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Searching a Governance Mode. The Case of Food Waste

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Abstract: Modern economics is an institutional theory. Most leading economists apply institutional ideas in their studies and analyses. After more than a century of development, institutional economics is now a well-structured theory and has already explained the main economic facts and processes. But the real world is dynamic. New economic phenomena appear one after another. The problem of food waste is a good example. According to the international statistics, the volume of wasted food around the world is amazingly large and fast growing. There is also a large number of various initiatives to stop and turn this trend. Some of them were public, others private, or mixed, and many of them have failed or have been extremely expensive.

The main problem in building an effective governance mode in the area is that food waste transactions differ from most others. That is why our study starts with a deep analysis of the economic nature of these transactions – their critical dimensions, influencing factors, and surrounding institutional framework. Performing a Discriminating Alignment Analysis, we reached a decision that is the best according to its logic. Finally, our results are checked and validated by reviewing several successful attempts to solve the food waste problems in different countries.

Keywords: Food waste; Governance; Startup

JEL codes: D02 Institutions: Design, Formation, Operations, and Impact, L66 Food • Beverages • Cosmetics • Tobacco • Wine and Spirits, M13 New Firms • Startups

INTRODUCTION

Human society has reached great economic and social progress during the last half century based on democracy and a free economy. Rates of hunger, poverty, and illness have declined substantially in most countries around the world. But social development is controversial – environmental, behavioral, political, and other problems and challenges still persist. One of the most recent, historically speaking, is food waste. For many centuries it did not exist. Simply, people did not produce food waste. The entire volume of food products was used by them or by their livestock. Nobody rejected food. It was (and still is) unwise (economically) and dangerous (attracting insects and other pests). Today, this model is

inapplicable (no livestock in settlements) and ineligible (due to modern behavioral patterns).

That is how food waste became a social problem. Moreover, it is a problem in two respects: economic (resource losses) and environmental (methane pollution). It is really serious, as Mihova, based on data from international organizations, demonstrates. According to her study (Mihova, 2025):

- The Food and Agriculture Organization of the United Nations estimates the global food waste in 2024 at 1.05 billion tons, or approximately 19% of total food production in the world, while 783 million people (about 9% of the global population) suffer from chronic hunger. One in eleven people on Earth goes hungry;

• The United Nations Environment Programme points out food waste as responsible for 8–10% of global greenhouse gas emissions – almost five times more than those generated by aviation, for example.

It is interesting to see where food waste comes from. Firstly, by country (Table 1).

Explaining this picture is not an easy task. It seems that the problem is not financial. Switzerland and Kuwait are not poor countries. The same applies to the Maldives and Egypt. But they are also major food waste generators. As well as some of the poorest countries - Sudan and Uganda.

Secondly, food waste by source (Table 2).

The biggest sources of food waste are two – households and food services. Both sources account for almost 70% of total food waste in the USA and over 75% in the EU, which is why these sources are put in the center of the study.

One more clarification is needed here. Total food waste consists of two types. The first one is called “Preventable”. This refers to food that is good enough for consumption but undesirable (for behavioral reasons) – leftovers from previous meals, stale food, and expired products. There is also non-preventable food waste. It could be: a)

suitable food that has not been consumed due to organizational reasons, b) leftovers – frying fat, and marinade from canned products, and c) natural parts of food product that are not used by humans but could be used for other purposes (peels, rinds, cobs, and shells). I.e., in modern society, food waste could not be reduced to zero. It is especially true in well-developed countries, where so-called “healthy eating” and the satisfaction it brings are the main motives guiding young people’s behavior there. The inability to completely eliminate food waste is the reason to use the term “food waste reduction”, instead of the more popular “food waste prevention.”

The problem with food waste is intensively studied. Mainly in three directions:

i) Innovative technologies (Ipek et al., 2026; Fuenmayor and Licciardello, 2024, Zhou et al., 2026);

ii) Policy intervention (de Gorter et al., 2021; Lázaro et al., 2025; Edwards et al., 2024);

iii) Economic agents’ behavior (Secondi et al., 2015; Malau et al., 2025; Akhter et al., 2024).

