Abstracts (sorted title, A-Z)

Scientific Communication

Observed with Social Systems Theory

A new paternalism that self-identifies as liberal

By: Stefan M. Seydel, #dfdu AG - konstellatorische Kommunikation, Switzerland

40 years ago, Niklas Luhmann formulated in his “systems theory” what every child of those days could observe: Politics argues politically. Economy argues economically. Science argues scientifically. Art argues artificially. Social work argues helpfully. And on and on. That the idea of “functional differentiation” (“Funktionssysteme”), is nonsense, was shown over 20 years ago and leaked by an insider in 2020. Never mind: it wasn’t the most interesting clue from Luhmann’s world of thought anyway. (But that would be another topic.) The following is about showing the decay of the “cultural form of modernity” in the daily photographable “liberal paternalism”. And to sketch results from experiments for the development of concrete instructions for action for a “next cultural form”: "Sociology explains by means of words - logos! - logic and meaning of the social. This is what the word seems to refer to. Wikipedia explains it more awkwardly. However: The word "social work" seems more adequate. Here one obviously works on the social. The mistake of sociology was and is that it is pretended that this scientific discipline can observe and describe the social from the outside. Luhmann himself enumerated many more "thought blockades": For example, the idea that "the social" is a synonym for "society". That society represents a sum of people. Possibly even a sum of people, within a politically defined demarcation in "blood and soil". And on and on: Reading the first 35 pages of his (alleged) main work "Die Gesellschaft der Gesellschaft" (pdf) @suhrkamp is enough to get the whole, heartbreaking disaster of sociology slapped down and to rather not want to deal with this gibberish afterwards. Paul Watzlawick chose for the opening of chapter 3 in Change/Solutions 1974, in which he formulated his famous 6th axiom, a quote from Berkeley without a source: "First we kick up the dust and then claim that we cannot see."

Advice as a form of structural coupling: Intersystem organizations and scientific communication in the Japanese Response to COVID-19

by: Kosuke Sakai*,* The University of Tokyo, Japan

A critical issue in the examination of scientific communication from a system-theoretical perspective is the clarification of the meaning and significance of multiple intersystem relationships. Under COVID-19, politics have used scientific findings to inform political decisions. Meanwhile, science has actively coordinated its operations to provide stimuli to politics. Luhmann has identified advice as a form of structural coupling between the political and scientific systems. Advice is not a monolithic intervention from one side to the other; however, it serves as an interface that enables the two systems to communicate through distancing. In this paper, I will empirically illustrate the structural coupling of political and scientific systems through advice, which manifests itself through an examination of the roles of various organizations (e.g., expert councils and cluster task forces) in Japan’s response to Covid-19. I discussed this case at the 2021 Luhmann Conference as a problem of the plurality of risk attribution. This paper also provides a theoretical insight regarding the organizations and a more detailed case analysis of the discursive data in some organizations. These will allow me to redescribe the system-theoretical insight of advice as a means of scientific communication between politics and science.

Challenges of Digital Scholarly Communication on Platforms: Science, Economy and Organisations in Social System Theory

by: Stella Maria Köchling & Bernd Kleimann, German Centre for Higher Education Research and Science Studies (DZHW), Germany

Processes of digitalisation significantly influence all social systems. Regarding science, new modes of providing, producing and aggregating data of scholarly communication through novel digital platforms became apparent. Academic social networking sites (ASNS) open up new media formats and possibilities of communication which significantly influence the selection processes of communication. Against this backdrop, this paper aims at contextualizing the present dynamics of digital scholarly communication provided by ASNS within the social systems of organisation, science and economy.
Since the early 2000s, digital platforms emerge that provide infrastructures for scholarly communication and disseminate, calculate, evaluate, measure and aggregate the resulting communication data. Two of the best-known platforms – ResearchGate and Academia.edu – were founded in 2008 with the help of investors and have been regarded as digital social networks for academics. Furthermore, the ASNS are operated by profit-oriented organisations which represent the common organisational characteristics emphasized by Luhmann, i.e. purposes, membership, hierarchies, functions, organisational self-presentation (Kühl, 2020). Within the organisational system, the ASNS aim to contribute to two functional social systems: science and economy.
According to Luhmann (1992), social systems are autopoietically, self-reproducible, and structured by communication. Concerning the science system, the communication of the coded truth is one major objectives of science. In this way, ASNS represent a communication medium for scientists by creating a space for researchers to connect, interact and publish within their scientific community by accelerating research and promoting publications with open access formats. Moreover, ASNS contribute to the reputation of scholars by providing a platform for self-presentation and metrification of scholarly impact.
Regarding the system of economy, money and property are the communication media for differentiation and reproduction of the system of economy (Boldyrev, 2013; Luhmann, 1994; Pahl, 2016). As the ASNS are operated by profit-oriented organisations they depend on the system of economy. In that way, the ASNS use multiple ways to stay profitable. For example, ResearchGate connects researchers with companies and institutes that also function as donors. One source of income for Academia.edu are fees that members pay with a premium version that contains more functions, for example tracking, enhanced analytics and unlimited downloads.
Following a theory based approach, the following two research questions will be discussed: First, how can ASNS as a contemporary phenomenon be captured using the tools of social system theory? Second, what interactions (inter-system relationships) between organisation, science, and economy result from the success of ASNS? By doing so, it will become apparent that using systems theory for theoretical analysis of ASNS contributes to a better understanding of present developments of digital scholarly communication.

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Changing the change structures of the Danish pig industry

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This paper addresses the mismatch between the gravity of environmental crises and the degree of appropriate organizational change. Agriculture is key in the greening transformation but yet understudied in organization studies. With the Danish pig industry as case and in order to understand potentials and limitations for change we explore how the industry has developed structures that organize its change. We find that the industry has organized its change cooperatively and on the basis of a tight coupling of the number of pigs produced and development. This change structure has proven very successful in optimizing the production within a horizon focusing on quantity/price of pork. But it is also a change structure with limitations. We find that the industry, due to its cooperative form of organizing, finds itself in a lock-in on the existing change structure. In other words: it has difficulties changing its change structure.

In the second part of the paper we therefore explore the organizational capability for change of change structures. A change of change structures depends on the ability of the organization to develop alternative interpretations of the environment. Based on such an alternative interpretation, a ‘no’ to existing structures may be formed and performed (Luhmann 1995). To develop an alternative interpretation requires that the organization builds alternative internal complexity and thereby draws an alternative boundary between itself and its environment. In this part of the analysis, we explore mechanisms and dynamics in the pig industry that hinder it from developing alternative interpretations of environmental challenges. Our wager is that at least three different mechanisms produce porous boundaries between the individual organizations that make up the industry, and that this dynamic hinders the individual organizations – and thus also the industry as a whole – from developing alternative interpretations.

Communicating disease control: Examining the interplay between Luhmann's science and media systems using COVID-19 and monkeypox as examples

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In this paper, we focus on the interplay between two key social systems of relevance for communicating and thus addressing international disease control: science and mass media (Luhmann, 2000; Luhmann, 2018; and Luhmann, 1989). We use Luhmann's systems theory to ground our work in the hopes of explaining current events and how they play out on a global scale. As examples we use the COVID-19 pandemic and monkeypox to highlight the evolving endemic issue of discrediting science and the phenomenon that more scientific information spread by social media can actually exacerbate the problem.

In examining interactions and interdependencies between science and mass media to explain attempted actions toward disease control communication, the requirement of a certain newness of information is pivotal. But while the mass media system codes informativeness by the differentiation of information and non-information (Luhmann, 2000, 17), the scientific system codes the difference between true and untrue (Luhmann, 2018, 192). Even though, following Luhmann, systems do not communicate amongst each other, they do maintain structural couplings, in this case with the economic, legal, and political systems (Luhmann, 2018, 291 ff.). With these couplings comes impact and with impact come imitators. This is the gateway for fake news as well as for misunderstandings and (deliberate) misinformation camouflaged as "alternative facts", respectively "alternative science". Science and mass media both own sets of programs to ensure correctness: science ensures the reliability of its differentiation between true and false by theories and methods (Luhmann, 2018, 403 ff.), whereas mass media argue with established standards as well as codes of conduct and ethical principles. Imitators, however, claim that these programs do not apply to them and insist on other "rules", for example anecdotal and so called "traditional" knowledge ("He, who heals is right") as equivalent to scientific evidence. Likewise, social media claim that standards of good journalistic practices maintained by traditional mass media do not apply and alternatively refer to "the collective intelligence" and apparently self-evident truths.

To give context to the interplay between these systems and the impact of imitators, we draw on recent global medical crises. For two years, the COVID-19 pandemic kept the world in suspense, the media in constant excitement, and accelerated scientific research. Now we are also dealing with a new zoonotic disease, monkeypox, which fluctuates between sound but scarce and still basic information, attempts to fuel homophobic narratives, and ignorance. Both diseases might not be seen by all as ecological dangers, but they are biological in nature and are not limited to just humanity.(1) More than this, they are symptoms of social, cultural, and economic practices that are characteristic for our way of life. In mass media, however, the spectrum of coverage is surprisingly limited to a restricted range of topics, such as rates of infections, vaccination, mutations, and actions to contain outbreaks. Only few and mostly specialized media discuss the more complex ecological contexts such as COVID-19 being a part of a family of respiratory viruses, and is highly transmissible due to its quick spread through droplets that can be inhaled through the nose and mouth (United States Center for Disease Control (CDC), 2022). This virus impacts not only the health of humans, but also other mammalian species including pets, livestock, and wildlife. Its origin is still under investigation, though the first outbreak occurred in Wuhan, China. The transmission of monkeypox, on the other hand, is still being

explored as cases spread across the globe and, according to the CDC (2022), “it is not yet known what animal maintains the virus in nature, although African rodents are suspected to play a part in monkeypox transmission to people.” But obviously, the programs of the system of mass media lead to valuing these scientific “truths” as “non-information”.

