

Martin Milán CSIRSZKI*
The applicability of Parsons' action system to the food system**

Abstract

In this paper Talcott Parsons' systems theory is applied to the food system. After the introduction of the basic categories of the food system, the main elements of Parsons' theory are drawn up. Then, the detailed analysis takes place on three abstraction levels: within the general paradigm of human condition, the action system and the social system. During the analysis, two conclusions are formulated: one of them is in connection with the correction of abstraction levels concerning the food system, the other one creates the classes of the food system that can be corresponded to the four Parsonsian functions. In the end of the study, a final conclusion is formulated.

Keywords: Talcott Parsons, action system, food system, systems theory.

1. Introduction

If we start to think about the word 'system' from a lay viewpoint, we can feel – in my opinion – a touch of qualitative surplus. This qualitative surplus may be in connection with the fact that our knowledge on any systems assumes order. If we scrutinise 'system' with scientific approach, an excellent starting point is served by the definition of the dictionary of Merriam-Webster: “*a complex unity formed of many often diverse parts subject to a common plan or serving a common purpose.*”¹ The English word 'system' is derived from Latin 'systema', and the latter one goes back to Greek 'σύστημα' [sústēma comes from the verb συνίστημι (sunístēmi) and the nominal suffix -μα (-ma); sunístēmi means 'associate', 'unite'] (Online Etymology Dictionary, n.d.). 'Ordering' or 'orderliness' already appeared in the early Greek expression in order that the activity of ordering has become the basis of systems. Both lay and scientific approaches establish the feeling of qualitative surplus.

If we go further, we can handle the system as the starting point of our point of view, and we can turn to it with a methodological approach. In this case, we can say that we approach the object to be examined with a systems approach, and we are able to reach results due to our method of examination which can be attributed to the qualitative surplus (orderliness) that gives the essential characteristic of the system.

Martin Milán Csirszki: The applicability of Parsons' action system to the food system. *Journal of Agricultural and Environmental Law* ISSN 1788-6171, 2021 Vol. XVI No. 30 pp. 40-58, <https://doi.org/10.21029/JAEL.2021.30.40>

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** I would like to thank Prof. Dr. Miklós Szabó for his useful and helpful comments and suggestions, as well as his guidance in connection with this paper. Nevertheless, any error or contradiction in this article is the exclusive responsibility of the author.

¹ Merriam-Webster 2002, 2322.



These results would not appear if the individual elements of the system were examined separately, since the relations between the self-contained parts and their interactions do not surface with an isolated, single-element-concentrated way of examination. Systems approach can be used both in (natural) sciences and social sciences. The founding father of systems theory, Ludwig von Bertalanffy, said the following about the purpose of the systems approach: “[a] systems approach became necessary. A certain objective is given: to find ways and means for its realization requires the systems specialist (or team of specialists) to consider alternative solutions and to choose those promising optimization at maximum efficiency and minimal cost in a tremendously complex network of interactions.”² The systems approach means the assumption of the world as the object of scientific cognition in which individual phenomena can only be understood in their context, namely in their hierarchical context. It can only be understood as a unit that is a part of higher-level units and is itself organised from lower-level units.³

Although Ludwig von Bertalanffy developed his theory as a general systems theory applicable for each discipline, outstanding results in connection with society were achieved by the works of Talcott Parsons and Niklas Luhmann with their determinations on sociological systems theory.⁴ Consequently, in the present study I intend to rely on the works of Parsons, since I argue that his systems theory can be applied to the food system. In this context, firstly I would like to present the food system and its parts based on the scientific literature, and secondly Talcott Parsons' systems theory, hence he can be considered the father of sociological systems theory preceding Luhmann. Finally, by comparing these, I would like to formulate my conclusions and suggestions.

2. The food system

2.1. Fundamentals

With regard to the food system, I think it is important to settle some fundamentals in the beginning. It is necessary to draw attention to a distinction of outstanding significance. Food system is not equal with food supply system. Their relation can be drawn as the previous one includes the latter one, therefore food supply system is a part of food system. Their more detailed relation is introduced later. As a consequence of inappropriate use of terms, a number of studies consider these two expressions interchangeable. I think it should not be maintained in this way for the interest of coherence.

The question arises: how can food system be defined? I consider this question extraordinarily necessary, because the definitions of the food system are indispensable based on that the definitions contribute to the reaching and strengthening of boundaries between the system and its environment.⁵

² von Bertalanffy 1972, 4.

³ Szabó 2015, 161.

⁴ See Parsons 1937; Luhmann 2002.

⁵ Morel et al. 2000, 160.

Through the definition – its etymological origin comes from the word 'delimitation'⁶ – we can get to the system that is the object of our examination, and to its constitutive structured phenomena.⁷ In my opinion, a Dutch analysis in scientific literature gives a remarkably accurate and concise definition: *“Food systems comprise all the processes associated with food production and food utilisation: growing, harvesting, packing, processing, transporting, marketing, consuming and disposing of food remains (including fish). All these activities require inputs and result in products and/or services, income and access to food, as well as environmental impacts. A food system operates in and is influenced by social, political, cultural, technological, economic and natural environments.”*⁸ According to a much earlier definition, food and nutrition system is *“the set of operations and processes involved in transforming raw materials into foods and transforming nutrients into health outcomes, all of which functions as a system within biophysical and sociocultural contexts.”*⁹ Although we can find many attempts of defining the food system,¹⁰ I would have liked to emphasise these two. The reason of presenting the first one is that it gives us a really broad definition and gives us an exemplificative list of forms of activity related to the food system. I say exemplificative, because – in my opinion – trade in food chain is such a factor that has a key role concerning the possible outputs of food system, so it could only be left out of the list because of the list's exemplificative nature. In the second definition, its second part is relevant to us from the point of view of systems theory, as it highlights the biophysical and social nature of the food system. This piece of information will be especially important to us later. Although even the first definition mentions the environment in which the food system is embedded, and we can also meet the natural (biophysical) and social environment, but in the second definition it is much more pronounced. The fact that the food system is a biophysical and social system is an essential element that needs to be emphasised in an extraordinary way, as it strongly influences the functioning of the whole system. The relationship between man and nature is the most determining factor.