The same three issues could be found in the approaches of many international, regional, and national organizations – the UN, FAO, OECD,

Table 1. Food Waste and Wealth by Countries per Capita, 2024

Rank by food waste	Rank by GDP	Country	Rank by food waste	Rank by GDP	Country
1	37	Kuwait	21	7	Switzerland
2	74	Maldives	26	170	Sudan
3	109	Tunisia	29	181	Uganda
4	120	Dominic. Rep.	161	26	UK
5	92	Egypt	172	9	United States

Sources: United Nations Environment Programme (UNEP), 2024.

The World Bank (World Development Indicators, 2023 for Dominican Republic, Sudan and Uganda, 2024 for others).

Table 2. Food Waste by Sources (%)

	Households (Residential)	Farm (Primary production)	Manufacturing	Food services incl. restaurants	Retail and distribution
EU 2022	54.6	10.6	11.4	20.8	8.3
USA 2024	48.2	16.8	14.7	14.6	5.6

Sources: Eurostat, 2024 and one 5c, 2024.

EC, WWF and others. A recent and detailed review on the publications in the field can be found in Bedoui et al., 2026.

In all cases, traditional (mainstream) economics perspective is applied (Roosen and Hobbs eds., 2022). Institutional and Transactional Costs Economics are totally missing. Our study is based on these ideas. We study single food waste transactions and their critical dimensions in order to find the effective governance mode. Some of our results have already been published (Terziev and Mihova, 2025). There, the main types of organizational forms – market, private, public, hybrid, and institutional – used to solve the food waste problem are analyzed. Here, a specific governance mode is sought to effectively solve the problem.

THE STUDY: MATERIAL AND METHOD

Data

Relatively long is the practice of food waste reduction in the socially and economically developed parts of the world. There, the necessary empirical data were sought. An in-depth literature review of research projects was conducted, but also of news publications, company websites, social media, discussion forums of interested groups. The Bulgarian experience, although limited, was also examined.

Theoretical base

Modern economics is an institutional theory. Most leading economists apply institutional ideas in their studies and analyses. This can be clearly seen in the Top 5% Authors (by the number of citations – <https://ideas.repec.org/top/top.person.nbcites.html>) on IDEAS RePEc, one of the best sources for economic research. For July 2025 the ranking is led by three economists, who are more institutionalists than spokesmen of the mainstream economics school. These are Andrei Shleifer (Law and Finance Theory), James Heckman (Self-selection Theory) and Daron Acemoglu (New Institutional Economics).

There are many differences between institutional and neoclassical theory. The main one was expressed by John Commons nearly a century ago:

These individual actions are really transactions instead of either individual behavior or the „exchange” of commodities. It is this shift from commodities and individuals to transactions and working rules of collective action that marks the transition from the classical and hedonic schools to the institutional schools of economic thinking. The shift is a change in the ultimate unit of economic investigation. The classic and hedonic economists, with their communistic and anarchistic offshoots, founded their theories on the relation of man to nature, but institutionalism is a relation of man to man. The smallest unit of the classic economists was a commodity produced by labor. The smallest unit of the hedonic economists was the same or similar commodity enjoyed by ultimate consumers. One was the objective side, the other the subjective side, of the same relation between the individual and the forces of nature. The outcome, in either case, was the materialistic metaphor of an automatic equilibrium, analogous to the waves of the ocean, but personified as „seeking their level”. But the smallest unit of the institutional economists is a unit of activity – a transaction with its participants. Transactions intervene between the labor of the classic economists and the pleasures of the hedonic economists, simply because it is society that controls access to the forces of nature, and transactions are not the „exchange of commodities” but the alienation and acquisition, between individuals, of the rights of property and liberty created by society, which must therefore be negotiated between the parties concerned before labor can produce, or consumers can consume, or commodities can be physically exchanged (Commons, 1931).

Methodological approach

The methodological ground of Institutional Analysis is Transaction Cost Economics. In it, everything starts with an analysis of a single transaction (... *the smallest unit of the institution-*

al economists is a unit of activity – a transaction ...). In the well-functioning market, production costs are similar for all economic agents or tend to be. But the case of the cost associated with transactions is different. Their volume depends on many factors and has an individual character. One transaction could be easy (and therefore cheap) for somebody and difficult (transactionally expensive) for others. That is how transaction cost becomes the main criterion for individual business decisions:... a point must be reached where the costs of organizing an extra transaction within the firm are equal to those costs involved in carrying out the transaction in the open market, or to the costs of organizing by another entrepreneur (Coase, 1937).

