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Cooperation or rivalry? Employee's effort and appropriate knowledge distribution as key elements for maximizing the profit of the firm

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Abstract: This paper is studying the evolution in the perception of the knowledge distribution and intra-firm operation and the way these factors affect the effort of employees. (organisational structure, back-office and front-office processes, etc.) . The question this paper want to explore is whether “the employees shall cooperate or compete with each other and in what extent and how to minimize the negative effects and leverage the positive outcomes of both extremes”. This paper argues, that for specific group of the firms and professions, a rivalry among workers is more advantageous than for other and that the distinction is in the distribution of the knowledge in the firm at the top/centre/bottom level. The discussion at the end of the paper shows the practical applications, that firms might apply a right mixture of monetary and non- monetary tools to maximize the employees effort through simplification the knowledge flow and a case study is made, where the inflow of the knowledge and skills together with rising the level of rivalry are examined on leading entertainment group active in 3 Central- European countries.

Key words: competition, effort, incentives, knowledge distribution , rivalry

Introduction

The company is the basic “building unit” of a national economy. The significance of the knowledge and interpretation of the processes and mechanisms, which occur within the company are the crucial elements for profound understanding the single aspect of firm’s behaviour towards outer space.¹

1. The theoretical and methodological note

The headstone of economic science is the Smithonian concept of invisible hand of the market, which leads the individual to those activities, for which it has the best presumptions to succeed. It may be said, that his concept is valid in today’s perception both for individuals as well as for the companies of any legal forms.

Neoclassical economics does not include the issue of incentives within companies – it deals with them by the same insight as with individuals – that is like “black boxes”, which adapt to the market, its changes and seek for them selves the most appropriate conditions. On the other hand the so called Austrian economy is more focused on microeconomical approach has interesting findings but lacks the interconnection with empirical situation. Thus the difference is to be explained from methodological point of view.

As the methodology, the inductive conclusions have long been applied, that they provide the guideline to explore the underlying theories.² However these days it seems that the theories in general meaning are more the implications of the ones’ intuition and imagination than the result of the judgment. Inductive conclusion might be false, as its premises might be correct (as the conclusion might be wrong). Typical application of inductive approach might be shown at the example of the theory being verified by experimental findings. On the other hand, from deductive conclusion we might summarize, that it is not possible, when all the premises are correct to be the conclusion wrong.³

Generally, the economics as the social science, which is uneasy to fit into mathematical models, is for validation of its theories and principles using more inductive than deductive approaches – it means ex post analyzing of empirical results and experimental findings. If the knowledge can only be acquired by perception, then economics and other social sciences might be an empirical, ex post science of human action. Austrian philosopher Hülsmann claims that “all knowledge that a subject ever receives is acquired ex post – i.e. after perception. Yet the spurious subjectivists just

¹ The conceptions of “the company” and “organisation” are not equivalent. Organisation is superior concept, including trade companies, non profit companies, formal an informal civic associations etc. The concept of the company is the set of tangible and intangible, as well as personal parts of entrepreneurial activity, meanwhile the entrepreneurial activity is understood as constant activity undertaken by entrepreneur at own responsibility with aim to achieve the profit. For our purpose, the concepts of “the Firm” and “the Company” will be treated as equivalent.,

² Example of the inductive statement: All firms we have analyzed are growing in term of turnover. Conclusion: All firms, if analyzed or not, are growing in term of turnover.

³ Example of the deductive statement: All BMWs are made in Germany. All cars made in Germany have airbags. - Conclusion: All BMWs have airbags.

claim correctly that there can be no present experience of future events “.⁴ However, the rivalry between these two approaches is getting through the whole economics, where the right mixture of economic tools, politics etc is examined everyday by millions of individuals all over the world. In this paper, all premises are built on Austrian (deductive) methodological approach; however, some findings are to be supported by empirical experience of the author as well. Boundaries of the knowledge are moving not because of the individuals, who are proving the correctness of the established theories but because of those, who are denying the existing theories.⁵

2. The review of approaches to the firm theory, incentive theory and knowledge distribution

The fact, that the firm is more than just the black box, that is has its boundaries and inner processed was described at first by Coase (1937). He pointed out, that the price mechanism as the “alocator” works especially outside the firm; that inside the firm its function is weakened and that the main reason for establishing the company and its profitability are the “costs of pricing mechanism” – that is the transaction costs.

Inside the firm, the production factor does not have to “set” the contracts with other production factors and the amount of the costs linked with establishments of the contracts is afterwards affecting the size of the firm. Coase has thus raised the interest of the economists in the analysis of the firm “from inside”. Simon (1962) is treating the organisation as the phenomenon, which consists of mutually interconnected systems and is comparing it to live organisms. Becker (1974) is dealing with motivation and utility function of individuals⁶; at the example of family he is pointing out, that individuals are rather submitting to the family “needs” than the needs of selfishness.

Oliver Williamson, the well known “transaction costs economist”, broadens the Coase’s theory of the firm in such aspect, that the relationship while signing the contract between buyer and seller will be negatively affected by opportunistic and inefficient behaviour in situations, where the huge sums of surpluses are ex post divided due to disability to sign the total contract.⁷ Aghion, Bolton (1977) claim, that the contracts between two subjects, buyer and seller are made due to prevention of entering the third party into the relationship. Grossmann, (1986) analyzes the vertical and horizontal merger of companies from contractual transaction costs point of view and differentiates two kinds of rights, which might be subject of an exchange – specific rights and residual rights. When it is costly to list all specific rights over assets in the contract, it may be optimal to let one party purchase all residual rights. Ownership is the purchase of the residual rights: Firm 1 purchases firm 2 when firm 1's control increases the productivity of its management more than the loss of control decreases the productivity of firm 2's management.

⁴ See more in Hülsmann 1997

⁵ Karl R. Popper, The Guinness encyclopedia, Guinness Publishing, London, 1990

⁶ Among other their characteristics by e.g. enviousness as well

⁷ Williamson (1979)

In 80's, the issue of relationship between management and owners is treated more precisely than ever before. Holmstrom (1982) applies model principal-agent (P-A) into the firm, studies the moral hazard and information asymmetry and concludes, that specialisation is beneficial only from technical perspective, because otherwise the agent is gaining the information superiority over the principal and therefore the author proposes the rotations of working positions.⁸ Tirole (1986) widens the concept of P-A model by the supervisor - inspector collecting the information and helping the owner to control the manager, who is doing the productive work. He is pointing, that the informal coalitions are establishing, where the supervisor tends to behave like the client's advocate.

Oliver Hart⁹ applies model P-A on the issue of contracts – it is the “synthesis” of Williamson's contracts and Tirole's P-A models, when he is comparing the situation, where the firm is ensuring the input by itself or is purchasing it. The quality of the input depends on monitoring the supplying subject either if it is located inside the firm or outer its boundaries. He is analysing whether it is cheaper to monitor the employees or suppliers and if it helps, when the activities are ensured within the firm from costs' and profits' sharing perspective. He is finding out, that the profit sharing is simpler within one firm than among two or more firms and that the source of the authority in the company is ownership of the assets¹⁰. Regarding the “watching and transaction” costs, Foss 2001 claims that if the worker knows some topics more precisely than the entrepreneur, it is pointless for the entrepreneur to monitor the worker.

The behaviour of individuals in organisation - it means not only in profit aiming firm - in connection with their attitudes to other persons on the same hierarchical model is treated firstly by Akerlof (1983), who at the example of parents' attempts examines, how the children are thought to be selfish. He points that children are lead in a such way, that they should be sincere with short term negative but long term positive effects.

The break through milestone in matter of examined topic, where the main role doesn't play the firm but the employees are the works of P. Baker and E. Lazear. Lazear (1989) points out the questions of cooperation inside the firm between the employees at the same hierarchical level. He is investigating which motivational scheme is for employees more suitable – whether the egalitarian approach to rewards - or competition at which conditions is for the firm more beneficial, when the employees do cooperate or compete with each other. The more the differences are outstanding, the more these effects are demonstrated.¹¹ Baker (1987) is summarising the single ways of motivating the employees on profit¹² but he is lacking the more precise elaborating of the negative effects of single types of motivation.

⁸ Citibank is well known, that it rotates its directors of single geographical units in several year cycles.

⁹ For example Hart (1995)

¹⁰ Foss 2001

¹¹ He is dealing with two kinds of employees personalities: – hawks and doves. He is comparing the hawk and dove firms, where hawk firms are trying to persuade the doves to come to work for them and hawks are trying to get to dove's firms but the doves are avoiding the hawks firms.

