UNIT 3 HUMAN RESOURCE INFORMATION SYSTEMS

Structure

3.0 OBJECTIVES

After reading this Unit, you should be able to:

• understand the dynamics of information system and its use as a tool for measurement,

• examine the significance of information in human resource management,

• appreciate the approaches to the information system at the macro and micro levels,

• consider the shortcomings of manual information system, and

• discuss merits of computerisation and its applications in effective Human Resource Information System.

3.1 INTRODUCTION

In the previous Unit, you have already learnt that Human Resource Planning is concerned with the controlled utilisation of human resources to achieve pre-set objectives, both short-term and long-term. To state briefly, **planning process aims to bring supply and demand into balance at the levels most consistent with the needs of the projected requirements and with the assessments of the economic and social environment — prevailing and expected.** We have also discussed the importance of Manpower Information System (MIS) in forecasting demand and supply at macro and micro level. Infact, **the basis of all manpower planning is information.** You will need the know-how to gather relevant data, analyse manpower demand and supply, and how to apply this information to improve job efficiency and manpower utilisation. Whether you are auditing the current situation or looking forward, you will need information and reliable data, any way, in order to make best decisions or to move into new direction. Gone are the times when decisions about future could be based on hunches. Now you need to collect hard data in order to make the future events more manageable than before. Increasingly, human resource professionals and specialist managers wanting to introduce a new manpower planning system or improve an existing one, use information as an invaluable aid in decision making. This tool is developed by systematising the processes of collecting, maintaining, analysing and reporting information.

HRIS Defined

From the above, a general definition of Human Resource Information System (HRIS) is developed. Thus, **Human Resource Information System provides a method by which**

an organisation collects, maintains, analyses and reports information on people and jobs. The information contained in the HRIS serves a hotel operator as a guide to recruiters, trainers, career planners and other human resource specialists. It applies to information needs at macro level as well as to the micro level.

In this Unit whereas human resource information at the macro level is considered briefly, rest of the discussion is devoted to the human resource information at the micro level, i.e., the enterprise level. The Unit also discusses some approaches to build an effective HRIS and the utility of computer applications in this regard.

3.2 INFORMATION: SOME BASIC GUIDELINES

As you know that without information, it is very difficult even to initiate the planning process. For example in order to plan an accommodation unit at a destination one would need information about the number of expected tourist arrivals, number of beds available, number of agents selling the destination, etc. Similarly, any organisation dealing in providing tourism services needs information to plan operations and thereby look for the manpower to manage them. Hence, in order to make information useful and effective, the following key points need to be taken note of

1) **Adequacy of information:** Lack of information hinders planning and will leave unfilled gaps.

2) **Specificity of information:** If the information is for decision making, then which decisions are to be made and what information is needed, therefore, must be made specific.

3) **Over-estimating information:** It is desirable to follow a conservative approach. It is better to understate the need than to waste resource on unused mass of information.

4) **Identifying need levels:** There is a need for different levels of detail of information.

5) **Mechanism for addition/deletion:** The how and when of information to be added/deleted should be considered.

6) **Management support:** Information systems need constant management support for maintenance.

7) **Quality of information matters:** Otherwise, the famous GIGO (garbage in/garbage out) principle will be found at work.

3.3 HUMAN RESOURCE INFORMATION AT MACRO LEVEL

The Data base required for purposes of making manpower forecast at the macro level is indicated in **Table-1**:

Table 1
Forecasting at Macro Level

Data Base for Demand forecasting	Data Base for Supply forecastieg
i) Population statistics	i) Age at entry and Age at exit
ii) Economic parameters	ii) Annual enrolment and outrun
iii) Existing technologies	iii) Attrition rates
iv) Emerging technologies	iv) Retirement
	v) Migration
	vi) Mortality
	vii) Labour force participation rates

We have discussed in previous Units, the limitations and complexities in generating appropriate data for demand forecasting and supply forecasting of manpower at both the macro and micro level. However, the fact is that a totally reliable data base for macro forecasting is not always available, and quite often specific studies have to be conducted to generate the needed data.

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Institutional Arrangements at the Macro Level

The institutional arrangements for providing required data at the macro level can be done through agencies and institutions like:

- The Planning Commission

- The Ministry of Labour

- The National Sample Survey Organisation

- The Institute of Applied Manpower Research

- The National Labour Institute

- Universities

- Other institutions'at the state level.

