

# Management vs Self-Regulation in Russian IT Companies in Search of an Effective Way to Run a Business While Promoting Happiness in the Modern World: Empirical Study Results

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## ABSTRACT

Most of the IT companies all around the world are increasingly turning to the project management structure, in particular, the SCRUM and Agile models, however, there are also those who are keen on a strict hierarchical model and prefer to strengthen the vertical of power, and in some cases tighten control through bureaucratization processes. Business efficiency depends on the specifics of the implementation of each specific model and many additional factors.

The empirical part of our research is dedicated to identifying the direct correlation between various aspects of the management structure functioning and thorough assessments of employees' satisfaction and business success.

We think that our work will be useful for any professionals of IT industry: project managers, as well as owners of new companies and developers of start-ups and also managers of more mature businesses which are facing crises of effectiveness or problems with employees satisfaction.

**Keywords:** organizational structure, success, agile structure, flat structure, self-assessment

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## Управление или саморегулирование? Определение эффективного способа ведения бизнеса при продвижении счастья в современном мире: по результатам эмпирического исследования российских ИТ-компаний

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## РЕФЕРАТ

Большинство ИТ-компаний по всему миру все чаще обращаются к структуре управления проектами, в частности к моделям SCRUM и Agile, однако есть и те, кто увлечен строгой иерархической моделью и предпочитает укреплять вертикаль власти, а в некоторых случаях и ужесточать контроль через процессы бюрократизации. Эффективность бизнеса зависит от специфики реализации каждой конкретной модели и множества дополнительных факторов.

Эмпирическая часть нашего исследования посвящена выявлению прямой корреляции между различными аспектами функционирования структуры управления и тщательной оценкой удовлетворенности сотрудников и успешности бизнеса.

Мы думаем, что наша работа будет полезна для любых профессионалов ИТ-отрасли: руководителей проектов, а также владельцев новых компаний и разработчиков стартапов, а также менеджеров более зрелых бизнесов, которые сталкиваются с кризисами эффективности или проблемами удовлетворенности сотрудников.

*Ключевые слова:* организационная структура, успех, гибкая структура, плоская структура, самооценка

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«It is possible that the next Buddha will not take the form of an individual. The next Buddha may take the form of a community».

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«The whole is more than the sum of its parts».

©Aristotle

In our research, introduced in this article, we assume to find an effective way to run a business we are promoting happiness in contemporary world. This we can call **“a mission” of our research**.

**The main hypothesis.** There is a direct correlation between the management style, the organizational structure of the company and the level of employees’ satisfaction, as well as subjective self-assessments of the success of the business as a whole.

**Additional hypothesis** In “flat” (horizontal) structures, the level of employee satisfaction with work and subjective self-assessments are generally higher than in hierarchical (vertical) structures.

New technologies are making the world more globalized and allowing people to be less dependent on centralized institutions i.e. on their workplace, schools and even their governments. All these institutions are changing their roles from point of power to service. These changes are taking place slowly and the vast majority of organizations are run using traditional management.

On a more positive note, there are studies about collective Intelligence which show that the quality of a group solution can be higher than the best independent individual solution in the group. Some experiments show how forecasts made by experts were beaten by those made by «normal» people. For example: «Superforecasting: The Art and Science of Prediction»<sup>1</sup> and «Expert Political Judgment: How Good Is It?»<sup>2</sup> There are already some commercial start-ups which have begun to use Hybrid Intelligence Technology method for their products<sup>3</sup>.

These trends lead to experiments and an active search for practices and methods in areas such as IT, which are particularly susceptible to technological growth, constant change, uncertainty, high complexity of the task and the need for effective teamwork. Theories and methodologies that offer new approaches and/or ideas in the field of structure and work processes in organizations are highly sought-after.

The search query “Teal organization”<sup>4</sup> term on google gives about 1,010,000,000 results, which is based on the Spyral Dynamic<sup>5</sup>, google shows about 1,010,000,000 results. One of the key mechanisms for the effectiveness of the “Teal organization” Laloux is called Self-regulation and Self-Management. The author wrote that it was “Self-published

<sup>1</sup> Philip E. Tetlock, Dan Gardner (2015) Superforecasting: The Art and Science of Prediction».

<sup>2</sup> Philip E. Tetlock (2006) «Expert Political Judgment: How Good Is It?».

<sup>3</sup> <https://cindicator.com>

<sup>4</sup> Feéderic Laloux (2014) “Teal organization” is a term from the book “Reinventing Organizations”.

<sup>5</sup> C. Graves (1971). «Levels of Human Existence».

with no PR, it has already sold 400,000 copies and has been translated in numerous languages" (*Frederic Laloux*).

As another example of the demand for new ways to manage organizations and projects, one can cite the Agile methodology (about 159,000,000 results on Google).

The Agile methodology, one of the main principles of which is "Individuals and interactions over processes and tools" (*Manifesto for Agile Software Development*), appeared in 2001 and is rapidly gaining popularity in the IT field.

Characteristics of the Agile methodology, among others, are a flatter organizational structure than in classical hierarchical organizations, and self-regulations of development teams. The 12th Annual State of Agile Report of 2018, conducted by VersionOne, which includes 1,492 responses, shows that respondents rate the high efficiency of the Agile methodology, SCRUM and its tools as having a positive impact on customers / user satisfaction, business value, on-time delivery and quality.

A 2017th Russian survey conducted by YouGile, with more than 300 respondents from IT companies, shows that only 17% of participants work in companies that do not use Agile at all.

A characteristic feature of methodologies and theories that offer a flatter organizational structure is a subjective, rather than an objective, attitude towards the participants of the process unlike in more hierarchical organizations. It can be assumed that working in conditions where personality and individuality does not turn off outside of work activities can bring greater personal satisfaction.