Methodologically, our study is based on the Transaction Cost Economics (TCE) approach. According to it, as mentioned above, the level of transaction cost leads managers in their choice of transactional mode (market, public, private, or other) in each particular case. But at the same time TCE does not try to measure these costs. It is unnecessary in general cases and impossible in most (the problem of qualitative measurements in economics is discussed in-depth in Terziev, 2023). Instead, TCE assesses the influence of critical dimensions of transactions (as high or low). These are (Williamson, 1979):

- Asset Specificity. The term refers to the degree to which capital invested in one transaction is connected only to it and cannot be easily redeployed for other purposes. If it is so (high asset specificity), the transactional investment could be lost in case the planned transaction fails. That is why guarantees are needed. The market does not provide guarantees. Thus, high asset specificity leads away from market mode;

- Uncertainty – the degree of unpredictability in a transaction's progress and results. High uncertainty means that drawing up a complete contract is not possible or very difficult. Internal (hierarchy) or hybrid mode is more likely;

- Frequency – how often a transaction recurs. Rare transactions do not require a special mode (the spot market is enough), while high frequency involves more permanent modes, including hierarchy;

These three critical dimensions are accepted as major. Some others (minor) also exist and have to be taken into account:

- Information Asymmetry. Situation in which the participants in a transaction do not have equal access to information before the deal;

- Bounded rationality. Good information is not enough. The economic agents should be able to understand and assess it;

- Negative behavior – opportunism, adverse selection, moral hazard, and others;

- Lack of risk markets, especially transaction risks;

- Absence of market benchmarks due to lack of competition.

If all minor critical dimensions are in a high position, market mode is undesired.

Here the independent action of the dimensions is presented. In fact, they act in an inter-relational way. Moreover, each transaction takes place within the framework of dominant institutions. That is why a *discriminating alignment* (ibid.) is needed – taking into account a combined action of all critical dimensions and of institutional framework in order to understand the economic nature of each single transaction and to choose a proper governance mode for it. That is the applied methodological approach here.

Transactions with food waste

From the mainstream economics point of view, the exchange of food waste is easy. There is supply (shops, restaurants, and households), and there is demand (processors and people in need of food, ready to buy it at a reduced price). No monopoly is possible. Government intervention is weak and stimulating. Demand and supply will automatically meet each other somewhere in the graph, and equilibrium is guaranteed. The picture in reality is different. To understand it, we need to analyze both critical dimensions of transactions and institutional frameworks.

Major critical dimensions of food waste transactions:

- a) Asset specificity. Potential buyers of food waste are of two types: i) companies processing (including through biotechnology) food waste,

and ii) people with low incomes. Typically, processors are highly technologically specialized, few in number, and rare in their territorial distribution. The seller (owner) of food waste should invest much in business relationships with them. If such a transaction failed, the replacement of the partner would be difficult and expensive, sometimes – impossible (no other processor in a reasonable distance). Low-income people are good customers. They have consistent tastes, they buy the same products, and they do it regularly. The problem is in territorial distance. Large amounts of food waste are generated in touristic places, resorts, and big cities. Low-income people there are not many. Even if there are any, they have a wide selection and can choose who to buy from day after day. So, the sellers have to invest a lot of effort to attract them without any guarantees for success. The situation is similar for buyers as well. There is no guarantee for processors about the quantity and quality of food waste that will be generated each day or period by their partner in food waste transactions. Low-income people living in remote settlements have to travel for food at reduced prices without being sure it is available (it may already be sold out). It is obvious that asset specificity is in a high position for both sides in these transactions;

b) Uncertainty. “Uncertainty” is a mysterious term even by its definition. If a prediction of the future with sufficient accuracy is not possible, then, at present, a prediction of what we are not able to predict for the future is not possible. On the other hand, it is a mandatory concept in Modern Economic Analysis. Speaking of food waste, two sources of uncertainty could be noted:

