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On theoretical and practical aspects of resistance system of the company

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Abstract

The volatile, uncertain, complex and ambiguous environment means growing challenges for companies. New ideas could be inspiring for managers who cope with complex problems. One of the fields within which academics look for solutions is nature. The mechanism behind immunology system could also bring some stimulants for managers' thinking. The response towards a disturbance factor of the immune system is an inspiration for identifying a resistance system of the company. From the methodological point of view, the system approach constitutes a framework for building comparisons between two different research areas, respectively – immunology and the company. The external barriers subsystem, the non-specific defence subsystem, the fuzzy specificity subsystem and the target-oriented (specific) defence subsystem constitute the resistance system of the company. In business practice, the resistance system was analysed with reference to the activities of one of the small companies.

Paper type: conceptual article

Keywords: organization, system, inspirations, systems thinking, risk, complexity, crisis 2008+

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Introduction

Using analogy in thinking is the source of valuable inspirations. Numerous scientists and practitioners inspired by the nature developed concepts, methods and tools for solving problems within different areas. The application of knowledge on the immune response – the reaction of the organism to penetration by an antigen could be also a source of inspiration for building solutions for organizations.

The primary goals of this article is to build a tool for the organization response towards the disruptive factor and verify it in a business practice.

The methodology applied in the paper sourced from the system approach. The latter involves identification of the resistance system in the organization using analogy to immune system. Consequently, the analysis includes the purpose, functions, attributes of a resistance system as well as links of a resistance system with its environment. Finally, the paper makes an in depth study of the evolution of resistance in identified system including the external barriers subsystem, the non-specific defence subsystem, the fuzzy specificity subsystem, the directed (specific) defence subsystem.

After the financial crises, bankruptcies of numerous academics have raised the issue of the contagion effect (Edwards, 2000; Hernandez & Valdes, 2001; Henggeler-Müller, 2006; Kaminsky, Reinhart, & Végh, 2003; Kelly & Gráda, 2000). The collapse of Lehman Brothers on September 15, 2008 also stimulated some authors to raise the contagion effect phenomenon (e.g. Dungey, Fry, González-Hermosillo, & Martin, 2010; Bekaert, Ehrmann, Fratzscher, & Mehl, 2011; Forbes, 2012; Markwat, Kole, & van Dijk, 2009; Rose & Spiegel, 2009). Some scientists made efforts to use knowledge of the spread of the epidemic in the modelling of contagion (e.g. Peckham, 2013). Showing analogy to the immune system studies have complimentary status to modelling of contagion. What is more, using knowledge of the immune system could contribute to greater resilience of an organization. As a result, using speculative thinking based on the analogy could be inspirational, and bring new impulses to build organizational solutions for the destabilization era.

The management and organization science witnessed the attempts to use the analogy in order to find inspirations and new approach to solve problems. Morgan (2008) in his book under the title *Images of organization* covered the organization analogies to machines, organism, brain, culture, political systems, psychological jails, as a tool of domination.

The term organization resistance is discussed by academics (Bishop & Hydoski, 2010; Zabłocka-Kluczka, 2012), whereas the analogy to immune system is an inspiration to build artificial immunology systems (Świtalska, 2006).

1. Fundamentals of the immunology system

The immune system constitutes one of three systems in a complex organism – apart from the nervous system and the hormone system – that decides as to the equilibrium (homeostasis) of basic biological functions of the body (metabolism, growth, reproductiveness, immunity). The immune system fulfils three functions: defence (counteracting disruptive factors), control (with respect to its own body tissues), and homeostatic (cooperation with other systems).

Like the nervous system or the hormone system, the immune system belongs to the so-called integrative systems of the organism. The immune response is the reaction of the organism to penetration by an antigen. The immune response is comprised of immunological tolerance or specific absence of response, and destructive reactions leading to the elimination of elements once recognised (hypersensitivity).

An organism penetrated by an antigen (disruptive factor) has the following protection barriers and possibilities of response:

- external barriers (biochemical and physical ones) – the non-specific immunity mechanism,
- phagocytosis – a mechanism deprived of specificity,
- the pre-formed level (cross reactions) – a mechanism of the so-called fuzzy specificity,
- the adaptive level – a mechanism of specific immunity.

The vast majority of antigens are stopped by external barriers (e.g. the skin). However, others penetrate further, and the organism applies progressively more specific (that is, better and better adjusted to individual antigen type) defence mechanisms. It should be noted that in every subsystem the disruptive factor is eliminated. However, the manner of elimination is different (using the language of immunology, the manner of adjustment of defence resources to the disruptive factor varies).

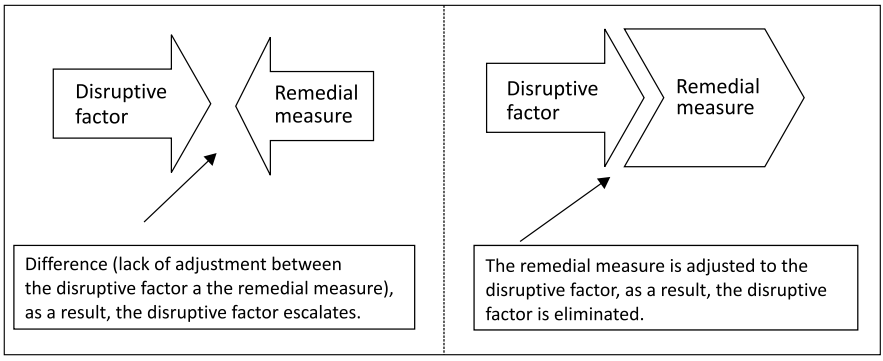

Figure 1. *Escalation and elimination of a disruptive factor.*

The immune system itself may constitute the root cause of illness or other adverse effects. Such a phenomenon is called immunopathology. In principle, this system can fail in one of three respects:

- improper response to its own antigens (autoimmunity),
- insufficient immune system response (immunological deficiency), or
- excessive or misguided immune response (hypersensitivity).

The response to the disruptive factor constitutes a "link" (a translator of sorts) between immunology and organisation and management. Such a link is necessary and results from the differences that hold between the disciplines under consideration. They involve both different terminology and a different manner of utilisation of accumulated information. Using the conceptual apparatus devised for the systems approach, one may assume that the disruptive factor is a factor that causes or may cause a transition of the system from one state to another. The disruptive factor in organisation and management terminology is known as the risk factor. In other words, the occurrence of risk manifests itself as risk factors.