As such, while we do not have a solution to the issues presented in this paper, we find it of utmost importance to bring to light the dynamics between systems and its possible destructive nature for addressing a public health issue. Thus, we compare selected tweets that refer to contexts and backgrounds of the diseases with the current discussions on the same topic in peer reviewed papers. In this way, we attempt to shed a light on if and how Luhmann’s theory can be used to better understand the dynamics of science communication on social media.

(1) As Feldpausch-Parker, Endres, and Peterson (forthcoming) explain: Ecology as a discipline is the study of organisms, populations and communities. Begon, Harper and Townsend [13] describe it as “peculiarly confronted with uniqueness: millions of different species, countless billions of genetically distinct individuals, all living and interacting in a varied and ever-changing world” (p. vii). Though most professional ecologists claim to focus on nature, they often forget that humans are organisms that interact with other biotic communities and abiotic systems.

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Communicating science through evidence in the media

by: Pernille Almlund, Roskilde University, Denmark

evidence (n.)
c. 1300, "appearance from which inferences may be drawn," from Old French evidence, from Late Latin evidentia "proof," in classical Latin "distinction, vivid presentation, clearness" in rhetoric, from stem of Latin evidens "obvious, apparent" (see evident).
Meaning "ground for belief" is from late 14c.; that of "obviousness" is from 1660s and tacks closely to

the sense of evident. Legal senses are from c. 1500, when it began to oust witness. Also "one who furnishes testimony, witness" (1590s); hence turn (State's) evidence.

evidence (v.)
"show clearly, prove, give evidence of," c. 1600, from evidence (n.). Related: Evidenced; evidencing.
Entries linking to evidence
(Online Etymology Dictionary, Downloaded June 2022. https://www.etymonline.com/word/evidence)

Evidens, (af lat. evidentia, af e- + videre se), øjensynlighed; indlysende tydelighed; klarhed. (Den store Danske Encyklopædi, 1999; Downloadet, Juni 2022)

Translation of the Danish version of origin and meaning:

Evidence, (from Latin evidentia coming from e- + videre to look), apparent; obviousness; clearness. (The big Danish Encyclopedia, 1999; Downloaded, June 2022)

In English evidence can be both a noun and a verb, whereas in Danish it is only a noun even though we also in a Danish context and in Danish language talk about the process of proving and giving evidence of something. Regardless of this difference the origin of the concept is the same and as we can see by comparing the meanings of evidence as it is described in 'Online Etymology Dictionary' and the 'The big Danish Encyclopedia', also the meanings are very similar. This is the origin and meaning which Luhmann refers to when he in 'Theory of Society, Volume 1' writes "We can speak of evidence when something makes sense to the exclusion of alternatives [In Danish: Om evidens kan man tale, når noget er indlysende, og alternativer kan udelukkes]." In this work, he refers to evidence as an understanding of what is obviously observed, which in fact could be what is observed by researchers in all different scientific disciplines and by lay people as well, but Luhmann also states that evidence has become a matter primarily for the positive sciences. No doubt, that the way evidence has been used and developed has been a matter primarily for the positive sciences in the development of the pyramid of evidence (developed in and by medical science) and it's ideal of real-life randomized controlled trials. However, we have also seen how this idea of evidence has been disseminated to and incorporated by other scientific disciplines, not least in social sciences in fields like pedagogy and sociology (Nepper Larsen 2022, Krejsler 2019). Maybe to an extent that brings our thoughts back to the first developers of positivistic ideals which were also disseminated to and incorporated by other scientific disciplines than natural science in the ambition to become positive sciences and accumulate truths (Gilje 2012). What we witness may be a sort of repetition of the early disseminations of positivism and empiricism ideals, now in the appearance of neo-positivism and evidence. So closely connected to positivism and neo-positivism, evidence is no longer given meaning in the original sense of the concept, because it is no longer what appears as obvious in what is observed. Instead, it is given meaning through different types of experiments placed on different levels of the pyramid of evidence.
We often meet the concept evidence in all types of media texts, and they always have a non-explicitly reference to this modern understanding of evidence. This means that evidence to some extent is expressed as univocal and normally without explaining, on which level of the pyramid of evidence, the actual case is to be placed. Evidence has somehow been self-explanatory as the proof of science at the very highest level. This of course makes it desirable.
In the case of the HPV vaccination, for example, this univocal meaning of evidence in the media was expressed by a long row of actors such as scientists, medical practitioners, health debaters, politicians, and journalists. Most of these debaters express themselves to be convinced about the

scientific evidence and is strongly frustrated that some people can be against evidenced common sense. Still the debate has filled out many newspaper columns and was most likely continued because of the dilemma expressed here by Mette-Line Thorup, a Danish Journalist: “That there have been found no evidence for the coherence between the vaccine and side-effects is no final proof of the opposite. The question can be insufficient investigated.” (Information, 13th of May, 2017).
This use of evidence related to scientific communication in the media has caught my interests, and I am therefore investigating the following research question:
How is evidence used as argumentation when scientific communication about the HPV vaccination, face masks and climate is represented in the Danish media?
The research is conducted through analysis of media-texts from a variety of Danish Newspapers, articles from the popular science magazine Videnskab.dk and the transcriptions of the press conferences held by the government during the COVID-19 pandemic. In all these documents, it is investigated how evidence is communicated as scientific in the specific context.
When these three cases are compared and all the documents read and analyzed as a sample of data it appears that even though evidence is always used in a self-explanatory and univocal way, this modern use of evidence may not be that evident as the original meaning of evidence prescribes.

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Communicating scientific knowledge as news on social media: analyses in frames of Luhmann’s system theory

by: Anahit Hakobyan, Yerevan State University,

COVID-19 pandemic has challenged the old-fashioned model of science communications. Scientific knowledge, traditionally circulating and being validated within the scientific system, intensively interfered into the mass media system. It transformed into demanded and popular news topic and became accessible for masses more than ever before. Meanwhile, according to recent studies, trust towards science has globally increased since Covid-19 pandemic. It has predictable impact on people’s pandemic-related behavior and is a key driving force behind attitudes toward vaccination. In this regard, scientific community around the world is challenged to search for more effective ways of

communicating scientific evidence and knowledge and building relationship with public. However, mass spread of scientific knowledge also means that messages and data are often miscommunicated, simplified or warped to fit political and media agendas.

Abovementioned situation raises necessity to examine the way mass media and scientific systems interconnect and affect each other. This paper looks at Luhman's system theory as an essential theoretical background for the analyses of representation and spread of scientific knowledge as news across digital media platforms. According to Luhmann, the way mass media system functions, structures and limits what is possible as mass communication. Thus, in order to analyze the representation of scientific and knowledge, the logic digital media functions needs first to be explored. Literature provides various attempts of applying Luhmann's theory for the analyses of digital media. However, no such analyses have been done in scope of interconnection between scientific and mass media systems. This paper aims to fill this gap and make an attempt to apply the system theory in exploring contemporary issues related to scientific communication. For this purpose, the structural coupling of the mass media and scientific systems is analyzed through theoretical analyses, combined with secondary data analysis of recent global studies on news consumption and trust towards media and science.

The author comes to the conclusion that trust towards the media and science are interconnected. The following factors concerning the logic of digital platforms should be considered while communicating scientific knowledge:

-Origins of misinformation/disinformation and the logic of its spread

-Biased and framed representation of news

-The news value and news selection criteria (novelty, conflict, quantitative information, violation of norms, etc.) applied by media

-Selective exposure of the audience

-Social media algorithms and polarization
-The raise of infotainment

The paper is useful for researchers interested in sociology of science, media and communications. It provides a valuable theoretical background for further research on the topic, as well as practical considerations for the improvement of scientific communications.

Cybernetics of Conflict: Theory of the Third – A Cybernetic Approach to Conflict Dynamics in Business Families

By: Lina Nagel, University Witten/Herdecke, Germany

"Whenever two people come into contact with one another, a third regulates the formation of their borders." (Simon, 1995, p. 314)

"In principle, if you want to explain or understand anything in human behavior, you are always dealing with total circuits, completed circuits. This is the elementary cybernetic thought." (Bateson, 1972, p. 465)

The development of 2nd order cybernetics beginning in the middle of the 20th century revealed a completely new way of thinking that initiated a paradigm shift: a systemic way of thinking. Cybernetic/systemic thinking and the epistemological considerations that go along with it strongly influenced the following developments of Watzlawick's communication theory (ibid., Beavin, & Jackson, 1967), systemic approaches like the neuro-linguistic programming of Bandler and Grinder (1975), the St. Galler Management Model (Gomez, 1981; Malik, 1984; Ulrich & Krieg, 1974) and partly also Luhmann's systems theory (1984) to name a few. Since then, the scientific community's reference to cybernetic theory has been rather limited and many of its concepts are still untouched to further theorize and explain social phenomena.

In my dissertation I draw from cybernetic concepts in order to explain social phenomena of communication and conflicts in business families which are of special interest because they are prone to paradoxes, missing context markers and misunderstandings (von Schlippe, Rüsen, & Groth, 2021). This papers focus is on explaining conflict dynamics in business families drawing from the concepts of "schismogenesis", "outside element" and "cybernetics of self" by the anthropologist Gregory Bateson (1972). The concepts are applied in order to analyze changes in escalative and de-escalative conflict dynamics in business families due to third element impact. A Theory of the Third, an explanatory model of the mechanisms behind the conflict dynamics, is developed and three forms of third element impact derived: preventive, escalative, and curative.

