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Chester Barnard’s systems-theoretic approach to organisation theory: a reconstruction

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**ABSTRACT**

Chester Barnard’s organisation theory is widely acknowledged to be grounded on a systems-theoretic approach which has however remained largely inchoate. The present paper ventures a hypothetical reconstruction of this approach by identifying the salient parallels between Barnard’s thought and Niklas Luhmann’s theory of social systems as well as Alfred North Whitehead’s philosophy of organism. While these parallels are by no means perfect, Barnard seems to have anticipated the Luhmannian view of organisations as complexity-reducing systems navigating a precarious outer environment. Drawing on Whitehead, Barnard argued that organisations may succeed with this task insofar as they operate as organismic wholes.

**KEYWORDS**

Chester Barnard; Niklas Luhmann; Alfred North Whitehead; social systems; sustainability

**Introduction**

Chester Barnard’s *The Functions of the Executive* (1938) is a difficult but widely acclaimed book. As a “timeless classic” (Godfrey and Mahoney \textsuperscript{2014}), it has attracted extensive secondary commentary (e.g., Walsh and Brady \textsuperscript{2019a; 2019b}; Gabor and Mahoney \textsuperscript{2013}; McMahon and Carr \textsuperscript{1999}; Williamson \textsuperscript{1995b, 1996}; Wren \textsuperscript{1994}; Scott \textsuperscript{1992}; Wolf \textsuperscript{1974}). The book was written in a historical era marked by the growing awareness of the enormous economic and political power of corporate elites, as well as by the growing disbelief that this power was used to advance public interest (Scott \textsuperscript{1992}). In a sense, Barnard’s book has served as a counterpoise to the monumental study by Berle and Means (1932) who called attention to the pervasive principal-agent problems to which corporate managers were inexorably subject (Scott \textsuperscript{1992}). Later on, these problems have become the mainstay of the mainstream economic theories of the firm, especially the contract-based approaches. In this climate of opinion, Barnard stressed that no corporation will survive for long unless corporate managers exhibit high levels of responsibility and organisational loyalty. His emphasis on the role of
morality as a key condition of sustainability of formal organisations is a far cry from the standard economic assumption that individual actors, at all levels of organisational hierarchy, pursue narrow visions of self-interest.

At the same time, interpreting Barnard’s work has never been easy, primarily because of his unique tendency to oscillate between seemingly opposed concepts. Drawing a seminal distinction between the rational and natural systems approaches to organisation theory, Scott (1995, 2003) observed that Barnard combined both of them. This combination seems to capture the main thrust of numerous ambivalences pervading Barnard’s thinking. Characterising formal organisations as “conscious, deliberate, purposeful” (Barnard 1938, 4), Barnard gave pride of place to informal organisation as well as the non-logical processes occurring in human mind. He made clear that formal organisations rest on clear authority relations, yet took authoritative communication to be voluntarily accepted by its addressees; in addition, he thought of the behaviour of social groups as being autonomous and self-organised (Wolf 1995, 1885; Walsh and Brady 2019a). On occasions, the recognition of the essential role of organisational morality seems to lead him to endorse indoctrination of employees (cf. Perrow 1986, 69).

Yet, from today’s point of view, Barnard’s work is often seen to imply a high moral standard of managerial behaviour which cannot be taken to characterise corporate America in the late twentieth and early twenty-first centuries (Godfrey and Mahoney 2014; Scott 1992).

Against the backdrop of these ambivalences, it is little wonder that some commentaries on his work have been controversial or expressly critical. William G. Scott’s 1992 book portrays Barnard as a “guardian of the managerial state”; yet Wolf (1995) claims that many of Scott’s (1992) interpretations of Barnard are specious. This concerns, for example, the attribution to Barnard of a desire to legitimate the societal and political leadership of the managerial class in the U.S. (Wolf 1995, 1883), or Barnard’s alleged endorsement of management elitism (Wolf 1995, 1892), combined with the downplaying of the role of political freedom (Wolf 1995, 1888). Characteristically, and to the dismay of Wolf (1995), Scott (1992) identified in Barnard’s work both Orwellian (Scott 1992, 18) and Machiavellian (ibid, p. 159) overtones. Perrow’s (1986) critiques of Barnard are no less dramatic than those of Scott (1992). Perrow (1986, p. 67) attributes to Barnard a desire to show that “organizations are superior to individuals”; on Perrow’s (1986, 76) reading, Barnard “glorifies the organization and minimizes the person,” allegedly in view of the ultimately cooperative nature of organisations. As a result, Perrow (1986) tells us, “the basic weakness of Barnard’s model lies in its extreme functionalism - that is, the uncritical acceptance of organizations as functional for all concerned and the moralism that follows from this view”.

The controversies surrounding Barnard’s work are of more than purely historical interest. From today’s point of view, their significance is amplified by Barnard’s widely acknowledged influence on organisation theory and the theory of the firm (e.g., Loasby 2009; W.R. Scott 2003; Williamson 1995a). As Loasby (2009) shows, Barnard’s elaboration of the way authority promotes intra-organisational coordination has been a much needed contribution to the Knightian and Coasean theories of the firm, which derive the nature of the firm out of human cognitive limitations, primarily those related to information processing and dealing with uncertainty. Barnard has shown
that formal organisation provides a context where individual activities, subject to these limitations, are coordinated through the mobilisation of both logical and non-logical processes. Barnard’s most direct influence has been on Herbert Simon and is most evident in Simon’s elaboration of authority, organisational equilibrium, and decision making (Mitchell and Scott 1988). Simon not only shared Barnard’s appreciation of employee loyalty and commitment to organisational purposes, but also assumed, as Barnard did, that organisations mould employees’ individual habits and may even manipulate their frames of mind (cf. Mitchell and Scott 1988).

