信息管理系统

对于“管理信息系统”并没有一致的定义。一些作者喜欢用其他术语代替例如“信息处理系统”“信息与决策系统”“组织信息系统”或者干脆将“信息系统”用组织内具有支持操作、管理、决策职能的计算机信息处理系统代替。这篇文章使用“管理信息系统”一词是因为它是通俗易懂的当涉及组织信息系统时也常用“信息系统”代替“管理信息系统”。

一个管理信息系统的定义通常被理解为一种集成用户机器系统为组织提供信息支持运作、管理、决策职能。该信息系统利用计算机硬件和软件手工处理程序模拟分析法计划、控制和决策和数据库。事实上它是一个集成系统并不意味着它是单一的单块集成结构相反它意味着零件适合加入整体设计。内容定义如下：

计算机为主的用户机器系统

理论上管理信息系统可以脱离计算机上而存在但是计算机的存在可以让管理信息系统可行。问题不是计算机是否被使用在管理信息系统中而是信息的使用被计算机化的程度。用户机器系统的概念暗示了, 一些任务最好由人执行, 其他的最好由机器做。MIS的使用者是那些负责输入输入数据、指示系统或运用系统信息产品的人。因为许多问题用户和计算机建立了一个联合系统其结果通过一套在计算机和用户之间的相互作用得到。

用户机器的相互作用是由用户连接在计算机上的输入-输出设备通常是一个视觉显示终端推动的。计算机可以使一台个人机器服务于一名用户或者一台大规模的机器为一定数量通过终端由通信线路连接的用户服务。用户输入-输出设备允许直接输入数据和紧接着输出结果。例如一个人使用计算机交互的在金融理财上通过在终端键盘输入提交“如果什么怎么办”之类的问题结果几秒钟后便被显示在屏幕上。

MIS的计算机为主的用户机器特征影响系统开发商和系统用户的知识要求。“计算机为主”意味着管理信息系统的设计者必须拥有计算机和对处理有用的知识。“用户机器”的概念意味着系统设计者也应该了解人作为系统组成部分信息处理器的能力和人作为信息使用者的行为。

信息系统的应用不应该要求用户成为计算机专家。但是用户需要能够详细说明他们的信息要求对计算机的一些理解、信息的本质和对各种各样管理功能的利用将帮助用户完成任务。

集成系统

管理信息系统代表性地为集成组织信息处理提供依据。信息系统内部各自的应用则由不同批次的用户开发。如果没有集成的处理和机制各自的应用也许无法协调一致和相容。在使用相同的数据时数据项也许不同的被指定和不能兼容的横跨。当实际上一个单独的应用可以提供超过一个的更多的服务时也许是分别的应用重复的发展了。用户想要通过使用从两种不同的应用中得到的数据来完成分析也许会发现任务非常困难有时甚至不可能。

信息系统应用集成的第一步是一个整体信息系统计划。即使应用系统是一次一个的被执行他们的设计可以由整体计划指导确定他们怎么符合其他的工作。其实信息系统被设计成为小型系统的一个飞行联盟。

信息系统集成也通过标准指南和程序达到被留作管理信息系统的功能之用。这种标准和程序的执行允许不同的应用分享数据应付审核和控制条件和被广泛用户共享。例如一项应用也许被开发来操作特殊的小型计算机。集成的标准可能规定设备的选择与中央数据库一致。信息系统设计的这个趋势有利于将应用程序与用来支持它的数据分离。分开的数据库是一种机制这种机制的数据项是通过横跨许多应用来集成和对不同的用户都可以始终一致的可利用。管理信息系统对于一个数据库的需要将在下面被谈论。

对数据库的需要

术语“信息”和“数据”经常互换的被使用。然而信息一般被定义为对接受者有意义或者有用的数据。因此数据项目是生产出信息的原料。

数据库的潜在概念是为了在处理中可以利用和具有恰当的特性数据需要被管理。数据的管理包括软件和组织。创造软件和管理数据库就是数据库管理系统。

当使用数据库的所有途径都是通过数据库管理系统被控制所有应用都利用一个特殊数据项来存取被存放在唯一一个地方的相同的数据项。数据项的一个单独的更新在所有方面都得到更新。用过数据库管理系统的集成要求数据库的一个中央集权。数据可能被放在一个中央计算机里或者被分散在几个计算机之中最重要的要求是拥有一个组织功能来执行控制。

