



InterPARES 3 Project

International Research on Permanent Authentic Records in Electronic Systems

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Report of a case study

A. Outline

Case Study 07, whose test bed was the Human Resources Management Department of the State University of Campinas (UNICAMP), aimed to propose and implement an action plan for the preservation of the record “payment statements,” created at the Payment Office by means of the Human Resources Information System (SIRH), so that it remains reliable, authentic and accessible over time, given its importance as a proof of the payment of the university’s staff, not to mention its uses to the social security system, among others.

Thus, a workgroup was formed at UNICAMP with members from the Central Archives of the university’s Archives System and from the Human Resources Management Department (DGRH), under the guidance of the National Archives of Brazil.

B. Methodology

The case study followed the methodology proposed by the InterPARES Project. UNICAMP researchers collected data based on specific guidelines defined by the project, aiming to gather information about the context of creation and characteristics of the digital entity. This data collection was carried out through interviews that the ASCOM researchers held with the personnel in charge of the creation and maintenance of the records that register payment activities, including the IT area responsible for the system.

After that data collection, along with the diplomatic analysis of the record, we faced the need to identify other digital records created within SIRH: the payroll (in both its stored and manifested forms) and the payment order sent to the bank, apart from the payment statement itself.

C. Description of context

Provenancial context

UNICAMP is a public institution of autarchic nature under special rule of São Paulo state’s government administration. The employees’ payment statements are produced by the

Payment Office, a unit of the Division of Personnel Administration (DAP, in the acronym in Portuguese) at the DGRH, which is in charge of the management of UNICAMP's administrative staff.

Juridical-administrative context

DGRH is regulated by a set of normative acts that supports its role, for example, its inauguration act (UNICAMP, GR no. 121/83) and national and state legislation on labor and personnel management.

DGRH is a branch of the Office of the Vice Rector of University Development (a unit under the Rector's Office), which is responsible for the processing of the payment of the university's staff (teachers, administrative personnel and scholarship students), through the DAP, in an area called the "administration of payrolls." It processes payment of about 13,500 people and generates a payment statement for each of them.

Areas involved in the case study:

- DGRH,
- DAP,
- Payment Office and
- Administration of payroll.

Procedural context

The payment statements are created within the Human Resources Information System (SIRH) from the consolidation of the payroll.

The payroll is produced by the Payment Office from the consolidation and the calculations made from the data concerning employee information, earnings, discounts and gatherings at the university's various units. Every month, data related to vacations, presences / absences, licenses, tasks / shifts, among others, is inserted by each unit's human resources section, as well as by benefits and social insurance offices, and by DGRH. The data is processed by the system and, as a result, that month's payroll is compiled, consolidated and stored in the database.

From the payroll, the payment statements are printed and sent to employees, as receipts for their salaries. The document can also be found on the web, through a feature that provides the same information as the printed version does.

The data set resulting from the processing of staff payroll staff is held monthly in the database tables at the SIRH, and, when necessary, documents can be created again.

Documentary context

“Payment statements” is a series under the function “Human Resources Management,” sub function “Payment of personnel” and activity “Consolidation of Payroll,” which pertains to the funds “State University of Campinas – Human Resources Management Department (DGRH).”

Technological context

SIRH is the name used at UNICAMP for the system “Vetorh,” which was acquired in 2000 by the university for human resources management. It consists of modules that are installed on a dedicated application server, and it is part of a shared network that uses Microsoft Windows operating system. The SIRH modules are integrated and use the same database, managed by the Oracle database’s system manager, installed on a dedicated database server. The DGRH team interacts with an outsourced company for maintenance and customization of Vetorh. The administration and management of the database are DGRH’s responsibility.

Details of the computing environment:

Application Server	
Operating system	Windows 2000 Server or newer
SIRH	Vetorh Server 5.6.3
Server database	
Operating system	Linux Red Hat
SGBD	Oracle Database 11g
Workstations	
Operating system	Windows 2000 Server or newer
Client HRIS	Vetorh Client 5.6.3

D. Narrative answers to the applicable set of questions for researchers

The digital record is displayed by the system in response to an online consultation, which presents the data stored in the database designed in a layout template for web viewing. The print is made of the same data from a specific PostScript template. The templates are maintained in the system only in its current version, and thus the system is only able to present a statement of payment in the layout in use at the time of the execution of the query.

The financial data resulting from the processing of the payroll is stored and maintained historically in the tables of the database and managed by DGRH itself.

The main addressees of the payment statements are the university's employees and self-employed workers (interns, scholars, medical residents), as well as DAP/human resources managers from the university, and government agencies for inspection.