One of Simon’s (1962) seminal ideas is near decomposability, a feature that allows hierarchical organisations to address tasks whose complexity goes far beyond the cognitive limits of an individual human mind. Near decomposability explains the very possibility of the coordination function of formal organisations. Simon’s significant point, however, is that this function is not only of cognitive nature; it rests on a considerable degree on the psychological mechanisms of organisational identification. These mechanisms clearly reflect the workings of organisational morality elaborated in Barnard’s theory. Given this Barnardian connection, it is highly significant that Simon took organisational identification to hold the key to understanding the decisive difference between the governance structures of firms and markets. He explained that “coordination between organisations depends almost wholly on economic motivations and rewards, and becomes seriously imperfect wherever major externalities are present that cannot be removed by enforceable contract arrangements. Within organisations, on the other hand, identification is a powerful force for combating externalities produced by attachment to subgoals, by virtue of the loyalty it can produce to the goals of the whole system ... In particular, identification becomes an important means for removing or reducing those inefficiencies that are labelled by the terms ‘moral hazard’ and ‘opportunism’” (Simon 1991, 41).

Simon’s argument suggests that the Barnardian theme of organisational morality holds considerable potential to inform the present-day understanding of the nature of the firm, especially given that this theme is sorely neglected by “the attempts of the new institutional economics to explain organisational behaviour solely in terms of agency, asymmetric information, transaction costs, opportunism, and other concepts drawn from neoclassical economics” (Simon 1991, 42). This neglect is highly unfortunate, particularly because the cognitive and moral dimensions of the organisational coordination function hang together in ways that remain insufficiently explored until today. Thompson (2015) suggests, for example, that the cognitive dimensions of hierarchical governance may undermine its moral dimensions related to trust and loyalty which are particularly crucial in the organisation of knowledge-intensive production activities. Both Thompson (2015) and Simon (1991) insinuate that that the predominant economic theories of the firm have not yet accommodated Barnardian insights about organisational morality, and are not likely to do much progress until they do so.

Accommodating these insights is hindered, however, by the above-noted ambivalences and controversies surrounding Barnard’s work. While it is often difficult to judge the validity of competing interpretations of his ideas, a possible key for deciphering and logically structuring at least some of them may be found in Barnard systems-theoretic inspirations. Despite their radically different interpretations of Barnard, both Scott
(1992, 116) and Wolf (1995, 1875, 1974, 55) concur in acknowledging the radical influence of systems theory on his thinking. Barnard (1938, p. 72) himself stressed that he understood the formal organisation as a system, more exactly “as a system of consciously coordinated personal activities or forces”. It is remarkable that his justification for the need for organisation theory resonates with the way Ludwig von Bertalanffy (1968) justified the relevance of the general system theory. Just as Bertalanffy, or more recently Davis (2019), pointed out the growing specialisation and mutual isolation of individual sciences which nevertheless increasingly share a common interest in understanding “organised complexity,” so Barnard (1938, xviii), too, sensed that behind the startling professional diversity of formal organisations one might detect their “universal characteristics … [such as] active understandings, evaluations, concepts, of men skilled in organising not only in the present but also past generations”.

The next section reconstructs Barnard’s key systems-theoretic inspirations and classifies these into two streams which, from today’s point of view, can be taken to correspond to the Luhmannian and Whiteheadian scholarship. These streams are critically assessed in the following sections. In the next step, the Luhmannian and Whiteheadian elements will be synthesised into a hypothetical formulation of a distinct and novel systems-theoretic approach. However, as the next section explains, it must remain an open question whether Barnard himself would have approved this approach. Yet, elaborating the approach reveals the not-so-obvious internal logic of Barnard’s organisation theory.

**Disentangling the elements of Barnard’s systems thinking**

Barnard’s scattered systems-theoretic ideas do not make a coherent impression. They were importantly stimulated by Lawrence Henderson, a biologist who was influenced by the work of Pareto (cf. Gabor and Mahoney 2013). On some occasions, Barnard (e.g., 1938, 77) referred to the part-whole relationship, e.g., in stressing that organisations must be treated as wholes. Acting in this quality, organisations help create “something new in the world that is more or less than or different in quantity and quality from anything present in the some of the efforts” of the cooperating individuals (Barnard 1938). Godfrey and Mahoney (2014, 362) affirm that in Barnard’s work, “[t]he emphasis on systems theory becomes not merely the taxonomic description of the fundamental elements, not an analysis of the dynamic interplay between the elements, but also a focus on the system as a whole entity that transcends any and all the individual elements”.

Barnard saw part-whole relationships to be hierarchically organised in a conception of layered ontology, in which “each organisation is a component of a larger system which we have called a ‘cooperative system,’ the other components of which are physical systems, social systems, biological systems, persons, etc. Moreover, most formal organisations are partial systems included within larger organisation systems” (Barnard 1938, 78f). Wolf (1974, 54) takes these “larger systems” to constitute the environment of formal organisations, and thus interprets the conception of layered ontology as an indication of Barnard’s reliance on the open systems metaphor. He states boldly that “Barnard’s entire theory of organisation is best viewed as a special application of
open-system theory” (Wolf 1974, 55). Gabor and Mahoney (2013) devote a book chapter to crystallising Barnard’s “systems approach to nurturing organisations”. They present this approach in terms of the list of what they call structural and dynamic concepts. The former include the individual and bounded rationality, cooperation, formal organisation, and informal organisation; the latter—communication, consent theory of authority, free will, the decision process, dynamic equilibrium and the inducement-contributions balance, leadership, executive responsibility, and moral codes. In a recent paper, Walsh and Brady (2019a) elaborate the parallels between Barnard’s organisation theory and the Hayekian systems-theoretic ideas of spontaneous order and self-organisation.