For modern IT organizations interested in highly qualified specialists, employee satisfaction can be one of the important factors affecting the efficiency of a company. All this allows us to make an assumption about the influence of the specifics of the structure and management style on the subjective assessment of business success and employees' satisfaction. In that case, incorporating the concept of self-regulation into IT organizations will make them more effective and more attractive to workers.

Such possible positive outcomes of self-regulation are the central topic of our study. Since we have clear practical examples of the power of self-regulation, several classical academic studies and even existing projects employing the principle, it is extremely interesting for us to try to get a deeper understanding while the concept is still in its infancy. We'd like to discover ways to maximize the effectiveness of organizations taking into account this new reality. **In short: which is more effective — hierarchical management or self-regulation in flat organizations?**

Our aim is to find the ideal balance between these two approaches or to understand how each individual IT organization could work out to what extent their business could benefit from adopting self-regulation into their organization. **We believe that incorporating the concept of self-regulation into organizations will make them more attractive to workers.**

This subject is very practical and interesting for us, because of the nature of our work. It's obviously impossible to ignore the importance of self-regulation in any situation involving people. In our work, we both metaphorically surf on the stream of individual and group choices and decisions.

### **The sociological basics of the organizational theory study**

Although the history of the study of the organization is often raised to Plato and Aristotle, who paid great attention to the forms of streamlining lives of people in their contemporary society, the scientific study of organizations actually has begun in the XXth century.

A generalizing sociological view of the organization was proposed by one of the most prominent theorists of the mid-20th century, one of the representatives of "structural functionalism".

In his works, he used a systematic approach to analyzing both society as a whole and individual subsystems and institutions in particular. In his work *Suggestion for a Sociological Approach to the Theory of Organization*<sup>1</sup>, he notes that the most important characteristic of an organization is its target nature and the production of a certain product.

The organization's focus on achieving the goal in comparison with other functions of the social system determines the special significance of the decision-making process in terms of the allocation of available resources for the most effective achievement of the organization's goals.

Like any social system, an organization has a structure that can be described from two points of view: "cultural and institutional", which uses the values of the system and their institutionalization in different functional contexts as its point of departure, and "group-role", which takes suborganizations and the roles of individuals participating in the functioning of the organization<sup>2</sup>.

Since the presence of a goal is the most important characteristic of an organization, its value system must legitimize the goals of the organization in the context of a higher-level social system. Within the organization, the value system legitimizes the primacy of the organization's goals compared to other possible interests and values of the organization or its members.

As for the «group-role» structure of the organization, it refers to the way of interaction between groups within the organization and describes the set of statuses and roles existing in the organization.

A special role is played by the steering group (managers or administration), which is responsible for the functioning of the organization and has the right of decision making.

From the point of view of interaction with the external environment, it is essential for the functioning of the organization to obtain resources for the organization in the economic sense (land, labor, capital). From the point of view of interaction with the external environment, it is essential for the functioning of the organization to obtain resources for the organization in the economic sense (land, labor, capital). However, any organization is always faced with the problem of internal integration, i.e. concerns "the institutionalization of norms that can effectively link the actions of individuals with their obligations to the organization"<sup>3</sup>.

Applying the four functional imperatives scheme (**AGIL-adaptation, goal-attainment, integration, latent pattern-maintenance**) to the analysis of the organization, Parsons identifies the type of organizations by the objective function:

1. Adaptation: economic organizations — aimed at obtaining surplus value;
2. Goal setting: political organizations — generating and distributing power;
3. Integration: integrative organizations, i.e. ensuring the unity of society and regulating conflicts: courts, political parties in the classical sense, etc.
4. Organizations that maintain the sample, i.e. reproduction of the value system: educational and cultural institutions, the church, etc.

From the point of view of our research, the first type is of interest — economic organizations, on the study of which we will further emphasize. According to T. Parsons, an economic organization can be considered ambivalent: at the level of society, it is part of an adaptive system — receiving and processing resources to ensure the functioning of society. On the organizational level though it is rather peculiar system.

<sup>1</sup> *Parsons T. Suggestions for a Sociological Approach to the Theory of Organizations-I, Administrative Science Quarterly* Vol. 1, No. 1 (Jun., 1956).

<sup>2</sup> *Suggestions for a Sociological Approach to the Theory of Organizations-I, Administrative Science Quarterly*. Vol. 1, No. 1 (Jun., 1956), p. 67.

<sup>3</sup> *Suggestions for a Sociological Approach to the Theory of Organizations-I, Administrative Science Quarterly*. Vol. 1, No. 1 (Jun., 1956), p. 81.

The firm at the level of the value system is governed by the values of economic rationality: the maximization of production with minimal costs in the economic sense. Production is the institutional goal of the company, but financial reward in this case acts as a condition for the continued existence of the organization and the main symbol of success.

From an adaptive point of view, financial resources and staff recruitment are vital for the firm, and in both cases it is expected that the resources will be paid for in the necessary and sufficient way.

From the point of view of goal-setting, the firm is in any case a fairly centralized structure — the most important decisions are made by top management and the “democratic” method is not used. Such centralization is legitimized by the expectation that the management is competent. It also implies that the interests of the management and the rest of the staff coincide in ensuring that the work is effective, provided that the staff is treated fairly. These expectations are subjected to external control of the market environment: ineffective management leads to the cessation of the functioning of the organization and the free movement of workers in the labor market. In an integrative or institutional aspect, an economic organization relies on the institution of a “free contract,” which, according to Parsons, is balancing the interests of the parties<sup>1</sup>.

Thus, an organization is a social system that uses resources in a certain way to achieve goals. This system is open, i.e. interacts with the external environment, from which it draws resources and in which it gives the results of its activity.

