time) cannot be directly compared but solely through their ratios (flow/stock in time or 1/time) to understand their trends over time and to manage them appropriately: “[s]ystem thinkers see the world as a collection of stocks along with the mechanisms for regulating the levels in the stocks by manipulating flows ... system thinkers see the world as a collection of ‘feedback processes’” (Meadows, 2008, p. 25). Stocks set the tempo for flows (an issued number of decisions, for example, depends on the number of institutions, employees and technology of processing data), and the latter cannot control another flow without an interfering stock.

To understand dynamic behaviour between stocks (an asset or quantity at a balance date) and flows (transactions during an accounting period) in and over time, it is crucial to understand the formation and interpretation of results and further decisions. The right decision/action is solely present in the equation of unit of flow/stock in time. As mentioned, people usually notice flows more than stocks and thus seek solutions only within the domain of the first (the change of tools). The change of flows does not directly affect stocks, but (lowering) stocks at their extreme demand a change of approach or perspective (a jet engine instead of a piston one). A change of perspective is a form of a meta-feedback loop that can direct the system into new directions.

2.4. Pattern
To understand the phenomenon of self-organisation, decision-makers need to understand the importance of pattern, which became the explicit focus of systems thinking in cybernetics. From
the systems as well as biological point of view, understanding of life begins with a pattern as “the configuration of [functional] relationships among the system's components that determines the system’s essential characteristics” (Capra, 1997, p. 158), with a pattern which connects that is the context through time that gives meaning (Bateson, 1979). Patterns or ratios between quantities change in connection with the system’s feedback loops; the latter provide differences (information) needed to compare and understand phenomena. A system is “a set of elements or parts that is coherently organized and interconnected in a pattern or structure that produces a characteristic set of behaviours, often classified as its function or purpose” (Meadows, 2008, p. 188). In a system, things are interconnected and form patterns (behaviours) over time—they can be seen or spot on graphs; for patterns, they do not need to be meaningful per se. Systems can trick people by showing themselves as a series of events in which persons (want to) see more than there is. On the other hand, only when persons can see patterns, they can change inputs and watch if outputs change and in what direction. People have a larger portion of control when they can build relations between input and output (white box) and under a purpose watch how results are close to desired goals. On the other hand, people have a smaller control when only inputs can be changed, without knowing the whole structure or relations between inputs and outputs (black box; outputs are thus indirectly aligned according to desired goals). But also in the latter case, “[w]e [as observers] are less likely to be surprised if we can see how events accumulate into dynamic patterns of behaviour” (Meadows, 2008, p. 88). Systems thinking is focused on relations and on seeing a system as a whole. When the focus is given to parts, relations vanish and there is no pattern among them. With no relations among (although present) parts, there is no pattern (no visible behavioural changes over time).

2.5. Self-organisation, self-reproduction or self-regulation

Feedback loops with different data from outputs to inputs, the internal structure and processes lead to self-organisation, which means “the appearance of structure or pattern without an external agent imposing it” (Heylighen, 1999, p. 253). It addresses the spontaneous emergence of order (seen in, for example, the ice structure or in the snowflake), seen in the dynamic balance of information exchanges in time between the system results and its environment to maintain a state of equilibrium over time known as homeostasis (Hannan & Freeman, 1977) and/or the state of steady internal conditions maintained by living things (Betts et al., 2013). It is known also as self-reproduction/self-making or autopoiesis (Maturana & Varela, 2012). Self-organisation (homeostasis) is the system's propensity to maintain a relatively constant internal environment. It is usually based on the negative feedback that neutralises changes and maintains target values, but it happens that positive feedback may amplify its stimuli to move the system towards a new point when a reference value is changed when information comes from other (meta) systems to gain higher adaptability with its environment. Kauffman's idea for spontaneous (natural) order that exhibits itself in life emerged as a consequence of autocatalytic reactions or the collective dynamics network. Kaufmann's analysis of Boolean binary (on/off) networks showed that spontaneous organisation may result from the apparent disorder. The British cybernetician Ashby introduced the principle of self-organisation through which a dynamic system, independently of its type or composition, tends to evolve towards a state of (dynamic) equilibrium, when

the system is complex enough, or large enough, to show: (1) a high intensity of selection by running to equilibrium, and also (2) that this selected set of states, though only a small fraction of the whole, is still large enough in itself to give room for a wide range of dynamic activities. Thus, selection for complex equilibria, within which the observer can trace the phenomenon of adaptation, must not be regarded as an exceptional and remarkable event: it is the rule (Ashby, 1960, p. 231).

In the same year as Ashby, von Foerster also formulated the principle of order from noise: “in the long run only those components of the noise were selected which contributed to the increase of order in the system” (Foester, 1960, p. 48). The greater the random perturbations (noise in the
form of undirected energy) that affect a system, the more quickly the system will self-organise. The maintenance of order requires that some form of work be done on the system because order disappears in the absence of work (Kauffman, 1996). Self-organisation is a system's ability to make a new structure more adaptable (more complex) than the previous one.

2.6. Hierarchy, supra- and subsystems
In the process of self-organisation and increased complexity, hierarchies are often formed; they are "a series of ordered groupings within a system, such as the arrangement of plants and animals into classes, orders, families, etc." (Dictionary.com, 2018). Parts are embedded in other parts, and they form systems on a higher and a lower level. “Hierarchies evolve from the lowest level up—from the pieces to the whole, from cell to organ to organism ... Life started with single-cell bacteria, not with elephants. The original purpose of a hierarchy is always to help its originating subsystems do their jobs better ... many systems are not meeting our goals because of malfunctioning hierarchies” (Meadows, 2008, p. 84). The optimal relation between supra- and subsystems depends on information and is also known as the redundancy of command. In a completely established hierarchy, it is known in advance what sub-systems work as entities, and which of them command what aspects of control. But in a self-organizing system or a system designed for learning, adaptation and evolution, alternative groupings must be possible. So, the third form of redundancy [along the disrupted and noisy information channels] lies in the potential for command: it is a behavioural, not a structural, component of the system. The trick was learnt from the brain, once again, and may readily be observed in operation in any social group. This subtle feature of the effective organization was named the redundancy of potential command by the distinguished American cybernetician Warren McCulloch (Beer, 1966). Information comes and goes through the system; it depends on the system’s arrangement when redundant information is changed into/seen as the relevant piece; this is, in practice, done in places where information is needed most for the system’s maintenance and adaptability and to set a starting point for future better adaptation.