Reaction to the disruptive factor will be analysed using the four-stage response mechanism to disruptive factors. The criterion for isolating this structure is specificity and involves the type of influence on the elimination or compensation of disruptive factors.

The point is not so much to identify the extent of interference on the part of a given disruptive factor but rather to inhibit the immune response. Immunity is perceived as an active phenomenon and means the response of an organisation to the impact of risk factors. Immunity means, in this instance, the response of the organisation (i.e. its mechanism of immune response) on the impact of disruptive factors.

Consequently, the conceptual apparatus involves the growth of resistance, compensatory response and elimination of resistance. It is needs to be mentioned that the growth of resistance, and also elimination and compensation result from one another. The growth in resistance causes a concomitant loss of immunity. Thus, the growth of resistance is accompanied by its proportional elimination and compensation. If e.g. resistance increases by one-third, immunity also decreases by one-third.

$$\Delta X = -(\Delta Y)$$

ΔX – the growth in resistance (non-susceptibility of disruptive factors),
ΔY – the elimination and compensation of resistance (immunity).

It should be noted that in practice it is hard to eliminate disruptive factors completely, hence it makes more sense to compensate for their influence. Elimination requires the intervention on the part of a central level, whereas compensation involves a more flexible response. Fundamentally, compensation means equating the influence of the disruptive factor. Given this angle of approach to the problem, the

category of elimination acquires secondary importance. Elimination will be considered through its associations with compensation.

2. The theoretical analysis of the resistance system in the company

It is assumed that the aim of a resistance system is to act on the disruptive factors in a way that leads to the compensation and elimination of their resistance. The compensation and elimination of resistance should contribute to ensuring survival and development of an enterprise-type organisation. As a result, two categories are involved: the impact of disruptive factors and acting on them.

Table 1 *Selected components of description of resistance system*

Category	Description
Functions	• Control (including supervision) with respect to other systems within the enterprise • Integration and coordination of activities within the enterprise system
Links with its environment	The nature of links between a resistance system and its environment is determined by: • the capacity of disruptive factors to penetrate into an organisation • the mode of penetration of disruptive factors • the intensity of operation of disruptive factors • the diffusion of disruptive factors within the organisation (invasiveness) • the set of system properties
Attributes	• An integrated nature. Consolidation of activities within the enterprise system • Specificity. Adjustment of activities to the interference of the disruptive factor • Memory. The source of information • Redundancy. The baseline reference pattern • Maintenance of permanent readiness to act

In the course of the present study, two features shall play a prominent role: specificity and memory, which are interdependent. Specificity results from the existence of memory. This exploratory strand will be explored as part of the analysis of growth in resistance.

If the resistance system was interpreted in terms of an input-output system, it may be stated that a feature of a resistance system is the transformation of disruptive factors in such a way that resistance is assigned to them. Assigning resistance to disruptive factors results from the actions that comprise individual stages that constitute risk management. This is presented in Figure 2.

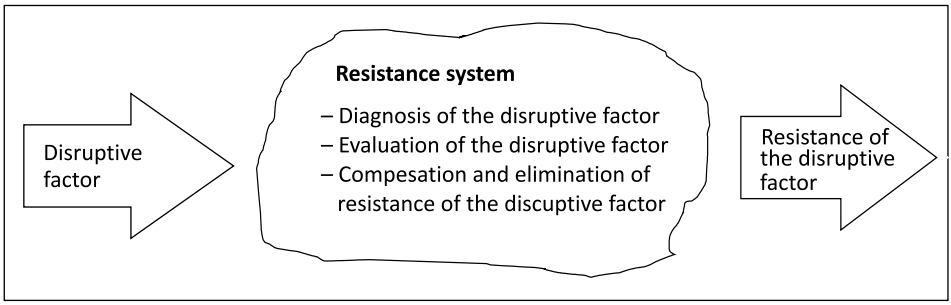

Figure 2. *An input – output resistance system.*

A confrontation of the resistance and risk management systems generates research controversies. Since other relevant relationships are explored here, references to this issue will be dealt with later. Coming back to the line of argumentation, resistance can be:

- complete, i.e. $R = 1$,
- partial, i.e. $0 < R < 1$,
- not arise at all, i.e. $R = 0$.

Such an interpretation corresponds to the quantitative approach to resistance. And doubtless, such an approach would be attractive from the formal point of view. One may even consider the development of a suitable mathematical apparatus. However, this will change little in terms of solving organisational problems. Therefore, it is significantly more important to review the qualitative aspects of resistance.

Having defined the features of a resistance system, we may now go on to isolate individual resistance systems, which is tantamount to the completion of the research task formulated in the subtitle of this chapter – identification of resistance systems.

3. Defining a resistance system

A resistance system is a stratified, integrated, adaptive, distinct in terms of space and time and evolving set of activities that ensue from the information flow and serve to compensate and eliminate the resistance of disruptive factors. There are systems based on the criterion of specificity (or, more precisely, the influence on the attainment of specificity). These are: the external barriers subsystem, the non-specific defence subsystem, the fuzzy specificity subsystem and the target-oriented (specific) defence subsystem.

The immune system in a way derives from risk that arises during selection, therefore apart from planning, other management functions that consist in selection must be taken into account. In other words, if selection is a more general activity than planning, then compensation must also be more general than control.

Hence, in the case of selection, organisation must be taken into account as consistent with reference to compensation – motivating (in its original sense, including also ensuring appropriate staffing). There is also a reference to other elements with a compensatory influence (the organisational structure). However, given the fact that the analysis also applies to systems of actions, the description will mainly focus on the features of activities that constitute individual systems.

Based on the observations so far, an attempt was made to define an immune system. An immune system is a stratified, integrated, adaptive, distinct in terms of space and time and evolving set of activities that ensue from the information flow and serve to compensate and eliminate disruptive factors.

An in-depth study of the evolution of resistance

Developing the argument further, the formation of resistance can be captured in a system of layers (barriers) penetrated by the disruptive factor (as shown in Figure 3 below).

