Designing essentials of effective Human Resource Management Information System (HRMIS) engineering for e-Governance & business virtualization

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Abstract

Human resources management information system (HRMIS) is the computer software intended for simplification and acceleration of HR management process, improvement of its quality via automation of the basic (routine) objectives and activities in organization. Due to this advantage more and more organizations apply HRMIS effective for public, government, e-Governance as well as private business sectors also switching for HRMIS to implement digital & virtual business. Development of the HRMIS unified standards is of key significance for improvement of HR management effectiveness and transparency in certain departments, as well as in public sector, in general. In addition, it will be the significant step in introduction of the unified e-governance system and fast execution of business. This research paper discussed fundamental and initial modeling how to analyze, design and develop HRMIS in business organization.

Keywords: HRMIS, HRMIS Architecture, HRMIS Modeling, 4Cs Model of HRMIS, HRMIS Designing Pyramid

Vision of Human Resource Management

The Human Resource Management Information System (HRMIS) was developed in line with the human resource management vision, 'To be the leader in the Development and Management of Human Resource in Order to Achieve the Government's as well as INCs/MNCs Vision.

HRMIS Mission

As one of the government's flagship applications, HRMIS has a clear mission so that all public sector agencies implement it in line with the vision of public service human resource and e-Government aims. Therefore, HRMIS must remain relevant in public sector human resource management through its continuous application improvement and also with business sense gives virtualization to the HRM in business organization.

HRMIS Objectives in Public Sector

The objectives of HRMIS are designed to ensure that the developed application will be able to improve the performance of public sector delivery system. These objectives are designed to:

- Enable planning of the workforce and determine the effective size of public service through human resource management information;
- Automate the operation processes of human resource management;
- Develop integrated and updated human resource information for the purpose of effective human resource planning;
- Facilitate horizontal communication and integration, coordination of human resource processes and access through a single window;
- Contribute to the creation of a paperless environment; and
- Make available a human resource information system that is open, flexible and updated to meet the management needs of the various levels of agencies.

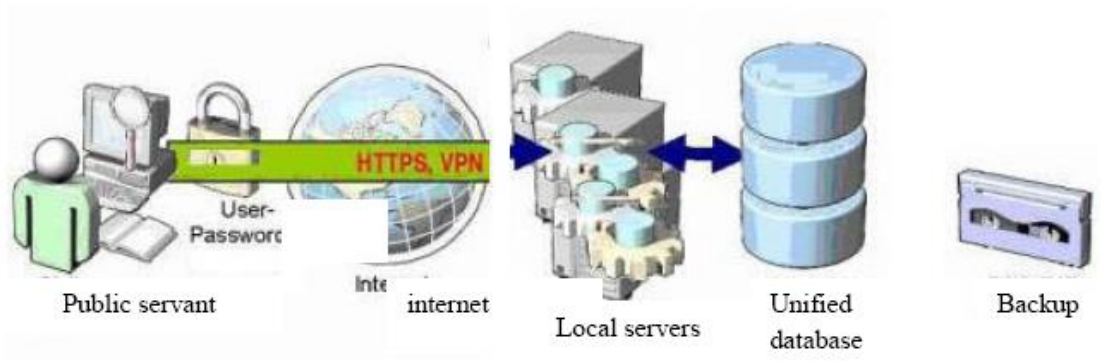
What General Conditions should be complied with by the HRMIS?

- Program modules shall be closely connected ensuring free information exchange;
- Software shall be compatible with the information systems operating at the central level (e.g. electronic treasury, electronic budget, documents flow, central analytical base of the Civil Service Bureau etc).

- The modules and/or entire software shall be technically easily modifiable and/or expandable (with respect of modification of the existing modules and adding of the new ones). At the same time, changes could be made with the consent of a person/organization with relevant authorities.

