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# IDENTIFYING ELEMENTS THAT CODE THE ORGANIZATION'S GENOME WITH THE SPIDER WEB MODEL TO DETERMINE BUSINESS DEVELOPMENT POTENTIAL

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**Purpose:** The paper aims to elaboration and discuss the spider web model and identify elements that code an organization's genome to determine its development potential and design changes.
**Design/methodology/approach:** The first step was a literature review and elaboration and discuss the spider web model. Next, a survey questionnaire with closed questions was developed and used for research. The survey was a pilot addressed to purposefully sampled organisations. Through our choice of the sample—enterprises, an NGO, and a public institution—we emphasised the tool's versatility and demonstrated that identifying elements that codify an organisation's genome to determine its development potential applies to more than just businesses. An auxiliary in-depth interview was also conducted. Responses were collected using the CAWI technique.
**Findings:** Elaboration and discuss the spider web model. It was established that all the investigated organisations have their specific genomes, sets of information, which characterise and guide their development. The case studies demonstrated that diagnosing and assessing the spider web model parameters is necessary to determine the organisation's development potential and find potential change opportunities.
**Research limitations/implications:** The research was limited by a small sample of arbitrarily selected organisations. Still, the selection of organisations for the case studies was purposeful. We demonstrated that the spider web model can diagnose and assess parameters that codify an organisation's DNA in all types of organisations, enterprises, NGOs, and public institutions. It may also help identify areas in need of change to maintain the development potential. In light of the above, future research should include a more in-depth study of selected sectors to conduct a comparative analysis and offer generalised conclusions.
**Practical implications:** The use of a questionnaire to diagnose the parameters of the spider web model in the design of changes within organizations.
**Social implications:** Increase awareness among managers and people in organizations of the impact of DNA genome on organizational development.
**Originality/value:** Discussing of the spider web model, indication of the parameters that build the DNA genome. Indication of integration and reconfiguration mechanisms in management systems consisting in the development and implementation of model solutions facilitating adaptation to dynamic exogenous and endogenous conditions.

**Keywords:** spider web model, organisation's DNA, change management, organisation development, development potential.
**Category of the paper:** Research paper, Case study.

## 1. Introduction

Organisation management concepts have been changing since the turn of the twenty-first century. One reason is certainly the dynamism of developmental challenges organisations face from exogenous and endogenous factors combined with their qualitative weight. The challenges are generated by factors of local or national scale but also those affecting the international or even global environment. Hence, there is a necessity to adapt management concepts to these factors. The concepts have to respond by design to the architecture of new trends on the one hand and the need to anticipate adjustments to the operating conditions of organisations on the other hand. They even have to be capable of designing suitable management models to rise to the challenges.

Therefore, the article aims to discuss the spider web model and identify elements that code an organization's genome to determine its development potential and design changes that ensure its further operational potential.

The first research step was a literature review. We then verified the proposed theses with original research using a diagnostic survey. The research tool is an original questionnaire with close-ended questions followed by an in-depth interview. Responses were collected using the CAWI technique. The primary research conclusion is that diagnosing and assessing the spider web model parameters (that codify an organisation's genome) is useful for determining the organisation's development potential and designing changes. The selection of organisations for case studies was purposeful. We demonstrated that the spider web model can be used to diagnose and assess parameters that codify an organisation's DNA in all types of organisations, enterprises, NGOs, and public institutions.

## 2. Spider web model. A literature review

A genome is a set of all genes and other DNA sequences. It is the entire genetic material in an organism. Each genome contains the information necessary to build, grow, and develop the organism. The human genome consists of three billion DNA letters that codify genes, which are critical to making people the way they are. This is why it is sometimes referred to as the ‘book of life’. It can also be used as a metaphor to describe organisations. For an organisation to grow and develop, it is necessary to identify its unique DNA. An organisational genome is

conceived as a complete set of ‘genetic’ material, an array of its typical defining elements and characteristics. One popular model conceptualising the construction of an integrated model of an organisation's development is founded on the organisation's DNA. Its premise is that an organisation has a unique DNA, just like any living creature. The difference is that there is no limit to how an organisation's DNA can be modified.

Organisations fail to use or describe their behaviour with simple action maps in their day-to-day operations. This deficiency might be a source of multiple developmental problems. Such maps should contain structural parameters and other elements such as culture, technology, communication, or cooperation. Note that such a map of entwined elements would help identify elements that codify the organisation's genome, guiding the effective growth of the enterprise.

The concept of an organisation's spider web visualises a spider in the diagram, which can be holistically developed to conceptualise business models of brick-and-mortar or online enterprises. The diagram is modified by selecting and combining eight parameters visualised in Figure 1 [the spider web model by Krüger, Bach, 2000].

When appropriately guided, the model's parameters are important for creating the organisation's autonomy or its organisational DNA. Additionally, each element is an area of change in the organisation. The organisational spider web model consists of 32 points, forming a business model (eight parameters of four points each). Five parameters contain structural variables (subsystems, possibility of implementation, decision-making structure, internal cooperation, and inter-organisational cooperation). The other three are strategic orientation, culture, and technology (Krüger, Bach, 2000).

The first discussed parameter is **subsystems**, linked to the second parameter in the web, the possibility of implementation. Subsystems defines the surface of the formal structure. In traditional organisations, structure is linked to subsystems emerging over years of growth. Modern organisations have to navigate towards smaller autonomous units (such as business units or autonomous workgroups). The idea is to model an organisational structure by delegating formal power towards lower tiers. The creation of autonomous units should aim to remove hierarchical lines, and subsystem modelling should indicate a clear transition from power on various management tiers to a more transparent and flexible structure. The traditional approach satisfies lazy and tardy organisations because it calls for no change. In contrast, modern subsystem modelling requires creative patterns and is typical of agile organisations.

