

THE PSYCHOLOGY AS AGENT BETWEEN OPERATIONS STRATEGY AND HUMAN RESOURCE MANAGEMENT

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ABSTRACT

Market-induced necessities affected changes in the strategic priorities from cost over quality to time and, in the last decade, to flexibility. This development must be considered rather an 'as well as'-aggregation-process than an 'either..or'-decision. Therefore industrial companies must strive for the perfect configuration of the different strategic priorities. Fast changing environments lead to permanent changes in this configuration. The functional area which is the hardest to align to this strategic inconsistency is certainly the human resource area because of its rigide character. A major challenge in operations management is the finding of key human resource measures which are adaptable to every possible strategic configuration or environment. In the context of this search the psychology proves to be an useful agent between operations strategy and human resource management. This paper will show how the best fit between human resource decisions and operations strategies can be reached through considering insights of psychology.

Keywords: operations strategy, human resource management, psychology

FROM TRADITIONAL TO STRATEGIC HUMAN RESOURCE MANAGEMENT

Over decades personnel was considered as an elementary functional area of every economic organization and its management was interpreted as the provision, the goal-oriented insert and the behavioral control of employees (see Weber, 1995). Within this functional approach the workforce was considered as a stock of human beings which is available for the fulfillment of different tasks. In recent years the aggravated competitive conditions have increasingly accentuated the efficiency of work. This aspiration for continuous improvement is focussing the classical determinants of production and operations management – cost, quality, and time. In the course of this aspiration industrial companies increasingly integrate human resource-aspects in strategic decisions.

Kinnie and Staughton (1994) describe this change in the perception of ‚How to manage to the human resource?’ by means of three attitudes: at first there was a ‚wait and see’-attitude, operative problems occurring because of strategic misinterpretations were corrected in a reactive manner. In this era a lack of reflections about possible incompatibilities between an intended manufacturing strategy and the existing human resource could be stated. Industrial companies were forced, „...in a fire-fighting, ad hoc manner, handling problems when they emerge.“ (*Kinnie and Staughton, 1994*) Increasing complexity in the manufacturing area, especially caused by the diffusion and adaption of the ‚Lean’-idea (see *Womack et al., 1990*) led to a constant accretion of the gap between strategic theory and the operational reality (see *Storey, 1994*). As a consequence of this dilemma the ‚learn as you go’-attitude arose. This approach is closely connected with the idea of organisational learning. According to organisational

learning theory (see for the organisational learning theory Argyris and Schön, 1978) employees should underlie an iterative learning process which continuously augments their experience with handling problems. Based on increased experience of every employee an improved companywide dealing with changes in the strategic priorities is intended. The critical aspect of reaching this intention is the intra-organisational communication: on the one hand the whole workforce must be informed about new strategies and new manufacturing concepts in an 'ex ante'-manner for being better prepared. On the other hand weekly or monthly feedbacks must be given to support the learning process and to enhance experiences with occurring problems.

In recent years this learn-oriented approach is enlarged in a way that existing potentials of the human resource are evaluated in a more and more proactive manner which is called a 'predict and pre-empt'-attitude. This proactive attitude is characterized by detailed evaluation processes with the purpose to measure the available work force accurately and to reconcile possible manufacturing strategies with the human resources. Such evaluations of the existing human capital which are referred to as human resource management audits in the scientific literature (see Devanna et al., 1981) have been the starting point of a new perception of the work force, the strategic human resource management. The novelty of this perception is especially that the human resource is no longer considered as a cost driver but rather as an asset and strategic success factor which has to be continuously developed (see Oechsler, 2000).

COMPOSITION AND PROCEDURES OF STRATEGIC HUMAN RESOURCE MANAGEMENT

In the core of the strategic human resource management lies the assumption that a positive relationship between human resource management and the performance of an

industrial company can only be fulfilled over the consistency between the manufacturing strategy and the human resources. It is therefore essential to consider the correlations inside the model which is illustrated consecutively.

