

THE COMPUTERWORLD HONORS PROGRAM

CASE STUDY



LOCATION:
Koeln, Germany

YEAR:
2006

STATUS:
Laureate

CATEGORY:
Science

NOMINATING COMPANY:
IBM Corporation

ORGANIZATION:

Institute of Training Science and Sport Informatics

PROJECT NAME:

Technology Enables University Intellectual Capital Management

Summary

The German Sport University Cologne combines sports-related research, education, performance diagnostics and training sciences. Among its clients are students, coaches and athletes. As a first, the university's intellectual capital management system provides integrated access to each athlete's performance and diagnostics data in multimedia electronic records, complemented by relevant eLearning materials via the university's Online Campus, all based on new, sound and reliable scientific insights.

Introductory Overview

Today, it is obvious that a university's Internet portal and web-based services are crucial quality criteria for its positioning and profile with students, researchers and the larger public. As international leader in its market segment, the German Sport University Cologne (GSU) aims to bring its „intellectual capital“ closer and more targeted to its various customer groups. To optimize support for research, education and sports practice, GSU leadership decided to pursue the development of an integrated “Intellectual Capital Management” System (ICM). In addition to Technology Capital – store-and-retrieve technologies – three further types of capital are taken into account: Human – each individual's knowledge and capabilities, Structural – knowledge embodied, internalized, systemized and processed within the organization, as well as Relational – referring to the university's wide set of economical, political and institutional relationships.

Large software packages – such as the IBM Content Manager, WebSphere Portal and Workplace together with Tivoli Access and Identity Manager – enable GSU's Online Campus, numerous multimedia eLearning products, project rooms, team collaboration, web conferencing, the digital media archive as well as the Electronic Athlete's Record System for capture, storage, aggregation and statistical analysis of diagnostic data across research departments. In the past, large investments in the area of Technology Capital have led to improvements in IT infrastructure and capacities. Since 2001, the growth of Human Capital has been further supported by production and access to multimedia eLearning materials. With the introduction of single-sign-on services, employees, students, researchers and athletes shall soon have convenient, personalized and integrated access to their own HR, diagnostic and/or exam data as well as being able to perform



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searches across the university's eLearning, knowledge and study data bases. Structural Capital has been strengthened by the introduction of new organizational units and business models, such as the CIO (Chief Information Officer) and CTO (Chief Technology Officer) positions, the Sport-eL Factory (production of multimedia learning materials), the Electronic Athlete's Record System and ePublishing. Next to implement are the GSU Online Shop and eCommerce business models. Relational Capital exists in projects with other research institutions, sports clubs, national and international professional associations and shall further be supported by offering efficient communication and collaboration technologies.

Benefits

With a single-sign-on, coaches and athletes now have access to the history of each individual athlete's performance and diagnostic data, together with video footage and graphical analysis. These data used to be spread out in different file systems, institutions and on paper, rarely accessible in one place. With GSU's Electronic Athlete's Records, data stored in the system now allow for the monitoring of each athlete's development and helps plan training measures and schedules; and it is also being used in scientific studies to better understand performance development and the influence of various parameters, ranging from genetics to specific training measures and responses on biomolecular levels.

Today, vast amounts of information are available via the Internet. However, reliable insights and sound scientific knowledge are hard to find or filter out. Worldwide, GSU-Cologne has a high reputation in the sport sciences because of its renowned experts. Technology now enables convenient access to that expertise and information via the GSU Online Campus, the Digital Media Archive and the GSU Online Shop.

As a public university, GSU leadership is faced with continuous budget cuts. Streamlining of administrative processes – i.e. the integration of user directories for identity management and single-sign-on services - is thus paramount to keep administrative costs in check and to free employees for new tasks. The other option to deal with lower budgets, is to increase income. At GSU, this means using technology to engage in new business endeavors such as ePublishing and the GSU Online Shop. Last century, scientific knowledge was published in textbooks, with large parts of the profits going to the publishing companies. Now, using multimedia and eCommerce technologies, the university cuts out the middlemen - the publishers - and instead engages in ePublishing and online sales of multimedia "textbooks." Benefits are twofold: First, profits go to the university and the authors directly; second, digital materials are of higher usefulness, particularly in sports, because they include rich video and animated materials.

Parts of the IT-concept and infrastructure have already been embraced by further universities in North Rhine-Westphalia, most of them concentrating on the area of streamlining administrative processes by introducing identity management and directory integration. Other institutions focus on eLearning. In effect, however, all aspects of the GSU's overall Intellectual Capital Management approach can be applied by other organizations, depending largely on their strategic goals and directions.



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The Importance of Technology

GSU's IT architecture and services are built on IBM WebSphere, Collaborative Workplace, Content Manager, Tivoli Access and Identity Management as well as on the IBM eCommerce Suite, WebSphere Digital Media Enabler and SealedMedia Software for copyright protection and control. Only strategic long-term integration of these large software packages enables the university to serve its many different "client" groups with personalized single-sign-on services. For the employee, for example, this means immediate access to different HR applications as well as his/her colleagues via sametime collaboration functions such as awareness, peoplefinder and chat. A student-athlete now has a personalized "one-stop-shopping" site for access to his/her course materials, exam results, latest diagnostic data as well as training recommendations and relevant learning modules.

Originality

GSU-Cologne is the first university to use IT technology not only to tackle the integration of traditional HR, education and research packages, but to also extend its technical and scientific expertise to open new markets in ePublishing with its Online Shop as well as in Elite/High Performance Athletics with its Electronic Athlete's Record System.

In the pursuit of these entrepreneurial activities, GSU Cologne is transforming its technology investments into human, structural, relational and financial capital gains.

Success

The Electronic Athlete's Record System filled a market gap. "To optimize our athletes' performance and training, we need more knowledge from the basic sciences directly applied to each individual athlete. We are looking for competitive advantages in the international arena ... and are fortunate to be able to cooperate closely with science and technology experts from GSU-Cologne," says Michael Scharf, Director of the Olympic Training Center Köln-Bonn-Leverkusen. Initiated and developed at GSU-Cologne, the Electronic Athlete's Record System is now being endorsed and supported by the Sports Foundation and the Government of North Rhine-Westphalia, thereby creating a high wave of demand from other German States and federal sport associations.

GSU's 7000 students quickly took to the Online Campus as the source for all study and course materials, thereby pressuring the late-adopter faculty members into action. Streamlining and reorganization of administrative processes is still ongoing. The Sport-eL and ePublishing business line has resulted in a cooperation project with the German Tennis Federation, thereby sparking interest in similar endeavors for co-production of digital learning materials from other sport associations.



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Difficulty

External demand for GSU's products and services, such as digital learning materials and Electronic Athletes' Records, has not been a problem at all. There are real market gaps. However, creating a broad understanding among GSU's employees that processes and infrastructure need to change to ensure the university's survival and competitive positioning has been a challenge. And it was compounded by the fact that such an innovative integrated IT-architecture - enabling new business endeavors as pursued by GSU-Cologne - does not currently exist anywhere else. Furthermore, people are used to installing small ready-made solutions that show quick results. The task of integrating an institution's directories together with the implementation of large software packages, however, requires time and substantial IT-skills before successes become visible to the end-user.

Cooperation with the IBM Lab in Böblingen, including a longer stay of the university's CTO in the Lab, has helped to generate considerable progress in the project, resulting in the visibility of new functions for the end-users, such as the ability to search the media archive from within the new GSU Portal. Each of these successes generates excitement and momentum for the overall project "Intellectual Capital Management" at GSU-Cologne.