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Informatic Microsystem for the Technical—Material Supply of an Enterprise (MIAMI)

The application on informatics contributes to the enterprise development

As it was pointed out in many party and state documents, the sector of technical-material supply is playing an important part in the prompt fulfilment of the plan targets incumbent on any enterprise. Within this compartment, the following main activities are distinguished:

— the establishment of the outfit of raw and related materials for introducing it in the technical-material supply plan of the next higher body;

— the contracting of raw and related materials with various contractors in keeping with the concrete requirements of the enterprise;

— the control of the fulfilment of these contracts in due time;

— the administration of material goods in best conditions;

— the establishment of the optimum level of stocks.

For a proper unfolding of the entire activity, the supply compartment needs a correct and rapid information. The presented informatic system aims at complying with most of the information requirements of the supply sector.

The MIAMI system may contribute to an efficient implementation of the activity falling within the responsibility of the supply compartment.

DESCRIPTION OF THE MIAMI SYSTEM

1. Generalities

In a simpler variant, this system has been described in an article about the data flow for materials record [13]. The present study presents a more complete variant of the conceived system together with some details on its practical achievement.

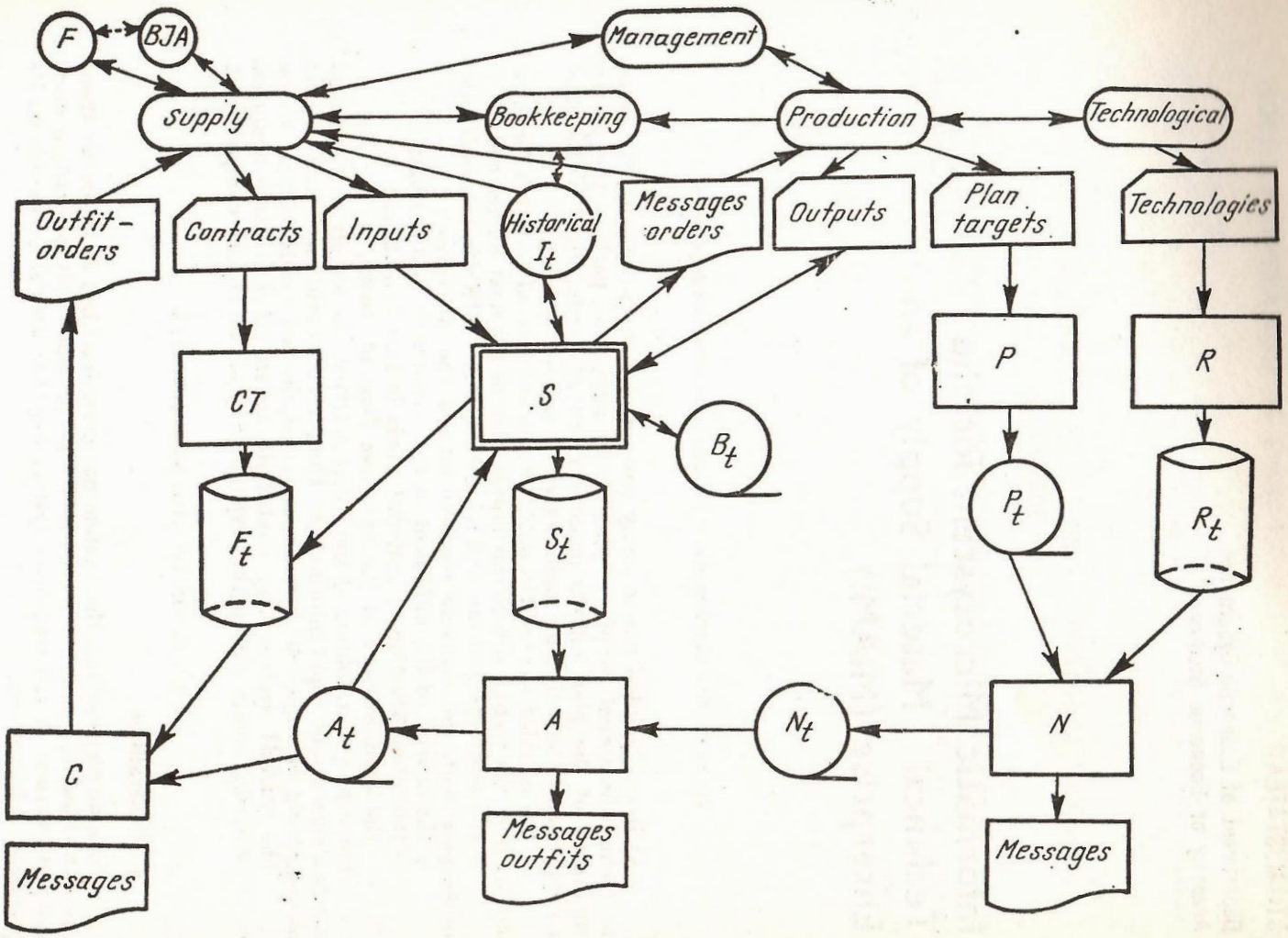

F
BJA
Management
Supply
Bookkeeping
Production
Technological
Outfit-orders
Contracts
Inputs
Historical I_t
Messages orders
Outputs
Plan targets
Technologies
CT
S
P
R
B_t
F_t
S_t
P_t
R_t
A_t
A
N_t
N
C
Messages
Messages outfits
Messages

Fig. 1

As results from Figure 1, the MIAMI system is functioning for the following compartments of an enterprise:

— supply;
— production;
— bookkeeping;
— technological.

To be able to use the system, these compartments have to supply it with the necessary data as follows:

The technological compartment is supplying all data about the technologies used in production (the recipes or technological specifications). These are stored in file R_t.

The production compartment supplies data on the enterprise plan targets for the period of time for which it wants to establish the outfit. As a matter of fact, this compartment will administrate the content of file P_t, in which the enterprise plan targets have to be stored. This compartment will daily supply information on all consumptions of raw and related materials through the documents which are elaborated on the occasion of the supply of the work places.

The supply compartment is responsible for the proper functioning of the whole system and it supplies the latter with data on the contracts of the enterprise, on all movements of the raw and related materials. Particularly, this compartment is in charge of the content of the files S_t (stocks) and F_t (contractors).

2. Establishing the Outfits of Raw and Related Materials

To obtain the outfit of raw and related materials, on a certain plan period, files R_t and P_t must contain the necessary data, corresponding to the respective plan targets.

a) File R_t which contains all the technological recipes*) used in the enterprise at the moment t(for which the respective outfit is desired) will be loaded on magnetic discs and maintained by the program system **R** whose structure may be as that in Figure 2.

The **VER-R** programme has the task not to allow the introduction of erroneous data into file R_t. For this purpose, it checks the logical structure of the cards file *(R-CART)* and signals at the line printer all errors found. Only the recipes which were found correct following this check are brought in the magnetic tape $R\text{-}B_1$. This programme will be rolled until no errors will appear on the line printer. After the correction, $R\text{-}B_1$ contains all the necessary recipes and they can be sorted (with the **SORT-R** programme) according to the product code and the material code (within each recipe). The result of sorting is taken over in tape $R\text{-}B_2$.