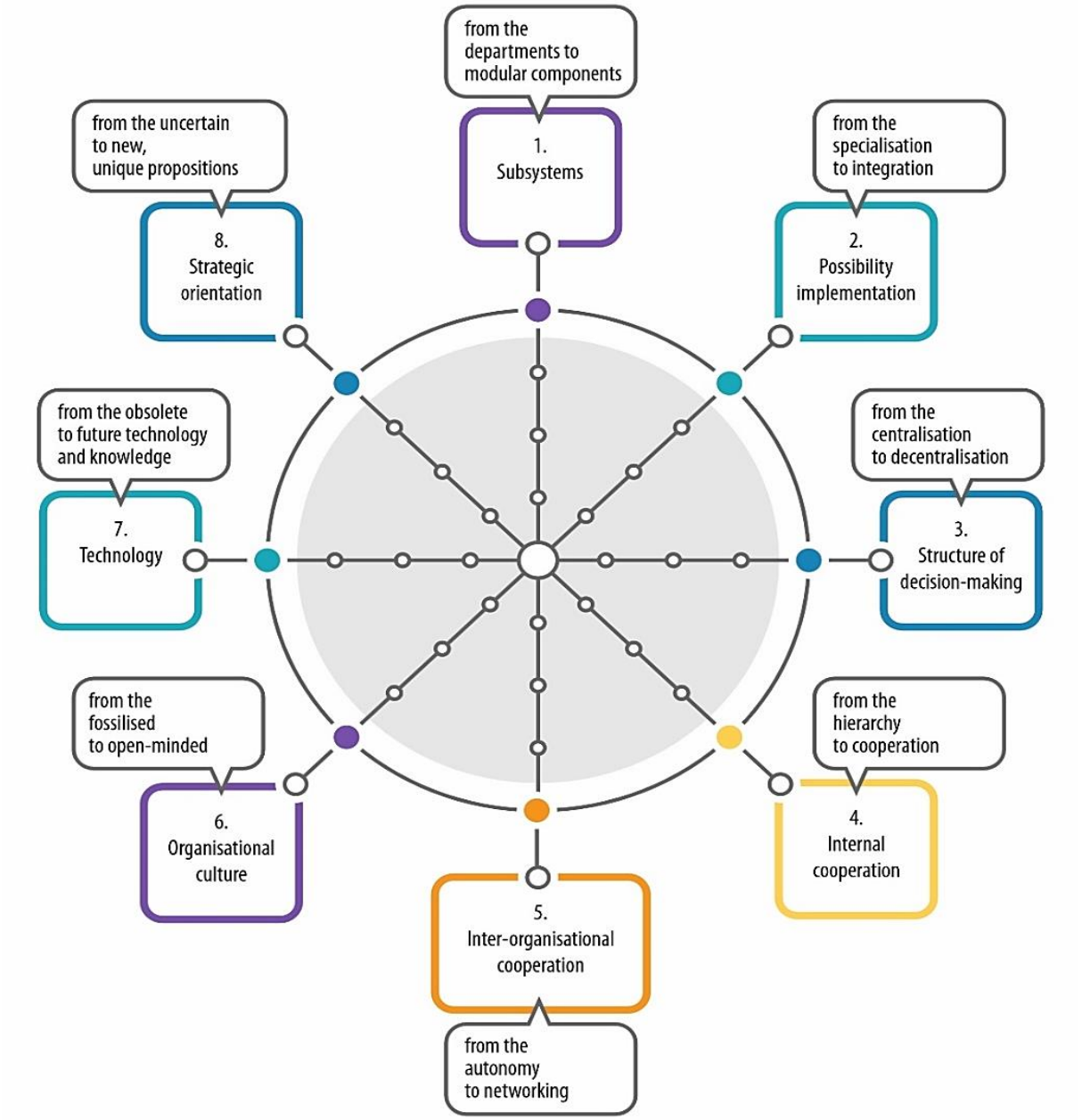


**Figure 1.** Organisation spider web model.

Source: original work based on: Krüger, Buchholz, 2000; Gouillart, Kelly, 1996; Neilson, Pasternack, 2005.The internal organisational structure and its subsystems can be described in work schedules, but the possibility of implementation depends on specialisation and integration. The organisation and management theory points out the advantage of specialisation over integration (although not always and not in every dimension). Business activity in a dynamic environment with constant high uncertainty and risk requires managers to reorient their mental framework and decision-making. Modern enterprises operating in variable environments must constantly look for effective product and service portfolios. Decision-making in this area ranges from a monostructure (a single strategic segment) to a multistructure (multiple segments).

The focus on specialisation, diversification, and integration strategies should be constantly

analysed and assessed, mainly regarding efficiency and risk levels. Specialisation should be pursued as long as the enterprise achieves a clear and sustainable advantage over its competition. The decisive factor for pursuing either specialisation or diversification is the optimum allocation of corporate assets to reach the highest possible return. Many enterprises sit on the fence, trying to decide whether to invest in specialisation and improve their market position or diversify, hoping for higher returns.

Note that specialisation has its drawbacks. Beyond any doubt, specialisation comes with alienation, work fatigue, work dissatisfaction, increased fluctuation, and problems finding work or filling a position. According to F.W. Taylor, the specialisation of tasks and duties can give an advantage if adapted to the organisation's subsystems. When building organisational structure and creating interdependencies, one has to focus on various domains, customers, or projects useful for specific integration types. Moreover, integration has to ensure adequate integrity of the strategy with tactical and operational management. The role of system integration is relevant to organisations. It is a challenge for enterprises and employees to ensure that an integrated system reflects the needs of all stakeholders: employees, customers, and the public. Therefore, it must strive to entwine three management levels: strategic, tactical, and operational. Other important issues include a coherent strategy for the entire management area, integrity of objectives and efforts improving individual management areas, avoidance of task, authority, and responsibility overlapping, reduction of document and record volume, and cost reduction (Ejdys, Kobylińska, Lulewicz-Sas, 2012). An integrated system facilitates a comprehensive approach to all problems in the organisation. The primary objective of system integration should be the pursuit of improvement of all corporate processes and areas (Harmon, 2018). Therefore, structure building must mean more than just the creation of autonomous units. It should also ensure sufficient integration and cooperation through a certain degree of freedom to individuals or project teams (such as in a virtual organisation).

Another critical component of every organisation is the **allocation of power and decision-making**. Concepts of centralisation and decentralisation are paramount here. Centralization is connected with amassing power and control at the very top of the organization. Decentralization, on the other hand, involves moving decision-making to various tiers of management. Centralisation vs decentralisation is a matter of self-reliance in task performance and use of competencies available in the organisational structure (Habuda, 2017). The organisation is highly centralised when the top management only emanates orders downwards. When an organisation is not strictly centralised, it can be said to undergo certain decentralisation, although perhaps only in some domains. Centralisation and decentralisation are not a zero-sum game. They coexist and dominate different areas of organisational activities. Therefore, organisations should move from centralisation towards decentralisation. This may be achieved through **internal cooperation** (another parameter in the spider web model). Internal cooperation should consist in departing from hierarchy, from using power *ex officio* towards an authority based on expertise, for example.