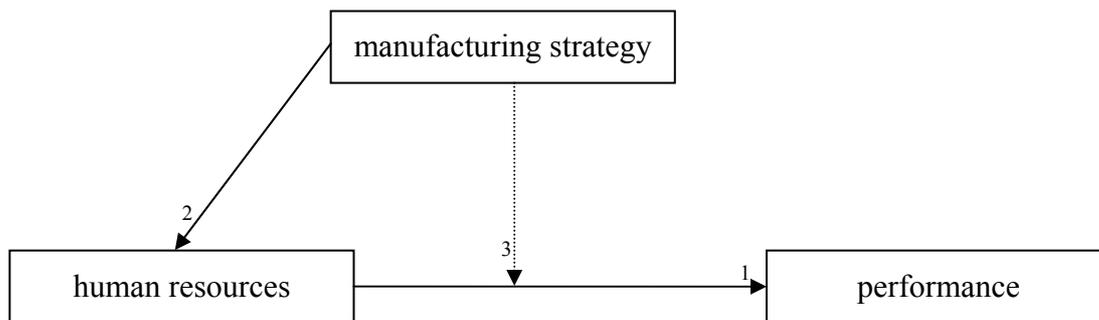


Figure 1 : Central correlations within the strategic human resource management

1. Correlation between the different measures of human resource management and the performance of an industrial company (efficiency-based)
2. Consistency between the intended manufacturing strategy and the existing human resources
3. Impact of the intended manufacturing strategy on the correlation between human resource management (effectiveness-based)

For the design of an effective and efficient strategic human resource management the Michigan approach has to be highlighted as the most accepted element in the spectrum of a multitude of different human-resource-approaches. In contrast to alternative concepts whereas particularly the Harvard approach has to be named (see Conrad, 1991) the Michigan approach intends the consequent promotion of the workforce and focuses on the internal consistency between strategic aims and the operational reality

(see Garnhorst and Wächter, 1996). The main element of this approach is the human resource cycle which connects the four functional areas of human resource management – appraisal, rewards, development and selection – in the following manner.

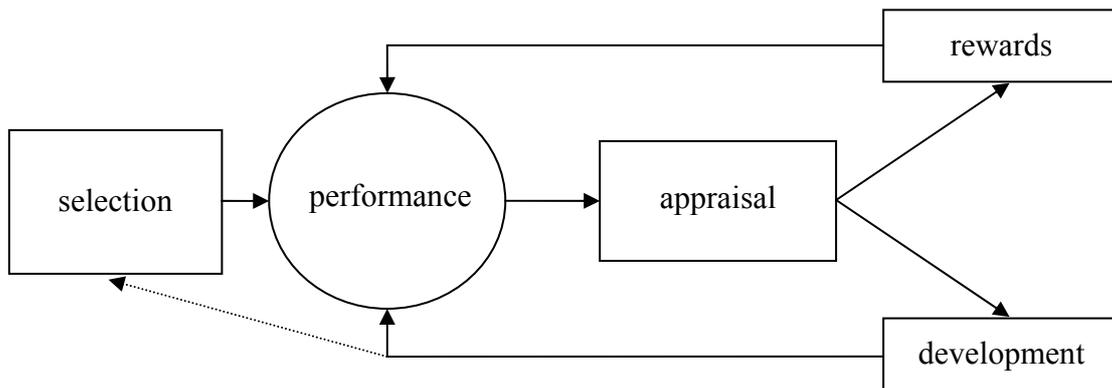


Figure 2 : The human resource cycle

Within the human resource cycle the performance is considered as the dependent and controlling variable. The four functional areas of human resource management as independent variables have analogously a deterministic character for the performance. The general objective of the approach is the optimization of the individual and also the organisational performance. (see Tichy et al., 1982)

According to *Pfeffer* (1998) a compilation of operational measures for the optimal design of a strategic human resource consists of seven elements:

- Employment security
- Selective hiring of new personnel
- Self-managed teams and decentralization of decision making
- Comparatively high compensation contingent on organisational performance
- Proactive and continuous training of individual abilities

- Reduced status distinctions and barriers
- Extensive sharing of financial and performance information throughout the organization

The three central correlations, the human resource cycle and the seven human resource measures can be consolidated to a general approach for a strategic human resource management (see figure 3). Within this approach it is necessary to distinguish the internal and external human resource management area. The internal one is characterized by direct measures which are applicable for every employee. In contrast the external human resource area only consists of measures that affect the behavior of the whole company. The impact on every employee takes place only in an indirect way.