Those structured phenomena belong to the food system that are directly related to whether or not the food system achieves its main goal, the food security. The interaction of these structured phenomena within the system affects the extent to which we are able to achieve food security: there are interactions that worsen the achievement of this goal, whilst others improve it. We have to clarify what food security means. The term is not to be taken here in the sense that e.g. the food in front of us must be free of pesticide residues or all hygiene requirements shall be complied with in the processing plant. In the sense that can be considered as the goal of the food system, it has a much broader context: it means having the appropriate quantity and quality of food available to everyone anywhere in the world. This will be explained in detail later, since food security can be considered as the main 'output' of the food system, which can be divided into several separable parts. I would like to note one more addition here: the food system is often associated with the concept of 'from farm

⁶ Benkő, Kiss & Papp 1967, 602.

⁷ Morel et al. 2000, 160.

⁸ van Berkum, Dengerink & Ruben 2018, 6.

⁹ Sobal, Kettel Khan & Bisogni 1998, 853.

¹⁰ See Tansey & Worsley 1995; LaBianca 1991.

to table',¹¹ but I do not think it gives back the degree of complexity the food system has, therefore this metaphor is much more appropriate for illustrating the food supply system. You can see the illustration of the food system by van Berkum, Dengerink, and Ruben.¹²

2.2. The structure of the system

As for the structure of food system, of course its most obvious description can be given along the input-output scheme used for any type of systems. There are basically three main input groups: (1) socio-economic drivers, (2) food system activities, and (3) environmental drivers.

Socio-economic drivers can be divided into five groups: (a) markets, (b) policies, (c) science and technology, (d) social organisations, and (e) individual factors.

Food system activities include the following: (a) enabling environment, (b) food environment, (c) food supply system, (d) business services, and (e) consumer characteristics.

Environmental drivers encompass: (a) minerals, (b) climate, (c) water, (d) biodiversity, (e) fossil fuels, as well as (f) land and soils.

Among the above-mentioned inputs, food system activities can be considered the most important for a sociological research, which therefore I would like to elaborate on now.

Among food system activities, the food supply system plays a central role. As I mentioned earlier, in most cases this is identified with the food system, and they are considered the same. However, this approach is not appropriate. The food supply system can be identified with the concept 'farm to table', but this leaves a number of important factors out of the examination. The food supply system is, in fact, the food chain *sensu stricto*, which begins with agricultural production (crop and livestock production). This is followed by the storage, transport and wholesale of food, the processing and transformation of food, the retail and supply of food, and finally consumption itself.¹³

Enabling environment includes transport networks, regulations, institutional arrangements and research infrastructure. Food environment consists of food labeling, nutrient quality and taste, physical access to food and food promotion. Business services can be divided into the parts of extension services, agro-chemical services, technological support and financial services. The group of consumer characteristics refers to the knowledge, time, purchasing power and preferences of consumers.¹⁴

In order to illustrate the enormous network of connections that can emerge from these elements, I would like to give a few examples of some element of the food supply system: (a) Agricultural production, which includes all activities related to the cultivation of raw materials, is influenced by factors such as climate, land use opportunities, the spread of agricultural technologies or even various agricultural

¹¹ See Kneen 1989.

¹² van Berkum, Dengerink & Ruben 2018, 10.

¹³ See the legal analysis of the food chain and its supervision: Reiterer 2016.

¹⁴ van Berkum, Dengerink & Ruben 2018, 10–11.

subsidies. (b) Food processing and packaging involves the various transformations that are made with the raw material (e.g., fruits and vegetables) before it is sold on the market. These activities affect, for example, the nutrient content, the 'use by' date or even the appearance of foods. (c) Food distribution and trade are the activities by which food is moved from one place to another and placed on the market there. This is strongly influenced by transport infrastructure, various trade regulations or even storage requirements.¹⁵

Legal research may be helped by highlighting the input factors in the food system that directly represent the law. Here we can emphasise the issue of policy located within socio-economic drivers, as well as regulations within the enabling environment. Policy means the drawing up of different objectives on various levels. Global objectives concerning the food system are determined – among others – by the World Trade Organization, within which the liberalisation of agricultural markets is an important aim. On the level of the European Union, the most important and complex policy is Common Agricultural Policy, which tends to follow the path of interventional conceptions much more powerfully. On the national levels, the main determining actor is the high political sphere of the agricultural ministry of a state. The essence of the policy is that the outcomes of the food system take a fruitful and accepted direction at social level, however, in many cases this is not achieved, and unexpected turns are against the interests of some non-state actors in the food system.¹⁶ Policies orientate the legal regulations *sensu stricto*, i.e. the statutes and the decrees of a state. This encompasses the whole food system, as 'the law' now regulates almost everything: what market behaviour can be shown by the actors in the food chain, how foodstuffs should be labeled, what environmental aspects must be taken into account during production, what food safety requirements a food processor must meet in its plant etc.

Another important piece of information, that I consider to be of paramount importance for the determination of the food system and its outcomes is that there has been a change of attitude, a paradigm shift. I could also say that different aspects are prioritised in the formulation of the policy than before. This policy shift is nothing more than a shift in the focus from the agricultural producer to the consumer.¹⁷ This causes such a degree of deformation in the food supply system, that is, in the food chain, which, in my opinion, jeopardises the achievement of the outputs of the food system, i.e. certain elements of food security.