Important and illuminating as they are, all of these assessments of Barnard’s systems-theoretic approach fail to provide a coherent story. While Barnard was drawn to the ideas of system-environment and part-whole relations, it does not become clear how these ideas fit together, especially against the backdrop of the current state of the art in systems theory. One may agree with Scott (1995, 44) that Barnard “did not follow up [his systems-theoretic] insights systematically”. The contribution of the present paper is to reconstruct the contours of a systems-theoretic approach which might have been developed by Barnard, had he been willing to pursue this project on a more systematic basis. The Barnardian systems-theoretic approach to be developed in the present paper will thus be necessarily conjectural and hypothetical. No claim is raised that either Barnard himself or today’s Barnardian scholars would endorse it with any degree of probability. However, this conjectural exercise will nevertheless add scholarly value by illuminating the logical structure of the mutual relationship of the rational and natural systems perspectives in Barnard’s organisation theory. This relationship, in turn, is important for understanding how the cognitive and moral dimensions of the organisational coordination function hang together in systematic ways.

Drawing on the current state of systems-theoretic scholarship, the present paper will contend that the contours of a Barnardian (or, for that matter, quasi-Barnardian) systems-theoretic approach may be delineated by the selected ideas of two prominent twentieth century thinkers, Niklas Luhmann and Alfred North Whitehead. An assessment of Barnard’s systems-theoretic approach through the lens of Luhmann is an analytical exercise taking enormous advantage of the benefit of hindsight, for Luhmann started his scholarly activity roughly a decade after the publication of The Functions of the Executive in 1938. Yet, the paper will contend that a comparison of the systems-theoretic thought of two scholars is fruitful, particularly because Barnard’s organisation theory was an important source not only for Luhmann’s own organisation theory, but for his systems thinking more generally (Seidl and Mormann 2014; Thompson and Valentinov 2017). There is little doubt that Luhmann’s idea of the operational closure of organisational systems was anticipated and influenced by Barnard’s view of persons as belonging to the environment of formal organisations (cf. Ortmann 2012; Wilkens and Minssen 2010). Moreover, Luhmann relied on Barnard’s seminal concepts such as the “zone of indifference” (Luhmann 2019, 98) and the organisational equilibrium (Luhmann 2019, 259f; see also Seidl and Mormann 2014).

Identifying the Whiteheadian elements in Barnard’s organisation theory will perhaps be less likely to raise eye-brows. Barnard not only acknowledged the influence of
Whitehead’s *Process and Reality* on his thinking (Rasmussen 2003), but even considered it to be “the most important ideological basis for [his] theory of organisation” (Wolf 1995, 1879). While stating that he derived his organisation theory from experience rather than from Whitehead’s philosophy, Barnard admitted that his theory “conforms to Whitehead’s treatise at least analogically” (Wolf 1995). Barnard’s close familiarity with Whitehead’s thinking was likely facilitated by their mutual personal contacts within “an interdisciplinary group of Harvard intellectuals” in the 1930s (Gabor and Mahoney 2013). It was possibly under Whitehead’s influence that Barnard (1945, 178) characterised formal organisations as “organic” systems. Moreover, Barnard (1938, 239) explicitly referred to Whitehead in explaining the difficulty of separating the economic aspects of formal organisations from all other aspects. Barnard’s work will thus be shown to integrate elements of Whitehead’s and Luhmann’s thinking, an exercise going back to the important work of Herses (2008).

It may even be the case that recognising these elements individually, without delving into their mutual relationship, will already clarify some misunderstandings. Perrow (1986, 66), for example, was not impressed by Barnard’s idea of organisations being non-personal, with whole persons being part of the outer environment of organisations. Perrow (1986) believed that “this is an awkward position to hold, and even though Barnard does maintain it throughout the book, he is forced to distinguish between the organisational aspects of people and the personal aspects”. From today’s point of view, Barnard’s view of the relationship organisations and persons seems less controversial, and may be taken to capture the main thrust of the Luhmannian idea of operational closure of organisational systems. Familiarity with some elements of Whitehead’s multifaceted philosophy seems no less useful. Barnard’s elaboration of the complementary relationship between freedom and order is characterised by Scott (1992, 18) as “Orwellian doublespeak: ‘freedom is slavery’” (cf. Wolf 1995, 1893). Scott’s critique could have been forestalled by an appreciation of Whitehead’s argument that maximising “the intensity of experience,” a key normative guidepost of his philosophy of organism, involves the maximisation of the contrast of freedom and order. While Whitehead (1978, 338) acknowledged that order can “stifle the freshness of living,” he argued that it likewise presents the condition for excellence and freedom (cf. Morris 1991, 41).

### The elements of the Luhmannian systems theory

Luhmann considered formal organisations, like other social systems (Hesse 2012; Roth 2019), to be operationally closed. Operational closure is a challenging concept borrowed by Luhmann from the work of Chilean neurophysiologists Maturana and Varela (e.g., 1980). Being operationally closed, social systems “produce not only their structures but also the elements of which they consist in the network of these very elements” (Luhmann 2013, 76f.). In other words, within operationally closed systems, the very constitution of the elements occurs in fitting with the unique requirements of the system. In a somewhat similar line, Barnard (1938, 77) explained that “[t]he system … to which we give the name ‘organisation’ is a system composed of the activities of human beings. What makes these activities a system is that the efforts of different persons are
here coordinated. For this reason their significant aspects are not personal. *They are determined by the system* either as to manner, or degree, or time” (emphasis added).

