

DANISH **R**ESearch **U**NIT FOR **I**NDUSTRIAL **D**YNAMICS

DRUID Working Paper No 00-10

**Value-based management in learning organizations
through 'hard' and 'soft' managerial approaches:
The case of Hewlett-Packard**

By

Søren Nymark
September, 2000

Value-based management in learning organizations through 'hard' and 'soft' managerial approaches: The case of Hewlett-Packard¹

Senior Consultant Søren R. Nymark, Ph.D.
KPMG Consulting
Borups Allé 177, P.O. Box 250, DK-2000 Frederiksberg, Denmark
Tel.: +45 3818 3818, Email: snymark@kpmg.com

Abstract

'Learning organizations' enable companies to remove hierarchical levels and to introduce a flatter organizational structure, which can lead to reduced costs and increased productivity. A recent Danish study has proved coherence between a flat, integrative organizational structure and an increased productivity. This enables a kind of management in which the managerial form is not as direct as it is in more traditional structured companies. Value-based management is advanced as a possible answer to the question of which managerial form that is appropriate for these kind of companies.

In the article, value-based management is described as well as the underlying factors that are affected by such a managerial form. Required managerial elements in relation to value-based management are advanced. Examples from Hewlett-Packard are used to illustrate both the use of value-based management in practice and the underlying factors.

Keywords:

Organizational learning, organizational storytelling, organizational memory, organizational culture, value-based management, learning organization, Hewlett-Packard

JEL:

L22, L63, M14

ISBN(87-7873-094-5)

¹ Comments from Associate Professor Jørgen Gulddahl Rasmussen, Ph.D., at Aalborg University to a previous version of the paper are highly appreciated.

Introduction: A description of a learning organization

The field of organizational learning, that is relevant for this article, can be defined through the following widely acknowledged statements:

”Organizational learning means the process of improving actions through better knowledge and understanding.” (Fiol & Lyles, 1985: 803)

”Organizations are seen as learning by encoding inferences from history into routines that guide behavior.” (Levitt & March, 1988: 319)

”Organizational learning occurs through shared insights, knowledge, and mental models ... [and] build on past knowledge and experience, that is, on memory.” (Stata, 1989: 64)

Thus, there will be focused on the cognitive processes that enable organizational learning. On how information and the impressions from the surroundings become manifest in the organization, and how meaning is deducted from otherwise paradoxical experiences and information. The processes of learning that flows in the organization need continuously to contribute to the organization’s development with learning of second order. Second order learning is the learning that arises, when an incident makes one re-examine and question one’s basic values and objectives.

Second order learning is thus a necessity for continuous development. If only first order learning takes place without reflective loops back to examine basic understandings, then companies will continue to develop in a certain direction until they meet a radical crisis, which may cause the company to change direction dramatically or to die. The theory about learning organizations is a theory of continuous development without radical crisis. In order to ensure a company future survival, daily learning processes of first order must take place, as well as the critical reflection, that is given by a learning process of second order, must occur from time to time. For example, a centralized mechanistic organizational structure will be liable to build on previous behavior, while a more decentralized flexible organizational structure will claim new knowledge to a larger degree (Duncan, 1974).

A company, that has ambitions to become a ‘learning organization’, need what has been labeled as ‘high caliber’ employees. Characteristic for such employees is that they 1) are highly educated, 2) have the ability to acquire new knowledge fast and continuously adapt to new conditions, 3) possess the ability to work without supervision and control,

being able to lay down own goals, observe the outcome of these goals, and correct errors that may occur, 4) have good interpersonal skills, and 4) possess the ability to solve problems by creative evaluation of different possibilities, and by contributing with own ideas to reach solutions to the emerging problems (Barrow & Loughlin, 1992: 5).

This will enable companies to remove hierarchical levels and to introduce a flatter organizational structure, which can lead to reduced costs and increased productivity. A recent Danish study proved coherence between a flat, integrative organizational structure and increased productivity (Nymark, 1999). Therefore a challenge for the management is to create room for an organizational form in which learning and innovation are encouraged.

Morsing (1995: 3) concludes that just as impossible it is to force people to be spontaneous, just as impossible is it to enforce people to be creative, to act more independent or to take on more responsibility. Thus the management has not any direct possibility to force employees to act spontaneously, take initiatives, and to learn from their experiences. The management needs to create room in the organization that urges the employees to develop the characteristics that is considered necessary for 'learning organizations' or for making organizational learning possible. It is pointed out that the management cannot force renewal, but management can try to create an environment for radical renewal by influencing the processes in the organization that is a requisite for second order learning (Morsing, 1995: 27). Continuous learning cannot as such be 'implemented'. Garvin (1993) argues that a learning organization is one that encourages learning among its employees and continuously reorganizes itself. A learning organization is characterized by 1) a social climate in which employees are encouraged to learn and develop their full potential, 2) a strong integration between human resources and companies strategic policy, and 3) keeping the organization in a continuous state of transforming itself (Pedler, Burgoyne & Boydell, 1989). Dogdson further defines a learning organization as one that consequently adopts organizational forms and strategies that encourage learning (1993: 387).

Value-based management

The emphasis on learning organizations also requires another managerial form than the traditional authoritatively form with focus on supervision and regulation. The management needs to focus on communication of values and visions. This managerial focus is

called value-based management. It is highly relevant for companies in change-intensive, knowledge based industries with a high degree of highly educated employees.

Value-based management can fundamentally be seen as an indirect managerial style. It is concerned with making the employees carry out the correct work assignments on their own initiative without ordering them directly to do so. In knowledge based companies the circumstance also exists that the management does not know what the employees specifically are supposed to do, and the management is not expected to know. The management's role is to define, create, and communicate the conditions in which knowledge workers can work. Conditions about what is acceptable behavior, and which actions are appropriate in relation to the management's vision and company values. By this information from the management the employees deduct their understanding of conditions and direction in the company. Value-based management is thus a managerial form that is concerned with making a group of people work together towards a mutual goal without explicit managerial pressure and use of power.

Hewlett-Packard has practiced these ideas for more than half a century. The previous CEO of Hewlett-Packard, Lew Platt, explains:

“In the HP environment, you really can't order people to do anything. As CEO my job is to encourage people to work together, to experiment, to try things, but I can't order them to do it. We've picked people who are high-energy self-starters. You can't tell them what to do. The best I can do is sort of bring people together and hope they mate.”

“The philosophy of The HP Way is built on guiding rather than telling: instead of telling people what to do, real leaders focus on helping people find their own way through 'adaptive challenges' – problems without readily apparent solutions.”

“I spend a lot of my time talking about values rather than trying to figure out the business strategies. I don't think I realized until I became CEO and started to talk to other CEOs how different that is. The most important aspect of the management of this company is cultural control. Get that and the rest follows.” (Nymark, 2000)

At Hewlett-Packard the organizational values are described in an inhouse publication called 'The HP Way'. These organizational values are described in Textbox 1. 'The HP Way' contains the company philosophy as it was seen in the late 1950s, and it has been revised only little since. The founders, Bill Hewlett and David Packard, saw 'The HP Way' as the 'glue' that kept the company together, and as a critical factor for Hewlett-

Packard's success. 'The HP Way' was written based on 20 years of experience with the management of Hewlett-Packard since its start in 1939. To a large degree it can be noted that the founders of Hewlett-Packard already in the late 1930s foresaw many of the tendencies in organization and management that have become today's management fashion (Nymark, 2000: xi).