2.3. The objective of the system

Now I would like to move on to discussing the main output of the food system. As I mentioned earlier, this is food security. The basis of scientific research from the point of view of the food system is that the food system is a goal-oriented system that strives to achieve the highest possible level of food security. *"Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their*

¹⁵ Ericksen 2007, 238.

¹⁶ van Berkum, Dengerink & Ruben 2018, 15.

¹⁷ Lang & Heasman 2004, 12.

dietary needs and food preferences for an active and healthy life."¹⁸ Unfortunately, there are authors who consider the term 'food insecurity' to be more appropriate for today's relations, especially in developing countries.¹⁹

We can distinguish three aspects of food security, which are the following: (1) 'food availability': (a) in terms of cultivation, how much and what kind of food is available through local cultivation; (b) in connection with distribution, how the food is made (physically) available, i.e. in what form, when and to whom; (c) from the point of view of exchange, how much available food is procured through exchange mechanisms, such as barter, trade, sale or loan. (2) 'food access': (a) the purchasing power of households or communities relative to food prices (affordability); (b) the economic, social and political mechanisms that control when, where and how consumers have access to food (allocation); (c) the diverging demands of consumers in the light of their social, religious and cultural norms and values regarding different types of foodstuffs (preference). (3) 'food utilisation': (a) the nutritional value of the foods consumed in terms of calorie, vitamin, protein and other micronutrient intake; (b) the social value, i.e. the social, religious, cultural functions and benefits that food provides; (c) food safety, i.e. the harmful ingredients that are formed during cultivation, processing, packaging, distribution and marketing, and food-borne diseases such as salmonella.²⁰

3. The re-structuring of food system based on Parsons

3.1. Introductory thoughts

The reason I chose Talcott Parsons to theoretically systematize the food system is simple. He was the first to introduce systems theory into sociology, so his work can be considered pioneer. Although Parsons states in the very first lines of one of his major works, in 'The Social System' that his work is strictly theoretical in nature, so he does not undertake empirical generalisations and methodological procedures, but he adds that the usefulness of the theoretical system will be revealed in empirical research.²¹ Consequently, I would like to attempt to apply certain categories of Parsons to the food system.

There have been a number of critical remarks about the intelligibility of Parsons' writings, and it has also been formulated against him that he uses different terms for the same categories in his various works, which makes it even more difficult to interpret his works.²² At the same time, this is not an obstacle for me, as I do not intend to use his theory to the smallest details; I only would like to work with his clearly crystallised conceptual system, which I can use for my own research.

¹⁸ FAO 1996, 1.

¹⁹ Ingram 2011, 417.

²⁰ FAO 1996.

²¹ Parsons 1991, 1.

²² Pokol 1987, 159.

First of all, it is worth making two basics about Parsons' theory. One of them is revealed by Niklas Luhmann: Parsons' theory can be called both a theory of action and a systems theory. *"The theory of action is said to be oriented more towards the subject, the individual, and therefore more capable of including psychic and even bodily states in sociology. In contrast, systems theory is seen as rather abstract and thus perhaps more capable of depicting macrostructures."* Then he adds: *"In any case, the view expressed by a number of representatives of the theory of action is that action and system are incompatible paradigms."*²³ According to Luhmann, this was disproved by Parsons: *"[i]t is possible to understand the entirety of Parsons' work as a sort of endless commentary on just one proposition, and this proposition reads: Action is system."*²⁴ This proposition is perfectly useable concerning the food system, because during the examination of food system we need to consider both individuals (e.g. agricultural producers) and macrostructures. The other that needs to be highlighted in relation to Parsons, and this is somewhat related to the conceptual difficulties already mentioned, is that it is very important to clarify at which level of abstraction we are working in Parsons' theory. I explain it in more detail below, and for the ease of understanding, I indicate in parentheses that which level of abstraction we speak of (see later Abstraction Level I, II and III).

3.2. The most important categories of Parsons

According to Parsons, four basic functions must be fulfilled in order to build action systems.²⁵ These four basic functions are called the AGIL schema. The letters constructing the acronym mean the following: (a) A for Adaption, (b) G for Goal Attainment, (c) I for Integration, (d) L for Latent Pattern Maintenance.

Parsons places these four functions in a cross-classification table: there is an external-internal axis and an instrumental-consummatory axis.²⁶

The levels of abstraction mentioned above go back to the fact that Parsons first places the action system itself in the general paradigm of the human condition. The action system is placed in the field of Integration, that is, it performs an integrative function (Abstraction Level I). By reducing the level of abstraction, the four functions of the action system are fulfilled by: (a) The *behavioral system* fulfils the function of adaptation. (b) The *personality system* fulfils the function of goal attainment. (c) The *social system* fulfils the function of integration. (d) The *cultural system* fulfils the function of latent pattern maintenance. (Abstraction Level II)

Working as a sociologist, the social system is the most elaborate in Parsons' theory. By further reducing the level of abstraction, the four basic functions has to be also fulfilled in the social system. Concerning the functions within the social system Parsons' view is the following: (a) The *economy* fulfils the function of adaptation. (b) The *polity* fulfils the function of goal attainment. (c) The *societal community* fulfils the function of integration. (d) The *fiduciary system* fulfils the function of latent pattern maintenance (see in detail Luhmann, 2013). (Abstraction Level III)

²³ Luhmann 2013, 7.

²⁴ Luhmann 2013, 7.

²⁵ Morel et al. 2000, 165.

²⁶ Morel et al. 2000, 166.

