

# Rationalization of the investment on information resources in libraries: a case study at the Library of the University of Almeria (Spain)

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## Streszczenie

The economic situation Europe is currently experiencing, and consequently, the constant economic adjustments set by Public Administrations of European countries, are forcing the university libraries to rethink their acquisitions policies under the criteria of use and cost, in order to achieve a greater efficiency in terms of offered services, available resources and invested budget.

The aim of this paper is to describe how the Library of the University of Almeria (Spain) is acting in this environment, producing annual assessment reports of its information resources, and using them as the basis for raising its budget.

This evaluation includes both the electronic resources (through detailed studies of the number of searches and downloaded documents in all subscribed e-journals and e-books databases) and the recommended bibliography for students in printed format (through the analysis of the number of loans and the use in the reading rooms).

As a result of this analysis, adaptation of the bibliographic collection to the users' needs, modification of the staff workloads, and accuracy of the librarians training programs, have been achieved.

## Słowa kluczowe

university libraries, electronic information resources, assessment in libraries, Library of the University of Almeria (Spain)

## Introduction

The continuous redefinition of the Library role at the University, exceeding a Service only intended to support study and teaching, and, above all, the need of a clear accountability of public annual budget in the current situation of financial crisis, has led us to the adoption of new criteria for the acquisition of information resources based on the constant assessment of their use and efficiency.

The goal of this paper is to describe how the Library of the University of Almeria (Spain) is acting in this environment, producing annual assessment reports of its information resources, and using them as the basis for raising its budget. This constant of evaluating each year the available resources and the offered services has been reflected in the recent creation of a new position in our organizational structure, "Evaluation of Resources and Services Manager".

## Methodology

The research methodology is based on the analysis of annual information resources reports.

## Background

During the last years, in general terms, we have evolved from a situation characterized by:

- Acquisition and cancellation of electronic resources on demand from our teachers / researchers
- Increasing annual budgets (based on the maintenance of existing resources to whom new titles were annually added)
- Acquisition of printed resources (recommended bibliography for students) at the request of the teachers and following the recommended ratios, in terms of number of copies according to the number of students, without the intervention of the Library.

To the current situation in which, in general terms:

- Budget is built after the analysis of the use of each information resource during the year in progress and reviewing the use during the last 3 years
- Information resources that have been of a very limited use, and consequently, present a very high cost per use are cancelled
- The Interlibrary Loan Service is empowered, so our researchers can continue accessing the information needed, with the Library commitment of obtaining the requested documents within a period no longer than 48 hours
- The recommended bibliography for students is acquired at the request of the teachers but Library is involved in terms of the number of copies, equally according to the use (number of loans per copy) of the printed books. Usage data are provided to the University teachers each four months during the academic course.

Information about the 2012 Evaluation Resources Report (based on 2011 data), and the consequent decision making during the financial year are shown below.

## The analysis of the use of the Electronic Collection

As the initial data we will mentioned that our Library acquires its electronic resources in two ways:

1-Acquisition by Consortium at the University Libraries Consortium of Andalucia (CBUA): 10 Public University Libraries acquire electronic resources cooperatively. The cost is assumed in its 80% by the Autonomus Community and 20% by the Universities, with a total budget of about 7 millions of euros.

2-Acquisition by University of Almeria: for the resources that we need but that are not acquired by the Consortium. In 2011 our investment for this matter was of 386.533 euros, more than 50% of our total budget. In this article we will refer to these resources.

Our Library builds its electronic resources collection according to a subject classification correspondent to the degrees and doctorates offered by the University, distributed as follows:

Electronic Resource	Total
ACM	2.750,70 €
ACS	26.118,00 €
Agricultural Science Collection	2.950,00 €
ASABE	1.171,66 €
Current Protocols	16.677,85 €
Encyclopedia of Geology	268,75 €
Encyclopedia of Life Science (eLS)	2.088,95 €
Mathdi	780,00 €
Nature NPG (suscritas UAL)	12.131,00 €
Página del medio ambiente	833,00 €
RSC Royal Society of Chemistry	8.084,41 €
Science	5.556,67 €
<b>Science and Technology</b>	<b>79.410,99 €</b>

Table 1. Electronic resources per subject area and cost.

Electronic Resource	Total
CIBERINDEX	110,00 €
Cinahl	10.546,66 €
<b>Health Sciences</b>	<b>10.656,66 €</b>

Table 2. Electronic resources per subject area and cost.