2.7. Order out of dynamic interactions
The positive-feedback loop in systems theory is known as the order out of chaos in non-linear systems and/or in chaos theory. Science struggles between determinism, predictability and chaos. In the late 1970s, with the advent of fast and cheap computers, it was recognised that chaotic behaviour was prevalent in almost all domains of science and technology. The phrase “strange attractor” (a set of values toward which a system tends to evolve despite different starting conditions of the system) was coined to describe complicated long-term behaviour of deterministic systems, and the term quickly became a paradigm of nonlinear dynamics (Boyarshy & Gora, 1997; Sprott, 1993). In far-from-equilibrium conditions, very small perturbations of fluctuations can become amplified into structure breaking waves (Prigogine & Stengers, 1984). Far from equilibrium appears a variety of mechanisms corresponding to the possibility of occurrence of various types of dissipative structures (Prigogine & Stengers, 1984) that depend and grow based on the system’s structure and relations. For Kauffman, “laws of complexity spontaneously generate much of the order of the natural world. It is only then that selection comes into play, further moulding and refining ... Left to itself, a system will visit all possible ... configurations equally often. But the system will spend most of its time in those coarse-grained patterns satisfied by very large numbers of fine-grained patterns molecules uniformly distributed throughout the box” (Kauffman, 1996, pp. 6–7). Between the static order and chaos is a phase transition called the edge of chaos, where the laws of complexity prevail: “these are the systems that are both stable enough to store information, and yet evanescent enough to transmit it. These are the systems that can be organized to perform complex computations, to react to the world, to be spontaneous, adaptive, and alive” (Waldrop, 1993, p. 293). There is always an opposite side, so what one could say is tightly connected with what others might say; an effective decision is thus a judgment based on dissenting opinions rather than on consensus on the facts (Drucker, 2002). Systems should be designed to embrace as much as information as possible. In complex adaptive systems (societies, humans) such as dissipative (energy-consuming) entities, one reaction produces another (and
leads to spontaneous order); in systems theory, this is known as a positive-feedback loop (extreme sensitivity to input conditions) or in chemistry as auto-catalysis, while people usually know this under the name Butterfly effect. The very richness of interactions allows the system as a whole to undergo spontaneous self-organisation; very simple dynamic rules can give rise to extraordinarily intricate behaviour.

2.8. Emergence

Self-organisation is tightly connected with a puzzle regarding how new things or processes adapt to changing contexts. The order from chaos (Odell, 2003; Prigogine & Stengers, 1984; Waldrop, 1993) presented by self-organisation is equated with the concept of emergence that represents an organisation on a higher level, more adaptable to the present conditions. “Self-organization is often associated with emergence, which classically means the appearance of a level of complexity more advanced than the existing components of a system” (Feltz et al., 2006, p. 341). Emergence is a new, more adaptable order, the result of dynamic nonlinear systems. A concept of emergence can give us a fresh insight into living systems (different from the one-way cause-effect relation) within the theory of complex adaptive systems: “[a]n emergent property is a global behaviour or structure which appears through interactions of a collection of elements, with no global controller responsible for the behaviour or organization of these elements. The idea of emergence is that it is not reducible to the properties of the elements” (Feltz et al., 2006, p. 341). All is not only more (due to multiplication, not the addition of parts) than the sum of its parts, but what is or could be all cannot be known in advance, until tried in practice—it emerges only through interactions. A further characteristic of emergent property is its “complex behaviour [that emerges] from simple rules. Those rules imply general regularities, but the working out of an individual case exhibits special regularities in addition” (Gell-Mann, 2002, p. 313).

Similar to emergence, practical wisdom is not so much in the possession of particular knowledge but rather “how speaking and acting subjects acquire and use knowledge” (Habermas, 1985, p. 11). It emerges in processes, and the same goes for the law: saying that “positive law can no longer derive its legitimacy from a higher-ranking moral law but only from a procedure of presumptively rational opinion and will formation” (Habermas, 1996, p. 457) or that reason is the fundamental categories took together, not how an individual thinks but how “collective representations ... translate states of the collectivity. They depend upon how the collectivity is organized, upon its morphology, its religious, moral, and economic institutions, and so on” (Durkheim, 1995, p. 15), is thus insufficient—they lack the action. In legal regulation as the nonlinear complex system emergence presents the unexpected and new arrangements among rules and other entities, that is better adapted to the environment (the new emergent “order” is not necessary also the legal one). The ex-ante assessment is too soon (there are no outcomes), while the ex-post assessment is irrelevant for the re-arranging future (outcomes are feedback to inputs, and both will, therefore, have different values). Emergence could be one of systems’ elements that the most loudly speaks against the current forms of laws; there will always be new things that will ex-post (after the law’s enactment) emerge from the legal rules’ combinations and relations.

2.9. Equifinality

Equifinality refers to the ability of open systems to reach their goals with different means and processes and from different places. Bertalanffy describes it as the “very characteristic aspect of the dynamic order in organismic processes ... [which can contrary to machine-like structures that follow a fixed pathway] reach the same final stage ... from different initial conditions and in different pathways” (Bertalanffy, 1968, p. 132). In legal science, equifinality is the closest to responsive regulation (Ayres & Braithwaite, 1995) or to regulation that is proportionate to goals vis-à-vis means used, but this kind of regulation responds to conduct mechanistically, i.e. by legal interventions of public institutions. Can the legal system be arranged in a way to automatically but differently respond to different cases without human intervention and/or with the minimal time-lags? A solution for this could be in stochastic indicators and their simulations of data. Equifinality is not about the determination of a correct action based upon limited data—it is about various
possibilities through which goals can be achieved: “a rule must be specified for determining the occurrence or non-occurrence of the behaviour based on the pattern ... The methodology should concentrate on the probability of obtaining a result that is consistent with qualitative aspects of the behaviour under a full range of parameter uncertainty” (Hornberger & Spear, 1981, pp. 8, 18). What is (not) important defines the interaction between parameters, so the latter should be large enough to infer on the (non) occurrence of the behaviour. It may be endemic to mechanistic modelling of complex environmental systems that there are many different model structures and many different parameter sets within a chosen model structure that may be behavioural or acceptable in reproducing the observed behaviour of that system (Beven & Freer, 2001). In a complex environment, there can be no right/optimal decision that could be known in advance. There must be larger possibilities to act to gather various data and to (re)act based on the best simulation. Stochastic indicators can provide such possibilities.