The critical element for consistency between the manufacturing strategy and the existing human resources is the appraisal which must be considered as the control variable of the whole approach. The appraisal controls the iterative process which begins with the comparison of the real and the intended performance. A deviation leads to different measures within the human resource areas. The necessary adaption of the human resource which has to be fulfilled to face a performance gap is dependend of the company- and strategy-specific circumstances. Adaptions within the internal area can be done fast and have a short-run influence on the performance. In contrast the impact of changes inside the external area arises only in the long run.

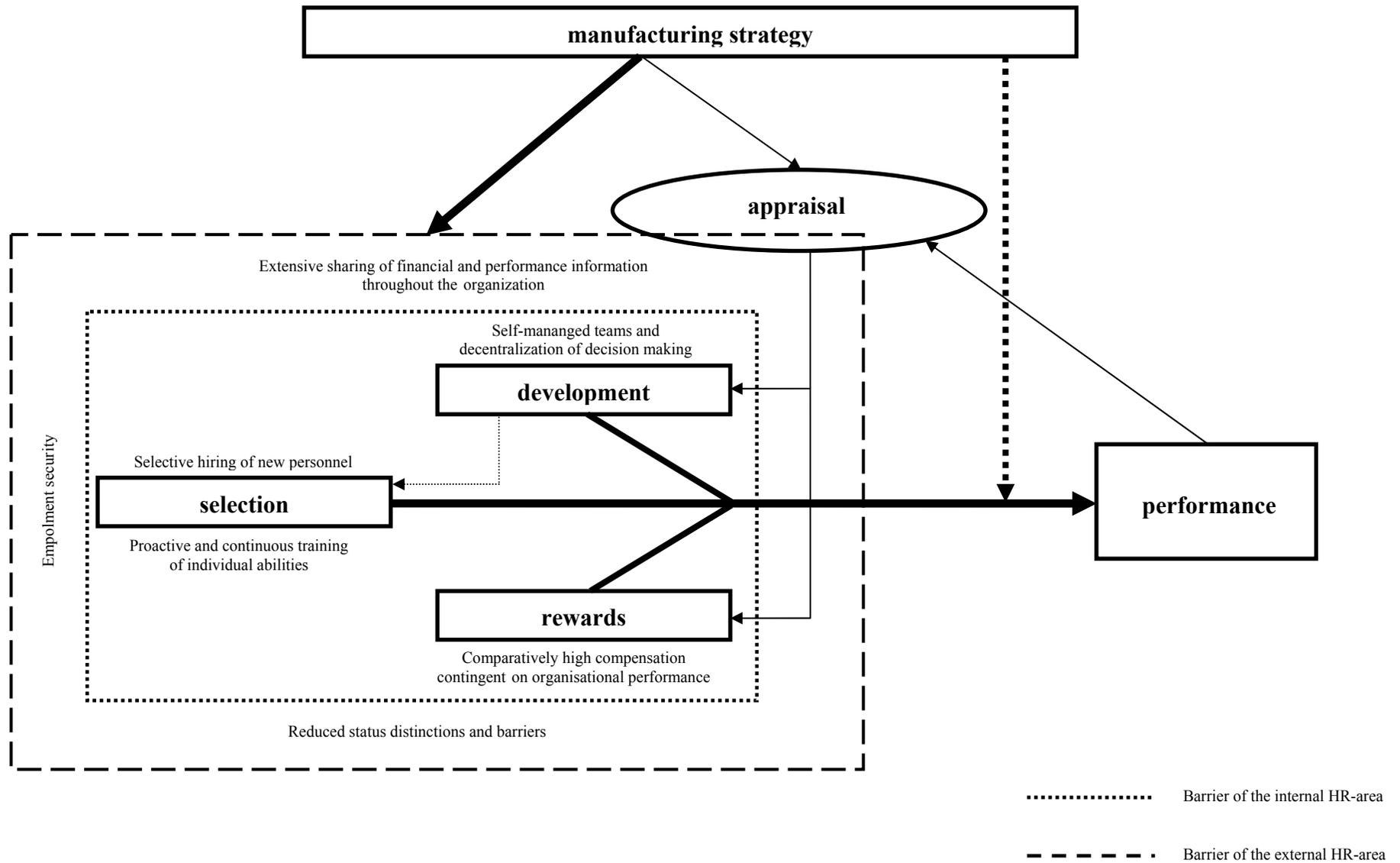


Figure 3 : Internal and external human resource management areas

Such a strategic human resource management which is closely connected to the idea of continuous improvement because of its iterative character is the concretion of the *„predict and pre-empt‘-attitude* which „involves adapting a series of principles which views change as the norm rather than the exception.“ (Kinnie and Staughton, 1994) Considering the increasing paradigm changes in the competitive behavior of industrial companies such a strategic perception of the human resource becomes more and more necessary for sustaining the competitiveness.

A generalisation of the described strategic human resource management on every possible company-specific circumstances is impossible as every industrial company has a different configuration of the strategic priorities. Furthermore fast changing environments lead to permanent changes in this configuration. The functional area which is the hardest to align to this strategic changes is certainly the human resource area because of its rigid character. Even measures within the internal human resource management area require a certain time. Therefore a major challenge in operations management is the finding of key human resource measures which are adaptable to every possible strategic configuration or environment. In the following the key human resource measures for the three major strategic aims of industrial companies – cost, quality, and time – will be identified separately. Afterwards insights from psychology will enlarge the approach in that way that the three aims can be faced simultaneously from the human resource side.