Furthermore, being operationally closed, organisations and social systems more generally operate “only within the context of [their] own operations” (Luhmann 2018, 33), i.e., consist of their own operations and of nothing else beyond that. Accordingly, to Luhmann, any material infrastructure as well as the psychic and organic systems constituting what Barnard referred to as “whole individuals” belong to the environment organisations. In much the same way, Barnard’s (1938, 77) definition of the organisation as “a system of consciously coordinated personal activities or forces” explicitly excludes “persons as well as physical and social environments” (Barnard’s 1938, 72). It is therefore important that Barnard differentiates between two approaches to understanding individuals. Individuals may be considered “as specific objective entities” (16); in this case, account is taken of “the whole of the individual” (Barnard 1938). Individuals can be alternatively regarded “from the more nearly universal point of view, as phases, aspects, functions, which are greater spatially or durationally than individuals can be. For example, when we speak of managers, of employees, of voters, of politicians, of customers, etc., we have in mind certain aspects of individuals, certain kinds of activities of persons, not the whole individual” (Barnard 1938). Having drawn this distinction, Barnard makes clear that his organisation theory standpoint rests on the latter approach, according to which “persons … are regarded in their purely functional aspects, as phases of cooperation” (Barnard 1938). Clearly, this approach squares perfectly with the Luhmannian notion that the membership in a formal organisation presents a narrow excerpt of the activities of participating persons which, if considered from the perspective of the former approach, belong to the external environment of organisations, in both the Luhmannian and Barnardian thinking.

Yet another interesting parallel between Luhmann and Barnard arises out of their interpretations of how personal limitations engender the emergence of social systems. As Luhmannian scholars are widely aware, Luhmann emphasised the salient cognitive limitations of the individual mind. Due to these limitations, individual actors would be paralysed if the individual mind were to process the full range of signals reaching it from societal and natural environment. Action is only possible if the complexity of these signals is drastically reduced, e.g., in the case when persons form expectations towards other persons or social systems (Luhmann 2013, 73). Along somewhat similar lines, Barnard (1938, 23) too stressed that human “cooperation justifies itself … as a means of overcoming the limitations restricting what individuals can do”. He did not focus on cognitive limitations only and considered their physical and biological varieties more generally. Nor did he consider limitations to be given in an absolute ontological sense; instead he viewed them as “a function of the total situation viewed from the standpoint of a purpose” (Barnard 1938). In a highly imaginative argument, he suggested that personal limitations are overcome by cooperative systems, within which physical limitations are converted into biological ones, until “the limiting factor becomes cooperation itself” (Barnard 1938, 25). The common bottom line of the two thinkers seems to be that social systems as an emergent level of reality are associated with the idea that all systems are inevitably forced to reduce complexity and that attempts to reduce complexity produce new forms of complexity.
Finally, a prominent implication of operational closure is the impossibility of steering social systems from outside (Roth and Valentinov 2020). Steering gives way to self-steering, not least because the information needed for steering necessarily is a product of the system itself (van Assche and Verschraegen 2008). Barnard makes several suggestions giving prominence to the idea of organisational self-steering. The most well-known of these is perhaps his conception that authority does not come from above. He defined authority as “the character of a communication (order) in a formal organisation by virtue of which it is accepted by a contributor to or ‘member’ of the organisation as governing the action he contributes…. [U]nder this definition the decision as to whether an order has authority or not lies with the persons to whom it is addressed, and does not reside in “persons of authority” or those who issue these orders” (163). It follows that formal organisations cannot be taken to be steered in a top-down manner. Organisations whose members themselves determine whether specific communications hold authority must be considered to be self-steering, at least in some respects.

Walsh and Brady (2019a, 2019b) reading of Barnard’s work suggests that formal organisations, instead of being constituted by authority relationships, provide arenas for autonomous and spontaneous self-organisation processes enabled by the requisite sense of responsibility of the organisational members. According to the authors (Walsh and Brady 2019a, 956), in a private letter addressed to Professor Loofborouw in September 1947, Barnard stated “that in situations where the number of variables more than a few—there are many that are known and not quantifiable and there are usually at least some that have not been discriminated—it is impossible for anyone in command either to plan effectively or to enunciate orders that can and will be carried out”. Here, in a fashion highly reminiscent of Hayek, Barnard intuits a logical connection between the limits of steering and the human cognitive constraints. It is likely that Luhmann (2013, 224f) would have concurred, as to him, “authority (…) functions as an absorption of uncertainty, as a sort of simplification that makes it possible to continue with communication on the basis of the assumption that someone can actually give reasons why he selects a certain topic rather than another.” And the question what sorts of simplifications are considered to be functional is again answered in self-organising, self-steering processes (see Luhmann 2013, 247 for a concrete example).

**The elements of the Whiteheadian philosophy of organism**

Luhmann (e.g., 1999, 171) drew distinction between the part-whole and system-environment paradigms of systems thinking in the history of philosophy. Whereas he took the former paradigm to be represented by Aristotle and “the old European” philosophy more generally, he made clear that his own version of systems theory gives preference to the latter paradigm. Luhmann advocated the idea that “a system is a difference” and “needs only one single operation, one single type of operation, in order to reproduce the difference between system and environment” (Luhmann 2013, 54). This approach is in sharp contrast to traditional definitions of systems “through a plurality of terms. For example: systems are relations between elements; or: a system is the relation of structure and process, a unit that directs itself structurally in and through its own processes. Here you have unit, boundary, process, structure, element, relation - a whole
bunch of terms - and, if you ask what the unity of all these terms is, you end up with the word ‘and.’ A system, then, is an ‘andness.’ Unity is provided by the uand” but not by any one element, structure, or relation” (Luhmann 2013, 52). Not so in the case of Luhmann’s social systems theory, where communication is the only operation that defines social systems. Communication and only communication chains communication to communication. Thus, communication is the difference that makes the difference between what is or is not communication. The “andness” is reduced to one single element, which is an operation. Like any operationally closed system, the whole system, therefore, consists of nothing but operations that define what is or is not part of the system.