The **INC-R** programme is in charge of loading and maintaining the file of technological recipes R_t. For loading, it takes over the recipes from tape $R\text{-}B_2$ and introduces them into the magnetic disc R_t with an index-sequential or direct organization. For maintenance, from the cards file $M\text{-}R$ (which was checked previously) are taken over all the changes to be made in file R_t set up before hand.

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*) consumption standards, internal standards, etc.

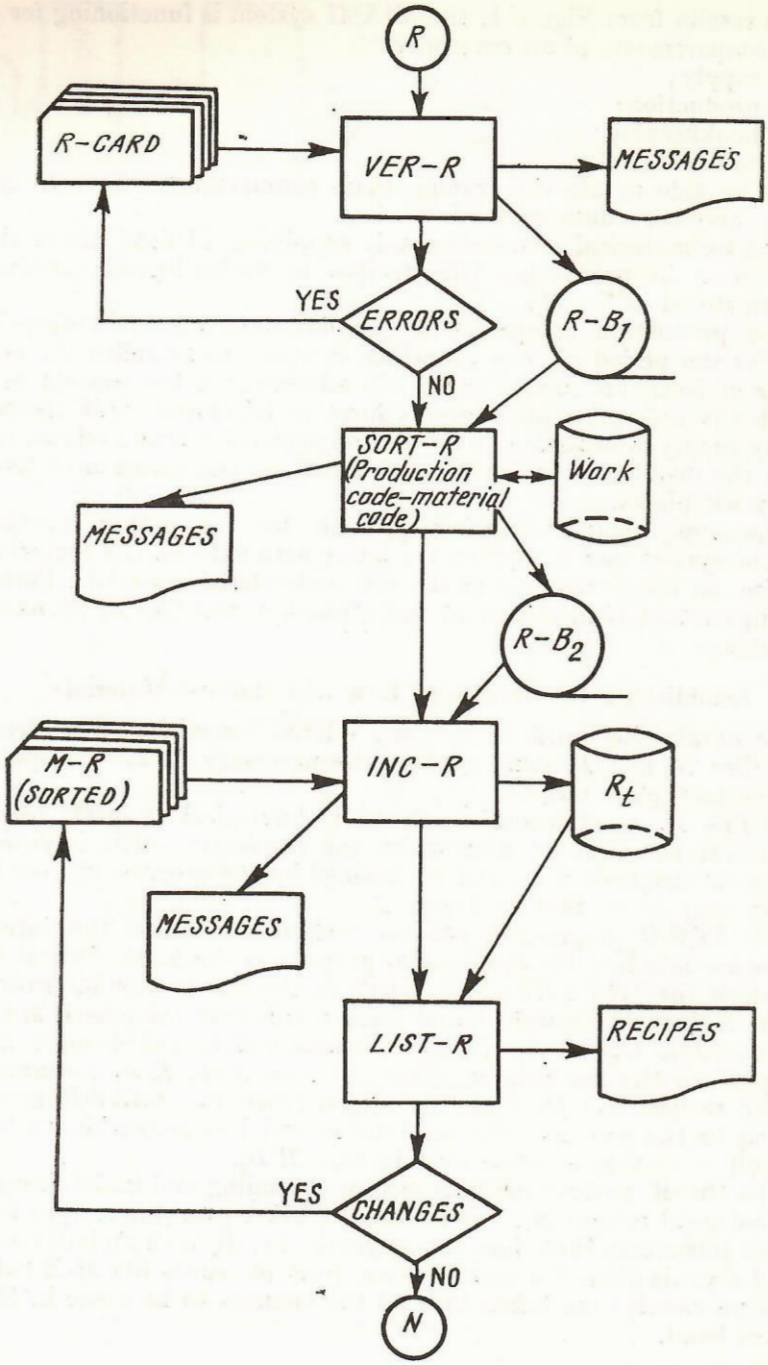

R
R-CARD
VER-R
MESSAGES
YES
ERRORS
R-B1
NO
SORT-R
(Production code-material code)
Work
MESSAGES
R-B2
M-R
(SORTED)
INC-R
Rt
MESSAGES
LIST-R
RECIPES
YES
CHANGES
NO
N

Fig. 2

The **LIST-R** programme extracts completely or partly, on the line printer, the content of file R_t. These lists serve the technological compartment and all those interested in checking the data in this file.

The loading of file R_t is made at periods of time whose length depends on the technological stability of production. The correction of the data in this file can be made whenever it is necessary. However, before using the data in file R_t all corrections must be made for the results obtained to be correct. The structure of data in file R_t, though, usually it will be in keeping with the concrete requirements of the enterprise, will generally contain:

— the product code;

— the unit of measure;

— the number of materials in the recipe;

— each material with data about its code and specific consumption for (production, the outfit to supply, profits, etc.).

Thus, the idea is pursued of creating records of variable length. If most recipes have approximately the same number of specific consumptions, then we can (in organizing this file — R_t) also follow the idea of creating new records of fixed length, all of them dimensioned according to the recipe of the biggest size. The **R** programme system may also include other programmes which will satisfy certain information requirements of all those concerned in the enterprise, on the basis of data in files $R\text{-}B_1$, $R\text{-}B_2$, R_t.

b) File P_t contains the enterprise plan targets for a certain period of time and it can be created on magnetic tape and maintained by the **P** programme system (Fig. 1) whose structure may appear as that in Fig. 3.

The **VER-P** programme checks, after the punching of data, the observance of the logical structure of cards. It wi'l signal on the line printer all cards found with errors and will bring in the magnetic tape $P\text{-}B_1$ only the correct ones. When no other errors are signaled by this programme, one can pass to sorting according to the product code of the plan targets to be found in $P\text{-}B_1$. The result of sorting is deposited in $P\text{-}B_2$. Sorting is necessary for shortening the calculus time in the next processing (c) stage, but it is not compulsory. If one gives up sorting, the time for calculus is prolonged for eventual corrections of the tape $P\text{-}B_2$ and in stage (c). If it is necessary, a list of the content of tape $P\text{-}B_2$, with the **LIST-P** programme can be made. If from the last loading of tape $P\text{-}B_2$ to its use, changes have occured in the enterprise plan targets, they have to be, by no means, operated in tape $P\text{-}B_2$ with the **COR-P** programme. This file (of plan targets) is periodically loaded and corrected whenever it is necessary. A record may contain the following types of data: product code, unit of measure, price, plan targets laid out on various periods of time, etc.

The structure proposed in Fig. 3 for the **P** programme system can be, of course, improved by adding other programmes useful to the enterprise provided that only data from files $P\text{-}B_1$, $P\text{-}B_2$ are used.

It would be ideal that file P_t be maintained by another informatic system (PRODUCTION), with special charges concerning the best management of production. In these conditions, it would represent one of the contact points of the MIAMI and PRODUCTION systems, thus occasioning the carrying out of an important step towards the setting up of an integrated management system by using the electronic computer.