¹² Baker et al (1987): It is beneficial, if the employees on the same hierarchical level do have the similar wages because otherwise this is damaging the relationship among them. Rivalitarian way of rewarding is the appropriate for those firms, which are fast growing than those, which are stabilised. Rewarding based on promotion is causing the problem, when the firm is stabilised and the working places ”on upper level” are occupied already. He is pointing out, that supposing the motivation of the employees is based on

Other economists have reacted on articles of Lazear, Baker and other. Itoh (1991) is pointing out on his econometrical model, that the individual is willing to cooperate, unless he has nothing to loose – it means if the premiums for extraordinary achievements are not high and if this “help” to the colleagues is coming back to worker from his colleagues as well. Furthermore, he is proving, that in case the work is boring as the worker works harder so the marginal utility is sinking and meanwhile his marginal product is reaching negative values. He is analysing the individuals’ behaviour at the same hierarchical position from the perspective of “hiding behind the mass”. He is pointing out, that the team work is optimal, unless the positive effect from black passenger¹³ prevails the negative effect¹⁴. Itoh lacks in his model the analysis of creation of alliances within the groups. Encinosa et al (1997) is implementing the sociological term „group incentives“ and „group norms“, even if these have been treated by other economists without exact highlighting.

These works have been followed by numerous empirical studies, which attempted to describe the effect of motivational schemes (various kinds of rivalry versus small differences in rewarding) on productivity, corporate profit etc. Ichniowski et al (1995) at the example of steel producers from the US proves, that the more liberal - i.e. “free” management of the employees, their various trainings, social confidence and motivational schemes are leading towards their rising productivity.¹⁵ Bandiera (2004) is comparing on the example of fruit farm in England two rewarding models: – one based on number of pieces of picked up fruits, second based on relative placement among the workers. In case of relative rewarding the performance is rising by 50% at the same level of quality of the output. Grund et al (2005) at the example of Danish companies is demonstrating, that the firms, which have higher standard deviation of salaries are producing higher value added. Carpenter (2005) used Japanese fishermen to show, that the incentives to competition lead to lower level of cooperation among them and that the final effect might be contra productive. The cooperation between the teams in research is described by Adams at al., who is finding out, that information technologies are essentially making the cooperation easier and that the teams lead by private subjects are cooperating much more and are reaching better results comparing to those, which are lead by public bodies.

In this paper the theoretical concept is introduced, that describes the relationship between hierarchically equally placed employees. The majority of authors have been dealing with the models of incentives in the industries, where the manual work was the

tournament and when there are groups of individuals, which are better on lower than higher managerial positions, then the fact that the best people from lower management are moving higher is not optimal for the company. Motivation by the way of gaining the partnership in the firm after certain period of time is correct for firms, where the creativity, human capital and business environment are crucial. Profit sharing is reasonably widespread in the US and it is pointing out, that it is also very effective - meanwhile because it is supporting the self monitoring with the each teams. Ranking in the company is causing the conflict in the company – majority of them thinks, they belong to the over average group. The rule “the bigger firm the higher salaries at the same position” is valid as well.

¹³ Author is not working with negative marginal product

¹⁴ The fact, that the individual is parasiting on other members of the team.

¹⁵ The rivalry has worked also in Pennsylvania steel producers US Steel in early 20th century, where the increase of the effort of Workers was lead by the fact, that previous shift of Workers was more productive

crucial element, these days, when services are producing the prevailing proportion of GDP, the intellectual work has to be taken into account in much broader scope.

3. Note on the role of knowledge in a firm

Knowledge of its self is a quite abstract conception. Knowledge might be learnt consciously or unconsciously, might be distributed or kept private, might develop or stagnate. Knowledge in the firm should be managed and treated as well as any other resources – with the attempt to maximize its effectiveness. It is obvious that its managing, preserving, developing and exploiting in the firm is subordinated by the profit maximization. Firms, with the aim of quick response on market changes and catching up the current trends, are generally solving the problem, how to make the new ideas to enter the company freely and the obsolete ones to leave – so, that the core knowledge remains, is utilized in a most efficient way and the firm thus keeps the advantages on the market.

The traditional concept of creative destruction, primarily introduced by Schumpeter for an economic environment, might be applied for intra-firm environment as well. Based on Schumpeter's observation, there are 4 stages of evolution, which might be described as following: (1) System of the routine behavior (2) is corrupted by innovation initiative of a small amount of powers, (3) which are sooner or later leading to equilibrium and to new routines (4) and the story goes on.¹⁶ Schumpeter claims that behind these cycles there is a pair of endogenous powers: α and β operator. α -operator means new types of routines and is establishing the misbalance, β -operator removes the old routines and leads the system to equilibrium. (Andersen 1996, pp. 32-36). From the firm's perspective α -operator, which is misbalancing the equilibrium, is coming from the inside of the firm, from their employees or management. On the other hand, the β -operator is coming initially from outer environment, goes through competition on the market and through the competitive advantages, and after the market evaluates the advantages of the firm in specific issues, these shocks are coming through the financial results (price mechanism) back to the firm, and are pointing at the state, in which the equilibrium might be achieved. This Schumpeterian approach is in line with the approach of Austrian or semi-Austrian economists (e.g. Kirzner, Foss and Hayek) who are describing the role of prices as the most important „knowledge“ on the market. In this case, the information about level of price is worthless without knowing the consequences and other coherences – i.e. “ β -operator”. Edigi and Narduzzo (1996) show, that the change of the routines leads to temporary decrease of the outcome of the firm into suboptimal levels, however, they are not using Schumpeter's terminology but (when α -operator is in charge), as they claim, that the new routines misbalances the coordinating level of the firm as well as the level of individuals.

Hayek (1945) divides the knowledge into two categories: (1) scientific knowledge and the (2) knowledge of particular circumstances of time and place¹⁷. Scientific knowledge can be distributed from one subject to another or being centralized in databases, centers etc., however, the specific knowledge is very costly to transfer, aggregate or summarize. Furthermore Hayek claims that every individual has the

¹⁶ Andersen (1996)

¹⁷ Jensen, Meckling (1995) call them specific and general knowledge.

knowledge superiority in some respect over all other individuals because he possesses unique information.¹⁸ Besides Hayek's division of two kinds of knowledge, one phenomenon has to be emphasized: the scientific knowledge might be got from other party via purchasing, exchange or violence, but the knowledge of particular circumstances of time and place cannot be gained by third party without true approval and cooperation of the disclosing party.

There are various approaches, which are pointing out the conclusions, that in some way influence the knowledge distribution in the firm¹⁹: The concept of Principal agent (and information asymmetry), theory of incomplete contract, theory of decision making distribution, theory of property rights and theory of incentives²⁰. These concepts are described in following paragraphs.

According to Garrouste there are three ways of analyzing the learning process: 1, strategic interactive individual learning (game theory) i.e. the change of behavior in context of interactions. 2, Organizations are learning. Their adaptability depends on the level of centralization²¹ 3, evolutionary learning. Finally he adds, that the individuals learn, because they are confronted to changing environment, the organizations learn because of the interaction of the people in the organizations and that individuals learn without knowing so.

Hülsmann (1997) on example of the knowledge and property claims, that "it is not (awareness of) prices, that coordinate the actions of sellers and buyers; prices are the outcome of coordinated action, not its coordinators. It is property, rather than knowledge, that coordinates the separate actions of different people" and that virtually no activity "can be without at least some property". According to Hülsmann (1997) it is not the knowledge, but the entrepreneurial judgment, that lies behind the market process. The issue of knowledge in certain time period describes Hülsmann that the knowledge is never a scarce resource as the selection of knowledge depends upon entrepreneur's attempt to use his property in the most productive way known to him.

3.1 Knowledge distribution in the society and in the firm

Based on Hayek's argumentation²² it is clear, that the decision making should be generally distributed from centers to the individuals where a specific kind of the knowledge, the "knowledge of particular circumstances of time and place", is accumulated. The focus should be taken rather on this type of the knowledge, than on the scientific knowledge, because scientific knowledge can be distributed from one subject to another through the process of teaching and learning and the "knowledge of particular circumstances of time and place" can be transferred efficiently only with true willingness of both parties – teaching and learning.

¹⁸ Hayek (1945) H.9

¹⁹ E.g. Garrouste 2001

²⁰ The theory of incentives is still not recognized by some authors. Here was added by the author.