1) At the apex of the institutional machinery for plan formulation regarding employment and manpower sectors, is the Employment Manpower Planning Division of the Planning Commission. This Division works closely with the Perspective Planning Division of the Planning Commission.

2) The Labour Ministry collects the data on employment through the Directorate General of Employment and Training.

3) Employment data is also collected through the National Sample Survey and the Annual Survey of Industries.

4) The Institute of Applied Manpower Research conducts studies on employment strategies and estimates at the sectoral and project levels.

5) The National Labour Institute has conducted major studies at the sectoral and project levels on institutional conditions on rural employment.

6) Researchers in the Universities and other research systems also participate.

7) The sate level employment market information scheme departments collect data on local labour markets through employment market information schemes.

In case of hospitality, the Department of Tourism, Government of India and FHRAI are major sources of information. They publish annually tourism statistics related to tourist arrivals (country and region wise), numbers of hotels and beds available (star category wise) etc. along with projections of future arrivals. Other professional associations like the WTO, IAOTO and IATA, etc. also provide information to their members related to Human Resources requirements, etc. In recent years, FHRAI has started publishing results of various research studies undertaken by them and is useful for different areas of operation, e.g., HR, IT and so on.

How to improve the effectiveness for Human Resource Planning and policy at the macro level?

An essential step in improving the effectiveness of manpower planning and policy at the macro level lies in taking decisive measures to raise the quality and reliability of labour market information. Existing sources of statistical information suffer from serious gaps and inadequacies, redundancies, etc. So long as these deficiencies continue, meaningful manpower research required for National Employment Policy would be extremely difficult to undertake.

Thus, the quality and effectiveness of future manpower policies at the macro level would depend most significantly on the accuracy and adequacy of the information inputs in the formulation of the plans and policies. The need is not only to build computer-based data banks, but no less importantly, to improve the quality of current bench-mark data sources, viz., at the institutional levels such as the apex level institutions referred to above. This has become extremely important for the tourism sector as new forms of tourism are emerging and the HRD projections have to be correlated to their requirements. For example, in the field of health tourism the HRD requirements would be quite different and similar would be the situation in case of other forms of special interest tourism.

3.4   HUMAN RESOURCE INFORMATION AT MICRO LEVEL

With regard to data needs at the micro level, we have noted in various Units the need for a well-defined and detailed manpower information system within the organisation. For this purpose, the data modules and the particulars of information that each such module should carry are noted below:

Data **Module**	What it **should contain**
Personal Data module	• Identification particulars • Educational particulars • Technical qualification, if any • Special skills, if any • Earlier experience in tourism • Special privileges category, such as: ex-serviceman, handicapped, scheduled caste/scheduled tribe, etc. if any
Recruitment module	• Date of recruitment • grading in aptitude tests • grading in leadership tests • overall grading • job preferences and choices, if any
Job Experience module	• Placement history • Grade promotions • Tasks performed grade-wise • Significant contribution, etc.
Performance Appraisal module	• Performance appraisal at each job held • Job experience evaluated in the light of job description • Communication rating of inter-personal relationships • Ratings of behaviours in a group • Commitment to corporate goals, etc.
Training and Development module	• Nature of training received at each level • Individual's evaluation of effectiveness of training • Current training assignment, if any • Future training requirements, if any
Miscellaneous module	• Record of compensation and benefits received • Health status • Personal problems calling attention, if any • Security needs, etc.

HRM as a Total System

According to Murdick and Ross, Human Resource Management as a total system interacts with other major systems of the organisation, viz., marketing, production, finance, and the external environment. In any service industry including Hospitality, the main responsibilities of Human Resource Department can be enumerated as forecasting and planning human resources, maintaining an adequate workforce, and controlling the manpower policies and programmes of the enterprise, in other words, rendering service functions to other major systems of the organisation.