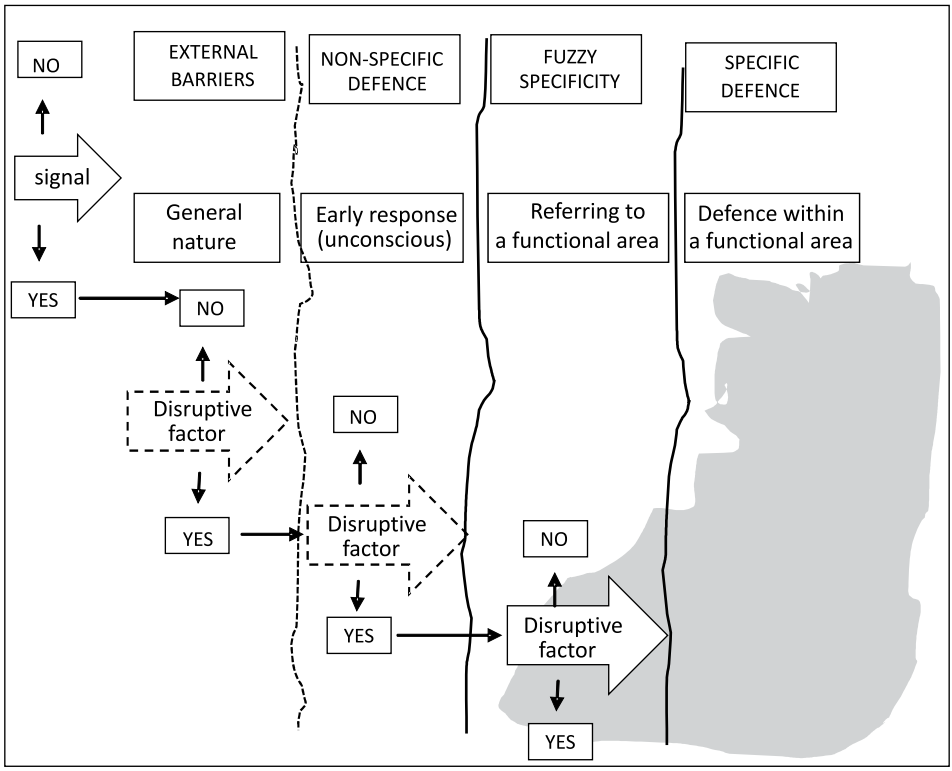

Figure 3. *A visual representation of the formation of resistance.*

The analysis of conditions present in the formation of resistance will show its growth, but simultaneously, a mechanism for its compensation as well as elimination. In compliance with earlier comments, key significance is attributed to control in its compensatory function.

In view of the above arguments, subsequent barriers (subsystems) that serve to compensate and eliminate resistance shall be considered. The proposed line of inquiry shall draw on the already adopted research sequence and implemented with reference to the way in which the adjustment of response to the interference of the disruptive factor occurs (specificity), with a crucial role played by the extent of impact on specificity.

Assuming that compensation (i.e. the compensatory function of control) is supposed to be ensured by the learning process, we shall analyse the growth of resistance from the vantage point of information flow. However, the course of research thus declared will have a wider context, involving, among other things, the influence of information on the selection of activities. It is reasonable to mention that the main research focus will be on compensation, but not to the exclusion of elimination of resistance. Such a research focus corresponds to the previous remarks about the nature of compensation and elimination.

Systems isolated on the basis of the specificity criterion

Drawing on the remarks above, systems isolated on the basis of the specificity criterion (or more precisely, the influence on obtaining specificity) are as follows: the external barriers subsystem, the non-specific defence subsystem, the fuzzy specificity subsystem, the directed (specific) defence subsystem.

A resistance system, in a manner of speaking, derives from selection-related risk, consequently, apart from planning, other management functions consisting in selection must be taken into account. In other words, if selection is a more general activity than planning, compensation must also be more general than control. Hence, in the case of selection, organisation is taken into account, and consistently with reference to compensation – motivating (in its original sense, including also ensuring appropriate staffing). There is also a reference to other elements with a compensatory influence (organisational structure). However, given the fact that the analysis also applies to systems of actions, the description will mainly focus on the features of activities that constitute individual systems.

The external barriers subsystem

The organisation is incessantly attacked by a number of disruptive factors. Most of them are compensated for automatically, so a conscious, ongoing reaction of the or-

ganisation does not occur. Unconscious compensation takes place within the subsystem of external barriers. Graphically speaking, disruptive factors in a way "rebound" from external barriers.

External barriers are thus the fundamental elements that constitute the borders of an organisation. Borders which are constituted by the selection of activities (planning and organisation) with the provision that planning appears to have a primal meaning for selection.

The entire area circumscribed by the external barriers remains beyond the perception capacity of the organisation. Therefore compensation taking place within it does not always occur in a deliberate manner. In fact, it is accidental in nature, as it is hard to specify which disruptive factors are compensated from within the area delineated by external barriers. A consequence of the unconscious character of compensation is the absence of its direction. In the case of external barriers, the absence of direction also means a global (under existing conditions, maximal) range of compensatory activities. In this sense, the mechanisms present within the external barriers are non-specific. Developing this train of thought, one notices that the process involves the sphere of activity that remains in the implied sphere of the plan. And this process of not entirely conscious and deliberate selection (through the plan) generates an area of unconscious compensation (through control).

Given these facts, external barriers must inevitably be of a fluid character and change over time. A feature of external barriers is their variability, temporary formation and fuzziness. Evolving external barriers should be characterised by adaptiveness, which requires redundancy with a considerable amount of diversity.

Appropriate positioning of external barriers faces an intrinsic difficulty. This difficulty results from the fact that the system constitutes itself through its activity. And such a variable is hard to be assigned an unambiguous nature. It is hard to specify which activities are performed within the organisation and which already occur outside. What about the activities which can only partly be attributed to an organisation? Still, it is possible to cite the elements that constitute borderline values of compensation. They include, among other things: psychological qualities (intelligence quotient and its structure, patience, maturity, manner of emotional expression, approach to the resolution of conflicts), physical qualities (susceptibility to illness, physical attractiveness, resilience). Although these elements are variable in nature, they may be considered basic determinants of external barriers. One should add that the greater variety of these variables, the greater the area outlined by the external barriers.

It is worth adding that the issue of borders of an organisation (external barriers) cannot be resolved unequivocally. Nevertheless, a border between the system and the environment must be established, otherwise the system cannot exist. An organisation, as it evolves, modifies its external barriers. As a result, the shape of external barriers changes in line with its development. Changes occur within the triangle of selection – compensation – development.