3. Stochastic indicators
To have an effective and efficient system, its purpose must be aligned with the system’s structure and relations and with the inner and outer environment. Men have so far been used as the most common examples of sensory and effector units, who perceive, choose and act on different occasions, but the law cannot count on men being at the right place all the time and equally sense, understand and respond to such occasions. The system with a purpose could enhance the ability to choose based on the collected and relevant information. One of the main elements of time is its irreversibility; people can manage only the present time, so there must be real-time sensors by which a controller could gain insight into a current state of affairs in the shortest time possible. For Shannon and Weaver (the fathers of information theory), “the communication system is governed by probabilities which are not independent, but ... depend upon the preceding choices” (Shannon & Weaver, 1964, p. 11); information is thus for them what purpose is for Ackoff (1999) what Nicolis and Prigogine define as complexity—the system’s ability to switch among different methods of behaviour according to different conditions in the environment (Nicolis & Prigogine, 1989), or what Gharajedaghi calls development, i.e. the capacity to choose (Gharajedaghi, 2007). The basic systems-interactive prototype of institutional analysis is focused on the repetitious stages of input, processes, output and feedback. But there is much more. Openness increases the probability to adapt and by this to survive and prosper. This main goal of each system is focused on systems that cause and are their actions. Stochastic indicators are based on a repeated random choice of indicator to obtain an unbiased state of affairs (like the Ancient Greeks used a lot as a democratic device of selection) and/or results and resemble other predictive tools (e.g., data mining algorithms that can produce predictions, like the k-nearest neighbour algorithm, random forest, decision tree learning, Monte Carlo method, Bayesian networks) that are prima facie contrary to homo mensura approach. On the contrary, humans can consciously decide to use different versions of a Ulysses pact and/or freely made decisions designed to bind oneself in the future.

Results can be administered by different inputs into the environmental black-box network, but there must be also a possibility to adjust inputs vis-à-vis given results. For this aim, performance management has evolved as “the effective use of resources, as measured by quantifying processes and outcomes using indicators that gauge the performance of an organization in particular areas [but managers should be nevertheless aware that] performance management is evolving, the underlying technology is imperfect, resource requirements may be significant, there are always unintended consequences, and it is easy to go overboard” (Bergeron, 2017, pp. 9–10). Performance management uses indicators (e.g., corporate, financial, efficiency and effectiveness, tactical and functional) to make processes more manageable. Indicators’ values are measured to demonstrate how operations achieve goals. One of the most known examples of indicators is the Balanced Scorecard. It measures organisational performance from the balanced perspectives (financial, customer and stakeholder, internal process and organisational capacity). The latter “complements financial measures of past performance with measures of the drivers of future performance. The objectives and measures of the scorecard are derived from an organization’s vision and strategy”
(Kaplan & Norton, 1996, p. 8). The balanced scorecard is an example of a closed-loop controller or cybernetic control applied to the management of the implementation of a strategy. In a closed-loop of cybernetic control, actual performance is measured, the measured value is compared to a reference value and based on the difference between the two, corrective interventions are made (Muralidharan, 2004).

Performance measures should help organisations to align daily activities to their strategic objectives, but—who guarantees they are the right ones, who knows if the organisation's vision and strategy are the right ones in the unknowable future, could an open-loop and/or positive feedback be applied? Such indicators repeat the above-mentioned error of seeing flows without the ratio to stocks; performance indicators are focused mainly on flows, not on stocks, and thus seek solutions only within the domain of the first. Performance indicators as an example of communication that includes procedures by which one mind may affect another (Shannon & Weaver, 1964) address different (but closed, numerous clauses) perspectives that do not distinguish the levels of communications problems (Shannon & Weaver, 1964): first (technical) that addresses collection and transmission of data (through sensory inputs), second (semantic) that transform data into meaning and/or what can be understood/extracted/classified from data as relevant (facts) and third (effectiveness) how the received meaning affects conduct in the desired way and/or how goals can be addressed based on the understanding of data. In addition to the positive stance towards indicators, some works admit “a satisfactory final solution has not been achieved yet” (Schmoch et al., 2006, p. 4). They are also dependent on personal views: “it does not matter if a company is using performance dashboards or more sophisticated measurement systems such as a balanced scorecard. Unless employees are clear about why the indicators are important, how they can be used to improve performance, and how they are to be developed and maintained, the indicator system has little chance of being sustainable” (Wireman, 2005, p. 234). Performance indicators can be improved with stochastic ones.

In the law, a possibility to choose is mainly oriented towards legal actions, while in the first place it must be based on the estimation of the conditions in which the law operates, while the estimation (through indicators) per se should be stochastically changed from a larger list to prevent subjectivity in focusing only on some of them. There is also a more important reason for the stochastic element: “without the random, there can be no new thing” (Bateson, 1979, p. 147). Jones and Baumgartner propose stochastic, not attention-driven updating of policies:

Combining messages means both getting the sources right and getting the weights right ... If a few indicators [instead of a single one] are simultaneously monitored, the result is a normal distribution of information. The best way would be to weight the information streams by importance and add them to make an index ... If decision-makers act on the “news,” rather than a basket of indicators, they will produce a distribution of outcomes that is not normal. Attention-driven choice guarantees nonnormal distributions of policy outputs (Jones & Baumgartner, 2005, pp. 300–336).