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Epistemological foundation, coordination, the role of quality and tools in the implementation of the Sustainable Development Goals (SDG) seen a Luhmann inspired perspective

by: Mogens Grosen Nielsen*,* Nielsen Statistics Consulting

The invention of the Internet and related technologies starting in the last century created completely new conditions for information and communication in our society. In the last 5-10 years the use of information has exploded in all parts of our life's. This has created challenges in our personal live's. E.g. the role of social media has offered a lot of opportunities but also created challenges: handling stress etc. Equally, the use of information in political and economic contexts has created opportunities but also a lot of challenges. e.g. misinformation using the social media in politics.

An important aspect of this is the need for reliable information in the public debate, in science and in the creation of policies, e.g., for handling the climate change.

The work on implementing the SDG indicators has provided us with a way to collect, process and disseminate reliable information, guided by common global goals, targets, indicators and methodology.

It is the experience of the author that many countries are facing problems on planning and implementing a coherent system with smoothly running production of SDG indicators. The challenge is especially on coordination of work processes within the National Statistical Systems where indicators are based on data from data providers outside the National Statistical Organisations.

Many countries are facing huge problems on planning and implementing a coherent system with smoothly running collection, processing and dissemination of SDG indicators.

This is confirmed in a recent global survey about the implementation of the Cape Town Global Action Plan for Sustainable Development Data (2017) .The main results regarding coordination showed that only 6% of the National Statistical Organisations (NSO) in low and lower and middle income countries consider that coordination capacity of the National Statistical Office (NSO) with partners inside the National Statistical System is satisfactory, as opposed to 43% of NSOs in high income countries.

Considering the nature of statistics, some people see statistics as objective and depicting reality, assuming that reality can be measured independently of social and cultural and social processes. The other position is subjective, showing little trust in statistics expressed as “lies, damned lies and statistics” or “I only believe in statistics I doctored myself” (Churchill). When looking into quality, coordination and uses of computers, there is a variety of different perceptions with associated theories as well.

The author finds that a more coherent approach to epistemology, quality, coordination and the role of the computer is needed. The paper suggests an approach using elements from Luhmann and other sources.

The paper claims that:
1) Critical realism should be used as the epistemological foundation when handling the shortcomings in traditional understanding of the relation between statistics and reality presented above.
2) There is a need for a new approach to coordination in the National Statistical System. This approach will focus on the National Statistical System as a communication system
3) Terms related to quality frameworks for statistics should be defined more precisely and play a key role in the description of work processes, products and user perceptions.
4) There is a need for simple and flexible tools to support coordination. The tools must be tailored to each situation based on communication and stakeholder positions.

Keywords: Sustainable Development Goals, coordination; communication; quality, statistics, epistemology, tools for coordination.

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Historical Evolutions of Dogmatic Systems in Research Semantics – 11th- 21st Centuries

by: Gorm Harste, Aarhus University, Denmark

In Funktion der Religion, Niklas Luhmann described the evolution of theological dogmatics as the form of self-description in theology in the long 12th century. This took place as the same time as self-descriptions in la – the legal revolution (Berman) – and in the organizational form of a 'corpus spiritus'. Theology, law, and organization followed along ever since. Over several centuries this released evolutions in economy with credit systems, in art and accelerated even further on with the printing press revolution (Eisenstein) in research – the scientific revolution (Kuhn). Confessional conflicts triggered the military revolution and a revolution in war as war about war forms, codes, semantics and self-descriptions – centered in the Thirty Years War. Wars cost money and this triggered a financial revolution in the long 18th century as well as a political revolution. Altogether not merely a separation of powers but a functional differentiation followed. The question in this paper is what characterizes such developments of doublified codes in dogmatics – and if the notion of "dogmatics" actually can be used as a methodology to identify new systems. Then what is the dogmatics of sport, garbage, mass media and still other functional systems?

Institutional changes at Polish universities observed from systems theory perspective.

by: Andrzej Stawicki, Maria Curie-Sklodowska University on Lublin, Poland

As Burton Clark noted, European universities have been undergoing continual reform since the 1970s. This is mainly due to an increase in social expectations towards science and a new social contract, under which public universities have become one of the key areas of public policies of modern nation states.
This led to a paradoxical situation in which science, gaining great importance, lost some part of its autonomy and became subordinated to goals defined outside the university. After 1989, Poland became part of the capitalist world-system and in recent decades undertaking its characteristic neoliberal reforms aimed at implementing the entrepreneurial university model. One of the key aspects of the reforms started in 2007 is increasing the scope of cooperation between science and its

socio-economic environment.
The research conducted by the author in 2020 among 638 research workers employed at Polish public universities tried to determine the impact of the implemented reforms on the scale of research cooperation between scientists and external partners. Science and the university were conceptualized using Niklas Luhmann's theory of social systems and the general theory of complex systems. In particular, science was understood as an autopoietic communication subsystem of society. University as organization also was treated as autopoietic system operating on the basis of decision communication. In the analysis, the author proposes to treat science and University as one complex system, which consists of three emergent elements, such as the communication system of science, the organizational system and rational actors making decisions insuch complex, systemic context.
The results of the research included findings on reforms impact on the internal processes of a complex science system. The main observation is that cooperation with the socio-economic environment in Poland often causes contradictions within the complex science system.
The external stimulus and incentives introduced as part of the reforms mean that activities that are often contrary to the rationality of the science benefit individuals and universities without contributing to scientific progress.
The selectivity of science causes the knowledge resulting from cooperation does not translate into the scientific achievements of researchers. Therefore, increasing the level of cooperation of scientists with the university environment through new institutional regulations (e.g. awarding points in the evaluation of scientific units) in the long run involves the risk of pushing scientists out of the scientific system.
The research also made it possible to better understand what is the cooperation in the field of creating knowledge between different functional subsystems, codifying observations differently and operating on the basis of different rationality criteria. The result is a proposal for a theoretical model of cooperation between science and external systems as based on complex translational mechanisms of intersystem communication.

nigw of the science system

by: Frank Huysmans*,* University of Amsterdam, Department of Communication Science, Netherlands

Like other function systems of and in society, science is prone to internal differentiation. It has increased its internal complexity to be able to selectively deal with systems in its environment. How it managed to internally differentiate is a question that can be studied empirically. Data on the appointments of chair holders in the four Dutch universities
(Leiden, Groningen, Amsterdam and Utrecht) founded in the 16th and 17th centuries that exist to this day will be subjected to a content analysis. The research is guided by two initial expectations. First, while continuously pretending to refer to phenomena 'really existing' in the 'outside world', the changes in chair titles reflect an increasing specialization and organizational complexity (e.g., medicine – internal medicine – endocrinology – neuroendocrinology – experimental neuroendocrinology). Second, attempts to counteract this development will increasingly be reflected in chair titles (with terms like 'interdisciplinary', 'general', 'integral'). Results are discussed integrating further notions of Luhmann's theory like the pedagogical system, organizational membership, and constructivist epistemology.

From the Epistemic Cacophony Towards the New Epistemic Consensus

by: Krešimir Žažar, University of Zagreb

Undoubtedly, science is one of the fundamental pillars, probably the axial constituent, of functionally differentiated modern societies. Albeit being target of diverse types of criticism in the second half of the 20th century, some recent analyses (Roth et al., 2017) clearly suggest that science, besides politics, was the most important function system in the mentioned time framework. However, the main thesis examined in the paper is that the dominant position of science has recently been seriously contested especially during the still ongoing coronavirus pandemic outbreak. Namely, in the context of the vastly uncertain situations, characterized by disputable values, high risks, and urgent demand for prompt proper decisions, such as the current pandemic apparently is, the Kuhn's (1962) model of 'normal science' is suspended and 'post-normal science' (Funtowicz, Ravetz, 1993) takes its place instead. While the concept of 'post-normal science' could be normatively valuated in positive terms, the position of science during pandemic has undermined as it is being unable to deliver unambiguous answers on burning questions concerning dynamics of the virus spread, effects of epidemiologic measures, efficacy of vaccination etc. Erosion of public confidence to science opens the floor to various pseudo-scientific explanations, conspiracy theories and akin types of interpretations competing to use true/false code. These tendencies lead towards the emergence of 'epistemologic anarchism' (Feyerabend, 1975), or 'epistemic cacophony' (our own term) in the midst of which science lost its privileged role in the epistemic field. Such outcome is the product of several processes: 1)

mediatization, 2) commodification, 3) politicization of science as symptoms of structural coupling of different functional subsystems (Boulanger, Saltelli, 2020), 4) 'scientization' of politics, but also terminal effects of several 5) 'structural contradictions' inherent to modern science (Ravetz, 2011). Of the latter, especially tension between 'elitist' and 'democratic' conceiving of knowledge production should be addressed, where owing to growing accessibility of technology and social media we witness widespread diffusion of knowledge production nowadays. Although such 'participatory epistemic community' at first sight might seem to contribute to general knowledge growth, it conceals severe jeopardies as on the other hand it opens the floor for conspiracy theories, fake news, manipulations, post-truth politics and re-evoking theses that were long time ago disapproved as being evidently false (like Flat-Earth thesis). In sum, we have been undergoing towards profound transformations of the epistemic fields within which science is seriously challenged to lose its dominant position. It would be most suitable to take a central position between 'elitist' and 'democratic' poles: on the one hand, in order to retain (or regain) a confidence to science, it should not allow itself to be instrumentalized for political legitimation purposes (of political elites) or serve as a tool in hands of big business and economic stakeholders, but rather aiming at fulfilling emancipatory promises to entire population; on the other hand, one needs to nurture 'epistemic democracy' with indispensable attention since clear criteria with regards to what is true/false should be stipulated otherwise we can easily revert into pre-modern superstitious phantasmagorias.