Basically, a system consists of several inputs and outputs, and a number of related subsystems, processes and activities, all operating through the medium of information. Figure I depicts the Murdick and Ross model on human resource information systems – followed by a brief description of the objectives that each subsystem is designed to accomplish.
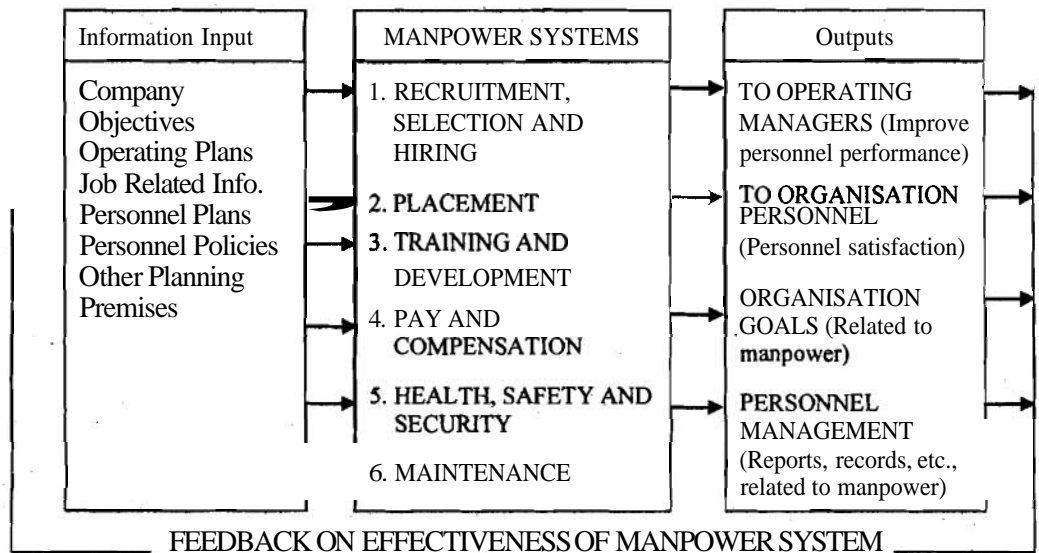
Information Input	MANPOWER SYSTEMS	Outputs
Company Objectives Operating Plans Job Related Info. Personnel Plans Personnel Policies Other Planning Premises	1. RECRUITMENT, SELECTION AND HIRING 2. PLACEMENT 3. TRAINING AND DEVELOPMENT 4. PAY AND COMPENSATION 5. HEALTH, SAFETY AND SECURITY 6. MAINTENANCE	TO OPERATING MANAGERS (Improve personnel performance) TO ORGANISATION PERSONNEL (Personnel satisfaction) ORGANISATION GOALS (Related to manpower) PERSONNEL MANAGEMENT (Reports, records, etc., related to manpower)

FEEDBACK ON EFFECTIVENESS OF MANPOWER SYSTEM

Figure I: Human Resource Information Systems
(Source: Murdick, Robert G. & Joel E. Rosa, Information Systems for Modem Management,
Prentice Hall of India, New Delhi, 1979, Pp. 21617)

Objectives of the Subsystems

Information Subsystem	Objectives/Requirements
Recruitment	• skills required • inventory of skills available • job specifications
Placement	• matching available personnel against requirements • enabling use of tools and techniques to identify human capabilities for placement against properly organised work requirements.
Training and development	• developing talent requirements from within the organisation meeting demand for new skills • developing and maintaining a continuing skill inventory
Pay and compensation	• maintaining traditional pay and fmancial records • compliance with government, union and other requirements
Health safety and security	• health of personnel, safety of job practices in during operations, plant security classified information
Maintenance	• ensuring success of personnel policies and procedures control over work standards measuring performance against financial plans and programmes.

Since now we know that Human Resource Information Systems serve multiple management needs, and that its objectives are manifold it becomes clear that the human resource staff has a major role to play in the collection, storage, retrieval and analysis of personnel data. In fact, if we **carefully** design our information system it can provide us better control over our human resource functions, and can help in creating a positive climate where the value of human resources of the organisation is clearly understood and recognised at various levels of management decision making. We shall now consider the several approaches and design aspects in establishing an effective human resource information system.

3.5 EFFECTIVE HUMAN RESOURCE INFORMATION SYSTEM: SOME APPROACHES

To have an effective information system, whatever be the size of the organisation, one need to answer two basic questions:

1) What is the information need?

2) How can it be met most effectively?