Barnard seems to have employed both paradigms, and it is the part-whole paradigm that constitutes the essential Whiteheadian bedrock of his organisation theory. Some characteristic statements about wholeness are found in Barnard’s (1938, 238) analysis of the executive process which is “one of integration of the whole, of finding the effective balance between the local and the broad considerations, between the general and specific requirements.” Accordingly, executives must “possess the art of sensing the whole” in order to avoid the wrong-headed thinking called by Whitehead “the fallacy of misplaced concreteness” which is exemplified by the attempts to focus on the purely economic aspects of their organisations (Barnard 1938, 239; cf. Whitehead 1978, 7).

A key Barnardian concept obviously framed by the part-whole paradigm is that of the cooperative system, which Barnard (1938, 65) defines as “a complex of physical, biological, personal, and social components which are in a specific systematic relationship by reason of the cooperation of two or more persons for at least one definite end”. Barnard (1938) goes on to explain that a formal organisation presents a subsystem comprised within the cooperative system. It is evident that from a Luhmannian point of view, the fact of the operational closure of a formal organisation contradicts this organisation’s membership in a larger cooperative system. Barnard, however, was not disturbed by this contradiction; instead, he believed that it is only by being part of a larger cooperative system that a formal organisation is empowered to solve complex problems exceeding the physical, biological, and cognitive powers of individual persons.

By engaging in this complex problem-solving, a formal organisation fulfils the Luhmannian complexity-reducing function, since it reduces the complexity of the organisational purpose to fit the cognitive capacity of the individual human mind. Barnard, however, made clear that a formal organisation does something additional to the complexity-reducing function; namely, it ensures the coordination of individual activities with a view to fulfilling the organisational purpose of highly complex problem-solving. Clearly, the coordination aspect, prominently stressed by Loasby (2009), goes beyond the purely Luhmannian notion of complexity reduction as the filtering of information from the huge flow of signals coming from the outer environment; it is rather reminiscent of John Commons’ definition of institutions as “collective action in restraint, liberation, and expansion of individual action’ (Commons 1934, 73). Thus, from a Barnardian point of view, the coordination function of a formal organisations can be taken to go back to this organisation’s membership in the later cooperative system. Another crucial parallel here is Simon’s (1962) idea of near decomposability which
explains why complex problems can be decomposed into less complex tasks whose execution is coordinated within an organisation (cf. Loasby 2009).

In addition to formal organisations, a key ingredient of cooperative systems is whole persons which can participate in organisations through narrowly defined membership roles. Again, attention to whole persons reveals a Whiteheadian rather than Luhmannian focus in Barnard’s work. Yet, Barnard seems to combine both foci by believing whole persons to be a part of the cooperative system and a part of the environment of formal organisations. On logical grounds, this combination does not involve a contradiction, since the cooperative system itself belongs to the environment of formal organisations. An obvious Luhmannian solution would therefore be to replace the notion of formal organisations as members embedded in a larger cooperative system by a situation where larger is not confused with superior and where the larger cooperative system is hence thought to be made of systems in an environment that does not take any form of precedence over the individual formal organisational systems.

The wholeness of individuals comes to the fore in Barnard’s conceptualisation of the organisational equilibrium, which is „primarily internal, a matter of proportions between the elements, but it is ultimately and basically an equilibrium between the system and the total situation external to it. This external equilibrium has two terms in it: first, the effectiveness of the organisation, which comprises the relevance of its purpose to the environmental situation; and, second, its efficiency, which comprises the interchange between the organisation and individuals” (1938, 83). It is noteworthy that, while being a factor of organisational equilibrium (which perhaps would be today more aptly characterised as “sustainability”), “efficiency” in the idiosyncratic interpretation of Barnard reflects the whole lifeworld context of individual participants, for it is only within this context that they can determine their subjective satisfaction. While these contexts are necessarily unique, Barnard stressed that they incorporate a broad variety of non-economic dimensions (Loasby 2009). “[A] long catalogue of non-economic motives actually condition the management of business, and nothing but the balance sheet keeps these non-economic motives from running wild. Yet without all these incentives, I think most business would be a lifeless failure” (Barnard 1948, 15). It thus stands to reason that the non-economic motives are an integral part of the individual as a whole person.

Whereas the wholeness of individuals is manifest in the concepts of efficiency and organisational equilibrium, the wholeness of organisations underlies their linkage with morality, a phenomenon about which Luhmann (1992, 2013, 26f; 161) had as many reservations as he had about the concepts of wholeness and equilibrium. To Barnard (1958, 2), an organisation is a whole entity, and accordingly, “something much broader than a bare economic or political instrumentality or the fictional legal entity implicit in corporation law. As social systems, organisations give expression to reflect mores, patterns of culture, implicit assumptions as to the world, deep convictions, unconscious beliefs that make them largely autonomous moral institutions on which instrumental political, economic, religious, or other functions are superimposed or from which they evolve”. If so, it is only natural that “to a large extent management decisions are concerned with moral issues” (Barnard 1958, 2). In a spirit rather contrary to the modern theorising of the principal-agent relationships (Wolf 1974), Barnard (1958, 12)
acknowledged that “the growth of the modern civilization” would not have been possible without “the enormous increase in responsible behaviour”. The sustainability of organisations directly rests on their moral foundations: “[o]rganizations endure … in proportion to the breadth of the morality by which they are governed. This only to say that foresight, long purposes, high ideals, are the basis for the persistence of cooperation” (Barnard 1938, 282). In respect to the role of morality, the contrast between Barnard and Luhmann is perhaps most dramatic. As an advocate of operational closure, Luhmann could have hardly believed that executive leadership has a moral function consisting in inspiring “cooperative personal decision by creating faith: faith in common understanding, … faith in the superiority of common purpose as a personal aim of those who partake in it” (Barnard 1938, 259).

