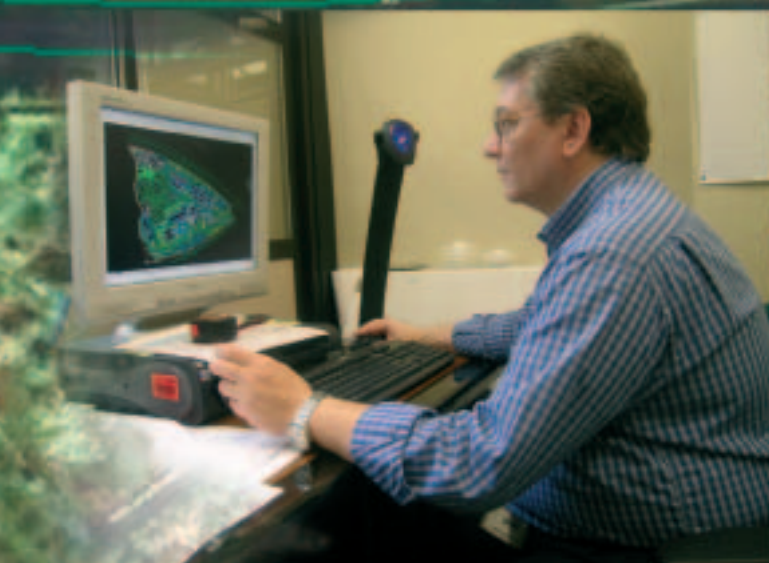


ESA's New Approach to Facility Management





Satellite image of ESRIN merged with an AutoCAD drawing from CIFM



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The Computer Integrated Facility Management (CIFM) system that is now operational across ESA's main sites is a major achievement in terms of the rationalization and streamlining of management procedures, as foreseen in the Director General's Agenda 2007 reform plan for the Agency. The main challenges lay in the harmonisation of existing management practices that were already well established at all sites, and the alignment of legacy data and their conversion/migration from the former systems. The results achieved go well beyond initial expectations and now, after integration with the other corporate data systems in the Agency, real-time visibility is provided across sites on people movement as well as on all aspects of site maintenance. The comprehensive central reporting provides management with invaluable decision-making support.

Introduction

Being in charge of buildings, logistics, staff accommodation and movements, the Site Management Services of the four main ESA establishments had, in the past, adopted a number of different automation tools to support them in that function. In recent years, however, with the creation of the ESA Site Management Department it was more and more perceived as a priority to approach the problem of process automation in a more systematic way across the Agency, on the basis of a professional software solution based on today's industry standards, yet flexible enough to cope with local exigencies. The project was tackled in conjunction with the ESA Information System Department.

The General Concepts of Facility Management

The ultimate purpose of Facility Management is to support and even to leverage the core business of an organization by providing its employees with the best possible working environment, through smooth integration of the infrastructure, management processes, technologies and services. In recent years, Facility Management has progressed from being a reactive support function to a pro-active infrastructure and service organizer and provider, which is constantly challenged to provide:

- **Visibility:** of current and future resources (space, services, fixed assets, energy, ...) requirements and allocations.
- **Flexibility:** to adapt the work environment as swiftly as market conditions and corporate strategies are evolving.
- **Cost Control and Performance Monitoring:** to constantly get from internal and external contractors the required added value and quality for the right price.
- **Comfort at Work:** to provide the whole organization with an efficient and pleasant working environment.

The combination of re-engineered processes with a state-of-the-art information system is the best way to meet the challenge, especially when the organization is as geographically dispersed as ESA.

A preliminary market survey that identified the key players in the Facility Management (FM) domain was followed by a consultancy effort aimed at selecting the off-the-shelf commercial software product best suited to meeting ESA's needs. The product eventually chosen was ARCHIBUS/FM and a subsequent integration contract, awarded after an open tender to DBAssociates, covered its adaptation to the Agency's data types and business processes.

ESA's Requirements

The Site Management Department is responsible for providing the necessary safety and security, infrastructure and support services at the Agency's four largest sites – Head Office in Paris, ESTEC in Noordwijk (NL), ESOC in Darmstadt (D) and ESRIN in Frascati (I) – plus (as of 1 September 2004) ESAC in Villafraanca (E) and the Redu station in Belgium (B).

Site Services were traditionally organized on a local basis. In 1999 it was decided to create a single centralised structure, reporting to the Agency's Director of Administration. In a recent reorganization (April 2004), the reporting line was

changed to the Director of Operations and Infrastructure, located at ESOC.