- Program should be protected from unauthorized access. Information shall be available to the authorized persons/organizations only. In addition, setting of specific access restrictions for each of them should be ensured.
- For the security purposes, any newly entered information shall be checked before final recording; program shall automatically respond to the identified discrepancies/errors and prevent saving of changes of the system algorithm; at the same time, the date and author of changes shall be automatically recorded;
- The modules and entire program shall provide access to the initial data to the persons with relevant authorization.
- All modules shall be structured so that manual data entry was minimized. This should be achieved via presentation in a form of unified classifier of all fields and linking of the program with existing databases. At the same time, no changes and/or additions to the unified classifiers in program modules without permit from the Civil Service Bureau;
- Each module shall include the feature of generation of standard analytical reports related to the saved information;
- Each module shall provide feature of uploading and handling of various files. At the same time, software shall provide printing of the documents prepared within the program. Printed documents shall have legal force.
- All modules shall be structured intuitively/in understandable manner to ensure easy operation for the inexperienced users;
- The system shall provide information archiving and allow viewing and printing of the archived information, at the same time, all files shall be generated (both, for electronically viewing and printing) in PDF format.

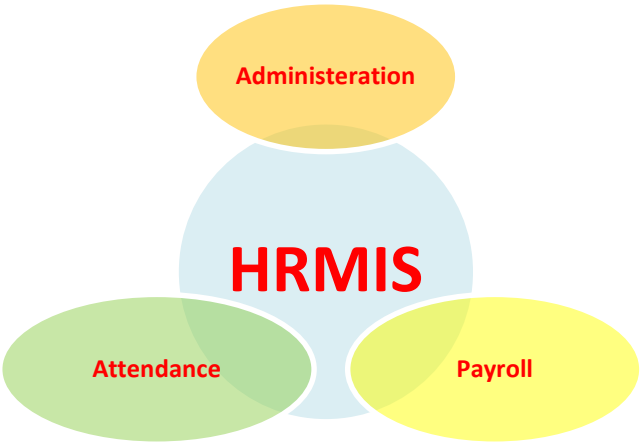
Architecture of Human Resources Management Program



Components should be included into the HRMIS

At a time of work on HRMIS standard, we have studied and analyzed the post popular programs at Georgian and international markets. In result of this process the minimum of program components was identified, which is necessary and sufficient for dealing with the problems mentioned in the Introduction. Advantage of such minimalist approach is that it allows implementation of the offered change relatively "painlessly" (switching to the automated processes is implied) and this is very significant at the Civil Service bureau, with respect of avoiding of substantial destabilization of the work process. In addition, identification of the minimal components only, provides certain flexibility and freedom to the organizations for further improvement and diversification of the offered model.
In the offered model the HRMIS shall contain 3 necessary components (modules):

- Administration module;
- Attendance module; and
- Payroll module



It is emphasized that Bureau continues work on improvement of the policies and practices of HR management in the public sector and in result, in the nearest future, the issue of necessity of amendment of this standard will be put on the agenda. In particular, increase of the HRMIS necessary components is expected, including performance records, training and learning, task manager etc.

Administration Module

Administration module shall include the basic information about the organization and employed persons. This information shall be some kind of basis, support to the other program modules; it shall determine and direct operation of the other modules.