“Learning from art“ Lecture Performance, Günter Lierschof

"Learning from art" (Beuys/ Luhmann) - **art, a special challenge for Luhmann's systems theory**

Lecture performance (German language, with simultaneous translation into English)

This form of presentation, which follows ActionTeaching (1), develops thinking in performative speech, using images and

drawings. What can be represented, how it is presented, what is hidden, faded out, exaggerated, caricatured or actually there. This all is reflected in parallel in the representation (2).

The author reflects on Luhmann's system theory as a draftsman and painter and from his experience with art (3).

I. He fathoms the efforts of Luhmann (4), who wanted to incorporate the idiosyncrasy and independence of art into his system-theoretical approach.

II. Using his own works of art, examples from colleagues, such as the roles and functions of artists in contemporary society, he shows what scientists could learn from strategies, forms of action, interventions, social interventions, and challenges, both positive and negative. As a result, the idea of a scientist's biography and public presence could, should, change radically.

Figure 1: M.Kippenberger, Frosch am Kreuz

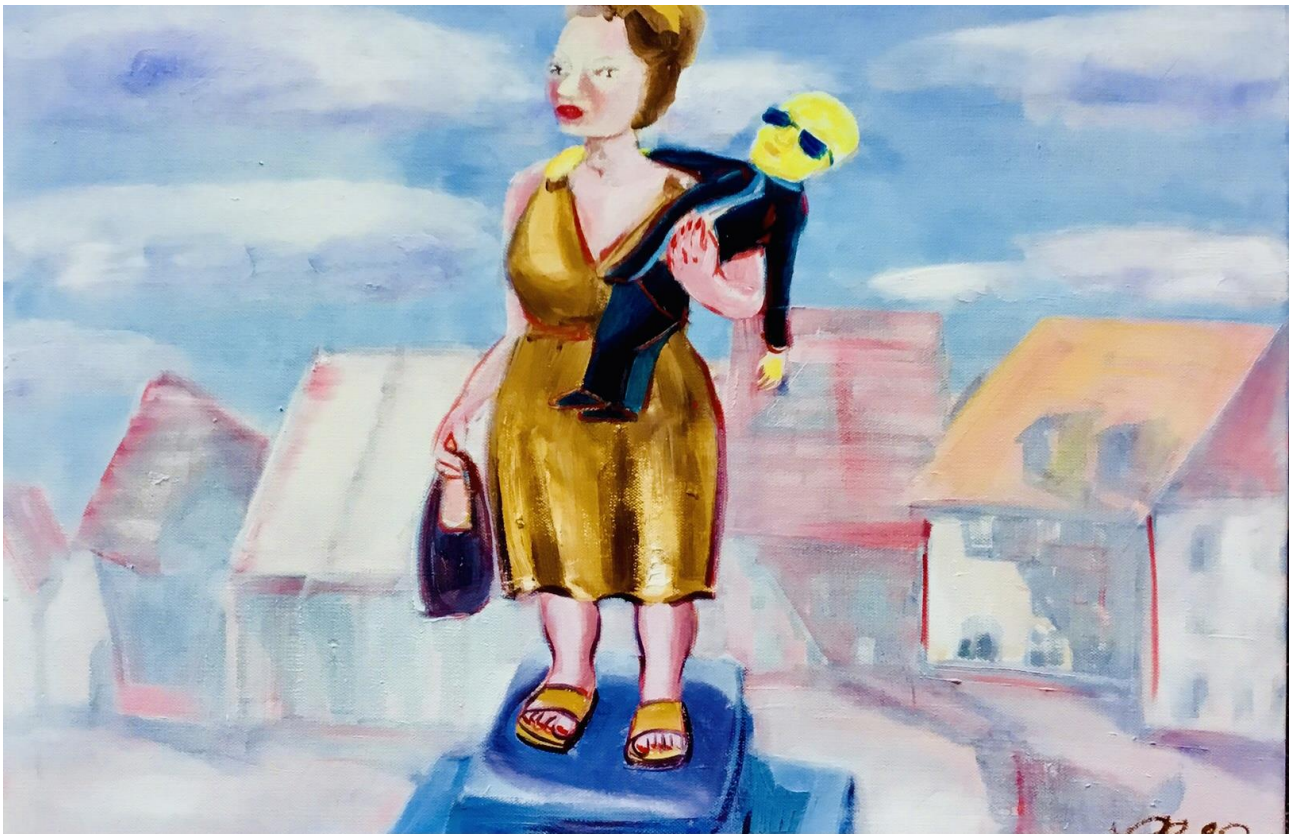

Figure 2: Palmina aus Dubrovnik“ Günter Lierschof

III. Dubrovnik: The author also appears under the name DOMODOSSOLA (on Twitter). Similar to Dubrovnik, Domodossola is not only a historically important city, but also a super image for the social aspects that could develop in urban life. In the lecture, the author will extend a fairy tale of the "City of Love", for which Domodossola previously stood, to Dubrovnik and tell the love story - "Palmina in Dubrovnik".

Günter Lierschof

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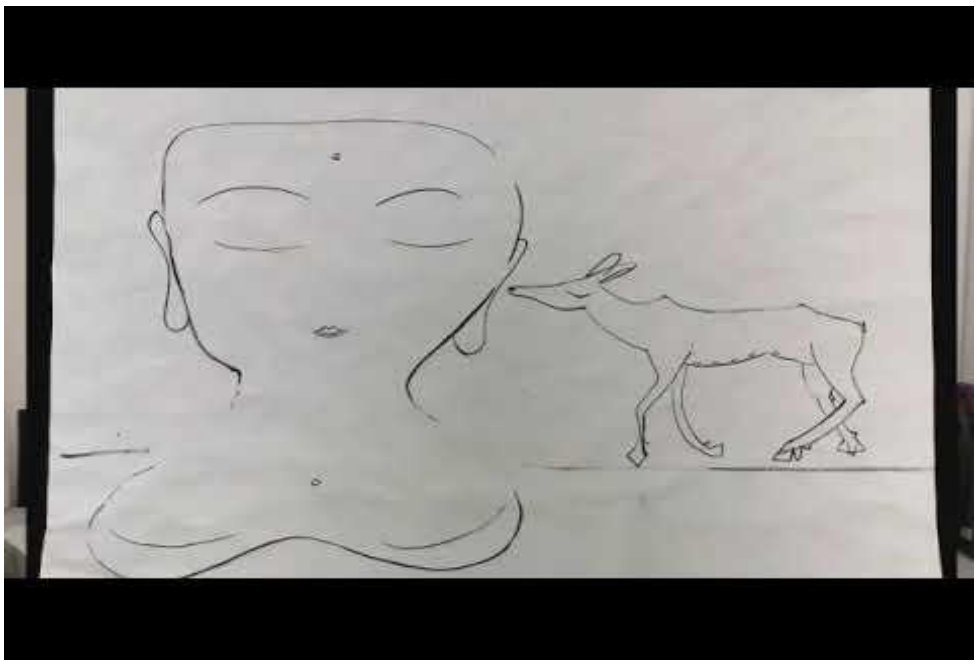
(1) the author was a student of Bazon Brock and still collaborates with him in the think tank. BB is the representative of the AT in the German-speaking area.

(2) two examples of lecture performance



(3) see biography

(4) can be read in "Art of Society", edited by GL in #luhmannsschwarzehefte

http://luhmannsschwarzehefte.blog/2022/04/08/luhmann-in-form/

http://luhmannsschwarzehefte.com/2022/04/21/die-toxische-wirkung-luhmanns-eines-sportfischers

http://luhmannsschwarzehefte.com/2022/04/30/in-der-systemtheorie-kommt-niemand-ins-schwitzen/

(5) in the idea of "social sculpture" advocated Boy J. Beuys (his life's work) there is a revealing series of practical examples, how Art can influencing social subjects (such as economy, administration, money, media, schools, universities, science, research , ecology..), and what can be learned from it.