Information can be amplified by various perspectives that give better results, because “groups whose members represent disparate points of view or special interest populations may err by focusing on their shared perspectives and thereby negating any advantage that accrues from multiple sources of diverse input” (Stasser & Titus, 1985, p. 1477). This is known as collective wisdom (Landemore & Elster, 2012; Surowiecki, 2005). As for all systems, for legal ones, it holds that they also produce unmanageable and unpredictable processes. “In nonlinear systems—and the economy is most certainly nonlinear—chaos theory tells you that the slightest uncertainty in your knowledge of the initial conditions will often grow inexorably. After a while, your predictions are nonsense” (Waldrop, 1993, p. 142). The estimation of conditions can be improved by stochastic indicators in a way not only to ensure continuous adjustments to the environment through the change of indicator (that is perspective) but also continuous self-improvement through a change of the reaction. There should be various indicators and tools/reactions present
within the methods used in the formation and implementation of rules. The positive feedback loop places the prospective predictability on a shaky basis. There must be another meta-feedback (constitutional) loop to keep the system at the desired level (to prevent oscillation and runaway). Despite the real-time sensors, the “time-gap” in between the time of their evaluation and the time when they were in a time of action is always present. During the time of evaluation, they are already different in content or in place, connected with different things than they were before. This time-gap can nevertheless be, with automatic systems, minimised more than it is now through classical human sense and reaction.

4. The use of systems theory in legislation based on the systems’ main elements

One among the unanswered questions in the law is: By what right are distinctions made that later co-
determine rights and obligations? This question is intriguing: given all the known human cognitive errors or fallacies, decision-makers apply them in practice (laws are nowadays technically very similar to the Prussian Civil Code of 1794), and at the same time only at a statute’s enactment. The mechanic, Newtonian point of view does not consider complexity, dynamism, chance, human psychology, holism, Miles’ law (where you stand depends on where you sit (Miles, 1978)) and different regulatory techniques that could help determine a relevant state of affairs (the experimental laws, different regulatory clauses, probability, sampling). If the interaction between parts (of mind) is triggered by differences ( Bateson, 1979), it is important who recognises them and how (a falling tree in a forest does not make a sound in the absence of sensors—ears). The system, at first through its sensors, documents information only if the latter’s structure is similar to the system’s structure. The statute without sensors and/or indicators could not spot changes in the environment vis-a-vis the statute’s main goals and purpose; different information will hence not be documented and thus the statute will address at these point elements that are not relevant any more. Some legal scholars searched for similarity not in laws, but in institutions ( Fukuyama, 2014; Huntington, 1968; Lownpes, 1996; Sunstein, 2017) that without varying perspectives, more or less continue with their usual practices (path dependence). Due to our poor ability to sense differences in different occasions, the systems approach can be helpful; in the law, it is paralleled with legal systems that—as autopoietic systems ( Teubner, 1993) —self-determine their boundaries and their information (such as the previously transmitted rough data from the environment). This holds if legal systems are seen as static and closed, but they are embedded in other systems, so information (as a difference) continuously determines the legal system’s boundaries from the view of a whole.

4.1. A match between legislation and its environment

A legal statute’s successfulness depends on the appropriate composition of its structure vis-a-vis an environment’s structure; their mutual correspondence depends on common characteristics that, through their structures, are aligned or voluntarily matched. The application of systems theory follows the principle of sowing and reaping: a result reflects an effort, here a system’s ability to adapt to the environment not according to the system’s objectives but its structure (that should be focused on goals given the changing environment). People usually pay attention to one thing at a time, but this habit cannot provide a broader picture: they are overly dependent on their classical point of view while leaving many data unrecognised as operative information due to (legal) structures (models of reality). What finally emerges from regulations crucially depends not only on a regulator’s attention (according to a valid legal structure) or a system’s composition but de facto interaction of all (un)known legal, factual, personal, organisational, financial and other parts. They are otherwise known as the unintended consequences (if legal science was familiar with the concept of emergence from the theory of complex adaptive systems, such consequences would always at least be anticipated). A relation between legislation and its environment should follow Ashby’s law of requisite variety: only variety can destroy variety: “[If the variety of the outcomes is to be reduced to some assigned number ... variety must be increased to at least the appropriate minimum. Only variety ... can force down the variety of the outcomes” ( Ashby, 1957, p. 206). A match can be present when legislators have diverse responses that are as distinctive as the diverse problems expressed.
4.2. The relevancy of connections in legislation

Traditional regulatory thinking neglects the basic system’s predisposition towards interconnections. It looks mainly towards final goals (regardless of how they are assembled) and assumes a single or few causes rather than multiple interrelated causations. Interdependence among the cyclical flow of parts, relations and purposes infers cooperation and partnerships in the real time-space dimension. It produces variability and diversity: the statute can never be repeated in full, but it can be more adaptable and prosperous without sacrificing legal certainty, with the knowing and inclusion of the above-mentioned system elements. The understanding of interdependence or relations among parts (articles, decisions) is highly relevant for legislation—that by default processes information and is assembled from decisions. In the system, each part is connected with all parts (try to lift one part of a spider’s web without shaking the other parts) and each affects the performance of the whole. An overall system’s behaviour cannot be therefore predicted from the behaviour of one part or by changing one part; it always co-depends on other parts. If one system part is taken out or when its performance is changed, this affects the whole system. By focusing on one part, the inductive experience is thus based only on that part, although from this standpoint later conclusions are erroneously deduced for larger entities (without considering their connections and relations); this violates the old logical “is-ought” problem of Hume. It is illusory to expect the whole system would be more effective by focusing solely on one part—the whole system and especially its connections should be considered.