In the applied aspect, it is the methods of the most efficient use of limited resources to achieve the goals of the organization are the most important task of both management practitioners and theorists of management science.

It is this very side of the issue that attracted attention in the early stages of the study of the organization. One of the first scientists and managers who dedicated himself to study the issues discussed here was Frederick Taylor. In his work *Principles of Scientific Management* (1911), he formulated an approach to managing an organization based on direct data collection and scientific determination of the best way to organize work.

Simultaneously with Taylor, the principles of classical management were formulated by Henri Fayol. In his work *General and Industrial Management* he singled out 5 management functions: — Planning, Organizing, Staffing, Directing, Controlling.

Max Weber contributed to the theory of organization with the study of bureaucracy as well. Bureaucracy as a «human machine» seems to him the most effective way to achieve the goals of the organization. Weber identified the following principles of bureaucratic structure:

- the hierarchical structure of the organization;
- hierarchical order built on legal authority;
- the subordination of the lower-level employee to the supervisor and the responsibility not only for his actions, but also for the actions of subordinates;
- specialization and division of labor according to functions;
- a clear system of procedures and rules to ensure uniformity in the implementation of production processes;
- a system of promotion and tenure based on skills and experience and measured by standards;
- orientation of the communication system to formalized rules.

Thus, within the framework of the classical theory, the greatest attention is paid to the formal division of labor of managers and performers, the hierarchical structure of the organization, the presence of a formalized system of rules and procedures. How-

<sup>1</sup> Suggestions for a Sociological Approach to the Theory of Organizations-II, Administrative Science Quarterly. Vol. 1, No. 2 (Jun., 1956), p. 237.

ever, **even the classical management theory draws attention to the importance of the “team spirit”**, even if not paramount, but still worth to pay attention to.

Already in the era of the domination of the school of scientific management, some researchers, in particular Mary Parker Follet devoted her attention to the socio-psychological aspects of the functioning of organizations. Follet develops the idea of constructive conflict and integration unity in business, which implies the absence of a real boundary between the manager and the employee, the responsibility of all the participants in the organization, each in their own sector, for the situation in the organization as a whole. In this vein lies her idea of «power **with** ...», which should replace the «power **over** ...», the replacement of coercion for joint action.

In the course of the Hotthorn experiments of E. Mayo and his team, it was revealed that in addition to the formal structure of the organization, there are other factors that influence the work of production teams. When trying to study the influence of objective factors on productivity, it turned out that at least there **were other factors — social relations and moral spirit**.

With all the criticism of the results and contradictions in the question of interpreting the results of the experiment, conducted by E. Mayo, the presence of a social factor is never denied.

The separation from the classical theory of control leads to the 1950-60s. By that time appeared behavioral trends in management, for which the concept of “motivation” is central. The motivational theories of Abraham Maslow, David McClelland, Frederick Herzberg, Clayton Alderfer appeared in a scientific sphere. We should also mention the «Theory X» and «Theory Y» by Douglas McGregor, that assumes that employees can work efficiently and effectively outside the rigid framework of rules and regulations.

The process of motivation in the most general case is revealed through a three-element model: *need — purposeful behavior — satisfaction of need*, which results in satisfaction — a positive sense of comfort and relief that is felt by an individual when his wish is realized.

### **Modern study of organizational structure and level of employees' satisfaction**

In the 1950s and 1960s, a series of studies emerged that attempt to link the type of organization structure with the level of employee satisfaction.

As described in the article by Leo Meltzer and James Salter «Organizational Structure and the Performance and Job Satisfaction of Physiologists»<sup>1</sup>, discussion about the shape of organizational structure becomes a very popular in the literature of industrial sociology and of organizational behavior using such concepts as «flatness», «tallness», «pyramidal organization» and the like. And though all these terms have never received any precise and clearly definition, it seems common that the size and how organization is structured is the main point of reference.

**Studying relationship between the shape and size of organization on one side and criteria of organizational effectiveness such as productivity and job satisfaction on the other**, Leo Meltzer and James Salter mentioned James C. Worthy's theory by concerning the interrelated effects of size and levels:

«Worthy states that comparison of large organizations with small organizations of the same type show the former to have lower employee morale and lower individual output than their smaller counterparts. He theorizes that the larger organizations, in evolving relatively large size, tend toward a proliferation of hierarchical levels of administration and thus to centralization of authority and job specialization. The fruits of these developments are impersonal institutionalized employee-management relations, low degree

<sup>1</sup> American Sociological Review, Vol. 27, No. 3 (Jun., 1962) // Organizational Structure and the Performance and Job Satisfaction of Physiologists, pp. 351–362.

of freedom on the job, suppression of personal judgment and initiative, failure to investigate the individual's full capabilities, and low employee morale and output»<sup>1</sup>.

According to Worthy this problems could be escaped and solved by employing so-called «flat» structure.

Discussing results of their analysis of questionnaire data, obtained as a result of a survey made by professional physiologists, Meltzer and Salter arrived to the conclusion that Worthy's theory had a certain degree of certainty:

«The number of levels was negatively, and monotonically, related to satisfaction, as predicted. However, size of organization is curvilinearly related to satisfaction, with the highest percentage of very satisfied scientists occurring in medium sized research organizations»<sup>2</sup>.

However, in further analysis they did not find any clear relationship or straight correlation between the type of organizational structure and the satisfaction level:

«The only effect of organizational structure that is clearly consistent with the predictions of Worthy's theory is the negative relation of number of organizational levels to satisfaction. The other findings are: ... (b) no relationship of size and productivity; and (c) curvilinear relation- ship of size and satisfaction»<sup>3</sup>.

