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THE NEW INSTITUTIONAL ECONOMICS AS AN APPROACH TO EXPLAIN BEHAVIOURAL PATTERNS OF PARTICIPANTS IN KNOWLEDGE TRANSFER PROCESSES

The factor knowledge as competitive advantage

Knowledge plays an ever greater role in today's society. Both theory and practice agree that knowledge is increasingly considered to be the central asset of organisations. The economic progress is not exclusively based on the traditional factors of production - labour, land and financial capital - but rather on the available knowledge.

Thus, knowledge is the most important factor in our society. It becomes the primary resource for the creation of lasting competitive capabilities of companies, institutions, regions and even countries. Therefore the necessity arises to systematically develop the resource knowledge.

Besides the internal knowledge management the acquisition of external knowledge is an important factor for the competitive positioning of a company. The knowledge transfer from knowledge-generating institutions plays also a major role for the positive development of a region. Therefore it is important to get a close look on the process of knowledge transfer, esp. on behavioural patterns of the participants. This paper investigates how the New Institutional Economics can be applied as an approach to analyse and explain these patterns.

Several theories and models of the New Institutional Economics focus on the transaction process of goods. The paper discusses how they can be extended so as to describe knowledge transfer. At the same time it must be pointed out that knowledge has different characteristics than goods.

The New Institutional Economics

At the core of the New Institutional Economics lies the assumption that institutions are of basic relevance for the economical process. An institution is defined as a partial system of the community life that serves specific purposes and has reached an independent development.

Institutions are clusters of norms and - formal and informal - rules. According to their mechanism of enforceability public and private institutions can be distinguished. Public institutions are e.g. constitutions, laws and regulations. Private institutions are established by the society and are privately enforced. For example, social norms are private institutions, which are enforced through

private sanctions as social ostracism. The internalised norms, which are enforced by "psychic sanctions", such as shame or remorse, are also private institutions.

Human action is regulated, but also limited, by recurrent institutions. Certain behaviour is prohibited, bidden or permitted. With the help of institutions the individuals are able to develop more reliable expectations about the actions of other actors and need lesser costs for conducting and securing of transactions. Institutions reduce uncertainties involved in the transactions. If the actions of an individual follow regular patterns, they can be anticipated, which also stabilizes the interactions of the whole collective. Interactions can be carried out at lesser costs because the actors attain a certain degree of security in their expectations of their partner's behaviour.

The New Institutional Economics operates with neoclassical instruments but differs from the Neoclassical Economics in certain assumptions. Basically, the New Institutional Economics is grounded upon the assumption of "limited rationality", on the assumption of searching for the "individual profit maximisation", the assumption of "opportunistic behaviour" of the involved and "methodological individualism". The economic actor's actions are rational, as far as he follows his self-interest, even at the expense of others (opportunistic behaviour); though he is not well informed and has therefore information costs in preparing and carrying out of the economic action; he is insecure whether his expectations for the economic action will be fulfilled.

The interactions among participants are described in the New Institutional Economics by three important theories: the Property Rights Theory, the Transaction Costs Theory and the Principal Agent Theory.

Property Rights Theory

The Property Rights Theory examines the relationships among economic actors which pertain to the existence and usage of goods. These relationships are called property rights. The Property Rights Theory analyses the structure of the rights associated with goods and describes the behaviour of the parties involved, depending on their share in the rights. According to PICOT there are four elements of the property right:

- the right to use a good (usus),
- the right to change the good in form and substance (abusus),
- the right to acquire emerging profits and the duty to bear losses (usus fructus), and
- the right to sell the good and to collect the profit.

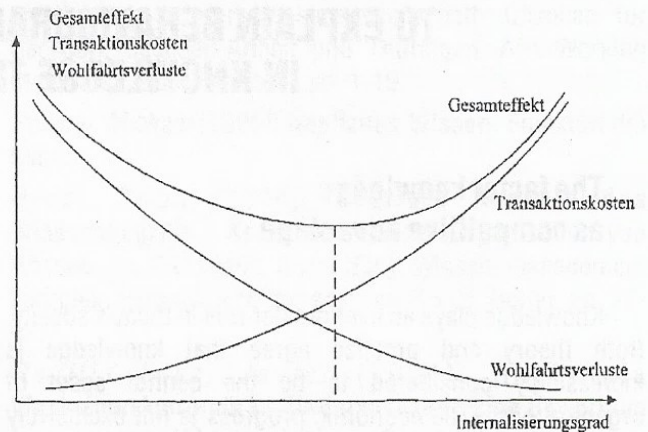
The value of an estate might serve as an example for a property right. This value is determined not only by the position of the estate and its size, but also e.g. by the right of the proprietor to put up a building. If these proprietary rights are debilitated by restrictions the effect of "thinning" occurs. According to PICOT, there are two possible dimensions of "thinning": On the one hand, not all rights exist at the same time; on the other hand, rights can be shared by more than one person simultaneously. From the perspective of the Property Rights Theory property rights can be transferred by contracts between economic units.

