New roles and training models for managers in the printing and communications industry in the Netherlands

Wim J. Nijhof and Jan N. Streumer

The communications industry has been subject to radical changes in this decade. Managers working in this branch of industry need to adapt their management style to changing conditions. This study was carried out for the branch training and education institute in The Netherlands (STIVAKO) to provide directions for their future training and education supply. Using a variety of research instruments (literature research, interviews, survey and expert conference) a new flexible curriculum structure has been developed.

The printing industry has traditionally been a relatively stable branch of industry. It had its own structures, it was relatively independent of other industries and developed its own technology. However, recent technological developments have radically changed traditional patterns in the printing industry both in the United States and Europe[1]. And although only a limited number of organisations have responded to those developments, it looks as though they will be permanent.

Those technological developments include digital printing, on-line publishing, short run colour printing, printing on demand, CD-i, CD-rom, the Internet as well as technological innovations in more traditional printing technology. Related to those are multimedia productions and information databases. Research and practice show that the most important changes for the printing industry will be the digitalisation of information and the disconnection of information (text and graphics) and printed materials. From now on, information will be stored in large databases and will be distributed on demand through various kinds of information carriers, be it on-line,

❑ Wim J. Nijhof is a Professor at the University of Twente and Jan N. Streumer is Associate Professor in the Department of Curriculum, Faculty of Educational Science and Technology, University of Twente.

on CD or in print. As a result the traditional printing industry tends to merge with other branches like multimedia, publishing and advertising. Therefore we refer in this study to the communications industry, instead of solely the printing industry.

The developments, in particular the computerisation and new efficient techniques, result in a declining need for low skilled workers and people on the shop floor. On the other hand ongoing computerisation of existing printing technology also results in a need for higher skilled workers in informatics, computer science and telematics. At the organisational level customer relations are changing and international competition is forcing large as well as small businesses to focus on their future strategy in order to survive.

In this arena of changes and developments the manager plays a crucial role. Traditionally management tasks in the printing industry would include planning, organising, staffing, controlling and leading[2]. But currently, this management approach seems to be not sufficient anymore. This is the feeling of STIVAKO, the Dutch printing industry training and education institute, listening to its customers. Because of the changing scene in many industries, especially the communications industry, as a consequence of information technology (IT) developments this study aimed to explore the changing contents of managerial work in the communications industry in the light of recent developments. Eventually it aims to develop a new training and education design for managers. The client of this is STIVAKO. This institute offers several training programmes which lead to well known certificates for managers in the printing industry. These programmes consist of related units in a fixed structure and are offered in a two or three year format. A small part of their supply consists of in-company training and consultancy. Their primary concern was to update the programmes according to new developments related to technology, organisational developments and globalisation, so that 'new' management profiles could serve as a concrete and valid basis for new education and training programmes aimed at managers in the printing and communications industry.

So far we have provided a context for the study. In the remainder of this article we will describe the following elements of the study: the research questions, the methodology used, results of the different phases related to the research questions and conclusions.

Research questions

The research questions for this study were:

1. which are the most relevant developments to affect managerial work in the communications industry?
2. which management tasks will change or be needed in order to perform effectively and innovatively?
3. which education and training programmes need to be developed for managers to be prepared for the changing content of managerial work?

As can be seen, the questions are mainly descriptive in nature. The last question, however, is related to designing a new curriculum for managers. However, questions 1 and 2 will deliver data which form the basis for the design of an education and training programme. This type of design methodology has been developed and tested many times and proved to be successful[3].

Methodology

In this study we have focused on the changing management requirements which are affected by developments in the printing and communications industry. Because of the breadth of the research subject, we decided to approach the matter from different angles and through a variety of research methods. This way we would be able to formulate conclusions which would be based on theory as well as practice and on

the views of experts as well as practitioners. Another advantage of this strategy was that through sequential ordering of the various methods we would be able to build on earlier findings and thus adapt the research process at the same time. We learned from earlier research that no single methodology is adequate to solve this type of problem. A combination of literature search, interviews with pioneer firms, and questionnaires for managers and companies could help to triangulate the different outcomes to find a valid basis for decision making. In the end a curriculum conference was used to insert the main findings from the earlier stages to reach a common conclusion. On the basis of the conclusions a training design was set up. The study was carried out between November 1994 and March 1996.

Literature search

This stage of the study was meant to explore trends and developments of occupations and branches in the printing industry to see whether these developments would impel the future. Using literature reviews and documents from different countries eg. Finland (1993), Italy (1993), France (1994), United States of America (Mandel, 1993), and a Communications 2000 study (PIRA, 1994) covering the developments in France, Germany, The Netherlands and England, the domain of the printing industry was portrayed and the labour market conditions were explored. Moreover a special study of KVGO covering specific Dutch developments was used as a basic framework to integrate the specifics from the different countries[4].

Pertaining to the literature of managers many overviews of task profiles could be traced back to core tasks of managers. The results of the literature study will be summarised in the next section.