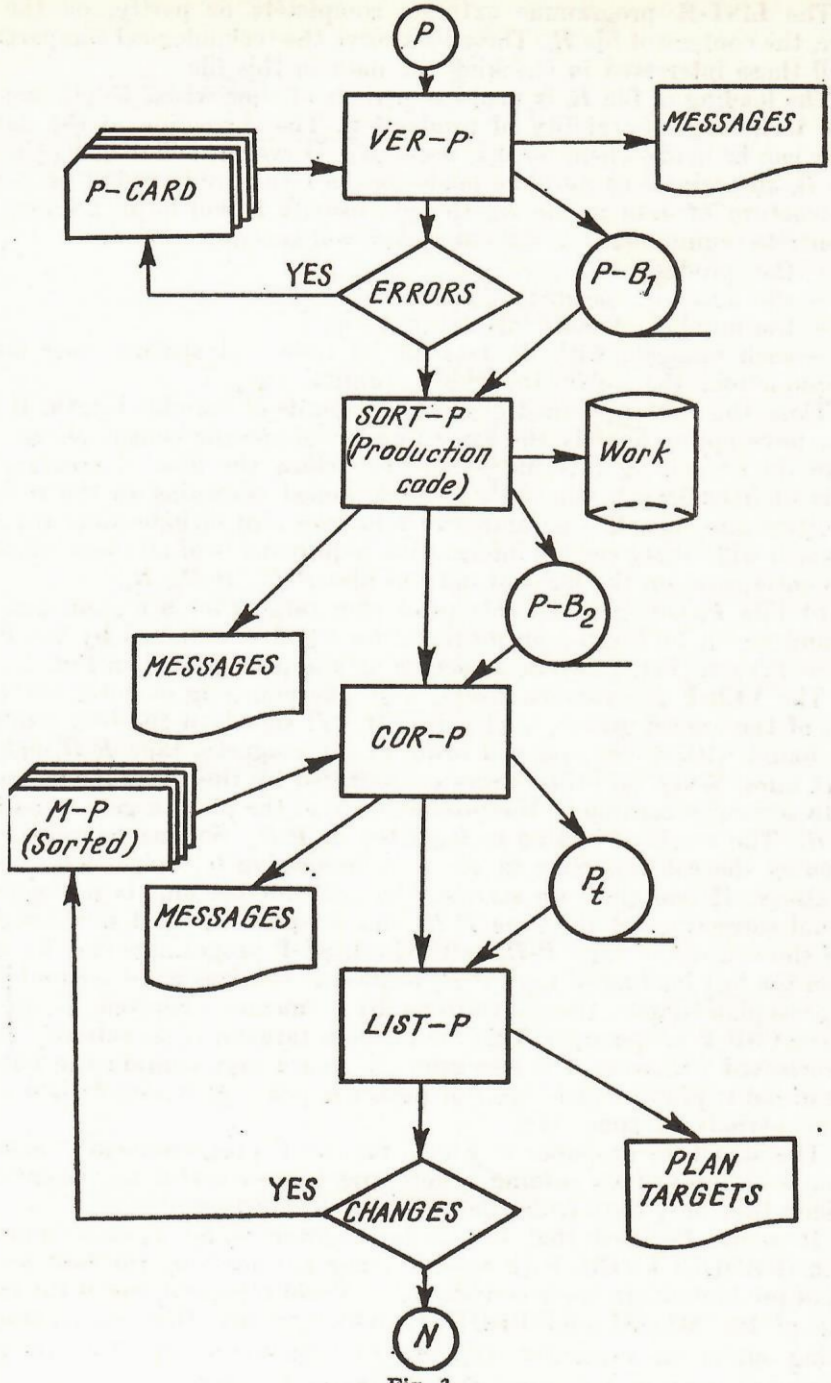

P
VER-P
MESSAGES
P-CARD
YES
ERRORS
P-B1
SORT-P
(Production
code)
Work
P-B2
MESSAGES
COR-P
M-P
(Sorted)
MESSAGES
Pt
LIST-P
PLAN
TARGETS
YES
CHANGES
N

Fig. 3

c) The calculus of the gross outfit of raw and related materials is made with the programme system whose detailed structure is shown in Figure 4. This system uses data from files R_t and P_t, presented above, and the results of the calculus are stored in file N_t.

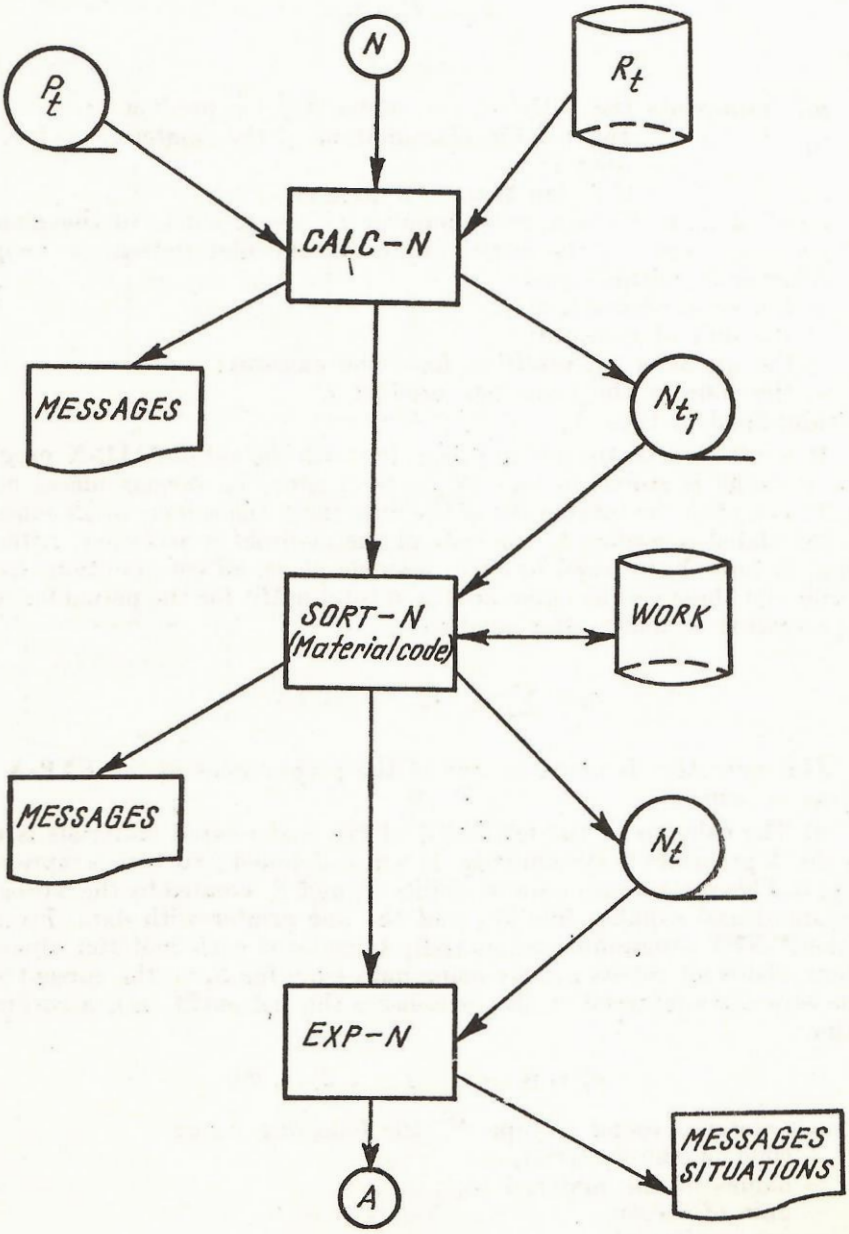


Fig. 4

The **CALC-N** programme sequentially covers the production targets found in file P_t. The respective technological recipe (which has the same code) is searched in R_t for each product and the outfit n_{ij} from the material j for product i, is calculated with the aid of relation:

$$n_{ij} = C_i \cdot c_{ij} \tag{1}$$

where:

n_{ij} represents the outfit of the material j for product i;
c_{ij} — the specific consumption of the material j for product i;
C_i — the plan target for product i;
$i = 1, 2, ..., n$ — the order number of the products in the plan;
$j = 1, 2, ..., m$ — the order number of the materials in a recipe.