i) Global uncertainty. Giving a speech at the Peterson Institute for International Economics, Washington, D.C. Kristalina Georgieva, the Managing Director of the International Monetary Fund, said (<https://www.imf.org/en/News/Articles/2020/01/17/sp01172019-the-financial-sector-in-the-2020s>): *If I had to identify a theme at the outset of the new decade, it would be increasing uncertainty* (This speech was given on January 16, 2020. The World Health Organization (WHO) declared the COVID–19 outbreak

a public health emergency of international concern (PHEIC) on 30 January 2020 and assessed the outbreak as having become a pandemic on 11 March. It is obvious that Mrs. Georgieva did not have in mind COVID–19 as a source of increasing uncertainty). The situation today has not changed positively. During the World Economic Forum (May, 2025), 82% of the world economic leaders declare: *Uncertainty is the watchword for the state of the global economy* (<https://www.weforum.org/stories/2025/05/wef-chief-economists-outlook-tariffs/>). In such situation, prediction of anything is hard, even impossible;

ii) Behavioral uncertainty. Each generation in the present age has received its own name – Millennials, Gen. Z, Gen. Alpha, and Gen. Beta (starting from 2025). The reason is the significant behavioral differences between them, even though they are separated by short periods of time. Their food preferences and eating habits are a clear example of these differences.

These two sources of uncertainty allow us to estimate it as high concerning food waste reduction.

c) Frequency. Restaurants, shops, and households generate food waste daily. Its safety period is short. People need food every day. It seems that frequency is high. But the object of the deal is not standardized. In fact, almost each transaction is for a different product. That is why the frequency could be assessed as moderate to low (the case of food waste processing is different in some respects. But it covers a small part (frying fat and marinade) of the total quantity and even there the storage periods are short). Analysis of the three major attributes (critical dimensions) of food waste transactions leads us to Williamson’s penultimate discriminating alignment hypothesis. It is an unfavorable hypothesis; deals are difficult and often fail. The proposed efficient governance modes are: a) internal organization or b) third-party involvement.

Minor critical dimensions of food waste transactions:

a) Information asymmetry. The seller (generator) of food waste knows much more than the buyer in these transactions – quality of raw mate-

rials, technologies of their processing (cooking), periods and conditions of storage, etc. Obviously, information asymmetry is high;

b) Bounded rationality. The only chance for the buyer of food waste to be sure of its quality before the deal is to apply a chemical test. It is impossible due to the time limit and unreasonable from a financial point of view. That is why the buyer cannot be rational. The seller is in the same position in some respect. He/she could not be sure if vegan customers will come today or not. This again illustrates bounded rationality;

c) Negative behavior. It is possible every time the asset specificity and bounded rationality are high. Claims for adverse consequences of using food waste are typical (opportunism);

d) Markets of risks. Such markets do not exist. No insurance company offers insurance against low-quality food waste. Total lack of markets of risk;

e) Market benchmarks. As it was explained above, there are enough sellers and buyers of food waste. Formally, competition exists. But the product is not (or is limited) standardized. As a result, useful market signals are not generated.

The situation of minor critical dimensions confirms the conclusions of the analysis of the major. Market and contractual modes are hardly possible and economically inefficient. Internal mode and third-party involvement remain the only chances.

This logic excludes one of the major players in the sector – food banks. Other reasons for this exclusion also exist. Most often food banks are: a) public structures, b) functioning on the principle of donation and operating through charitable organizations, and c) working under strong law regulations. Their work has economic aspects – organization of the activities and staff, identification of customers (beneficiaries), logistics and transportation, financing their costs, even using (rarely) credit, etc. Economic results also exist (saving food and supporting poorer communities). But the reason for their existence is social, not economic (Bulgarian Food Bank was established by the Bulgarian Red Cross and operates as its branch). Economic efficiency is not the

main motive in their activities. Management, not governance, is what they do.