Technological developments

The purchase of new equipment does lead to increasing capacity in almost all companies. This fact has enormous consequences for competition, price level, and employment. Pipeline production will increase the demands of logistics. The client demands flexibility, the new production systems have to act accordingly. Techniques like Short Run Colour Printing can be done by offset printing, but this technology will be beaten by digital multiplication when variable kinds of information have to be printed in the same run and when the number of small runs is increasing. Computer Integrated Manufacturing (CIM) will be the new standard for the printing industry, this means also that workflow management will be an essential condition for the printing industry. Subtasks of this type of management are financial management, order management, and production management. Quality management is the natural asset of this type of management. Formulating standards and norms, performance improvement, and client relations have to be managed in a high performance organisation[5]. Integrated management presupposes much attention in the first stages of the production chain and at the end, however, disintegration takes place, especially related to the geographical dimension.

When looking at new activities in the printing industry the re-use of texts and pictures(images) is important to reduce costs. Using databases in which text and image are stored independently from the medium is the precondition for that. Prepress companies will make use of these databases in the near future.

The expectation that the printing industry is going to be a multimedia industry is still present, but the speed of this development is lower than foreseen. Nevertheless a change from a traditional type of printing industry toward a network facility seems to be imminent.

Labour market perspectives

The need for highly qualified traditional craftsmanship and the need for less educated or trained employees will decrease, according to the different studies. Auto-

mation will lead to outsourcing of people. In the near future, certainly new occupations will appear, especially related to business administration, but in general the labour market perspectives in this area are perceived as bad.

Other developments and policy regulations

The policy discussions on milieu or ecology systems in different states will lead to consequences in terms of regulations, energy reduction and proposals for the use and recycling of paper. How far the printing industry might go in personalising print is also a matter of privacy. Through globalisation competition is going to be strong internationally as well as, nationally. The assumption is that as a consequence of this, medium enterprises will be taken over by large ones.

This leads to strategic questions about printing organisations.

Strategies and policies of enterprises

Looking at the literature we perceived different strategic options for the future based on two principles: broadening the perspective of the company and building a special profile based on core competencies.

All reports, and specifically the KVGO report, come to the conclusion that a company has to be prepared to take a decision related to a position in the market:

a. one can take the traditional option, do what you can do: the penetration strategy;
b. gradually expanding activities to other or next markets and products: the transition strategy;
c. to switch to new electronic/digital markets: the transformation strategy.

In order to be sure and to be capable of making the different strategies successful, marketing will be essential for the near future. The needs of the clients have to be known in order to develop new products and to deliver services, companies need to be very flexible in terms of logistics, the use of management information systems, and policies. The key for the next decade might be integrated knowledge creation management focusing on innovation[6].

Skill formation, training and personnel management

It seems to be a trend of diversity in this branch related to skills, jobs and occupations. One can even ask whether there is still an occupational structure in this branch, because so many new players are coming in, without any tradition in the printing industry[7]. The impact of technology is visible in the new jobs and shops related to just-in-time and just-on-demand printing and copy shops. The traditional craftsman is going to be a process operator[8]. On the basis of these perceptions the question is what will change in terms of tasks? KVGO, the Dutch Union of Printing Industries, expects:

● a decrease in pre-press jobs
● a decrease in the less skilled jobs related to printing machines and other apparatus;
● outsourcing of and no selection anymore of lower educated trainees.

An increase will be expected related to:

● process operators in prepress, printing and finishing
● specialised commercial employees
● technical advisors and specialists in automation, database and network technology;
● in general higher educated employees with a commercial and creative talent and attitude.

Megatrends

After analysing and summarising the main results of the literature study seven mega-trends could be induced, which will be formulated next as a conclusion of this paragraph.. The study itself served also as an important source for setting up a questionnaire for managers and companies (see page 220).

1. The printing industry is changing from an independent and closed sector into an integrated part of the communication-media-industry.
2. The monopoly of the traditional typography machine is coming to an end.
3. Changes in new technology and changes in the needs of clients related to information will lead to a new combination and substitution of media.
4. The products of printing will change in terms of volume, components, and production procedures.
5. Globalisation will be the impetus to cooperate and communicate cost effectively.
6. Overcapacity within the traditional printing industry will force re-engineering and put pressure on the logistics of the organisation.
7. Milieunorms, eco-standards and eco-costs will be competitive factors[9].

Innovative enterprises: interviews

In the second phase of the study we reflected the findings of the literature to several enterprises in the Netherlands. These enterprises or pioneer organisations had been selected because of their innovative attitude and experience with new technology. Pioneer organisations are usually characterised by early adoption of new media, risk taking in exploring new markets and products, and strong affiliations with customers and suppliers. We found five organisations that were willing to cooperate, and they provided useful information about the pro's and con's of new developments in practice. The data were collected by means of semi-structured interviews with key-persons within the innovative organisations. We wanted to learn:
a) how the philosophy of the company is related to the new developments, and b) what the consequences are for personnel and organisation. Enterprises are selected based on recommendations of experts in the field out of a group of ten. We selected:

a. a pre-press company (NEROC)
b. a multimedia company (MultimediaCentrum)
c. a traditional printing company looking for new markets (Oldemarkt)
d. multimedia company (MediaWare)
e. Offset-new traditional technology/newspapers (Wegener/Tubantia)

Questions were raised according to the same categories as used in the literature study: technological developments, labour market developments (skill formation), strategies and policy making, developments related to clients, and training and personnel management. The results will be summarised in the next section

Technology

The perception, in the literature, of a changing world as a consequence of new technology is visible in all the companies. New technology is used in all of them. In two of them, the multimedia industries, the cutting edge technology is used daily. Companies differ very much in the use of technology; it depends upon the clients and the markets.