Electronic Resource	Total
American Accounting Association	1.116,02 €
Atlas Fiscal	1.101,57 €
Doctrina La Ley	5.636,86 €
E-Deusto Pack	634,00 €
Fiuris	0,00 €
ProQuest Sociology	8.563,00 €
PSICODOC	1.350,65 €
Social Services Abstracts	0,00 €
Sociological Abstracts	0,00 €
Westlaw UK	7.670,00 €
<b>Social Sciences</b>	<b>26.072,10</b>

Table 3. Electronic resources per subject area and cost.

Electronic Resource	Total
CSIC	1.999,00 €
DIALNET	2.000,00 €
Gran Enciclopedia Planeta	1.237,50 €
ISSN Compact	2.300,00 €
Oxford Reference Online	4.507,60 €
REBIUN	3.300,00 €
SAGE	5.091,86 €
Suscripciones Extranjeras (EBSCO, hasta 2011)	223.628,76 €
Ulrichweb	2.610,00 €
WOK	4.130,00 €
<b>General and Reference</b>	<b>250.804,72</b>

Table 4. Electronic resources per subject area and cost.

Electronic Resources	Total
Bibliografía de la Literatura Española	771,00 €
Dyabola	151,00 €
Education Abstract Full Text	5.120,00 €
E-Excellence	1.440,00 €
L'Année Philologique	1.369,00 €
Library of Latin	1.775,24 €
Linguistics Abstracts Online	2.590,00 €
Linguistics and Language Behavior Abstracts (LLBA)	3.152,00 €
New Pauly Online	162,83 €
Patrologia Graeco Latina	0,00 €
Philosopher's Index	3.058,00 €
Retóricas españolas	0,00 €
Thesaurus Linguae Latinae	0,00 €
<b>Humanities</b>	<b>19.589,07</b>

Table 5. Electronic resources per subject area and cost.

INVESTMENT PER SUBJECT AREA	
Ciencia y Tecnología	79.410,99 €
Ciencias de la Salud	10.656,66 €
Ciencias Sociales	26.072,10 €
General y Referencia	250.804,72 €
Humanidades	19.589,07 €
<b>Total</b>	<b>386.533,54 €</b>

Table 6. Electronic resources per subject area and cost.

## Porcentaje de Inversión por Área Temática

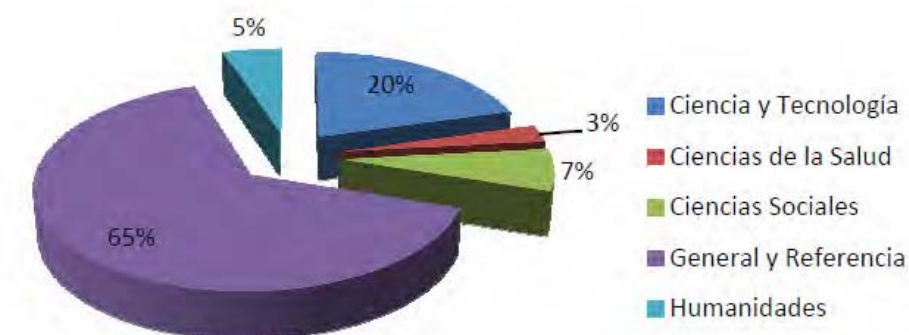


Table 7. Electronic resources investment per subject area.

### DATA OF USE

Data are collected annually, and obtained from the vendors following the COUNTER system. The most significant statistic parameter is the number of searches and downloads per year.

Área	Consultas	Descargas
Ciencia y Tecnología	6.298	10.061
Ciencias de la Salud	10.487	
Ciencias Sociales	26.547	5.954
General y Referencia	127.788	3.241
Humanidades	6.390	53
<b>Total General</b>	<b>177.510</b>	<b>19.309</b>

Table 8. Number of searches and downloads.

The potential users of our resources are 15.251: students (Degrees, Masters and Doctorates), teachers and administration and services staff.