In the past, the four ESA sites were using different practices and standards. Users had to enter the same data into different systems and timely corporate reporting was difficult to achieve. There was therefore a need to unify the Department's standards and processes, improve overall information quality and availability, and allow reporting to be consolidated at ESA level by putting in place a market-proven overall facility-management tool. It would need to have a central database, accessible to a large user community spread across Agency sites, an open configuration, providing scalability and potential for evolution, with efficient and autonomous reporting tools, suitable for managers at all levels. Last but not least, it had to improve the Department's overall effectiveness in serving the staff, and thereby contribute to the Agency's overall efficiency.

The project, begun in 2000, was therefore divided into two phases, the first being an in-depth analysis of ESA business scenarios. The second focused on the implementation of the main processes identified, namely:

- Management of accommodation-related information for the main ESA sites (buildings, floors, rooms), including complete drawings.
- Administration of employee-related information (staff and contractors).
- Employee moves management.
- User calls management (helpdesk tool), with provision of web access for the whole ESA community.
- Preventive-maintenance scheduling.
- Equipment management.
- Project management.
- Local and central reporting.

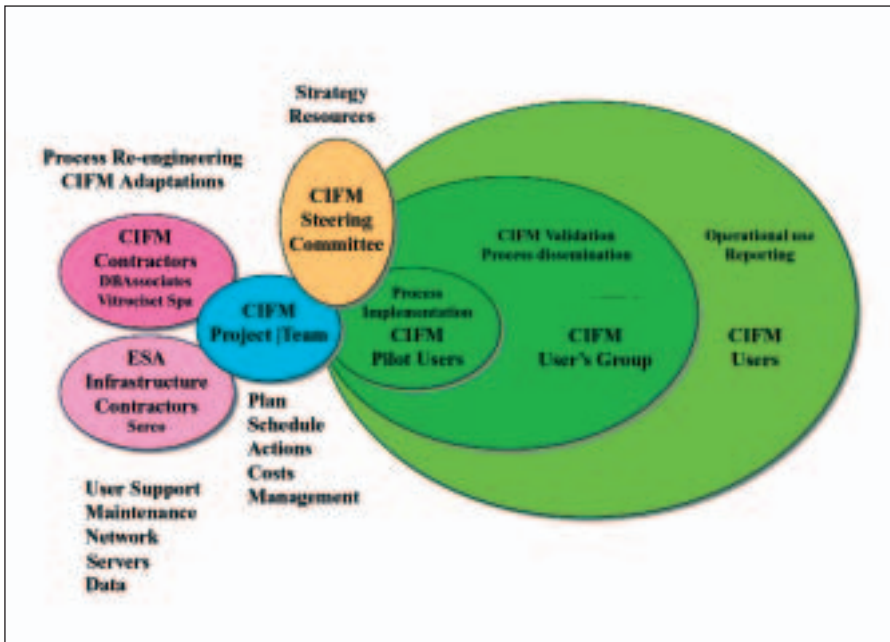
Organizing the Project

Given the cross-site nature of the project, it was difficult to imagine a traditional project team structure: on the one hand the foreseen CIFM users wanted to be involved from the outset in all aspects of the project's life cycle, while on the other a structure ensuring quick decisions and guaranteed delivery dates was crucial for success. A dynamic multi-layered structure was therefore set up. The project's core team was composed of five engineers, responsible for managing the project's schedule, activities and costs. The second layer consisted of pilot users representing the four ESA sites, plus the reporting level. These experts were selected for their sound experience with existing practices and data at each site, as well as having a clear understanding of the future processes to be implemented. The third layer gathered a wider user community across sites and processes. They received advanced training in the product and were thereby able to gradually validate the new CIFM functionality.

Above this operational structure, a Steering Committee, composed of Site-Management and Information-System Department managers, met every month to monitor the project's overall progress and sanction additional support and resources when needed.

Solution Features

CIFM consists of an integrated system, composed of several different modules, each addressing a specific facility-management area. Data entered into one of



The CIMF project organisation

these modules is automatically reflected in other relevant areas, ensuring accurate, up-to-date information throughout the whole system. In addition, AutoCAD architectural drawings, such as the floor and office plans for ESA's buildings, are automatically linked to employee names, room and telephone numbers, etc., ensuring that there is always accurate and consistent information in the database.

The current release of CIMF contains six modules:

Space Management is used for managing accommodation (type and number of rooms, security access level,

etc.) and for allocating rooms to employees and/or organizational units. It allows the Site Management Department to perform an accurate and efficient inventory of the space available, with continuous control of its usage and the possibility to deal with questions like:

- What is the current occupancy level of a given site/building?
- What is the space allocation for a particular organizational unit?
- What is the Agency's overall use of space (occupiable and non-occupiable rooms, laboratories, communal areas, etc)?