These values at Hewlett-Packard are commented in the publication as:

'HP's organizational values are a set of deeply held beliefs that govern and guide our behavior in meeting our objectives and in dealing with each other, our customers, shareholders and others' (Hewlett-Packard, 1997).

'HP's objectives and values have guided us very well for more than half a century. We believe they are what will give us firm footing in this rapidly changing environment' (Lew Platt in Hewlett-Packard, 1997).

Textbox 1: Organizational values at Hewlett-Packard

We have trust and respect for individuals.

We approach each situation with the belief that people want to do a good job and will do so, given the proper tools and support. We attract highly capable, diverse, innovative people and recognize their efforts and contributions to the company. HP people contribute enthusiastically and share in the success that they make possible.

We focus on a high level of achievement and contribution.

Our customers expect HP products and services to be of the highest quality and to provide lasting value. To achieve this, all HP people, especially managers, must be leaders who generate enthusiasm and respond with extra effort to meet customer needs. Techniques and management practices which are effective today may be outdated in the future. For us to remain at the forefront in all our activities, people should always be looking for new and better ways to do their work.

We conduct our business with uncompromising integrity.

We expect HP people to be open and honest in their dealings to earn the trust and loyalty of others. People at every level are expected to adhere to the highest standards of business ethics and must understand that anything less is unacceptable. As a practical matter, ethical conduct cannot be assured by written HP policies and codes; it must be an integral part of the organization, a deeply ingrained tradition that is passed from one generation of employees to another.

We achieve our common objectives through teamwork.

We recognize that it is only through effective cooperation within and among organizations that we can achieve our goals. Our commitment is to work as a worldwide team to fulfill the expectations of our customers, shareholders and others who depend upon us. The benefits and obligations of doing business are shared among all HP people.

We encourage flexibility and innovation.

We create an inclusive work environment which supports the diversity of our people and stimulates innovation. We strive for overall objectives which are clearly stated and agreed upon, and allow people flexibility in working toward goals in ways that they help determine are best for the organization. HP people should personally accept responsibility and be encouraged to upgrade their skills and capabilities through ongoing training and development. This is especially important in a technical business where the rate of progress is rapid and where people are expected to adapt to change.

Hewlett-Packard (1997); Nymark (2000: 140).

The organizational values of Hewlett-Packard, described in Textbox 1, are somewhat broad and flexible, even though they communicate an understanding or feeling for appropriate behavior in Hewlett-Packard to the individual employee. The values need to be flexible in order to be enduring over time, but one might question the effect as the values are vaguely defined. A consequence is that the concept of ‘storytelling’ must supplement the focus on organizational values. Through ‘storytelling’ the organizational values are communicated and made concrete.

Storytelling in organizations

Stories are in every culture considered a media for providing meaning and understanding of the world for the individual: “*It has been proposed that man lives by stories (Mitroff & Kilmann, 1976: 189); that people in organizations are ‘natural, born storytellers’ (Boje, 1994: 433); that man is ‘a storytelling animal by nature’ (Eco, 1983: 13); and the human race is even considered as ‘homo narrans’ (Fisher, 1984).*” (Nymark, 2000: 47). Stories are told at all levels in an organization. The stories are evaluated by their recipients on criteria as verisimilitude, and to whether the stories make sense out of events encountered by the individual.

Here focus is on the function that both formal and informal stories have in organizations. Formal stories are seen as a means for communicating the management’s visions about the company future as well as the set of values, which the company emphasizes. Formal stories can for instance have the form of the management’s speeches at employee meetings, vision and value statements in internal brochures, and books written by the management. Formal stories reflect the image of the company that the management prefers to communicate to both internal and external stakeholders. Through formal stories management influences organizational cultures.

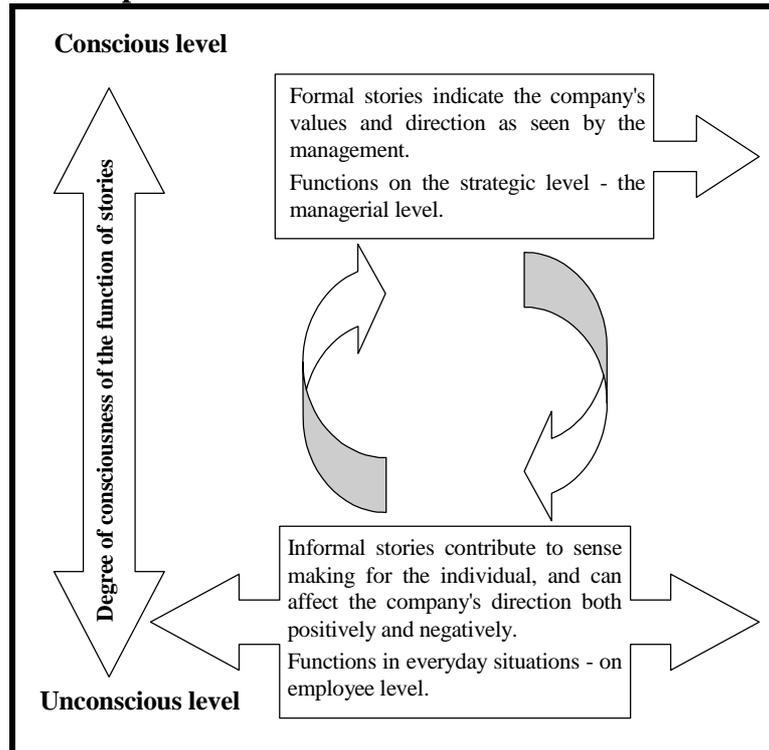
Informal stories are of an uncontrollable and fundamental character in an organization. Informal stories are stories that make sense out of otherwise paradoxical and ambiguous events in the organization for the individual employee. If for instance an employee is in a situation where the employee has acted in accordance with the organization’s set of values, but the action is resented in the organization, and the employee subsequently consults a colleague, then the event often will be explained in the form of a story. Informal stories arise in the situation and are not as such something the employees are con-

scious of in everyday situations. A story will, based on the company history, explain why an otherwise rational action according to the company's values is not *comme il faut* in that specific situation. Thus the story gives meaning to an ambiguous situation so the employee is able to act with increased understanding of the organizational cultures in future situations.

An organization's cultures consist of elements with different degrees of visibility. Norms and assumptions lie deeply rooted and implicit in the organization's cultures. Also the values, that the organization is built on, can be found here. These values are shaped over time through different factors, which influence the organization's culture. One way, in which these values are shaped and thus influence the organizational cultures, is through the organizational stories. When values in organizational cultures lie implicit, they can be hard both to grasp for new employees and to communicate explicitly to other employees. This function is thus maintained through organizational stories. It is through the stories that elements of the cultures are communicated throughout the organization. Hereby employees learn what is acceptable in the organization and what is not. In the stories this is communicated explicitly, but also an implicit understanding or intuitive understanding is communicated in the morale of the stories, which thus contributes to an increased ability for employees to act appropriately in the organization in other situations.

Formal and informal stories can be seen as correcting each other. If the stories that the management communicates do not correlate to the organizational reality as the employees see it, then informal stories arise between the employees to adjust for this incongruity. It can cause the management and thus the company more harm than otherwise, so in that sense it is important for the management to walk its talk. This is illustrated in Figure 1.

Figure 1: Relationship between formal and informal stories.