²¹ see Marengo 1992

²² Hayek 1945

Thus, the attempt to centralize the decision making on the level of whole society leads to inefficiency, however, the argumentation about the distribution of the knowledge and decision making on organization (intrafirm) level is more complex. On the other hand, based upon the assumptions of Coase, some activities should be centralized in some extent in the firm and not “being left” to the will of the managers. There are some arguments, which are against application of Hayekian’s decentralization in the firms²³:

1. The “control of the center” is in case of the firm based on ownership of the shareholder of the production factor. Central government does not own all resources - rather it controls and manages the economy – furthermore the phenomenon of “responsible” care with the property (of public) is arising as well.
2. Need for urgent coordination - sometimes the action from center is less harmful than delay or no action²⁴. However, he is not specific on how this might be applied in real life with presence of lobby and interest groups etc. on level of market
3. Need for decisive information. In the firm there should be the person, which is collecting the most decisive information to be capable to decide
4. Economies of scale / transaction costs/ “if the worker knows more than the entrepreneur, it is pointless for the entrepreneur to monitor the worker”²⁵

According to Jensen and Meckling (1995) the optimum depends on the marginal costs related to either to acquiring the knowledge by the decision maker or the cost related to acquisition of decision rights. They claim that “The cost of transferring the knowledge depends on factors such as the nature of knowledge, organizational environment and technology” however, the term organizational environment is too broad for such definition, as it also includes the organizational structure, which is by him treated as well and therefore there might appear the cycle of implications. Under the term nature of knowledge we shall understand the broadened Hayeks’ definitions of the scientific and particular knowledge. The theory of incomplete contract claims, that the relationship while signing the contract between buyer and seller will be negatively affected by opportunistic and inefficient behaviour in situations, where the huge sums of surpluses are ex post divided due to disability to sign the total contract.²⁶. Oliver Williamson broadens the Coase’s theory of the firm in such aspect with the existence of transaction costs, which are the real barrier to be able to “sign the total contract” – relationship in the firm are very complex, they need to be flexible in some aspect to be able to cope with changes on the market but they still need to “protect” both contracting parties.

3.2 Information asymmetry, delegation and role of knowledge

With the higher complexity of the economy, the increased stress on specialization is being experienced; in the economy at the beginning of 21st century more than any ever

²³ Foss 2001

²⁴ Foss 2001

²⁵ Foss 2001, pp 13

²⁶ Williamson 1979

the role of individuals with scarce knowledge is highlighted. These individuals are from their perspective in more favorable relationship to the firm and more and more often are being served from outside the company.²⁷ For example the process of outsourcing might be perceived via Hayek's methodology as a process of delegation of the execution to the levels with specific knowledge. Mises (1949, p 303) emphasized as well that "entrepreneurs are not omnipresent..." and thus the decision rights in the firms shall be allocated to lower levels.²⁸

Coming back to basics of Hayek, delegation of decision making shall be done from level of entrepreneurs to the managers' and to enable the control of them afterwards. Jensen and Meckling (1995) claim that linked with this process there are appearing "the costs of transfer" (point 4 above).²⁹ Hand in hand with delegation of the decision right to lower levels, the agency problem with information asymmetry is appearing³⁰. Upon Jensen and Meckling the decision rights shall be delegated in such extent, that the benefits from delegation will prevail the agency costs resulting from poor information. Nevertheless the costs of transfer of knowledge are analyzed by the incentive theory as well, which claims that depending on the character of the storing the knowledge in the firm, the mixture of monetary and non monetary tools might be applied to encourage the knowledge exchange.³¹

3.3 Knowledge and learning process in the firm

There are various societies, which have come through different path in the past, (i.e. they have different culture), interestingly these are currently applying the same or similar "rules" and "best practices" but the outcome of them is significantly varying³². The interaction and mutual contacts between individuals and organizations in the society are thus determined by the environment, culture of the society and so the outcome of the society, mixing specific experience, culture and rules of "n" individuals is always unique. The same approach might be applied for organizations as well: the organization may apply the same procedures, organizational schemes and be in the same industry, but they will always differ from each other in profitability³³ because of different mixture of employees in it which interact between themselves differently comparing to any other organization. At least as long as individuals do differ from each other, the differences on

²⁷ The phenomenon of outsourcing i.e. out placing the selected activities outside the firm has been more popular since last quarter of 20th century. Business segments typically outsourced are not the core activities, but are requiring a significant part of specific knowledge. These include information technology, human resources, facilities and real estate management, and accounting. Many companies also outsource customer support and call center functions, manufacturing and engineering (<http://en.wikipedia.org/wiki/Outsourcing>)

²⁸ Foss 2001

²⁹ Cost of transfer the knowledge to the decision maker – e.g. via learning, IT tools, etc, or cost of acquiring the decision rights.

³⁰ There is a plenty of literature on P-A phenomenon. See e.g. Holmstrom, B.: Moral hazard in teams, Bell Journal of economics, 13 (2), Autumn 324 – 40, 1982

³¹ Pardupa 2006

³² Measured by e.g. level of GDP, its structure, living standard etc.

³³ Author wants to emphasize, that the profitability as the out coming indicator of the firm is never the same for two identical firms, whatever the other „settings“ of the firm will be the identical.

level of societies and organizations will remain. The claim, that the each organization is unique is quite obvious; however, there are some settings of the organizations, which are friendlier towards learning and distribution of the knowledge than the other and it seems that these differences cannot be explained solely by different experience of workers.

As was argued before, there is an interconnection between knowledge distribution and distribution of decision making. The terms distribution of decision making (delegation) within the firm and its organizational structure have to be treated as equivalent³⁴, thus instead of speaking about “effect of organizational scheme on knowledge distribution” the “effect of decision making distribution on knowledge distribution” should be analyzed. Thus the process of learning is collected via past actions and experience. Jensen and Meckling (1995) claim, when analyzing the relationship between knowledge and the decision making distribution, the transaction costs should be analyzed as well.

Hayek (1945) points in his famous article about knowledge, that the more the attempt to concentrate and plan the knowledge and decision making the more problematic is becoming the handling the problems. “...knowledge ... never exists in concentrated or integrated form but solely as bits of incomplete and frequently contradictory knowledge, which all the separate individuals possess”³⁵ He is analyzing the problem of distribution of knowledge on level of society; however, he lacks the approach from company point of view. He claims that “form of decentralization” is the solution of the problem of inaccurate knowledge in the central board. Garrouste 2001 claims, that “the Entrepreneur needs to be the one, who has relevant knowledge to organize the activities of the firm. In other words the more the individual knows the higher he has to be in hierarchy” (and to have executive and decisive rights) and that the unequal dispersion of knowledge and decision making is determining the way the hierarchy is organized in the firm³⁶. Marengo (1992) shows the trade off between centralization with low coordination costs but low learning capacity and decentralization with high coordination costs but high learning capability.

4. Models of incentives

4.1 Business targets

All internal processes and relationship in organization should be submitted to the purpose, to which the organisation was established. Therefore, while examining the internal mechanisms it is crucial to set the single targets, which the organisation wants to achieve, to describe their effect on motivation of single parts of organisation and to build afterwards the model, which will shortly describe and explain the relationships among them and implications on the organisation

Organisations are established with several purposes and the intent of their existence may change in time. Naturally, other targets are being established by founders

³⁴ Organisational structure is the formal or informal statement of the management about the distribution of the decision power in the company.

³⁵ Hayek (1945) H.3

³⁶ Garrouste 2001, pp 13

of non profit organisations and other ones by the private businesses founders, however, these targets can overlap in specific aspects. For purpose of this paper, the private subjects will be considered and dealt with – firms and companies.

The most often business targets are various forms of (1) profit (net profit, dividends, margin, operating profit etc.), (2) business value (value of share), (3) amount of production, (4) level of inventories, (5) volume of sales, (6) market share etc. These are the targets, which are quite heterogeneous because they reflect the strategy of management and shareholders, therefore, their achievement at once may eliminate each other / e.g. market share and profit. The most often is the model, when one target of the company, profit, continuously embodies throughout whole company. The maximum profit means the maximisation of sales (front office job) and minimisation of the costs (back office). Cost minimisation means the effectiveness of the processes, minimizing of the non occupied capacity etc. Usually, the top managers are rewarded by profit, the employees of production units are motivated by overreaching the volume of the production, the traders on volume of sales etc. Profit maximisation is a wide spread, simple and mutually comparable indicator, therefore it is embodied to the model.