Skill formation

None of the enterprises expect to have an increase in personnel. In general no new posts will be created. The loss of jobs is more usual. Substitution of tasks and regrading is the standard policy. In all companies the need for more highly educated or

specialised technically trained employees is evident. As a consequence of the changing relationship with customers the need for competencies related to quality and service will lead to new training.

One of the striking experiences of these five cases is the fact that the borderlines between middle management and workfloor personnel seem to disappear. There seems to be a movement towards a higher level of entrepeneurship for all employees in a network type of organisation.

Branch

In all the companies the developments as expressed in the megatrends and other conclusions from the literature are supported. The general feeling in this area, however, is one of a culture of tradition, lack of co-operation, arrogance versus non-traditional printing, and an attitude of redundancy versus new technology. There seems to be no fear of similar types of industries. Opportunities for expanding new markets is the optimistic expression of entrepeneurship coming from these pioneers, although one of the multimedia enterprises does not share this vision.

Strategy and policy

Typical of all five enterprises is the attitude of pursuing an innovative course. Having faith in the market, possibly while being the first innovators in this field, or because the enterprise has a stable market (as the newspaper business seems to be in The Netherlands). All companies, with the exception of the newspaper company, know their niches in the market and they know how to play the role of 'turn key service-player' or 'one stop shopping house'. This seems to be a very effective strategy. This role is one of a network player, not having all the facilities at home, but organising the production chain. The client has to deal with the turn key player. In general the five companies are using either a transition or a transformation strategy.

Management and manager's roles

What are the consequences for managers? From the literature study and the pioneer study we learned that three important strategies are taking place in companies, based on risk taking behaviour and on the growing capacity of new technologies and niches in the market. We perceive a different strategy towards personnel: regrading and upgrading of needs and conditions, a shift from workfloor competencies to network management, quality management and service orientation, from craftsmanship to workflow manager, from all services related to a set of products in one company to a turn key service player.

It may be that many of the managers' functions and responsibilities will remain as they are although the content of some of the functions and responsibilities will change. Organising a highly educated workforce and a turn key organisation is quite different from a traditional printing company.

Based on the conclusions of the literature and the pioneer study a questionnaire will be designed in which a set of trends and developments related to the management domain will be explored in terms of the responsibilities and tasks of a manager running a communication enterprise.

Management tasks and responsibilities in the communication industry: a survey

The third phase of the study consisted of two questionnaires among businesses and managers in the printing industry in the Netherlands. The aim of the survey is to explore:

a. the knowledge, skills and attitudes of managers in the communication sector at this moment;

b. the knowledge, skills and attitudes of managers in the next 3 till 5 years;
c. the discrepancies between managers now and in the near future pertaining to their functioning in the communication sector.

On the basis of the data from the survey a conference will be organised. This conference will assess the outcomes of the survey, formulate managers roles, competencies and profiles and give indications for the future processes of skills formation for managers.

The survey was divided into two questionnaires: one for the managers and one for the top of the company. This was done to get a valid picture of the role and competencies of managers. Cross validating the results would be a more valid procedure than just getting the information from managers.

For managers the design of the questionnaire was based on management tasks and the execution of the job.

A matrix was designed on the basis of responsibilities and tasks. Moreover other information has been asked eg contextual information, and personal data.

The questionnaire for the top of the company was based on the business strategy and information related to the communication branch. Questions related to the size of the company, the business products and some other general information related to the company has been asked for.

Sampling

As a consequence of overrepresentation of small and medium enterprises within the branch a proportional sample has been taken. The stratification is based on the size of the company. The total population is 3023 companies. In order to get a band of uncertainty of 3 per cent based on a 95 per cent reliability interval a response of 1069 companies should be met[10]. To be sure that matrix cells will be filled later on with more than 5 observations, the size of the sample has been enlarged to 2400 companies. Table 1 shows the procedure for sampling.

Response

Five hundred and twenty-three companies responded to the study. Four hundred and sixty questionnaires or branch questionnaires were returned (19.2 per cent) and seven hundred and fifty-two managers' questionnaires (13 per cent). These are not high response rates but in absolute numbers it is still a remarkable size. To check whether the response was biased, a non-response study by phone was carried out. Forty-five companies were randomly chosen out of the total of non-respondents.

All the companies were willing to answer. The companies proved to be spread over

Table 1: Sampling procedure

Size	Number of companies	Proportion of companies	Companies in sample	Number of managers' questionnaires per company	Total number of questionnaires
1–5	1149	38	912	1	910
6–10	756	25	600	2	1200
11–20	484	16	384	3	1150
21–50	423	14	336	4	1340
51–100	121	4	96	5	480
>100	96	3	72	10	720
Total	3023	100	2400		5800

all the relevant categories. The conclusion is that there is no tendency, or common characteristic of the non respondents. Not taking part does not have any impact on the results[11].

Results of the branch

When looking at the data, small companies (60 per cent), medium companies (24 per cent) and large enterprises (16 per cent) are reflected in the questionnaire. Small companies are slightly underrepresented when compared to the Dutch statistics (79 per cent versus 60 per cent)[12]. The core activities of the companies concentrate on desktop publishing, off set, reproduction, and finishing. The use of new technology is restricted to a small part of the company (CD Rom, CD-I, Multimedia), but the expectation is that in the near future, there will be a growth into the new IT products. This shift, however will be slight.