~~Leveraging Science and Technology in Combating Insecurity in Nigeria: The Pivotal Role of the Media~~

~~*by: Jammy Seigha Guanah & Loveth Okowa-Nwaebi, University of Benin, Benin City, Nigeria*~~

~~Science is an evolving social system, and it is not limited to medicine, but also includes technology, amongst others. The main purpose of studying science is to help humans live a better life, hence scientific knowledge should not be solely left for the political class to deliberate on. The humanities and sciences have a functional relationship, with a strong emphasis on science communication, and the frontier of knowledge within the scope can be pushed and advanced further. Insecurity has been a great problem in Nigeria, and no doubt, the digitalization of society goes a long way to aid security. When the media broadcast scientific research outcomes and issues, they are said to be engaged in scientific reporting. For this reason, the media are expected to become the megaphones to announce the availability of science and technology gadgets that can be used to combat insecurity. In line with Luhmann Conference 2022, scientific communication is key because varied discourses arise from the system's continuous observations of society, its environment, and science itself. Hence, these researchers engaged in this scientific communication research. Hitherto, Nigeria has been grappling with myriad challenges like unemployment, banditry, agitations for self-determination, terrorism, and sundry others, summed up as socio-political problems. However, insecurity is considered the most~~

serious because it is only amid safety that development can thrive. Therefore, this study gave a scientific approach to handling the insecurity problem in Nigeria by analysing how science and technology can be deployed in addressing insecurity, and the pivotal role the media can play as an interface. The study was anchored on functional analyses and the diffusion of innovation theory, and it adopted a survey research design. Findings of the study revealed that science and technology can contribute to the remediation of insecurity in Nigeria; that the media in Nigeria have failed to sufficiently create awareness about science and technology, particularly about the availability of security gadgets, and that the media do not educate the public enough on how to use various security technologies. The study concluded that till the media robustly intervene in security matters through special reportage anchored on facts and figures, the security of individuals or nations cannot be guaranteed. Also, the poor knowledge about science and technology, as it relates to security gadgets, by the public can be reshaped by the media as espoused by the diffusion of innovation theory which identifies the media as critical elements to the diffusion of the innovation process. The researchers recommended that the media should report more on helpful security technologies and innovations, especially Artificial Intelligence. Likewise, Nigeria`s polytechnics and universities of science and technology should be well funded and equipped so that they can become the practical birthplaces of innovations that will help to ameliorate security and other problems Nigeria faces. Also, the media should embark on exposing Nigeria`s scientists and technologists so that they can come up with home-grown gadgets that can fit perfectly to our local terrain in fighting all forms of criminality. The last recommendation is that CCTVs with facial recognition abilities should be deployed to every nook and cranny of crime-prone areas. This will help security operatives to adequately keep surveillance over such areas.

Keywords: Combating, Insecurity, Leverage, Media, Science, Technology

Literature and pandemic

by: Stijepo Stjepović, University of Zadar, Croatia

This presentation is based on a selection of fragments of Western literature related to pandemics, from the 19th century BC to the 21st century. The selection is arranged chronologically. At the beginning we find the Babylonian story of Atra-Hasis (1850-1500 BC), Homer's Iliad (VIII BC), and Thucydides' description of the plague in Athens in the 5th century BC, among other ancient texts. About fifteen works have been selected from the literary writings of the medieval and modern times, among which we find fragments of The Golden Legend, by Santiago de la Vorágine (1260-1267), the Canterbury Tales, by Geoffrey Chaucer (1387-1400), and the chronicle written by the Barcelona craftsman Miquel Parets (1626-1660). Texts from contemporary times are collected by Mary Shelley (1826), Chateaubriand (1809-1841), Josep Pla (1966) and Philip Roth (2010), among many others. The situations caused by the epidemics have served writers to express anguish in the face of the unknown, guilt, fear of death and also the difficult relationship with others. A good part of the texts anthologized in this book refers to the literary model of divine punishment for human impertinence, a scheme based on the plagues of Egypt sent by Yahweh that are described in the book of Exodus (V-

IV BC). On some occasions, the punishment has the scapegoat as its remedy, as in the case of Oedipus, in Oedipus the King, by Sophocles (430-425 BC). The other great literary model is the description of the plague in Athens by Thucydides (V BC) and on which many later descriptions are based. The concept of the epidemic linked to the moral quality of the patient also appears in this volume: the case of leprosy is the one that best represents the social stigma attached to physical illness, as shown in the episode of Isolde among the lepers, in Tristan and Iseult (1165-1200). In many of the texts, the implacability of death coexists with the will to combat the epidemic, or with the rationality of science, as shown in the medical treatise by Jaume d'Agramont (1348) and the urban reflections of Leonardo da Vinci (1478-1518), or with the supplication to supernatural forces, as evidenced by The Plague of Rodes, by Emmanuil Limenitis (1498). Other writings focus on the celebration of life that often goes hand in hand with devastating situations: the carpe diem extolled by works such as the Decameron by Boccaccio (1349-1351). However, literature also reflects the individual anguish caused by being the contagion vehicle of an unknown evil, as well as the destruction of any human contact for fear of becoming ill, as shown in the works of Daniel Defoe (1722), Àngel Guimerà (1890), Thomas Mann (1912), Albert Camus (1947) and Gabriel García Márquez (1985), among others. This presentation reviews the outbreaks of bubonic plague, smallpox and cholera, as well as the modern outbreaks of poliomyelitis, Spanish flu and AIDS. Leprosy is also taken into consideration, which, although not properly considered an epidemic, shares with pandemic diseases the reactions of rejection, guilt and seclusion that are characteristic of them. In fact, what really interests the presenter is not to present the typology or the medical treatment, but to show the social reaction generated by the epidemics and the reading that was made of them, as well as their fictitious use as a literary resource to express the moral evil of society. The presentation is much more than an anthology of texts: it is a work that approaches collective illness to talk about the multiple and complex facets of the human being.

Lobbying, protesting, voting, resonating: Get yourself a better model of democracy!

by: Susanne Lohmann, University of California, Los Angeles (UCLA), USA

Is democracy incompatible with climate change mitigation? Decades of non-progress in the matter of climate change mitigation have given rise to two anti-democratic strains of thought in the climate movement. Both strains favor disempowering elected politicians even as they split along centrist-to-progressive-to-radical lines over whom to empower: technocrats or citizens. (Roughly the same anti-democratic trend and split along centrist-to-conservative-to-reactionary lines can be found on the other side of the political spectrum: neoliberalism vs. populism.)

The climate movement's political resonance failure comes about because its intellectual leaders are beholden to folk models of democracy which in turn are rooted in bad academic models. I develop a two-by-two disciplinary disagreement matrix juxtaposing, first, bad models emanating from the public choice and political economy subfields of economics with good models advanced by pluralism theorists in American political science and, second, bad models emanating from the deliberative

democracy subfield of political theory with good models advanced by systems theorists in European sociology.

Theoretically what distinguishes the bad models from the good is their treatment of democracy and complexity. Tongue in cheek, one might say the bad models are stuck in a simpler premodern world even as the good models embrace the complexity of modernity.

Empirically the first pair of opposites—economics vs. political science—finds assessment with a case study of climate legislation in the U.S. Congress. The second pair—deliberative democracy vs. systems theory—is test run on climate regulation in the European Union, with a focus on the political input from Germany.

Want climate action? Get yourself a better model of democracy! The disciplinary disagreement matrix does not in and of itself generate a complete and closed model of democracy. Instead it yields a pragmatic sense as to why and how lobbying, protesting, and voting combine to resonate politically in a complex democratic system. Equipped with such actionable understanding, the climate movement can stop whining about democracy and start using democracy to achieve its climate change mitigation goals.

Lost in a Triangle? Irritation of Scientific System by Economy and Politics

by: Krešimir Žažar, University of Zagreb, Faculty of Humanities and Social Sciences, Department of Sociology; Zagreb (Croatia) // Next Society Institute, Kazimieras Simonavičius University; Vilnius (Lithuania)

Undoubtedly, science performs highly relevant role in functionally differentiated modern societies. While in pre-modern societies religious authorities had an epistemic monopoly to judge of what it is “truth” and what is not, in modern societies scientific system produces true/false, true/untrue binary coding (Luhmann, 1991) based on the empirical verification procedures and strictly defined protocols of knowledge validation.
The main thesis elaborated in this paper is that science system is irritated (Luhmann, 2012) by economic and political subsystem nowadays. Such tendency can be traced back since 1990s in the context of global neoliberal economic turn when science has commencing to face with novel expectations. Mode 2 of knowledge production (Gibbons et al., 1994), triple helix model (Etzkowitz, 2002, 2003, 2004; Etzkowitz, Leydesdorff, 2000) or third generation universities (Wissema, 2009) emerged as new normative models which depict how knowledge should be produced and science related to other social institutions. The common feature of those mentioned concepts is that production of knowledge should also be estimated in terms of its practical applicability, economic instrumentality, immediate measureable effects for social communities. Hence, non-scientific semantics and codes such as applicable/non-applicable, profitable/non-profitable, eligible/non-eligible have been

penetrated in the scientific system.
Depicted imposing of non-scientific categories into scientific work severely affects knowledge production process especially in terms of funding by excluding particular questions which are not considered as being profitable or socially relevant. In that manner also entire research agendas have been (re)shaped by non-scientific stakeholders.
Parallel processes of commodification of science and politization of science (Boulanger, Saltelli, 2020) as symptoms of irritation of science certainly have negative impacts on knowledge production and do not correspond to the logics of functional differentiation, but entirely opposite, signals that particular re-feudalization of a society is taking place as political authorities (as once religious leaders) judge on what is ‘true’ and what is ‘false’.
Moreover, also parallel process of scientification of politics is currently occurring. By this a need that political decisions are legitimized by science is meant. This can be easily observed in a context of still officially ongoing covid-19 pandemics when mitigation pandemics measures and political decisions such as wearing masks, mandatory quarantines, vaccination, introduction of ‘covid-passports’ have been legitimatized by scientific knowledge, despite consensus concerning those complex matters among scientists rarely have been achieved. Scientification of politics, at one hand, can be interpreted as reinforcing relevance of science in contemporary societies, but on the other hand it is a symptom that scientific semantics and true/false code have been transferred to politics. The proliferation of notions such a “post-truth society”, “fake news”, “conspiracy theories”, additionally illustrates such tendency. Especially widespread practice of labelling someone’s belief as a “conspiracy theory” represents a tool of delegitimizing dissent discourses not corresponding to dominant political standpoints.
The mentioned challenges pose clear demand for scientists that they resist pressures coming from the field of politics and business when conducting scientific research, it is the point emphasized in the concluding section.