Lyman W. Porter and Edward E. Lawler «The Effects of "Tall" Versus "Flat" Organizational Structures on Managerial Job Satisfaction analyze the same problem in the article<sup>4</sup>. Their study was based on the results of the survey of the sample of managers (more than 1900) representing all levels of management from all types of organizations around the USA. The following classifications of company size were used in analyzing the data: 1–99, 100–499, 500–999, 1000–4999, 5,000–9,999, 10 000–29 999, 30 000–99 000, 100,000 — or over.

Within each size classification, respondents were classified as being employed in either Flat, Intermediate, or Tall organizations on the following basis:

**Flat organizational structure:** includes managers employed by companies having the fewest levels of hierarchy in their organizational structure, were classified as being employed in flat organizations. Approximately one-quarter of the managers employed by companies of a given description were involved into research.

**Intermediate:** This type consists of managers employed by companies that have a middle number of levels relative to their size and are classified as being employed by intermediate organizations. About one-half of the managers involved into research and employed by companies of a given size can be assigned to this classification.

**Tall:** Managers employed by companies that include the greatest number of levels relative to their size are classified as being employed by organizations with tall organizational structure. About one-quarter of all managers employed by companies of a given size can be assigned to this classification.

The results of the research did not show any obvious advantage of flat over tall organizations in producing greater satisfaction. However, «organization size seemed to have some effect on the relative effectiveness of flat versus tall structures. In companies employing fewer than 5,000 people, managerial satisfactions did seem somewhat greater in flat rather than in tall organizations. For companies of more than 5,000 employees the picture was reversed with a tall type of structure producing perceptions of greater need satisfaction»<sup>5</sup>.

<sup>1</sup> American Sociological Review, Vol. 27, No. 3 (Jun., 1962) // Organizational Structure and the Performance and Job Satisfaction of Physiologists, p. 352.

<sup>2</sup> Ibid, p. 355–356.

<sup>3</sup> Ibid, p. 360.

<sup>4</sup> Personnel Psychology, Vol. 17, Issue 2, (Jun., 1964) // The effects of "tall" versus "flat" organization structures on managerial job satisfaction, pp. 135–148.

<sup>5</sup> Ibid, p. 147.

The other interesting conclusion concerns connection between the type of organizational structure and the type of psychological need in question: «a tall type of structure seems especially advantageous in producing security and social need satisfactions, whereas a flat structure has superiority in influencing self-actualization satisfactions. For the esteem and autonomy areas, the type of structure seemed to have relatively little effect»<sup>1</sup>.

In the course of further research, Lyman W. Porter and Jacob Siegel confirmed their findings in the survey of 5,000 managers all over world. In particular, they found out that for organizations of under 5,000 employees, flat organization structures are associated with greater managerial need satisfaction. It was also estimated that a flat organization structure was more associated with positive satisfaction attitudes than the smaller the total size of the organization.

When organizations are larger than 5,000 employees, the critical disadvantages of tall structures may be balanced by the potential advantages inherent in this type of structure. The problems of coordination and communication within an organization may be of such importance that a tall structure-i.e., a structure with a narrow average span of control-will help in attacking them<sup>2</sup>.

Another comparative study of the types of organizations conducted by Rocco Carzo, Jr. and John N. Yanouzas was aimed at identifying the relationship between the type of organizational structure and three variables: time taken to complete decisions, profits, and rate of return on sales revenue<sup>3</sup>.

The researchers modeled two organizations of 15 people each. One organization was organized hierarchically — specialists and managers were divided into four levels. The other one is built on the principle of a “flat” organization, when each specialist had direct access to the president of the “company”.

The study revealed that the time variable did not have significant differences for the two types of organization. At the same time variables of profits and rate of return on sales revenue showed strong dependence on structure type: groups under the tall structure showed significantly better performance than groups under the flat structure<sup>4</sup>.

In our article we consider that the problem associated with determining the most appropriate type of organizational structure, both in terms of the effectiveness of achieving the goals of the organization and employees' satisfaction, is relevant not only for companies of the industrial period, but also at the contemporary stage of the post-industrial, that is, informational society. This is predetermined by the goal-oriented nature of the organization, i.e. the need to most efficiently use all possible resources in achieving its goals, which is also gained by choosing an appropriate organizational structure.

In particular, we will focus on the IT industry and the relationship of software development approaches to organizational structures and staff satisfaction. First of all, a brief overview of software development methodologies.

According to M. A. Awad in his work *A Comparison between Agile and Traditional Software Development Methodologies*, the majority speaks about two kinds of methodologies: heavyweight and lightweight.

When we talk about heavyweight methodologies, it is also considered as the traditional way to develop software, claim their support to comprehensive planning, detailed documentation, and expansive design. The lightweight methodologies, also known as agile modeling, have gained much attention from the software engineering community

<sup>1</sup> Ibid, p. 147.

<sup>2</sup> Personnel Psychology, Vol. 18, Issue 4, (Dec., 1965), Relationships of Tall and Flat Organization Structures to the Satisfactions of Foreign Managers, p. 390.

<sup>3</sup> Administrative Science Quarterly, Vol. 14, No. 2, Laboratory Studies of Experimental Organizations (Jun., 1969) // Effects of Flat and Tall Organization Structure, pp. 178–191.

<sup>4</sup> Ibid, p. 191.

in the last decades. These agile methodologies employ short iterative cycles, and rely on tacit knowledge within a team as opposed to documentation<sup>1</sup>.

So far, we consider heavyweight methodologies to be the most common way of developing software. These methodologies are rooting in a sequential series of steps that imply requirements definition, solution building, testing and deployment. Heavyweight methodologies usually claim in itself defining and documenting a stable set of requirements at the very beginning of a project.

Among the traditional methods, the most commonly mentioned are the Waterfall model, Unified Process, Spiral model and others.