Less often there are the other requirements of founders on business, which are established due to other factors: ecology, donation, employment level, tradition remaining etc.

4.2 Incentive description

The firm has given one business target, which is derived into other partial targets throughout its whole structure. The Smithsonian concept of labour division pointed on the power, which motivates the individuals to behave in one or another way - it is the attempt to reach the profit. The employees in firms are behaving in the same way: their utility is the function of the reward they are receiving, therefore they are doing those activities, which lead to maximisation of their “profit” – wages plus non-wage rewards (e.g. employee’s benefits, proudest, public perception) but these can be measured in money units as well. As was already mentioned, in the most case, the owners of the company are interested in profit maximisation but not at any case³⁷, therefore the owners of the companies are attempting to take into account also sustainability of these profits, and for them more important indicator than current profit is the value of the company, that is the present value of the future profits³⁸. **For the purposes of the model we may express the hypothesis, that better fulfilment of the business targets requires higher effort and engagement of the employees.**³⁹

The owners of the firm are thus facing an uneasy task: how to overhand this message to the management and employees so, that they will sustain it in a long term period? As was already stated, today’s economic thought is treating the information

³⁷ This year’s profit might be achieved e.g. by various accounting machinations or at the cost of following years’ profit

³⁸ In usual business case, the valuation of the firms is done by present value of cash flows of the company. The Described way is taking this fact into consideration.

³⁹ The effort of the employees might have various outputs according to their role in the organisation. See previous paragraphs. .

asymmetry between owner and manager with considerably large importance. Tirole (1986) points out at significance of the information, which might be manipulated by three manners: their existence might be hidden, curved or its proof might be disabled. Pelikan (1997) assumes, that rationality is distributed among individuals not by equal way – he is examining the selection of workers to the team and their competences – where the each individual is capable to distinguish only those individuals, who are “constrained” more than himself

In empirical situation, the motivation and stimulation are often used to be treated as the equal terms. The basic difference between them lies in the fact, that motivation is sourcing from inside – it is the internal motion power organizing all effort to achieve the target, on the other hand the stimulation is the set of outer incentives, which affect the motivation of the individual.⁴⁰

There is a plenty of theories, which deal with the issue of employees motivation from this point of view.⁴¹ The firm may build the competitive environment among the workers and to stimulate each individual by the level of reward reflecting to his or her contribution to the company’s value. Because it is evident, that this fact will lead to higher total effort, it will be reflected in employees’ self-improvements and in the attempt to reach the best possible individual result. There have been noted some examples, that both theoretically and empirically support the fact, that higher competitiveness and incentives among the employees leads to higher effort, and their higher effort leads subsequently to higher profits.

On the other hand the mutual competition among the employees leads to limiting the information flow among them and to the lower amount of mutual helping- and cooperative activities. In such situation, the worker will rather not reveal the information to his colleague, which might help the colleague, because the initiative worker would indirectly harm his relative position within the firm. In some cases, also some kind of Tullock’s „effect of rent-seeking in a private company may appear“, where the individual is spending his potential on unproductive activities (deliberately is harming the colleague) and the losses due to not doing the job – the employee is earning more by taking part in unfair actions comparing to the earnings from regular and proper work⁴². The existence of such actions is affected by the opportunities to actively influence the working competence of the other person. As the other negative linked phenomenon of high level of rivalry is the fact, that it may negatively affect the workers willingness to stay in the firm - this leads to higher fluctuation of employees in the company – additional costs are appearing – erosion of workers phenomenon.⁴³

According to Minkler (2002) the moral and intrinsic motivation is more important than the motivation financial. The intrinsic motivation of the employee⁴⁴ is sinking with outer interventions, control etc. and the employee has firmer relationship to his colleagues than to shareholders, These assumptions, of course cannot be applied

⁴⁰ Růžička, J.: Motivace pracovního jednání, VŠE, 1992, pp. 71

⁴¹ Maslow hierarchy, Herzberg two factor motivational theory, Theory of X and Y etc

⁴² When the individual is harming the position of his colleagues by unfair practices, his relative position towards the surrounding is ceteris paribus improving.

⁴³ The cost to acquisition of new employee are approximately 5 multiple of its monthly salary

⁴⁴ Intrinsic motivation is dependent on the “interestingness of the work, trust and loyalty to the firm”

equally on all employees, these are changing upon their position, firm's culture, traditions and local specifications.⁴⁵

The most recent and complex findings in this topic is done by Foss (2001) who is analysing the shift of the entrepreneurial environment, so called "knowledge (based) economy", and claims, that all economies are knowledge economies: "because authority declines in importance as knowledge becomes distributed and knowledge inputs increase in importance...firms increasingly rely on high power incentives...". Foss furthermore concludes that the ownership of specific (knowledge) assets might play an important role in the success or failure of the firm⁴⁶. "The basic distinction between an independent contractor and an employee – it means inter firm or intra firm contract, now turns on who owns the non-human assets that an agent utilizes in his work.

In case of lower standard deviation of wages of the employees on the same hierarchical level, the cooperation among the workers has the contradictory effect – the more the cooperation is embodied in the firm, the better is the information flow in the company and the better is the internal allocation of the resources. Therefore it is comprehensible, that the especially large companies are appealing on team players and seek the "team players". For modelling such situations the prisoner's dilemma might be applied as well as the issue of repeated game⁴⁷.

The time reference shall be taken into consideration as well when analyzing the impacts of using various tools to support the cooperative or rivalrous processes in the firm. The rivalry in the firm might be quickly set in the short-term horizon – just by setting the rules of work and reward distribution, on the other hand, to set the cooperation and knowledge sharing climate in the firm is matter of medium and long term conceptual policy of top managers, as the works need to get to know, that the "cooperation does pay" – as is known from other experience, a trust is to be built for a longer period of time but can be lost almost immediately. Thus the workers need to feel safe and to trust the rules set by the top management.

⁴⁵ Frederick Herzberg has been studying the components of individual's motivation relationship. The dissatisfaction is the result of hygienic factors (working conditions, salary, status, security, interpersonal relationships), the satisfactory role is represented by motivational factors (success, social acknowledgement, responsibility, upgrading, professional development). The hygienic factors are ensured to the employees not to be unsatisfied, motivational factors lead to employees' motivation.

⁴⁶ In accordance with the incomplete contract theory (Hart 1995) two kinds of assets might be distinguished: non-human and human assets. (Analogic to Hayek's distinction on scientific and particular knowledge).

⁴⁷ Since 70's the simulations for behaviour of two subjects are applied. For example Axelrod included the concept of the game theory to the case, when two players are in taken into price war, and there is beneficial for them to break the agreement always, when the partner is keeping. In his model he points out, how depending on previous behaviour of the rival the winning strategy is developing: beginning from 2 bit strategy in the second round over 4 bit in the third etc. More in: Axelrod, R: Evolution of cooperation, New York: Basic Books, 1984), Lindgren (1991) mathematically simulated this approach for 30 thousand periods and finds out, that the last 16 bit strategy seems stable, as it is capable to cooperate with itself even in case of random failures. , see Lindgren, K.: Evolutionary phenomena in simple dynamics, 1991

5. The model of cooperation and rivalry⁴⁸

The model is referring to the incentives described in part 2. The effects of incentives are divided into three groups: cooperation, rivalry and rent seeking. When describing the model, per partes steps will be applied. At first the characteristics of the single functions are described, then follows the summary and the application.⁴⁹

Assumptions of the model – low rate of unemployment, competition in the industry, medium and large companies, workers on the same hierarchical level in the organization.

5.1 Cooperation

Cooperation among workers means not only “cooperation” in the meaning of collective working on one project or task, but it means the conscious and unconscious exchange of the knowledge and experience⁵⁰ and with the aim of avoiding the wrong working procedure leading to loss for the firm and the individuals are behaving this way, when they are assured about their role in the firm or when they have nothing to lose.⁵¹

Lets suppose, that the attempt to cooperate (C) is the declining convex function of the variance of wages ($s^2(w)$)⁵². If the variance of the wages (i.e. proportion of the variable salary) among employees is rising, the motivation to cooperate is decreasing – their effort is decreasing as well. The function is convex to emphasize the fact that the effort “to cooperate” is sinking with the rising variance at always lower portions.

$$C = f(s^2(w))$$

$$C' = \delta C / \delta(s^2(w)) < 0, \delta^2 C / \delta(s^2(w)) > 0$$

$$C = (s)^m$$

where $m < 0$

The parameter “m” means non monetary attributes affecting the level of cooperation among workers. For example the opportunity to be promoted, the public image of the company, etc.⁵³

⁴⁸ The following functions (of cooperation, rivalry etc.) in the mathematical form are describing the reality in a corrupted and simplified way and are elaborated only to enable the reader the simplified overview of the proposed interrelations.