Ludification of Social Systems Theory: A Game-based proposal

by: Miguel Pérez-Valls, University of Almería, Spain

Although gaming is as old as mankind itself (Huizinga, 1955), its systematised use in different contexts, and with this we advance the concept of gamification, has recently begun to make its way into our common vocabulary. The philosophical starting point of Huizinga's study is the observation that, where there is play, there is also "meaning". It is precisely through that meaning creation that learning happens. Playing is part of the learning process as long as the subject to be learnt is playful and, is it there something more playful for human beings than communication? Isn’t it part as well of our nature?

In this proposal we suggest to use a game-based solution to illuminate conversations around Luhmann social systems theory. Through a narrative dynamic, we intend to co-create a game that helps to: 1)generate deep, insightful and interesting conversations, and; 2) understand the core concepts of Social Systems Theory.

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Luhmann and epistemology

by: Jesper Tække, Aarhus University, Denmark
Lars Clausen, Next Society Institute, KSU, Lithuania & UCL University College, Denmark

The research question of this paper is what philosophical and/or scientific knowledge is following Niklas Luhmann. Another way of framing the RQ is what is cognition in Luhmann's theory of social systems. The aim of the paper is both to provide a solid analysis of what cognition is in the theory and to provide a solid introduction for students in the subject of theory of science. First the paper gives a short overview of the systems theory of Luhmann and then fleshes out science as a functional system. Then the paper describes and analyses Luhmann's epistemology; how systems through observations and observations of observations and self-reflection construct cognition. Finally, the paper discusses Luhmann as a constructivist in regard to other constructivists and critics of his position. The conclusion is that Luhmann is an epistemic constructivist that provides a solid theory of cognition with no solid ground of knowledge except observation of observation and out-differentiation of social systems. The contribution of the paper is foremost that it concretely fleshes out a model consisting of a form/media formalisation of observation describing how systems cognize following Luhmann.

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Normative Observation? Revisiting Teubner's Legal Epistemology

by: Ralf Rogowqski, University of Warwick, UK

The contribution revisits Teubner's seminal article on legal epistemology from 1989 How the Law Thinks. It begins with a critical account of the main arguments and then focuses on its contribution to the conference theme of scientific communication observed from the perspective pf system theory. Teubner's insight was that the use of social science information in courts leads to "systemic distortion". In the second part the paper explains this finding with reference to Luhmann's theory of observation and double contingency. Luhmann's crucial distinction between external and self-observation is then used to analyse from a sociolegal perspective internal reactions of the judicial system to external observation. This includes an analysis of ways how the legal system translates its form of communication into a "language" understood "in society". Of particular interest are in this context organisational means like press departments and their interactions with mass media and attempts to influence the so-called public opinion about law. In a third part the paper develops ideas beyond Luhmann's theory of observation and Teubner's legal epistemology and asks how system theory can incorporate a notion of critique and normative observation.

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Observing with theories: actor-network theory and social system theory

by: Wei-Hsin Hsiao, Tunghai University, Taiwan

Since 2019 the COVID-19 pandemic is been spread worldwide. Taiwan as a neighboring country of China immediately closed its border and changed the flights restrictions. These political decisions showed, that the virus could be observed as an actor (in the sense of Bruno Latour) and a theme of communication (in the sense of Niklas Luhmann).
Under Actor-network theory the COVID-19 could be observed an actor, because it makes other actors to act. Governances manage the COVID-19 with its political decisions, scientists conduct experiments to develop vaccines, people wear medical masks to protect themselves, and doctors try to beat the COVID-19 with new treatments. The COVID-19 as an actor is strongly influenced in every field. Comparing with the non-human centered actor-network theory, under the social system theory the COVID-19 is the theme of communication and has various interpretations in different subsystems of

society. Using the distinction of theme/contributions to observe the COVID-19, everyone can or will contribute and reproduce other themes. Under social system theory the COVID-19 is not only ontologically significant, but rather communicatively involve in various subsystems.
This paper will compare the actor-network theory with the social system theory on the subject of the COVID-19. These two modern sociological theories will construct the meaning of the virus on their own way and have only an impact on the social systems whose basic element is made of communication. Observing the local political decisions, medical news and other empirical facts, these two theories can offer different viewpoints in the situation of the COVID-19. This theoretical paper attempts to illustrate a novel approach to pursue knowledge in the science system.

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Religious communication in multifunctional organisations as source of competitive advantage

by: Augusto Sales, FGV EBAPE, Rio de Janeiro, Brazil // Next Society Institute, KSU, Lithuania

In this paper (in conceptual phase), we discuss the use of religious communication to draw corporate strategic vision, motivate teams and set up goals and objectives. With secularisation, we believe the religious system has found its way into the corporate world to maintain its relevance, function and autopoietic traits. The paper is based on Niklas Luhmann's social system's theory, particularly functional differentiation and investigate how corporate leaders, including founders, CEOs and top executives communicate, specially within the startup community. …… ……. …… …… ……. ….. …….. ……. ……. …… …… ……. …… …… ……. ….. …….. ……. ……. …… …… ……. …… …… ……. ….. …….. ……. ……. …… …… ……. …… …… ……. ….. …….. ……. ……. …… …… ……. …… …… ……. ….. …….. ……. ……. …… …… ……. …… …… ……. ….. …….. ……. ……. …… …… ……. …… …… ……. ….. …….. ……. ……. …… …… ……. …… …… ……. ….. …….. ……. ……. …… …… ……. …… …… ……. ….. …….. ……. ……. …… …… ……. …… …… ……. ….. …….. ……. ……. ……

Scientific communication in educational policy making: the case of new right think tanks in England and Australia

by: Steven Watson, University of Cambridge, UK

The think tank, as an organisational form, principally of the 20th century, has evolved in the context of the functional system of politics and is focussed on political decision making i.e., policy making in relation to the functional systems of, primarily, mass and social media, the economic system and the system of science or knowledge making. My particular concern is with educational policy making and the role of new right think tanks in England and Australia. This leads to also to a consideration of a further functional aspect in relation to the system of education. The new right is a political ideology emerging in the US and UK in the second half of the twentieth century and brings together the unlikely ideological pairing of socially conservatism and economic liberalism. This is epitomised by Margaret Thatcher in the UK and Ronald Reagan in the US. New right ideology has been central to many centre and centre right political parties in liberal democracies globally. New right think tanks in England and Australia have been prominent features of education policy making. They draw together expertise from education, academics and researchers, government and media to develop policy. While in the past the education policy making process, especially in England, has featured expertise in consultation with interested and affected parties, the policy making process was more a part of government and its agencies. New right think tanks are now central to creating education policy their ideological approach i.e., with a 'traditional' orientation to knowledge and values alongside advocating economically liberal solutions to the provision of public services. New right think tanks are often opaque regarding their sources of funding. However, it is evident that new right think tanks attract funding from organisations and individuals who seek influence over education policy. In England, particularly, new right think tanks such as Policy Exchange and CIVITAS have formed relationships with pressure groups or populist movements advocating for strengthening teachers' authority in response to a view that education policy making has been dominated by progressive educators advocating child-centred education (Watson 2020; Watson & Barnes, 2021). Think tanks are implicitly concerned with political legitimacy, i.e., in developing policy that reflects constructs of public opinion and that draws on scientific arguments in an attempt to substantiate legitimacy. In this paper, I will provide a closer examination of the role of scientific communication in relation to new right think tanks. This is concerned not just with that nature of scientific communication, but also with the underpinning philosophy of science articulated by the new right think tanks. Arguments for evidence-based policy or following the science are countered with charges of reductionism or even scientism. This also marks changing relationships between society and the more traditional institutional and organisational sites (at least for the last 150 years) for science and knowledge making - the Higher Education Institution or University. I will conclude by considering this changing relationship and increasingly complex landscape of knowledge making and scientific communication and its relationship to politics.

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Scientific knowledge and political communication

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Since its inception, results of modern science have been disputed by proponents of religions, political ideologies and so on. Today, in the era of Internet and social media scepticism, denial of research results is expressed in a different way than before. A few years ago the US Trump administration launched the idea of 'alternative truths', and some disliked truths were designated 'fake news'. Examples are the denial of human society's impacts as basic on the global climate issue and conspiracy theories behind vaccine hesitancy in the case of Covid-19.

Do such arguments and denials challenge science as basic source of knowledge? On the one hand, it does not make sense to argue that complex knowledge, truth and credibility in general could be developed in other function systems. Knowledge as information or communication of news is also basic in the mass media and in a certain meaning in religion and in a few other systems. Knowledge as cognitions, however, that has to do with readiness to observe and re-examine knowledge and perspectives, distinguishing true/false, using theory approaches and methodologies, being dependent on special semantic devices, is only a characteristic of science. As an operating function system (Luhmann 1990) and not as an institution, and as "organized scepticism" (Merton 1968), science has per se to manage all kind of issues including those challenging science itself. On the other hand, several highly complex issues have arisen where results have been challenged within the system of science. This is the case when results from one discipline or one perspective in a discipline have been challenged from other specialized disciplines or another perspective in a discipline within the same discipline in the system of science. An example is the evaluation of side effects in medicine. Another is the case of Covid-19 when internationally leading virologists and epidemiologists dispute each other's results. It has been argued that disciplines like medicine belong to the "hard" and "exact" sciences, while humanities and e.g. sociology are designated "soft". The Covid-19 pandemic showed, once again, that there are no exact or hard disciplines.