In legislation, only initial conditions are (apparently) known (although this condition can also be violated by the insufficient estimation of the current state of affairs), under which final results are (prematurely) predicted: even in the simple “apparently-mechanic” cause-effect social chains, reversibility is violated (try to watch a movie backwards) because the beginning cannot be inferred from the end. Causality “is not a thing that causes an event, but a process … in which certain processes or events cause other processes or events” (Carnap, 1966, p. 190). In the legal field, this deficiency is replaced by the ex-ante regulatory impact assessment, but along with the biased human factor (human fallacies, bias, psychology, interests), it also represents faulty generalisation (a form of logical fallacy). As a cure to the ex-ante, the ex-post impact assessment (that appraises the effectiveness and efficiency of the current policy in the light of its stated objectives) is proposed: “(t)he evaluation of existing policies through ex post-impact analysis is necessary to ensure that regulations are effective and efficient” (OECD, 2012, p. 26). While ex-post evaluation remains the least developed of the regulatory tools with different practices, besides the need to have the same methodological approach, there is an apparent need to close the regulatory governance cycle through systematic ex-post evaluation that “should not be considered as the final stage in the life of regulations, but as a deliberate and responsible loopback into the regulatory cycle, providing an understanding of areas for potential improvement and issues with implementation. In this way, countries could do more to connect the ex-ante and ex-post evaluation processes” (OECD, 2017, pp. 120–121). There are also ideas present for the ex-post assessment “to include consideration of inclusive growth issues alongside the core economic analysis contained in the RIA. This could be considered a preferable approach on the basis that many of the impacts to be considered in an inclusive growth assessment” (Deighton-Smith et al., 2016, p. 41). The element of interdependence or relations among the system’s parts warns regarding conclusions that are only feedback into the regulatory cycle: such conclusions are based on connections and relations that evaluated rules as such neither formally nor de facto have—this proves Gödel’s incompleteness theorem: “all consistent axiomatic formulations of number theory include undecidable propositions … any formal system that is interesting enough to formulate its consistency can prove its consistency if it is inconsistent” (Weisstein, 2015). Properties of the system are different from the properties of its parts.

From the standpoint of holistic thinking, legal systems are considered as purposeful entities with structure, relations and purpose. As was stated, practical wisdom cannot be learned through knowledge but grows by practice, action or habitation. Its attainment thus requires experience and resides in one’s capability to see matters in their context or patterns. When thought is focused
on the law or a statute, a government and institutions should see it in its unitary whole through its parts, structures, connections, functions and purposes. The law or a statute is thus not a thing, but a process of its interactions with the environment; it is the formalisation, activation, usage and living in relationships seen through adaptable purposes as choices. Their aggregate is the legal mind; it is not the division but inclusion of powers (the legal, executive and judicial branch should be seen as a whole from a statute’s successfulness point of view) that can be fully applied and at the same time the most legitime, when connections are not only ex-post assessed but in real-time.

4.3. The importance of context in feedback loops

Different contexts are determined and detected in different environments and models. This explains why there are so many papers with numerous statistical evidence and no real, empirical changes. There is no wise legislation if it does not enable a possibility of legal adjustment in its environment according to changing contexts vis-à-vis legal goals if it does not spot differences among them. For Simon (1996) in the information-rich world of information oversupply, now attention, not information, is the scarce good (this holds if attention is given to the formation of systems, not of information that should be stochastically obtained). Traditional regulatory thinking disregards the importance of focus on actions in context, on relations between a structure and a purpose, of the interdependent supra- and subsystems and the enormous, changing and unpredictable amount of information in different time frames. In statutes, (hidden) leverage points can be found in information that comes from the feedback loops and seen as patterns given the stated indicators.

Feedback is an important concept for modelling not only living organisms but also the legal and social systems. If there is no real-time feedback, there is no (effective) system, and this also holds for legal systems. Because from the cybernetic point of view the laws (better: models) that govern information are the laws that govern hierarchy, decision-makers should have information in a real-time dimension (imagine driving a car without real-time information from the environment), which could be enhanced with graphs that show patterns or trends about a decision’s (it can be also legislation, regulation) effectiveness. A predisposition to see the right pattern is an ability to understand the system’s performance over time and what stocks and flows are or what they represent in the legal act.

4.4. Hierarchy depends on information

Hierarchy is, in systems theory, different from how people usually (from Greek hierarchia: rule or power of the high priest) understand it; each structure forms a whole concerning its parts while at the same time is a part of a larger whole (Capra, 1997). There is no domination and control, but properties that do not exist at the lower/higher level. An ability to act hence depends on the possession of different and various information, rather than only on formal authority. Self-organisation is thus tightly connected with autonomy; in cybernetics, this reflects the redundancy of potential command and/or power resides where the information resides (McCulloch, 1965). Supra-systems embrace subsystems in a never-ending story; it is a human decision where the system’s boundaries between them are made. Their layout is named a hierarchy. In the latter, relations in subsystems are thicker and fuller than between (still connected) equal or higher systems (people talk more with their co-workers than with their boss). Subsystems are mostly self-sustainable and when optimised work as systems within systems. They largely maintain their structure and processes while serving the needs of the larger system at the same time. Although the larger system can coordinate and enhance the functioning of the subsystems, it does so when this is necessary (the heartbeats without commands from our brains, people breathe without thinking about it). Only on such occasions can a subsystem’s autonomy be replaced with a higher—proportionate to a situation—order; only on such occasions can otherwise stable, resilient and efficient structures be changed to coordinate a whole system towards its purposes. Formal hierarchy is justified to administer relevant information (adapted to purpose) only when needed to coordinate a whole system or contrarily to confirm the autonomy of its parts. The concept of a purpose as a choice is referential to its structure and environment; it is not an
autonomous entity: when the environment de facto changes, the system's structure (supra- and subsystems vis-à-vis the places of information) and purpose in it also change. Legislators should recognise the differences when they emerge when they self-organise.

4.5. Self-organisation depends on the ability to adapt
Self-organisation should also not be equated with simple regime order—“it tends towards complex order spontaneously by adaptation (when all parts are in equilibrium, they stop, become inflexible and order tends to disappear) in a complex environment” (Kauffman, 1993, p. xvi). Self-organisation emerges spontaneously in all spaces with diverse parts through interactions to maintain or enhance energy (to better adapt). From this point of view, legal rules should be viewed as elements within the larger space of possibilities and different combinations among different orders (as systems are embedded within other systems). All cases to some extent self-regulate until they reach a point in the perception of citizens or decision-makers that needs to be regulated at a different level (Vickers, 1995). When connected rules produce enough energy to sustain an organisation, they are in dynamic equilibrium (when inputs are equal to outputs—these are laws for which there are no proposals for change). When actions and reactions are left alone, they regulate themselves. Legal rules thus “survive” (are legitimate) only in connection with other parts; when combined with the latter, they produce higher energy (when they achieve goals). There are always parallel arrangements present along with the enacted ones. Legal actions will group with other practices if higher energy can be obtained in this way. If there is no ability to fit legislation to its environment, self-organisation will emerge outside of the first.