With regard to the analysis of the food system, the most relevant levels of abstraction are Abstraction Level I and III.

On Abstraction Level I, that is, in the general paradigm of human condition the action system was the only one to be placed so far – as a function fulfilling the integration. However, the existence of further systems as the environment of action systems is indispensable for the food system. Of these further systems, the telic system fulfilling the function of latent pattern maintenance is less relevant to us, but the physico-chemical system fulfilling the function of adaptation and the organic system fulfilling the function of goal attainment are of paramount importance.

The reason is simple. The food system is a system in which the physico-chemical system of Talcott Parsons, i.e. the nature and natural environment surrounding the human world, and the action system including its integrative social system determine the operation of the food system, as well as the position of those belonging to the system. As a sociologist, Parsons – self-evidently – dealt with the social system in detail, much less with the systems that surround the action system. At the same time, with regard to the food system, which relies heavily through the activity of agriculture on the environment and nature around us due to the flora and fauna and, above all, climatic conditions, as well as weather factors, we cannot ignore the systems that surround the action systems. It is crucial to understand that the food system is incomprehensible and even meaningless without these 'surrounding' systems.

3.3. Abstraction Level I

As I have already mentioned, if we look at the abstraction level of the general paradigm of the human condition, the integrative function is fulfilled by the action system. However, examining this first level of abstraction, now we should turn our attention for a short time to the other two systems: the physico-chemical and the organic system. Within the food system, the physico-chemical system is embodied by the input group of environmental drivers, namely the previously mentioned minerals, climate, water, biodiversity, fossil fuels, as well as land and soils. These factors significantly determine the functioning of the entire food system, as they are objectively existing factors, independent of mankind, that determine agricultural production everywhere and at all times. The agricultural production must be at the heart of the food system, as it is the *sine qua non* of the system. Here, I would like to draw attention once again to the frustrating fact already mentioned: food policy, which once focused on agricultural production and the producer himself, has shifted the focus to consumption and to consumers. This is, in my view, unacceptable because it is farmers who are the first to come into direct contact with the physico-chemical system, and because of the added value of their activities food can start its journey 'from the field to the table.' It can be said that this shift in emphasis coincided with the transition from the traditional agricultural model to the modern agricultural model, during which farmers gradually lost their importance even though there is no food without their activity. As food policy has been increasingly determined by giving preference to consumer interests, the balance between agricultural activity and the underlying natural environment has been overthrown, and the environmentally damaging, resource-utilising side of agriculture has become more and more apparent.

This, I think, will not be able to recover as long as the preferences of consumers, who are furthest from the physico-chemical system, are preferred to production. There is a system that has existed from the beginning: the natural environment, which system is utilised exclusively by the farmers who produce goods that can be consumed, and yet producers are in no position to dictate terms.

According to Parsons: “[t]he physical world is the ultimate source of the generalized resources on which all living systems on the earth depend, and it provides the ultimate conditions of their functioning.”²⁷ The fact that Parsons interpreted the physico-chemical system as the adaptive function, i.e. he placed it into the external-instrumental field, offers an excellent solution regarding the food system. The reason for this is that the natural environment is an objective, external factor in relation to agricultural production, which plays an instrumental role, as it is a ‘tool’ in the hands of the farmer to produce food.

The organic system, in my interpretation, is thought at by Parsons as human in his own physiological reality. This includes, for example, breathing, eating, digesting, and so on. It can be presented most plastically by that example of Parsons which shows the relation of the organic system to the physico-chemical system: “[o]rganically, probably the most basic relationship is human dependence, along with all other animals, on the plant world for food materials or, indirectly so far as he consumes animal foods, on the food animal’s utilization of plants.”²⁸ The human in his own physiological reality, i.e. the human-organic system is placed into the external-consummatory field: it fulfils the function of goal attainment. Relatively speaking, it is more difficult to be placed in connection with the food system, but it is perhaps clear that without this system and without the relationship of dependency mentioned as an example, the food system would not be interpretable, as it is predominantly an action system, more narrowly a social system, the embeddedness of which in the physico-chemical system can become complete through the human-organic system.

If we turn our attention to the detailed analysis of the food system outlined above, it turns out that its core is provided by the food system activities. The food system activities, as a summary category, can correspond to the system of action itself as it is located in the general paradigm of the human condition. The similarity of these two categories is even provided by their names. Thus, the food system activities have an integrative function in the whole food system, i.e. it is placed in the internal-consummatory field. The goal of the food system as a whole, as well as the direct goal of the food system activities, is the food security already analysed; the food system activities can be placed within the food system as internal categories. And thus, the integrative function of the food system activities arises. Abstraction Level I can be closed here: (a) Food system activities fulfilling the function of integration of the food system as action system. (b) Environmental drivers fulfilling the function of adaptation of the food system as physico-chemical system. (c) Human in his own physiological reality fulfilling the function of goal attainment as human-organic system. (It is not specifically emphasised in the literature on food systems, since its existence is evident.) (d) The function of latent pattern maintenance is irrelevant regarding the food system, in my opinion.