⁴⁹ The original model of Grund et al (2005) contains two functions - cooperation and rivalry, which are always positive and these are added together. The introduced model is enlarging the Grund's concept due to the fact, that there might be also negative outputs of „too high“ level of standard deviation in wages in firm on the same hierarchical level and that profit is Rising function of positive effort of employees and argues more on the aspect of the knowledge.

⁵⁰ It means the “Learning and teaching”

⁵¹ Itoh (1991)

⁵² The term “Variance of wages” in further text reflects the proportion of variable salary towards total salary in %/

⁵³ These attributes, however are they called non monetary, they are related to the monetary effect. They are the intermediary tools from employee's perspective, because they may assure higher level of income in the

5.2 Rivalry

Let's suppose, that Rivalry (R) among workers is growing concave function of the variance of their wages $(s^2(w))^n$. Supposing the variance of the wages among employees is rising, their rivalry is growing as well. The effort of the workers is growing with higher incentives (e.g. variance of wages). Let's suppose, that the function is concave to emphasize the fact, that effort "to rival" is growing with the rising variance at always lower portions.

$$R=f(s^2(w))$$

$$R'=\delta R/\delta(s)>0, \delta R^2/\delta(s)<0$$

$$R= (s)^n$$

where $n \in (0,1)$

The parameter "n" means similarly as the parameter "m" which affects the cooperation level, the non monetary attributes, but in this case these tools are affecting the level of rivalry among workers.

5.3 Rent seeking and negative exposures

Let's suppose, that there will be always even minimum negative effort of the employees based on irrational factors (sympathy, enviousness etc.). When the variability of wages will exceed the critical level A the negative effort will become more important to count with. Instead of more or less beneficial "cooperative" or "rivalrian" activities the agents are dealing with mutually harmful actions and unproductive activities.⁵⁴ The unproductive effort has thus negative value ($e<0$). Let's suppose, that with growing variability of the wages, the harmfulness of this factor is growing (parameter d).

For the simplicity of the model, we assume the negative effort for levels of wage variation lower than "A" is zero.

$$a=f(s^2(w))$$

$$a= A - d * s$$

$$d >0, a <0, s \geq A$$

The character of parameter "d" has the same concept as parameters "m" and "n" in previous equations. It means non monetary attributes affecting the level of negative exposures of differentiated wage distribution.

future, and they do not represent any additional expenditures for the employers' perspective at the moment. More information see below.

⁵⁴ See above the effect of erosion of employees, Tullock's rent seeking

The negative effect appears also, when the colleagues have virtually no direct opportunity to harm each other. For example they can blame with their behaviour the company's reputation and so indirectly harm the colleagues as well.

5.4 Profit and total effort

Company A wants to maximize its profit P. For simplification, let's suppose that the profit is the linear growing function of employee's total effort (E)⁵⁵.

$$P = f(E)$$

$$\delta P / \delta(E) > 0$$

$$P = b + k * E \quad k, b - \text{parameters}$$

where E – total effort, $E = C + R + a$

This is the simple form of equation. Companies differ each other in various industries with their “emphasis” on the determinant of the effort of employees, therefore, Cooperation, Rivalry and Rent seeking have to be weighted to be able to cover the wide scale of companies – coefficients **i, j, g** :

$$E = i * C + j * R + g * a,$$

$$i > 0, j > 0, g > 0$$

5.5 Optimum

Optimum – profit maximization occurs at the situation, where the total positive effort of the employees is in its absolute maximum, meanwhile each component has its own weight. („i“ for cooperation, „j” for rivalry, „g” for rent seeking) .

$$\delta(E) / \delta(s) = 0$$

$$\delta^2(E) / \delta(s^2(w)) < 0$$

$$\delta(i * R + j * C - a) / \delta(s^2(w)) = 0$$

$$\delta(i * (s)^m + j * (s)^n + g * (A - d * s)) / \delta(s) = 0$$

the shape of the total effort function (see E1, E2, E3) is affected by coefficients “**i, j** and **g** “ which determine the weight of each other determinant (cooperation, rivalry and rent seeking). Generally, the total effort function E might take the three basic shapes⁵⁶:

- I. Supposing the function made of weighted sum of first derivations of three functions(C,R,a) is down sloping – it means, that the effects of cooperation and rent seeking are superior, in this case it is optimal for the company to remain at low levels of variability of wages (the trend is shown by green arrow), because the function of total effort (E1) is growing.

⁵⁵ The arguments, that it should be growing have been introduced above, linearity of the function is a simplification

⁵⁶ The functions may have shape also by sub variation of those, which are introduced. For our interpretation, the three introduced solutions are accurate.

$$j^*R' + i^* C' - g^*d < 0$$

II. Supposing the function made of weighted sum of first derivations of three functions(C,R,a) is up sloping – it means, that the effect of rivalry is superior, in this case it is optimal for the company to remain at high levels of variability of wages (the trend is shown by red arrow), because the function of total effort (E2) is growing.

$$j^*R' + i^* C' - g^*d > 0$$

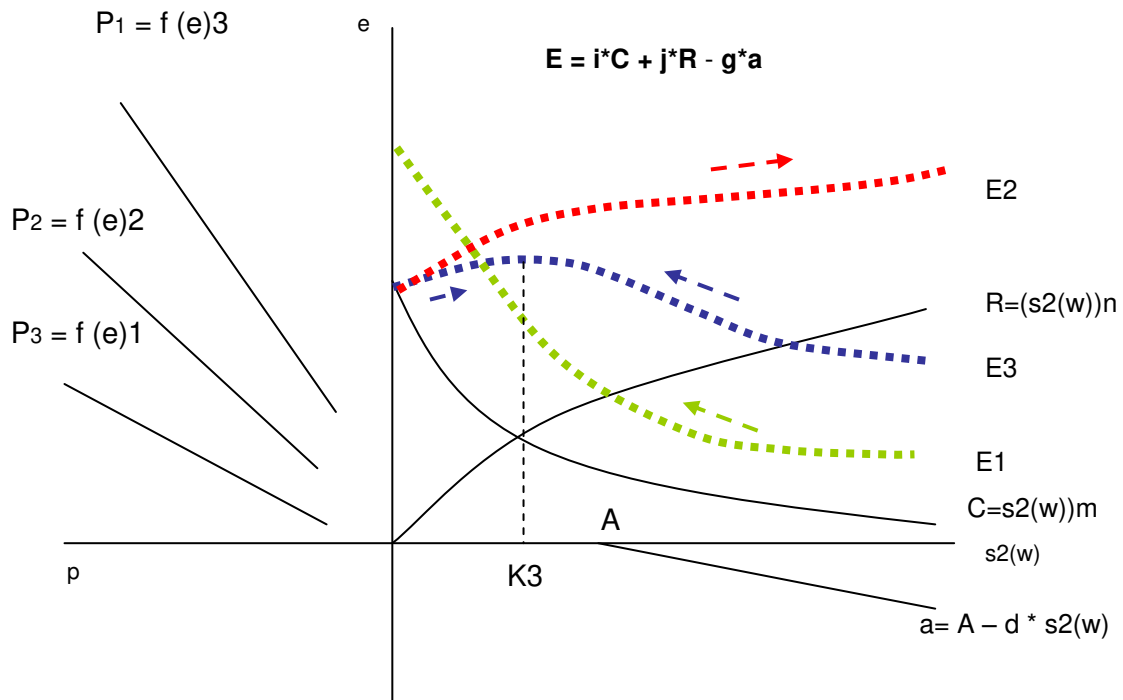
III. Supposing the function made of weighted sum of first derivations of three functions(C,R,a) is up sloping for $s < K3$ and for $K3 < s$ is down sloping – it means, that the optimum level of wage distribution is $K3$. See the function (E3).

$$j^*R' + i^* C' - g^*d > 0 \quad s < K3$$

and

$$j^*R' + i^* C' - g^*d > 0 \quad K3 < s$$

Picture 1.