As far as small organisations are concerned, there is no or a little need to undertake elaborate manpower planning because in such organisations the information needs are likely to be few and simple which can be **met** by a manual human resource information system. This manual system can consist of a set of forms or manual files, consisting of a set of records. In such a system there is a folder for each employee with the employee's employment history, appraisals, and salary record maintained in the personnel department. Another set of records pertaining to compensation and benefits information may be maintained in the pay roll section. Entries on forms and **addition/deletion** in the existing records are carried out manually. (The manually operated information systems suffer from several deficiencies which we will consider later).

In case of large Organisations, a comprehensive HRI system exists for developing,

1) **The existing computer based payroll system.** Since most firms now use a computer for payroll purposes, this system itself includes many basic employee data elements which may be expanded to include other elements necessary for human resource planning.

2) A **supplemental system.** Alternatively, a separate supplemental system could be established and interfaced with the payroll system to provide the additional data elements required. If planned intelligently, this could be a step towards a modular approach to building a comprehensive HRIS.

3) **A wholly separate information system.** This is the third alternative which suggests the establishment of a wholly separate information system for human resource. planning purpose only. In large and modem organisations, the trend is clearly towards establishment of comprehensive systems. For example, ITC has a comprehensive information system used by management to store, change and report personnel information. It is a centralised information source in a company that is diverse in its organisation, products and locations.

Now before we move over to the design considerations and steps involved in establishing a comprehensive human resource information system, let us also take note of the significant features of computerised system.

3.6 WHY COMPUTERISE PERSONNEL RECORDS AND INFORMATION SYSTEMS?

For a variety of purposes one can carryout a periodic and systematic analyses of the personnel records.

- provide data essential to human resource planning,

- aid the evaluation of current personnel policies and practices,

- enable to produce an inventory of manpower, and

- preparation of several reports and returns for submission to various government/non-government agencies, etc.

In manually .operated personnel record systems, entries on forms and insertion of changes fiom time to time in the relevant records pertaining to a large number of employees often fall behind so the records do not show the current position always. This leads to a fresh exercise toward collecting and compilation of original data elements, every time the information is required. All that can be very time consuming. Hence, let us look at some of the shortcomings inherent in manual personnel records systems so that the perspective of potential benefits of going in for a computerised personnel record and information system becomes clearer.

a) **Deficiencies and drawbacks of the manual system:** These include the following:

   i) **Cost:** Manual systems involve significant clerical and routine administrative work load, the maintenance and updating of records being labour intensive and costly. In addition, the documentation being relatively non-standardise, the same have to be provided time and again; the same have to be produced separately.

   ii) **Accuracy:** The manual transfer of data from one record to another increase the chances of error. It is not uncommon to find the data collected form the same source at different times or by different people giving almost a different picture. As a result, the accuracy and reliability of the manual system is held to be very much in doubt.

   iii) **Fragmentation:** Manually stored information is frequently held in a fragmented manner with different pieces of information being kept in separate files at different places. Thus, many manual systems are unable to provide a single comprehensive picture of an employee on one record.

   iv) **Duplication:** As it happens, some of the information held in the personnel records may be needed simultaneously by a number of other user departments, such as, payroll department/salary group, training department may like to keep duplicate records to meet their respective needs. Such practices are not only prone to duplication but add to the costs.

   v) **Difficulty of analyses:** The manual analyses of data is timeconsuming and quite often not available on time for the purpose of decision making. As a result the difficulty in extracting information promptly fiom manual systems may put the personnel function in a backstage position where it may be overlooked or bypassed for as a source of useful information for decision making. So much so, the role and opportunities of the personnel function to influence manpower planning decisions may get consequently reduced. In the ultimate, in that event, it is likely to create scope for decisions being taken on ad hoc basis − so very prejudicial to systematic planning and decision making leave aside any meaningful control and measurement mechanism being available to the management. The problems need to be considered in the context of one's own organisation. Moreover, as organisations grow larger, the manual systems tend to break down under the burden of manual processing.

b) **Computerised personnel records/information system: Some potential benefits:** While it would be presumptuous to assume that in large and labour intensive sectors like hospitality, computerisation would automatically solve all the problems associated with manual systems. In the fast changing technological and information processing environment, it also offers does present several other potential benefits, **viz.**, maintaining their records.

