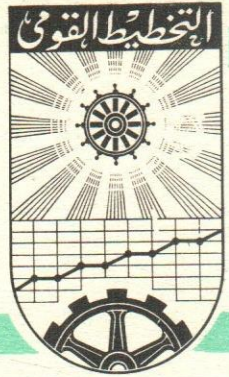


# UNITED ARAB REPUBLIC

## THE INSTITUTE OF NATIONAL PLANNING



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System of Manpower  
Planning on the Enterprise Level

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The degree of skill of the existing population is the respective precondition for the whole productive activity, the main accumulation of wealth, the most important result of antecedent labour existing in the living labour itself. (Karl Marx)

The number and the qualification of manpower are the most important factors of the technological and economic progress. This fact is verified by many researches. That is why manpower planning is gaining more and more importance. In socialist countries manpower planning is part and parcel of the whole planning system. This is valid for the national level as well as for the regional and enterprise level. The G.D.R. has created its own system of manpower planning during the past twenty years. The paper will inform about the essential points of this system. We think that this system is in its general aspects, its frame and methods applicable not only in the developed socialist countries. It is also applicable in developing countries which want to build a socialist society.

## 1. The System of Manpower Planning

The system of manpower planning in an enterprise can be illustrated with figure 1, page 2.

The system includes 4 planning steps and 2 balances. It is applicable for plans covering periods from 1 to 5 years. The application of this planning system depends upon the following requirements:

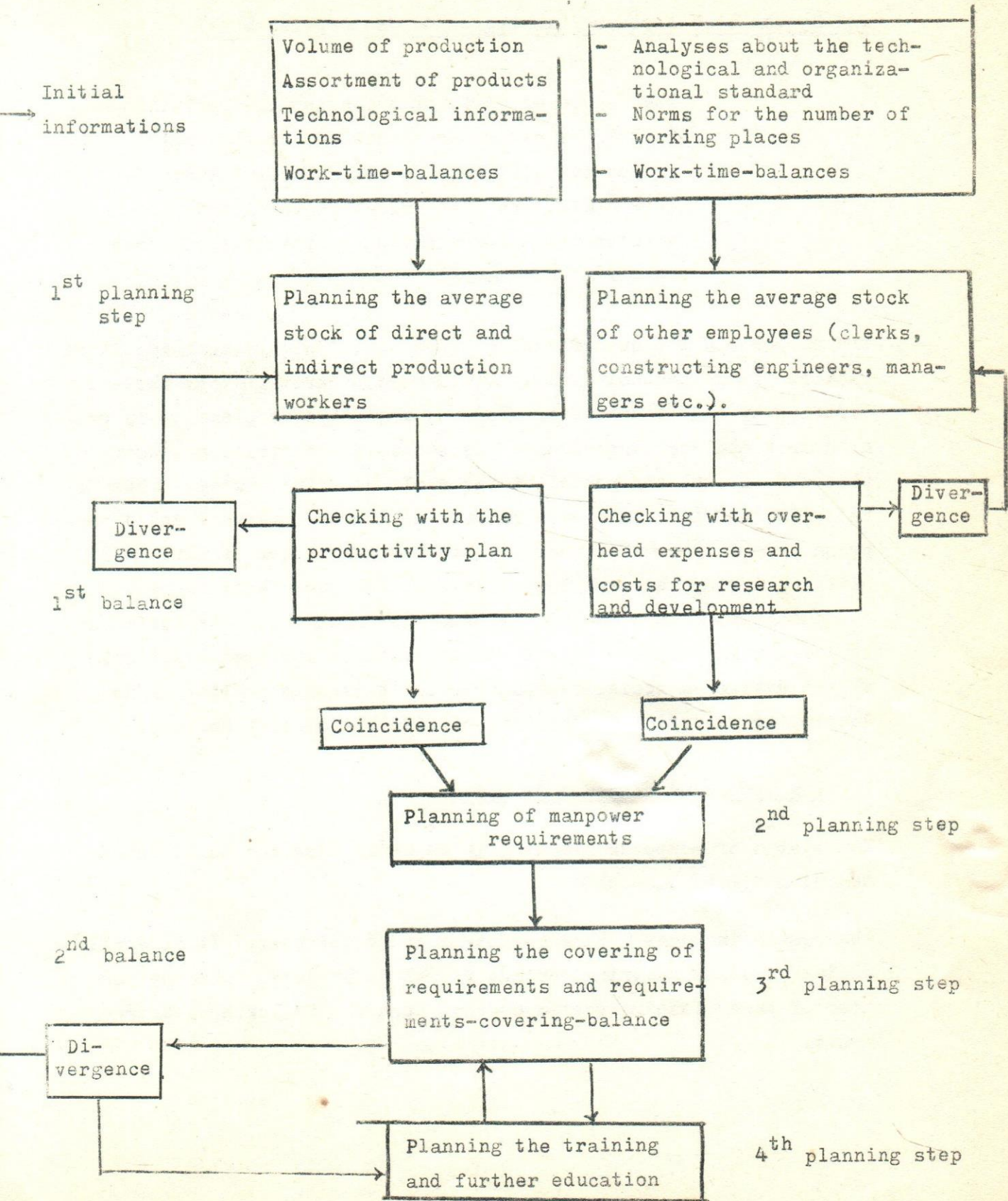


fig. 1

- i) Sufficient initial informations
- ii) A classification system of manpower
- iii) Planning techniques

Usually it is not so difficult to get the necessary informations for the volume and assortment of products and the work time balances. But the obtaining of technological informations depends on a higher standard of organization, especially on a satisfactory system of work norms.

The second point is that manpower planning presupposes a classification system. The reason is that different manpower categories depend on different technological and economic indicators. The direct production workers depend in number and qualification structure on other indicators than the indirect production workers, the clerks on other than the constructing engineers etc.

The initial information and the classification system determine the exactness of a manpower plan. Therefore before working out a planning system it is essential to decide how exact the planning results must be.

Not so much the degree of exactness as the expense of time and money are influenced by the applied planning techniques. Today we know various techniques and it will be demonstrated that a combination of the various techniques is necessary to work out a manpower plan.

## 2. Planning the average Stock

The initial point of manpower planning is to plan the average stock for each year or a quarter of a year. The average stock gives the number and structure of manpower which are necessary to fulfill a planned technological and economic project (or programm). For this planning task we have two possibilities:

- i) Planning on the basis of norms
- ii) Planning on the basis of working-places

The more exact results are obtained by the first way, for which we can use various methods:

- a) Planning on the basis of time-norms (Mostly used for direct production workers)
- b) Planning on the basis of other work-norms (norms for repairing, service etc.)
- c) Planning on the basis of indirect norms (number of special categories of clerks, engineers etc.)

The programm for the planning process on the basis of time-norms is illustrated in figure 2, Page 5.

This method gives very exact results if there are exact work-time-norms. It is applied in regard with the majority of direct production workers.

A very important method for planning the number of manpower in managment, administration and research and development departments has been elaborated since some years in the U.S.S.R. In an indirect way norms for the number of employees are worked out using the regression analysis. These norms give the number of employees for general managment, for research and development, standardization, working-place-organization and wages, quality test etc. The number of employees for the techno-economic planning department in the machine-building-industry for example is:

$$N = 0,043 \cdot F^{0,427} \cdot M^{0,302}$$

F = value of production funds

M = number of working places in the direct production process

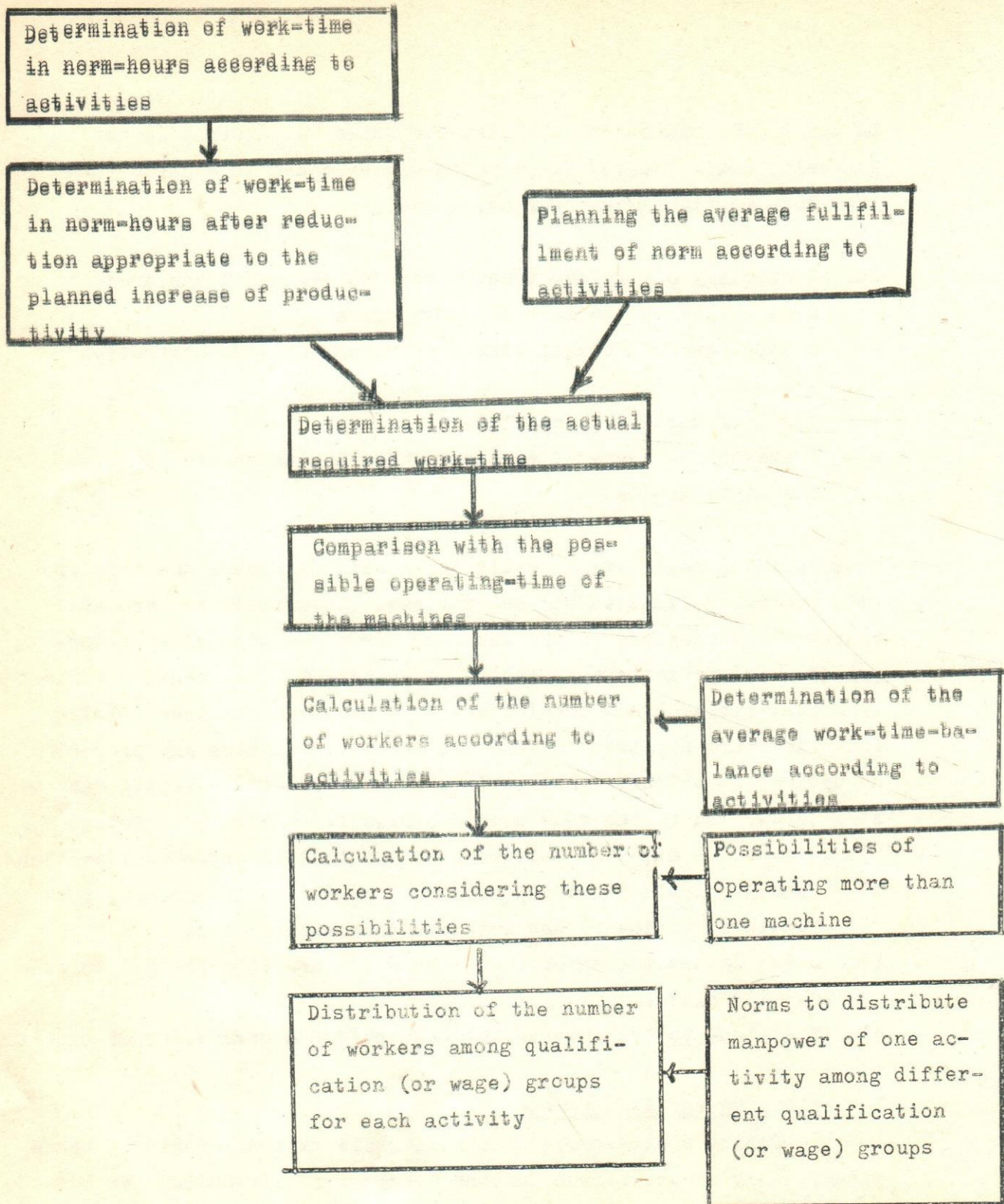


Fig. 2

In the G.D.R. and other socialist countries this method is not generally used. Mostly the working-place-method is applied for the above mentioned manpower categories.

The enterprises are guided through various means. These are:

- a catalogue of the manpower categories
- a catalogue of working places in management, administration etc.
- model of working-place-plans
- frame-nomenclature of working places for university or high institute graduates

These guiding means exist mostly for special branches and they are only recommendations to the enterprises. Nevertheless there are remarkable variations in the manpower structure of similar enterprises. The percentage of employees working in management, administration, research and development in a group of machine-building factories varies between 25 and 33. These two numbers are probably no optimal situations. But it is also probable that varying manpower structures lead to the same economic result. Using the working-place-method we have the following points to take into consideration:

- a) Useful relations between different qualification-groups, professions, engineers and supplementary workers etc.
- b) Exact determination of the tasks which are to carry out on each working place.
- c) The plan-project must be defended before a commission of experts.

### 3. Planning the Requirement

During a plan-period a considerable external mobility takes place. This is the reason for the manpower requirements. We have to distinguish two kinds of requirements:

- ( i ) Change-requirement (the average stock increases or decreases)
- (i i) Replacement-requirement (because of reaching retiring age, death, invalidity, fluctuation).