5.6 Discussion about the outcomes of the model

The fact that the firms with various levels of determinants of total effort don't have to have the same dependence of profit upon effort is pointed on the left part of the graph, where more eventual relations might be seen. (see P1, P2, P3). All phenomenon "cooperation", "rivalry" and "rent seeking" are based on attitude of employees to share the knowledge: Employees can share the information and knowledge (cooperation, "function C"), they can block the flow of information and knowledge (Rivalry, "function R") or they can change the message and point of the knowledge and information with the aim to harm (rent seeking, function "a"). As of this, we can define a "knowledge concentration scale" which might be linked with the variance of wages /see axis " $s^2(w)$ " on Picture 1/ where the knowledge is more concentrated at lower level of wage variance and vice versa.

The aim of the firms is thus to utilize the positive characteristics of both cooperation and rivalry and to minimize the negative ones of rent seeking. Based on the proposed model, the knowledge management in the firm acts an important role in this attempt. We may conclude that generally, there are three ways how to achieve the maximisation of the effort of the employees:

1. Change of total spending on wages
2. Application of "non-monetary" (managerial) tools to stimulate rivalry and cooperation among workers
3. Changes in variance of the wages – "horizontal move upon the curves"

Change of total spending on wages can be perceived as a financial tool whereby the change in variance of wages and application of non-monetary tools can be perceived as the managerial tools.

5.6.1 Change of total spending on wages

Growth of the level of salaries *ceteris paribus* generally leads to higher effort of employees, but on the other hand it means higher costs for the owner and so lower profit. Of course, the higher effort due to salaries increase might be reflected in better key performance indicators (KPIs) of the firm, so the final effect on profit depends on the elasticity of profit on personal costs combined with KPIs. The salary increase is the simplest but most risky solution, because "more money for everyone" does not automatically mean higher effort of employees⁵⁷ in the long run and this approach does not deal with the key problem within the organisation – the optimal level of cooperation and knowledge sharing. The unrepeated substantial rising of the salaries has a short-to-medium term effect, and in longer periods it acts only marginal role.

5.6.2 Application of Managerial i.e. "non-monetary" tools to stimulate rivalry and cooperation – "vertical shifts" of the "E" curves on the graph

⁵⁷ There is a plenty of theories claiming, that from some level, the employees have negative marginal supply of the labor force (effort), that the flat increase of salaries among workers not making any differences based on their personal appointment is not stimulating etc.

The tools stimulating the rivalry and cooperation *ceteris paribus* among workers lead to higher effort as well. These are so called soft or managerial tools; see the “Picture 1.”. Application of these tools in the firm makes the curves of rivalry and cooperation “shifting” upwards or downwards. Here the psychological, HR tools on one hand and IT (information technology) tools on the other hand are supposed to be used to make the environment in the firm more stimulating, cooperative and transparent.

The Psychological and HR tools

are of those tools which might be applied by change of management practices in the firm usually without huge extraordinary expenditures. Here are some of them:

- a) The **organizing the social events** where the employees are forced to meet also in other environment than at work is aimed on effort on better mutual information among workers, on knowing more about themselves and on improving the social relationships among them – so call socializing in the firms⁵⁸. Better knowing each other usually leads to higher propensity to cooperate and trust).

Note: The application of the social practices should be applied with regards to the possibility of creating e.g. Labour unions within the firm, which might have the contra-productive requirements on top management/ share holders of the firm.

- b) Closely connected with the first point, the trend for **making the working places more transparent** and open is driven not only by cost reduction and space saving; it means, that the working are more transparent, where “everyone can control everyone”, where employees share their offices and equipment with other, they meet during lunches etc.
- c) Other practices to support the cooperation among workers is to **give them one subject, that they can discuss** about or solve some existing of fictive problem – e.g. magazines for employees, internal projects on improvement of working conditions etc⁵⁹
- d) Promotion in the hierarchy is often used in the organisations with higher number of levels of the management. Promotion on the position is usually combining higher financial reward, responsibility and team of workers below. Thus the vision of “**Future promotion**” makes people identify with the goals of the firm, without immediate effects in higher personal costs.
- e) Other⁶⁰

⁵⁸ E.g. teambuilding events,

⁵⁹ However, the example from large German holding shows, that if this activity is artificially supported by the company without change in the company culture, then these “voluntary” activities arise only for short period prior the evaluation of the workers’ performance in the firm. (Zboralski, 2007)

⁶⁰ see below the tools used at consultant and advisory firms. More information about practice might be found in HR literature

IT tools

Special attention shall be focused on application of information technology tools (IT) to manage and distribute the knowledge in the firm. It is matter of the last decade, since these practices have been effectively applied and operated. The application of “policies” to manage the knowledge within the firm is much more convenient with the wider utilization of personal computers, databases and networks, which are currently building the backbone of the firms. The work of itself and knowledge are processed much more trough IT, they enable easier sharing and storing of knowledge and ideas, transfer of information and tracking every step of selected subject.

In connection with the introduced model of cooperation and rivalry, IT in general are the tool, which is bringing much transparency to work processes of every employee, it is enabling the firm to make the workers easier cooperate, to save and utilize the unique knowledge of the workers even in the cases, the workers are not employed in the firm anymore.⁶¹ The modern approach and terminology about usage of IT is still not settled as well as are the not settled all the processes and technologies, however, the most wide spread application of these tools is currently in operation in technologically advanced companies – computers and IT services and telecommunication; also the large multinational companies.

IT tools as well as psychological and HR tools are thus serving for more fluent knowledge transfers from workers to firm, from firm to workers and between workers alone as well.

5.6.3 Changes in variance of the wages – “horizontal move upon the E curves” on the graph

As was described before, a negative change in variance of the salaries on the same or similar level of hierarchy leads to various behaviour: rising cooperation or rivalry among the workers depending on the type of the firm. Based on assumptions above, the “aggressiveness” of rewarding schemes is indirectly tied with the approach of the employees to their colleagues and to their sharing of information, trust etc.

Based on interviews with top managers, HR consultants, head hunters and on theoretical background, we can summarize, that the firms, which prefer low variability of wages, are those, where (A) the capital is the main production factor; which are based on manual and routine work and possibility of the initiative of the employee is suppressed or (B) the knowledge of the company is centralized in the firm – in its copyrights, databases, knowledge bases etc. For example in manufacturing companies, firms based on low labour costs, flow production, but multinational organisations as well – maximal cooperation is inevitable for these firms: if one individual stops, the whole system might be paralyzed. In this system it does not pay so significantly to harm other colleagues / no relative improvement within the firm might be achieved through this action.

⁶¹ There are several names for these place of knowledge storing differing upon the company which is operating them – knowledge base, brains, project databases etc.

Furthermore, the maximisation of total effort might be reached at low levels of wage variation and high level of cooperation, might be reached in the firms, that are not only for “unskilled” labour force. For example consulting firms which are collecting the experience from business cases from previous projects within the firm (e.g. in knowledge bases) have usually low levels of wage variations as well. From the knowledge point of view, these firms are more “set up” and rigid and much effort has to be done to make the knowledge flow not only from “knowledge base” to employees but vice versa and between them as well. (see above the ways to maximize the effort of employees – HR, IT and psychological)

Optimum at high level of variation of the wages is typical for those companies, which are **based on human capital** in terms of their individual capabilities and the knowledge in general terms is stored in their employees. Capital as a production factor does not act the main role. The employees can considerably harm each other’s business. This description covers professions like traders, sales representatives and derivation of these roles, where the individual performance is the success/failure element.⁶²

The largest number of the firms is falling to the “grey zone”, where the optimum lies between extremes of maximum egalitarian or rivalrian wages. Here, the motivation scheme has to be carefully balanced between egalitarian and rivalrian schemes to fit the exact needs of the companies, however, the fact, that the optimum is in some cases more egalitarian or more competitive may indicate the pattern of the right mixture of tools, that should be applied to achieve the optimal (i.e. maximal) effort of employees.

5.7. Summary

From firm perspective the tools to make the environment in the firm more competitive and rivalrian should be treated very carefully, as the rising variance of wages might be connected with the negative effects of the excessive rivalry and lower variance might lead to lethargy and low motivation.

In the paper has been explained, that rising the motivation and effort of employees by flat rising their salaries is not the right tool however it is the most simple, short term and costly solution. Based on current knowledge, more suitable way, how to maximize the company’s profits is making the employees want to and have to cooperate. This means, the managerial techniques have to be carefully mixed by salaries variation and various incentive schemes, by usage of HR and psychological tools with help of information technologies. These require deep analyses and understanding of the firm, wants of employees and situation on labour market. As the guideline for this mixture, the localisation of the firm on the knowledge concentration scale as introduced in the model might be applied.