Their general characteristics include:

- **Predictive approach** — Heavyweight methodologies usually tend to first planning out a large part of all software processes in great detail for a long span of time.
- **Comprehensive Documentation** — Traditional software development face and fulfil the requirements of necessary documents as the key piece of documentation procedure.
- **Process Oriented** — The goal of heavyweight methodologies is to define a universally applied process that will work well for whoever happens to use it. The process usually consists of certain tasks that must be performed by the managers, designers, coders, testers etc. For each of these tasks there is a specifically defined procedure.
- **Tool Oriented** — All possible project management tools, code editors, compilers, etc. must be in use for completion, effective fulfilment and delivery of each task.

Agile software development is opposed to Heavyweight methodologies. According to Agile Alliance's Manifesto, agile software development centers on four values:

1. Individuals and interactions values over processes and tools.
2. Working software value over comprehensive documentation.
3. Customer collaboration value over contract negotiation.
4. Responding to change value over following a plan<sup>2</sup>.

The characteristic of methods is the dynamic formation of requirements and the provision of their implementation as a result of constant interaction within self-organized working groups consisting of specialists of various fields, with the participation of consumers or end users.

These methods include Adaptive Software Development (ASD), Agile Modeling, Crystal Methods, Dynamic System Development, Lean Development and Scrum<sup>3</sup>.

The following principles of agile methodologies are seen as the main differences between agile and heavyweight:

- **People-oriented principle:** agile scientific methodologies consider customers, developers, stakeholders, employees – as the most important factor of software methodologies;
- **Adaptive:** the participants in an agile process are not afraid and eager to change whatever is needed;
- **Actual results are predominant:** agile methodologies value conformance to the actual results as opposed to following to the detailed plan;
- **Optimal balancing between flexibility and planning** – thought plans are very important, the main problem of software projects is that it can not be predicted into the far and even close future, because there are so many variables have to be taken into account;
- **Empirical processes:** agile methods develop software as a flexible empirical (or nonlinear) process;

<sup>1</sup> M. A. Awad. A Comparison between Agile and Traditional Software Development Methodologies, School of Computer Science and software Engineering, The University of Western Australia, 2005, p. ii.

<sup>2</sup> Ken Colliers. Agile Analytics, Pearson Education, Inc., Boston, p. V.

<sup>3</sup> M. A. Awad. A Comparison between Agile and Traditional Software Development Methodologies, School of Computer Science and software Engineering, The University of Western Australia, 2005, p. 8.

- **Decentralized management:** agile followers are implementing a decentralized management that can profoundly impact a software project because it could save a lot of time than an autocratic hierarchical management process;
- **Simplicity:** most of the agile teams take the simplest path that correspond to their goals;
- **Collaboration with all segments of target audience:** agile methods imply customer feedback on a regular and frequent basis;
- **Self-organizing teams:** almost all agile project teams are a self-organizing and self-controlling. Tasks and responsibilities are communicated to the team as a whole, and members of the team determine the best way to fulfill them accordingly.

One of the IT-specific problem is the correlation between project size and development methods. M. A. Awad notes as regularity the following: the smaller the project (in terms of budget, team or duration), the smaller the team size for its implementation. Conversely, the larger the team, the more complex coordination is required. Therefore, small projects are more suitable for small projects using agile methodologies<sup>1</sup>.

As it is emphasized in the Agile Manifesto for IT, the use of human potential is extremely important. We can conclude that from the point of view of the organizational structure, companies that are using traditional methods are more likely to form hierarchical organizational structures. On the contrary, while for using agile methodologies, a "flat" organizational structure seems organic.

However, this question seems not to be sufficiently empirically investigated. That is why in our paper we will contribute to make it more clear.

### Spiral Dynamics Theory

During the dive into the deepest levels of our theoretical research to understand human motivation, mentality and values we chose the theory of spiral dynamics to study this topic, because the theory affects the motivation, mentality, structure of thinking, and needs and values, both of the individual, and of groups and communities.

Also, the Theory of Spiral Dynamics is actively developing in the field of organizational development and is implicit in organizational models.

To study the Theory, we chose the books by the creator of the method Clare W. Graves «Levels of Human Existence» and its followers: Ken Wilber «A Theory of Everything: An Integral Vision for Business, Politics, Science and Spirituality», Don Edward Beck and Christopher Cowan «Spiral Dynamics: Mastering Values, Leadership and Change».

For the transition from theory to practical application of Spiral Dynamics, we add the book «Reinventing Organizations» by Frederic Laloux, in which he tries to apply the theory's criteria to real organizations in order to rank them in the levels Spiral Dynamics.

The Spiral Dynamics Theory is a theory on the evolution of cooperation over several distinct stages. The essence of Spiral Dynamics for our point of view is this: People and mankind are continuously evolving and changing.

Development has a spiral character — in the process of change, people and society go through levels that have common properties. The transition to each next stage is possible only after the completion of its precursors and to a certain extent includes the features of the previous one.

In the process of exploratory research, we wanted to study the practical experience of companies that have implemented and continue to implement more self-regulated flat and flexible organizational structures. And study how they affect a company's emotional climate, employees' satisfaction as well as the efficiency of processes in companies.

<sup>1</sup> Ibid, p. 35–36.

For a deeper and more practical understanding, we also visited some global IT companies and some of the organizations described in the book as a “Teal organizations” © “Reinventing Organizations” by Frederic Laloux. We communicated with management and staff, and asked questions about the culture and structure of organizations.