The digital statement of payment displays textual elements and comprises the following structure: area of identification of the university (logo, name, address, and registration data); area of identification of employee (ID, name, function, assignments, and career information), and the area of financial data (events of payment and discounts, and the total amount after payments and discounts).

To have access to the record, one must use the application "Vida Funcional Online" (which could be translated as "Online Career"), in the module "SIRH," function "Payment," and select the reference period (month and year) in the area "Statements," after identifying oneself and providing a password.

The system does not maintain the manifested form of the digital payment statement, which is produced from the query to the database of the payroll each time an appointment is made. To display the payment statement in its manifested form, the SIRH does the processing of the data stored in database tables by linking them to the template in use, and produces a copy of the record at runtime, in PDF format. After accomplishing the appointment, the PDF file with the statement is discarded by the payment system.

The employee's identification information is stored historically in the database, i.e. the system is able to retrieve the registration information of an employee on a specific date. However, at the time of creation of the digital copy of the statement of payment, the SIRH

searches for identification information that portrays the employee's situation when the query is made, and not the information corresponding to the period of the statement referred, originally appearing in the record. The financial information concerning the payment is retrieved in the digital record, and remains unchanged in relation to the original record.

The digital record is identified by the combination (composite key) of the registration number, type of payment (monthly, complementary, Christmas bonus, etc.) and month / year of the period of payment.

Some measures to ensure the accuracy, reliability and authenticity of the digital payment statement are: restricting access to the database, limiting the access permission only to SIRH technical areas of payroll administration and computing, and the adoption of a routine of registration of events, which allows tracking for audit purposes.

The processed data for the generation of the statement is stored in database tables and it cannot be changed. Changes are made in a new payment process, generating thus a supplementary document, whose data is maintained in its corresponding tables. In the consultation via web, the employee is granted access to the main record and a complementary document, if necessary.

The statement of payment is related to the following paper records: presence reports, timing reports, bank reports, accounting reports and bills for the payment of taxes and contributions. Those records are organized into files by documentary type, within the class "Payment of Personnel" (e.g. type "Staff payroll" – payroll, month / year). Those files are stored on paper as current and semi-current records at DGRH.

Throughout the study, other digital records created by the system were identified:

- the payroll in the manifested form – which is created by the SIRH in response to a query, the same way that the digital payment statement is created.
- the payroll in the stored form – which represents the set of database tables, with the identification information of the employee and the financial information that records the payment, and the relationship between them. This record serves as a stored source for the creation of records rendered by the system (payroll and statement).

- the bank order – a record that is created by the system, according to standards set by the bank, and sent to the bank with information of deposits which must be made in the accounts of employees, corresponding to their salaries for that month.

E. Narrative answers to the project’s applicable research questions

Which are the regulatory, auditing and policy making bodies that need to be sensitized to the importance of digital preservation, and what are the best ways of influencing them?

The organisms to be sensitized to it are those related to the strategic planning and the making of policies concerning archives, information and ICT, which are, in the context of a university, the higher deliberative bodies, such as the university council and colleges and institutes’ boards. One way to influence them is to create, within the archival field, committees or groups composed of teachers, researchers, students and managers, in order to develop studies and proposals for digital preservation. Then awareness may reach the organization’s areas horizontally and vertically, depending on their participation in these committees, which should include members of academic and administrative bodies (including maintenance and supervision). Those groups may jointly propose, therefore, actions and procedures to the higher and decision-making bodies for the resolution of the management and preservation of records.

In the case of UNICAMP, the strategy adopted by the Central Archives was to sensitize the senior management – the Rector and Coordinator General of the university – through the formation of a working group on digital records and a committee of digital records, consisting of professionals from the Central Archives, information technology and communication areas, the main administrative bodies, the legal department and the Library Network, as well as professors from higher bodies (Deans of Undergraduate Studies, Post Graduate Studies, University Development, and Outreach). These groups have made proposals of actions for the university to implement a preservation policy for their records. The Coordination of DGRH integrates these committees, which motivated the present case study.

How and when should these archives or programs prepare themselves for digital preservation?

The institutional archives should prepare guidelines and best practices for preservation, enabling record creators to carry out, in their local archives, measures to ensure the reliability, authenticity and access of records, from the time of their creation and for as long as necessary.

What are the nature and the characteristics of the relationship that each of these archives or programs should establish with the creators of the records for which it is responsible?