MANUFACTURING STRATEGY-SPECIFIC IMPLICATIONS FOR STRATEGIC HUMAN RESOURCE MANAGEMENT

Cost, quality, and time as the major strategic priorities of industrial companies require different accentuations within the holistic model of strategic human resource management. Accentuations have to be interpreted in that way that certain aspects of the model are relatively more important than the others and have to be treated in a more sophisticated way. However to neglect relatively unimportant measures is not appropriate for a successful human resource management.

Cost-oriented manufacturing strategy

Industrial companies who aim to produce their products with a minimum of costs are generally characterized through a marginal pronounced strategic human resource management. Only a few measures of the internal HR-area are really important. In contrast to the decentralized implications of the external HR-area the cost-oriented manufacturing strategy is characterized through „...command and control where emphasis is placed on efficiently managing a low-skilled, manual workforce.“ (Youndt et al., 1996) Diligent recruitings for identifying the most capable applicants are not appropriate as they do not have significant impact on the performance (see Hofstede, 1978). Furthermore the almost repetitive tasks of a shop-floor worker do not require complex development measures. Because of the accurate measurability of individual task fulfillment the reward system is quite easy to design so that every employee can be rewarded according to his specific performance (see Beatty and Schneier, 1997). The functionality of the control variable appraisal is less characterized through continuous adaptations due to changes in the strategic priorities. Cost-oriented manufacturers – in the best case the cost leader – keep their manufacturing strategy in accordance with

Porter's competitive strategy approach almost constant (see Porter, 1985). Therefore the appraisal is only efficiency-based which means that employees are appraised concerning their individual task fulfillment by means of time or digits. The integrated human resource cycle is mainly centered on the reward system (see figure 4). Employees should be brought to make less mistakes and to be more productive through higher payments.