Drawing Management links the AutoCAD architectural plans with the CIMF database (employee, room, building and floor data). It increases information accuracy by simultaneous updating the AutoCAD and CIMF database environments. An enriched AutoCAD menu allows the Site Management Department to modify the plan of a building and update the CIMF database content (occupant name, phone, etc.) in the same on-screen window. CIMF, which is aligned with the DIN 277 standard, also allows benchmarking against the facility-management databases of other organizations using the same norm.

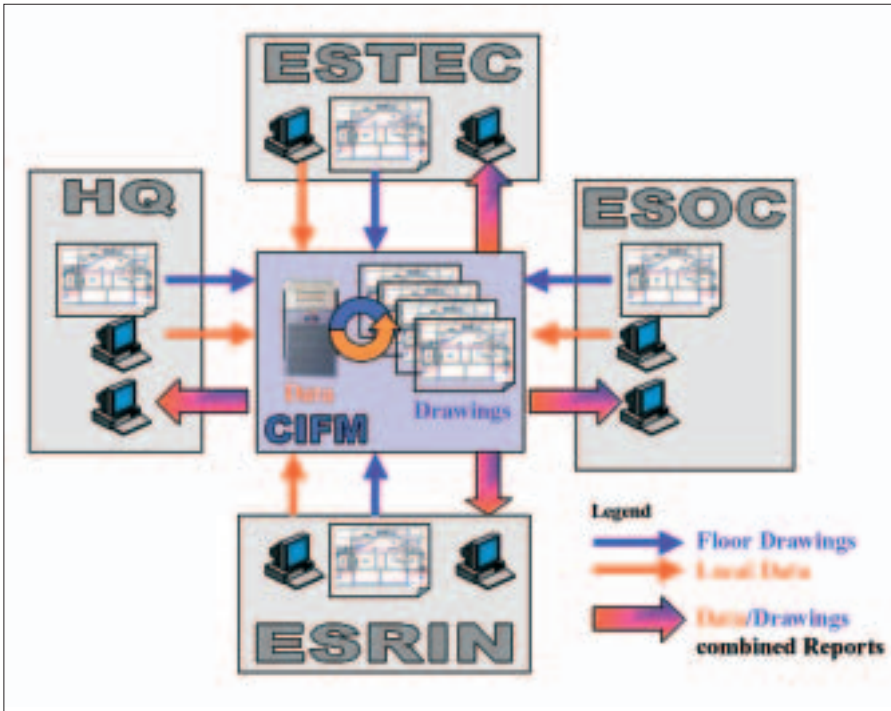
Employee Administration allows CIMF to be used as the primary entry system for registering on-site contractors (personal data, company, organizational unit assignment) and for allocating/recording the facilities required by each employee, whether an ESA staff member or on-site contractor, for their daily work, such as phone, fax, room, furniture/equipment, badge information, ID card information, etc. This module therefore allows the Site Management Department to immediately provide accurate answers to such questions as:

- Where is this employee located and how large is his/her office?
- Who are the emergency contacts in a given building, and what are their phone numbers?
- Which contractor staff are active on a given site and when does their ESA accreditation expire?

Move Management is used to plan employee moves (arrivals, departures, changes of duty station, internal moves) and to schedule move requests received from managers. It handles the work orders necessary to implement those moves and allows the required tasks to be performed



Employees and their locations at ESA Headquarters in Paris



CIFM is deployed on the four main ESA sites

in the correct sequence. For example, the facilities and furniture in each office are tracked and requirements anticipated before the people are in place.

Site Helpdesk Service is used to track and manage maintenance requests received by the Site Service helpdesk. This module

provides efficient supervision of correct execution of the work while controlling the related costs. Immediate answers can be provided to such questions as:

- How many work requests have been issued in that building, and what are their nature, status and cost?

- What kind of problems have been signalled for a particular type of equipment given over a period of time?

Preventive Maintenance covers the management of all ESA equipment associated with preventive maintenance and provides for an accurate inventory. The Site Management Department can thereby forecast, plan and manage the preventive maintenance needed to maintain the Agency's buildings and offices in the best working condition, with the system automatically issuing and dispatching all necessary work-requests and work-orders.