### Summary of Exploratory research

The observations about the organizations named “Teal” by Frederic Laloux<sup>1</sup> in many respects did not coincide with our observations during company visits and communication with employees. The factors that we are going to take into account in our study are:

1. A formal description of the structure of the organization does not always correspond to the real situation. In all the organizations listed, including the flat Morning Star and Zappos companies, employees were able to answer our questions aimed at identifying informal hierarchies, such as: “Who do you turn to for advice and evaluation of activities?”, “In the event of an unforeseen emergency situation in your team / department who will make the decision?”, “Who is the most qualified employee in your department”, etc.
2. Different emphasis on evaluation criteria for different organizations in the book Laloux. If you compare organizations more uniformly and objectively, you can see that in one category Laloux defines Patagonia with five layers of hierarchy for 30 employees and Morning Star with two layers of hierarchy for 2,300 employees.

In this regard, we are going to:

1. Conduct semi-structured qualitative research to determine the situation in the Russian IT companies we are considering. In the course of the study, we aim to determine: a) Key Index giving a real idea of the structure of the company; b) Questions that more fully disclose these Indexes; c) Select one of the most relevant questions for each Index to use in a quantitative study.
2. Conduct a quantitative research in a wide sample of Russian IT companies to identify objective and unified information about the relationship and the impact of these Indexes on each other.

During the research we are going to find out: what the real structures of the companies in which it works are; How these structures are related to the level of employee satisfaction and their subjective perception of the success of companies. Also, a block of questions about respondents and their companies will be added to the research. We do this in order to determine additional factors that may possibly influence the situation: work experience in the company, position and gender of the respondents, as well as the specifics of the company and its size.

## FIELD RESEARCH

### Key Indicators

The interview guide consists of three main blocks.

Questions 1 block focused on the analysis of the type of existing organizational structure and place, the role of the employee in it, the degree of self-regulation (self-management), restrictions and freedom in the company / team, and management styles.

In block 2, it is important for us to get information about how satisfied the employees of the company are in general, what meaning and values they invest in their work, how they assess the atmosphere, opportunities for development and self-realization in the company.

Finally, in block 3, we asked informants to assess how, in their opinion, the business of the company in which they work is successful and efficient. We also asked for a subjective

<sup>1</sup> Frederic Laloux (2014) “Reinventing Organizations”.

description of the company's progress on various parameters (financial position, growth of the client base, number of employees, etc.) over the past year or two.

## Research Stages

Due to the complexity of the topic being studied, as well as to obtain more reliable and reasonable results, a mixed strategy was chosen, based on qualitative and quantitative methods of sociological research. Empirical research is built in two successive stages, each of which logically complements the previous one.

## Quality Research Methodology, Design and Sources of Data

At the first stage of the study, semi-structured interviews will be conducted with product developers and heads of departments / teams / development teams in IT companies. As a method of conducting this (qualitative) stage of the study, we selected online interviews on the Skype platform, each lasting 60–90 minutes. This method was chosen for practical reasons, because it allows interviewing company executives in a convenient format, as well as theoretical studies based on the review of scientific literature “Skype interview in quantitative research: an overview of reflections” (Dmitrieva O. A. *Skype interview in qualitative research: an overview of reflections. Monitoring of Public Opinion : Economic and Social Changes. 2018. No 1. P. 107–116*).

## Quality Research Analysis, Conclusions and comments

### *General characteristics of the first stage*

At the first stage, semi-structured interviews were conducted with employees and heads of departments / IT companies. In total, 7 interviews were conducted, 4 with department / company managers, and 3 with line employees of IT companies.

The study involved managers and employees of two companies specializing in web development (Company 1 and Company 2), a company engaged in the development of social and mobile games (Company 3), and, finally, the department of technical support for social network Company 4. Companies differ by number of employees: there are small (11 and 35 people), and large (120 and more than 500 people).

### *Conclusions and comments*

The first stage is a pilot study. The main tasks at this stage are: verification of key hypotheses, operationalization and study of the conceptual apparatus of the study. According to the results of the first stage, the following conclusions and assumptions can be made:

1. Initially, all companies involved in the pilot study were divided into “hierarchical” and “self-managed”. The initial matrix with a clear division of companies into hierarchical and self-managed ones is controversial, because, as the survey showed, each company has a certain degree of hierarchy (from 3 to 4 levels of management), and a certain degree of self-regulation of processes within groups / teams / departments.
2. The organization of processes within a company may be due not so much to internal factors as to the market in which the company operates, as well as the degree and nature of the client's involvement in the process of creating the final product. Otherwise, it can be called the «degree of creativity» when creating a product.
3. At the same time, in two other companies, where the end user is individual, players and users of social networks, there are no such restrictions on terms and requirements. The nature of the interaction is built in a different way: the “client” expresses his willings, comments on the product, rather than dictates, and the company is guided by these opinions. At the same time, companies are more free to choose the ways and methods of project implementation, and how to organize their internal business processes, which should not be so strongly connected to the customer.

4. Probably, the final analysis should take into account, including the specifics of the companies' businesses and the market in which they operate.
5. Also, the nature of the organization of business processes can be influenced by the complexity of the product being created, and the "intensity" of group interaction necessary to create it.
6. In small companies that participated in the study (Company 1 and Company 2), the degree of formalization of roles was higher than in large companies. This is probably due to the size of the team and, accordingly, a lesser degree of interchangeability between employees.
7. All surveyed companies support the initiative of the employee in professional development and try to create conditions for this. Of course, the opportunities for personal growth and development in large companies are more diverse than in companies with a small number of staff and more limited budgets.
8. In our opinion, "job satisfaction" depends on the value orientations and motivation of a particular employee, therefore these parameters should be analyzed together.

#### *Quality Research Analysis for Quantitative Research Correction*

Interviews showed that opinions on various aspects of «flexibility» and «satisfaction» are very diverse, so we should consider these categories as complex phenomena (translating into the language of analytics, like indexes, taking into account several variables-measures / variables).

#### *Quantitative Research Methodology, Design and Sources of Data*

An on-line survey allows us to identify trends in the opinions of employees of IT-companies: managers and ordinary employees.