i) **Cost effectiveness:** Taking into consideration the factors of time, speed and the enormous amount of data which a computer can process, the computerisation offers an option. When personnel function faces conflicting pressures to provide more information while at the same time to reduce administrative overhead costs, the computerised system can become increasingly cost effective because in the long run the costs of computer hardware fall relatively to the cost of employing ever-increasing clerical staff. But let it be understood clearly that it would be a false analogy to draw a straight cost comparison between a manually operated system and a computerised system because the **computer** is capable of performing a fundamentally different job. Thus, to put the concept of cost-effectiveness in the right perspective, the improvement in the quality of human resource decision making which is made possible through computerisation, need also be taken into consideration.

ii) **Effective human resource information:** Perhaps more than the cost effectiveness is the potential provided by computerisation for establishing **an** effective human resource information system as is made clear in **Table-2:**

Table – 2

Manual system	Computerised system
• Retrieving information is slow and cumbersome	• Retrieving information is fast and simple
• Personnel function is bypassed as a source of useful information	• Personnel is considered as a reliable source of information useful for decision making
• Identity of personnel function is lost	• With information as a power tool, the personnel function is in a position to influence policies and decisions
• Duplication of reports deals to dual work and lots of paper	• As many copies of reports can be printed without much paper work.
• Not able to respond to ad hoc enquiries for information and complex data needs	• Information can be readily manipulated, merged and disaggregated in response to special and complex demands and presented promptly

iii) **Improved accuracy:** In addition, a computerised human resource information **system** can eliminate the shortcomings of manual system noted earlier. Significantly, computerised systems do not depend upon constantly copying out data form one record to another as in the manual system. That means the data is entered only once with provision for updating at regular intervals. Therefore, once the relevant data have been fed accurately, they will remain in pure form and accurate until any item is changed.

iv) **Validation of data-error detection:** Further, availability of good software systems should enable validating and editing data and detecting errors in a number of ways such as:

• criterion checks for particular fields, for example, an error warning if a post is reserved for a certain category of person, if a salary is above or below a certain **minimum/maximum,** or if age exceeds 58 years and, so on.

• link checks, for example, that salary is incompatible with grade, date of joining is at least 18 years after date of birth, etc.

Finally, a computerised system can greatly reduce fragmentation and duplication of data. All data can be stored in a single system to enable retrieval of a complete picture of each employee or of each defined parameter in a desired number of permutation and combinations. In advanced systems, other user departments outside the personnel function can be provided with an on-line link into the data base from remote control terminals programmed with passwords to restrict access and update only those parts of the data base which are necessary for meeting out specific needs.

3.7 COMPUTER APPLICATIONS IN HUMAN RESOURCE MANAGEMENT: AN OVERVIEW

In the previous section, we have learnt the potential uses of computers as against the manual human resource information system. It has enabled us to develop a preamble to the subject of applications of computers in human resource management. A **computer based human resource information system is:**

> **a computerised personnel record system**

* **a generator of personnel information**

> **an aid to personnel administration,and**

* **an aid to various specialist techniques in personnel management of hotels where a strong and reliable data base provides the key to greater effectiveness.**

This Section of the Unit lists out the potential applications of computers in personnel function of a middle size or large hotel. This list intends to ptovide only an overview of the applications, however, possibilities of new applications in specific need areas can be explored:

a) **Personal record keeping:** The primary use of computers in personal department is to keep employees' records. **A** good computer based personnel system, therefore, should enable the personnel department to store all information about employees on a computer which may be required at any point of time. In addition, it should be possible for the user to keep historical files of past employees for purposes of identifying trends and making projections when developing human resource plans. It can also have personal records of those who can be temporarily or seasonally employed as is the case in hospitality. wherein seasonality plays a crucial role.

b) **Report generation:** Report generation is the capability which enables the user to manipulate any of the items stored on the data base as required by means of software referred to as 'report generator'. That would mean facility for producing the more common standard reports, ad hoc enquiry facilities, and a diary facility. The diary facility can be called up to cover a certain period of time such as the forthcoming month, and will produce a list of action required by the personnel department on the basis of information held in the data base.

c) **Word processing and integrated letter writing:** With this facility it is possible to store in the word processor a range of standard contracts of employment or a variety of standard clauses which can be selected and merged together in order to reduce the typing effort individually. Linking word processing to the computerised personnel system provides further opportunities to automate standard administrative procedures.