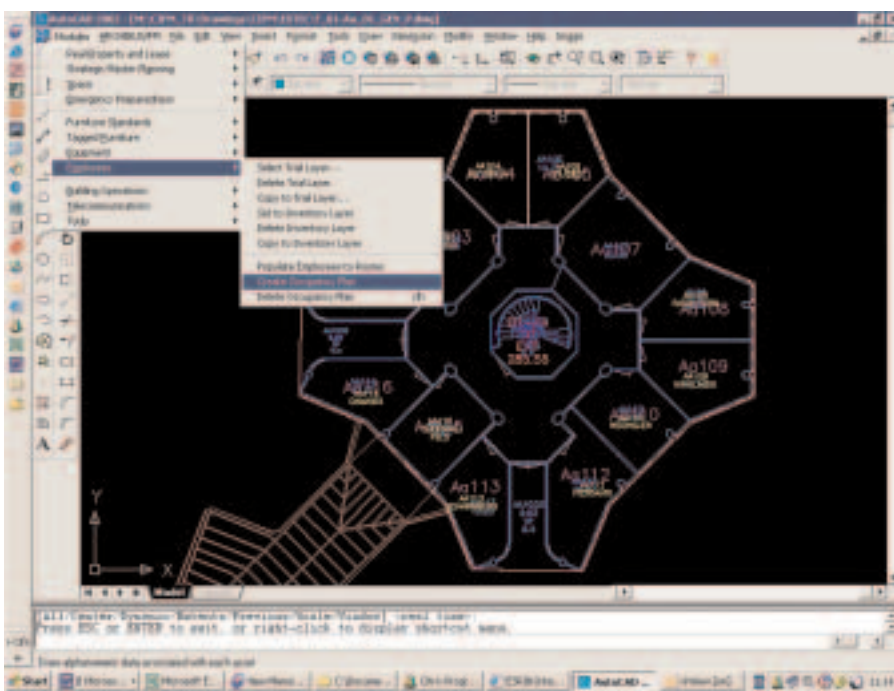
An impression of the data volumes and valid as of 31 August 2004:

- 4065 employees, including ESA staff and contractors, managed
- 232 000 square metres of building fully represented and managed
- 329 AutoCAD drawings created and maintained, covering all ESA buildings
- 3112 offices, meeting, conference and training rooms, and libraries managed, involving a total area of 56 000 square metres
- 317 laboratories, computer rooms and test areas controlled, involving a total area of 24 500 square metres
- 14 000 work-requests for corrective maintenance issued and closed
- 3700 work-requests for preventive maintenance issued automatically and closed
- 1900 moves, including new arrivals, departures, changes of site, and internal movements.

Integration with Other Corporate Systems

During the first half of 2003, all Information System Department teams dealing with directory-type data made a major effort to harmonise the formats of their data. When all teams were ready in August 2003, the Steering Committee authorised the activation of a first series of interfaces involving the interconnection of five systems:

- the Human Resource Management System (HRMS) in SAP



CIFM combines data and drawings, generating management reports

- the ESA Operational Data Store (ODS), in Oracle
- the ESA Directory, in Lotus Domino
- the Name and Address Book (N&AB), in Lotus Domino
- the new ESA Facility Management System (CIFM), in Archibus/FM.

As a result, twice a day CIFM receives the updated organizational structure and staff list from HRMS and returns the actual accommodation data (telephone numbers, office indication, etc). Similarly all data regarding contractors working on ESA premises are collected in CIFM and propagated to the other directories.

In July 2004 at ESTEC, another interface was opened with an information system owned and operated by the external contractor responsible for maintenance on the site, with updated status reports being regularly fed back to CIFM. This is a first example of closer interaction with contractor systems, which will become

more common in the framework of advanced outsourcing.

Looking to the Future

Due to ARCHIBUS/FM's modularity, scalability and inherent growth potential, there are several areas where future expansion can be envisaged. Firstly, interesting new functions can be activated within the modules presently in use, such as greater interaction with contractor company information systems.

The definition of a 'facility' can also be expanded to include areas not falling under the authority of Site Management Services, but requiring substantially similar functionality in terms of management, maintenance, utilization schedules and so on. Facilities ranging from technical laboratories and antenna installations to technical equipment could find CIFM a natural interpreter of their management needs.

One direction of future evolution is certainly that of stronger integration with ESA's other corporate information systems, where CIFM could be enhanced in scope by including other data sectors presently not managed in an integrated way, and in performance by replacing present batch-based data-exchange methods with more advanced real-time paradigms. Other ESA sites, including remote offices and ground stations, could also be made part of the same facility-management system in order to benefit from the centralised management and reporting capabilities.

The power and the flexibility of the Agency's new CIFM system certainly provides a solid basis not only for managing the present processes, but also for meeting the Agency's evolving and ever more demanding site-management needs in the years to come. r

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