When being asked about their business strategy, 39 per cent of companies say that they will penetrate the same kind of segments and products about, a gradual transition to newer IT products and production is being used by 48 per cent and the real risk taking (transformation) proportion of companies is about 13 per cent. When comparing companies to their strategy and type of segments, the next Table might be illustrative.

Pre-press companies show a large interest in a transition strategy, while the traditional type of company is working on Printing and Finishing. The total pattern is not clear. Companies using a transformation or risk taking strategy show a proportional interest in Pre-press, Other, and a combination of Pre-press, Print & Finishing. So the conclusion may be that risk taking behaviour has been counterbalanced by conservative kinds of production.

If we take a look at the correlation between size of the company and the policy then the next figure is informative.

From this figure we can read that larger companies invest more in transition and transformation than smaller ones. The investments can be substantial and have to prepare a company for the future. Small companies cannot afford such strategies and have to follow the market or to penetrate core products that are profitable to them.

It is interesting to see whether strategy, size and segments are related to higher or lower profits. In all cases companies are expecting higher volumes and profits independent from size, strategy and segment. This might indicate a self-fulfilling prophecy or indicate good entrepeneurship. In almost all cases and especially in the large companies the expectations are quite high, going up to about 89 per cent. So the conclusion is the larger a company the higher the expectations, and the stronger the risk taking behaviour.

Table 2: Proportion of segments related to strategy (n = 450)

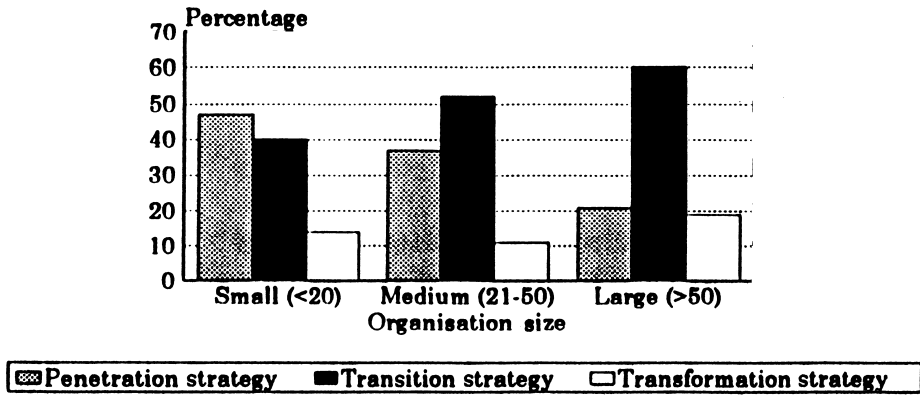| Segment	Penetration strategy	Transition strategy	Transformation strategy	Total
Pre-press	16	57	27	13
Print	53	46	2	25
Finishing	79	17	3	6
Other	–	75	25	2
Pre-press and print	28	58	14	12
Print and finishing	62	38	–	6
Print and other	36	57	7	3
Pre-press, print and finishing	38	40	22	22

Figure 1: Future strategy and organisation size in the communications industry (n = 45)

Results of the managers' survey

There were 752 respondents to the questionnaire for managers. Managers are mainly male (95 per cent), with an average age between 40 and 60, and a medium technical vocational degree (41 per cent). Twenty-six per cent have a degree at the level of higher education (polytechnic). The personal experience of managers with new technology is restricted: about 44 per cent have experience in working with CD- rom, electronic publishing (34 per cent) and printing on demand (30 per cent).

The survey asked for the 'level' of each manager. Forty-seven per cent have an executive function, twenty-three per cent have a higher level management function, twenty per cent a middle management function, six per cent a lower level management function, three per cent are accounts managers, and 1 per cent are unknown.

Based on Daft, and Yukl the responsibilities and tasks of managers have been mapped according to domains of management[13]: administration and policy making, internal management and organisation, personnel management, primary process and technology, commercial management and marketing, public relations, financial management, and legal and business administration.

Being asked for their responsibilities managers say that they are responsible for internal management (20 per cent), and the primary production process (20 per cent), for public relations (15 per cent), marketing (13 per cent), policy/administration (11 per cent), and financial administration (8 per cent). So the profile of a manager is diverse and spread over a broad range of responsibilities.

When taking a more in depth view in terms of tasks managers are carrying out, it is evident, that managers are taking care of internal communication and administration, for instance, decision making related to lean management (outsourcing of tasks), empowering employees, taking orders, motivating people to change. When these tasks are split up according to the job level, the higher level managers seem to focus very strongly on human resource management tasks. Staffing and selection, empowering employees, taking orders, organising client relationships. At the lower level managers act as interface managers, organising workflow processes, explaining goals and targets of the company and facilitating training to employees.

The discrepancy between the job now and in the near future is an important indicator of a changing role, and of competencies and responsibilities. Managers are therefore asked to give a perspective on the future. From this picture we learned that the future manager is an active, flexible and communicating person with responsibilities and authority related to strategy, policy and administration. The manager of the future is perceived as someone with an excellent expertise of the core processes of the company and employable in all situations in the organisation. The difference with the actual situation is that in the near future the manager is perceived

as more flexible, tasks will not change, newer tasks are becoming part of his job, mainly human resource management tasks.