There should be partnership between creators and archives in building solutions for digital preservation. Archives and creators must know each other and the former should provide guidance on the management and preservation of archival documents; the latter, in turn, should provide information about their operations and documents, allowing the identification of those which are archival, and be willing to incorporate archival knowledge in their work processes. That interaction is required for the joint development of solutions that enhance the creation and filing of records, in order to maintain their reliability, authenticity and access.

The partnership with the Central Archives of the university in the development of the InterPARES 3 Project has enabled the sharing of preservation knowledge and solutions to problems encountered in the maintenance of the documentary type studied. This crucial partnership should continue and be extended to other types of records created by the SIRH.

Another factor highlighted by the case study was the need to establish policies and strategies to support the management and preservation of digital records. Strategies should include the identification of digital records created by computer systems and the selection of those that will be maintained, and the provision of the institutional resources needed (financial, structural and human). These policies and strategies must be established by normative institutional acts, duly signed by the higher hierarchy.

What action plans may be devised for the long-term preservation of these bodies of records?

The proposed action plan set actions to solve problems that were identified and ensure the proper maintenance of the record in its digital form. Among the actions planned are: the inclusion of metadata in the system to state its archival bond with the other records that take part in the action; the implementation of system changes for the maintenance of personal data history, along with salary history, to ensure that all the information presented

in the digital record is the same as in the original statement, on paper, in order to ensure its stable content; and the maintenance of a template history, so that the information is always expressed in its structure of origin, in order to ensure the fixed form.

The DGRH team drew an initial solution so as to implement some proposed actions. An application is being developed to create and archive the manifested form of the payment statement in a stable file format, which will be kept in a database table.

The research also pointed out the need to study other digital records created by the system that were identified during the case study, and to implement similar actions for their preservation, especially the stored form of the payroll, as it serves as a source for the system to create the records it manifests.

Can the action plan chosen for a given body of records be valid for another body of records of the same type, produced and preserved by the same kind of organization, person, or community in the same country?

Yes, it is possible, if the conditions are the same as raised in this case study.

Can the action plan chosen for a certain type of record or system be valid independently of the creating or preserving organization and its context?

Since the conditions are the same as raised in this case study, this solution is valid for the other records created by the SIRH, although other alternatives may be feasible, for example, the maintenance of templates with the layout of documents and data history.

How can records professionals keep their knowledge of digital preservation up-to-date in the face of ongoing and increasingly fast technological change?

Records professionals can keep up by participating in open study groups (including networks), courses, conferences and meetings on the issues, or even by establishing programs and forming study groups in their own organizations, in partnership with national and international projects.

F. Diplomatic analysis

Despite being produced as a result of carrying out the tasks and activities for the payment of UNICAMP's staff, the digital payment statement was considered a potential record, because it meets some basic characteristics of an archival document. According to

the diplomatic analysis, the document has no fixed form or stable content and did not specify its archival bond with the other records that participate in the action.

The statement of payment is a digital document that is issued by the system from the payroll (a stored digital record) as a result of a consultation made by the official / employee. This document is not retained in its manifested form: to each employee's query, the system issues and presents a digital copy of the payment statement.

The payroll is maintained in its stored form and consists of: content data (table with the payroll's history data), form data (template with layout) and composition data (presentation routine). The system is also capable of issuing the payroll as a manifested record in response to a query.

It was concluded that actions must be taken to maintain the fixed form and stable content of the payment statement, and to express its archival bond with other digital records that participate in the action. The study also verified the need to find the best way to preserve the stored digital record that provides the payroll.

Recommendations for action plan:

1. To find out if there is a need to keep the payment statement in its manifested form. If so, define a schedule for its retention/disposition.
2. To perform change in the system to ensure that all information in the digital statement of payment (employee identification and financial data) is equal to the original statement, keeping its content stable.
3. To implement a change in the system in order to enable the inclusion of metadata that records the archival bond with the other documents that register the action (payroll, payment order to bank and other statements related to the employee).
4. To define a strategy for preserving the payroll in its stored form, for the time defined in the records schedule.

G. Conclusion

As a result of the case study of DGRH / UNICAMP, a specific program will be developed to improve the storage of the record in study, and then this program will be extended to other similar records within the organization. The results of this study also

serve as support for the committees and the Central Archives in preparing a digital preservation program for the university as a whole.

The records should be kept at DGRH, during their current and semi-current stages, and then move on to be archived and preserved at the Central Archives of the university's Archives System.

The case study proved to be possible to apply the body of concepts, principles and methods of the Inter PARES Project. It verified that the concepts and procedures for the preservation of digital records should be in use during their whole life cycle, from creation already, not only when they are sent to an archives.