Attendance

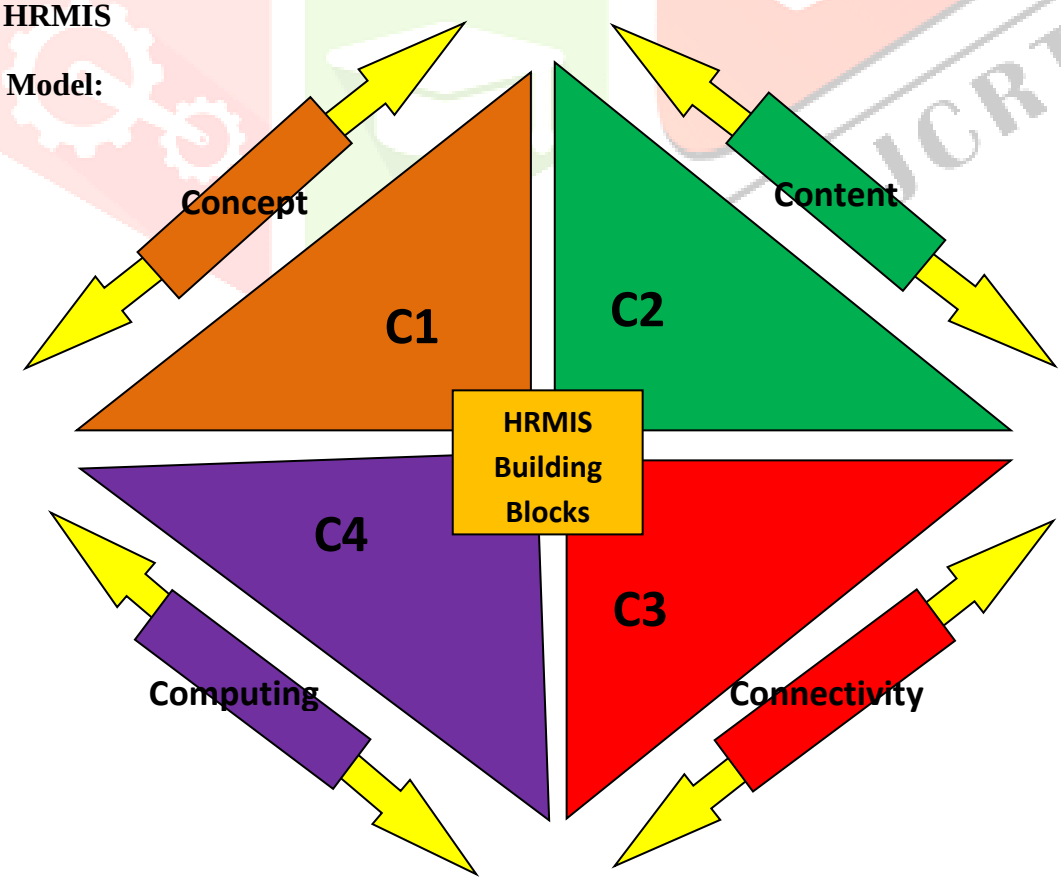
This module shall provide accurate accounting of the time spent by the staff member at his/her job. Accumulated and finally verified information shall be automatically transmitted to the payroll module, for the purpose of remuneration calculation.

Payroll

This module shall ensure automatic calculation of the salaries and other payments to the staff members. The module shall be centrally linked with the administrative and attendance modules and central electronic treasury program.

Modeling of HRMIS

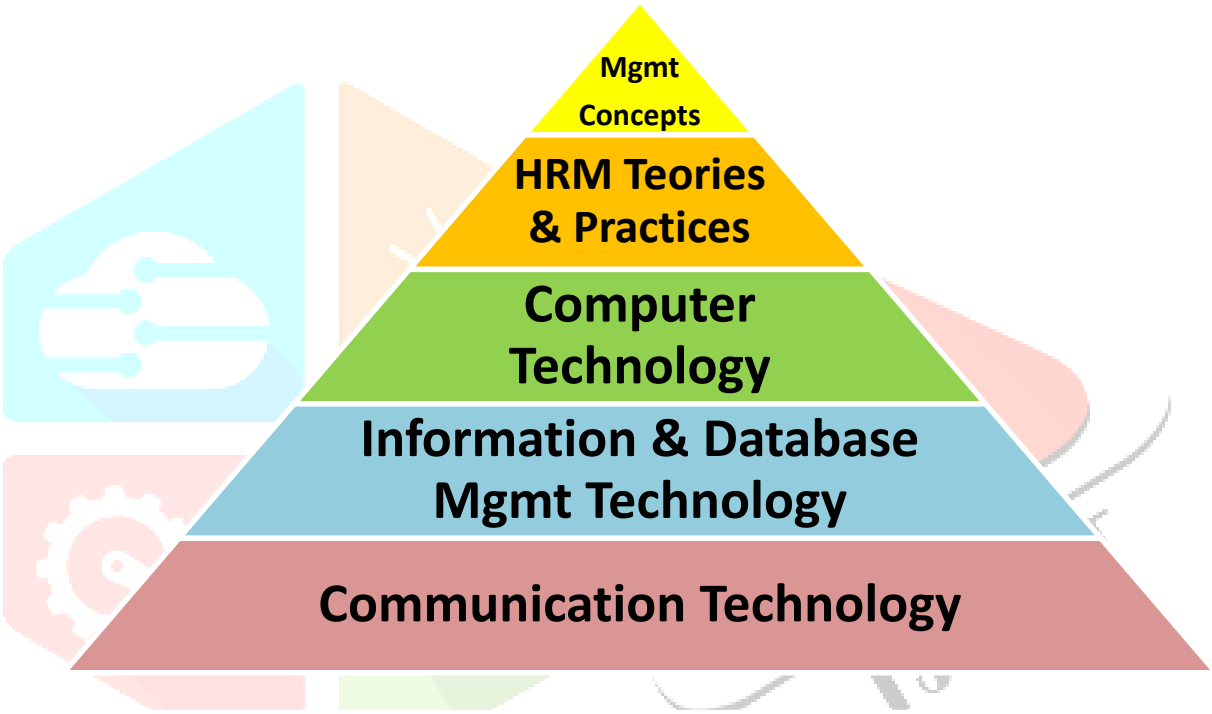
HRMIS 4Cs Model:



Source: Prof. Md. Sadique Shaikh & Prof. Tanveer Sayyed

This is our first purposed model for HRMIS Analysis & designing labeled "HRMIS 4Cs Model". The name 4Cs given on the basis of four major analysis & design domains of HRMIS in Public or private organizations as "C1=Concept, C2=Content, C3=Connectivity and C4=Computing". The first aspect Concept C1 sense to how should public & private organizations visualize different formats, layouts, forms, formats, applications, registrations, reports, reporting's, online submissions, complaint, draft, communication. Information sharing and feedback on remote HRMIS clients from servers of Public/Private organizations. The second Content C2 is analysis, decisions and designing of the HRMIS databases, MDDBs, Knowledge Bases etc for empty format and structures of C1 Concept. The third C3 i.e. Connectivity with intention High bandwidth Computer Network & Internet which must engineer sophisticatedly and precise to achieve instant HRMIS content/information delivery, HR information sharing, reporting and data uploading and downloading with all HR processes and procedures. The C4 Computing where as emphasized to Computing software, network drivers and hardware need to be configured up to the mark to implement and execute HRMIS successfully.

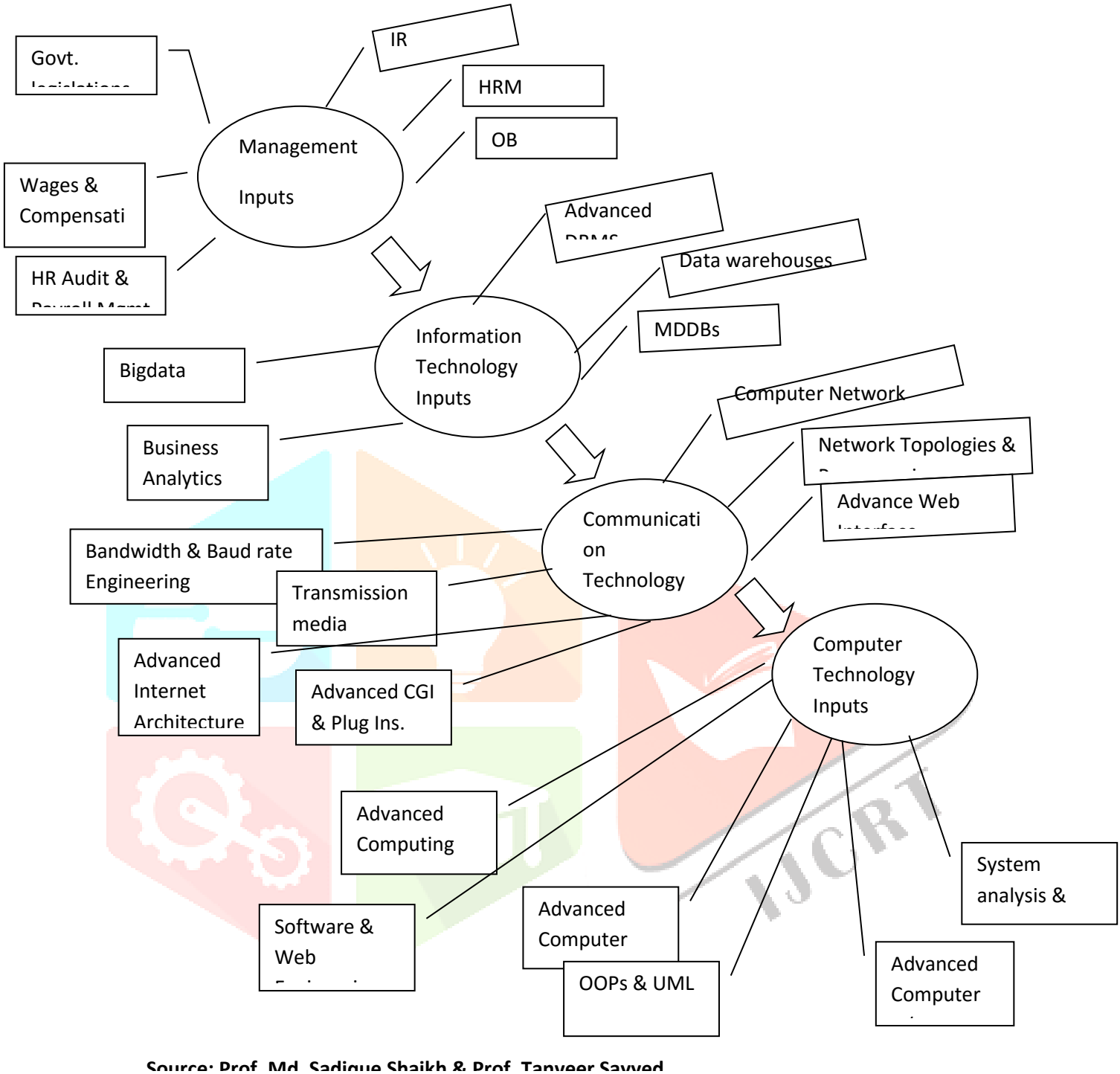
HRMIS Design Pyramid:



Source: Prof. Md. Sadique Shaikh & Prof. Tanveer Sayyed

This is second model we developed "HRMIS Design Pyramid" based on 5 design layers where each layer one of the designing criterion. The first layer with the sense for effective HRMIS engineering Public/Private organizations must have to make detail analysis of management science and then after move for layer 2 .i.e. HRM theories and practices to integrate with first layer. In third layer organization should analysis and engineer