Organizational stories serve several important functions. Informal stories have two main purposes. The first one is that stories are creators of meaning for all employees in their daily roles and thus also function to both maintain and revise the organizational culture, the basic understanding of the organization. The second main purpose is to communicate the organizational culture to new members of the organization. Through informal stories new members are given meaning to otherwise ambiguous or paradoxical situations, they have experienced. Formal stories function directly to communicate and influence the organizational culture and values. Formal stories are explicit, and most often the management communicates formal stories as seen in the example of Hewlett-Packard below.

An example from Hewlett-Packard

An often-referred story goes about an event concerning the confidence that Hewlett-Packard places in people as well as the company's emphasis on innovation. It concerns an incident that happened one weekend, when Bill Hewlett stopped by the plant to pick up a microscope and found that the storage bins were locked up (Nymark, 2000: 133).

The legend has it that he smashed open the latch, took what he needed, and left a note saying that the bins should always be kept open to encourage workers to take home equipment for experiments. The incident and the peculiarities of the open store laboratory policy are later recalled as:

“The faith that HP has in its people is conspicuously in evidence in the corporate ‘open lab stock’ policy that a few of our students encountered in the Santa Rosa division. The lab stock area is where the electrical and mechanical components are kept. The open lab stock policy means that not only do the engineers have free access to this equipment, but they are actually encouraged to take it home for their personal use. The idea is that whether or not what the engineers are doing with it directly related to the project they are working on, by fooling around with the equipment at work or at home, they will learn – and so reinforce the company’s commitment to innovation. Legend has it that Bill visited a plant on a Saturday and found the lab stock area locked. He immediately went down to maintenance, grabbed a bolt cutter, and proceeded to cut the padlock off the lab stock door. He left a note that was found on Monday morning: ‘Don’t ever lock this door again. Thanks, Bill’.” (Peters & Waterman, 1982: 245 in Nymark, 2000: 133)

This event has been seen as an early pivotal event in the history of Hewlett-Packard, which emphasizes explicitly that Hewlett-Packard was not going to be a company that distrusted its employees. Furthermore, the open stock and laboratories’ policy can easily be seen as a symbol of trust, which is a central aspect of the way that Hewlett-Packard is managed. The open stock policy can also be seen as a symbol of the strong devotion to innovation that Hewlett-Packard has, as well as recognition of the fact that continuous innovation is what marks the future of the company.

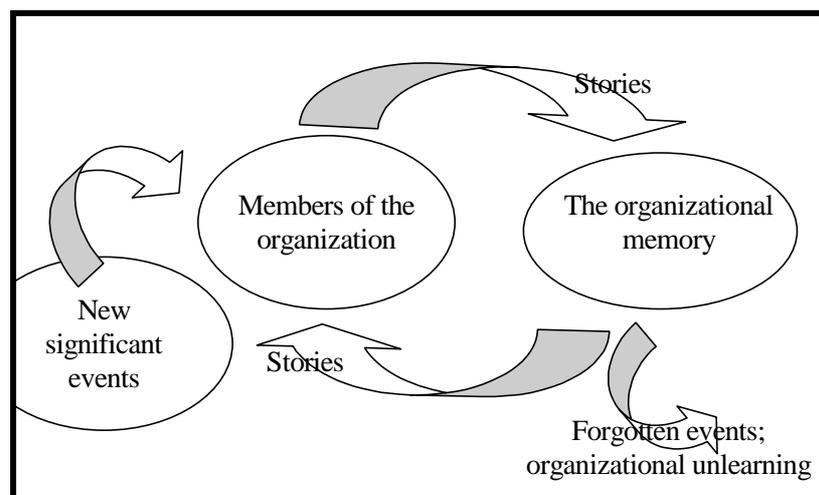
The strengths of the story were later illustrated, when an interview session took place at Hewlett-Packard at the Birkerød site in Denmark. The interviewer made inquiries into stories that particularly can be emphasized to illustrate or underline the organizational culture at Hewlett-Packard. The questions asked to the employees were not directly on organizational stories, but organizational stories were the topic of the inquiry. The employee, who was interviewed, explained about: ‘some incident years back, before I was hired, about a door that had been locked, which was broken up by a manager to illustrate the trust that was shown the employees at HP. And the employee, who had put a lock in good faith on the door, had been told never to do that again’ (Nymark, 2000: 171).

The original story has been used as a formal story for the management to communicate an aspect of the organizational values. This story has now become informal, as it can be seen in the example above, and is thus used between employees to give meaning and understanding of everyday topics and incidents. It has developed from being a formal story to becoming institutional practice at Hewlett-Packard worldwide. It can clearly be seen from the history of Hewlett-Packard, and especially some of the first many years with Hewlett and Packard in the top management, that much has been done, and even perhaps overdramatized, in order to explain and communicate organizational values to employees by strong examples and deliberate communication of these examples.

Organizational stories, learning and memory

Through members of the organization stories are handed over to new members and to older members in new situations in which the re-told story is handed over. New events affect and revise continuously the collective organizational memory. In Figure 2 the connection of elements affecting the organizational memory is illustrated. The organizational memory can be seen as an intersubjective consensual social knowledge, which is created, maintained and revised through the employees' stories. Organizational stories then can be seen as a medium for understanding and communication of organizational knowledge.

Figure 2: Connection of elements in organizational memory



New stories emerge, some are adjusted and some are forgotten. If a story about an event in the organization is not re-told, it might be because the organization has developed in a direction in which these stories about certain significant events no longer contribute to a sense making process for the individual. These stories are eventually forgotten, and the members of the organization, who still remember the stories, will gradually leave the company, and thus unlearning of the organizational knowledge has commenced.

In situations, which an employee may find ambiguous or paradoxical, understanding of the situation is communicated by colleagues in the shape of stories, with origin in the organizational memory. Hereby meaning is attached for the individual employee to the occurrence as previously explained.

Table 1 synthesizes the notion of organizational memory in relation to formal and informal stories in perspective of learning and development.

Table 1: The role and function of organizational stories: A synthesis.

Typology:	<i>Informal stories</i>	<i>Formal stories</i>
Process of learning:	2. order learning	1. order learning
Function:	Development	Maintenance
Action:	Adjustment of organizational memory	Communication of organizational values

In an organization the communication of the company's values maintain the organizational memory through formal stories as illustrated by the case Hewlett-Packard. Informal stories contribute continuously to an adjustment of the organizational memory. Through informal stories the existing values and norms, which are maintained through the formal stories, are questioned. Thus formal and informal organizational stories' role in relation to 1. and 2. order learning processes can be illustrated. 1. order learning processes function to maintain the established system, while 2. order learning processes function to develop the existing system by questioning the existing values and norms. And thorough the learning processes information is collected, analyzed, stored, and transferred (Popper & Lipshitz, 1998: 170).

For the individual employee formal stories function to maintain and reinforce the existing understanding of the organizational culture, while informal stories function to give

meaning to otherwise paradoxical occurrences in the organization. In this re-telling from employee to employee the organizational memory is adjusted. Hedberg links individual learning with organizational memory as:

“Although organizational learning occurs through individuals, it would be a mistake to conclude that organizational learning is nothing but the cumulative result of members’ learning. Organizations do not have brains, but they have cognitive systems and memories. As individuals develop their personalities, personal habits, and beliefs over time, organizations develop world views and ideologies. Members come and go, and leadership changes, but organizations’ memories preserve certain behaviors, mental maps, norms, and values over time.” (Hedberg, 1981: 6)

Walsh & Ungson (1991: 72) points out that in organizations ability must exist to collect and store communicable, consensual, and integrated knowledge. Through this knowledge organizational activities are integrated and coordinated. This can for example be the transference of new knowledge throughout the system. This ability is the organizational memory. In the organizational memory lies knowledge about previous events from the organization’s past, which can make sense in ambiguous situations for the individual employee. Thus the organizational memory functions to connect the past with the present.