Future tasks as perceived by the managers can be related to different categories of job level and size of the company, and strategy, and relative importance in the next 3 to 5 years. We will present the relationship between tasks and size of the company and the relative importance of tasks for the next five years.

It is intriguing to see that managers in all cases refer to motivating employees and to cooperating with customers or colleagues. It is perceived that managers have to play a crucial role in changing people for the future, in terms of necessary skills, employability, and learning to learn, both in the personnel domain as well as in the technical domain. Tasks that might be more important in the near future are related to emerging markets, on line publishing, implementing technological opportunities in companies to maintain or to enhance the market share, developing printing on demand, elaborating the companies strategic options, and communicating with employees[14].

The first three stages of this study were set up to organise a relevant database with information that can be used by experts to make wise decisions on the future profiles of managers in the communication industry. These experts would come together in a two days meeting to debate, discuss and elaborate all the information and to come to consensus about the future job profile, the necessary competencies or skills, and the outputs.

Conference

The fourth phase of the study was a Dacum conference with regard to jobs, tasks and competencies of managers. Dacum is a relatively quick technique to obtain job profiles, competencies and curriculum aims and plans[15]. Fifteen printing and communications experts were invited for a two-day meeting to discuss the findings of the previous phases of the study. To provide all participants with the same prior knowledge base about the subject matter, we compiled a comprehensive summary which was mailed to the participants before the start of the conference. This summary served as a common database during the conference. From this point we proceeded by distinguishing new roles and tasks for innovative managers in the communications industry.

The conference, however took a different direction of management profiles, that is *management roles*. The participating experts viewed a traditional approach to management tasks as a rather conservative approach in the development of better qualified managers. And besides that, all functional domains like Marketing, Human Resource Management, Internal Management, and Finance are already being addressed by current management training and education programmes. The change of approach, which is more or less aimed at innovation management, needs to be

Organisation size		
Small	Medium	Large
● Cooperation with customers	● Motivating employees to strive after quality	● Stimulating (the will to) change
● Selling products	● Consultation with colleagues, superiors and employees	● Stimulating employees to attain goals
● Calculation of orders	● Maintaining existing customer relationships	● Consultation with colleagues, superiors and employees
● Motivating employees to strive after quality	● Cooperation with customers	● Motivating employees to strive after quality
● Quoting for new orders	● Remaining up to date with technological developments	● Internal consultancy

Figure 2: Most important tasks per company size

based on a shift of mentality. Therefore the conference participants decided to focus on the role concept of managers and formulated seven roles after several stages of intense discussions. The participants also decided to focus on *the manager as an innovative entrepeneur* to provide an overall role that should direct the design of a new management training and education programme. It was felt that managers in all organisations at all levels should aim at realising this concept within their own working context and at their own level. After an intensive kind of brainstorming and discussions the next roles were formulated

1. Producer;
2. Innovator;
3. Motivator/Coach;
4. Controller;
5. Integrator;
6. Spokesman;
7. Strategist

Based on the role concept, used by the American Society of Training and Development (ASTD), a role can be perceived as based on competencies and outputs. Participants have to define the role, and to generate competencies and outputs per role[16]. See Figure 3 for an overview of the main roles and their ultimate output.

Those roles showed a remarkable resemblance with the roles described earlier by Quinn[17]. The literature search in Phase 1, showed an incoherent spectrum of views and approaches to managerial work, due to the succeeding views and theories in this field. Roughly speaking one can distinguish two approaches: functional tasks versus occupational roles of managers. Koontz and Weihrich have summarised the views of many authors on managerial tasks[18]. They have made a very common division of main tasks: Organising, Staffing, Controlling, Leading and Planning. Other management experts view the work of managers through the use of roles[19]. Quinn distinguishes eight management roles:

1. Innovator,
2. Broker,
3. Producer,
4. Director,
5. Co-ordinator,
6. Internal monitor,
7. Group facilitator,
8. Mentor.

A role is also based on competencies. How did the conference come to competencies per role? Discussing the core skills per role and the common skills for all roles, the conference was capable of defining every specific role. In terms of common skills the conference decided to name: communication skills, language skills, problem solving in general, negotiating skills, quality management skills.

Role	Role output
Producer	Productivity
Innovator	Ideas
Motivator/coach	Targeted activity
Controller	Management information
Integrator	Synergy
Spokesman	Organisation image
Strategist	Mission, strategy and goals

Figure 3: Roles and outputs

The outputs, tasks and competencies were defined per role.

Seven roles have been defined as an operational definition of the manager as entrepeneur in the communication business. These roles form the input for a curriculum and training design for new managers. Whether these roles can be generalised or not is not the valid question here. The experts as a validation group has decided to take these roles as major decision point for training and educating managers. In this sense the roles are an important criteria for making curriculum decisions.

Setting up a training design

Lastly, the results of all four phases were synthesised to develop a new structure for training and education and to offer suggestions for improvement of the existing education and training supply of the institute. This was done by mutual deliberation of both the client and University. As such practical as well as theoretical aspects and study results were considered and included in a new framework design for management training and education.