After each calculus made,
— the code of material j;
— the unit of measure;
— the quantity n_{ij} resulting from the calculus;
— the code of the consumer product i.

are maintained in tape N_{t1}.

It results that at the end of processing with the aid of **CALC-N** programme, a material is stored in tape N_{t1} several times in various places of the tape. To establish the total outfit of the material j, the sorting of all consumptions calculated according to the code of the material is necessary. After this sorting, in tape N_t we shall have, in a single place, all consumptions from a material and these can be cumulated in a total outfit for the period for which the processing is made after relation:

$$n_j = \sum_i^n n_{ij} \quad (j = 1, 2, ..., m) \tag{2}$$

This operation is made by one of the programmes of the **EXP-N** programme system.

d) The calculus of the net outfit of raw and related materials is made with the **A** programme system (Fig. 1) whose detailed structure is represented in Fig. 5. This system uses data from files N_t and S_t (created by the S programme system) and supplies files A_{t1} and the line printer with data. From file N_t, the **A-NET** programme sequentially takes over each material separately and cumulates all outfits n_{ij}. By using data from file S_t on the current stock of the respective material, it also establishes the net outfit (n'_j), according to relation:

$$n'_j = n_j - s_j \quad (j = 1, 2, ..., m). \tag{3}$$

For each material found in tape N_t, the following data:
— code of the material;
— names of the material (S_t);
— unit of measure;
— net outfit (n'_j);

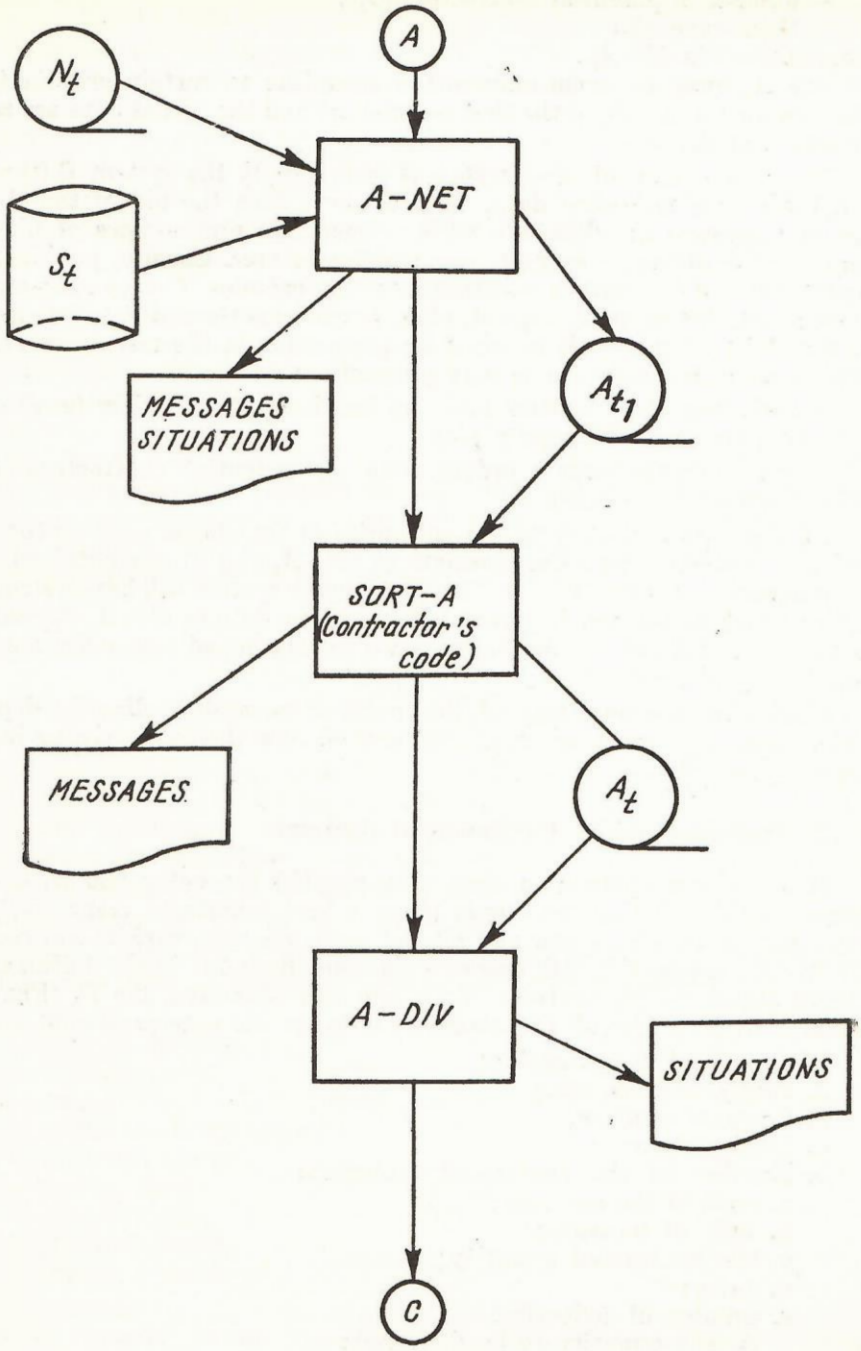

A
N_t
A-NET
S_t
MESSAGES
SITUATIONS
A_{t1}
SORT-A
(Contractor's
code)
MESSAGES
A_t
A-DIV
SITUATIONS
C

Fig. 5

— number of potential contractors (S_t);
— their code (S_t)
are maintained in file A_{t1}.

File A_{t1} may be eventually sorted according to certain criteria (such as, for example, the code of the first contractor) and the sorted data are taken over from file A_t.

The main aim of the system A is to supply the system C (through file A_t) with the necessary data. If, necessary, with the aid of the **A-DIV** programme system in which are various operation programmes of files A_t, a number of data can be extracted on the line printer. Usually, justifications (on products) for the outfits resulting from the calculus may be extracted in this stage. At this moment, tape A_t (Fig. 1) contains the outfit to be supplied established for all materials required by production in the respective period. On the basis of these data, one may proceed to:

— including these outfits into the balances of materials for drawing up the technical-material supply plan;

— launching the supply orders, with the potential contractors based on the contracts concluded.

All the data necessary to the enterprise in the stages prior to the contracting of materials, by using the data in files A_t and F_t are obtained with the C programme system (Fig. 1). This programme system will have a structure specific of each enterprise. It permanently uses the data in files $A_t F_t$, ending, in a way, the chain of the applications we have grouped under the name of "Establishing the outfit".

Obviously, the structure of this programme system directly depends on what sort of accounts are requested and on how the data existing in files A_t and F_t are used.