Focusing attention on the management functions, one ascertains that selection in the sense of choice of external barriers is made as part of planning and organisation. However, compensatory value features in: motivating and in the original sense, ensuring staffing, which should contribute to unconscious compensation. The extent of adjustment of methods and motivation techniques to the psychological and physical qualities of staff decides as to the range of unconscious compensation.

The non-specific defence subsystem

If a disruptive factor penetrates the external barriers, it meets the next barrier – the non-specific defence subsystem.

When we take into consideration the organization and management science perspective, the topics discussed within the non-specific defence subsystem are to some extent related to potential of organization (Kegan & Lahey, 2009; Krupski, 2011). However, the concept of non-specific defence subsystem is more extended than the potential of organization as it includes the area of the unconscious effects of conscious activities.

The non-specific defence subsystem is constituted by incidental activities. They constitute the unconscious effects of conscious activities. Hence, it is random variation that decides as to the compensation of growing resistance. Thus, in the non-specific defence subsystem occurs the unconscious compensation of resistance of the disruptive factor. It is worth bearing in mind that unconscious compensation usually involves a pre-emptive impact on the disruptive factor.

Conscious activities that result in accidental (random) effects may, but need not initially lead to compensation. Of crucial importance are the effects of these activities, which cause compensation. In practice, it is impossible to capture them in their totality. However, they may remain in the sphere of speculation based on intuition.

Reaching the desirable unconsciousness effects of consciousness activities derive from the thinking about thinking which is called metacognition (Wiig, 1994; Ackoff, 1994; Senge & Sterman, 1992).

Generally, holistic thinking results in a broader area of positive/desirable unconsciousness effects of consciousness activities, which translates into compensation of resistance. On the other hand, linear thinking manifests itself by numerous negative unconsciousness effects of consciousness activities, which means limitation of the area of the non-specific defence subsystem.

As systems thinking is not natural model of human thinking the mediation, followed by reflection, and metacognition translates into ability to think holistically.

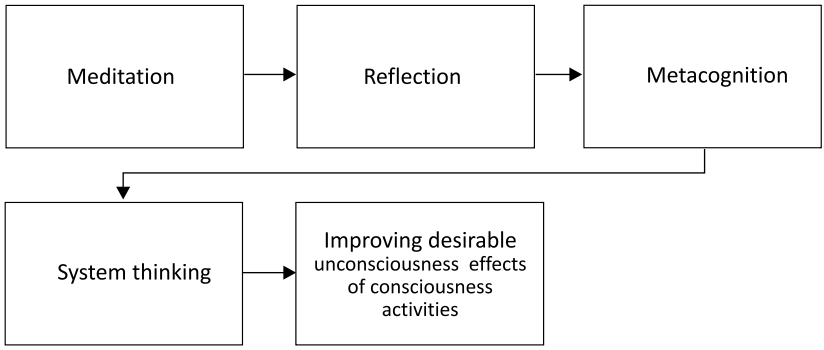

Figure 4. *The model of pushing systems thinking.*

In adverse, linear thinking limits the desirable unconsciousness effects of our activities. What is more, the tensions between systems thinking and linear thinking result in very irregular scope of desirable unconsciousness effects of our behaviours (Figure 5).

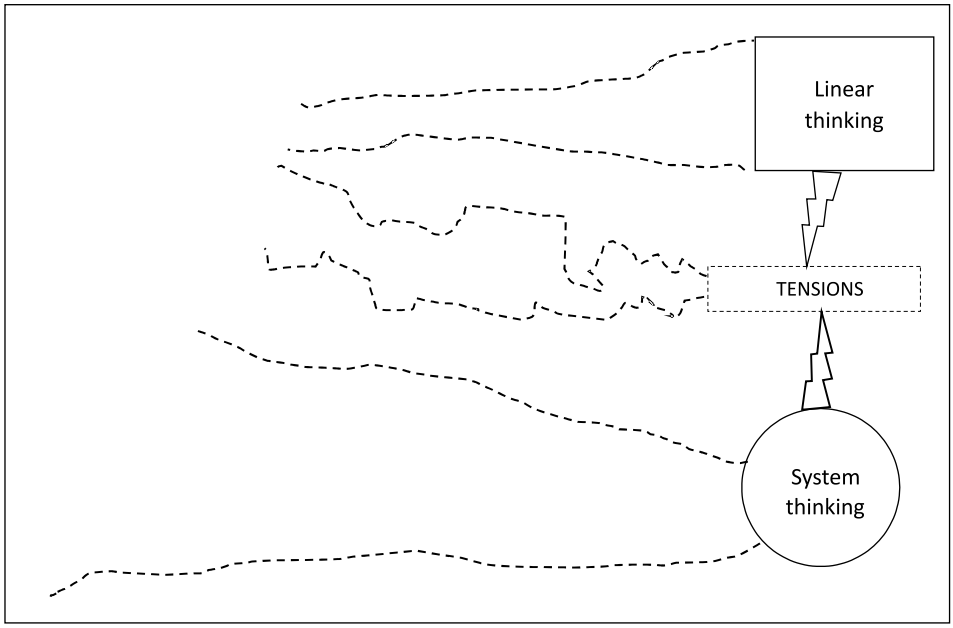

Figure 5. *The scope of unconsciousness desirable effects of system and linear thinking.*

Simultaneous systems and linear thinking translate into the most desirable effects, respectively, within unconsciousness and consciousness sphere of consciousness activities. Undoubtedly, one should apply such mechanisms that will increase the likelihood of desirable impacts in the sphere of compensation. Elements that result in a compensatory influence in the sphere of randomness must ensure that the system acquires desirable quality features at bifurcation points. Consequently, the dependence describing deterministic chaos (the attractor) must change in the desired direction.

Here, one should take into account first of all motivating workers as a compensation mechanism for disruptive factors. The matter can amount to self-control. If one operates within the sphere of randomness, using chaos theory one can make references to self-control (self-similar and self-organising). Such an assumption corresponds to the concept of fractals. The problem, therefore, involves the institution of the same control measures (in their somewhat abstract sense) in each post. Self-control would bring about the desired effect in the sphere of compensatory results of randomness. It should ensure the attaining of desirable states in the area of accidental behaviours.