d) **Recruitment:** When organisations are engaged in recruitment campaigns, these can generate a considerable amount of administrative work. Under a computerised procedure, the basic details of applicants can be put into the computer and their progress through the recruitment procedure can be fed into the computer in the same way. Such a system can provide management with progress reports on the filling of vacancies and the status of the pending applications.

e) **Wage and salary planning:** Planning of wage and salary increases which otherwise is a time consuming process and fought with discrepancies in a manual system, can be easily handled by a good computer system.

f) **Absence and sickness:** The data on sickness and absence – duration, reasons, etc., can be stored against the record of each employee. The attendance of the employees can also be taken care of by the computerised punching of card.on the time of arrival and departure of the employee from the office. For purposes of reporting this information can be summarised periodically according to the variables stored on the data base.

g) **Human resource planning:** We have noted earlier that information is the strategic backbone of human resource planning. Computers are capable of assisting the process of human resource planning in several ways. Firstly, they greatly enhance the scope of the personnel department to analyse the'structure and composition of the current labour force and to provide useful information for human resource planning purposes. Secondly, by using specially designed packages it would be possible to make projections and raise issues which can simulate future patterns of the organisation's human resource system. Further, the system will be readily able to identify weak spots and strong points through the process of generating information and its analysis. Additionally specialised modelling packages can be used for such applications as (i) for predicting wastage patterns, (ii) for simulating manpower flows into, within and outside the organisation, and (iii) for simulating career structure against a range of assumptions about organisatidnal growth or contraction.

h) **Personnel costing and control:** It is now possible to provide through a computerised information system line management with regular reports of staff numbers and costs against budgets or targets, including information on turnover, absenteeism, overtime levels and costs to serve as indicators of the organisations extent of efficiency in the utilisation of its human resources.

i) **Training and development: A** computerised personnel records system provides organisations with speedier and ready access to information about the skills, education, qualification, appraisal ratings, career history, etc., of employees. This will help talent search within the organisation as well as identification of training and developmental needs of employees at different levels.

j) **Other application packages:** Include job analysis, job evaluation, staff scheduling, rostering and shift modelling, etc.

Finally, as one of the most significant uses and applications of computers in personnel work is the capability of computers to produce output in the form of graphs, bar charts, histograms, pie charts, etc., through the use of appropriate software peripherals.

Check Your Progress

1) Why is it that information is called the very "stuff' of planning?

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2) Explain the alternative recourses that smaller organisations can take in place of HRIS.

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3) Discuss the potential applications of computers in personnel functions.

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3.8 LET US SUM UP

Human Resource Planning draws heavily on information. Appropriate and accurate information is thus essential to planning of human resources as well as to different facets of the human resource management function as such. There are certain basic requirements up to which the information must conform.

At the macro level, although there do exist institutional arrangements for providing manpower data, but the need for improving the effectiveness of human resource planning and policy has been articulated at several fora.

At the micro level the importance of having a well-defined and detailed manpower information system within the organisation has been emphasised. The point has been made that at the enterprise level, there is need for a comprehensive human resource information system. In this context, the deficiencies and shortcomings of manual human resource information systems have been noted in order to develop a clearer perspective for going in for a computerised personnel records system. Several advantages and applications of using computerised information system have been brought in to focus. Those of you who may be interested in the design process of a computerised human resource information system would be well advised to read further the subject itself being so specialised in nature.

3.9 CLUES TO ANSWERS

Check Your Progress

1) The basis of all manpower planning is information. Increasingly, human resource professionals and specialist managers wanting to introduce a new manpower planning system or improve an existing one, use information as an invaluable aid in decision making. Read Secs. 3.1 and 3.2 to expand the answer.

2) The alternative is:

    a) Expand the existing computer based payroll system.

    b) Establish a supplement system

    c) Set up a wholly separate information system.

    Read Sec. 3.5 to expand the above answer.

3) The potential applications are:

a) Personal Record Keeping	b) Report generation
c) Word processing and integrated letter writing	d) Recruitment
e) Wage and salary planning	f) Absence and sickness
g) Human Resource Planning	h) Personnel costing and control
i) Training and development	j) Other application packages

    Further consult Sec. 3.7.