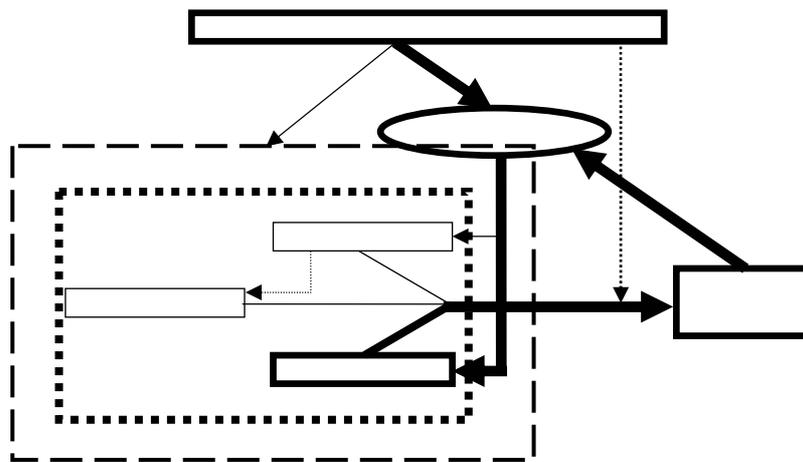


Figure 4 : The HR-requirements for cost-oriented manufacturers

Quality-oriented manufacturing strategy

The strategic focus on quality intends the continuous improvement of manufacturing processes to gain a maximum of product reliability and customer satisfaction (see Garvin, 1993). Quality as strategic priority changes the role of employees in a way that they are now forced „...to make a transition from touch labor, where their responsibilities are limited to only the physical execution of work, to knowledge work, where their responsibilities expand to include a richer array of activities such as planning, trouble-shooting, problem solving, quality assurance, scheduling, maintenance, and so forth.” (Youndt et al., 1996) Therefore recruiting processes are of

increasing importance. Particularly the necessity to work ‚together‘ instead of working ‚side by side‘ – which is the main work characteristic of cost-oriented manufacturing – aggravates the importance of selective development and recruiting of the human resource. Within the described general human resource approach the external HR-area has to be regarded in a more sophisticated way. Especially through extensive sharing of financial and performance information throughout the organization individual and also organisational learning processes should be advanced in an explicit manner. The appraisals are less mistake- or output-oriented but more in terms of continuous improvements within the framework of total-quality-management-procedures. The communication unless in the internal or external HR-area is less characterized by a ‚wrong, do it better!‘-mentality but rather by a ‚good, but there is still space for improvements!‘-mentality (see Blackburn and Rosen, 1993). The reward system focusses the performance of a group as a whole whereby the aspect of working together should be enforced. However rewards do not have that significant influence on the mode of action of the human resource system (see Santos, 2000).

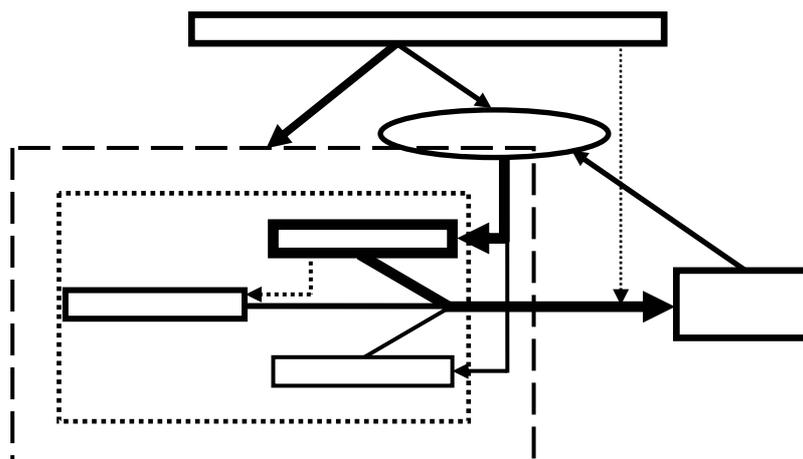


Figure 5 : The HR-requirements for quality-oriented manufacturers

Time-based manufacturing strategy

The time as primary strategic target is under human-resource-specific considerations often connected with the idea of total employee involvement which „...is a system that encourages employees to participate in the improvement of the business by using their creative abilities to make improvement suggestions and by sharing their expert knowledge regarding their immediate work areas.” (Silos, 1999) *Thun* defines five main columns of a time-oriented human resource management: information, communication, qualification, autonomy, and training (see *Thun*, 2002). By considering the developed strategic human resource approach nearly all aspects can be assigned to the five columns. Especially the importance of autonomy has to be accentuated within the time-based manufacturing strategy. This empowerment of employees is accompanied with the necessity of reducing hierarchies, status distinctions and barriers. Following *Cotton* autonomy really exists „...where frontline employees are given the opportunity to make decisions ... over their day-to-day work operations.” (Cotton, 1993) Similar to the characteristics of quality-focused manufacturing rewards do not have a significant impact on the whole human resource system. The main distinctive feature is the adjustment of the focus from the internal to the external HR-area.