Today's business model is based largely on **inter-organisational cooperation**, which is the next structural parameter in the spider web model. Separate autonomous units need a different organisation with which they can cooperate as a single organisation. The proposed approach suggests moving from autonomous units to the network structure. An organisation's architecture emerges from its network of internal and external connections. External connections can be weak or strong. Strong connections are usually asset and capital-related. Weak connections include vertical partnerships when suppliers and customers are considered partners through inclusion in corporate production process preparation. Corporate architecture is also built from internal connections, which come as strong connections, such as structure, and weak connections, such as autonomous groups, quality circles, personal contacts, etc. Cooperation and collaboration of economic agents have been uninterrupted since the exchange economy emerged. Still, their scope, intensity, and forms vary as economic development progresses from exchange to trade and commodity transactions to partnership and integration of activities to specialist services and supplies to franchising and joint endeavours and projects. The needs for joint effort are mostly similar in different domains of economic life, but they are also specific. They result from business methods and relevant conditions (Bochenek, 2017). Each organisation has a certain ability to cooperate with which it can achieve its goals more effectively and economically. The goals would be beyond its reach or require much greater effort if faced independently. Modern organisations are involved in various interactions with components of their environments. The components are considered to exert either direct or indirect impact and involve competition, neutrality, or cooperation (Kożuch, Sienkiewicz-Małyjurek, 2013). Causes for inter-organisational cooperation include a high level of interdependence, risk sharing, insufficient resources, experience with previous joint projects, and problem complexity.

**Organisational culture** is a separate parameter in the model. Organisational culture has been discussed broadly in the literature of the last decades of the twentieth century. Barney (1986) and Slater, Olson, and Finnegan (2011) explained that not only does organisational culture reflect who the employees, customers, suppliers, and competitors are but it also defines how the company will work with key stakeholders. The right organisational culture helps employees comprehend the business strategy. It motivates and nourishes human relationships. Moreover, organisational culture has become a means for realising the organisation's mission over the ages.

The multitude of investigated variables relevant to organisational culture led to the emergence of the notion of innovation-friendly culture. It should be taken into consideration in management theory. (Buschgens, Bausch, Balkin, 2013). Considering the views of Fralinger and Olson (2007) that organisational culture is the primary decision factor in organisations, it appears as an inherent component of the existence and growth of any organisation. Whether and how it can promote development is a completely different matter.

Although it is generally believed that it was Pettigrew (1979) who introduced the notion of culture to organisation theory, it was present in social sciences—sociology and anthropology in particular—nearly from their beginnings. Issues related to organisational culture are interdisciplinary. Not only does organisational culture reflect who the employees, customers, suppliers, and competitors are, but it also defines how the organisation will work with them. A strong culture helps employees understand the business strategy, motivates, and improves human relations between organisation members. Therefore, if the success of a business strategy depends on its implementation and realisation, the organisation needs cultural support (Gorzelany, Gorzelany-Dziadkowiec et al., 2021). Moreover, culture determines the types of people attracted to the organisation and who can succeed in its structure. This approach is reflected in a definition by Hofstede (1998), who perceives organisational culture as 'the collective programming of the mind'. Shared values and the degree to which organisation members share them are the basis for any effort to build organisational culture. The internalisation of an organisation's values should lead to the consistency of goals among managers and individual employees (Sánchez-Cañizares, Munoz, López-Guzmán, 2007).

This is how Quinn and Rohrbaugh (1983) devised the competing values framework. The concept postulates that managers have to make choices reflecting two types of tensions within the organisation stemming from internal and external factors and challenges related to control vs flexibility. This two-dimensional representation yields four types of culture. Although all organisations exhibit some features of each type of culture, one usually dominates. In the spider web model, cultural changes should move from a fossilised formula towards an open-minded and innovative culture. Innovation culture is the *sine qua non* of organisation growth. It improves entrepreneurship level and boosts financial results (Storey, Kahn, 2010), according to Hogan and Coote (2014). Innovation culture improves company results by promoting innovative and creative behaviour, helping develop innovative products and services, and generating innovative solutions. As opposed to some management theorists, Kirby and Ibrahim (2011) believe that when directed towards entrepreneurship, organisational culture should not be understood as 'more business-like' but must strongly promote innovation and creativity. Therefore, employees should be encouraged to take initiative and be active, which improves sharing and cooperation in business organisations and public administration alike. Over the last decade, researchers and managers identified concepts of organisational culture in various environments to improve functional and work cohesion and productivity in organisations.

Another parameter of the spider web model is **technology**, which is a critical change area in any organisation. With new smart technologies approaching, the business has to manage the implementation of Industry 4.0 and smart principles (Pfeifer, 2021). To be able to cope with technology trends, employees need to adjust to new expectations because—apparently—contributors to intellectual capital benefit the most from the Fourth Industrial Revolution. Implementing digital technologies in the industry and institutions, which need to keep up with

changes, builds up new expectations for employee qualifications. Undoubtedly, 'new technologies will radically change the nature of work in all industries and professions. The primary uncertainty stems from the questions: to what degree automation and artificial intelligence (AI) will replace workforce, how long it will take, and how far it will go. Innovation gained momentum in the late twentieth century. Many believe we live in the time of Industry 4.0, and the changes we go through can be perceived as a revolution in the labour market. Still, the term 'Industry 5.0' emerges in the literature (Mohd, Abid, 2020). It refers to a new type of society where scientific and technological innovations are important for balancing social problems that must be resolved while sustaining economic growth (Salgues). Society 5.0 is also defined as 'Imagination Society', where digital transformation is combined with creativity and values to create a sustainable society (Guevara, Terra, 2020). The pace of changes in technology and engineering requires that to be effective, enterprises need to introduce innovation. They also have to choose a specific innovation strategy, which defines the degree and manner of innovation used to achieve strategic advantage. It covers R&D and technology strategies but also transcends them. Depending on the attitude towards innovation originality, one can speak of (I) innovation leadership, where the organisation aims to be a technology leader by developing new technologies and marketing new products and (II) innovation followership, where an enterprise markets new products by imitating and learning from technology leaders (Zakrzewska-Bielawska, 2010). Technology changes promote the development of organisations. Organisations should transition from obsolete technologies to strategic technology orientation, founded mainly on knowledge.

The last component of the spider web model is **strategic orientation**. Although strategy is listed last, it is the starting point for any action. Note that a strategy should be able to identify differences among team strategies. The organisational spider web includes unique and exceptional propositions. Hence, the most effective means should be identified as the most valuable parts of a business model. It can be done not through acceptable solutions that improved the effectiveness of actions but by answering why customers choose a specific enterprise's offering, for example, or how employees coordinate their efforts. This is why a unique (exceptional) strategy is the cornerstone of the entire organisational design. When formulating a strategy, one has to analyse vague, ambiguous environments and create unique propositions.