Through the synthesising of all previously found information a new training and education structure for management in the communications industry was developed. The results of the literature search were validated during the following phases and could therefore serve as a reliable source of information about current and future developments to affect the communications industry. All synthesising activities were continuously compared to these developments. The next step in the process of curriculum structure development was the determination of core competencies that emerged from the role descriptions (Figure 4). Those more general competencies (valid for all managers in all kinds of organisations) provide implicit knowledge domains that are being made explicit. The results of the questionnaires were used to obtain more specific and detailed information about those and other competencies and the knowledge domains to match. The foregoing resulted in a scheme in which all roles, outputs, competencies and knowledge domains were described (Figure 5).

For all the roles knowledge or expertise domains are selected that are important sources for constructing teaching learning units: declarative knowledge and procedural knowledge stocked in the different expertise domains are made explicit to organise certificates or stand alone units that can be organised in a very flexible way to serve different target groups using different pathways and learning environments (on the job-off the job training; formal-informal, traditional and electronical or digital forms of communication) (see Figure 6).

The new curriculum structure has been built on the existing modular structure of management programmes of Stivako. But the difference from the existing structure is that the new curriculum units can be used more flexible, i.e. in various contexts and for different customers and clients. Furthermore, the questionnaire results can be used to develop specific curriculum alternatives for several distinguished groups of managers like managers in large companies, managers working in small and medium-sized enterprises or for managers at different levels within the organisation. The basic idea is that management in the rapidly changing communications industry will need specific training and education as they encounter skills and knowledge deficiencies. According to Thompson and Carter a programme for managers should be "flexible enough to recognise that a manager's work is not regular and that such tradition features as regular weekly attendance run counter to commercial reality"[18]. Also are "organisations interested in their managers improving their performance, not in gaining theoretical knowledge which does not lead to such improvement". A relatively fixed programme structure, like the one that is in place at this moment, would not suit these needs. Figure 6 shows various ways in which a reservoir of autonomous curriculum units, be it workshops, plain knowledge, discussions or computer based training, may be applied for specific customer needs.

This example shows 25 curriculum units of which some can be delivered in various modes. When customer A wants to educate his people quickly about new trends, Stivako has the possibility to organise a workshop, based upon two existing

© Blackwell Publishers Ltd. 1998.

Role: Producer	Output: Productivity
Tasks	**Competencies**
• realising operational goals	• flexibility (open systems thinking)
• carrying out plans	• time management
• monitoring primary processes	• logistics/workflow management
• anticipating frictions	• process control
• quality management	• risk management
• implementing change	• automation
	• computer integrated manufacturing

Role: Innovator	Output: Ideas
Tasks	**Competencies**
• scanning and monitoring internal and external environment	• creativity (technical and commercial)
• observing and signalling opportunities related to the core business of the company	• intuition
	• invention
	• helicopter view
	• open mindness
	• thinking in media

Role: Motivator-Coach	Output: commitment of employees
Tasks	**Competencies**
• helping others realise targets	• being sensitive
• motivating producers	• able to listen
• stimulating employees	• activating employees
• coaching people	• authority
	• indirect leadership
	• open mind for change
	• coping with stress and resistance
	• coping with dynamic process
	• inspiring people

Role: Administrator	Output: Management information
Tasks	**Competencies**
• collecting data out business processes	• knowing how to take decisions based on information
• translating norms and tariffs into workable units	• managing information
• implementing norms	• administrating applications
• managing and processing data	• knowing legal aspects of using data/information
• analysing data	• protecting vital information
• reporting on data	• authority to be an administrator
• signalling bias and trends from data	
• correcting norms and procedures	

Role: Integrator	Output: Synergy
Tasks	**Competencies**
• realising and optimising critical success factors	• helicopter view
• multidisciplinary co-operation	• making interdisciplinary connections
• liaison officer to promote efficiency and effectivity	• MBA know how
• creating synergetic effects	• communication skills
• concentrating innovations on common targets	• creativity
• smoothly connecting production means translation of mission internally and externally	• flexibility transformation skills to help people

Role: Spokesman	Output: Image of the company
Tasks	**Competencies**
• represents the company	• charisma
• functions as the spokesman	• persuasion
• expressing the function for the community	• emotion
	• networking
	• handling media

Figure 4: Roles, tasks, competencies and outputs

Training managers in the Netherlands

Role: strategist	Output: Mission, goals, strategy of company
Tasks	Competencies
• formulating and validating goals/mission and strategy	• ability to analyse
• assessment and confrontation of internal and external analysis;	• use of transformation techniques
	• synthesising ability
• determination of product-market-combinations	• convincing and endurable
	• self confidence
• determination of use of technology	• future orientation
• take new innovative actions	• curiosity
	• tactical and strategic skills
	• commercial alertness
	• vision driven

Figure 4: Continued

Role	Expertise domain
Producer	Systems theory
	Computer integrated management
	Process management
	Quality management
	Workflow management
	Production techniques and scheduling
	Communications theory
	Marketing
Innovator	Innovation and intervention theory
	Systemic thinking
	Creative thinking
	Network learning and organisations theory
	Communications theory
	Scenario technology
	Implementation theory
	Evaluation theory
Motivator	Coaching and counselling
	feedback
	Human resource development
	Production technology
	Flexibility theory
	Communication theory
	Assessment theory
	Human resource management
Administration	Administrative automation
	Business administration and information
	Evaluation and measuring theory
	Scenario technology
	Integrated quality management
	Planning
Integrator	Interface management
	Co-operative learning theory
	Human resource management
	Logistics
	Business administration
	Innovation management
Spokesman	Communication theory and rhetoric
	Innovation and change theory
Strategist	Economics
	Human resource management
	Scenario technology
	Marketing
	Business administration
	Creativity theory