The organizational memory is a part of the culture. Schein (1990: 111, 115) underlines, that culture is something that has to be learned. Culture is what members of the organization learn over a period of time by acting according to the problems they meet both in the organization’s internal and external surroundings. This process of learning is thus at the same time a behavioral, a cognitive, and an emotional process. Schein defines culture as:

“... as (a) a pattern of basic assumptions, (b) invented, discovered, or developed by a given group, (c) as it learns to cope with its problems of external adaption and internal integration, (d) that has worked well enough to be considered valid and, therefore (e) is to be taught to new members as the (f) correct way to perceive, think, and feel in relation to those problems.” (Schein, 1990: 111)

Organizational culture is a network of local meaning and significance between members of the organization (Schultz, 1990: 73). Organizational culture is a socially constructed and meaningful reality for the members that sums up the specific way of existing in the

particular organization. However, the organizational culture must not be understood as a static and unambiguous entity. Culture is an active, dynamic, and subjective entity that always is undergoing changes in a forum of negotiation between members of the organization. Bruner illustrates this very well:

“... culture is constantly in process of being recreated as it is interpreted and renegotiated by its members. In this view, a culture is as much a forum for negotiating and renegotiating meaning and for explicating action as it is a set of rules or specifications for action. Indeed, every culture maintains specialized institutions or occasions for intensifying this ‘forum-like’ feature. Storytelling, theater, science, even jurisprudence are all techniques for intensifying this function – ways of exploring possible worlds out of the context of immediate need. ... It is the forum aspect of a culture that gives its participants a role in constantly making and remaking the culture – an active role as participants rather than as performing spectators who play out their canonical roles according to rule when the appropriate cues occur.”
(Bruner, 1986: 123)

In an organization’s culture different levels of visibility exist (Schein, 1992: 238). The most explicit way of getting an impression of the organization’s culture is for example by reading the information material that is handed out to new employees, as those values, on which the organization builds its culture, lie on a deeper and more implicit level. Through these values it is possible to come under management rhetoric about the company’s culture and how things are done in the particular company. In the deeper lying values the organization’s culture is reflected.

Value-based management by storytelling

Value-based management is concerned with indirectly setting the conditions, under which employees can work and develop in the organization as previously explained. Organizational stories are used to communicate organizational values and culture as well as making sense for employees in the organization. Formal stories are communicated by the management in order to explain organizational by ‘correct’ guidelines for behavior in the organization to new employees as well as to keep older employees focussed on a common picture of the organization, its values, and its vision for the future. Enduring organizational values is important for, for instance, fast growing companies and companies in change-intensive surroundings as the high-tech industry. Enduring values creates an important sense of stability in the organizations, while the need for direct managerial

attention is less necessary. The management can use formal stories to communicate these values, but must be aware of 'walking the talk'. Otherwise they will be exposed to informal organizational stories among employees correcting the wrong image. This is a process that continuously goes on in organizations as illustrated in figure 2.

This form of value-based management has been seen at Hewlett-Packard for decades. Especially the founders, Bill Hewlett and Dave Packard, were most aware of the signals they sent by their behavior and information material. Hewlett, breaking up the lock to the inventory with a bolt cutter, is a good example, how theatrical and demonstrative behavior is used to create stories of small but significant events that function to communicate values and culture to employees. Several of these significant events that have turned into widely communicated stories at Hewlett-Packard have been collected (Nymark, 2000: 115-148). These stories serve to employees as examples of what the founders have done in specific situations and from these stories the employees can deduct by analogy what is acceptable behavior for them in other situations, as also the stories are giving an impression of the corporate culture. The story of the inventory serves thus both to communicate the company's attitude to locking up material, and as well indirectly the degree of trust, the company has to its employees, and to communicate indirectly that innovation takes place through playing and in other informal contexts.

The strength of organizational stories as a means in value-based management is given by the example of the interview situation at Hewlett-Packard in Birkerød. The employee retold the morale of the inventory story as something that had happened at the site at Birkerød. Even though the story is passed on through several employees' re-telling and re-interpretation, the morale, in which the organizational values lie, remains the same. It is indifferent to the values, which are communicated in the morale, whether the event took place at Birkerød or Palo Alto. Furthermore, the story of the locked inventory is a formal story, that successfully has been accepted and adapted in the organizational memory, and thus is increasingly used as an informal story. A story that gives meaning and understanding in the every-day life for the individual employee, and become an integrated part of the organizational memory.

For companies, that find themselves in change-intensive organizational surroundings and with highly educated employees, it might be appropriate to put more emphasis on value-based management compared to vision management. The two managerial forms

build on the same premises, but when the management by vision management focuses on creating and communicating a common vision for employees to identify with, the management by value-based management focuses on creating and communicating a common set of values, which employees need to adhere to when working in the company. It gives the employee a wide degree of freedom knowing that if the employee adheres to the limits of these values, everything is basically allowed as a basic rule. The difficulty of vision management in change-intensive surroundings is to maintain and communicate the vision continuously to the employees as frequent as surroundings change. This is easier done in industries and companies working on less change-intensive markets as for instance traditional furniture manufacturing market. Vision management is mainly externally focused whereas value-based management is internally focused. Therefore value-based management is relevant for companies that strive on the forefront of their industry and thus being part of creating their own future. Company vision can thus be frequently changeable, while a solid and enduring set of values is important for the employees to adhere to in their daily work.

Goal setting on both an individual and an organizational level as an important part of value-based management

An important part of the managerial role in value-based management, as seen above, is to communicate the corporate values by different means, which both includes the storytelling aspect and the symbolic aspect of talking the walk *and* walking the talk themselves. However, another important side of value-based management has not been emphasized yet. It is the importance of a continuous goal setting and review of goals and progress.

Again Hewlett-Packard can be used as an example. If Hewlett and Packard had only focused on communicating values, things may very well have looked very different for Hewlett-Packard today. Hewlett-Packard has developed a highly sophisticated system based on continuous goal setting and evaluation on both an individual and an organizational level.

Goal setting on the level of the individual employee through evaluation and development

As an example it can be advanced that Hewlett-Packard uses an evaluation system named Personal Evaluation/Development Plan (PE/DP), which also includes a Position Plan (DP) as a part of the Development Plan. The Position Plan ensures that the individual employee at all time is aware of the tasks of which the employee is responsible. The PE/DP is an yearly evaluation and subsequently a development plan. Every year new goals are set for the employee, some goals are revised, others are admitted, and the previous year is evaluated. The PE/DP system is used for evaluation and goal setting for employees at all levels of the hierarchy, and besides fixed parts there is room left for local adjustments if necessary. As a minimum the following items should be included: a signature area for employee consent to the PE/DP, a list of future targets and expected results, a list of criterions, which the employee will be evaluated on the coming year, a summary of previous accomplishments, employee comments to last year's PE/DP, and a development plan for next year.

In surveys Hewlett-Packard centrally follows up on the PE/DP. There are e.g. surveys concerning the degree of success in reaching the goals set, the quality of the process towards reaching the goals set, and the management's support. A number of issues concerning the individual employee are also evaluated. For instance personal sale, orders, turnover, and to which degree the management has performed the yearly PE/DP with all subordinates. Additional examples are given in Textbox 2.