3. Pursuance of the Fulfilment of Contracts

If the above application aims at supplying the enterprise with data necessary for drawing up the supply plans in best conditions, respectively for contracting the necessary raw and related materials with various contractors, the following application will ensure a rigorous discipline in the fulfilment of all tasks stipulated by contract. To attain this objective, file F_t (Fig. 1) is necessary, which stores all the necessary data on the enterprise contractors:

1. Code of the contractor;
2. Name, address, etc.;
3. Contract number;
4. Expiry date;
5. Number of the contracted materials:
   a. code of the material;
   b. unit of measure;
   c. the contracted quantity;
   d. price;
   e. number of deliveries:
      A. the quantity to be delivered;
      B. date of delivery;

C. the delivered quantity;

D. the paid quantity.

It is noticed that the record in this file will be of a variable length, since on position 5, the group of data will be repeated as many times as many materials are mentioned in a contract. At the same time, several stages of delivery which may differ from one material to another are envisaged within each material. This file should be organized so as to allow direct access to any contractor and this will be possible because of the restricted number (below 1 000) of contractors an enterprise has usually.

A. The creation and maintenance of this file is achieved by the **CT** system (Fig. 1) whose general structure is that in Fig. 6. This file will usually be reloaded annually, after the finishing of contracts. However, it should be updated whenever something is changed in the contract obligations of the enterprise contractors. Since the structure of this system is somehow similar to that of system **R**, those said about it are also valid for the **CT** system.

B. The operation of data in file F_t is incumbent on the **S** programme system, which will be presented in the following. We mention that the **S** programme system will signal, after each processing, any deviation from the contract discipline, thus allowing the supply compartment to take all measures in due time for improving the situation.

4. Administration of Stocks

The **S** programme system (Fig. 1) represents the nucleus of the MIAMI system and is in charge of:

— the formation and updating of the file of stocks (S_t);

— the updating of the file of contractors;

— the signaling on the line printer, on the occasion of the updating, of all situations considered as exceptions;

— the completion of the historical file.

a) Loading of the file of stocks (S_t)

This file must contain data on all materials*) necessary to the enterprise. The following data are proposed to be kept for each material:

— code;
— unit of measure;
— name;
— price;
— initial stock (inventory);
— standard stock;
— safety stock;
— alarm stock;
— planned outfit;
— inputs (cumulated):

*) By "material" we mean any goods necessary to an enterprise for the unfolding of production.

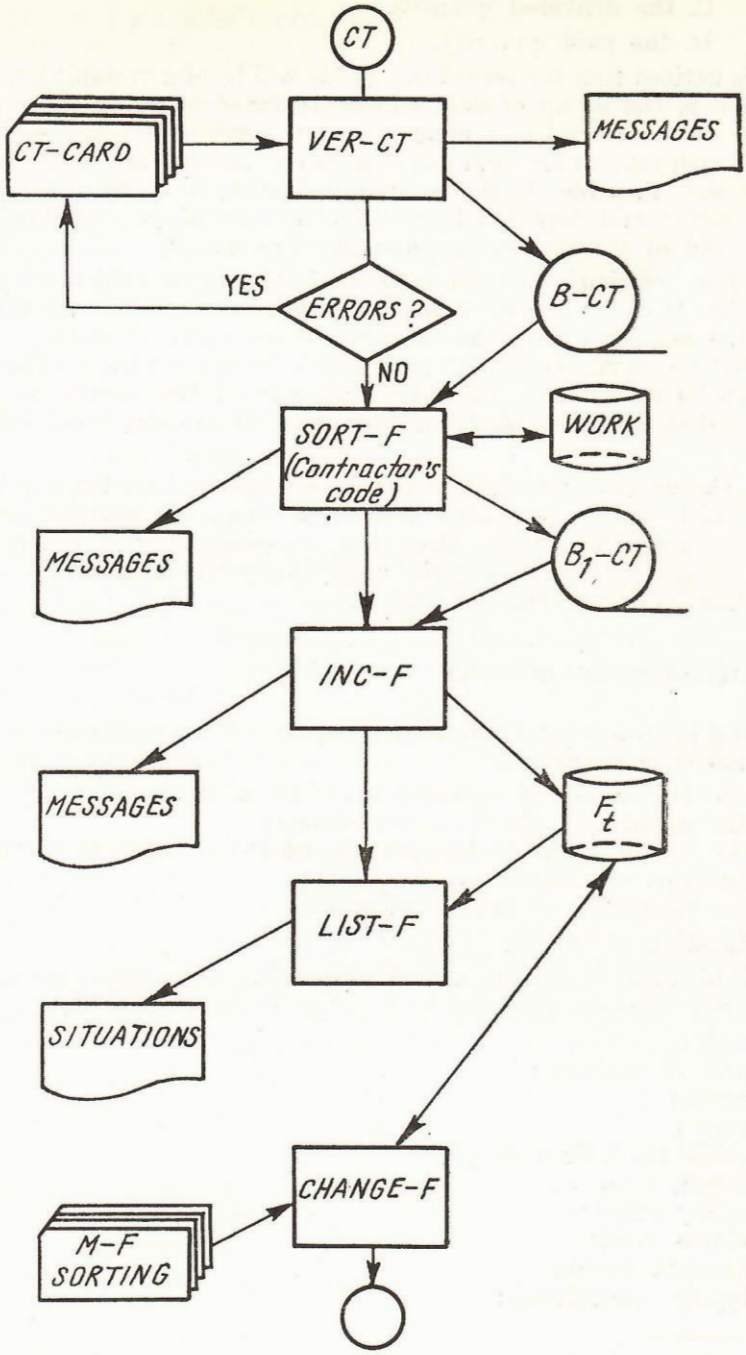

CT
CT-CARD
VER-CT
MESSAGES
YES
ERRORS ?
B-CT
NO
SORT-F
(Contractor's code)
WORK
MESSAGES
B1-CT
INC-F
MESSAGES
Ft
LIST-F
SITUATIONS
CHANGE-F
M-F SORTING

Fig. 6

— taking delivery;
— in custody;
— in production;
— last n inputs:
— quantity;
— date;
— document number;
— outputs (consumptions):
— in custody;
— in production;
— the last m outputs:
— quantity;
— date;
— document number;
— the paid quantity;
— the number of possible contractors;
— contractor code (is repeated).

The loading of this file can be made with the **SA** programme system whose structure is that in Fig. 7.

As the loading with data of file S is not quite an easy problem for the enterprise, it is suggested that it should be carried out gradually (for example, on storehouses).

As regards the coding of materials, it is desirable to pursue an internal coding (specific of the enterprise) which should be based on the ABC method of the administration of materials.

In keeping with this coding, respectively with the size of a code, the way of organization of data in file S_t will also be established. This organization is recommended to be direct or index-sequential.

Each of the programmes present in the structure of the **SA** system has functions similar to those upon the loading of file R_t and F_t.

The loading of this file is made once and is repeated only if its content is destroyed following some accidents.