## 3. Novelty and aim of the article

The need to assimilate indication integration and reconfiguration mechanisms in management systems—mechanisms based on devising and implementing model solutions that facilitate adaptation to dynamic exogenous and endogenous conditions—is a critical factor for

realising the vision of the future and survival of the organisation. Therefore, the article aims to elaboration and discuss the spider web model model and identify elements that code an organization's genome to determine its development potential. Specific goals follow from that aim:

1. to define the organisation's DNA,
2. to identify spider web model parameters,
3. to discuss relationships between spider web model parameters and identification of the organisation's genome,
4. to improve the state of the art regarding the use of spider web model parameters in identifying the development potential of enterprises (through an original diagnostic questionnaire).

The aim is pursued with the following theses:

T1: Parameters in the spider web model codify the organisation's genome.

T2: Identifying components that codify the organisation's genome is necessary to determine its development potential.

T3: A diagnosis and assessment of spider web model parameters for an organisation determines the codification of its genome.

## 4. Material and methods (area, design, and execution of the study)

The first step of the research process was a bibliometric analysis and systemic literature review using the Scopus and Google Scholar databases. The articles were filtered by research aim. They were searched using the following keywords: subsystems, systems, centralisation, decentralisation, possibility of implementation, intra-organisational cooperation, networking, hierarchy, authority, organisational culture, innovation culture, technologies, strategic technologies, Industry 4.0, and Industry 5.0. The literature analysis was conducted from January 2024 to 10 February 2024. It provided grounds for discussing the spider web model and identifying elements that code an organization's genome to determine its development potential. The analysis further identified a knowledge gap: the need for a tool for diagnosing and assessing how spider web model parameters are shaped in organisations. Such a tool would enable managers to determine their organisation's development potential and codify its individual genome.

Therefore, the next stage was to devise a questionnaire for diagnosing and assessing how spider web model parameters are shaped in organisations. The questionnaire questions concerned the eight parameters from the spider web model. The answers were given on a five-point Likert scale. The Likert scale (1932) allows researchers to detect even relatively subtle differences in attitudes. The advantage of this scale over simple scales is apparent also in the

fact that individual points cannot significantly affect the final result. They are meant to be balanced within the scale, while the specificity of a simple scale can affect research conclusions to a large degree. Normalisation in ranking methods consists in ordering objects according to the ordering criterion for the given variable. Next, variants of the variable are assigned ranks, conventional numeric values that are most often ordinals of positions of the objects in an ordered sequence. Hence, for the present research, 1 means 'to a very little degree', and 5 means 'substantially'.

Our original research was a diagnostic survey using an original questionnaire with eight close-ended questions. As we sought to answer whether the spider web model parameters codify the organisational genome, we asked about any needs for change related to each parameter. The questionnaire for the research was validated with a pilot survey, where respondents were asked about their understanding of the questions in the questionnaire and the correctness of their content. Responses were collected using the CAWI technique. The questionnaire was loaded to Google Drive, and the link to it was sent to people in the research sample. The survey was a pilot addressed to purposefully sampled organisations. Through our choice of the sample—enterprises, an NGO, and a public institution—we emphasised the tool's versatility and demonstrated that identifying elements that codify an organisation's genome to determine its development potential applies to more than just businesses. The investigated organisations have a solid competitive position, regularly introduce changes to drive development, and are open to cooperation. The selected organisations are a micro-enterprise (Cyfrowa Królowa, a private tuition provider), a small enterprise (Cukiernia Magdalenka confectionary), an association (LKS Respekt sports club), and the University of Economics in Kraków as a public institution.

Cyfrowa Królowa was established in 2021. Its core business is innovative mathematics tuition. In the words of the owners, 'we teach maths and get wild with numbers, but no child is just another number or statistic to us. We believe the key to success in educating young people is to offer them the right environment founded on good vibes, acceptance, and a sense of safety. We are human. Both us, teachers, and the children we teach. We have the right to make mistakes. We believe in relationships.

The Cukiernia Magdalenka confectionary was established in Myślenice, Poland in 1957. Its craft products are made based on recipes over 60 years old. The confectionery has ten employees and a simple organisational structure where the owners own all processes. It is a family business handed down from the previous generation. The third generation of the family is stepping in now. The owner's children have completed confectionary education, earning both apprentice and then master craftsman certificates. In addition to confectionary-focused training, they completed higher education. The son graduated from the AGH University of Technology, and the daughter completed studies at the University of Physical Education in Kraków. Still, they are committed to the confectionery business.

The LKS Respekt sports club is located in Myślenice at 20a Zielona Street. It was registered with the District Starost in July 2013 (statutes of such organisations do not provide for economic activity). The club is registered as a physical culture association with a legal personality and one section: female football. It has 80 active players, all registered on the official extranet. The girls participate in national-level matches, while young players compete at regional and local tiers.

The link to the questionnaire was sent by e-mail to owners and employees of the selected enterprises, board, officials and of-age players of LKS Respekt and students of the University of Economics in Kraków who discussed the spider web model during lectures and classes. The total number of correctly completed and returned questionnaires was 2 from Cyfrowa Królowa, 10 from Cukiernia Magdalenka, 20 from LKS Respekt, and 32 from the University of Economics.

The data and relationships were analysed using Spearman's rank correlation coefficient. Spearman defined his coefficient as a regular Pearson correlation coefficient for ranks of variables (hence the name rank correlation coefficient). It describes the strength of the correlation of two measurable and qualitative features when the population is small and the features can be ordered. The measure values lie in the interval of [–1, +1]. The closer it is to one, the stronger the correlation between the variables (Aczel, Sounderpandian, 2018).

## 5. Results and discussion

Considering that Spearman's correlation coefficient did not identify statistical significance among the answers given by the owners of Cukiernia Magdalenka, vs its employees, the board and officials of LKS Respekt vs the players and answers by the students (UEK), the results are presented in aggregate.

The first question concerned subsystems. The respondents described to what extent their respective organisations implemented specific activities. The results for the four organisations are summarised in Table 1.