Also, as in the interview, the questionnaire contains three blocks related to the structure and management in the organization, satisfaction and success evaluation. At formulating questions to work out relevant answers the data, obtained during the pilot interviews, is taken into account. Variables of one block are being grouped up to indices.

## **ANALYSIS**

There are positive and statistically significant association on the level of tendency between key indices such as assessments of satisfaction, flexibility and success. ( $p < .001$ , confidence interval = 95%). A high 95% confidence interval shows that this correlation will be traced in 95% of polls.

### **Sample**

A poll conducted within the period from September 19 to October 7, 2019. 241 respondents have completed the questionnaire, after deleting irrelevant data 232 observations was added to the database. Data processing conducted using free and trial software: Jamovi, PSPP and Xmind.

About a half of respondents works in the spheres of web, front-end and design. In addition, there are some employees dedicated to tech support, administration. A third of respondents work in various fields: from game design to medical software development. Just under a half of respondents are developers, a quarter are managers. There are also some groups such as designers, testers and technical support professionals. Specificity of the industry pronounced in the distribution of respondents by work experience. About three-quarters work in current place not more than 4 years. The ratio of staff members with more than 10 years' experience is less than 10%.

## Descriptive Statistics: Measures

All measurable indicators grouped into the indices according to the targets of the research. Indices are average values of the means of variables.

### Flexibility Measures

Interviewed respondents assess the structure of Russian IT companies more as *flexible* than hierarchical. The most important evaluation indexes turned out to **be quality of communication** (Table 1).

Table 1

#### Flexibility Measures

Indicator	Structural Flexibility	Collegiality	Quality of Communication	Functional Flexibility	Discussion on targets	Flexibility index
Mean	6.69	5.26	6.89	6.43	5.29	6.11
Median	7.00	5.00	8.00	7.00	5.00	6.40
Variance	5.82	7.33	6.10	6.49	7.74	3.06

### Satisfaction Measures

Employees of Russian companies feel satisfied at their workplace.

The most significant reason for satisfaction is they distinguish friendliness and job satisfaction from interesting tasks. Less satisfaction is caused by their career opportunities, which can be considered the only controversial place when introducing a flatter and more flexible structure in an IT company (Table 2).

Table 2

#### Satisfaction Measures

Indicator	Friendliness	Career Opportunities	Job Satisfaction	Satisfaction Index
Mean	7.44	5.99	7.03	6.82
Median	8.00	6.00	8.00	7.15
Variance	4.48	7.67	5.73	4.49

### Success Measures

Respondents rated their IT companies as successful by all criteria used in the study. Taking into account the data obtained, it can be assumed that employees evaluate the positions of companies in the market more stable than their own positions in the companies (Table 3). This is indicated by the fact that the lowest indicator in the group is in the *Staff stability index*.

Table 3

#### Success Measures

Indicator	Well-being	Stability	Financial Position	Working Conditions	Staff Stability	Development Prospect	Success Index
Mean	7.26	7.46	7.36	7.51	6.71	7.27	7.26
Median	8.00	8.00	8.00	8.00	7.00	8.00	7.50
Variance	5.00	5.39	4.64	4.60	5.02	5.47	3.11

## 9 = Influence of additional factors

Of all the additional factors, it is necessary to distinguish the Work position. The correlation between indices of flexibility and success is higher for the developers and tech support specialists (Fig. 1).

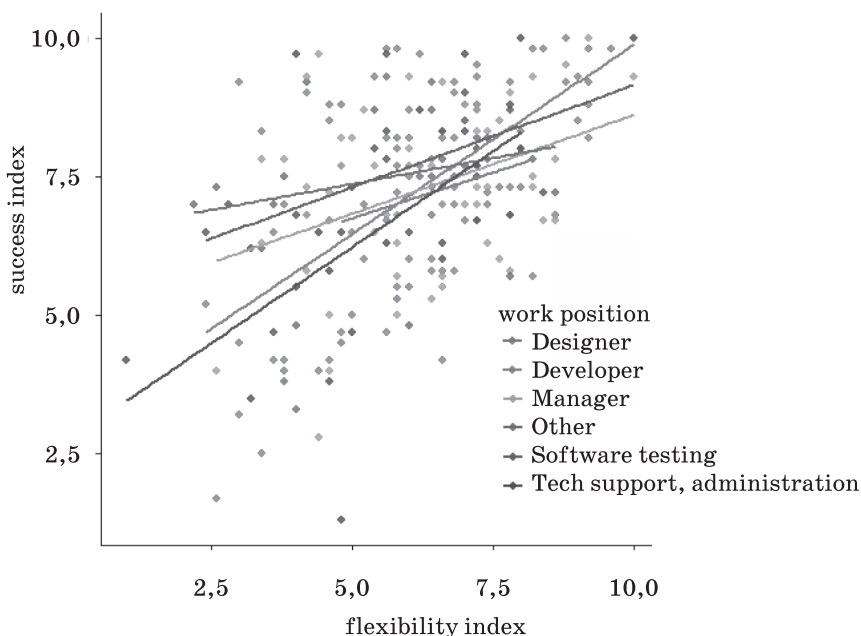


Fig. 1. Graph indices of flexibility and success

## ANALYTICAL STATISTIC

Means and medians of the key indexes exceed mathematical expectation. The values of success and satisfaction indexes are not approximated the normal distribution (Table 4).

Table 4

**Flexibility, success and satisfaction indexes**

Indicator	Flexibility Index	Success Index	Satisfaction Index
Mean	6.11	7.26	6.82
Median	6.40	7.50	7.15
Variance	3.06	3.11	4.49
Indicator	Flexibility Index	Satisfaction Index	Success Index
Mean	6.11	6.82	7.26
Shapiro-Wilk p	0.110	< .001	< .001

To test hypotheses we need to compute correlation matrix for the key indices. Nonparametric test should be used due to requirements of the non-normal distributions. (Spearman's rho) (Table 5).