Moreover, the wholeness of individuals and organisations in Barnard’s understanding appears to be linked. Organisational morality, while being an expression of organisational wholeness, is firmly predicated on the phenomenon of responsibility which again cannot be thought of apart from the wholeness of its individual bearers. Responsibility is an “emotional condition that gives an individual a sense of acute dissatisfaction because of failure to do what he feels he is morally bound to do or because of doing what he thinks he is morally bound not to do, in particular concrete situations” (Barnard 1948, 95). This “sense of dissatisfaction” is obviously felt by individuals as whole entities. The linkage between responsibility and the whole individual identity is particularly crucial for executives, which can meaningfully engage in responsible behaviour only to the extent that there is the “identification of personal codes and organisation codes … This is the coalescence that carries ‘conviction’ to the personnel of organisation, to that informal organisation underlying all formal organisation that senses nothing more quickly than insincerity” (Barnard 1938, 281f.). Mahoney, Huff, and Huff (1994) affirm that the loyalty and morality of executives have a direct bearing on the sustainability of modern corporations. Finally, Barnard is sensitive to the question of how the individual freedom and free will can be realised within the constraints imposed by formal organisations. In the last paragraph of The Functions of the Executive, he expressed his conviction “that the expansion of cooperation and the development of the individual are mutually dependent realities, and that a due proportion or balance between them is a necessary condition of human welfare” (Barnard 1938, 296). In affirming this point, Godfrey and Mahoney (2014, 365) document the multiple emphases that Barnard gave to the role of formal organisations in creating in supporting the development of individual capacities, e.g. through education and formation of new skills.

**Putting the elements together**

**Envisioning a Luhmann-Whitehead synthesis**

The upshot of the preceding discussion is that Barnard’s organisation theory combines, in a somewhat eclectic way, selected elements of Luhmann’s and Whitehead’s philosophies. How realistic is it to think of a systematic approach to integrate these philosophies? Given their obvious discrepancies, this task would be too monumental to be within the scope of the present paper. Yet, it is nevertheless possible to identify in
Luhmann’s work a potential point of entry for some of the Whitehedian insights. This point of entry, in turn, prepares the ground for revealing the inchoate logic of the way the elements of Luhmann’s and Whitehead’s philosophies were put together by Barnard.

Consider the fact that Luhmann frequently characterised the relations between the complexity-reducing systems and their outer environment as precarious. This is perhaps not surprising, given that the very meaning of the complexity reduction function consists in the selective disregard for many aspects of the environmental complexity, some of which might nonetheless be crucial for the survival of the concerned social systems. Luhmann (1989) himself saw the modern ecological crisis as a key manifestation of the precariousness of system-environment relations. Elaborating on the Luhmannian theme of the precariousness, Valentinov (2014) formulated two principles of system-environment relations in Luhmann’s systems theory. The complexity reduction principle holds that “systems increase their complexity by becoming increasingly insensitive to the complexity of the environment” (Valentinov 2014, 18). This principle is complemented by the critical dependence principle, according to which “the increasing complexity of systems is associated with their growing dependence on environmental complexity” (Valentinov 2014). The juxtaposition of these two principles yields the straightforward prediction that the complexity-reducing systems run the risk of “develop[ing] insensitivity to those environmental conditions on which they critically depend” (Valentinov 2014, 14), a scenario which is only too well exemplified by the global sustainability problems.

Given this risk, what may be truly surprising is that many social systems remain resilient and sustainable despite the fact their complexity-reducing function potentially interferes with the secure provisioning for their critical dependencies on their outer environment. A possible philosophical platform for theorising this tension is provided by Whitehead’s philosophy of organism, and particularly the internal relations doctrine (Caminati 2010), which holds that “everything that is arises out of multiple other things and has no existence apart from their relations to them. This is best understood if we think of the world as made up of happenings, occurrences, or events. Each event arises out of other events and is nothing apart from their participation in its constitution” (Cobb 2007, p. 568). In Whitehead’s cosmology, “happenings, occurrences, or events” (Cobb 2007), alternatively called actual entities, are the foundational building blocks, whose mutual “prehensions” underpin the organic interrelatedness of the universe.

Actual entities operate at a microscopic level at which it is difficult to conceptualise sustainability problems as they are experienced and known in personal perception and topical communication. Whitehead (1978, 110) explains that “the character of entity is finally governed by its datum: whatever be the freedom of feeling arising in the concrescence, there can be no transgression of the limitations of capacity inherent in the datum. The datum both limits and supplies. It follows from this doctrine that the character of an organism depends on that of its environment”. The origin of the sustainability problems becomes clearer at the macroscopic level which harbours social systems such as formal organisations. This point can be well illustrated by the following statement by Barnard (1938, 6): “at root the cause of the instability and limited
duration of formal organisations lies in the forces outside. These forces both furnish
the material which are used by organisations and limit their action. The survival of an
organisation depends upon the maintenance of an equilibrium of complex character in
a continuously fluctuating environment of physical, biological, and social materials, ele-
ments, and forces, which calls for readjustment of processes internal to the organ-
isation”. While Barnard and Luhmann largely converge in their typologies of physical,
biological, psychic (Luhmann), and social systems, it is remarkable that both Barnard
and Whitehead speak of the environment as regulating the operation of non-social
entities and social systems through “limiting and supplying”. No less importantly, in
the above quote, Barnard refers to the readjustment of internal processes which is
required for the maintenance of organisational equilibrium. This means that the dis-
crepancy between the complexity reduction and critical dependence principles does not
need to be fatal; it can be overcome by those formal organisations that exhibit the
requisite degree of organic interrelatedness manifest in the possibility of the intra-
organisational readjustment.