**Table 1.**
*Subsystems. Results of original research*

| Subsystems | Response scale | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **4** | **5** |
| smaller, independent units are created | | | | | | | | | | |
| UEK/LKS Respekt | 12% | 34% | 25% | 25% | 3% | 40% | 0 | 40% | 0 | 20% |
| CM/CK | 0 | 0 | 0 | 50% | 50% | 0 | 0 | 0 | 50% | 50% |
| autonomous project (work) teams are created | | | | | | | | | | |
| UEK/LKS Respekt | 6% | 23% | 25% | 28% | 18% | 20% | 20% | 20% | 20% | 20% |
| CM/CK | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 0 | 100% |

Cont. table 1.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| authority is delegated to lower tiers | | | | | | | | | | |
| UEK/LKS Respekt | 28% | 28% | 34% | 9% | 0 | 60% | 20% | 20% | 0 | 0 |
| CM/CK | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 0 | 100% |
| drive towards the removal of hierarchical dependencies | | | | | | | | | | |
| UEK/LKS Respekt | 12% | 38% | 38% | 12% | 0 | 0 | 0 | 40% | 40% | 20% |
| CM/CK | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 0 | 100% |
| autonomous, independent units are needed | | | | | | | | | | |
| UEK/LKS Respekt | 6% | 34% | 22% | 31% | 6% | 40% | 20% | 40% | 0 | 0 |
| CM/CK | 100% | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 0 |

Source: original work based on research.

The data in Table 1 shows that the spider web model parameters related to subsystems are used and realised to a substantial degree in Cukiernia Magdalenka and Cyfrowa Królowa. The enterprises are founded on independent units, project teams are created, authority is delegated, and the organisations progress towards the removal of hierarchical dependencies. LKS Respekt does not create independent units or delegate authority but has no hierarchical dependencies. The results are linked to the characteristics of the organisation. Respekt is a sports club, a team that operates within a defined structure of distinct groups of players. Notably, the respondents from these organisations do not feel the need to create autonomous units. Therefore, subsystems can be considered as DNA components there. The results are slightly different for the University of Economics. The answers are significantly scattered, with 37% of the respondents needing independent units. It suggests that the parameter requires refinement, and smaller, independent units should be considered in the university structure.

The next diagnosed and assessed spider web parameter is the possibility of implementation. The results are presented in Table 2.

**Table 2.**
*Possibility of implementation. Results of original research*

| **Possibility of implementation** | **Response scale** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **4** | **5** |
| human potential is employed | | | | | | | | | | |
| UEK/LKS Respekt | 6% | 16% | 25% | 44% | 9% | 0 | 20% | 0 | 60% | 20% |
| CM/CK | 0 | 0 | 0 | 70% | 30% | 0 | 0 | 0 | 0 | 100% |
| opportunities of external cooperation are utilised | | | | | | | | | | |
| UEK/LKS Respekt | 9% | 22% | 3% | 47% | 18% | 0 | 20% | 0 | 80% | 0 |
| CM/CK | 0 | 0 | 0 | 20% | 80% | 0 | 0 | 0 | 100% | 0 |
| specialisation occurs | | | | | | | | | | |
| UEK/LKS Respekt | 18% | 22% | 38% | 22% | 0 | 0 | 20% | 20% | 60% | 0 |
| CM/CK | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 0 | 100% |
| cooperation occurs | | | | | | | | | | |
| UEK/LKS Respekt | 6% | 3% | 18% | 31% | 34% | 0 | 20% | 0 | 20% | 60% |
| CM/CK | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 0 | 100% |
| integration occurs | | | | | | | | | | |
| UEK/LKS Respekt | 3% | 6% | 18% | 50% | 22% | 0 | 20% | 0 | 80% | 0 |
| CM/CK | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 0 | 100% |
| individuals and teams are given freedom to act | | | | | | | | | | |
| UEK/LKS Respekt | 3% | 28% | 28% | 34% | 6% | 0 | 20% | 20% | 40% | 20% |
| CM/CK | 0 | 0 | 20% | 40% | 40% | 0 | 0 | 0 | 0 | 100% |

| there is a need for more cooperation, integration, and freedom to act | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| UEK/LKS Respekt | 6% | 18% | 31% | 38% | 6% | 20% | 20% | 40% | 0 | 20% |
| CM/CK | 100% | 0 | 0 | 0 | 0 | 0 | 50% | 0 | 0 | 50% |

Source: original work based on research.

The results in Table 2 suggest that regarding the possibility of implementation, LKS Respekt, Cukiernia Magdalenka, and Cyfrowa Królowa make significant use of the spider web model parameters and realise them. The organisations tap into human potential, practice internal cooperation, sometimes to a great extent, and cooperate with third parties. Integration occurs, and people are given substantial freedom to act. Respondents from Cukiernia Magdalenka do not feel the need to increase cooperation, integration, or more freedom to act. Participants from LKS Respekt and Cyfrowa Królowa indicated some needs in this regard. Results for the university demonstrate a need for more operational freedom for teams and individuals. Therefore, the possibility of implementation is an element of the spider web model that builds the genome of Cukiernia Magdalenka and shapes its development potential.

The next diagnostic and assessment step involved the decision-making structure in the organisations. The results are summarised in Table 3.

**Table 3.**
*Decision-making structure. Results of original research*

| **Decision-making structure** | **Response scale** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **4** | **5** |
| power is concentrated at the top tier | | | | | | | | | | |
| UEK/LKS Respekt | 0 | 3% | 38% | 38% | 16% | 0 | 20% | 40% | 40% | 0 |
| CM/CK | 50% | 50% | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 |
| power is distributed among various management levels | | | | | | | | | | |
| UEK/LKS Respekt | 6% | 22% | 22% | 44% | 6% | 20% | 40% | 20% | 20% | 0 |
| CM/CK | 0 | 0 | 0 | 80% | 20% | 0 | 0 | 0 | 100% | 0 |
| decision-making is delegated to lower tiers | | | | | | | | | | |
| UEK/LKS Respekt | 12% | 12% | 47% | 25% | 3% | 40% | 60% | 0 | 0 | 0 |
| CM/CK | 0 | 0 | 0 | 30% | 70% | 0 | 0 | 0 | 0 | 100% |
| there is a need to delegate decision-making | | | | | | | | | | |
| UEK/LKS Respekt | 6% | 22% | 25% | 38% | 9% | 40% | 40% | 20% | 0 | 0 |
| CM/CK | 50% | 50% | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 0 |

Source: original work based on research.

The summary in Table 3 shows that at the University of Economics in Kraków, power is partially or completely concentrated at the top tier. The respondents from LKS Respekt also noted a partial concentration of power at the top tier. Cukiernia Magdalenka and Cyfrowa Królowa do not focus power at the very top. It is distributed among various tiers of management. Decision-making is delegated to lower tiers, and there is no need to delegate authority. The survey revealed that decision-making power is concentrated at the very top at LKS Respekt due to the characteristics of the organisation. There is no need to delegate decision-making there. Therefore, the decision-making structure at Cukiernia Magdalenka, Cyfrowa Królowa, and LKS Respekt codifies their genomes. Answers from the students are scattered and suggest a need to delegate decision-making to lower tiers. This particular element of the spider web model for the University of Economics in Kraków may require changes.