The **CHANGE-S** programme is in charge of correcting the content of file S_t for bringing it to the real situation of the enterprise.

b) The updating of file S_t can be made periodically, on groups of materials, taking into consideration the ABC method for the administration of stocks. By the updating of file S_t, we mean the "recording" of all movements (inputs + outputs) of materials in the respective fields in the file, respectively keeping daily records of the stocks of materials according to the input/output documents presented for processing. The **SB** programme system which may update file S_t may have the structure as in Fig. 8. This system will update simultaneously files F_t and I_t, an operation after which any situation necessary for management decisions can be extracted immediately (from files S_t and or F_t). The **VER-M** and **SORT-M** programmes have functions similar to the corresponding programmes of the other systems presented so far. The **ACT-SFI** programme operates in the STOCKS, CONTRACTORS AND HISTORICAL files all the data arriving on the input. These data may have the following structure: the store code, the operation date (movement), document

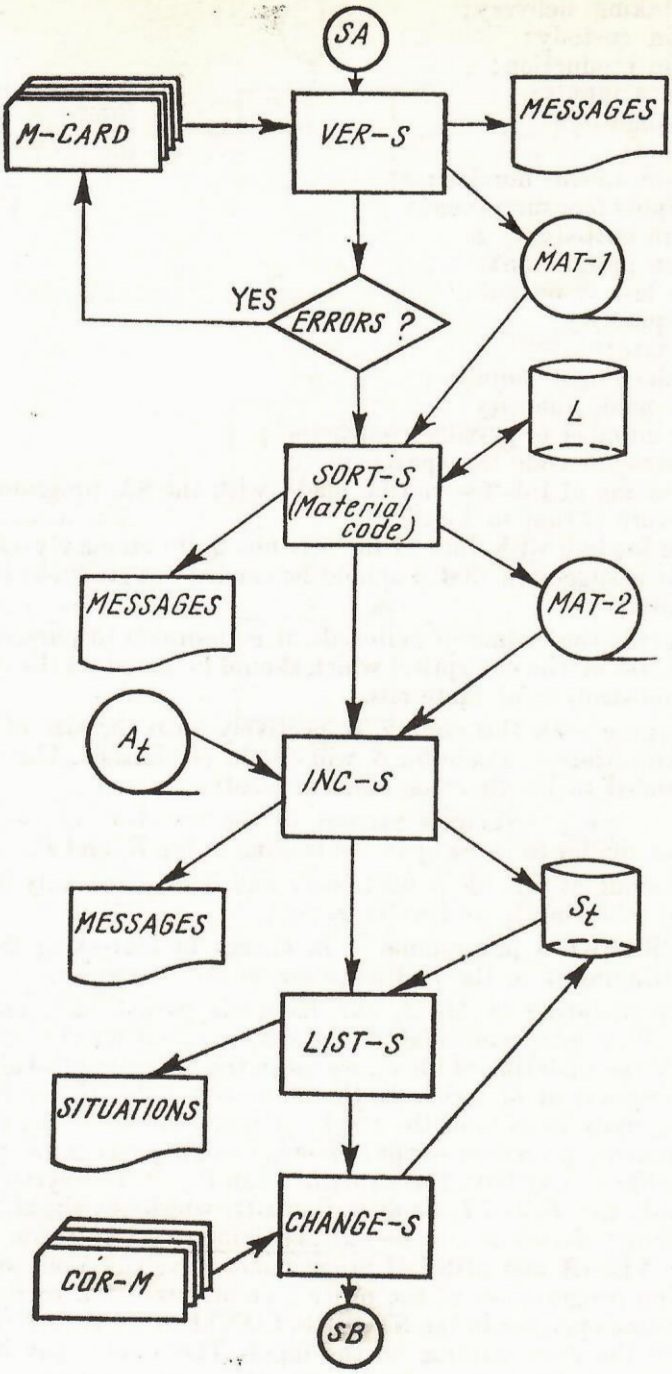

SA
M-CARD
VER-S
MESSAGES
MAT-1
YES
ERRORS ?
L
SORT-S
(Material
code)
MESSAGES
MAT-2
A_t
INC-S
MESSAGES
S_t
LIST-S
SITUATIONS
CHANGE-S
COR-M
SB

Fig. 7

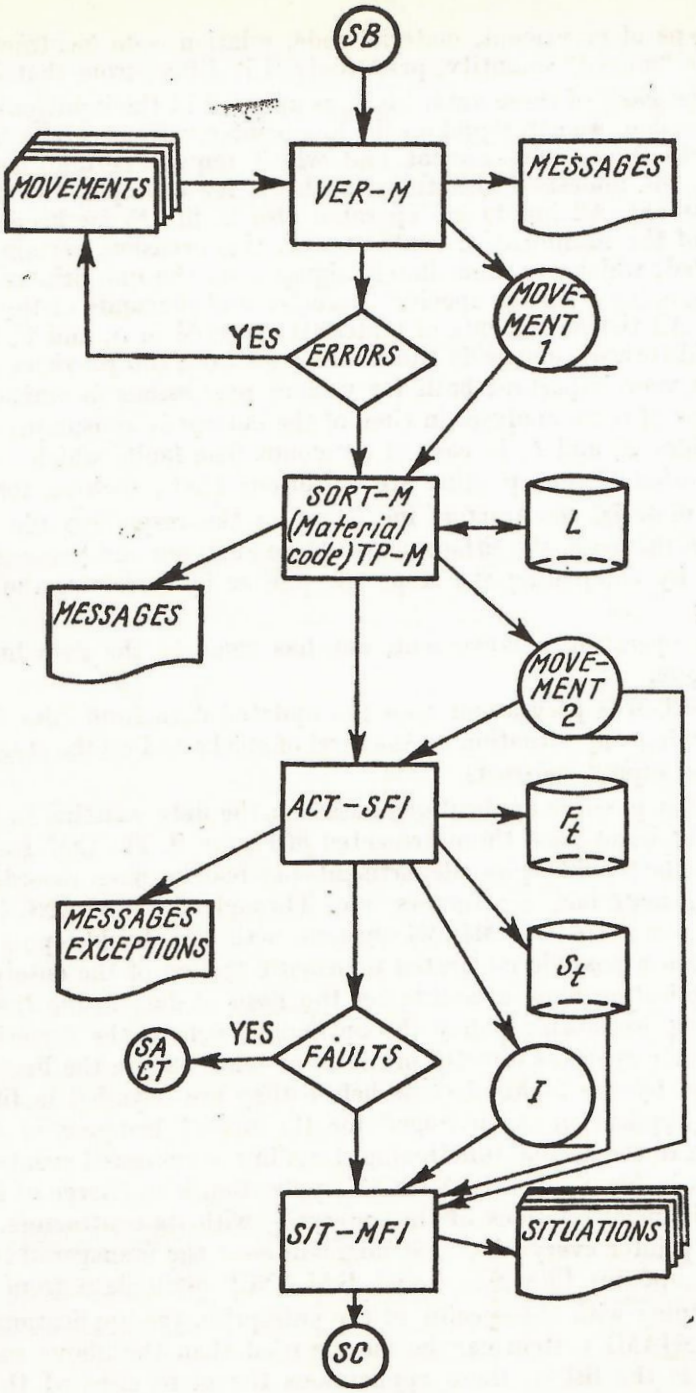

SB
MOVEMENTS
VER-M
MESSAGES
MOVE-MENT 1
YES
ERRORS
SORT-M (Material/ code) TP-M
L
MESSAGES
MOVE-MENT 2
ACT-SFI
F_t
MESSAGES EXCEPTIONS
S_t
YES
SA CT
FAULTS
I
SIT-MFI
SITUATIONS
SC

Fig. 8

number, type of movement, material code, relation code (contractor or consumer), the "moved" quantity, price (only if it differs from that in the file).