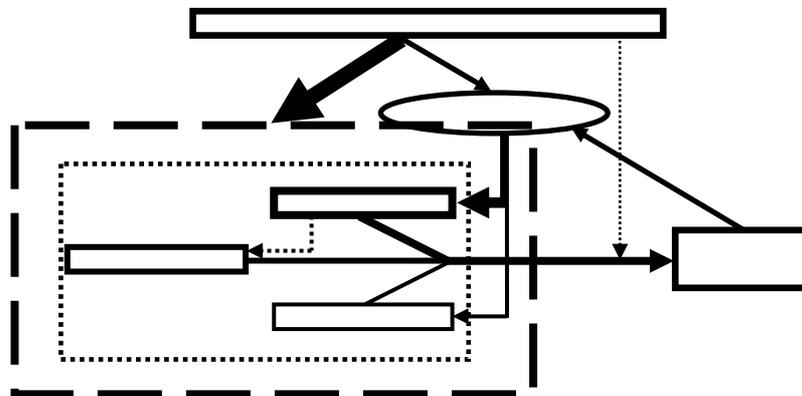


Figure 6 : Time-based manufacturing and HR-requirements

THE NEED FOR FLEXIBILITY IN A DYNAMIC ENVIRONMENT

Nowadays, it is commonly accepted that cost, quality, and time are the dominant success factors for industrial companies (see Stalk and Hout, 1990 and Milling et al., 2000). Furthermore, several authors argue that flexibility has evolved to become an additional factor for competitive advantage. One reason is the dominance of market demand with the resulting requirement to offer a greater variety of products, or at least product variations. Because of the fast changing environment, e.g. the volatility of demand, there is a need for agile manufacturing systems to gain a competitive advantage (see Milling et al., 2000). This requirement has become more and more crucial and difficult to fulfill due to the dynamics of demand variance. Additionally, products must be produced at low cost, thus plants are pressed to produce on high efficiency levels. Furthermore, products have to be delivered fast with a high on-time delivery ratio and must be in compliance with highest quality demands.

Upton defines flexibility by means of the three attributes: range, mobility, and uniformity (see Upton, 1994). The range represents the ability to handle a high variety production system, which is characterized by the production of many different products and volumes of output. Simultaneously, flexibility can only be achieved by featuring a high degree of mobility. Mobility indicates the impact of the movement within the range on manufacturing efficiency, i.e. cost, quality, and time. The uniformity consolidates range and mobility, variety and efficiency by measuring the variance of efficiency for different positions occupied within the range. A manufacturing systems is flexible if range, mobility, and uniformity are available on a high level so that a company possesses the "...ability to produce a variety of products in the quantities that

customers demand while maintaining high performance.” (Zhang et al., 2003) As such, flexibility must be understood as the solution of the trade-off between variety and efficiency.

Altogether, it can be stated that variety as well as efficiency must be considered. In general, there exist contrary interdependencies between these requirements. In the last decade several approaches have been developed to overcome the existing trade-off between variety and efficiency. Concepts like cellular manufacturing are able to contribute to the solution of this trade-off while considering the technical, manufacturing-specific side. However because of a wrong human resource management implementation problems occur frequently. The reason for this can generally be found in the nescience which specific human resource measure has to be accentuated. Because of the ambition to simultaneously achieve cost-, quality-, and time-advantages there can not be made any more a clear assignment which specific practises have to be highlighted. In the context of this search the psychology proves to be an useful agent between operations strategy and human resource management.