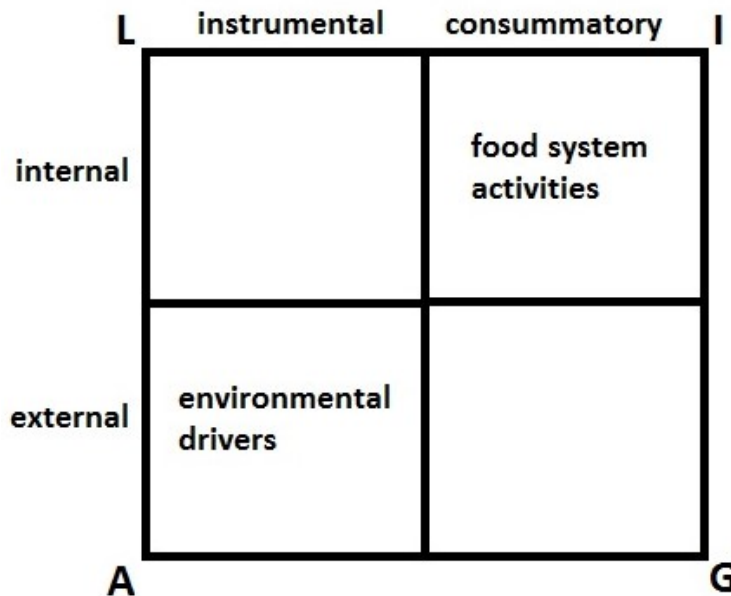
²⁷ Parsons 1978, 362.

²⁸ Parsons 1978, 385.

As can be seen, I did not place the third main input group (besides environmental drivers and food system activities), i.e. the socio-economic drivers at Abstraction Level I, because, in my view, they should be listed within the input group of food system activities. According to my view, the socio-economic drivers of the food system do not appear at the appropriate level of abstraction in the concept of food system. The elements of socio-economic drivers, such as markets, policies, science and technology, social organisations and individual factors, are all factors that can be analysed within the system of food system activities, i.e. beside the followings: enabling environment, food environment, food supply system, business services, consumer characteristics. I am analysing it in more detail, I would just like to draw attention to the fact that the food system, if we look at the Abstraction Level I, would have to present only two main input groups: (a) the food system activities with the function of integration that can be interpreted as an action system, and (b) the economic drivers with the function of adaptation that can be interpreted as a physico-chemical system.

(The telic system, which fulfills the function of latent pattern maintenance, has not been dealt with so far, while the human-organic system, which fulfills the function of goal attainment, is self-evident.)

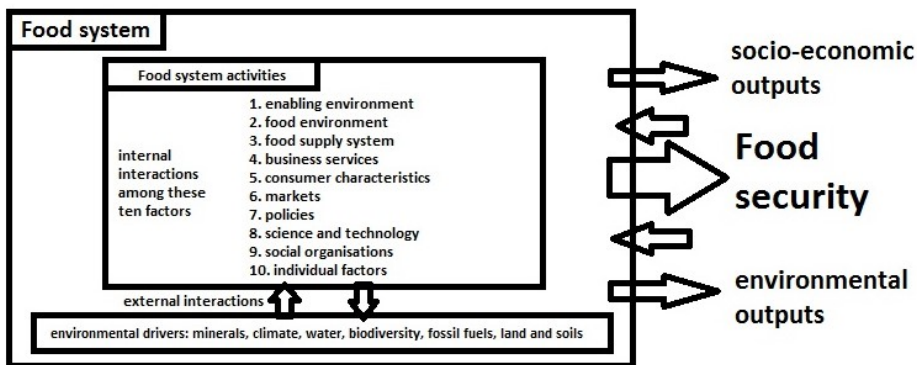
The socio-economic drivers (the third input group) shall be integrated into the food system activities, since at Abstraction Level I there is only the action system, i.e. the food system activities embedded in the physico-chemical system, i.e. the environmental drivers. These two systems are the relevant ones concerning the food system. Let us look at the cross-classification table of Abstraction Level I of Parsons, in which only the two most important systems of the food system are indicated.



3.3.1. Conclusion of Abstraction Level I

The systems theory of Parsons with its Abstraction Level I, which finds the place of the action system within the general paradigm of human condition, can provide the food system such a conceptual framework that makes its rectification possible. Thus, two systems are relevant to the food system: the action system and the physico-chemical system, to which the system of food system activities and the system of environmental drivers can be corresponded. The absence of a human-organic system, as well as a telic system in the construction of the food system does not mean that these functions are not performed within the food system, only that they are not relevant enough to be singled out when the food system is created.

Within the food system, the dependence of the action system on the physico-chemical system is extremely prominent, as environmental drivers have a decisive influence on the food system activities. Not indicating a separate group of socio-economic drivers and integrating it to the system of food system activities does not mean that there are no socio-economic outputs. Talcott Parsons' systems theory has created an opportunity for us to properly place the abstraction levels of the food system and make it look like the following:



3.4. Abstraction Level II

In the previous two chapters, I defined the food system activities as an action system, which is possible because the vast majority of systems can be perceived as an action system. I have previously indicated that, from the point of view of the food system, Abstraction Level I and III are of outstanding relevance. I have highlighted the need for the analysis of Abstraction Level I in the previous two chapters, since it can be used to demonstrate the fact that the food system activities within the food system are also determined by the environmental drivers. That is, at Abstraction Level I, I illustrated the relationship between the action system and the physico-chemical system, i.e. the embeddedness of the former in the latter.

However, Abstraction Level II, that distinguishes the cultural, social, behavioural and personality systems within the action system, is negligible to us because it seeks the answer to the following question: 'What guarantees the possibility of action as such?'²⁹ This is the question, the answer to which does not provide us with useful information for the analysis of the food system. Abstraction Level I highlighted what this action is embedded in. Abstraction Level III in the next chapter will provide an answer to the question that if the action in the general sense has its given conditions from Abstraction Level II, which elements of the food system activities fulfil the functions of Abstraction Level III.