On the basis of these data, file S_t is updated in the input/output fields. On this occasion, we can signal on the line printer various cases which constitute exceptions for management and which require certain measures for preventing the undesired situations (such as, for example, the detachment from the stock). All inputs are operated also in file F_t for keeping to date the stage of the fulfilment of contracts. On this occasion, certain anomalies can be noted, which are immediately signaled on the line printer in various forms, in keeping with the specific character and demands of the respective enterprise. All the movements of materials operated in S_t and F_t are stored in file I_t (historical), alongside the movements from the previous updatings. This file is very important both for various processings in which it can be used in view of some analyses in time of the enterprise consumptions and for remaking files S_t and F_t in case of accidents. The faults which may appear on the occasion of the updating are of various kinds, such as, for example:

— a material (contractor) inexistent in the respective file has to be updated. In this case, the situation should be analysed and proceed accordingly, either by completing the respective file or by correcting the respective movement;

— by operating a movement, one has come to the detachment from the stock ,etc.

The **SIT-MFI** programme uses the updated data from files S_t, F_t and I_t for obtaining any situation on the level of stocks and on the stage of fulfilment of the supply contracts.

c. Other possible applications based on the data existing in files S_t, F and I_t might be at least those presented in Figure 9. The CONT application may serve the bookkeeping department for bookkeeping records on the accounts of materials, contractors, etc. Through the BALANCE file, this application connects the MIAMI system with the bookkeeping financial system within a possible integrated informatic system of the enterprise. The OPTIM application must establish, on the basis of data in file I_t and based on the enterprise storing policy the optimum levels of the materials stocks which it either operates directly in file S_t or takes out on the line printer to be approved by the higher forums before they are recorded in file S_t. The REMAKE application is envisaged for the urgent bringing of the entire system back to the normal functioning state, in the undesired events of alteration of data in file S_t. The PAYMENT application is in charge of keeping in order the financial relations of the enterprise with its contractors, signaling on the line printer everything that might interest the managerial body. This application updates files F_t, S_t and BALANCE with data from invoices.

In keeping with the specific of the enterprise, the applications possible within the MIAMI system can be more varied than the above suggestions. The longer is the list of these applications the more efficient the MIAMI system will be.

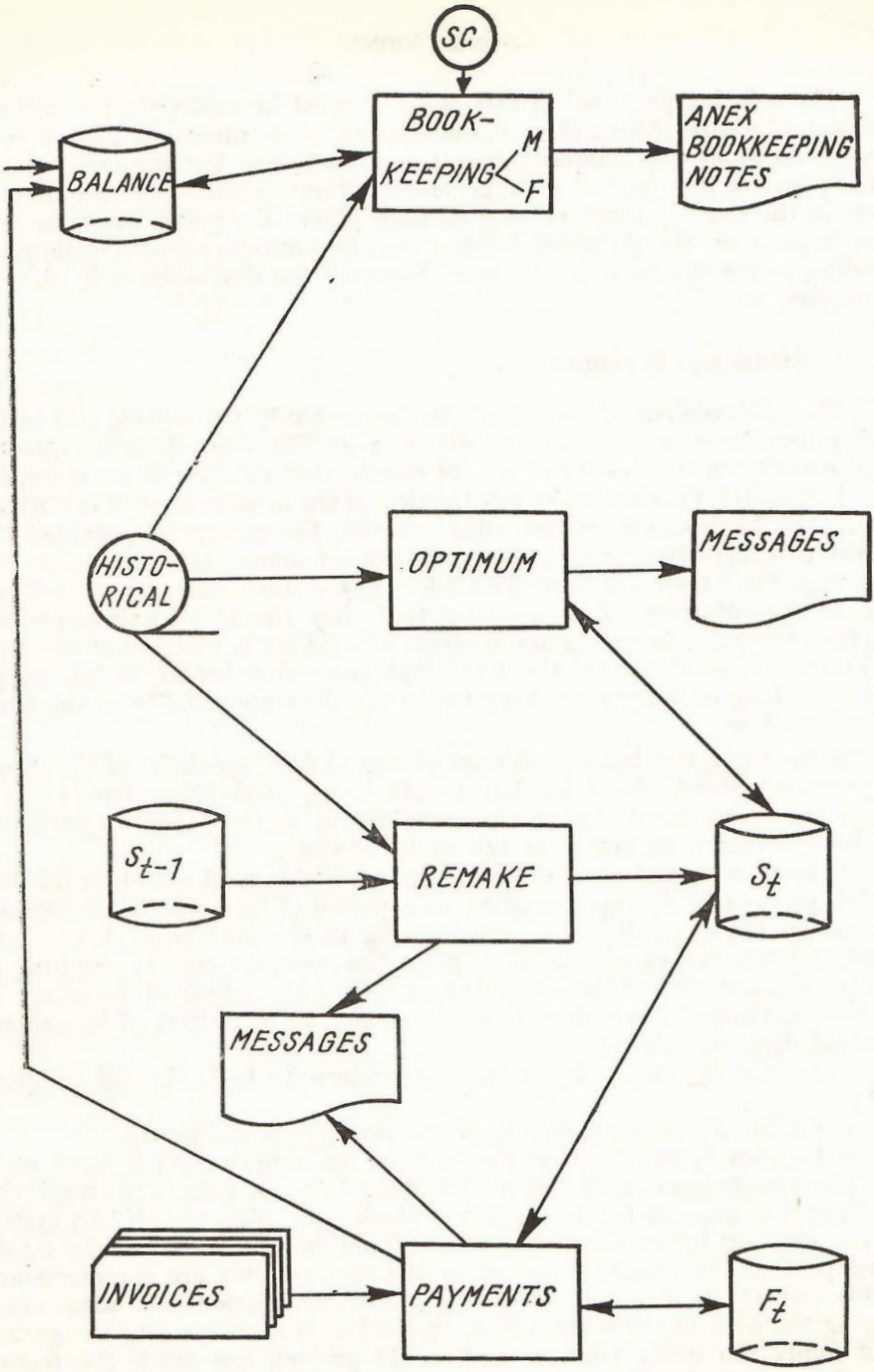

SC
BOOK-
KEEPING
M
F
ANEX
BOOKKEEPING
NOTES
BALANCE
HISTO-
RICAL
OPTIMUM
MESSAGES
S_{t-1}
REMAKE
S_t
MESSAGES
INVOICES
PAYMENTS
F_t

Fig. 9

CONCLUSIONS

The solution proposed in this material must be understood as a framework solution establishing the main landmarks of an informatic system necessary for the supplying compartments in any enterprise. We propose to present in the pages of this journal some general solutions obtained for various enterprises in the country together with all their practical aspects. From an enterprise to another, the proposed solution may become complicated or simplified accoding to the situation on the spot. The occuring deviations will, however, be unessential.

1. Stages and Personnel

The achievement of such a system, respectively the writing and testing of all programmes may last for at least one year. This depends on the quantity and especially on the quality of the informatic staff existing in an enterprise.