The change-requirement is caused by technical and economic factors like changes of production volume, assortment and productivity. The replacement-requirement is caused by demographical and sociological factors.

The problem is to plan the volume of mobility and its temporal lapse so that the planned average stock will be reached. This problem can be solved without difficulties for the change requirement because we have informations about changes in production volume, productivity etc. We also can plan the volume of the replacement requirement, if we know the age structure and if we have analysis about the fluctuation-rate, the death and invalidity-rate from former periods. But it is very difficult to plan the temporal lapse for this at last mentioned points. Therefore a requirement-plan can be exact for the change-requirement. But for the replacement-requirement the plan is a model for the future approaching the real situation more or less.

Most important for the replacement need is the fluctuation. About 40 to 60 percent of all leavers in a period belongs to the group of fluctuation which is not necessary. This group runs from 10 - 20 percent of the whole personnel of an enterprise. Therefore the problem is not only to plan the volume of this process more exact. It is rather a problem of decreasing this rate. The following figure 3 gives an example for planning the requirement:



	stock Jan. 1 <sup>st</sup>	av. stock	change requi- rement	replacement requirement			total	total requi- rement
				inv. death	retiring age	fluct.		
1	500	525	50 <sup>x</sup>	5	11	52	68 <sup>xx</sup>	118 <sup>x</sup>
2	550	757	50	6	12	58	76	126
3	600	600	-	6	12	60	78	78
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.

Fig. 3

x number of entrants

xx number of leavers

#### 4. Planning the Coverage of Requirements

Manpower resources also have a volume and a temporal lapse. Planning the coverage of requirements means:

- i) Planning the volume and temporal lapse of manpower resources
- ii) Balancing the demand with the resources

Resources are persons who have finished there vocational training, university graduates, leavers from secondary schools, leavers from the army, leavers from other enterprises, persons without work. Only for some of these groups the moment for supply is known. The majority of these resources are connected with a special region so that manpower planning in an enterprise is linked with the regional manpower planning.

The following example demonstrates the planning process:

Plan for the requirement

Quarter	Changes of the actual supply in stock	replacement inv./ death	requirement retiring age	fluct.	total	total requirement	actual supply in stock
I	10	2	4	30	36	46	810
II	10	2	4	20	26	36	820
III	10	2	4	20	26	36	830
IV	10	2	5	12	19	29	840
Total	40	8	17	82	107	147	820 <sup>x</sup>

Plan for the covering of the requirements

Quarter	Total requirement	graduates, leavers from schools	Entrants because of fluctuation	Entrants from the unemployed population	Total Supply	actual supply in stock
I	46	-	30	6	36	800
II	36	-	20	6	26	800
III	36	44	20	6	70	844
IV	29	-	12	3	15	838
total	147	44	82	21	147	822 <sup>x</sup>