## CATALOGUE OF INDICATORS

## 1. Cost per Search per Resource (only when we can obtain both data).

Subject	Resource	Cost/Search	Cost	Searches
	ACM	9,72 €	2.750,70 €	283
	Agricultural Science Collection	0,87 €	2.950,00 €	3.402
	Mathdi	0,51 €	780,00 €	1.533
	RSC Royal Society of Chemistry	9,73 €	8.084,41 €	831
	Science	22,32 €	5.556,67 €	249
<b>Total: Science and Technology</b>		<b>8,63 €</b>	<b>20.121,78 €</b>	<b>6.298</b>
	CIBERINDEX	0,02 €	110,00 €	6.302
	Cinahl	2,52 €	10.546,66 €	4.185
<b>Total: Health Sciences</b>		<b>1,27 €</b>	<b>10.656,66 €</b>	<b>10.487</b>
	American Accounting Association	5,34 €	1.116,02 €	209
	Atlas Fiscal	22,95 €	1.101,57 €	48
	Doctrina La Ley	3,09 €	5.636,86 €	1.826
	ProQuest Sociology	1,82 €	8.563,00 €	4.702
	PSICODOC	0,10 €	1.350,65 €	14.121
	Social Services Abstracts	0,00 €	0,00 €	2.736
	Sociological Abstracts	0,00 €	0,00 €	2.905
<b>Total: Social Sciences</b>		<b>4,76 €</b>	<b>17.768,10 €</b>	<b>26.547</b>
	CSIC	0,09 €	1.999,00 €	21.526
	DIALNET	0,03 €	2.000,00 €	74.339
	SAGE	7,91 €	5.091,86 €	644
	Suscripciones Extranjeras (EBSCO, hasta 2011)	83,20 €	223.628,76 €	2.688
	WOK	0,14 €	4.130,00 €	28.591
<b>Total: General and Reference</b>		<b>18,27 €</b>	<b>236.849,62 €</b>	<b>127.788</b>
	Bibliografía de la Literatura Española	42,83 €	771,00 €	18
	Education Abstract Full Text	10,06 €	5.120,00 €	509
	L'Année Philologique	28,52 €	1.369,00 €	48
	Library of Latin	147,94 €	1.775,24 €	12
	Linguistics Abstracts Online	199,23 €	2.590,00 €	13
	Linguistics and Language Behavior Abstracts (LLBA)	1,11 €	3.152,00 €	2.838
	New Pauly Online	32,57 €	162,83 €	5
	Philosopher's Index	1,06 €	3.058,00 €	2.877
	Retóricas españolas	0,00 €	0,00 €	3
	Thesaurus Linguae Latinae	0,00 €	0,00 €	67
<b>Total: Humanities</b>		<b>46,33 €</b>	<b>17.998,07 €</b>	<b>6.390</b>
<b>Total: General</b>		<b>21,85 €</b>	<b>303.394,23 €</b>	<b>177.510</b>

Table 9. Cost per Search per Resource.

## 2. Average cost per subject.

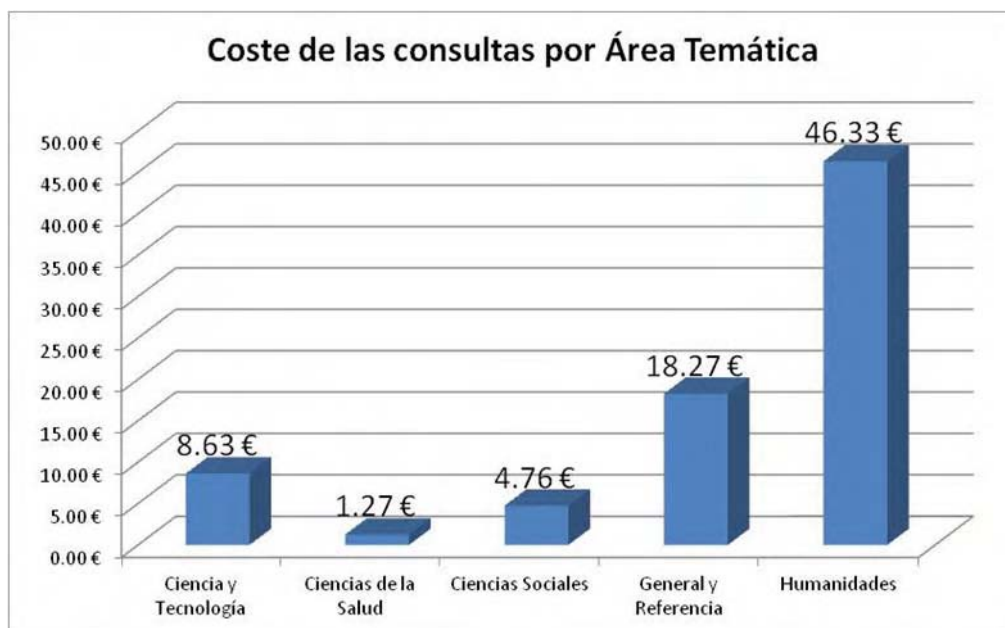


Table 10. Average cost per subject.