4.6. Emergence and public accountability
Findings on a new and self-generated emergence put public accountability and integrity of public bodies and employees in a new light: to demand accountability, consequences must be in the classical legal manner attributed to a specific action of a public agency or of an individual, while a result in the complex, non-linear and adaptable system is always (at least somewhat) different from a planned one (a result emerges independently, regardless of an individual action of a public agency or an employee). The latter two can contribute to a final result, but the latter is always different from an individual action—it emerges from combinations and relations and thus relieves a specific person (at least in their own eyes) of accountability for collective results (this is the source for the so-called banality of evil that Arendt saw in Eichmann [a German officer on trial]) (Arendt, 2006). For this reason, an absence of clear accountability of public institutions or officials present in the complex network of different bureaus (“a tyranny without a tyrant”) emerges. Arendt's description of the term “rule of Nobody” is a perfect description of emergence without recalling the latter from systems theory. Arendt’s the rule by Nobody is perhaps the most formidable form of a dominion of man over man:

bureaucracy or the rule of an intricate system of bureaus in which no men, neither one nor the best, neither the few nor the many, can be held responsible, could be properly called the rule by Nobody. If in accord with traditional political thought, we identify tyranny as a government that is not held to give an account of itself, rule by Nobody is the most tyrannical of all, since there is no one left who could even be asked to answer for what is being done. It is this state of affairs, making it impossible to localise responsibility and to identify the enemy, that is among the most potent causes of the current world-wide rebellious unrest, its chaotic nature, and its dangerous tendency to get out of control and to run amuck’ (Arendt, 1972, pp. 137–138). Bureaucracy is the form of government in which everybody is deprived of political freedom, of the power to act; for the rule by Nobody is not no-rule, and where all are equally powerless, we have a tyranny without a tyrant (Arendt, 1972, p. 178).

The absence of fundamental cybernetic elements, a network of all formally intertwined institutions and powers and/or a thorough and complex system of rules can result in the rule of Nobody (Arendt, 2006). Emergence needs two predispositions within the accountability domain: one is the relevant system’s indicators that can in the real-time perspective show results/trends, and the
other is the possibility of choice, the possibility to choose different tools and processes to reach goals. In the law, it is about the possibility (and an urgent need at the same time) to have a purpose outside the violation of human rights.

5. Adaptable norms

Given the elaborated systems’ main elements in the previous section, this one presents a form of a legal norm that incorporates them in its structure. Due to the principle of legal certainty, probabilistic simulations like regression analysis and the more advanced Monte Carlo simulation—or other tools that can tightly connect rules with their changing environments—will probably not be used in the legal rules of the near future, but they can be used in the preparatory, draft phases. Legal certainty as one of the main legal principles could be aligned with the possibility to choose or switch between alternative legal arrangements with different thresholds for their application given that these scenarios are ex-ante enacted as legal norms, and applied when conditions for their use occur. Such norms are here named as adaptable norms; as mentioned, despite their name, they cannot per se simulate, self-adapt or self-organise without a legislator’s pre-determined decision on them (there could be more legal rules as possibilities that will be triggered in different conditions, but all determined in advance by legislator). Legal norms could be more adaptable than they are now by installing stochastic sensors (to have an unbiased factual state of affairs and a possibility to choose new alternatives) with thresholds and switches/relays i.e. different norms. When a threshold is reached, a pre-determined and for a situation relevant legal scenario is triggered. A demand to have more (than needed in a specific time) various scenarios lies in the higher probability to adapt to different future conditions. Although the latter cannot be known in advance, legal scenarios appropriate for them can be. The whole idea is presented in the below Figure 1.

Given the development of IT, the principle of legal certainty connected with the publication of rules in official journals is not so relevant than it was in the past (the Covid-19 crisis is the clear example of the needed adaptability to changing conditions, and of the e- or media reports on newest rules). The Covid-19 crisis has also confirmed the need to carefully monitor changes in the environment and quickly adapt to them. The above-given Figure 1 can be the example of using systems theory on legislation. The pre-determined and accepted legal scenarios (by legislators) present at different levels are activated when different thresholds are reached based on the pre-established e.g., 100, 500, 1000 illegal migrants) or stochastic indicators (that e.g., based on data indicate that questions on agriculture are in a given point of time more relevant than livestock farming, retirement more than education etc.) that point at the factual state of affairs. The

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**Figure 1. Adaptable norms.**

![Adaptable norms diagram](https://doi.org/10.1080/23311886.2020.1837424)
environment is always more complex than rules can provide (already three rules form ten combinations, etc...), so the system can choose the most appropriate result (as a rule) given the data, while legislators could confirm it or not.

Systems theory gives us a tool by which relations, their combinations and other elements are included in decision-making. It gives not only new perspectives but mimics the organic life itself. With its derivations (e.g., cybernetics, complexity theory) can give new light on legislation, it extends legal theory and legal philosophy on new ground. With its emphasis on the openness, purposefulness, relatedness, interconnectedness, multidimensionality, emergency, hierarchies as nets and counterintuitive behaviour, that all act together as an interactive whole, can be seen as a step away from legal positivism (because the latter disregards relation between morality and law), and as the extension of legal realism (that is based on methods of natural science, i.e. on empirical evidence) and Critical Legal Studies (because they attack power relations) with the inclusion of chance, choice, and certainty in human personality. If the system is known, its elements, purpose and results they can diminish hidden interests and class domination. The law is inseparable from its application (with its relationship between the enactment and the implementation the law shows one of the basic systemic elements); in conditions where praxis is closer to systemic elements than to other legal perspectives, there could be no question which one to use: the whole is always more than the sum of its parts. The same goes for the law—the adversarial procedure or the majority system of voting that leaves the other party or side out also leaves the best decision out (because all, more various data is not included). The relative strength of all arguments should be considered for a final decision, and thus alternative dispute resolution and general rules that proportionately address all sides with their weights represent a better option to more relevant ends. Currently, the majority, with 51%, that enacts the law determines its content 100% and leaves the other side, with 49% (although it represents almost half), completely outside the equation. This triggers new problems during the law’s implementation. If family relations are taken as an example, someone who prefers one of their parents at the same percentage as mentioned would have to completely disregard the other parent from his or her life. And what is the law other than the regulation of life?