As it was shown above, internal organization is one of the proposed governance modes. Long is the list of companies from various related economic sectors across the world that have started their own food waste reduction programs during the last decade. Moreover, today there is enough evidence that such initiatives can be financially efficient. The Champions 12.3 organization (as well as others) has published annual reports on food waste reduction. Many particular businesses are presented in these reports. Financial efficiency is really good news. But the most (perhaps all) of these companies have started such initiatives for image-related reasons. They simply want to be champions of the United Nations Organization. They are not concerned with whether better financial results are possible and do not explore other transactional alternatives (no governance choice). For this reason, internal organizational is not included in the analysis. Our research efforts were concentrated on third-party mode.

Institutional framework of food waste transactions

Earlier we defined the regulation in the field of food waste as weak and stimulating (from the mainstream economics point of view). But the problem is not in existing regulation but in the missing. Studying the case, Mihova has pointed out at least seven legal and one organizational gap (Mihova, 2025):

- No harmonized definition. Legal definitions vary across countries. This is a serious burden within the common market of the European Union;

- No common measurement indicators. According to report No. 17/2023, the European Court of Auditors points out that despite the adopted strategies, there is still no uniform methodological approach to measuring and reporting food waste, which calls into question the effectiveness of the measures taken;

- Freedom to develop its own rules for EU Member States in the implementation of the general directive (EU) 2018/851 on the prevention of waste

and the promotion of the circular economy. Diverse are national approaches, making it difficult to develop a uniform, effective business model;

- In some countries, food waste is treated as a specific category of waste with additional regulatory requirements, including restrictions on transport and storage;

- Variation in labelling of food use by dates within the EU. Although Regulation (EU) No 1169/2011 introduces requirements for the indication of 'best before' and 'use by' dates, it leaves considerable freedom to Member States on how to implement and interpret these terms. This leads to confusion among consumers and to a significant amount of unnecessary food waste;

- Food safety standards. Many countries lack clearly defined regulatory frameworks regarding the responsibilities of food sharing;

- High requirements for food operators – including those working with food waste. According to the Bulgarian Food Act, obligations for registration, maintenance of traceability systems, sanitary control and training of staff are foreseen, regardless of the scale of the activity;

- Lastly, there is the lack of common data base on food waste. A few international organizations have created and maintain their own databases. These are the Food Waste Index Report (UN Environmental Program), the Food Loss and Waste Database (FAO), Eurostat Waste Database (EU), and Food Waste Atlas (private initiative of the British WRAP and the US WRI). Each of them contains data on food waste but from different perspectives and for different purposes. This lack of a common source and coherent approaches hinders the private initiatives in the food waste sector, which need reliable and comparable data to validate their governance modes and offer customized solutions.

From a mainstream economics point of view, it is enough to offer stimuli and impose sanctions (both financial) to achieve desirable behavior. That is mistaken. Economic agents need institutions that make their private activities easier and cheaper (Dixit's book from 2004 on Lawlessness and Economics is useful for better understanding of the private ordering in the context of law-

lessness). This is not the case with present food waste regulation.

Third-party in economics

Two are the participants in a normal transaction – seller and buyer. They participate seeking profit or utility maximization. In economic theory they are called principals of the transaction. But reaching a deal is a complicated process:

In order to carry out market transaction it is necessary to discover who it is one wishes to deal with, to inform people that one wishes to deal with and to what terms, to conduct negotiations leading up to a bargain, to draw up the contract, to undertake the inspection needed to make sure that the terms of the contract are being observed and so on (Coase, 1960).

That is why economic coordination between potential sellers and buyers is difficult and does not happen automatically. Endless is the number of preparing but finally failing transactions due to the negative circumstances with their critical dimensions. Attracting somebody else to participate in the transaction is a possible solution in such cases. This will not be a principal (neither seller nor buyer) but an outside participant – third-party. His role is to support transactions by solving (informational, behavioral, and other) problems between principals and, in this way, to make it possible (the origin of third-party assistance is in law practice. Starting from ancient Greece, its application could be traced till today. It was very popular during the financial crisis of 2008. Its economic nature and role are well presented and explained by Oliver Williamson (1979). A classic example is mortgage financing. The bank is not able (or it is extremely expensive) to know the collateral in its entirety before the deal and to be sure about its future after the deal. For the bank, this is a transaction in which asset specificity, uncertainty, information asymmetry, and possibility for negative behavior are high. Such a transaction is more likely to fail. That is why the bank asks for collateral insurance. The insurance company is not interested in selling or buying capital (the object of a deal). It participates as a third-party and makes the transaction possible.