To do this, however, we must decide that the systems fulfilling the different functions of Abstraction Level II correspond to which of the food system activities. The possibilities are the following: the cultural system with the function of latent pattern maintenance, the behavioural system with the function of adaptation, the personality system with the function of goal attainment, and the social system with the function of integration. I would equate the food system activities with the last one, that is, I would perceive the food system activities as a social system for two reasons. On the one hand, Parsons provides a definition of the social system in his work 'The Social System': "*[a] social system is a mode of organization of action elements relative to the persistence or ordered processes of change of the interactive patterns of a plurality of individual actors.*"³⁰ I think, this fits perfectly with the whole system of food system activities as a system, and anyway, matching the other three system options would seem extremely forced. On the other hand, the food system definitions mentioned in Chapter II clearly capture the food system as a social system, regardless of any examinations from the standpoint of a systems theory. It can be seen that perceiving it as a social system is located at a different level of abstraction than the fact according to which the food system also has certain elements of a biophysical system, but shifting abstraction levels is not a particular concern until the examination is from a systems theory perspective.

Thus, Abstraction Level II only adds to our analysis that within the food system, the food system activities can be perceived as a kind of social system.

3.5. Abstraction Level III

This is how we arrived at the perception of food system activities as a social system, which must be supplemented with the previously independent input group of socio-economic drivers discussed in the food system literature at an inappropriate level of abstraction. The four functions of the social system are fulfilled according to the following: (a) adaptation – economy; (b) goal attainment – polity; (c) integration – societal community; (d) latent pattern maintenance – fiduciary system.

Let us therefore see into which groups the elements within the food system activities can be classified, but first list the individual elements, including the socio-economic drivers classified here as new elements. These are the following: (1) enabling environment, (2) food environment, (3) food supply system, (4) business services,

²⁹ Luhmann 2013, 14.

³⁰ Parsons 1991, 15.

(5) consumer characteristics, and as new elements (6) markets, (7) policies, (8) science and technology, (9) social organisations, 10. individual factors.

If we detail these ten elements, we can see an extremely diverse picture of what belongs to each and every element based on the literature. Let us list these (some of them I have already mentioned earlier): (1) enabling environment: transport networks, regulations, institutional arrangements, research infrastructure; (2) food environment: food labeling, nutrient quality and taste, physical access to food, food promotion; (3) food supply system: agricultural production, food storage, transport and trade, food processing and transformation, food retail and provisioning, food consumption; (4) business service: extension services, agro-chemical providers, technological support, financial services; (5) consumer characteristics: knowledge, time, purchasing power and preferences; (6) markets: income and profits, labour and wages, trade, prices, market systems; (7) policies: land tenure, food and nutrition, labour and trade, environment, health and safety; (8) science and technology: farm inputs, food processing, food preparation, transport/storage, medical technology; (9) social organisations: media, social movements, household structures, education, health care; (10) individual factors: lifestyle, attitudes, beliefs, values, culture.³¹

The subelements of these ten elements show us an extremely differentiated picture, therefore it is not possible to insert these elements into one and only subsystem (economy, polity, societal community, fiduciary system) of the social system. In many cases, there are overlaps, as – for example – trade is a key part of the food supply system, but we also need to link trade activities to the element of policy from a different perspective. Furthermore, trade is also present as a determinant of the market, as the level of trade greatly influences market developments, prices, demand and supply. The list can go on almost indefinitely.

If an element (for example, the enabling environment) wants to be corresponded to any of the subsystems of the social system, we experience an obstacle. Within the enabling environment there is the legal regulation which fulfils the function of integration (as all types of legal regulation),³² although the transport infrastructure should be perceived as fulfilling the function of latent pattern maintenance. Thus, we can say that within an element, the subelements fulfil different kinds of functions.

3.5.1. Conclusion of Abstraction Level III

As a result of the above-mentioned, it can be said that the system of food system activities perceived as a social system is so complex that in most cases, through its individual elements, it inevitably integrates and maps all functions. Here we could draw attention to Luhmann's vision: *"All this leads to the general theorem that the system can be repeated within itself, and that from each box four subordinate boxes, or from each partial system four – and always only four – other systems, may emerge in turn. The question of how far this can be pushed – whether, say, a system that consists of the sixteenth part of the original system can be divided up even further – is a practical question concerning the level of system complexity that can actually be*

³¹ van Berkum, Dengerink & Ruben 2018, 14–16.

³² Pokol 1987, 206.

reached and the complexity of the reality within which action occurs."³³ And indeed, the system of the food system activities perceived as a social system, suggests this, so we have to draw a line in order to avoid further disintegration and, as a result, chaos. If we look at it through an example: the subelement 'transport infrastructure' can also be further detailed as road, water, rail and air transport, but such resolution of abstraction level no longer adds to our theory, but rather contributes to the loss of its meaning. Thus, we must stop there that the system of food system activities can be perceived as a complex social system, in which the individual elements can, in most cases, correspond to several of the functions of the social system.

As a consequence of the above, I therefore believe that by analysing the food system activities as a social system, the following general concepts can be linked to each social system function of the food system activities: (a) Economy fulfilling the function of adaptation is equivalent to the economy of agriculture. (b) Polity fulfilling the function of goal attainment is equivalent to the agricultural policy. (Polity is understood here as the process of government, which, concerning the food system, is orientated by agricultural policy.) (c) Societal community fulfilling the function of integration is equivalent to the legal regulation of agriculture in a broad sense. (d) Fiduciary system fulfilling the function of latent pattern maintenance is equivalent to agricultural culture as an ethos.