Internal cooperation is the next spider web model parameter analysed in the organisations. The results are presented in Table 4.

**Table 4.**
*Internal cooperation. Results of original research*

| Internal cooperation | Response scale | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **4** | **5** |
| managers employ authority | | | | | | | | | | |
| UEK/LKS Respekt | 3% | 9% | 31% | 31% | 25% | 0 | 20% | 60% | 0 | 20% |
| CM/CK | 0 | 0 | 0 | 80% | 20% | 0 | 100% | 0 | 0 | 0 |
| power is used | | | | | | | | | | |
| UEK/LKS Respekt | 0 | 22% | 28% | 38% | 12% | 20% | 40% | 0 | 20% | 20% |
| CM/CK | 70% | 30% | 0 | 0 | 0 | 50% | 50% | 0 | 0 | 0 |
| expertise is used | | | | | | | | | | |
| UEK/LKS Respekt | 0 | 12% | 18% | 56% | 13% | 0 | 0 | 40% | 20% | 40% |
| CM/CK | 0 | 0 | 30% | 40% | 30% | 0 | 0 | 0 | 0 | |
| organisation members share knowledge | | | | | | | | | | |
| UEK/LKS Respekt | 3% | 12% | 18% | 41% | 25% | 0 | 20% | 0 | 40% | 40% |
| CM/CK | 0 | 0 | 0 | 60% | 40% | 0 | 0 | 50% | 50% | 0 |
| Cyfrowa Królowa | 0 | 0 | 50% | 50% | 0 | | | | | |
| there is a need for more internal cooperation | | | | | | | | | | |
| UEK | 3% | 18% | 28% | 34% | 16% | 20% | 20% | 20% | 40% | 0 |
| CM/CK | 100% | 0 | 0 | 0 | 0 | 0 | 50% | 0 | 50% | 0 |

Source: original work based on research.

The summary in Table 4 demonstrates that although the selected parameters (authority, expertise, knowledge sharing) were assessed as present or present to a significant degree in all the organisations by over half of the respondents, this domain needs change. Only respondents from Cukiernia Magdalenka believed these parameters did not need to change. Therefore, internal cooperation codifies the genome of the confectionery. The other respondents pointed to some need for more internal cooperation.

The fifth diagnosed and assessed element was inter-organisational cooperation. The results are presented in Table 5.

**Table 5.**
*Inter-organisational cooperation. Results of original research*

| Inter-organisational cooperation | Response scale | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **4** | **5** |
| cooperates with other organisations (businesses, institutions) | | | | | | | | | | |
| UEK/LKS Respekt | 9% | 12% | 28% | 31% | 12% | 20% | 0 | 20% | 20% | 40% |
| CM/CK | 0 | 0 | 50% | 50% | 0 | 0 | 0 | 100% | 0 | 0 |
| moves towards networking | | | | | | | | | | |
| UEK/LKS Respekt | 9% | 18% | 31% | 31% | 9% | 0 | 60% | 20% | 20% | 0 |
| CM/CK | 100% | 0 | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 |
| cooperates with international organisations | | | | | | | | | | |
| UEK/LKS Respekt | 12% | 16% | 25% | 34% | 12% | 60% | 40% | 0 | 0 | 0 |
| CM/CK | 100% | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 0 |
| cooperates with organisations from various regions | | | | | | | | | | |
| UEK/LKS Respekt | 12% | 16% | 16% | 41% | 16% | 0 | 20% | 80% | 0 | 0 |
| CM/CK | 100% | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 0 |

Cont. table 1.

| inter-organisational cooperation should be intensified | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| UEK/LKS Respekt | 6% | 22% | 28% | 28% | 16% | 20% | 20% | 20% | 40% | 0 |
| CM/CK | 0 | 100% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100% |

Source: original work based on research.

Regarding inter-organisational cooperation, the university cooperates with other organisations and regions. It moves towards networking. The other organisations cooperate externally to a small or very small extent. The scope of cooperation in Cyfrowa Królowa should clearly grow. The conclusion is that inter-organisational cooperation requires changes. It does not determine the development potential of the investigated organisations because it is not shaped properly.

Organisational culture is another analysed element of the organisations. The results are presented in Table 6.

**Table 6.**
*Organisational culture. Results of original research*

| **Organisational culture** | **Response scale** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | **1** | **2** | **3** | **4** | **5** | **1** | **2** | **3** | **4** | **5** |
| family atmosphere; the organisation is a place of personal encounter; people commit strongly | | | | | | | | | | |
| UEK/LKS Respekt | 6% | 22% | 28% | 31% | 12% | 20% | 0 | 0 | 0 | 80% |
| CM/CK | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 50% | 50% |
| energy, entrepreneurship, risk-taking, etc. are present | | | | | | | | | | |
| UEK/LKS Respekt | 6% | 18% | 31% | 25% | 18% | 0 | 20% | 0 | 20% | 60% |
| CM/CK | 0 | 0 | 30% | 70% | 0 | 0 | 0 | 0 | 50% | 50% |
| primarily deliverables matter; the best performance is the paramount focus; employees are ambitious and set to achieve | | | | | | | | | | |
| UEK/LKS Respekt | 3% | 9% | 34% | 38% | 16% | 0 | 0 | 40% | 20% | 40% |
| CM/CK | 50% | 50% | 0 | 0 | 0 | 0 | 0 | 100% | 0 | 0 |
| strict hierarchy and control; actions usually governed by formal procedures | | | | | | | | | | |
| UEK/LKS Respekt | 3% | 9% | 34% | 38% | 16% | 40% | 0 | 20% | 20% | 20% |
| CM/CK | 50% | 50% | 0 | 0 | 0 | 50% | 50% | 0 | 0 | 0 |
| leadership is associated with advice, help, and attention; teamwork is preferred; complete consensus and participation are the goal | | | | | | | | | | |
| UEK/LKS Respekt | 12% | 9% | 18% | 54% | 6% | 0 | 0 | 20% | 40% | 40% |
| CM/CK | 0 | 0 | 0 | 50% | 50% | 0 | 0 | 0 | 0 | 100% |
| leadership is associated with entrepreneurship and innovation; individual risk-taking, freedom, and originality are preferred | | | | | | | | | | |
| UEK/LKS Respekt | 12% | 28% | 25% | 25% | 9% | 0 | 40% | 20% | 40% | 0 |
| CM/CK | 0 | 0 | 20% | 40% | 40% | 0 | 0 | 100% | 0 | 0 |
| leadership is associated with resolve, expansiveness, and performance orientation; fierce competition is preferred; high requirements are posed; focus on achieving | | | | | | | | | | |
| UEK/LKS Respekt | 16% | 34% | 9% | 31% | 9% | 40% | 20% | 20% | 0 | 20% |
| CM/CK | 100% | 0 | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 |
| leadership is associated with coordination, efficient organisation, and provision of harmonious conditions for good performance; employment security, subordination, predictability, and constant relationships are preferred | | | | | | | | | | |
| UEK/LKS Respekt | 3% | 9% | 38% | 38% | 12% | 0 | 0 | 40% | 60% | 0 |
| CM/CK | 100% | 0 | 0 | 0 | 0 | 0 | 50% | 50% | 0 | 0 |
| changes in this domain are necessary | | | | | | | | | | |
| UEK/LKS Respekt | 18% | 18% | 31% | 18% | 12% | 0 | 40% | 0 | 60% | 0 |
| CM/CK | 50% | 50% | 0 | 0 | 0 | 50% | 50% | 0 | 0 | 0 |