Third-party in food waste economy

We have already demonstrated that the food waste transactions (out of internal organization and food banks) are difficult due to their unfavorable critical dimensions and incomplete institutional arrangement. Economic coordination between food waste sellers and buyers is difficult and often fails. Third-party involvement is the only reasonable business decision. Economic agents have realized it and put it into practice. Following this practice, two of the world's most successful business cases in the field, as well as one from Bulgaria, were deeply studied. By doing that, we follow the ideas of the Nobel Prize laureates Ellinor Ostrom (individual case study analyses instead of aggregate data) and Oliver Williamson (logical descriptive construction rather than mathematical models).

Too Good To Go

The Danish Too Good To Go (TGTG) was established in 2015. It aims to reduce food waste by connecting low-income users with restaurants and stores offering unsold but still edible food at discounted prices. In this way TGTG saved 135 million meals in 2024 (starting from 470 thousand in 2016), 365,719 tons of CO₂e emissions, and 109.7 billion liters of water waste were avoided (TGTG, 2025). At present TGTG connects more than 175,000 active partners (food waste sellers) with over 100 million registered users (food waste buyers) from 19 countries in Europe, North America, and Australia by two tools. TGTG *Surprise Bags and Parcels* offers unsold food at a reduced price to local customers. The second one is the TGTG *Platform*. It is a food management system supporting grocery retailers to unlock value from their surplus inventory using the world's largest food marketplace (over 100 million buyers). In this way TGTG: a) lowers asset specificity (eliminating dependence on one or just a few partners), b) decreases uncertainty (TGTG guarantees the quality of the products in its bags and parcels), c) balances information distribution (everybody has access to equal information), and d) excludes opportunism (strong rules for participation). The transactions with food

waste become easy and cheap. That is how the numbers listed above are so positive.

OLIO

In the beginning of 2015, Tessa Clarke and Saasha Celestial-One created OLIO in North London. The aim is to reduce household and food waste by connecting neighbors with spare food or household items to others nearby who wish to pick up those items. OLIO deals on a local basis but is already a global company operating in around 50 countries. Instead of commercial partnerships, OLIO builds active communities of users and volunteers for high social engagement. From a technological point of view, it works on a peer-to-peer model, from an economic one – C2C model. In fact, OLIO functions as a food bank (foods are donated). But it is interesting as a proper and thus successful and sustainable governance example (Clarke, 2023). Legally it is a private company – Olio Exchange Limited. Economically, its success is based on the same improvements on transactions' critical dimension as were observed in the case of TGTG.

Bulgarian experience

Bulgaria is behind the leaders in food waste reduction, although there are some good examples, such as Nasekomo and Foody. The most successful is Foodobox, launched in 2021. It follows the TGTG practice of connecting shops, restaurants, and other food operators with customers. By the end of 2024, Foodobox has more than 100 000 active buyers and more than 500 institutional partners in Bulgaria and Rumania. It supports food waste transactions by providing information, ensuring effective communication (mobile app), giving guarantees (for their boxes) and offering prices reduced by a minimum of 40%. Foodobox is registered under the Bulgarian Trade Law as a limited liability company.

Governance mode for food waste transactions

Each of the companies listed above, as well as many others in the food waste sector, is a startup (Speaking for Startup we have in mind a business

unit: a) created by people with innovative ideas, and b) funded by supporters (crowdfunding) or accelerators or venture capital. For us, structures owned by the richest man in the world, financed in an administrative manner, or directly established by public proxies, etc., are not startups in the economic sense, although they formally bear this title). It means:

- They are business entities seeking profit. It is well presented and explained by OLIO itself. On their internet site they put and answer questions like: “Why does Olio need to make money?”; “How does Olio make money?”; “Is Olio a charity or a business?”; “Why isn’t Olio a nonprofit?”; “What is wrong with a company making a profit in the first place?”; “How much does it cost to run Olio?”; “Is Olio profitable?”, and so on (<https://help.olioapp.com/article/82-how-are-you-making-money>). All answers confirm their business orientation;
 - They secure the needed financial resources through crowdfunding, angel and venture investors. Here is the story of their financing (Table 3):
- It is not surprising that most of the companies working for food waste reduction are startups. Above, based on our analysis, we marked out how three of them cover the requirements for governance success in this sector. Obviously, startup business form is the most suitable. According to Mihova, it is due to the following natural features of startups:
- Innovative thinking. It is one of the most distinctive advantages of startups, which makes them a key factor in the transformation of markets, business models, and consumer behavior.