In the problem relationship under discussion, one should also remember about the compensatory properties of the culture of an enterprise. Thus, there are values, norms, patterns (standards) that stimulate those behaviours of members of the organisation which are essential from the perspective of accomplishment of objectives adopted. Manifestations of organisational culture are symbols, manners of communication, rituals, myths and taboos. This category also comprises such elements as: respect for conservative values, attention to internal balance (physical/mental condition), focus (meditation), lifestyle, family status, initiating and maintaining acquaintance on a socially and business footing.

The greatest intensification of the accidental sphere of compensation occurs at the operational level, but it also occurs at other levels.

In the non-specific defence subsystem, the compensatory influence resulting from genetic staff features (psychological and mental qualities) overlaps with the compensatory influence of the organisational culture. One can identify different organisational genotypes by evaluating their capacity for compensation.

If the disruptive factor penetrates the barrier of non-specific defence, it is confronted with the next one, that is, the fuzzy specificity subsystem.

The fuzzy specificity subsystem

The fuzzy specificity subsystem is partly created by directed activities, but they are not strictly determined and they are still characterised by a certain degree of randomness. This randomness is fuzzy. That is, one cannot create an arbitrary border, separating incidental activities from those already determined. Therefore median values are admissible.

Consequently, the adjustment to an interfering disruptive factor results partly from oriented and determined activities, and partly from accidental activities as unconscious effects of oriented and determined activities. Reasoning in this way, one can describe the category of a centre as one that generates fuzzy specificity. In other words, the impact of a centre creates foundations for the occurrence of a fuzzy specificity.

Within the centre, the elimination of disruptive factors usually occurs. This may mean change in strategic approaches, i.e. particularly a change in the sector of operations, change of scale of operations, cessation of operations, etc. However, one should remember that the elimination of the disruptive factor is not tantamount to its actual annihilation. It must be taken into account despite the adoption of new premises.

The elimination of disruptive factors constitutes the most direct form of interference into the controlled process and prevails at the central level. The centre sets the objective and indispensable resources for its accomplishment, with organisational activity having a strategic nature. So the most effective and radical manner of counteracting disruptive factors in this sphere is their elimination. The principle of elimination of disruptive factors amounts to a direct influence with administrative measures in the form of orders, bans, restrictions, judgments and other forms of interventionist influence as well as on changes of objectives.

Yet the centre in its own activities is not in a position to take into account all the necessary variables. Top-down management cannot effectively decide about detailed issues. As a result, the activities of the centre, though determined, in fact yield a fuzzy effect. The fuzzy effect results from the fact that the activities originating with the centre only partly bring about the required results, and partly their desirable influence can be associated with randomness. To a large extent, it is the way it is because elimination is tantamount to a repressive character, limited flexibility, limited extent of adaptiveness, relatively high costs, insufficient topicality, insufficient coping capacity, etc. (Skyttner, 2005; van Gigch, 1991). Often, the result of it is not in agreement with the intention. It is so because the disruptive factor cannot become eliminated completely. Ostensibly removed, it may recur, in compliance with the concept of hysteresis, while cumulating the threat. One should underscore the fact that elimination is fundamentally at odds with control.

Generally speaking, elimination should be associated with the interference the centre, which usually causes the effect of fuzzy specificity. Given the use of the concept of the centre, one should explain the way it is understood in the line of argumentation.

A centre is a spatially and temporally isolated set of activities consisting of a choice of disruptive factors, and to effecting – by the creation of appropriate conditions – compensation and elimination of their resistance. A centre constitutes itself through selection.

A centre is supposed to operate dynamically. It should continuously implement activities that consist in the elimination and compensation of resistance.

Activities of the centre should occur with reference to disruptive factors. They are, among others: diligence, importance, frequency of occurrence, regularity of occurrence, recurrence, intensity of impact, speed of penetration, invasiveness (manner of de-aggregation of the disruptive factor within the organisation).

The activities of the centre lead to the de-aggregation of disruptive factors. It should be noted that at this stage, de-aggregation already occurs in a conscious manner.

It should also be noted that on the proposed approach, activities occur in a system that combines approaches from the centre outwards and towards the centre.

The role of the centre can be reduced to navigating, in other words, to setting general frameworks for dealing with disruptive factors. Developing conditions to deal with disruptive factors constitutes the basis for a determined and directed compensation of resistance. It takes place within the framework of the specific defence subsystem.

The directed (specific) defence subsystem

The last barrier in which the disruptive factor yields to compensation and elimination is the specific defence subsystem. It involves activities of a strictly oriented, determined and conscious nature. They should occur within functional areas (units). In general, the most favourable conditions for compensatory activities exist within the framework of functional units.

The functional units have a greater capacity for the inclusion of observations concerning the environment in the control process. Compensatory activities therefore have such advantages as: flexibility, adaptiveness, low cost, speed, continuity, relevance (in terms of time, space and the measures applied).

As a rule, one can talk about the primacy of compensation over elimination, with the provision that compensation prevails in the functional units, whereas elimination – in the centre. This comment has a wider significance and applies to a number of economic and social systems.

If compensatory and eliminating activities prove to be insufficient, the disruptive factor will lead to the state tantamount to the demise (end of existence) of an organisation. The following functional areas are dedicated to the compensation and elimination of disruptive factors: finances, R&D, production, marketing, logistics (in the sense of activities).

At the level of functional units, staff must be motivated and have an opportunity to work on their own initiative. Functional units must take compensatory actions respecting the rules established by the centre. Compensation should therefore occur on the basis of immediate feedback. It must result in an immediate correction of deviations at the earliest possible stages of their appearance.

The functional areas should operate smoothly in order compensate and eliminate disruptive factor. This, in turn, translates into creating a cross-functional, cross-departmental teams. It means rather than having an organisational structure for order management where every activity is separated with responsibility for each activity fragmented around the organisation, instead these activities should be grouped together both organisationally and physically. Instead of seeing each step in the process as a discrete activity within the functional units, they are clustered together, bring the people involved together as well – ideally in a single open-plan office in the control towers. As a result, the order fulfilment group might comprise commercial or sales office people, credit control and accounts, the production scheduler and transport scheduler – indeed anyone involved in the crucial business process of converting an order into cash (Christopher, 2011).

Because all the key people in the order fulfilment process are brought together and linked around a common entity – the order – they are better able to compensate and eliminate disruptive factors. Order cycle times can be reduced as teamwork prevails over interdepartmental rivalry. New ways of dealing with problems emerge, more non-value-added activities are eliminated and customer service problems – when they arise – can quickly be resolved, since all the key people are in close connection with each other. To eliminate and compensate disruptive factors requires a logistics-oriented organisation.