If formal organisations exhibit internal interrelatedness that also defines their border
to their environment, they can be referred to as wholes. The meaning of this wholeness
can be supposed to be twofold. First, the functioning of the whole rests on a certain
subordination of its parts. In Science and The Modern World, Whitehead (1925, 134)
explained that “individual entity, whose own life-history is a part within the life-history
of some larger, deeper, more complete pattern, is liable to have aspects of that larger
pattern dominating its own being, and to experience modifications of that larger pat-
tern reflected in itself as modifications of its own being. This is the theory of organic
mechanism”. The subordination of the parts to the whole is evidently a prerequisite of
the possibility of attaining internal readjustments aimed at restoring what Barnard
(1938, 6) called “organisational equilibrium”. Second, as organic wholes, formal organi-
sations operate in diverse qualities which go beyond their complexity-reducing func-
tion. To Barnard (1958, 2), if organisations are understood as wholes, then they
present “something much broader than a bare economic or political instrumentality or
the fictional legal entity implicit in corporation law. As social systems, organisations
give expression to reflect mores, patterns of culture, implicit assumptions as to the
world, deep convictions, unconscious beliefs”. It seems likely that both of these concep-
tual ingredients of wholeness bear the imprint of Whitehead’s (1925, 249) argument
that “[a] factory, with its machinery, its community of operatives, its social service to
the general population, its dependence upon organising and designing genius, its
potentialities as a source of wealth to the holders of its stock is an organism exhibiting
a variety of vivid values. What we want to train is the habit of apprehending such an
organism in its completeness”.

The suggested Whitehead-Barnard parallel in the understanding of wholeness is fur-
ther reinforced by their critical attitudes to the pervasive influence of the contemporan-
eous economic science. Whitehead (1925, 249) observed that “the science of political
economy, as studied in its first period after the death of Adam Smith …, did more
harm than good. It destroyed many economic fallacies, and taught how to think about
the economic revolution then in progress. But it riveted on men a certain set of
abstractions which were disastrous in their influence on modern mentality. It de-
humanised industry”. As evidenced by the lengthy quote below, Barnard (1938, xxx) was of the same mind: “Granting the utility of abstracting from social action that aspect which we call “economic,” the relatively developed theories so effectively constructed by Adam Smith and his successors depressed the interest in the specific social processes within which economic factors are merely one phase, and greatly overemphasised economic interests. This was conjoined with an exclusion of adequate consideration of motives in pure economic theory, a materialistic philosophy rooted in utilitarianism, and a prevalence of highly erroneous conceptions of the place of the intellectual, as distinguished from the emotional and physiological, processes in social behaviour”. In addition to revealing Barnard’s concerns about the possible abuse of economic abstractions, the latter quote makes clear that the idea of wholeness applies to individuals just as it does to organisations. It is well to recollect at this point that Barnard (1938, e.g., 16) distinguished between two approaches to understanding individual persons, which can accordingly be seen either as whole and unique entities, or as the functional aspects of formal organisations.

**Reconstructing some of Barnard’s concepts**

Thus, if Barnard were active today, and if he would be interested in developing his systems-theoretic approach in a systematic way, he might have been looking for opportunities to combine the Luhmannian and Whiteheadian interpretations of both organisations and individuals. In Barnard’s work, organisations are seen both as the Luhmannian complexity-reducing devices and as the Whiteheadian organic wholes. Individual organisational members are likewise seen through the Luhmannian lens of the organisational role or functional phases, as well as through the Whiteheadian lens of “the individual as a whole.” On a Whiteheadian line of thought, these distinctions imply that the complexity reduction function of organisations is assumed to be an insufficient description of how organisations operate as wholes, just as the knowledge of the narrowly defined participant roles sheds little light on the life of individual participants beyond the boundaries of formal organisations.

If we follow Barnard in considering individual participants (“contributors” in his terminology) to be the organisational parts, however, then the above distinctions point at two theoretical problems. On the one hand, the organisational complexity reduction function alone would not explain how the organisational parts are mutually coordinated; on the other hand, it would say little about how the narrowly defined roles of organisational participants fit into their total life context. In a sense, Barnard can be said to interpret the Luhmannian system-environment distinction in terms of the part-whole distinction. The whole would then include parts whose identities go beyond their membership in the whole. These identities would constitute part of the organisational whole’s outer environment whose complexity, as Luhmann perceived, cannot be fully registered by the complexity reducing organisation. Not only would the organisation as a whole be multidimensional, but its parts would likewise be multidimensional wholes in their own right. The effective coordination of parts within the whole would thus require that the different dimensions of these parts exhibit a sufficient mutual consistency, such that the organisational dimension of the individual life does not contradict
other dimensions. Thus, the interaction of Barnard and Luhmann clearly points at both the limits of ontological part-whole thinking as well as set-theoretical manoeuvres (including the corresponding identity problems) and the junctures and tensions between this tradition and the post-ontological differential-theoretical system-environment approach developed by Luhmann.

Juxtaposing the Luhmannian and Whiteheadian interpretations of organisations and individuals, however, produces a structured context for some of the central concepts of Barnard's organisation theory. Consider the case of how the multidimensionality of the individual as a whole translates into the Luhmannian and Whiteheadian interpretations of organisations. The relationship of the individual whole to the organisational whole poses the question of how the individual can be consistently and reliably mobilised to act for the benefit of organisation, despite the fact that the individual fulfils a broad array of other roles in her or his total life context. This mobilisation, according to Barnard, occurs through the loyalty of the individual, if the latter is in possession of the respective moral codes and is capable of following these codes with a sense of responsibility. The relationship of the individual whole to the Luhmannian complexity-reducing dimension of organisation is a rather different matter. Insofar as the individual as a whole fulfils a broad array of roles most of which are unrelated to the organisation in question, she or he must exhibit a qualified indifference to the organisation. The “zone of indifference” is a famous Barnardian concept that seems to reflect exactly this constellation. The “acceptance theory of authority” fits this constellation as well, for the acceptance of authority must presuppose a certain indifference of individuals to the nature of orders they accept as authoritative.