for excellent computing with advanced H/Ws, S/Ws, F/Ws and drivers. At layer 4 cares must need to take about HR databases designing and data structure for them, algorithms, procedures, processes and storage. In last layer 5 excellent quality computer network and internet need to design and implement for instant HRMIS connectivity across all head quarters of organization to access HRMIS.

HRMIS Design Process Model:



Source: Prof. Md. Sadique Shaikh & Prof. Tanveer Sayyed

This is our last model HRMIS Design Process Model can say blueprint of HRMIS development. This model takes four different inputs .i.e. Management inputs, Information Technology inputs, Communication Technology inputs and Computer Technology inputs. Management inputs claimed to say all business inputs specially related to HR processes and function. At all four inputs hub respective inputs exhibits in model which doesn't need further explanation after observing model to engineer HRMIS.

Conclusion

HRMIS is an integrated system used to gather, store and analyze information regarding an organization's human resources' comprising databases, computer applications, and hardware and software necessary to collect, record, store, manage, deliver, present and manipulate data for human resources function. The study concludes that HRMIS is an excellent tool for Human Resource Planning (HRP). It enhances the identification of unfilled positions accurately and analyzes each job position with its title in an organization. It also provides insight into organizational training needs, selects the right persons to be trained and evaluates the effectiveness of training programs, but has the

challenges of forecasting demand and supply of labour, access to information, cost of recruitment and workforce shortage.

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