Table 5

## Correlation matrix

		Flexibility Index	Satisfaction Index		Success Index	
Flexibility Index	Spearman's rho	—	0.577	***	0.452	***
	p-value	—	< .001		< .001	
Satisfaction Index	Spearman's rho		—		0.661	***
	p-value		—		< .001	
Success Index	Spearman's rho				—	
	p-value				—	
Note. $H_a$ is positive correlation						
Note. * $p < .05$ , ** $p < .01$ , *** $p < .001$ , one-tailed						

The values of Spearman's rho in the results of the study show a highly significant positive correlation at the trend level. (0.4 — trend level; 0.7 — correlation level)

## CONCLUSIONS

The researches we conducted do confirm **the main hypothesis as well as additional hypothesis**. There is a direct correlation between the management style, the organizational structure of the company and the level of employees' satisfaction, as well as subjective self-assessments of the success of the business as a whole.

In "flat" (horizontal) structures, the level of employee satisfaction with work and subjective self-assessments are generally higher than in hierarchical (vertical) structures.

Based on the data obtained, it can be concluded that the most important qualities that influence the positive ratings of the respondents are the friendliness of human communication in the company, both with the manager and with colleagues.

1. At the beginning of the study, we assumed that with an increase in the number of employees, the company becomes less flexible organizationally, business processes are more regulated, and the roles of employees are more formalized. The results of the 2-nd stage of research showed that the relationship between the growth in the number of employees and the greater regulation of internal processes does not exist. The pilot research shows the relationship. With an increase in the number of employees, companies are trying to create instructions and «principles», rules for new employees, in order to simplify their job of adapting new people. Moreover, large companies that took part in the study provide greater freedom to their employees in making decisions, choosing the methodology, methods of organizing work, and the roles of employees are less formalized.
2. To assess such parameters as the atmosphere in the company, shared values, and a number of others, it is important whether the interviewed employee works most of the time in the office or on the remote, as well as the duration of his work in the company. Often, to an employee who doesn't work at all / works a little in the office is difficult to evaluate these parameters. It should be borne in mind that for develop-

ers and tech support specialists there is the greatest dependence between the structure of the organization and the perception of the success of the company. Therefore, more flat companies have an advantage in attracting the best specialists in the market.

3. The absence of a hierarchy in a company and an orientation towards a “flat”, horizontal management structure can lead to the fact that an employee for whom vertical career development is important cannot be “realized” in a company. It may also affect the assessment of the “career prospects” parameter. On the other hand, it can be assumed, on the basis of visits to the company, that people interested in more professional than career growth are arranged in flatter organizations. This can reduce the number of “political” interactions and improve teamwork and satisfaction.
4. If we talk about how the perceptions of the company’s success and certain aspects of the structure’s flexibility are related to the opinions of the respondents, it is worth noting that the factor of flexibility most closely related to success index is a quality of communication between managers and employees. The estimates of functional flexibility are not related to the success index instead.
5. Among other characteristics, when assessing the degree of development of a business, many focused on the “quality” of the product/service being created. On the one hand, a quality product attracts new customers. On the other hand, attention to the quality of products, the quality of organization of processes in a company, etc., can also demonstrate the “level of development” of the company, the transition from purely quantitative parameters in assessing business success (high financial indicators, increasing the number of clients and projects, number of employees), to more qualifying, respectively.
6. A variety of feedback tools is especially important in large companies, where it is more difficult to convey your opinion and point of view. A variety of feedback tools allows you to choose the right way to express yourself and convey your opinion to others. Conditions are created in which even the most modest and shy employee has the opportunity to speak out. By “openness” of communication channels we can understand the following: in a company, an interaction between employees is established in such a way that “negative” and any information does not accumulate and stagnate, but easily and naturally circulates in the working environment. At this stage, the following necessary conditions for this can be singled out: respectful atmosphere, the absence of discrimination, the absence of a clear border between a “manager” and a “subordinate”, regular interaction with colleagues.

## MANAGERIAL IMPLICATIONS

Based on our empirical data, we can drive to practical recommendations that can be very easily applied in both — flat and hierarchical companies:

1. As soon as there is direct correlation between level of employees’ satisfaction and organizational structure, we suggest to implement elements of flat companies’ organizational culture not only into the flat, but also to hierarchical organizations as well. Such as, *friendly and respectful atmosphere*, *the absence of a clear border between a “manager” and a “subordinate”*, *regular interaction with colleagues*. This will strengthen even more the flat companies from the inside, and will compensate “strict bureaucratic” management in the hierarchical organizations. As a result – level of satisfaction and subjective feeling of happiness will increase among employees in companies that will follow the recommendations with whatever organizational structure.
2. As soon as it was estimated that feedback, provided by managers, also has impact on employees’ satisfaction and subjective feeling of happiness, it can be recommended to companies with all types of organizational structure to regularly implement such

feedback in the form of constant on-line forums for employees on their web-sites, sociological researches, corporative meetings... etc.

3. Friendly atmosphere which turns out to play decisive role, does not depend on organizational structure. We can consider that flat organizational structure contributes greatly to establishing and sustaining such atmosphere but we can't deny that the same atmosphere can be created in hierarchical organizational structures as well. Not only organizational structures influence the atmosphere in organization. By proper management that is eager to make their employees feeling comfortable and happy we can promote the values of flat organization into the hierarchical ones. As well as by implementing recommendations developed we can lessen the staff turnover, higher the level of production, lessen the amount of conflicts and increase the subjective feeling of employees' happiness.

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