Scientific knowledge is necessary in many systems, not least in the system of politics where political decision-making is dependent on investigations, reports from authorities and so on. Politics, however, is itself a system without knowledge (Stichweh 2020). Thus, scientists can be observed embedded in the system of politics either on an individual basis as experts or as advisers belonging to different kind of organizations, like authorities, research centres, think tanks, NGOs and lobby organizations. As an expert or adviser the researcher's role is political, at the same time as he or she represent a discipline, which leads to risks of role confusion.

The aim of this paper is to discuss issues connected to scientific knowledge and political decision-making mainly from the perspective of Luhmann's systems theory. As persons, lay people are included as public in science, and first of all as citizen we are included in politics. While difficulties of making reasonably reliable research-based assessments have come to apply to key political issues today, they have become challenges to both science and politics. Issues of high complexity and uncertainty of results among experts, for reasons of the type outlined above, as well as the inevitable risks of all risk assessments, risk leading to confusion among both politicians, persons as citizen and as the public who take part in research results.

Social Systems Theory Contributions to the Art of Taking Responsibility

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Making decisions is often a challenge, even for professional decision-makers. Nevertheless, it is the communication of these decisions, the one conclusive action, which constructs the organization and thus contributes to the autopoiesis of the system. Comparative-systemic consultancy uses different approaches to make management tasks (and therefore decisions) more effective.

Many years of using systems theory concepts in the practice of comparative-systemic consultancy give evidence of the usefulness of social systems theory's terminologies and ideas in supporting decision-makers. When it comes to the duty of identifying relevant differences, the clarity of social systems theory's concepts seems to make the decision process faster and more effective – especially in terms of supporting understanding in communication processes. Using the framework of these theoretical concepts in favor of organizational performance enables systemic consultancy to enlarge its toolbox. It has the opportunity to turn itself into a more precise consultancy or even a leadership method. More than that, methods based on systems theoretical concepts have the potential to contribute to more constructive dialogs and, therefore, are suitable for diverse social interactions.

This paper is based on years of research on systemic approaches and work with organizational decision-makers. It aims to contribute to a discussion about the most essential and more useful social systems theory terminologies and concepts. These potentially support more understanding in communication processes and encourage the act of taking responsibility for decisions.

After clarifying the concept of comparative-systemic work, this article will follow the track of possible answers to the question: What can social systems theory concepts contribute to the foundation of the comparative-systemic approach in supporting the decision-makers act on taking responsibility for decisions?

This paper takes organizational systems as a starting point for this investigation. It proposes structures and ideas that combine social systems theory concepts with systemic ideas, distinction-based theories, and also – as a boundary drawer – a brief excursion into Michael Foucault's concept of freedom.

Stepping into a non-linear way of thinking can be a challenge for people who are used to thinking in cause-and-effect chains. To better deal with complex, unpredictable systems, decision-makers may consider different perspectives. The following social systems theory concepts and ideas have the potential to open new perspectives and, subsequently, new solutions for decision-makers: (a) Luhmann's way of describing systems as a distinction between system and environment, (b) the concept of self-reference, and (c) autopoiesis, as well as (d) the definition of communication, (e) complexity, (f) trust, and (g) authority/power.

Within the scope of organizations, making decisions means taking responsibility, which may occasionally be interpreted as restrictions on one's freedom or as power expansion. However, this concept differs from classical organization theories, which typically assume the close connection of

power and freedom. Luhmann's systems theory implies a different concept of freedom, which basically means the construction and the awareness of alternatives about which one can decide. That is also why increasing complexity within organizations limits freedom the same way it limits power. Luhmann noted (2018, p.79) that the real freedom we have to "change a system" is to communicate. Let's then leave no stone unturned to improve this one opportunity.

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The appropriation of science: Taylor and beyond.

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In the early 1900s, Frederic W. Taylor suggested a new approach to "shop" (production) management. His methods sought enhancing productivity with measurement- and thus data-based management practices, replacing old thumb-rules and whims. Critics claim that albeit enhancing productivity, Taylorism transformed human workers into gears in a machine and all transformed jobs became greatly dehumanized. The central question of the present paper is why corporations sacrificed the human side of production (or later on clerical) work, and how the same ground will lead to a certain dehumanization of the managerial work as well. Our arguments are framed by the functionalism and the social systems theory.

Taylor's era was lacking managerial education, therefore his work pioneered to bring science into management. Today, management abounds in scientific approaches and various theories, helping management theorists and practitioners to deal with complexity and build best practices enhancing efficiency, productivity and profitability. The consequences of Taylorism have been greatly different on the workers than on management. Developing industries required mass production, which drove corporations towards growth. Science, as introduced by Taylor, served as the engine of this transformation.
Today however, science appears to become too subjective due to the greater impact of political and economic pressures. By consequence, the role of scientists seems to weaken in society and business life, especially compared with the rising importance of machine learning algorithms. Current trends lead us towards a new "generation" of science, managed by data scientists, which might have a dehumanizing impact on the managerial jobs as well. As the ancient leaders' horses have been replaced by more efficient machines, decision bodies will be replaced by algorithms bringing totally new working conditions – both for managers and society in general.

The jester's paradox: the paradoxical role of science in society today

by: Egon Noe, University of Southern Denmark & Hugo Alroe

The self-image of science is that of a unique societal institution that independently and skilfully searches for truth and knowledge. This image works both as branding and as a guiding star. However, neither truth nor knowledge are innocent concepts, and the political system and the economic system increasingly seeks to control science and science communication in society. Fr0m a period of relative autonomy, where it was presumed that science would provide unspecified benefits for society at some unspecified future time, science is now rigorously directed by public funding towards specific societal goals prioritized by the political system. The function of science today is thus torn between self-referential meanings and irritations from the umwelt. From outside, science is challenged by rivalling claims to truth from interest groups in society that are not bound by scientific methods. From inside, the differentiation of science into specialized scientific perspectives leads to competing accounts of truth that cannot be reconciled on a common, aperspectival ground. And the necessarily perspectival truths of science can be seen as a weakness in the power struggles between truth and opinion in society.
The long-term survival capacity of society is closely linked to its capacity for being irritated by crucial differences in the umwelt. Science, with its specialized perspectives and means of observation, has a key role to play in this. However, we ask, will the developments sketched above, which increase the sensitivity of science (in more ways than one), impair this societal role?
In medieval times the king was installed by God. Therefore the king could not be wrong, and people who questioned him would immediately be one head shorter. Yet it was essential that critically wrong perceptions could be corrected. The court jester was an important figure who was able to handle this paradox by giving critical feedback to the king in a humorous way.
Given that science is bound by the quest for funding and challenged by the need for internal

differentiation, the question is whether science can fulfil the role of the court jester who is able to speak the truth to the economic and political powers of society? Or whether science is left with the role of the useful fool, who, unwillingly or unwittingly, is used for authoritative support by different fractions in the power struggles of society.
In the Danish Centre for Rural Research (CLF), we have to deal with this complexity in our daily practice, and, as we will argue in this paper, CLF serves as an informative case to explore and unfold the jester's paradox outlined above. Some of the main topics in this exploration could be: What is the role of a centre like CLF for society's capacity for irritation? How can structural couplings increase the sensitivity of the centre in terms of observing the dynamics of rural areas, and how do they inflict on the centre's vulnerability in terms of funding and institutional support? What role can narrative identity and communication strategy play in relation to the jester's paradox? And what can we learn from the CLF case on the paradoxical role of science in society today?

The platform as an organizational form: towards a Luhmannian theory of platformization

by: Gianmarco Cristofari, University of Macerata; University of Amsterdam

Fuelled by digital technology and linked to longer term organizational trajectories, in the past decade the process of platformization has been transforming consumption, production, participation and everyday life more in general. The organizational logic of the digital platform is having a profound impact in all societal systems, including the economic, the political and the legal system (Van Dijck et al 2018). Drawing on the interdisciplinary literature on platformization, rooted in media studies (Poell et Al 2019), political economy (Sadowski 2019; Van Doorn 2020), management (Gawer et al 2019; McIntyre et al 2020), and software studies (Helmond et al 2019; Manovich 2002), this paper proposes a Luhmannian-inspired framework to understand platforms as a distinctive organizational form. Whereas there is common agreement in the literature about how the platform constitutes an organizational form distinct from the firm, the market or the state, we still lack a clear framework to appreciate such functional differentiation.

A cursory literature review reveals how a common denominator of many of the definitions of platforms emphasize aspects inherent to a (Luhmannian) cybernetic approach. Platforms have been defined in different ways according to different disciplinary perspectives: 'online services of content intermediaries' (Gillespie 2010); 'a standards-based technical-economic system that relies on the distribution of interfaces' (Bratton 2015); '(re-)programmable digital infrastructure that facilitate […] interactions' (Poell et al 2019). The platform can be seen as a new organizational form that operationalizes system theory and Luhmann's theory of organizations (Luhmann 2018). As form - the unity of a difference - the platform starts from making a distinction between inside and outside (Maturana & Varela 1972), between system and environment, where the system is less complex than the environment. This self-organized system, internally, constitutes a circular system of governance of its own ecosystem of users and complementors.

Platforms heavily rely on generative feedback loops, making them an ideal object for the application of a cybernetic framework. They are often designed to intensify social interaction through self-feeding processes catalyzed by notification systems and gamification strategies (Gerlitz and Helmond 2013). They promote behavioral manipulation (Zuboff 2019) through 'cycles of anticipations' (Gillespie 2014), akin to the patterns of self-fulfilling prophecies. They evolve through the strategic reprogramming of their infrastructure, based on continuous data collection deployed in order to expand opportunities for further data collection (Plantin et al 2018). Their success relies on a tautological "winner-takes-all" logic related to network effects (Bellefemme & Peitz 2021; Srniceck 2017).