模型的运用

对接受人来说只接收原始数据或者甚至是总结的数据都是不够的。数据通常需要被处理和被呈现出来以结果指向所作的决定的方式。这样数据项的处理建立于决策模型。例如一项投资决定相对于新的资本支出也许根据一项政府支出决定模型被处理。

决定模型可以在决策过程中被用来支持不同的阶段。“智能”模型可以用来寻找问题或者机会。模型可以被用来辨认和分析可能的解决方案。挑选模型例如最优化模型可以被用来发现最想要的解决方案。

换句话说面对各种各样的决策情况需要多种的方法。下面是一些例子和可能被包含在一个管理信息系统中用来帮助分析和支持决策的模型的类型一个全面的信息系统决策者拥有一套有用的普通模型可以应用于许多分析和决定的情况还有一套非常特殊的模型应用于特别的决定。相似的模型可以用来计划和控制。选择的模型是管理信息系统的模型基础。

管理信息系统(MIS)不但支持低层的管理人员而且可以支持中层人员的管理控制为高层也能提供某些信息。管理信息系统由四个部件构成信息源、信息处理器、信息用户和信息管理者。信息源是信息的产生地信息处理器负担信息的传输、加工、保存等任务信息用户是信息的使用者利用信息进行决策信息管理者负责信息系统的设计、实现和维护。管理信息系统一般被看作一个金字塔形的结构分为从底层的业务处理到运行控制、管理控制、最高层的战略计划。最基层由任务巨大处理繁杂的事务信息和状态信息构成。层次越往上事务处理的范围越小针对的也是比较特殊和非结构化的问题。

总之管理信息系统(Management Information SystemMIS),是一个以人为主导利用计算机的硬件、软件、网络通信这些设备和其它的办公设备进行信息的收集、传输、加工、储存、更新和维护以达到企业战略竞优、提高效益和效率的目的来支持企业的高层决策、中层控制和基层运作的集成化的人机系统。MIS为管理者提供报告提供企业的最近的情况以及历史记录。这一系统主要定位是针对企业内部为管理层的计划、控制和决策等功能服务一般由下层的业务处理系统提供数据。MIS能够实测企业的各种运行情况并利用过去的历史数据预测未来从企业全局的角度出发辅助企业进行决策利用信息控制企业的行为帮助企业实现其规划目标。

Definition of a Management Information System

There is no consensus of the definition of the term "management information system". Some writers prefer alternative terminology such as "information processing system", "information and decision system", "organizational information system", or simply "information system" to refer to the computer-based information processing system which supports the operations, management, and decision-making functions of an organization. This text uses “MIS” because it is descriptive and generally understood; it also frequently uses “information system” instead of “MIS” to refer to an organizational information system.

A definition of a management information system, as the term is generally understood, is an integrated, user-machine system for providing information to support operations, management, and decision-making functions in an organization. The system utilizes computer hardware and software; manual procedures; models for analysis planning, control and decision making; and a database. The fact that it is an integrated system does not mean that it is a single, monolithic structure; rather, it means that the parts fit into an overall design. The elements of the definition are highlighted below.

Computer-based user-machine system

Conceptually, management information can exist without computer, but it is the power of the computer which makes MIS feasible. The question is not whether computers should be used in management information system, but the extent to which information use should be computerized. The concept of a user-machine system implies that some tasks are best performed by humans, while others are best done by machine. The user of an MIS is any person responsible for entering input data, instructing the system, or utilizing the information output of the system. For many problems, the user and the computer form a combined system with results obtained through a set of interactions between the computer and the user.

User-machine interaction is facilitated by operation in which the user’s input-output device (usually a visual display terminal) is connected to the computer. The computer can

be a personal computer serving only one user or a large computer that serves a number of users through terminals connected by communication lines. The user input-output device permits direct input of data and immediate output of results. For instance, a person using the computer interactively in financial planning poses “what if” questions by entering input at the terminal keyboard; the results are displayed on the screen in a few second.

The computer-based user-machine characteristics of an MIS affect the knowledge requirements of both system developer and system user. “computer-based” means that the designer of a management information system must have knowledge of computers and of their use in processing. The “user-machine” concept means the system designer should also understand the capabilities of humans as system components (as information processors) and the behavior of humans as users of information.