Let us go through these now. We first turn our attention to the function of integration, which is called 'societal community' within the social system. It has already been determined earlier that the integrative function of the action system is fulfilled by the social system (Abstraction Level II). *"It must be conceded that we encounter a peculiar composition here, insofar as we are dealing with a function of integration that occurs within the function of integration. After all, the social system already serves to integrate the action system. And now we have a situation in which the same function is repeated within this function. The reason for this can be seen when we pose the question of how the social system itself can be integrated – that is, how it is that the social system all by itself can motivate actions in the service of purely social functions."*³⁴ Most generally, modern social systems seek to achieve and perform this through legal regulation. Thus, although the Parsonsian term 'community' is a bit misleading, it is legal regulation that can be classified as one that appears as a factor with an integrative function. Thus, law is a general normative code that regulates the actions of the members of society while also defining their situation,³⁵ that is, law integrates. Consequently, the integrative function of the food system is performed by legal regulations related to the elements of the food system. Whether these legal regulations include solely the rules of a specific branch of law (such as agricultural law) is an irrelevant question in the present case, although I think we need to answer 'no'. If we acknowledge that the general rules of civil law also apply in the process of buying and selling between actors in the food supply chain, it becomes clear why I mentioned the legal regulation of agriculture in a broad sense as the factor ensuring integration.

³³ Luhmann 2013, 13.

³⁴ Luhmann 2013, 35.

³⁵ Némédi 1988, 97.

I used the expression 'broad sense' because the legal regulation of agriculture can be directly corresponded to the field of agricultural law, but civil law, as well as administrative law serve as the underlying legal material and branch of agricultural legal regulation.

Concerning the fiduciary system fulfilling the function of latent pattern maintenance Parsons *"envisions a culture that has its own dynamic and within which change happens – for example, in much longer intervals [...] than can be reproduced in the social system."*³⁶ In my opinion, it tends to display some sort of a more pathetic category in the case of the food system, which is why I wrote that it is the agricultural culture as an ethos. It must be emphasised that the English word 'agriculture' originates from the Latin word '*agricultura*', which has two main elements: *ager* means field, and *cultura* means cultivation. *Cultura* comes from the verb '*colere*', which also means 'to take care of' in English. In the case of agricultural culture, we can talk about value obligations, which latently transcend the values of the given community and, through this, its relationship with agriculture. A good example of this is the respecting of certain animals in some religions as sacred, which totally defines the agricultural culture of a given community. *"Religion and food are inextricably linked. Many types of food have special religious significance, for example 'bread' in Christianity is linked to ideas of sacrifice, salvation and the ceremony of the Last Supper, which is reenacted in Christian religious ceremonies every Sunday."*³⁷

The following can be said about agricultural policy as the factor of fulfilling the function of goal attainment of the food system activities. Agricultural policy (as a branch of economic policy) can best be grasped by its purpose, as economic policy can also focus on agriculture because it is also in the national interest to improve the situation of people living from agriculture in addition to increasing production yields. Social justice requires that economic policy ensure a fair standard of living for all productive strata; and if one of them is unable to achieve this on its own, the state must intervene by burdening other branches of production and perhaps even at the expense of the productivity of the entire national economy.³⁸ These are serious words, but they are very much in line with the privileged role of agriculture, which is still valid today. Agriculture is the source of our food. If we look at the example of Hungary, we can say that the country has not only remarkable land resources, but also significant water resources,³⁹ due to which agriculture can function as a breakout point for Hungary.⁴⁰ As the thoughts cited show, there is a strong national interest behind agricultural policy that varies by age and state. Recently, however, the agricultural policy objectives have crossed national borders, as in the case of Hungary as well, due to our membership in the European Union and global international organisations EU and global agricultural policy interests are emerging, which are embodied in various legal documents. Thus, agricultural policy is now present at three levels: national, EU and global.

³⁶ Luhmann 2013, 21.

³⁷ Smith 2009, 21.

³⁸ Ihrig 1941, 185.

³⁹ See the detailed legal analysis of Hungarian water law: Szilágyi 2013; Szilágyi 2016, 70–82; Szilágyi 2018; Szilágyi 2019; Szűcs & Ilyés 2019, 299–324.

⁴⁰ Szilágyi 2017, 17–18.

The function of adaptation is fulfilled by the economy of agriculture. This is best embodied by the food supply system, where economic processes must be emphasised. In Luhmann's words: *"The differentiation of this complex occurs always when long-term adaptations of the action system to environmental situations are at stake - that is, to put it crudely, when capital is created, which is to say, when a monetary mechanism is introduced. This monetary mechanism ensures that one is always capable of reacting to hitherto unforeseen situations in the environment by using capital in order to, say, produce or buy something, to draw resources from the environment or, these days, to remove the refuse."*⁴¹

*"Two of the imperatives – pattern maintenance and integration – are concerned with normative issues and two – adaptation and goal attainment – are concerned with the non-normative."*⁴² The normativity of agricultural culture comes from moral considerations, the normativity of legal regulation comes from the immanent core of law, i.e. the fact that we have to obey the law. The economy of agriculture and the agricultural policy do not have normative content.

These above-mentioned categories fulfilling the four functions, i.e. the economy of agriculture, the agricultural policy, the legal regulation of agriculture in a broad sense, the agricultural culture as an ethos, unify and include the subelements of these 10 elements, so the subelements are not needed to be put under a certain function, since a subelement can incorporate more than one function within itself. This shows us that we are facing enormous complexity. Let us take a look at the system of food system activities at Abstraction Level III based on Parsons' cross-classification table:

	L	instrumental	consummatory	I
internal		agricultural culture	legal regulation of agriculture in a broad sense	
external		economy of agriculture	agricultural policy	
	A			G

⁴¹ Luhmann 2013, 18–19.

⁴² Holmwood 2014, 87.

4. Final conclusion

As I have already explained in the chapter 'Conclusion of Abstraction Level I', Talcott Parsons' system theory provided an opportunity to adjust the content of the food system on a theoretical level. In the chapter 'Conclusion of Abstraction Level III' I named special categories in connection with the food system, which can be thought of as classes fulfilling the different functions within the food system based on Parsons' theory. I do not intend to repeat these again.