The form and figure of the disruptive factor

The observations made so far should be supplemented by those that refer to the form of the disruptive factor. Initially, the disruptive factor appears at a high level of generalisation. In a way, it is abstract in quality. This can be a tendency, a (demographic) trend or crisis 2008+. The impact of crisis 2008+ could manifest itself by the fast and furious effects called contagion effect, and transmitted by channels including currencies, money market, capital market, derivatives, supply chain and driven by emotions and lack and/or insufficient collateral of transactions. The impact of crisis 2008+ translates also into deferred effects. They are the result of causal loops occurring between various contagion channels and their drivers.

The disruptive factor, having broken through external barriers, faces the non-specific defence barrier. At this point, its impact materialises. Existing trends begin to manifest themselves in the activities of the organisation. The earlier they are detected and related, the greater the capacity for response. It should occur at the level of general regulations. In this sphere, the disruptive factor is intercepted. Hitting the specific defence barrier, the disruptive factor becomes de-aggregated in the sense that it is directed at individual functional areas.

The Figure 6 contains a visual representation of the considerations so far characterising the evolution of the disruptive factor.

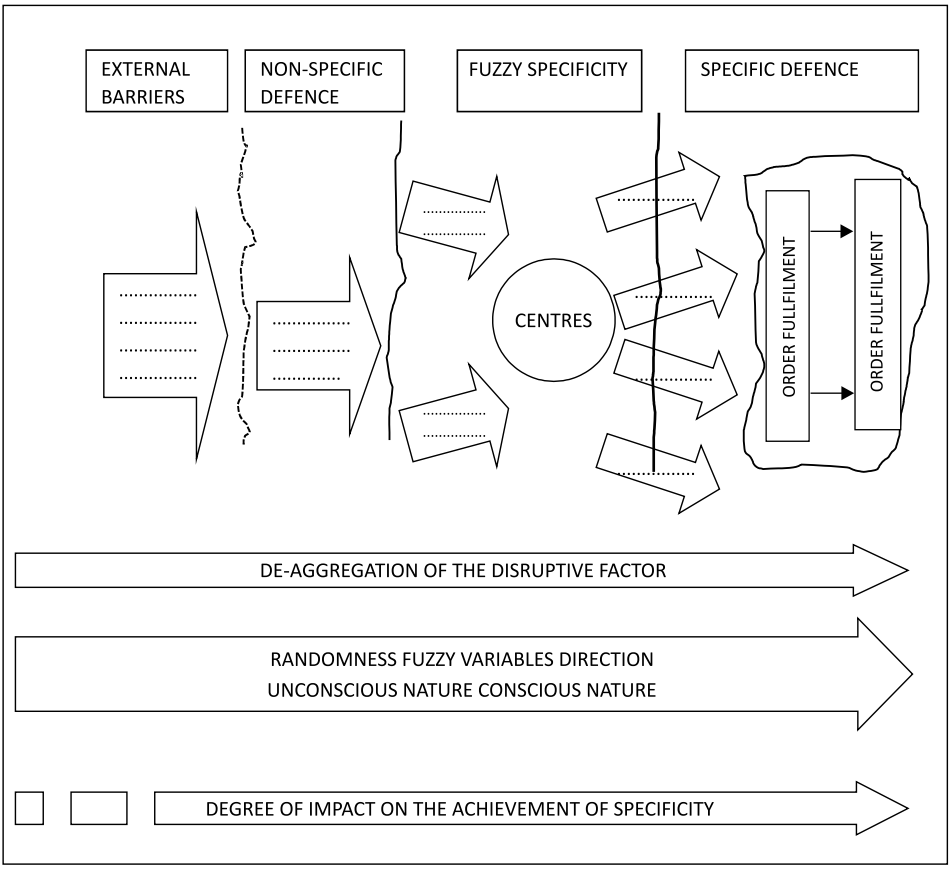

Figure 6. *Visual representation of the evolution of a disruptive factor.*

The memory subsystem

The behaviors that build up the resistance system sourced from the memory subsystem. The patterns of resistance compensation constantly "circulate" which means that knowledge is continually created, codified and evaluated. Even existing solutions written in permanent form, are modified in such a way that there interpretation of individual employees, teams or the entire organization, and this interpretation is evolving. Thus, even in this original sense it is created knowledge (in other words compensation patterns). Knowledge is created on the basis of the learning mechanism.

Some patterns of resistance compensation translate into actions. This comes from the conditions depending on the psychological, sociological and organizational interpretation of information, and vary on articulated intention.

From the learning perspective it does not matter whether the information is used in action. Learning organizations can be detected by analyzing a set of potential. rather than actual organizational behavior.

The circulating of compensation patterns and the idea of memory subsystem is illustrated on the Figure 7.