Figure 5: Expertise or knowledge domains for the different roles
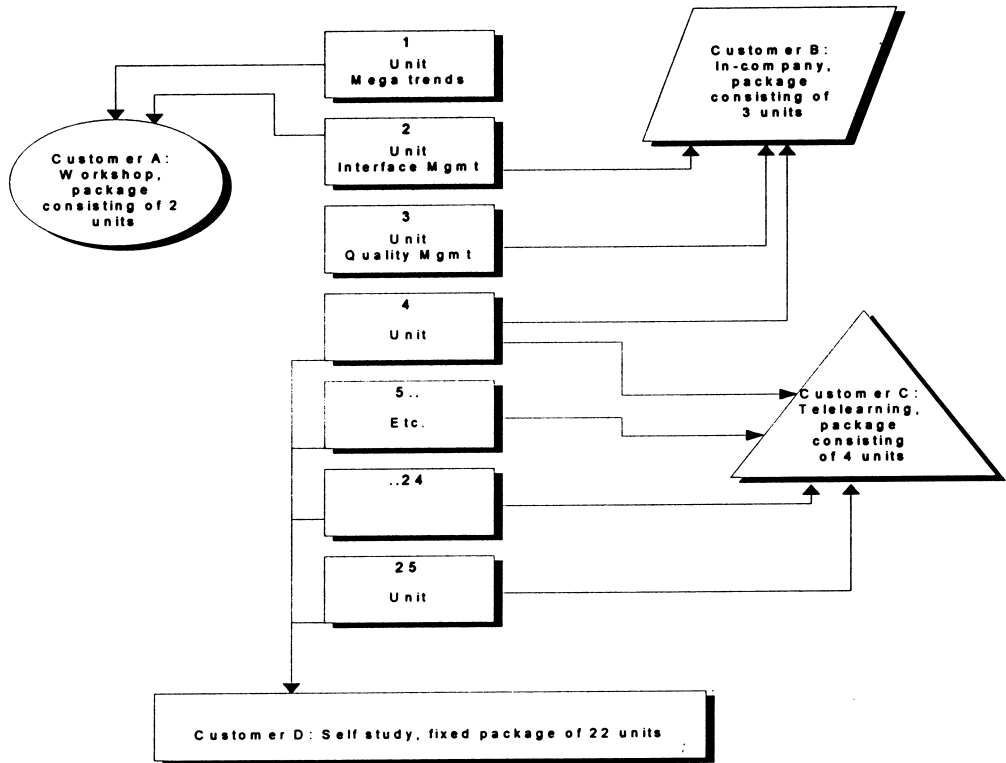
Figure 6: Various ways of applying curriculum units for different clients

curriculum units. Another customer likes to study at home in the evening for a certain certification. She can follow a course consisting of 22 units and take an examination. Elaboration of this concept could offer an unlimited number of possibilities to serve specific customers needs.

Conclusions

In this section the results will be summarised. First we will discuss relevant developments that will affect future managerial work. Second we will address changing management tasks and roles, and third some remarks will be made about the new education and training structure.

This study is focusing on changing managerial roles in the communication industry. The goal was to find important indicators for creating a new design for training. This study used managers as the main source of information to get a picture of the new foreseen tasks. Employees are not part of this study. The reflections are coming mainly from the target group itself and experts in the field. This might restrict the outcomes of the study. Asking employees might lead to other outcomes. However, the literature indicates megatrends worldwide. One may argue whether employees have a full overview of what is going to happen, at the other side self-fulfilling prophecies of managers cannot be excluded.

The Dacum procedure is a rather traditional way of mapping jobs into tasks and tasks sequences, based on the job holders themselves. In this study DACUM was changed into a mapping procedure using the role concept based on competencies and outputs, similar to the ASTD procedures. Roles can be important concepts to organise a mindshift. Using brainstorming sessions and tough discussions new roles came out and these roles helped to understand better the near future of the manager

in the communications industry. However, when taking another group of experts, would this lead to the same kind of roles? The fact that the roles were quite similar to Quinns' study might be seen as a validation of core roles in management. The special context of the printing and communication industry contextualise the content of the different roles.

This study must be perceived as a study on design methodology, using different sources and methodologies to design a new architecture for training. Transforming information from different sources into a coherent kind of training design is not only typical for design work, also the intuitive-rational approach is essential. The key problem is validity. Do different stages of information lead to valid conclusions in order to make decisions about curriculum content. The basic principle is not linear deduction, but systemic decision making by well informed experts.

The basic principles chosen for the design are competence based, modular based, and flexibility in using pathways. Using the same principles in training as in the future work setting might help to pave the way to a future communications industry as a network enterprise.

The literature research showed seven main trends that will guide the future of the communications industry:

1. the printing industry will evolve from a closed and independent branch of industry into an integrated part of the communications industry;
2. the monopoly of the press has ended;
3. reallocation and substitution of printed matter by electronic media will continually take place;
4. the volume, composition, and manufacturing of printed material will change;
5. organisations will have to deal with increasing internationalisation;
6. the need for less printed material will cause an increasing capacity surplus within the traditional printing industry;
7. environmental care will emerge as a competition factor.