What I find important to emphasise, however, is that Parsons' systems theory or action theory categories are indeed also applicable to the food system, and this is a tremendous scientific achievement from Parsons. He created abstract concepts that can be utilised across disciplines and can be used to review and adjust any system. Perhaps it can be said that neither before, nor after Parsons did anyone create such a comprehensive, yet scientifically and empirically usable systems theory.

Bibliography

1. Benkő L, Kiss L & Papp L (eds.) (1967) *A magyar nyelv történeti-etimológiai szótára*, Vol. I, A-Gy, Akadémiai Kiadó, Budapest.
2. Ericksen P J (2007) Conceptualizing food systems for global environmental change research, *Global Environmental Change* 18(1), pp. 234–245.
3. Food and Agriculture Organisation (1996) *Rome Declaration on World Food Security. World Food Summit, Plan of Action*, 13 November 1996, <http://www.fao.org/3/w3613e/w3613e00.htm> [10.04.2021]
4. Holmwood J (2014) *Founding Sociology? Talcott Parsons and the Idea of General Theory*, Routledge, London - New York.
5. Ihrig K (1941) *Agrárgazdaságtan*, Gergely R. Könyvkereskedése, Budapest.
6. Ingram J (2011) A food systems approach to researching food security and its interactions with global environmental change, *Food Security* 3(4), pp. 417–431.
7. Kneen B (1989) *From Land to Mouth: Understanding the Food System*, NC Press, Toronto.
8. LaBianca Ø S (1991) Food systems research: An overview and a case study from Madaba Plains, Jordan, *Food and Foodways* 4(3–4), pp. 221–235.
9. Lang T & Heasman M (2004) *Food Wars – The Global Battle for Mouths, Minds and Markets*, Earthscan, London.
10. Luhmann N (2002) *Einführung in die Systemtheorie*, Carl-Auer-Systeme Verlag, Heidelberg.
11. Luhmann N (2013) *Introduction to Systems Theory*, Polity Press, Cambridge.
12. Merriem-Webster (ed.) (2002) *Webster's Third New International Dictionary, Unabridged*, Merriem-Webster, Springfield.
13. Morel J, Bauer E, Meleghy T, Niedenzu H-J, Preglau M & Staubmann H (eds.) (2000) *Szociológiai elmélet*, Osiris Kiadó, Budapest.
14. Némedi D (ed.) (1988) *Talcott Parsons a társadalmi rendszerről (Válogatás)*, ELTE Szociológiai Intézet és Továbbképző Központ, Budapest.
15. Online Etymology Dictionary. n.d. „system (n).”, 26 June 2020, <https://www.etymonline.com/word/system> [10.04.2021]
16. Parsons T (1937) *The Structure of Social Action*, McGraw-Hill Book Company, Inc., New York.
17. Parsons T (1978) *Action Theory and the Human Condition*, The Free Press – A Division of Macmillan Publishing Co., Inc., New York.
18. Parsons T (1991) *The Social System (With a New Preface by Bryan S. Turner)*, Routledge, London.
19. Pokol B (1987) A funkcionista rendszerelmélet kibomlása. Talcott Parsons és Niklas Luhmann társadalomelméletének kategóriáiról, in: Csepeli Gy, Papp Zs, Pokol B (eds.) *Modern polgári társadalomelméletek*, Gondolat, Budapest, pp. 153–324.
20. Reiterer Z (2016) Topical legal questions of the food chain and its authority supervision, *Journal of Agricultural and Environmental Law* 11(20), pp. 114–130, doi: <https://doi.org/10.21029/JAEL.2016.20.114>.
21. Smith F (2009) *Agriculture and the WTO. Towards a New Theory of International Agricultural Trade Regulation*, Edward Elgar Publishing Limited, Cheltenham, UK – Northampton, MA, USA.

22. Sobal J, Kettel Khan L & Bisogni C (1998) A Conceptual Model of the Food and Nutrition System, *Social Science & Medicine* 47(1), pp. 853–863.
23. Szabó M (2015) *Rendszeres jogelmélet*, Bíbor Kiadó, Miskolc.
24. Szilágyi J E (2013) *Vízjog*, Miskolci Egyetem, Miskolc.
25. Szilágyi J E (2016) Current challenges concerning the law of water services in Hungary, *Lex et Scientia* 23(1), pp. 70–82.
26. Szilágyi J E (2018) *Vízszemléletű kormányzás – vízpolitika – vízjog*, Miskolci Egyetemi Kiadó, Miskolc.
27. Szilágyi J E (2019) Systematization and some current issues of water law and water regulation in the framework of the European Union, *Journal of Agricultural and Environmental Law* 14(26), pp. 255–298, doi: <https://doi.org/10.21029/JAEL.2019.26.255>.
28. Szilágyi J E (ed.) (2017) *Agrárjog – A magyar agrár- és vidékfejlesztési jogi szabályozás lehetőségei a globalizálódó Európai Unióban*, Miskolci Egyetemi Kiadó, Miskolc.
29. Szűcs P & Ilyés Cs (2019) Groundwater – an invisible natural resource, *Journal of Agricultural and Environmental Law* 14(26), pp. 299–324, doi: <https://doi.org/10.21029/JAEL.2019.26.299>.
30. Tansey G & Worsley T (1995) *The Food System: A Guide*, Earthscan, London.
31. van Berkum S, Dengerink J & Ruben R (2018) *The food systems approach: sustainable solutions for a sufficient supply of healthy food*, Wageningen, Wageningen University & Research.
32. von Bertalanffy L (1972) *General System Theory: Foundations, Development, Applications*, George Braziller, Inc., New York.