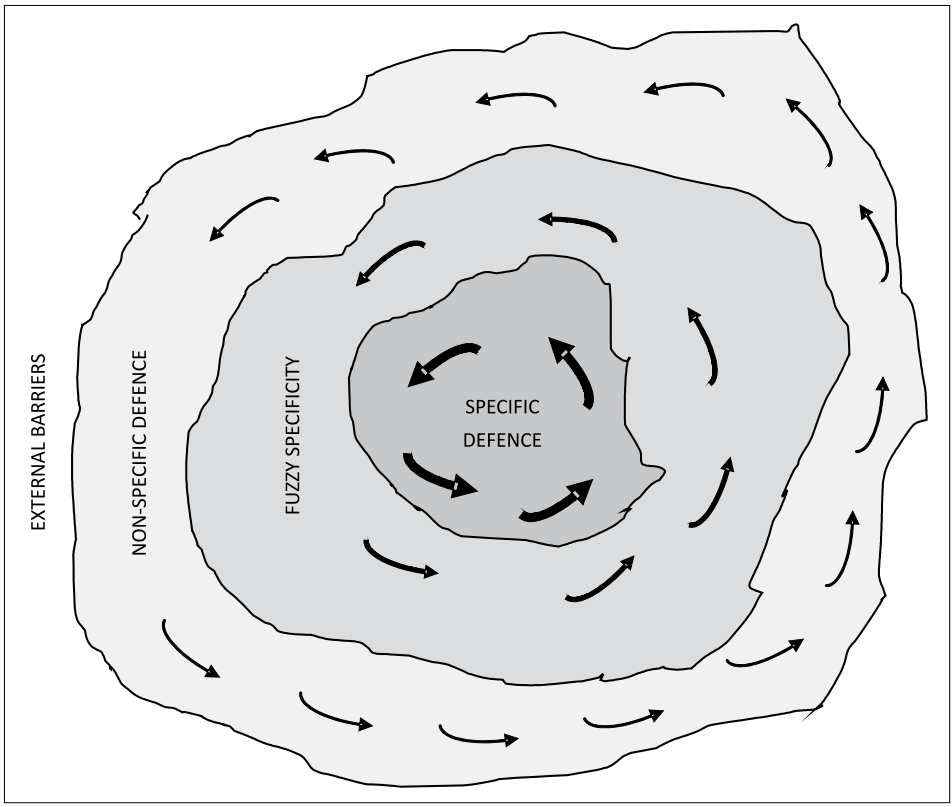

Figure 7. *Circulation of resistance compensation patterns.*

It is reasonable to mention that originally circulation patterns depends on the capacity and distribution of intelligence. Hence, with the resource intelligence, its distribution will decide on establishing, codifying, eliminating knowledge. Creating links between parts of the organization with different levels of intelligence determines the circulation patterns of compensation.

It should also be noted that the assumption about the impact of information – as indicated – at least a subconscious action, the subsystems, memory system is related directly to the fuzzy specificity and defence specific. Other subsystems award-

ed on the basis of the criterion of specificity concern already unconscious effects of the measures taken.

Flexibility and resistance system

From the point of view of organizational science, the resistance system could be perceived in terms of flexibility (de Leeuw & Volberda, 1996; Volberda, 1997; Englehardt & Simmons, 2002; Hatum & Pettigrew, 2006; Grewal & Tansuhaj, 2001; Krupski, 2007). The alignment of remedial measures to disruptive factors could mean the implementation of both lean and agile solutions (Gaudenzi & Christopher, 2015). The resistance system raises the role of metacognition and its impact on response towards the disruptive factor. It links the patterns of thinking with flexibility. Metacognition could be perceived as the crucial organizational resource for ensuring flexibility.

4. Practical implementation

The participatory and non-participatory observations over the period of 2008–2015 supported by numerous face-to-face interviews of the small companies located in Kraków were the attempt to verify theoretical assumptions staying behind the resistance system. The company is present in the real estates, dental and hotel businesses.

The external barriers subsystem

The maximal reach of the external barriers is driven by the behaviors of the leader of the organization and simultaneously the main shareholder of the company. Its personality and way of thinking is the main force behind the resistance of the company towards disruptive factors. The leader disposes about enormous ability to find business opportunities. What is more, the ability to simultaneously think in systems and linear manner, translates into broadening the external barriers of organization. Systems thinking and calculating of business venture profitability result in proactive behaviours.

In terms of psychological qualities the leader disposes about over average patience, very discrete emotional expression, compromise seeking approach to resolution of conflicts. What is more the leader dispose about the following capabilities: understand the logical connections between ideas, detect inconsistencies and common mistakes in reasoning, solve problems systematically, identify the relevance and importance of ideas, reflect on the justification of one's own beliefs and values.

Whilst the leader put much emphasis on thinking manner, the other main shareholder of the company is responsible for operational tasks, thinks linearly, and limits the external barriers of organization. The sales managers both in dental clinic and hotel tend to expand the reach of external barriers by applying the unconventional techniques of winning new consumers. The operational staff in hotel follows the linear thinking. All other activities are outsourced. As a result, the ability of organizational members to impact the business partners, their thinking and acting translate into the scope outlined by external barriers.

The non-specific defence subsystem

The randomness sphere of resistance compensation is an effect of strong self-control, self-organising, self-discipline of the leader. It is accompanied with linking of systems and linear thinking. Sales of the school trips business, and establishing dental clinic; hotel building, and are examples of bifurcation points.

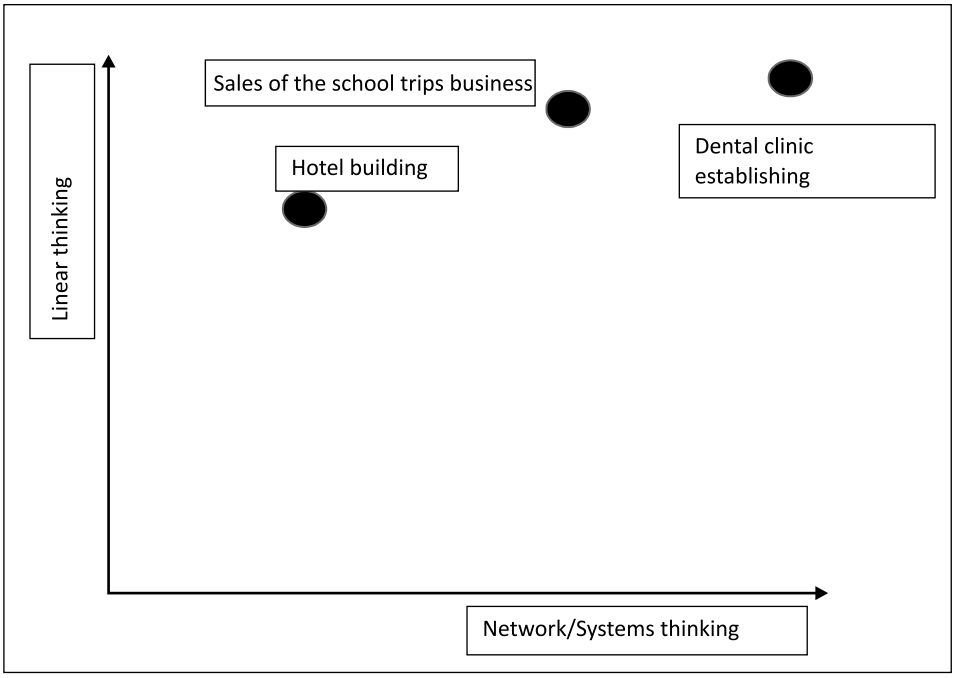

Figure 8. *Visual presentation of bifurcation points.*

The culture of an enterprise has highly compensatory properties. It is very open, creative, seeking new ideas, pragmatic. However, it is also too stingy, too savings oriented. What is more, it is fuelled with histories which are within the tight line between truth and lies. Confabulations that are dedicated to gain information from peers are the constant component of the enterprise culture.