Textbox 2: Issues for survey used in the PE/DP system.

In employee surveys the employees are asked whether they have a development plan and have sufficient opportunities for training. The surveys are also a reminder to the employees that they are responsible for their own development, and thus are prepared for the changing needs in Hewlett-Packard. In the survey it is also checked whether the management is willing to discuss career development and whether it is supportive of the employee's continuous development in their current job. For instance, performance factors, that the employees are measured on, are work characteristics as quality, productivity, process improvement, and customer satisfaction; job skills, which include factors as technical competence, job knowledge, planning and organization, and job satisfaction; and a job approach, which includes factors such as dependability, teamwork, initiative, flexibility, work environment, safety and security.

Based on Nymark (2000: 158-164) and Hewlett-Packard (1996).

A key element in the process is the dialogue between the employee and his/her immediate superior, which ensures that mistakes are not made in the PE/DP as well as the focus on the employee's responsibility for meeting own goals. Prior to the meeting, the employee's superior has talked to the employee's colleagues to get an impression of the employees' personal and professional development. The employee is given a grade on a scale from 1 to 5 at the meeting. The grade is based upon the issues mentioned above, and prior to the meeting there has been a meeting between several managers in order to ensure, that a grade is never given based on a single managers perspective. Also carrier and salary are affected by the result from the personal evaluation (Nymark, 2000).

Goal setting on the level of the organization

As an example, on the organizational level Hewlett-Packard is inspired by a Total Quality Management like strategic planning system called Hoshin Planning. Basically Hoshin Planning is a system of forms and rules for strategic formulation and implementation on different levels in the organization. Hoshin Planning is a part of the Hoshin Kanri system, which was originally developed to communicate corporate strategy and philosophy to all employees in an organization.

The process focuses on the company's key activities and the system is widely used in Japan. In the Western world, however, Hewlett-Packard is one of the few leading compa-

nies, which uses Hoshin Planning, and one of Hewlett-Packard's divisions has even won the Deming Prize by using the Hoshin Planning technique. In 1965 Bridgestone Tire released a report in which the technique, which Deming Prize winners had used, was analyzed. The technique described was called Hoshin Kanri, which origin is described in Textbox 3.

Textbox 3: Origin of 'Hoshin Kanri'.

Taken altogether, Hoshin Kanri means management and control of the company's direction needle or focus. The term 'Hoshin' is short for Hoshin Kanri.

Both the word hoshin and the word kanri can be broken into two parts. The literal translation of ho is 'direction', and the literal translation of shin is 'needle'. Thus the word hoshin could be translated into 'direction needle'. However, the most popular translation of hoshin is policy deployment. Hoshin in Japanese translates to a course, a policy, a plan, or an aim.

The first part of kanri, kan, can be translated to control or channeling. The second part, ri, can be translated to reason or logic. Kanri in Japanese translates to administration, management, control, charge of, or care for.




Nymark (2000: 155).

A Hoshin is described as a one-year plan aiming to reach goals developed by the management. The Hoshin Kanri system focuses on stepwise planning, implementing and follow-up processes, and is used to integrate long-term goals and daily activities. It is especially valuable in the sense that it provides an organizational flexibility, which ensures that managers at all levels are aware of where they stand in relation to top management strategy.

At Hewlett-Packard the Hoshin Planning system is especially valued because of its inherent ability to adapt a large amount of employees from all levels of the organization to a common goal. Hoshin Planning is used to achieve Hoshin's (breakthrough objectives) and Business Fundamentals (short-term goals). Both Hoshin's and Business Fundamentals are used for goal setting on corporate, division, and group level. There can be several Business Fundamentals every year. In 1998, for instance, there were 13 Business Fundamentals, but it is important only to focus on a few Hoshin's at a time in order to keep focused. Both Hoshin's and Business Fundamentals are evaluated every year. Hoshin's are attained through a process called Hoshin Management as shown in Textbox 4.

Textbox 4: The process of Hoshin Management.

1. Determine Hoshin

Hoshin is determined by the top management. Hoshin should be executed with targets and means for achieving targets. While top management is determining the hoshin, middle and line management should also determine the hoshin based on their experiences and historical data (if necessary) by themselves.

2. Deploy Hoshin

After determining the Hoshin for each level of management, it is necessary to identify if there are hoshin relationships between the top and middle levels and the middle and line levels in the organization. Deploying hoshin is called catchball. It is important for any organization to understand which targets should be achieved and how to do so. During the catchball process, it is necessary to reach the consensus for targets and means between varying levels of the organization. Since targets and means will be determined individually, it is necessary and important to identify the relationships between targets and means of each level and targets between the different levels of the organization.

3. Implement Hoshin

After adjusting the Hoshin, the means for Hoshin should be implemented. During the implementation, each target should be measured using performance measures from the target

4. Review Hoshin

The performance measure in the target statement should be measured. Measurement should be performed by each level of management. Thus, from top to bottom, all members related to Hoshin should observe the performance measure for each level.

5. Adjust Hoshin

If the Hoshin target is achieved, the target value should be accordingly adjusted. Existing target values might be low or activities for the means might be highly effective. In both cases, it is significant to realize why and how the targets were achieved. The case may be that the target values do not require adjustment. It should be decided, depending on the organizational situation, if the target value needs adjustment.

Nymark (2000: 156).

Some targets are set on a five years basis and are spread in the organization through the 'catchball'-process described in Textbox 4. Every year's Hoshin's are a part of the five-year plan and a Hoshin in one year can become a Business Fundamental the next year. For example the two Hoshin's in 1997, 'Customer Satisfaction' and 'Our People', became Business Fundamentals in 1998. This process is encouraged at all levels so different divisions can have their own individual Hoshin's besides the focus on the corporate Hoshin's if necessary.

The Hoshin Planning system thus provides a tool for integrating long term and short-term goals in the organization, and it is a means for integrating these corporate goals with goal setting for the individual employee as well (Nymark, 2000).

Concluding remarks

It has thus been seen how the conditions for organizational learning are supported by an emphasis on value-based management. It has been seen how the founders of Hewlett-Packard have practiced value-based management for decades, and that Hewlett-Packard even can be called a 'learning organization' according to the definitions laid out in the first part of the article. Furthermore it has been seen that organizational storytelling is an important means for the organizational culture, and that organizational storytelling is an important underlying factor for value-based management as well as the processes that contributes to the organizational memory through learning and unlearning.

However, a final note in relation to value-based management is of significant importance. Value-based management cannot be based on the 'soft' storytelling side alone. It needs a 'hard' side as well to make up for the highly 'soft' side that has been advanced in this article. The 'hard' side is continuous goal setting and evaluation.

Thus there are two important approaches that need to be advanced in order to make value-based management work most efficiently: The 'soft' value and storytelling approach, and the 'hard' goal setting and evaluation approach. In value-based management these two approaches complement each other and increase the possibility of higher organizational efficiency. If clear and well-communicated company values supplemented with stories, which explain these values by providing practical examples, are given then the employees know to a larger degree where they stand, what is allowed in the company and what is not. Consequently the employees are able to increase decision-making on their own when they have also been made aware of their personal goals. Thus managerial involvement in everyday decision-making can be reduced significantly. This can increase the ability to make decisions in the organization in less time. Less time can be spent on managerial issues, and thus the span of control for managers can be increased, which can lead to a reduced hierarchy. A goal-directed organization focused on a learning environment with continuous improvement and feedback might be the result.