If all property rights of one good are allocated to one person (concentrated property rights structure), he will act most efficiently. Since he has all rights of using and changing a good, rights to profits and losses, the actor has to bear all consequences of his actions and, therefore, is offered a major incentive to use the resources efficiently.

For allocating all property rights on a good there must exist laws, instructions and rules, whose enforcement might require "prohibitive expenses", or so called transaction costs. Property rights and transaction costs form a structure that systematically steers the behaviour of the individuals and influences the allocation and the economic result.

Because of the transaction costs the distribution of property rights must be also assessed against the background of deadweight welfare loss. The internalisation of external effects through higher transaction costs than the according deadweight welfare profit leads to an inefficient situation. The property rights structure that causes the least external effects - as a sum of transaction costs and deadweight welfare loss - has to be preferred. The following graphic demonstrates the relationship between deadweight welfare loss, transaction costs and the level of internalisation.

Fig. 1: Trade-off relationship between the deadweight welfare loss through external effects and transaction costs



Source: PICOT, A./HELMUT, D./FRANCK, E. (1997):
Organisation. Eine ökonomische Perspektive. Ulm, S. 58.

The figure shows that the complete allocation of property rights on a good minimizes the external effects and, consequently, the deadweight welfare loss. Transaction costs arise, however, with the internalisation of external effects. The goal must be the optimum combination of low transaction costs and low deadweight welfare loss.

To apply the Property Rights Theory to the factor knowledge: the knowledge transfer from one actor to another means that the property rights structure of a good of special knowledge is "thinned" because through this transaction other actors also receive property rights of the transferred knowledge. The giving actor would provide knowledge that he has gathered, having invested costs and efforts. The society would profit from the transfer of that knowledge. However, the "costs" for gaining the knowledge were paid by the individual. So the carrier of the knowledge is not willing to provide it for free or without return service since the social profit of knowledge transfer exceeds the private profit and the actual costs are higher than the corresponding profit. For the society, an actor's knowledge transfer would be of major use but the actor will share his knowledge only for an acceptable reward.

Transaction Costs Theory

The Transaction Costs Theory focuses upon the single transaction. WILLIAMSON defines transaction as following: "Eine Transaktion findet statt, wenn ein Gut oder eine Leistung über eine technisch trennbare Schnittstelle hinweg übertragen wird. Eine Tätigkeitsphase wird beendet; eine andere beginnt." A transaction occurs when a good or service is transferred across a technologically separable interface. One stage of activity is finished; the



next one starts. PICOT defines transaction not as transferring of goods but as transferring of property rights. The knowledge transfer differs from goods transfer in that the giver always keeps his knowledge. The Transaction Costs Theory assumes that transactions are not carried out free of charge. The costs of a transaction include all sacrifices and disadvantages that have to be endured by the exchange partners to carry out the exchange of the goods or service.

According to PICOT transaction costs arise at the following stages of transaction:

- Initiation (e.g. expenses for travelling, communication, consulting, certain general and administrative costs like purchasing, sales, research and production planning),
- Arrangement (e.g. negotiation costs, legal advice, costs for planning and coordination among sales, research, production and purchasing departments),
- Execution (e.g. controlling the exchange procedure, management costs),
- Monitoring (e.g. quality check, schedule monitoring), and
- Adjustment (e.g. additional costs for later qualitative, quantitative, price- or schedule-related changes).

When estimating expenses not only monetary costs have to be considered but also the not easily quantifiable negative elements, such as efforts and time applied to monitoring a contract. The costs for the exchange and the coordination among the participants are at the core of the Transaction Costs Theory, whereas it is assumed that labour division and specialisation take place. A "correct" division of labour or specialization lead to an increase in productivity. Accordingly, an "incorrect" division of labour or specialisation lead to deadweight welfare loss.

The amount of transaction costs depends on certain conditions and organisational activities. Factors affecting the amount of transaction costs are behaviour assumption, environmental elements and the atmosphere of the transaction.

The already mentioned limited rationality and opportunism are considered as behaviour assumption in the New Institutional Theory. Environmental factors are insecurity, specificity, strategic relevance and frequency of the transaction. The potential for opportunistic behaviour among economic partners will play a major role as soon as the transaction is characterised by specificity, i.e. the dedication of the for the transaction required resources. PICOT describes as an example for specificity the supplier's investment in a one-purpose machine which is used only by a single customer. If there is only one customer and only one manufacturer of that particular component (small numbers situation), opportunistic behaviour is likely to occur. For example, the customer could pressurise the supplier into lowering the prices by threatening to stop

ordering the product. This situation generates the particular necessity of security on both sides. Therefore the agreement procedure for an exchange contract will be very complicated. The frequency of the carried out exchange between the same partners is another factor influencing the transaction.