5.8. Note: Description based on empirical practice in selected cases

⁶² Also professions where the unique idea or achievement is a matter of success are in this group – scientists, academics, lawyers, tax advisors etc.

Example 1: Consultant and advisory firms

Knowledge distribution in consultancy and advisory firms might be described as following: most of these companies have the “knowledge” stored in a specific way (database, library, best practices, archive etc) and the salaries are more or less egalitarian on the same hierarchical level. However, there is a strong rivalry connected with all features, as described above, between the workers of these companies working on the same level. One may ask why. The reason is that the organizational structure is basically steep and the workers are motivated by the opportunity to be promoted in the hierarchy. The result of this “mixture” of egalitarian distribution of the salary and motivation on future promotion even in the environment of accumulated knowledge is thus financially effective – i.e. without any further monetary incentive⁶³. This only supports the theory of incentives, because it shows, that correct setting of other than monetary incentives can be a very valid tool to increase the outputs of the workers even in the firms with centralised knowledge.

Example 2: Sales representatives

The extreme of absolute rivalry might be shown at the example of Sales representatives. In this case they are the subjects, who have the information on condition on the market, on customer demand, request, habits etc – they have “the network”. This profession is naturally very competitive, because the market has usually limited possibilities to be exploited by sales men, therefore the firms with the aim of avoiding cannibalisation of the two competing parties under the supervision of one subject are in some extent dividing the product portfolio or the geographical coverage between several sales men with a minimum overlaps. This is the practical proof of avoiding the negative effects of the extraordinary rivalry.

6. Concluding words

The role of managing the knowledge in the firms is rising in the importance as the role of specialists, individuals owning a unique knowledge and tougher competition for the best managers and employees on the labour market have to be emphasized in both everyday and tactic and strategic management of the firm. The knowledge might be managed in the firm via various approaches with the aim of its development, recency and exchange among workers up to the decision makers and executors of the decisions - this paper shows, that the incentive and managerial tools in the firm play crucial role when stimulating and realisation these aims. It shows, that for various industries and types of businesses various tools have to be applied with the aim of the effectiveness maximisation. The character of the knowledge storage and distribution in the firm “goes through” the whole firm and is related with the employee’s incentive schemes as one tool of profit maximizing.

It may be naïve to think, that there exists the perfect incentive system. Same as no contract can be so complex to cover all eventualities, virtually no totally perfect incentive

⁶³ It means no additional personnel costs at certain period of time

and motivational system for all firms can be made. However, there are ways, which might help the manager and owners to converge the system to the optimum and these differ from business to business based on its unique situation. Application of these makes the difference between regular and excellent performing firms.

Annex: Empirical application

Outcomes:

There are two companies A and B operating in the same industry (sports betting) in two neighbouring and similar markets. They are part of international holding consisting of 3 companies in different country each. They cannot compete each other as this business is retail-based. Both companies have approximately 300 and 600 point of sales and are offering the identical product. Their annual sales are cca EUR 50 – 100 m. The information presented here has a discretionary character; the maximum permitted information is actually being presented.

Period 1 (until H1 2006)

The wages of the staff in points of sales in company A were slightly above the egalitarian distribution due to historical reasons.⁶⁴

$$s \sim 0,$$

where s - variation of the wages

The wages of the staff in points of sales in company B were perfectly the same for everyone on same position. Variation of wages

$$s = 0$$

Period 2 (Q2/2006 – Q1/2007)

The wages distribution system have changed in Company A as following:

- Basic salary 100
- Personal bonus 0 – 30
- Bonuses for extra opening hours.

The wages distribution system in Company B has remained the same as it did in year1.

The employees of Company A are attending the specific “tailored” trainings to improve their professional skills. This Training lasts for 2 days, is run by a HR agency chosen by tender, the “content” of the training has been deeply amended upon A’s requests, at the end of training, the feedback from participants is collected

Period 3 (Q1 2007)

The wages distribution system is exactly the same both for Company A and Company B.

⁶⁴ Non-systematic rewarding, personal relations with HQ etc.

The motivational part was added in the salaries at workers of the Company B. The employees of Company B are attending the specific “tailored” trainings to improve their professional skills.

Period 4 (present)

Valuation and analysis of the steps undertaken.

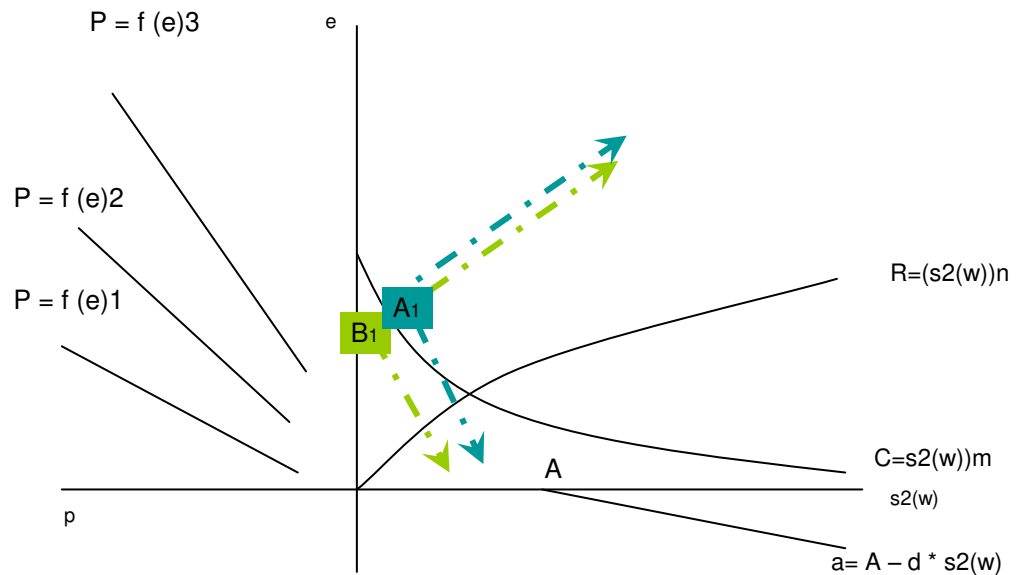
Period 5 (2008 +)

The experience gained on changes of the motivational scheme will be applied in the other companies belonging to the holding.

Graphical illustration

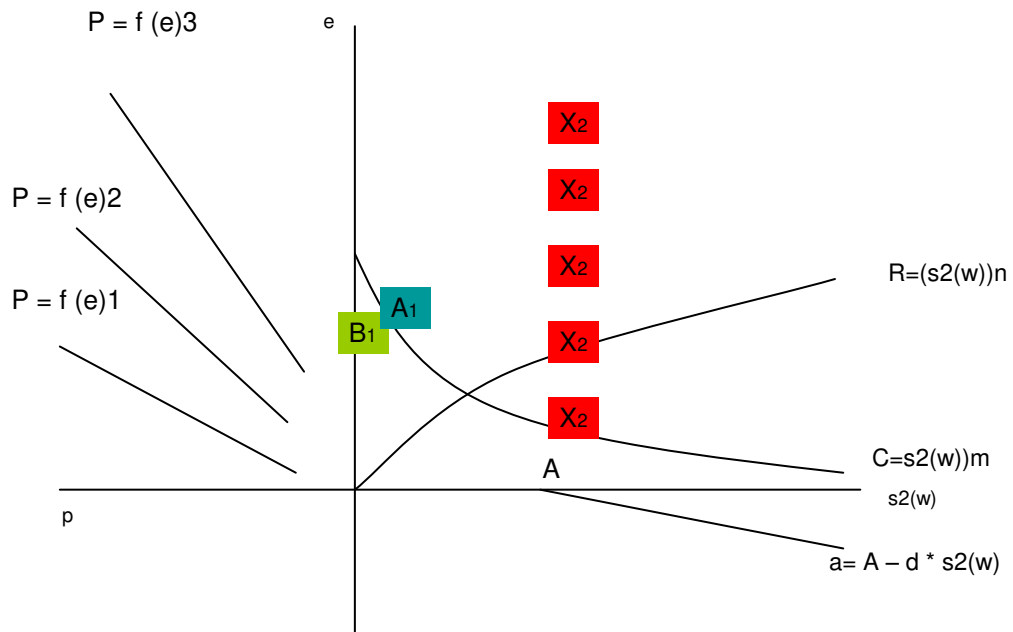
Period 1: The companies A and B had slightly different rewarding scheme. Company A held position A1, company B held position B1. The arrows are pointing out at their possible movement after the salary scheme changes – changes in the variance of wages.