References

- Barrow, M. J. & H. M. Loughlin (1992), 'Towards a learning organization', *Industrial and Commercial Training*, vol. 24, no. 1, pp. 3-7.
- Boje, D. M. (1994), 'Organizational storytelling. The struggles of pre-modern, modern and post-modern organizational learning discourses', *Management Learning*, vol. 25, no. 3, pp. 433-461.
- Bruner, J. (1986), *Actual minds, possible worlds*, Cambridge, MA: Harvard University Press.
- Dogdson, M. (1993), 'Organizational learning: a review of some literatures', *Organization Studies*, vol. 14, no. 3, pp. 375-394.
- Duncan, R. B. (1974), 'Modifications in decision structure in adapting to the environment: Some implications for organizational learning', *Decision Sciences*, pp. 705-725.
- Eco, U. (1983), *Reflections on the name of the rose*, 1994 ed., London: Minerva.
- Fiol, C. M. & M. A. Lyles (1985), 'Organizational learning', *Academy of Management Review*, vol. 10, no. 4, pp. 803-813.
- Fisher, W. (1984), 'Narration as a human communication paradigm. The case of public moral agreement', *Communication Monograph*, vol. 51, pp. 1-22.
- Garvin, D. A. (1993), 'Building a learning organization', *Harvard Business Review*, July-August, pp. 78-91.
- Hedberg, B. (1981), 'How organizations learn and unlearn', pp. 3-27, in P. C. Nystrom and W. H. Starbuck (eds.), *Handbook of organizational design*, vol. 1: Adapting organizations to their environment, Oxford: Oxford University Press.
- Hewlett-Packard (1996), 'HP's performance evaluation and development plan', Internal material.
- Hewlett-Packard (1997), 'The HP Way', Internal material.
- Levitt, B. & J. G. March (1988), 'Organizational learning', *Annual Review of Sociology*, vol. 14, pp. 319-340.
- Mitroff, I. I. & R. H. Kilmann (1976), 'On organization stories: An approach to the design and analysis of organizations through myths and stories', pp. 189-207, in R. H. Kilmann, L. R. Pondy and D. Slevin (eds.), *The management of organization design. Strategies and implementation*, New York: Elsevier North-Holland.
- Morsing, M. (1995), 'Organisatorisk læring af anden orden - fra en struktur til en procesorienteret teori om læring', pp. 1-28, section 3.15, in S. Hildebrandt (ed.), *Virksomhedens Strategi og Ledelse*, København: Børsens Forlag.
- Nymark, S. R. (1999), 'A study of flexibility and renewal in Danish companies', *Human Resource Development International*, vol. 2, no. 1, pp. 59-66.
- Nymark, S. R. (2000), *Organizational storytelling: Creating enduring values in a high-tech company*, Aarhus: Forlaget Ankerhus.

- Packard, D. (1995), *The HP Way. How Bill Hewlett and I built our company*, 1996 paperback ed., New York: Harper Business.
- Pedler, M., T. Boydell & J. Burgoyne (1989), 'Towards the learning company', *Management Education and Development*, vol. 20, no. 1, pp. 1-8.
- Peters, T. J. & R. H. Waterman, Jr. (1982), *In search of excellence. Lessons from America's best-run companies*, Cambridge, MA: Harper & Row.
- Popper, M. & R. Lipshitz (1998), 'Organizational learning mechanisms. A structural and cultural approach to organizational learning', *Journal of Applied Behavioral Science*, vol. 34, no. 2, pp. 161-179.
- Schein, E. H. (1990), 'Organizational culture', *American Psychologist*, vol. 45, no. 2, pp. 109-119.
- Schein, E. H. (1992), 'Coming to a new awareness of organizational culture', pp. 237-253, in G. Salaman (ed.), *Human Resource Strategies*, London: Sage Publications.
- Schultz, M. (1990), *Kultur i organisationer. Funktion eller symbol*, København: Handelshøjskolens Forlag.
- Stata, R. (1989), 'Organizational learning - the key to management innovation', *Sloan Management Review*, vol. 30, no. 3, pp. 63-74.
- Walsh, J. P. & G. R. Ungson (1991), 'Organizational memory', *Academy of Management Review*, vol. 16, no. 1, pp. 57-91.

Danish Research Unit for Industrial Dynamics

The Research Programme

The DRUID-research programme is organised in 3 different research themes:

- *The firm as a learning organisation*
- *Competence building and inter-firm dynamics*
- *The learning economy and the competitiveness of systems of innovation*

In each of the three areas there is one strategic theoretical and one central empirical and policy oriented orientation.

Theme A: The firm as a learning organisation

The theoretical perspective confronts and combines the resource-based view (Penrose, 1959) with recent approaches where the focus is on learning and the dynamic capabilities of the firm (Dosi, Teece and Winter, 1992). The aim of this theoretical work is to develop an analytical understanding of the firm as a learning organisation.

The empirical and policy issues relate to the nexus technology, productivity, organisational change and human resources. More insight in the dynamic interplay between these factors at the level of the firm is crucial to understand international differences in performance at the macro level in terms of economic growth and employment.

Theme B: Competence building and inter-firm dynamics

The theoretical perspective relates to the dynamics of the inter-firm division of labour and the formation of network relationships between firms. An attempt will be made to develop evolutionary models with Schumpeterian innovations as the motor driving a Marshallian evolution of the division of labour.

The empirical and policy issues relate the formation of knowledge-intensive regional and sectoral networks of firms to competitiveness and structural change. Data on the structure of production will be combined with indicators of knowledge and learning. IO-matrixes which include flows of knowledge and new technologies will be developed and supplemented by data from case-studies and questionnaires.

Theme C: The learning economy and the competitiveness of systems of innovation.

The third theme aims at a stronger conceptual and theoretical base for new concepts such as 'systems of innovation' and 'the learning economy' and to link these concepts to the ecological dimension. The focus is on the interaction between institutional and technical change in a specified geographical space. An attempt will be made to synthesise theories of economic development emphasising the role of science based-sectors with those emphasising learning-by-producing and the growing knowledge-intensity of all economic activities.

The main empirical and policy issues are related to changes in the local dimensions of innovation and learning. What remains of the relative autonomy of national systems of innovation? Is there a tendency towards convergence or divergence in the specialisation in trade, production, innovation and in the knowledge base itself when we compare regions and nations?

The Ph.D.-programme

There are at present more than 10 Ph.D.-students working in close connection to the DRUID research programme. DRUID organises regularly specific Ph.D-activities such as workshops, seminars and courses, often in a co-operation with other Danish or international institutes. Also important is the role of DRUID as an environment which stimulates the Ph.D.-students to become creative and effective. This involves several elements:

- access to the international network in the form of visiting fellows and visits at the sister institutions
- participation in research projects
- access to supervision of theses
- access to databases

Each year DRUID welcomes a limited number of foreign Ph.D.-students who want to work on subjects and projects close to the core of the DRUID-research programme.

External projects

DRUID-members are involved in projects with external support. One major project which covers several of the elements of the research programme is DISKO; a comparative analysis of the Danish Innovation System; and there are several projects involving international co-operation within EU's 4th Framework Programme. DRUID is open to host other projects as far as they fall within its research profile. Special attention is given to the communication of research results from such projects to a wide set of social actors and policy makers.