The atmosphere of the transaction, which is affected by all social and cultural as well as technical factors influencing the transaction, is frequently determined by the so called interaction effects. For the participants the interaction effects have a value of their own. For example, friends would not take extensive security measures since a fair transaction carries an independent value. Under these circumstances the originally assumed motivation structures do not apply.

In case of knowledge transfer the transaction costs exist as well. Therefore a transfer will only be conducted if the anticipated profit is higher than the expected transaction costs. As a consequence, possible costs have to be identified and minimized. Initiation costs arise when the actors have to look for possible transaction partners and to establish contact with them. At the negotiation stage costs for the fee agreement might occur. In case of not codified know-how that can only be transferred through mutual activities and direct cooperation negotiation costs might be relatively high, since the cooperation has to take place over a longer period of time. When executing a transaction, the amount of transaction costs depends on the particular characteristics of the transferred knowledge. Knowledge not stored in a data-base will cause higher costs than codified knowledge. Monitoring and adjustment costs are difficult to quantify in a knowledge transfer situation because of the lack of reliable criteria to measure a successfully conducted knowledge transfer.

The amount of the costs of knowledge transfer is measured after - applying the Transaction Costs Theory - the behaviour assumptions, such as limited rationality and opportunism, after the environmental factors like insecurity, specificity, strategic relevance, after frequency of the transaction, and the atmosphere of the transaction. If interaction effects arise because of a friendly relationship or some comparable values and norms, the transaction costs will decrease and the transaction is more likely to be carried out.

Principal Agent Theory

The Principal Agent Theory characterizes the relationship between customer and contractor of a transaction. The customer is called principal, the contractor is called agent. Principal-agent relationships exist not only between customer and contractor but also between creditor and debtor, shareholder and executive board, patient and doctor, insurer and insured. The assignment of principal's and agent's roles depends on the

situation; furthermore, several principal-agent relationships can overlap. For example, a doctor is not only agent to his patients, but also agent to the medical insurance. A member of the governing body of a corporation is principal to the executive board as well as agent towards the shareholder. The existence of the property rights is accepted as given.

Under the assumption of free-of-charge acquisition of information orders could be placed according to the most productive structures of labour division and specialisation. Ex-ante there is no possibility for the participants to act not in conformity with the agreement since the partner can prevent this, being in possession all the necessary information. Under these conditions structures of labour division/specialisation and exchange/negotiation maximizing the benefit would be developed (so called first-best-solutions). The assumptions of the New Institutional Theory, which are nearer to reality, presume, however, that prohibitive costs for the acquisition of information lead to incomplete information of the economic actors and to an imbalance of the knowledge distribution among the participants. Thus, an information gap among the actors occurs. The knowledge imbalance and the costs for collecting information provide the opportunity for the agent to use this gap for his personal advantage and the principal's disadvantage. The principals tend, on the contrary, to limit the scope of actions of the agent by implementing monitoring and controlling measures. If the possibility to be exploited is estimated by the principal as very likely, he might not be interested in the transaction anymore and the transaction will fail. A first-best-solution will be substituted by a second-best-solution. The difference between the first-best-solution and, in case of incomplete information, the second-best-solution are called agency costs. PICOT defines three types of agency costs:

- Signalling costs of the agent,
- Monitoring costs of the principal, and
- Remaining deadweight welfare loss.

The signalling costs cover, for example, the costs and efforts of a doctor to achieve a verification of his professional competence like passing exams or earning a doctorate degree. Monitoring costs of a patient occur by checking the accuracy of the doctor's invoice compared to the service.

The Principal Agent Theory, applied to knowledge transfer, defines the "knowledge transfer customer" as the principal, the "knowledge transfer provider" as the agent. Between the "knowledge transfer provider" and "knowledge transfer customer" an information gap exists that offers the agent enough scope to use his personal advantages. The principal, on the other hand, will try to limit that scope as far as possible, by implementing monitoring and controlling activities. If the "knowledge transfer customer" estimates the possibility to be exploited by the "knowledge transfer provider" as too likely, he will not start or continue the

relationship. Within the Principal Agent Theory the asymmetric distribution of information might also pose a problem since the "knowledge transfer customer" cannot exactly estimate the knowledge that should be transferred and the agent can withhold from him relevant components of that knowledge.

Open questions and impulses for further discussion

After showing new starting points for discussion of knowledge transfer, the paper poses several questions that emerge in connection with the New Institutional Economics:

- Can behavioural patterns, as they are discussed in the theories of the New Institutional Economics, really be applied to the processes of the transfer of academic knowledge in an economy that is based on labour division?
- Where lie the limits of the transferability of these theories?
- How should the participating institutions be designed to support effective knowledge transfer?

At the moment the author of this paper is working on these problem fields and will soon present the first results in his doctorate thesis.

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