Source: original work based on research.

The summary in Table 6 shows that the organisations are dominated by clan and adhocracy cultures. LKS Respekt demonstrates some signs of a hierarchy culture. Respondents from Cukiernia Magdalenka and Cyfrowa Królowa do not feel the need for change in their cultures. Therefore, organisational cultures code their DNAs. The domain is in need of redesigning in LKS Respekt and at the university.

The penultimate parameter of the investigated organisations is technology. The results are presented in Table 7.

**Table 7.**
*Technology. Results of original research*

| Technology | Response scale | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| new technologies are used in production (services) | | | | | | | | | | |
| UEK/LKS Respekt | 6% | 16% | 18% | 47% | 12% | 0 | 20% | 80% | 0 | 0 |
| CM/CK | 40% | 60% | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100% |
| new technologies are used in marketing (such as social media) | | | | | | | | | | |
| UEK/LKS Respekt | 3% | 12% | 22% | 41% | 22% | 0 | 0 | 20% | 40% | 40% |
| CM/CK | 0 | 0 | 0 | 70% | 30% | 0 | 0 | 0 | 0 | 100% |
| knowledge capital is used | | | | | | | | | | |
| UEK/LKS Respekt | 0 | 9% | 18% | 38% | 34% | 0 | 20% | 20% | 40% | 20% |
| CM/CK | 0 | 0 | 20% | 40% | 40% | 0 | 0 | 0 | 0 | 100% |
| strategic technologies have been identified (providing long-term competitive advantage) | | | | | | | | | | |
| UEK/LKS Respekt | 12% | 16% | 31% | 31% | 9% | 20% | 0 | 60% | 0 | 20% |
| CM/CK | 0 | 0 | 30% | 50% | 20% | 0 | 0 | 100% | 0 | 0 |
| old technologies are used that need to be replaced | | | | | | | | | | |
| UEK/LKS Respekt | 12% | 22% | 38% | 25% | 3% | 40% | 40% | 20% | 0 | 0 |
| CM/CK | 100% | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 | 0 |

Source: original work based on research.

It is evident from the data in Table 7 that technology codifies the DNAs of the confectionery, Cyfrowa Królowa, and LKS Respekt. These organisations use new technologies and knowledge and identify strategic technologies. The University of Economics in Kraków is the only organisation in the study where respondents feel the need for change.

The last diagnosed and assessed parameter is strategic orientation. The results are presented in Table 8.

**Table 8.**
*Strategic orientation. Results of original research*

| Strategic orientation | Response scale | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 1 | 2 | 3 | 4 | 5 |
| only tested and reliable solutions | | | | | | | | | | |
| UEK/LKS Respekt | 0 | 0 | 31% | 44% | 25% | 0 | 0 | 60% | 40% | 0 |
| CM/CK | 0 | 0 | 0 | 70% | 30% | 0 | 0 | 50% | 50% | 0 |
| new, unique solutions acceptable | | | | | | | | | | |
| UEK/LKS Respekt | 3% | 22% | 41% | 31% | 3% | 0 | 0 | 40% | 60% | 0 |
| CM/CK | 0 | 60% | 40% | 0 | 0 | 0 | 0 | 50% | 50% | 0 |
| long-term plans drawn | | | | | | | | | | |
| UEK/LKS Respekt | 3% | 9% | 25% | 31% | 31% | 0 | 20% | 20% | 60% | 0 |
| CM/CK | 30% | 40% | 30% | 0 | 0 | 0 | 0 | 100% | 0 | 0 |

Cont. table 8.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| strategy-based business model | | | | | | | | | | |
| UEK/LKS Respekt | 6% | 6% | 18% | 47% | 22% | 0 | 40% | 20% | 40% | 0 |
| CM/CK | 30% | 40% | 30% | 0 | 0 | 0 | 0 | 0 | 50% | 50% |
| strategic advantages constantly identified | | | | | | | | | | |
| UEK/LKS Respekt | 9% | 12% | 16% | 50% | 12% | 20% | 0 | 40% | 40% | 0 |
| CM/CK | 0 | 0 | 20% | 60% | 20% | 0 | 0 | 0 | 0 | 100% |
| the most effective actions chosen | | | | | | | | | | |
| UEK/LKS Respekt | 0 | 9% | 16% | 53% | 22% | 0 | 20% | 0 | 20% | 60% |
| CM/CK | 20% | 50% | 30% | 0 | 0 | 0 | 0 | 0 | 50% | 50% |
| changes in this domain are necessary | | | | | | | | | | |
| UEK/LKS Respekt | 9% | 33% | 31% | 25% | 0 | 80% | 0 | 20% | 0 | 0 |
| CM/CK | 60% | 40% | 0 | 0 | 0 | 0 | 100% | 0 | 0 | 0 |

Source: original work based on research.

Strategic orientation codifies the genomes of all the investigated organisations. They adopt new, unique solutions, opt for effective actions, and their business models are largely based on a strategy.

The discussed parameters are entwined. One has to decide how to act and link these elements. The scale ordering rank ranges from 1 to 5 for each parameter and is determined by achievements in each cluster. The comparison scale and clusters for comparing the parameters are visualised in Figure 2, taking into account scores in Tables 1–8 and answers to the question of whether a parameter needed change. If the respondents pointed out the need for change, the score is below 5.