6. Controlling questions that enhance the systemic approach
Before legislators enact a new law, they should have answers to questions that reflect systemic thinking, like:

Who, where, when and by what method was the factual state of affairs determined?
How will we know this state is changed?
How do we know the real-time condition of this law?
Where and how do feedback loops operate?
What is the function of this law as a whole?
What are its essential parts?
How do they (should and could) relate or connect?
What are the functions of these parts (also in different combinations)?
Would this law be operative if some parts and relations were removed?
Can parts be assembled differently to reach the same goals?
What (thresholds) determine(s) its effectiveness and efficiency?
Do we have scenarios for different conditions and what triggers the first?
From which points and with what tools can the same goals be achieved?
Can a legislator force a parameter’s variable to take a prescribed value and/or can adaptable norms be triggered in the changing environment?
How can this law be abused and how can this be recognised and prevented?

How do we know this law works?

7. Conclusion

Ever since Aristotle, who understood ethics, politics and legislation as the active expressions of practical wisdom through actions, scholars have tried to pin down the understanding of the whole. Although the latter is too complex to be expressed, institutional models are always approximations to reality. In reality, no system is perfect: this can be seen in one of the most adaptive and advanced systems, in the immune system that (only within a closed time-period) detects a wide variety of agents (pathogens) and can distinguish them from an organism’s cells (it could be paired with Churchill’s saying that democracy is the worst form of government, except for all the others). A system contains elements through which reality can be observed and managed: it has the quantitative parts, qualitative parameters and variables as the system’s properties and depends on the internal and external relationships among its parts and the environment. They should all be considered. A given solution could be focused on cybernetic information-gathering, because of its focus on the ability to receive and discriminate the information as well as to interpret and act on it in a real-time dimension. The mentioned challenges can only be systematically monitored, while decisions and/or adjustments should be based on several stochastic indicators (they prevent bias) that can rise above a current state of affairs, above the conventional, accepted wisdom in a relevant field. This mode requires a different approach to the adoption and execution of decisions: different perspectives, shared experiences, different skills used, brainstorming. A useful approach to the study of institutions and their multiple environments is thus to keep an open mind, avoid dogmatic presumptions and be prepared to follow the evidence from various sources.

The right to make distinctions hence lies in our mental models of reality that collect, evaluate and (re)act upon information seen as differences or contexts. One model that should not be disregarded in the formation of the mentioned right is the systemic model.

Funding
The Slovenian Research Agency [Grant/Award Number: J5-8238] (The development of a holistic governance model for an efficient and effective Slovenian public administration).

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Citation information
Cite this article as: Systemic legislation: By what right are distinctions made?, Mirko Pečarić, Cogent Social Sciences (2020), 6: 1837424.

References
Ackoff, R. L. (1978). The art of problem solving: Accompanied by Ackoff’s fables. John Wiley & Sons.
Ackoff, R. L. (1999). Re-creating the corporation: A design of organizations for the 21st century. Oxford University Press.
Arendt, H. (1972). Crises of the republic: Lying in politics, civil disobedience on violence, thoughts on politics, and revolution. Harcourt Brace Jovanovich.
Arendt, H. (1998). The human condition. University of Chicago Press.
Arendt, H. (2006). Eichmann in Jerusalem. Penguin Classics.
Ashby, W. R. (1957). An introduction to cybernetics. Chapman and Hall.
Ashby, W. R. (1960). Design for a brain: The origin of adaptive behavior. Chapman and Hall.

Ayes, L., & Braithwaite, J. (1995). Responsive regulation: Transcending the deregulation debate. Oxford University Press.
Bateson, G. (1979). Mind and nature: A necessary unity. Dutton E. P.
Beer, S. (1966). Decision and control: The meaning of operational research and management cybernetics. John Wiley & Sons.
Bergeron, B. P. (2017). Performance management in healthcare: From key performance indicators to balanced scorecard. Taylor & Francis.
Berkeley, G. (2003). A treatise concerning the principles of human knowledge (T. J. McCormack, Ed.). Dover Publications, Inc.
Bertalanffy, L. (1968). General system theory: Foundations, development, applications. George Braziller.
Betts, J. G., Desai, P., Johnson, J. E., Korol, O., Kruse, D., Poe, B., Wise, J., Womble, M. D., & Young, R. A. (2013). Anatomy & physiology. OpenStax College, Rice University.
Beven, K., & Freer, J. (2001). Equifinality, data assimilation, and uncertainty estimation in mechanistic modelling of complex environmental systems using the GLUE methodology. Journal of Hydrology, 249(1), 11–29. https://doi.org/10.1016/S0022-1694(01)00421-8
Boyarsky, A., & Gora, P. (Eds.). (1997). Laws of chaos: Invariant measures and dynamical systems in one dimension. Birkhäuser.
Capra, F. (1997). The web of life: A new scientific understanding of living systems. Anchor Books.
Carnap, R. (1966). Philosophical foundation of physics: An introduction to the philosophy of science (M. Gardner, Ed.). Basic Books.
Czik, G. (2000). The things we do: Using the lessons of Bernard and Darwin to understand the what, how, and why of our behavior. MIT Press.
Deighton-Smith, R., Erbacci, A., & Kauffman, C. (2016). Promoting inclusive growth through better regulation: The role of regulatory impact assessment. OECD Publishing. Dictionary.com. (2018). The definition of hierarchy. https://www.dictionary.com/browse/hierarchy

Drucker, P. F. (2002). The effective executive. HarperCollins.

Durkheim, E. (1995). The elementary forms of religious life (K. E. Fields, Trans.). The Free Press.

Feltz, B., Crommelinck, M., & Goujon, P. (2006). Self-organization and emergence in life sciences. Springer Science & Business Media.

Feynman, R. P., Leighton, R. B., & Sands, M. (1965). The Feynman lectures on physics (Later Printing ed.). Addison Wesley.

Foester, H. (1960). On self-organizing systems and their environment. In M. C. Yovits & S. Cameron (Eds.), Self-organizing systems (pp. 31-50). Pergamon Press.

Forrester, J. W. (1968). Principles of systems. Pegasus Communications.