DRUID Working Papers

- 96-1 **Lundvall, Bengt-Åke:** The Social Dimension of the Learning Economy. (ISBN 87-7873-000-7)
- 96-2 **Foss, Nicolai J.:** Firms, Incomplete Contracts and Organizational Learning. (ISBN 87-7873-001-5)
- 96-3 **Dalum, Bent and Villumsen, Gert:** Are OECD Export Specialisation Patterns 'Sticky?' Relations to the Convergence-Divergence Debate. (ISBN 87-7873-002-3)
- 96-4 **Foss, Nicolai J.:** Austrian and Post-Marshallian Economics: The Bridging Work of George Richardson. (ISBN 87-7873-003-1)
- 96-5 **Andersen, Esben S., Jensen, Anne K., Madsen, Lars and Jørgensen, Martin:** The Nelson and Winter Models Revisited: Prototypes for Computer-Based Reconstruction of Schumpeterian Competition. (ISBN 87-7873-005-8)
- 96-6 **Maskell, Peter:** Learning in the village economy of Denmark. The role of institutions and policy in sustaining competitiveness. (ISBN 87-7873-006-6)
- 96-7 **Foss, Nicolai J. & Christensen, Jens Frøslev:** A Process Approach to Corporate Coherence. (ISBN 87-7873-007-4)
- 96-8 **Foss, Nicolai J.:** Capabilities and the Theory of the Firm. (ISBN 87-7873-008-2)
- 96-9 **Foss, Kirsten:** A transaction cost perspective on the influence of standards on product development: Examples from the fruit and vegetable market. (ISBN 87-7873-009-0)
- 96-10 **Richardson, George B.:** Competition, Innovation and Increasing Returns. (ISBN 87-7873-010-4)
- 96-11 **Maskell, Peter:** Localised low-tech learning in the furniture industry. (ISBN 87-7873-011-2)
- 96-12 **Laursen, Keld:** The Impact of Technological Opportunity on the Dynamics of Trade Performance. (ISBN 87-7873-012-0)

- 96-13 **Andersen, Esben S.:** The Evolution of an Industrial Sector with a Varying Degree of Roundaboutness of Production. (ISBN 87-7873-013-9)
- 96-14 **Dalum, Bent, Laursen, Keld & Villumsen, Gert:** The Long Term Development of OECD Export Specialisation Patterns: De-specialisation and “Stickiness”. (ISBN 87-7873-014-7)
- 96-15 **Foss, Nicolai J.:** Thorstein B. Veblen: Precursor of the Competence-Based Approach to the Firm. (ISBN 87-7873-015-5)
- 96-16 **Gjerding, Allan Næs:** Organisational innovation in the Danish private business sector. (ISBN 87-7873-016-3)
- 96-17 **Lund, Reinhard & Gjerding, Allan Næs:** The flexible company Innovation, work organisation and human resource management. (ISBN 87-7873-017-1)
- 97-1 **Foss, Nicolai J.:** The Resource-Based Perspective: An Assessment and Diagnosis of Problems. (ISBN 87-7873-019-8)
- 97-2 **Langlois, Richard N. & Foss, Nicolai J.:** Capabilities and Governance: the Rebirth of Production in the Theory of Economic Organization. (ISBN 87-7873-020-1)
- 97-3 **Ernst, Dieter:** Partners for the China Circle? The Asian Production Networks of Japanese Electronics Firms. (ISBN 87-7873-022-8)
- 97-4 **Richardson, George B.:** Economic Analysis, Public Policy and the Software Industry. (ISBN 87-7873-023-6)
- 97-5 **Borras, Michael & Zysman, John:** You Don’t Have to Be A Giant: How The Changing Terms of Competition in Global Markets are Creating New Possibilities For Danish Companies. (ISBN 87-7873-024-4)
- 97-6 **Teubal, Morris.:** Restructuring and Embeddeness of Business Enterprises-Towards an Innovation System Perspective on Diffusion Policy. (ISBN 87-7873-025-2)
- 97-7 **Ernst, Dieter & Guerrieri, Paolo:** International Production Networks and Changing Trade Patterns in East Asia: The case of the Electronics Industry. (ISBN 87-7873-026-0)
- 97-8 **Lazaric, Nathalie & Marengo, Luigi:** Towards a Characterisation of Assets and Knowledge Created in Technological Agreements: Some evidence from the automobile-robotics sector. (ISBN 87-7873-027-9)

- 97-9 **Ernst, Dieter.:** High-Tech Competition Puzzles. How Globalization Affects Firm Behavior and Market Structure in the Electronics Industry. (ISBN 87-7873-028-7)
- 97-10 **Foss, Nicolai J.:** Equilibrium vs Evolution in the Resource-Based Perspective: The Conflicting Legacies of Demsetz and Penrose. (ISBN 87-7873-029-5)
- 97-11 **Foss, Nicolai J.:** Incomplete Contracts and Economic Organisation: Brian Loasby and the Theory of the firm. (ISBN 87-7873-030-9)
- 97-12 **Ernst, Dieter & Lundvall, Bengt-Åke:** Information Technology in The Learning Economy – Challenges for Developing Countries. (ISBN 87-7873-031-7)
- 97-13 **Kristensen, Frank Skov (p):** A study of four organisations in different competitive environments. (ISBN 87-7873-032-5)
- 97-14 **Drejer, Ina, (p) Kristensen, Frank Skov (p) & Laursen, Keld (p):** Studies of Clusters as a Basis for Industrial and Technology Policy in the Danish Economy. (ISBN 87-7873-033-3)
- 97-15 **Laursen, Keld (p) & Drejer, Ina (p):** Do Inter-sectoral Linkages Matter for International Export Specialisation? (ISBN 87-7873-034-1)
- 97-16 **Lundvall, Bengt-Åke & Kristensen, Frank Skov (p):** Organisational change, innovation and human resource Development as a response to increased competition. (ISBN 87-7873-036-8)
- 98-1 **Præst, Mette (p):** An Empirical Model of Firm Behaviour: A dynamic Approach to Competence Accumulation and Strategic Behaviour. (ISBN 87-7873-037-6)
- 98-2 **Ducatel, Ken:** Learning and skills in the Knowledge Economy. (ISBN 87-7873-038-4)
- 98-3 **Ernst, Dieter:** What Permits Small Firms to Compete in High-Tech Industries? Inter-Organizational Knowledge Creation in the Taiwanese Computer Industry. (ISBN 87-7873-039-2)
- 98-4 **Christensen, Jens Frøslev:** The Dynamics of the Diversified Corporation and the Role of Central Management of Technology. (ISBN 87-7873-040-6)
- 98-5 **Valente, Marco (p):** Laboratory for Simulation Development. (ISBN 87-7873-041-4)