PSYCHOLOGICAL INSIGHTS FOR AN IMPROVED STRATEGIC HUMAN RESOURCE MANAGEMENT IN COMPLEX STRATEGIC CONFIGURATIONS

By using the psychology as agent between operations strategy and human resource management the focus has to be laid on work motivation. Within the last decades different approaches to work motivation have been developed by several psychologists. *Maslow* differentiates within his definition two kinds of work motives: deficit and growth motives (see Maslow, 1954). Deficit motives are only activated when a deficit occurs. There exist four classes of such deficit motives:

- Psychological motives (hunger, thirst, sexuality, sleep...)
- Safety motives (protection, foresight, non-anarchical circumstances)
- Belonging motives (contact, love, affiliation)
- Self-esteem motives (appreciation, status, prestige, respect)

In contrast to that the growth motive involves the continuous desire to „fulfill potentials, to be all that you can be. They are a matter of becoming the most complete, the fullest, „you” – hence the used term for the growth motive, self-actualization.” (Heckhausen, 1989) *Maslow’s* approach is based on the assumption that the different motives beginning with the deficit ones and followed by the growth ones are build up on each other. Therefore the approach is generally illustrated as a pyramid which should indicate that only by fulfilling the deficit motives and not having deficits within the different steps the self-actualization can be approached.

Another but very similar concept is the two-factor theory which was developed by *Herzberg* (see Herzberg, 1968). Within the concept two classes of work motivation factors can be distinguished: context factors and content factors. Core of the context factors are experiences which are connected with the environment of the work. These so-called extrinsic factors mainly include rewards, relationship to co-workers, work place conditions, and job security (see also Neuberger, 1974). Context factors are unable to create a positive perception of the work and any kind of work motivation. Furthermore negative experiences concerning rewards or work place conditions lead to dissatisfaction. While having fulfilled all context factors a neutral perception is created which is called non-dissatisfaction. Satisfaction can only be evoked by the content

factors which are related to the intrinsic work. Content factors are experiences that are directly connected to the work, i.e. work performance, perceived acknowledgement, work contents, assignment of responsibility, perceived individual development.

The two-factor theory can be compared with *Hill's* order winner and order qualifier theory (see Hill, 1993): context factor as order qualifier which have to be fulfilled in an adequate manner and content factors as order winners for creating uniqueness from customer perspective and satisfaction or rather motivation from workers perspective. By doing so industrial companies can seize competitive advantage through their uniqueness in customer- but also in human-resource-affairs.

Maslow's and *Herzberg's* approaches have the common idea of motivational qualifiers and winners. *Maslow's* motiv of self-actualization is concretised through the content factors of *Herzberg* which lead to work satisfaction and motivation. Within their job characteristic model *Hackman* and *Oldman* specified which detailed aspects of the content factors evoke workers motivation (see Hackman and Oldham, 1975). The job characteristics model is composed as a causal model: the detailed content factors act as independent variables, the evoked psychological states as mediator variable and the outcomes considering the work as dependent variable (see figure 7). The content factors skill variety, task identity, task significance, autonomy, and feedback cause psychological states which again lead to outcomes in terms of job satisfaction, motivation and finally job performance.