To respond to those trends, organisations in the communications industry will have to alter their way of doing business. This includes a mind shift from press to information and communication systems; a change of corporate culture towards new ways of leadership, management and communication; a different commercial focus which aims more at serving markets and customers instead of products; strategic human resource management and development to enhance employee flexibility and competence; project management instead of product management; systematic use of process data; and use of advanced technology in both product and process.

The interviews of phase two showed that pioneer organisations endorse those trends and that some of them already have adapted to them. In addition to financial investments, companies will have to invest in people. The organisations in the study viewed an inclining need for higher educated people, who need not necessarily be educated in technical or graphic domains.

As was mentioned before, we distinguished three types of strategies to respond to new developments. Firstly the penetration strategy, which means that the organisation continues to focus on a traditional market segment and adapts minimally to new technological opportunities. Secondly organisations adapt gradually to the new changes. This is called the transition strategy. And lastly, some organisations radically change their business and technology and adapt completely to new markets and innovations: the transformation strategy. The results of the questionnaires supported our earlier findings. It appeared that only a small percentage of the businesses in the communications branch has adopted a transformation strategy. The larger the organisation the more likely they are supporting a transition strategy. Small organisations seem to lack the necessary means to invest in new technology or do not have faith in the opportunities that adoption of a progressive strategy can offer: almost half of them adhere to a penetration strategy.

Using an adapted DACUM procedure experts from the communications industry decided to develop roles, and to define competencies and outputs on the basis of the

information coming out from literature, pioneer study and survey. Seven roles were formulated based on the concept of the entrepeneur. A manager is perceived as someone who is responsible for the future of the company as well as for the daily work, someone who can keep track with new technologies for management and production, with organisation concepts as well as with people management. After defining competencies and outputs, expertise domains and an educational structure has been designed, which is flexible to different target groups and adaptive to different learning technologies. Learning and working seem to be integrated in using electronic performance systems for a higher performance.

One may ask whether a procedure as portrayed above will change the content of the training programme. What are the differences between the new design and the former programme. A comparison has been made of the former Staff and Management Training Programme with the new design. Based on that analysis disciplines like management theory and techniques, human resource management, marketing, and logistics still play a heavy role in the new design, albeit that adaptations take place. Really new is the role concept and the necessary expertise domains that managers can help to see companies like networks and flexible learning organisations in which virtual global production will be part of the future using new technology and system concepts. This expertise is expressed in different disciplines and in problem based learning: like systems theory and systemic thinking, computer integrated manufacturing, printing on demand, workflow management, interface management, cost effectiveness analysis, the learning organisation, co-operative learning, flexibility concepts, network production, and the use of new technologies in management and production.

The conclusion is that new technology, the concept of the entrepeneur, the concept of the learning organisation and the concept of an enterprise as a network have had a strong impact on defining new roles for managers and on the content of the new training design. The new manager will be a networker, an interface manager, playing a set of roles and showing how to be employable and committed to the business.

References

1. Mandel, T. F. et al. *Bridging to a Digital Future*, Alexandria, VA, Printing Industries of America 1993.
2. Koontz, H. and Weihrich, H., *Management*, New York, McGraw-Hill 1988.
3. Mulder, M., The Curriculum Conference, Enschede, University of Twente. 1992.
4. KVGO, *Informatietechnologie en de grafische industrie. [Information Technology and the Printing Industry]*. Amstelveen: KVGO 1994.
5. Rummler, G. and Brache, A., *Performance Improvement*, San Francisco: Jossey Bass 1995.
6. Nonaka, I. and Takeuchi, H., *The Knowledge Creating Company*, Oxford University Press, Boston
7. Hövels, B and Van den Berg, S. , Responsiveness of vocational education in the printing industry, in W. J. Nijhof and J N. Streumer, (eds), *Flexibility in Training and Vocational Education*, (pp. 133–151) Utrecht: Lemma 1994.
8. KVGO, op. cit.
9. Lamprecht, J., *ISO 14000*, Amacom: San Francisco, 1998.
10. Cochran, W. G., *Sampling Techniques*, New York: John Wiley 1977.
11. Nijhof, W. J., Streumer, J. N. and van Ginkel, K., Van Drukwerk naar Netwerk, De Lier: ABC, 1996.
12. KVGO, op. cit.
13. Daft, R. L., *Management*, Fort Work: Dryden Press 1991; Yukl, G. A., *Leadersip in Organisations*, Englewood Cliffs, NJ: Prentice Hall 1989.
14. Nijhof, Streumer and van Ginkel, op. cit.
15. Mulder, op. cit.; Norton, R. E., *DACUM Handbook*, Columbus, OH: National Center for Research in Vocational Education, 1985.
16. McLagan, P. A., *Models for HRD Practice*, Alexandria: ASTD 1989.
17. Quinn, R. E., Faetman, S. R., Thompson, M. P. and McGrath, M. R., Handboek Management Vaardigheden Schoonhoven: Academic Service, 1994.
18. Koontz and Weihrich op. cit.
19. Quinn, op. cit.

20. Thompson, J. E. and Carter, S., the Development of Competence: National Standards for Managers, in M. Mulder, W. J. Nijhof and R. O. Brinkerhoff, (eds), Corporate Training for Effective Performance (pp. 13–33), Boston: Kluwer Academic Publishers 1995.