Now consider the individual in her or his narrowly defined organisational role. Translating this role into the Luhmannian context of the organisation as complexity-reducing device we find that individual membership in organisations is limited to roles that individuals can choose to assume. It is hence only a divisional aspect of the individuum that qualifies for membership, which implies that the individual as a whole belongs to the organisational environment (particularly if we aim at avoiding the decomposition of the individual into a “dividual”).

Again, we find that Barnard conceives of the system-environment relationship in terms of a system embedded in and thus part of its environment. This perspective then creates problems of “intersectionality” to the extent that the role must now be thought to be part of both the organisation and the individual, for either of which it creates tensions and reductionisms, e.g., in terms of the “economic man” view which Barnard considered to be unrealistic (a judgement at least partly caused by an insufficient distinction between organisation and firm). This role however is also applicable to the Whiteheadian context of the organisation as a whole and multidimensional entity. In this case, the organisational participant perceives the organisation as such an entity, and accordingly “senses the organisation as a whole,” exercises judgement, and discriminates the strategic factors in line with what Barnard somewhat confusingly called “the theory of opportunism”. Exercising judgement and identifying strategic factors cannot occur within the organisational complexity-reducing function alone, as these activities take account of how the organisation as a whole entity fits into a unique local and transient multidimensional context. In the parlance of the modern management...
literature, these activities can be taken to be the object of the firm’s dynamic capabilities which embody a non-cognitive type of learning (Chia 2017) and “an immersive engagement [of the firm] with the world” (Nayak, Chia, and Canales 2020). The dynamic capabilities help firms to develop “empirical sensitivities” required for detecting and utilising the unique and idiosyncratic “environmental affordances” (Nayak, Chia, and Canales 2020), or in Teece’s (2012, 1396) terminology, for “sensing,” “seizing,” and “transforming” the chances opened by the turbulent business environment. Table 1 summarises the Barnardian concepts illuminated by the suggested combination of the Luhmannian and Whiteheadian interpretations.

### Concluding remarks

While reaffirming the widely acknowledged importance of systems thinking in Barnard’s organisation theory (Wolf 1974; Scott 1992, 2003; Godfrey and Mahoney 2014), the present paper questions that this thinking can be adequately characterised in terms of open systems theory. It seems more correct to argue that Barnard’s work rests on his own unique but inchoate systems-theoretic approach which has been neither systematically developed by Barnard himself nor explored by subsequent scholars. The paper conjectures that the contours of this approach can be reconstructed by drawing on the selected Luhmannian and Whiteheadian ideas.

The benefit of hindsight allows us to discern that Barnard anticipated the Luhmannian concerns about the precariousness of system-environment relations. Being rooted in the systemic attributes of complexity reduction and operational closure, this precariousness translates into considerable sustainability risks faced by formal organisations. Drawing on Whitehead’s philosophy, Barnard argued that organisations can navigate their precarious environment by operating like organismic wholes. As wholes, organisations maintain equilibrium with their outer societal environment, by continually readjusting the coordination between their parts, which correspond to the activities of individual organisational participants. This readjustment is possible only if these participants themselves are understood as wholes which fulfil for their organisations some narrowly defined roles. Barnard made clear that participants will reliably fulfil their organisational roles only if these roles conform to the remainder of their entire social life context. This conformity is achieved, among other things, through the inculcation of organisational moral codes which establish the moral priority of the organisational roles over other roles that the respective individuals play in the

### Table 1. A mapping of Barnard’s selected concepts.

<table>
<thead>
<tr>
<th>The nature of the organisation</th>
<th>A complexity-reducing device</th>
<th>A whole</th>
</tr>
</thead>
<tbody>
<tr>
<td>The nature of the individual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A functional aspect of the organisation</td>
<td>The “economic man” view</td>
<td>The individual capacities of “sensing the whole” and discriminating the strategic factors</td>
</tr>
<tr>
<td>A whole</td>
<td>The indifference of individuals towards their organisation; the acceptance of authority</td>
<td>Individual loyalty and commitment to the organisation</td>
</tr>
</tbody>
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1. V. VALENTINOV AND S. ROTH
remaining dimensions of their lives. Thus, Barnard came to emphasise both personal and organisational morality as the foundation for the sustainability of formal organisations.

Barnard’s systems-theoretic approach, reconstructed in the paper, allows us to think of the logical juxtaposition of the concepts of organisations and individuals, each considered in their specific organisational complexity-reducing and other qualities, the latter of which appear as more general or holistic from a person-centred point of view. In systems-theoretic terms, this juxtaposition breaks new ground by highlighting the complementary relationship between the part-whole and system-environment paradigms. From a Barnardian perspective, part of this complementarity derives from the fact that a crucial chunk of the complexity of the outer environment of organisations is constituted by the multidimensional nature of their parts, which can themselves be understood as wholes. From a Luhmannian perspective, however, the challenge consists in the insistence that organisations as a social system consist of nothing but communication in general and decision communication in particular. Strictly speaking, there is hence no such thing as human beings or even interactions in organisation, and the Luhmannian approach therefore fundamentally challenges prevailing habits of conceiving of organisations as structures made of arbitrary sets of parts, elements, or aspects as different as life, emotions, knowledge, or power. Thus, further work on systems theory and organisation theory is needed in order to elaborate the system-environment paradigm as a possible outcome of the recursive application of the part-whole paradigm to itself, or vice versa. A related strand on the system-environment paradigm can be devoted to inquiring into the meaning of wholeness as an attribute and survival strategy of organisations as complexity-reducing systems navigating precarious environments.

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