Platforms make communication likely among groups that would otherwise likely not communicate. In systemic terms, platforms save time in the ordinary life of users. The way they operate through the medium of power (Luhmann 2003) confirms Luhmann's conception of power as a "catalyst" (Luhmann 2017), as platforms work as accelerators of social interactions. As society's complexity intensifies, communication becomes more and more improbable. Platforms select complexity by making communication possible among a number of actors and through a number of functions. As "match-makers" they allow strangers to communicate, mediating the emergence of trust in the realization of economic transactions (Bodo 2020). As "multi-sided markets", platforms promote the integration (structural coupling) of otherwise disconnected systems by providing the socio-technical conditions for the complementarity of their goals. As "interoperable systems", platforms implement data exchange and protocol compatibility among formerly independent technical systems.

After characterizing platforms from a cybernetics perspective and bridging the literature on platformization with that of Luhmannian cybernetics, the paper will move to develop three lines of reasoning. First, we wish to briefly recontrust the genealogy of platformization and its link to the cybernetic discourse. This can be traced back to at least two relatively distinct derivations: the post-industrial Toyotist discourse (Steinberg 2019) and the cybernetic approach to management (Beer 1959; Medina 2011; Pickering 2010).

Second, following Baecker (2006), we argue that Luhmann's theory may play a special role in the digital age. Just like Aristotle's theory of forms can be interpreted as a reaction to writing, and Descartes' as a reaction to the "catastrophe of printing", Luhmann's theory of forms could be interpreted as a reaction to the "catastrophe of computers". The history of computation (Berlinski 2000; Doyer 2012), with its evolving algorithmic infrastructures, seems to confirm in practice what Luhmann speculated about; its theory may have therefore anticipated the advent of platformization. In this sense, the digital platform may be considered as a new technological form that, after the technology of printing and the Internet, further increases the rate of functional differentiation of society through algorithms (Tække 2021). Platforms, as generative mechanisms, may have constituted a new form of autopoiesis of organizations - one that completely lacks teleology; as Bratton - the first author to sketch a cybernetic approach to platforms - puts it: "there is no master plan" (Bratton 2015).

We conclude with a tentative suggestion. Not only do platforms continuously reconfigure their organization; they also strategically incorporate continuous reconfiguration, based on cycles of monitoring and prediction, into the logic of their autopoiesis. By incorporating a cybernetic "ontology of becoming" (Pickering 2010) into their strategic planning, they push the logic of autopoiesis to a new, "radically-recursive" level (Beraldo 2020); in so doing, they manage to be continuously open to the future, changing the nature of political planning (Bratton 2015).

Overall, with this paper we aim to show that reading platforms through the lenses of Luhmann helps

clarifying how platforms creatively recombine elements of firms, markets and states into a novel organizational form, while contributing novel empirical insights for a cybernetics approach that deals with datafication and platformization. In a cybernetic fashion, the question is not what is the societal and political impact of platforms, but rather: what is society and politics now that platforms are in place?

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The role of management science in forming “next era” semantic reservoirs

by: Margit Neisig, Roskilde University, Department of Social Sciences and Business, Denmark

This paper concerns the role of management and leadership science in forming a semantics for “next era” leadership and management. The paper outlines a position for engaged scholarship in bridging the gulf between theorizing and practice in a social system perspective assisting the emergence of a shared semantic reservoir. Thus, the discussion of the rigor-relevance gap is revisited. However, for a shared semantic reservoir for “next era” leadership and management to form, one more layer of reflexion is needed: how to manage “backwards” from the future? Research programs targeting “grand challenges” and “grand solutions” mostly is defined by mega-projects defined and financed by large foundations or other large-scale actors. Well-connected international research centers and research networks are needed to influence this agenda-setting. Peripheral regions are in risk to be left out in this process. This paper argues that forming regional polycentric networks (including scientific research scholars) may to a greater extend bridge the global agendas with local and regional issues to not be excluded in a transition process.

The paper applies a social systems theory approach, while discussing the role of polycentric networks and double attribution to bridge the perspectives of different function systems. In the functionally differentiated society, stratification do not disappear as a pattern of differentiation. The paper addresses geographic stratification, which seems to be reinforced as digitalization and abstract knowledge are gaining ground, even though bits and abstract knowledge should easily be detached from spacial limitations.

Subsections of the paper are:
• Revisiting the gulf between theory and practice – and the rigor-relevance gap.
• Understanding of polycentric networks of organizations and the role of a shared semantic reservoir
• The role of engaged scholarship–as a midwife for a shared semantic reservoir, while also honoring the rigor of science.
• Leading backwards” from the future – the challenges addressing grand challenges and solutions
• Non-functional forms of differentiation, and the ex-/inclusion of peripheral regions.

The paper concludes on possible roles for management and leadership scholars to engages in the formation of semantics for “next era” leadership and management

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Treatment of symptoms versus social training and psychosocial therapy for "mental illness".

by: Vibeke Klitgaard, Dept. of Sociology, University of Lund, Sweden.

J.C. Reil coined the term "psychiatry" in 1802, meaning doctors (from Greek "iatros") studying the psyche. Psychosocial disorders invariably express themselves in spoken communication, i.e. in social systems, making spoken communication the main medium of psychiatry. Psychiatrists throw out the social part by calling them "illnesses". They are trained as medical doctors before they specialize as psychiatrists and consequently medications follow. Psychoactive drugs can treat symptoms, but it takes a more active approach, like social training and psychotherapy to cure or improve the said disorders. Actually, a more precise term would be psychosocial therapy, as there will always be at least two persons present. In the presentation I will focus on various mental health issues, in particular on the different approaches to the "voices" of psychotic patients.

Truth tables, true distinctions: Modulations of the source code of science

by: Steffen Roth, Excelia Business School La Rochelle (France), Kazimieras Simonavicius University (Lithuania), and University of Witten-Herdecke (Germany)

A presentation developing beyond the concepts presented in prior publications.

• Roth S. (2021), NOR: Truth table, true distinction. In: Roth S., Heidingsfelder M., Clausen L., and Laursen K. (eds.), George Spencer Brown's "Design with the NOR". With related essays, Bingley: Emerald. Link: https://ssrn.com/abstract=3617010
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Unlocking Luhmannian systems theory in the family business research – A systematic review of literature

by: Theresa Arnold, University Witten/Herdecke, Germany

Family businesses are not only businesses, neither are they solely families. They can be defined as distinct complex social systems, determined by oscillating identity requirements. The Luhmannian systems theory serves researchers to further examine the complex relations and often paradox communication within the business family (Kleve et al., 2019). The systems theoretical approach offers a lens to understand the tensions within paradox communication (Roth et al., 2021; Smith et al., 2017). It enables us to engage in the fundamental differences between organizational decision communication and family-oriented decision communication due to their diverging communication codes (von Schlippe and Frank, 2013). In the last decade, research interest in systems approaches has grown considerably and its exploration has been widely recognized by scholars in management and economic studies (Cooren and Seidl 2019; Roth et al., 2021). Even the first systemic approaches within family business research originates decades ago, in the late ’70s by Broderick and Smith (1979); and Olson, Sprenkle, and Russel (1979). However, research questions about the definition and stringent theoretical concept applying Luhmannian systems theory, the relation between (family/ business) systems, environment, its autopoietic functioning, and communication are yet to be elaborated in family business research (Frank et al., 2016). The outlook on this research gap is based on a systems theoretical perspective based on Luhmannian systems theory that provides a promising lens to observe business families, their operation, functional differentiation, and paradox communication (Luhmann, 1995; Kleve et al., 2021). We summarized research gaps in three main areas: 1) where has systems theory already been applied within family business research, 2) how/ what level of reference to systems theory can be examined (e.g. distinct forms, different implementation of open or closed systems) 3) what future research agenda can be directed, drawing from the literature review.

The goal is to provide a systematic literature review for identifying and evaluating literature on the topic of systems theory in family business research, and further analyzing the collected data (Snyder, 2019; Kuckertz & Block, 2021). The Preferred Reporting Items for Systematic Reviews (PRISMA) has been used as a stringent systematic review guideline for data collection (Snyder, 2019). The analysis included a total of 51 papers in English from the most well-recognized peer-reviewed journals, to offer further insights into our current understanding of business families.

This systematic review of literature reveals a clear and distinct classification of systems approaches in family business research over the last forty years and gives an overview of applied systems definitions and differentiations such as closed and open systems, or overlapping systems. By reviewing all systems contributions within the last forty years in family business research, we aim to understand the theoretical construct of a family system and its significance for the family firm’s operation (Combs et al., 2020). First, we recognized a potential for improvements regarding theoretical considerations and theoretical system’s definitions when applying a systemic perspective for future research. Secondly, we suggest a systems perspective to facilitate a shift in mindset towards a rather circular understanding that enables to reframe paradoxical conversations that are regularly predefined by their logic. The basic theoretical foundation for family business research will further include the definition of three systems paradigms derived by Luhmann’s social systems theory

(1995): ‘part/whole’ distinction, ‘system/environment’ distinction, and ‘identity/difference’ distinction, and a focus on functional differentiation and guiding distinctions (economy, payment/non-payment; science, true/untrue) to engage in applying binary codes utilized in programs that display a fundamental instrument for key distinctions which will enable distinct exploration for future research (Spencer-Brown, 1994; Luhmann, 1995).

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