Manifestations of organizational culture are stories from the business biography of leaders, not direct, highly contextual talking, and very casual dressing code.

The fuzzy specificity subsystem

"Sit and wait" is the approach applied within the fuzzy specificity subsystem. Initially, they observe the environment, and wait until the problems will be solved. In other words, they still wait for the unconsciousness effects of consciousness activities. They act proactively, and avoid eliminating of disruptive factors. The role of the centre is navigating, in other words, setting general frameworks for dealing with disruptive factors.

The directed (specific) defence subsystem

Apart from staffing, sales and marketing all other functional activities are outsourced. The leader supports the marketing and sales activities. Operational excellence, cost savings are the main premises for functional units. Compensation occurs on the basis of immediate feedback. It results in an immediate correction of deviations at the earliest possible stages of their appearance. The leader links various functions and control over the cross-functional work. The visualization of the identification of resistance system in observed company illustrated the Figure 9.

Relations of memory system and specificity

The very characteristics attribute of the memory system is sourcing from the network of people coming from the various environments. The leader discusses with them in a detailed way problems of the company. The personal relations are mixes with business problems.

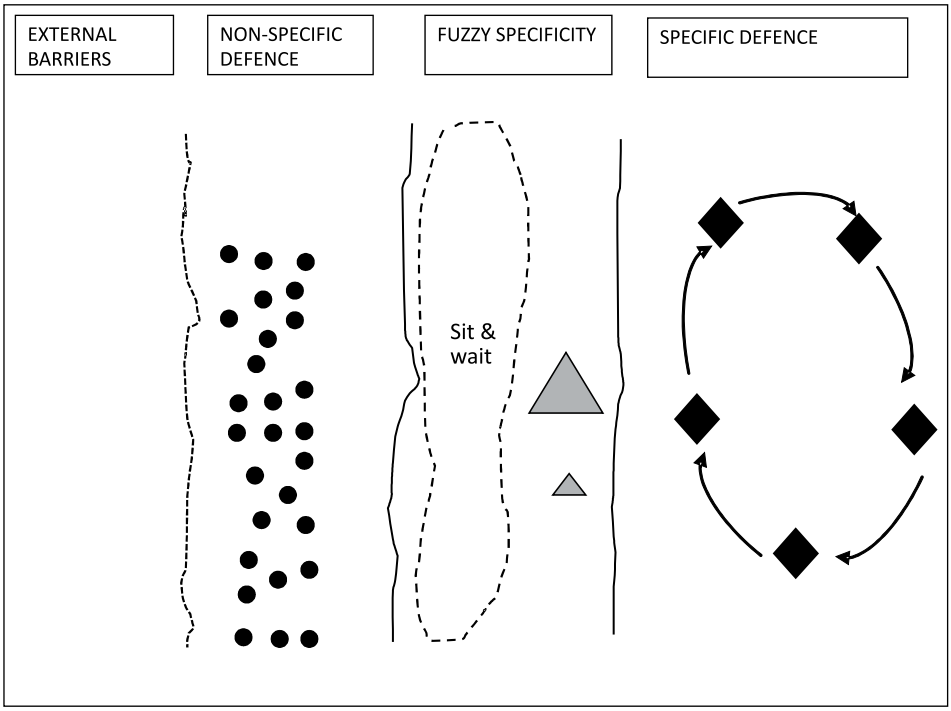

Figure 9. *Visual representation of behaviour patterns within a resistance system in the observed company.*

Table 2 *The network of information/data – the main component of the memory system*

Architect	Operational information /data
Entrepreneur	Operational and tactic information/data
Supplier	Operational and tactic information/data
Entrepreneur	Operational and tactic information/data
Lawyer	Operational and tactic information/data
Brand manager	Strategic and tactic information/data
Entrepreneur	Operational and tactic information/data
Entrepreneur	Operational and tactic information/data
Brand manager	Strategic and tactic information/data
Academics	Strategic information
Financial Analyst	Strategic and tactic information/data
Financial Analyst	Strategic and tactic information/data
Entrepreneur	Operational and tactic information/data

The logic of data and information sourcing and transform in it into knowledge is on the Figure 10.

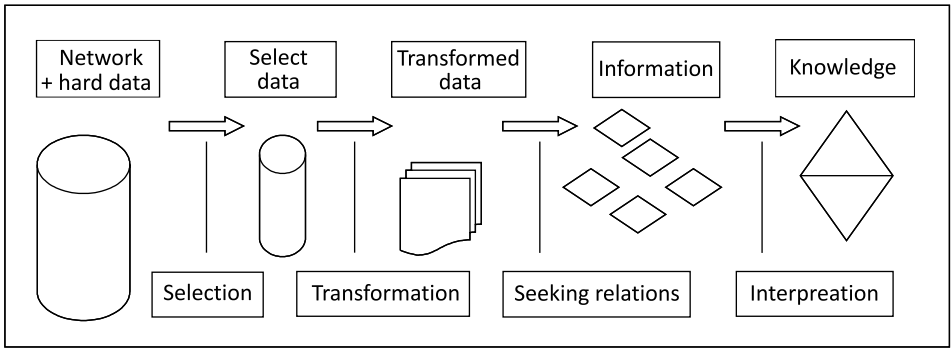

Figure 10. *The logic of data and transformation sourcing and transforming it into knowledge.*

Discussion and conclusions

Within the analytical concept, it was assumed that risk control occurs through compensation and elimination of resistance of a disturbing factor. The external barriers subsystem, the non-specific defence subsystem, the fuzzy specificity subsystem and the target-oriented (specific) defence subsystem constitute the resistance system of the company.

The author made also efforts to identify the system in business practice within the activities of one of the small companies. This practical exercise underlines the role of external barriers and non-specific defence subsystem in compensation of resistance of disruptive factor. What seems to be interesting, the fuzzy specificity subsystem plays minor role both in compensation and elimination of resistance of disruptive factor.

Some issues should be further discussed. How tensions between systems and linear thinking impact resistance compensation patterns? Who should have the ability to systems thinking in organizations? How the tensions between linear and systems thinking impact the information flow? How metacognition could impact the circulation of resistance compensation patterns?

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