<sup>x</sup> av. stock

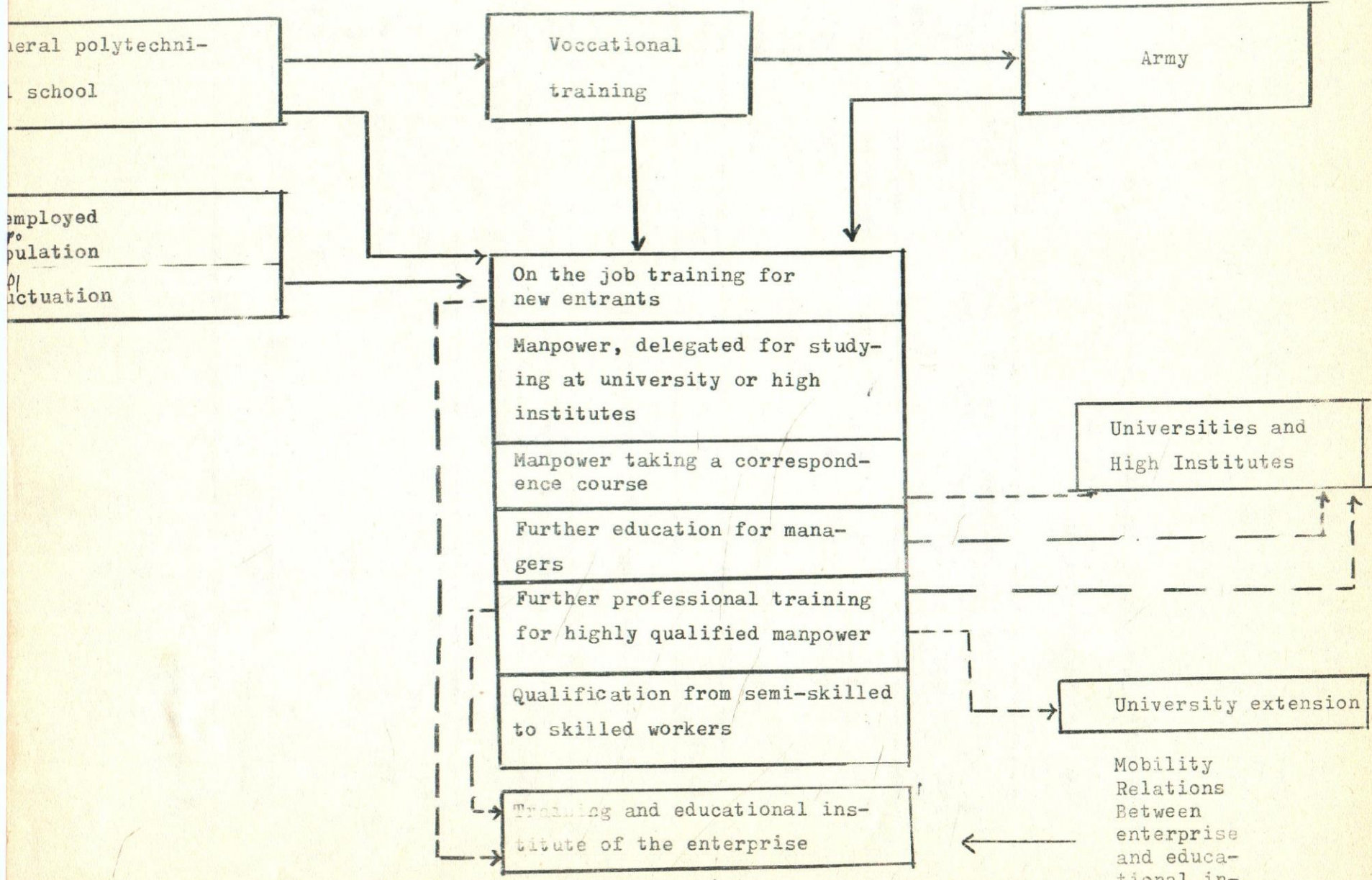


Fig. 4

Mobility Relations Between enterprise and educational institution

## 5. Planning the Training and further Education

Manpower planning includes the planning of on the job training and further vocational and professional training and education.

Technological and economic progress requires more and more qualified manpower. The demand for qualified manpower is covered to a great extent by the different institutions of the educational system. Nevertheless the enterprise has its own tasks in qualifying the various categories of manpower. There are:

- a) On the job training for new entrants, especially training of unskilled workers to become semi-skilled.
- b) On the job training from semi-skilled workers to become skilled
- c) Further professional education for managers
- d) Further professional education for highly qualified manpower

The educational tasks of an enterprise are demonstrated in the figure 4, Page 10.

Initial point of planning the training and educational measures is the balance between existing and in the plan period required qualification. These balances are implemented for the different manpower categories (production workers, engineers, professionals, managers etc.) They have to be based on analysis about the required qualification.

The plan includes two parts:

- i) Plan of a department. It contains the training and educational measures related to the persons who are to qualify
- ii) Plan of the enterprise. It contains the number of persons for each qualification measure and the period of training and education.

The problem is that a certain number of those persons who qualify themselves leave the enterprise after finishing their training. Therefore it is necessary to plan with a sufficient reserve.

To sum up, we can say that manpower planning in an enterprise has to be based on a planning system. This system is applicable in every enterprise and it includes the mentioned planning steps and balances.