In the context of food waste reduction, innovations are not limited to product or technology. They also encompass organizational, logistical, and communication models that create new value from an otherwise neglected resource. Startups, due to the lack of established and restrictive structures, demonstrate a high degree of experimentation and innovation. This freedom of action motivates them to apply unconventional and flexible approaches that lead to the creation of innovations with practical and economic significance. Among the most common practices, the following stand out:

- digital platforms and mobile applications for better coordination between sellers and customers;
- innovative technologies for food waste treatment and its reuse, through biotechnology, insects, fermentation processes, and others;
- analytical tools and artificial intelligence to predict surpluses, optimize deliveries, and minimize product spoilage;
- hybrid business models that combine economic logic with a social mission.

- Adaptability and flexibility. While innovation implies discovering a new solution, adaptability is manifested in its rapid testing and implementation in different contexts. Economic analyses of TGTG reveal that its success is due precisely to its ability to adapt its economic model according to the specifics of different markets. The startup uses a combination of monetization strategies such as a two-sided marketplace, transaction facilitation, collaborative consumption and data usage. It also demonstrates the ability for

Table 3. Financial history of TGTG, OLIO and Foodobox

Too Good To Go	OLIO	Foodobox
2016 (1), Crowdfunding		
2016 (2), Crowdfunding	2015, Crowd, Seed Round	
2018, Angel Investor	2017, Crowd, Seed Round	2022, Acceleration program,
2019, Angel Investor	2018, Venture, Series A	Pre Seed round
2021 (1), Venture Capital	2019, Venture Capital	2023, Acceleration program,
2021 (2), Venture Capital	2021, Venture, Series B	Seed round
2023, Venture Capital		

Source: <https://insights-engine.refed.org/solution-provider-directory/too-good-to-go---copenhagen-copenhagen-84-4618818>; <https://www.crunchbase.com/organization/olio>; <https://www.crunchbase.com/organization/foodobox>

strategic transformation to generate value locally and flexibility by reshaping its business model in accordance with newly emerging opportunities;

- **Strategic advantage.** In the food waste sector, startups enter an area where regulations, consumer attitudes and logistics infrastructure are not clearly defined. To establish themselves and build market sustainability, startups strive to develop a strategic advantage – a lasting competitive position based on a clear distinction from other market participants. This distinction can be both product and technological, and intangible – related to image, values or community building. TGTG introduces a new type of B2C market for rescued food through a mobile platform that unites consumers and businesses. The main source of strategic advantage for the company is differentiation – it creates value for both consumers (cheap and affordable food) and businesses (inventory optimization and a positive public image). The network effect of the platform further strengthens the barriers to entry for new competitors. OLIO chooses a different strategy – a “peer-to-peer” model with a strong emphasis on social impact and localized food sharing. The company replaces commercial partnerships with active communities and thus achieves high social engagement and a specific market niche. Its strategic resource is social capital, not technological infrastructure or rapid monetization (Mihova, 2025).

CONCLUSION

Institutionalism is the main idea in economics today. It is used to explain each phenomenon of the modern economic life – firm and market (Nobel Prize for 1991), human behavior and interaction (NP, 1992, 2017), economic modernization (NP, 1993), asymmetric information (NP, 1996, 2001), uncertainty (NP, 2002), governance (NP, 2009), contracts (NP, 2016), prosperity (NP, 2024). These ideas are applied here in studying one of the newest economic problems – food waste and its reduction. In our study critical dimensions of food waste transactions are

analyzed, as well as the surrounding institutional framework. An efficient governance mode is theoretically described, and proper solutions in economic practice are found and demonstrated. According to us, this is the first attempt at economic analysis of the food waste problem by the lens of the Transaction Cost Economics. We do believe this approach could contribute both in theoretical and practical respect for studying the modern economy.

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