Information system applications should not require users to be computer experts. However, users need to be able to specify their information requirements; some understanding of computers, the nature of information, and its use in various management function aids users in this task.

Integrated system

Management information system typically provides the basis for integration of organizational information processing. Individual applications within information systems are developed for and by diverse sets of users. If there are no integrating processes and mechanisms, the individual applications may be inconsistent and incompatible. Data item may be specified differently and may not be compatible across applications that use the same data. There may be redundant development of separate applications when actually a single application could serve more than one need. A user wanting to perform analysis using data from two different applications may find the task very difficult and sometimes impossible.

The first step in integration of information system applications is an overall information system plan. Even though application systems are implemented one at a time, their design can be guided by the overall plan, which determines how they fit in with other functions. In essence, the information system is designed as a planed federation of small systems.

Information system integration is also achieved through standards, guidelines, and procedures set by the MIS function. The enforcement of such standards and procedures permit diverse applications to share data, meet audit and control requirements, and be shares by multiple users. For instance, an application may be developed to run on a particular small computer. Standards for integration may dictate that the equipment selected be compatible with the centralized database. The trend in information system design is toward separate application processing form the data used to support it. The separate database is the mechanism by which data items are integrated across many applications and made consistently available to a variety of users. The need for a database in MIS is discussed below.

Need for a database

The term “information” and “data” are frequently used interchangeably; however, information is generally defined as data that is meaningful or useful to the recipient. Data items are therefore the raw material for producing information.

The underlying concept of a database is that data needs to be managed in order to be available for processing and have appropriate quality. This data management includes both software and organization. The software to create and manage a database is a database management system.

When all access to any use of database is controlled through a database management system, all applications utilizing a particular data item access the same data item which is stored in only one place. A single updating of the data item updates it for all uses. Integration through a database management system requires a central authority for the database. The data can be stored in one central computer or dispersed among several computers; the overriding requirement is that there is an organizational function to exercise control.

Utilization of Models

It is usually insufficient for human recipients to receive only raw data or even summarized data. Data usually needs to be processed and presented in such a way that the result is directed toward the decision to be made. To do this, processing of data items is based on a decision model. For example, an investment decision relative to new capitalexpenditures might be processed in terms of a capital expenditure decision model.

Decision models can be used to support different stages in the decision-making process. “Intelligence” models can be used to search for problems and/or opportunities. Models can be used to identify and analyze possible solutions. Choice models such as optimization models maybe used to find the most desirable solution.

In other words, multiple approaches are needed to meet a variety of decision situations. The following are examples and the type of model that might be included in an MIS to aid in analysis in support of decision-making; in a comprehensive information system, the decision maker has available a set of general models that can be applied to many analysis and decision situations plus a set of very specific models for unique decisions. Similar models are available for planning and control. The set of models is the model base for the MIS.

The management information system (MIS) not only supports the underlying bed administrator, moreover may support the intermediate deck personnel's control check, for high level also can provide certain information. The management information system frame by four parts: Information source, information processor, information user and information superintendent. The information source is the information production place; Information processor burden task/role and so on information transmission, processing, save; The information user is the information user, carries on the decision-making using the information; The information superintendent is responsible for the information system the design, the implementation and the safeguarding. The management information system is regarded as generally a pyramid shape the structure, divides into from the lower level handling of traffic to the operating control, the control check, the topmost story strategic planning. The most basic unit greatly processes the numerous and diverse transaction information and the state information framing by the task/role.

In a word, the management information system (Management Information System, MIS), is by the artificial leadership, using the computer hardware, the software, the network communicates these devices and other office equipments carries on the information the collection, the transmission, the processing, the storage, the update and the safeguarding by achieved the enterprise strategy competes superior, enhances the benefit and the efficiency target, supports the enterprise the high level decision-making, the intermediate deck check and the basic unit operation integration man-machine system. MIS is the superintendent provides the report, provides the enterprise the recent situation as well as the historic record. This system main localization is aims at in the enterprise, for control function and so on level plan, check and decision-making serves, provides the data generally by the lower level handling of traffic system. MIS will be able the actual enterprise's each kind of run situation, and using the past historical data forecast future, embarks the assistance enterprise from the enterprise overall situation angle to carry on the decision-making, used the message control enterprise the behavior, helped the enterprise to achieve its plan goal.