- 98-6 **Valente, Marco (p):** Technological Competition: a Qualitative Product Life Cycle. (ISBN 87-7873-042-2)
- 98-7 **Lam, Alice:** The Social Embeddedness of Knowledge: Problems of Knowledge Sharing and Organisational Learning in International High-Technology Ventures. (ISBN 87-7873-043-0)
- 98-8 **Jørgensen, Kenneth M. (p):** Information Technology and Change in Danish Organizations. (ISBN 87-7873-044-9)
- 98-9 **Andersen, Esben Sloth:** Escaping Satiation in an Evolutionary Model of Structural economic Dynamics. (ISBN 87-7873-045-7)
- 98-10 **Foss, Kirsten:** Technological Interdependencies, Specialization and Coordination: A Property Rights Perspective on The Nature of the Firm. (ISBN 87-7873-046-5)
- 98-11 **Andersen, Poul H:** Organizing International Technological Collaboration in Subcontractor Relationships. An Investigation of the Knowledge-Stickyness Problem. (ISBN 87-7873-047-3)
- 98-12 **Nymark, Søren (p):** Billeder af strategi i forandringsrige organisatoriske omgivelser: 3 cases fra DISKO studierne. (ISBN 87-7873-048-1)
- 98-13 **Andersen, Esben Sloth:** The Evolution of the Organisation of Industry. (ISBN 87-7873-050-3)
- 98-14 **Foss, Kirsten & Foss, Nicolai J.:** The Market Process and The Firm: Toward a Dynamic Property Rights Perspective. (ISBN 87-7873-051-1)
- 98-15 **Lorenz, Edward:** Societal Effects and the Transfer of Business Practices to Britain and France. (ISBN 87-7873-053-8)
- 98-16 **Ernst, Dieter:** Catching-Up, Crisis and Industrial Upgrading. Evolutionary Aspects of Technological Learning in Korea's Electronics Industry. (ISBN 87-7873-054-6)
- 98-17 **Kaisla, Jukka (p):** The Market Process and the Emergence of the Firm: Some Indications of Entrepreneurship Under Genuine Uncertainty. (ISBN 87-7873-055-4)
- 98-18 **Laursen, Keld (p):** Do Export and Technological Specialisation Patterns Co-evolve in Terms of Convergence or Divergence?: Evidence from 19 OECD Countries, 1971-1991. (ISBN 87-7873-056-2)
- 98-19 **Foss, Nicolai J.:** Firms and the Coordination of Knowledge: Some Austrian Insights. (ISBN 87-7873-057-0)
- 98-20 **Mahnke, Volker (p) & Aadne, John Harald:** Process of Strategic Renewal, Competencies, and the Management of Speed. (ISBN 87-7873-058-9)

- 98-21 **Lorenzen, Mark (p):** Information, cost learning, and trust. Lessons form co-operation and higher-order capabilities amongst geographically proximate firms. (ISBN 87-7873-059-7)
- 98-22 **Lam, Alice:** Tacit Knowledge, Organisational Learning and Innovation: A Societal Perspective. (ISBN 87-7873-060-0)
- 98-23 **Lund, Reinhard:** Organizational and innovative flexibility mechanisms and their impact upon organizational effectiveness. (ISBN 87-7873-061-9)
- 98-24 **Christensen, Jesper Lindgaard & Drejer, Ina (p):** Finance and Innovation System or Chaos. (ISBN 87-7873-062-7)
- 98-25 **Laursen, Keld (p):** How Structural Change Differs, and Why it Matters (for Economic Growth) (ISBN 87-7873-063-5)
- 98-26 **Holmén, Magnus & Jacobsson, Staffan:** A method for identifying actors in a knowledge based cluser. (ISBN 87-7873-064-3)
- 98-27 **Richardson, G. B.:** Production, Planning and Prices. (ISBN 87-7873-065-1)
- 98-28 **Foss, Nicolai J.:** Austrian Economics and Game Theory: a Preliminary Methodological Stocktaking. (ISBN 87-7873-067-8)
- 98-29 **Foss, Nicolai J. & Mahnke, Volker (p):** Strategy Research and the Market Process Perspective. (ISBN 87-7873-068-6)
- 98-30 **Laursen, Keld (p):** Revealed Comparative Advantage and the Alternatives as Measures of International Specialisation. (ISBN 87-7873-069-4)
- 99-1 **Lorenz, E.:** Organisationaal Innovation, Governance Structure and Innovative Capacity In British and French Industry. (ISBN 87-7873-070-8)
- 99-2 **Ernst, Dieter:** Responses to the Crisis: Constraints to a Rapid Trade Adjustment in East Asia's Electronics Industry. (ISBN 87-7873-071-6)
- 99-3 **Foss, N. J. :** Understanding Leadership: A Coordination Theory. (ISBN 87-7873-072-4)
- 99-4 **Foss, K & Foss, N. J:** Understanding Ownership: Residual Rights of Control and Appropriable Control Rights. (ISBN 87-7873-073-2)
- 99-5 **Foss, K & Foss, N. J:** Organizing Economic Experiments: The role of Firms. (ISBN 87-7873-075-9)
- 99-6 **Jørgensen Kenneth. M. (p) :** The Meaning og Local Knowledges. (ISBN 87-7873-076-7)

- 99-7 **Foss, N. J.:** Capabilities, Confusion, and the Costs of Coordination: On Some Problems in Recent Research On Inter-Firm Relations. (ISBN87-7873-077-5)
- 99-8 **Lund, Reinhard:** Tillidsrepræsentantsystemet og de fleksiblevirksomhedsformer. Juli 1999. (ISBN887-7873-078-3)
- 99-9 **Nymark, Søren:** Organisatorisk læring gennem den værdibaserede organisations fortællinger. (ISBN 87-7873-079-1)
- 99-10 **Laursen, K. & Meliciani, V.:** The importance of technology based inter-sectoral linkages for market share dynamics. (ISBN 87-7873-080-5)
- 99-11 **Laursen, K., Mahnke, V., Vejrup-Hansen, P.:** Firm growth from a knowledge structure perspective. (ISBN 87-7873-081-3)
- 99-12 **Lundvall, Bengt-Åke, Christensen, Jesper. L.:** Extending and Deepening the Analysis of Innovation Systems - with Empirical Illustrations from the DISCO-project. (ISBN 87-7873-082-1)
- 00-1 **Llerena, Patrick & Oltra, Vanessa:** Diversity of innovative strategy as a source technological performance. (ISBN 87-7873-085-6)
- 00-2 **Llerena, Patrick & Mireille Matt:** Technology policy and cooperation: A paradigmatic approach. (ISBN 87-7873-086-4)
- 00-3 **Cusmano, Lucia:** Technology Policy and Co-operative R&D: the role of relational research capacity. (ISBN 87-7873-087-2)
- 00-4 **Mikkola, Juliana Hsuan:** Modularization assessment of product architecture. (ISBN87-7873-088-0)
- 00-5 **Yvrande, Anne:** The new British railways structure: A transaction cost economics analysis. (ISBN87-7873-089-9)
- 00-6 **Dijk, Machiel van & Nomaler Önder:** Technological diffusion patterns and their effects on industrial dynamics. (ISBN 87-7873-090-2)
- 00-7 **Storper, Michael & Chen, Yun-chung with De Paolis, Fernando:** The Effects of Globalization on Location of Industries in the OECD and European Union (ISBN87-7873-091-0)
- 00-8 **Sanders, Mark & Weel, Bas ter :** Skill-Biased Technical Change: Theoretical Concepts, Empirical Problems and a Survey of the Evidence (ISBN87-7873-092-9)
- 00-9 **Tomlinson, Mark:** Innovation surveys: A researcher's perspective (ISBN87-7873-093-7)

00-10 **Nymark, Søren:** Value-based management in learning organizations through 'hard' and 'soft' managerial approaches: The case of Hewlett-Packard (ISBN87-7873-094-5)

Information for subscribers.

Subscription price for 1997 is 600 DKr (about 20 papers). The rate for single issues is 40 DKr. It is possible to make a commitment to an exchange of papers from related departments or research teams. All correspondence concerning the DRUID Working Papers should be send to.

Jonna Jacobsen
Fibigerstræde 4
DK-9220 Aalborg OE
Tel. 45 96 35 82 65
Fax. 45 98 15 60 13

E-mail: druid-wp@business.auc.dk