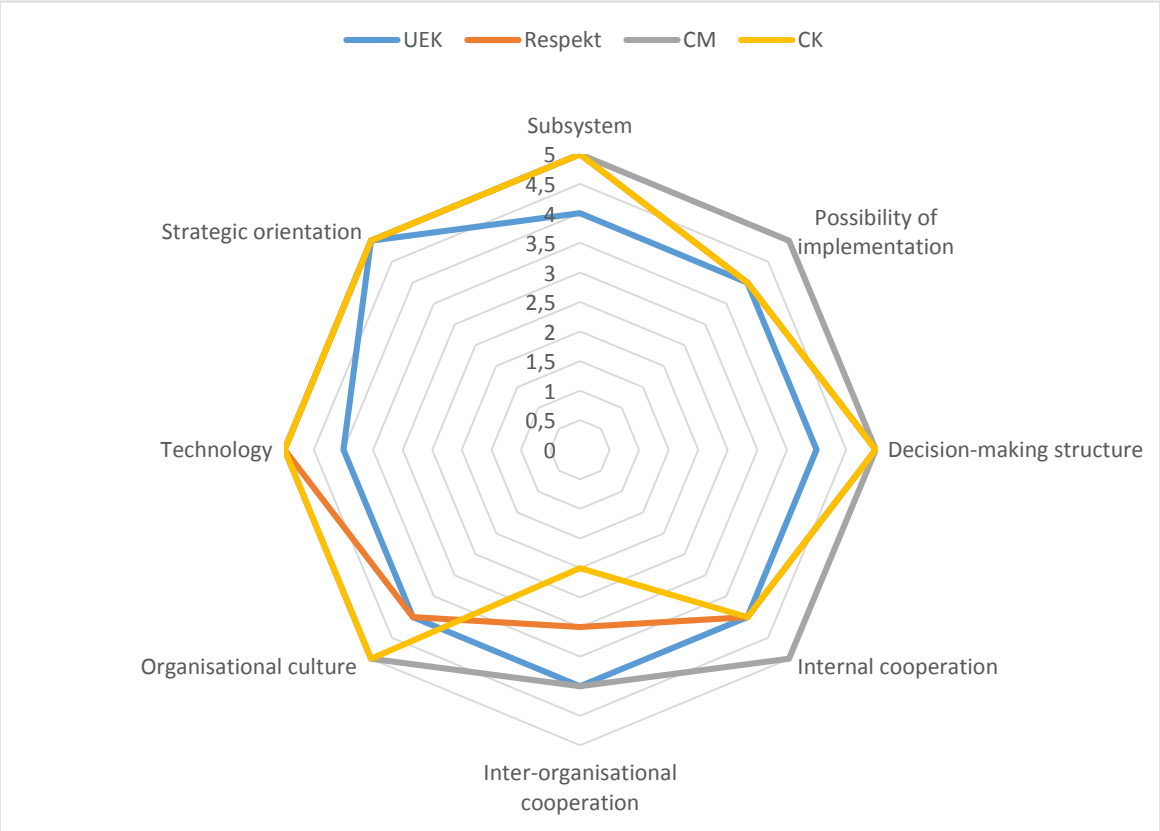


**Figure 2.** Organisation spider web model or the analyzed organizations.

Source: original work based on research.Using the spider web model to identify elements codifying an organisation's genome to determine enterprise development potential in Figure 2, we conclude that Cukiernia Magdalenka has the clearest organisational genome determining its development. All the parameters, apart from inter-organisational cooperation, were rated 5 points. This means that the enterprise keeps up with changes in its environment, creates autonomous, independent units, has authority as its foundation, and improves internal cooperation. The alignment of the parameters supports the continuous development of the confectionery even though it operates in a local market and is a small enterprise. The owners can stimulate inter-organisational cooperation to reinforce their genome.

The elements identified for other organisations codify their organisational genomes and determine their development potential. The respondents from Cyfrowa Królowa gave the possibility of implementation and internal cooperation four points. Therefore, their development potential may be determined by enhancing these areas. The owners should work on inter-organisational cooperation, which received two points.

Subsystems, the structure of decision-making, technology, and strategic orientation of LKS Respekt were given five points, which shows that these parameters are distinguishing features of the individual DNA of the club. Club managers should appreciate the development potential of the possibility of implementation, which can be a foundation of the team's strength if combined with individual player skill sets. Other noteworthy parameters are cooperation and organisational culture, each with four points. Just like in the case of Cyfrowa Królowa, inter-organisational cooperation currently does not contribute to the development potential of the club. An interview with club officials revealed that the domain is, indeed, neglected as conditions for external cooperation, for example, with other clubs, are challenging. Regrettably, football circles in Lesser Poland are peculiar, and any cooperation during sports or other events results in other clubs poaching exceptional players who are critical for LKS Respekt.

The last analysed organisation was the University of Economics in Kraków. The identified elements can be considered to codify its organisational genome. All the parameters were given four points except for strategic orientation, which had five points. This shows the development potential of the university. It is a large organisation, which makes management more complex than in a sports club, confectionery, or mathematics tuition provider.

All investigated organizations have their specific genomes, sets of information that characterize and guide their development. The aim was achieved in the work: elaboration and discussion of the spider web model and identification of elements that encode an organization's genome to determine its development potential and design changes. The reports confirmed that every company has a personality. Just as you can understand an individual’s personality, you can also understand a company’s type—what makes it tick, what’s good and bad about it. (Gouillart, Kelly, 1996; Neilson, Pasternack, 2005; Harrison, Frakes, 2005)

The following specific objectives were achieved in the work:

- The genome of organizational DNA was defined.
- The parameters of the spider web model were identified.
- The relationship between the parameters of the spider web model and the identification of the organization's genome was discussed.
- Knowledge of the use of the parameters of the spider web model in recognizing the company's development potential was expanded (a diagnostic questionnaire was developed).

The following theses were also verified:

- Parameters in the spider web model codify the organization's genome.
- Identifying components that codify the organization's genome is necessary to determine its development potential.
- A diagnosis and assessment of spider web model parameters for an organization determine the codification of its genome.

The article has achieved its research objective. We discussed the spider web model in detail and identified elements that codify organisations' genomes, which helps determine their developmental potential. We defined the organisational DNA and discussed relationships between spider web model elements and possibilities of identifying the organisational genome. The case studies demonstrated that diagnosing and assessing the spider web model parameters (that codify an organisation's genome) is necessary to determine the organisation's development potential and find potential change opportunities.

The research was limited by a small sample of arbitrarily selected organisations. Still, the selection of organisations for the case studies was purposeful. We demonstrated that the spider web model can diagnose and assess parameters that codify an organisation's DNA in all types of organisations, enterprises, NGOs, and public institutions. It may also help identify areas in need of change to maintain the development potential. In light of the above, future research should include a more in-depth study of selected sectors to conduct a comparative analysis and offer generalised conclusions.

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