If this staff does not exist yet, the task of the achievement of the MIAMI system can be assumed by specialists outside the enterprise provided that at least two representatives of the enterprise are among them, from the very beginning. Since they will form the nucleus of the future informatics compartment of the enterprise, it is desirable that they should be well acquainted with the enterprise, be young and desirous of working in the field of electronic computers. At least one of the two employees must belong to the supply staff for taking over from the very beginning the responsibility of the entire MIAMI system.

If the enterprise has an informatics staff, a good specialist of the supply compartment should be delegated to effectively participate (concurrantly with a short-term schooling) in the carrying out of the MIAMI system. He will be the future organizer of the entire system.

As soon as the testing of the system on a small control sample is finished, one will proceed to its experimenting on a period of time which considerably depends on the concrete conditions existing in the enterprise. During this period of time, one checks, in fact, if all the concrete aspects cropping up from the point of view of the circulation of data in the supply of the enterprise had been envisaged. Beginning with this stage, the organizers of files should be established, as follows:

— for file R_t, an employee from the enterprise technological compartment;

— for file P_t, an employee from the production compartment;

— for files F_t and S_t an employee from the supply compartment each.

These organizers are in charge of keeping daily the data in the respective files. They also account for the quality of these data. Both the MIAMI system and the existing information system are functioning simultaneously in the testing period. The results obtained in the two systems are compared and possible corrections are made. If during the testing period, new ideas occur for using the data in the system files, the inclusion of which into the system would imply too many changes and would prolong too much the testing stage, they can be kept for being included in the next variant of the MIAMI system.

Since it is established that the MIAMI system can satisfy all the information requirements for which it was set up, the manual information system is gradually dropped. It would be desirable that testing should start only with certain materials (if possible, with those from a storehouse) and since it is established that everything goes well, the activity be extended on other materials of the enterprise until their complete exhaustion. In the achievement of these suggestions for implementing the MIAMI system, one must necessarily take into account the ABC method of administration of stocks, to the effect that testing should be started with some materials of group A.

With the renunciation of the manual information system, the stage of current operation of the new system begins. New ideas for the use of data from the file will appear in this stage. These data must be communicated to the informatics compartment which is in charge of continuously perfecting the MIAMI system, by preparing ever more complete variants. These variants will be elaborated in a shorter time, by observing the same stages (of the first variant) and on their operation, the previous variants will be taken out of use. Already during the testing of the new system, the entire staff will be informed about its performances and the employees of the supply compartment will undergo a short-term schooling. On this occasion, the MIAMI system will be presented to them and the tasks of everyone will be established in keeping with the system, drawing especially their attention to their strict observance. Within the enterprise supply compartment, the MIAMI system will gradually impose a working style based on strict discipline, a discipline which will gradualy extend on the entire enterprise.

The MIAMI system imposes in this compartment the following activities:

— the collection and preparation of data for the computer. The organizers of the files are particularly implied in this activity. They can be helped, if necessary, by other members of the staff as well;

— the analysis of the results furnished by the computer and the taking of decisions for the management of the supply activity;

— the detailed analysis of consumptions of each material on longer periods, for establishing the optimum supply policies.

In another form, the two activities exist in each supply compartment. Even the task of optimizing the supply activity (consumptions, stocks, etc.) is incumbent on the respective compartment, but, from the lack of time, it is somehow neglected.

The MIAMI system creates conditions for efforts to be concentrated on this point, which without any reduction of personnel and in the conditions of serious investments might bring important profits to the enterprise.

As regards the reduction of personnel, which is wrongly expected from any informatic system, it is possible for MIAMI to impose, especially at the beginning, a larger staff than exists at present within some supply compartments and this should not be considered as a negative point of the system.

2. Necessary Configuration

The MIAMI system may be achieved on any medium range electronic computer, if it has at least:

— an internal storage of 32 KB;

— a unit of magnetic discs in addition to those necessary to the system;
— a cards reader;
— a rapid line printer.

The processing speed and the quantity of data in the files are growing with the increase in the number of magnetic discs and tapes. For testing, experimenting and even for the first two-three years of operation, any enterprise can apply to the existing computers. After a certain period of time, when the need for other informatic systems will be felt in the enterprise, respectively, when the enterprise will decide to use the electronic computer in the management of the entire activity, they will realize the necessity of a computer of their own.

3. The Necessary Data Sockets

a) The following materials are necessary for the MIAMI system testing stage:

— a package of magnetic discs;
— three magnetic tapes (small rolls);
— 50 boxes of line printer paper;
— 100,000 cards.

b) The following should be added to the above materials, for the experimenting stage:

— two packages of discs;
— 10 medium rolls of magnetic tape;
— 30 boxes with line printer paper;
— 200,000 cards;
— a terminal for teleprocessing, if conditions exist for using a computer in the vecinity of the enterprise.

The requirements for the operation stage will be, of course, bigger and will be established in the experimenting period, in keeping with the possibilities of the enterprise. As a matter of fact, the above outfits should be considered as medium estimates from the limits of which one can easily come out, in some cases.

The MIAMI system may also take over the activities:

— the administration of the stocks of finished products;

— the control of the way in which the enterprise is fulfilling its tasks stipulated by contract towards the customers;

— the equilibration of balances (file B_t in Fig. 1) for the products for which the enterprise is a balance co-ordinator, etc., activities which are incumbent on the sale compartment of the enterprise. This processing can be achieved in two variants:

a) by introducing into files S_t, F_t and I_t data on the enterprise sale activity. The respective data will be distinguished from those of the supply compartment by a certain coding convention;

b) by achieving an independent informatic system only for the information requirements of the sale compartment, a system in which subsystems **S** and **CT** will be more predominant.

No matter the variant adopted, the implementation will cover the same stages and will imply for the enterprise sale staff the same obligations and working method as for the supply compartment.

The successful implementation of the MIAMI system just as for any other informatic system is determined by the stand of those achieving and using it. Without skill, passion and confidence from all of them, the expected results cannot be obtained. For this reason, we once again draw attention to the necessity of a good preparation of the action for introducing and experimenting the new system, for attracting the best and most enthusiastic staff, with a view to ensuring its full success. Only in this way, a step forward can be made in the improvement of the activities of the respective compartments and the enterprise become a more active element within the national economy in flull progress.

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MICRO-SYSTEME INFORMATIQUE POUR L'APPROVISONNEMENT TECHNIQUE MATERIEL D'UNE ENTREPRISE (MIAMI)

On propose une solution pour organiser un sous-système informatique à même de contribuer à une information plus efficace des dirigeants de l'activité d'approvisionnement technique-matériel d'une entreprise.

Y sont donnés les schémas du traitement de tous les éléments conposants du système MIAMI et les indications essentielles concernant leur réalisation pratique.

ИНФОРМАТИЧЕСКАЯ МИКРОСИСТЕМА ДЛЯ МАТЕРИАЛЬНО-ТЕХНИЧЕСКОГО СНАБЖЕНИЯ ПРЕДПРИЯТИЯ (MIAMI)

В настоящей статье предлагается решение для организации информатической подсистемы, способной содействовать более эффективному информированию работников, руководящих деятельностью отдела материально-технического снабжения на предприятии.

Приводятся схемы обработки всех составных элементов системы MIAMI и важнейшие указания для их практического осуществления.

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