Graph Ax1



At following graph (Ax2) the points X2s are pointing at the various possible combinations, where the points A1 and B1 can get, after these would have applied the same salary motivational schemes. It means, that the expectations of management were generally positive, but the cases, when the total effort might decrease were to be taken into consideration as well due to e.g. negative approach of employees for changes.

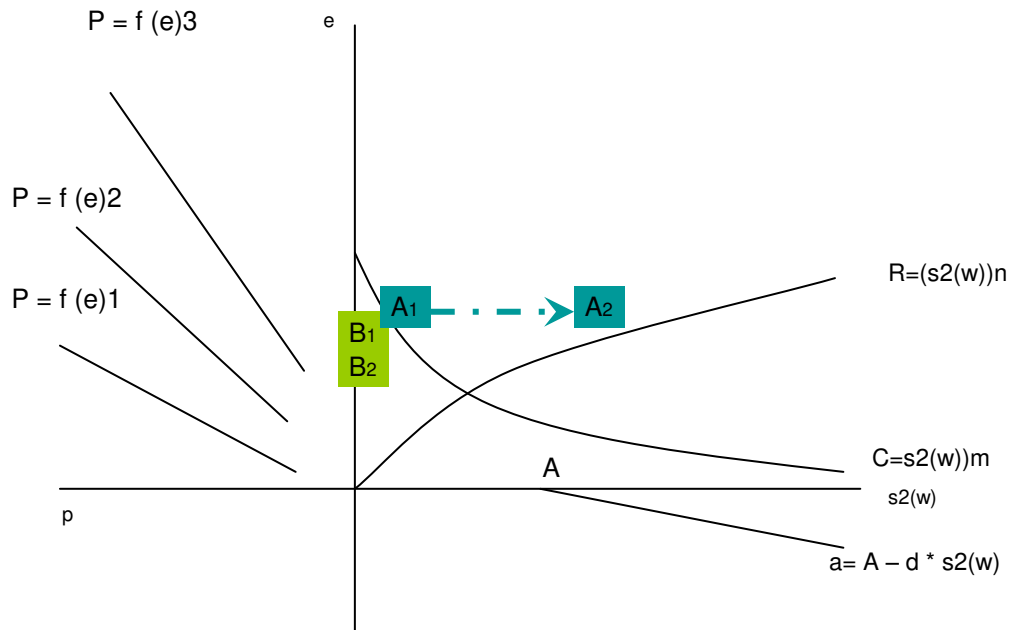
Graph Ax2



Period 2

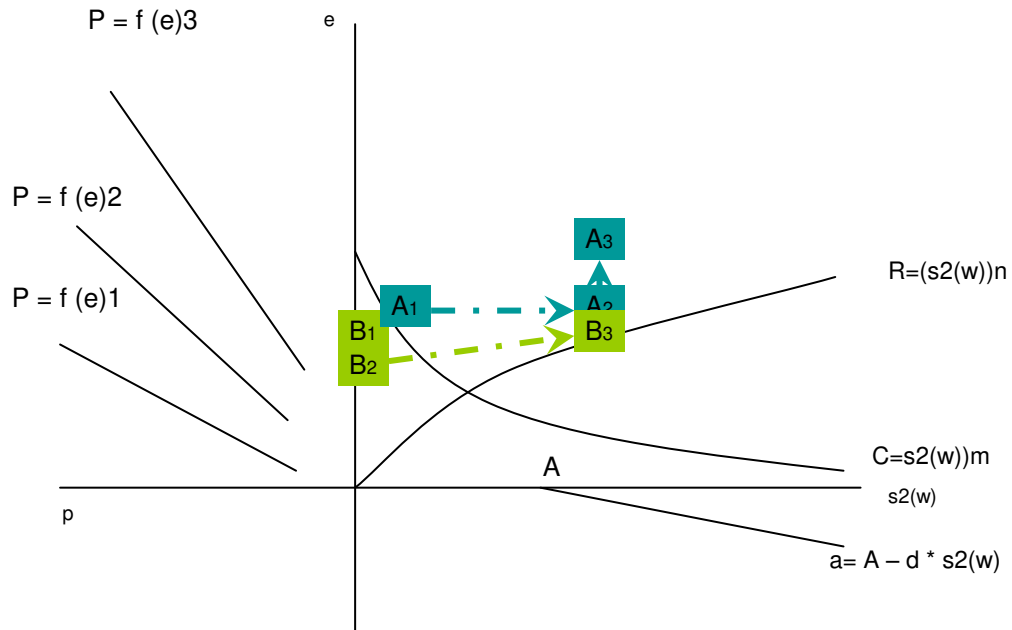
In the company A the motivational scheme of salaries had changed, the variance of them is higher (A_2). The Variance of salaries in company B remains the same, the total results are slightly changing. (actual net profit in company B was y-o-y declining, net profit in A grew by inflation rate). – B2

Graph An3



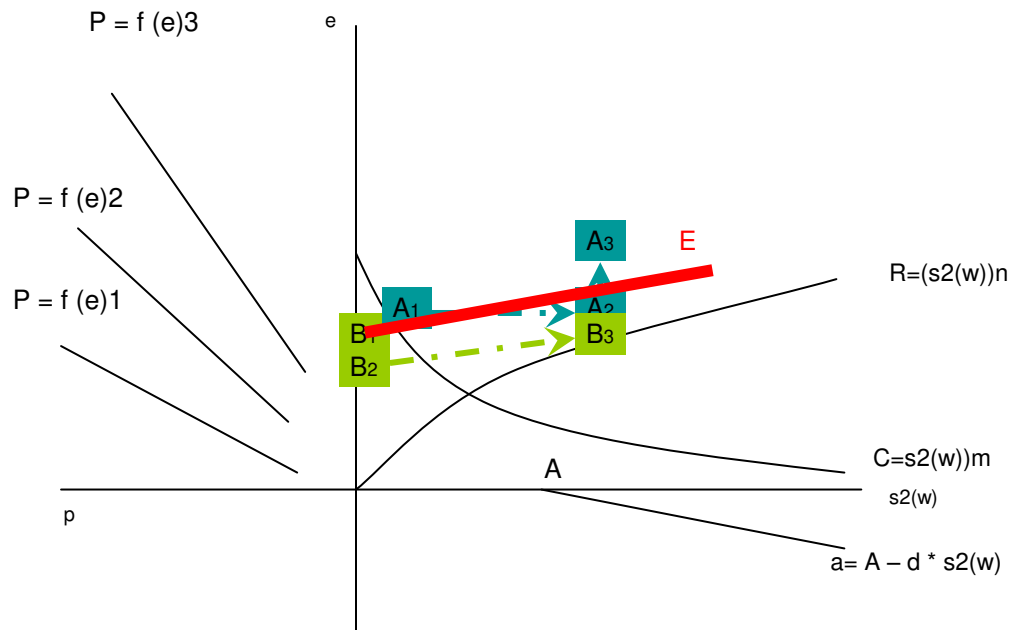
Period 3

The Variance of salaries in company A remained the same, the financial results were slightly changing. (upwards). – A3. In the company B the motivational scheme of salaries have changed, the variance of them is higher (B3), profit is improving on previous levels.



Period 4 / present

After the changes in salaries schemes, the companies characterised by points A1 and B1 have moved on one direction. The regression line E might be calculated. The line E represents the function of total effort for selected industry. The positive value of 1st derivation of E is expected as the character of the business is closer to the mode No. II described in chapter 3 of this paper.



Concluding remarks

- Currently, the Period 4 has just started.
- The customers are very sensitive on the approach of the employees at the PoS. In the case these are friendly customers are coming more often and spend more money for the products of the company.
- The selection of the Point of sales which will be included into the research is following: Only those PoS are included, which are place on the same location during periods 1, 2 and 3.
- In order to eliminate the external influences e.g. new PoS by competitor near current PoS of A (B), the arithmetic average wages in total performance in selected PoS will be counted.
- The effort of the employees at PoS will be calculated indirectly through the sales of the PoS.
 - The rising (or declining) effort will be calculated with taking into account the growth rate on the whole market by weight of 50% and by the relative position of the PoS among the all PoS in the company A (or b)

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