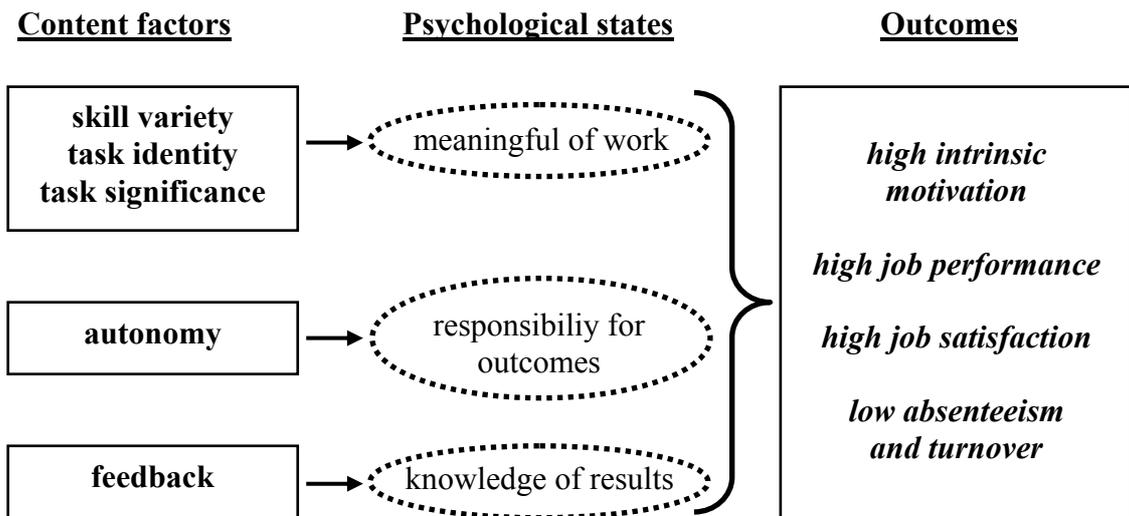


Figure 7 : The job characteristics model

After having identified the main content factors all aspects of the holistic strategic human resource approach can now be classified into a motivational qualifier-/winner-diagramm (see table 1).

Psychological separation criterion	Elements of the holistic strategic human resource model	
	Internal HR-area	External HR-area
Context factor – motivational qualifier	<ul style="list-style-type: none"> Comparativly high compensation contingent on organisational performance (rewards) Selective hiring of new personnel (selection) 	<ul style="list-style-type: none"> Employment security
Content factor – motivational winner	<ul style="list-style-type: none"> Proactive and contiunous training of individual abilities (development to skill variety) Self-managed teams and decentralization of decision making (development of task identity and task significance/ autonomy) 	<ul style="list-style-type: none"> Reduced status distinctions and barriers (autonomy) Extensive sharing of financial and performance information throughout the organization (appraisal/ feedback)

Table 1 : Motivational qualifier-/winner-cassification

Within the separate consideration of the different operations strategies clear accentuations could be identified for a sophisticated human resource management. The

human-resource-specific problem industrial companies are confronted with while striving for flexibility in terms of a simultaneous satisfaction of the strategic aims cost, quality, and time can now be faced in a more structured way. With the knowledge in human-resource-affairs of what is to fulfill adequately (context factors) and what is to maximize (content factors) a competitive advantage can arise and a uniqueness in comparison to the competitors can be created.

For flexible manufacturing all motivational qualifiers like a comparatively high compensation contingent on organisational performance and noticeable employment security are pre-requisites for any effort within the content factors. Not until all context factors have been realised adequately the motivational winning factors can generate noticeable success.

CONCLUSION AND FURTHER RESEARCH

In this paper, the potential of insights from psychology for a better strategic human resource management has been discussed. After having developed a holistic strategic human resource model the identification of the human resource-specific accentuations for separately followed operations strategies (cost, quality, and time) was clear. Cost-oriented manufacturers have to focus mainly on rewards, industrial companies who want to gain competitiveness through high quality-standards are forced to develop their personnel in a proactive and continuous manner and time-based manufacturers must reduce hierarchies, decentralize decision processes and communicate individual and organisational goals constantly. Nowadays the most firms have to strive for a simultaneous optimization of the strategic aims cost, quality, and time. The required flexibility is often connected with emerging problems for the human resource

management. The reason for that dilemma is mostly the nescience that specific human resource practises have to be conducted more sophisticated than others.

Insights from psychology can help to overcome occurring problems within the strategic human resource management. Especially the early work-motivation-oriented approaches from *Maslow*, *Herzberg* and *Hackman/Oldham* which regain validity in an extraordinary manner since the generally approved change of values within the last two decades (see Inglehart, 1989) are quite useful for a better understanding of what is important for the management of personnel in complex situations (e.g. flexible manufacturing strategy).

As a result of the connection of psychology and strategic human resource management it can be stated that industrial companies have to fulfill first basic requirements like appropriate payments or noticeable employment security. These requirements can be interpreted as motivational qualifiers. Employees cannot be motivated by these measures, they only can be dissatisfied. Without having fulfilled these qualifying measures the motivational winners (i.e. skill variety, task identity, task significance, feedback, and autonomy) have neither a significant impact on the individual motivation and performance nor on the performance of a whole company.

In future research the impact of the different measures within the holistic model of strategic human resource management on the performance should be investigated empirically. Another research task is to show the empirical validity of the theoretically used psychological insights for the strategic human resource management.

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