Fukuyama, F. (2014). Political order and political decay: From the industrial revolution to the globalization of democracy. Farrar, Straus and Giroux.

Gell-Mann, M. (2002). The quark and the jaguar (8th ed.). W.H. Freeman & Company.

Gharjoughi, J. (2007). Systems thinking. third edition: Managing chaos and complexity: A Platform for designing business architecture (3rd ed.). Morgan Kaufmann.

Habermas, J. (1985). The theory of communicative action, volume 1: Reason and the rationalization of society (T. McCarthy, Trans., Reprint ed.). Beacon Press.

Habermas, J. (1996). Between facts and norms: Contributions to a discourse theory of law and democracy (W. Rehg, Trans.). The MIT Press.

Hannan, M. T., & Freeman, J. (1977). The population ecology of organisations. American Journal of Sociology, 82(5), 929-964. https://www.jstor.org/stable/2778070

Heisenberg, W. (1958). Physics and philosophy: The revolution in modern science. Harper & Brothers Publishers.

Heisenberg, W. (2013). The physical principles of the quantum theory (C. Eckart & F. C. Hoyt, Trans.). Courier Corporation.

Heylighen, F. (1999). The science of self-organization and adaptivity. In L. D. Kiel (Ed.), Knowledge management, organizational intelligence and learning, and complexity (The encyclopedia of life support systems, pp. 253-280). EDLSS.

Hornberger, G. M., & Spear, R. C. (1981). Approach to the preliminary analysis of environmental systems. Journal of Environmental Management, 12(1), 7–18.

Huntington, S. P. (1968). Political order in changing societies. Yale University Press.

Jones, B. D., & Baumgartner, F. R. (2005). A model of choice for public policy. Journal of Public Administration Research and Theory, 15(3), 325–351. https://doi.org/10.1093/jopart/mui018

Kaplan, R. S., & Norton, D. P. (1996). The balanced scorecard: Translating strategy into action. Harvard Business Press.

Kauffman, S. A. (1993). The origins of order. Oxford University Press.

Kauffman, S. A. (1996). At home in the universe: The search for the laws of self-organization and complexity (Reprint ed.). Oxford University Press.

Landemore, H., & Elster, J. (Eds.). (2012). Collective wisdom: Principles and mechanisms. Cambridge University Press.

Lownpes, V. (1996). Varieties of new institutionalism: A critical appraisal. Public Administration, 74(2), 181–197. https://doi.org/10.1111/j.1467-9299.1996.tb00865.x

Luhmann, N. (2013). Introduction to systems theory (P. Gilgen, Trans.). Polity Press.

Maturana, H. R., & Varela, F. J. (2012). Autopoiesis and cognition: The realization of the living. Springer Science & Business Media.

Mcculloch, W. S. (1965). Embodiments of mind. MIT Press.

Meadows, D. H. (2008). Thinking in systems: A primer. Chelsea Green Publishing.

Mele, C., Peis, J., & Polese, F. (2010). A brief review of systems theories and their managerial applications. Service Science, 2(1–2), 126–135. https://doi.org/10.1287/serv.21.2.126

Miles, R. E. (1978). The origin and meaning of Miles’ law. Public Administration Review, 38(5), 399–403. https://doi.org/10.2307/975497

Muralidharan, R. (2004). A framework for designing strategy content controls. International Journal of Productivity and Performance Management, 33(7), 590–601. https://doi.org/10.1108/17417190410562131

Nicolis, G., & Prigogine, I. (1989). Exploring complexity: An introduction. W.H. Freeman.

Odell, J. (2003). Between order and chaos. Journal of Object Technology, 2(6), 45–50. https://doi.org/10.581/jot.2003.2.6.c4

OECD. (2012). Recommendation of the council on regulatory policy and governance. Paris: OECD Publishing.

OECD. (2017). Government at a Glance 2017. Paris: OECD Publishing. http://dx.doi.org/10.1787/gov_glance-2017-en

Pirsig, R. M. (2009). Zen and the art of motorcycle maintenance: An inquiry into values. Harper Collins.

Prigogine, I., & Stengers, I. (1984). Order out of chaos. Bantam Books.

Ramage, M., & Shipp, K. (2009). Systems thinkers. Springer Science & Business Media.

Rosenblueth, A., Wiener, N., & Bigelow, J. (1943). Behavior, Purpose and teleology. Philosophy of Science, 10(1), 18–24. https://doi.org/10.1086/286788

Schmoch, U., Rammer, C., & Legler, H. (2006). National systems of innovation in comparison: Structure and performance indicators for knowledge societies. Springer Science & Business Media.

Schrodering, E., & Penrose, R. (2012). What is life?: With mind and matter and autobiographical sketches (Reprint ed.). Cambridge University Press.

Shannon, C. E., & Weaver, W. (1964). The mathematical theory of communication. University of Illinois Press.

Simon, H. A. (1996). The sciences of the artificial (3rd ed.). The MIT Press.

Spratt, J. C. (1993). Strange attractors: Creating patterns in chaos. MIT Books.

Stossor, G., & Titus, W. (1985). Pooling of unshared information in group decision making: Biased information sampling during discussion. Journal of Personality and Social Psychology, 48(6), 1474–1478. https://doi.org/10.10370022-3514.48.6.1474

Sunstein, C. R. (2017). Republic: Divided democracy in the age of social media. Princeton University Press.

Surowiecki, J. (2005). The wisdom of crowds (Reprint ed.). Anchor.

Teubner, G. (1993). Law as an autopoietic system. Blackwell.

Vickers, G. (1995). The art of judgment: A study of policy making. SAGE Publications, Inc.

Waldrop, M. M. (1993). Complexity: The emerging science at the edge of order and chaos. Simon and Schuster.
Weisstein, E. W. (2015). Gödel's incompleteness theorem — From wolfram MathWorld [Text]. http://mathworld.wolfram.com/GoedelsIncompletenessTheorem.html

Wiener, N. (1961). Cybernetics or control and communication in the animal and the machine. MIT Press.

Wiener, N. (1989). The human use of human beings: Cybernetics and society. Free Associations Books.

Wireman, T. (2005). Developing performance indicators for managing maintenance. Industrial Press Inc.