## 3. Cost per Download per Resource (only when we can obtain both data).

Subject	Resource	Cost/Download	Cost	Downloads
	ACM	12,23 €	2.750,70 €	225
	ACS	10,49 €	26.118,00 €	2.489
	Agricultural Science Collection	0,79 €	2.950,00 €	3.743
	ASABE	2,39 €	1.171,66 €	491
	Current Protocols	0,00 €	16.677,85 €	0
	Encyclopedia of Geology	26,88 €	268,75 €	10
	Encyclopedia of Life Science (eLS)	13,65 €	2.088,95 €	153
	Nature NPG (suscritas UAL)	32,52 €	12.131,00 €	373
	RSC Royal Society of Chemistry	4,09 €	8.084,41 €	1.975
	Science	9,23 €	5.556,67 €	602
<b>Total: Science and Technology</b>		<b>11,23 €</b>	<b>77.797,99 €</b>	<b>10.061</b>
	American Accounting Association	4,87 €	1.116,02 €	229
	ProQuest Sociology	1,55 €	8.563,00 €	5.542
	Social Services Abstracts	0,00 €	0,00 €	13
	Sociological Abstracts	0,00 €	0,00 €	170
<b>Total: Social Sciences</b>		<b>1,60 €</b>	<b>9.679,02 €</b>	<b>5.954</b>
	SAGE	2,46 €	5.091,86 €	2.073
	Suscripciones Extranjeras (EBSCO, hasta 2011)	191,46 €	223.628,76 €	1.168
<b>Total: General and Reference</b>		<b>96,96 €</b>	<b>228.720,62 €</b>	<b>3.241</b>
	New Pauly Online	3,07 €	162,83 €	53
<b>Total: Humanities</b>		<b>3,07 €</b>	<b>162,83 €</b>	<b>53</b>
<b>Total: General</b>		<b>18,57 €</b>	<b>316.360,46 €</b>	<b>19.309</b>

Table 11. Cost per Download per Resource.

#### 4. Average cost per subject.

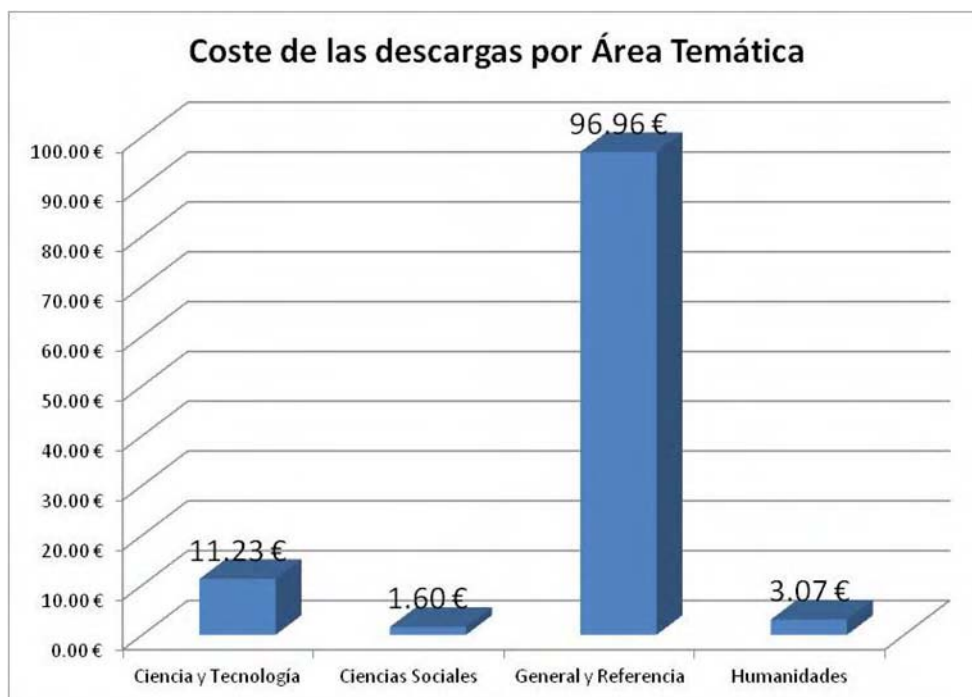


Table 12. Average cost per subject.

The cost / effectiveness is different for each resource, in terms of cost per search and cost per download. So our Library analyzes in a deeper way those resources that present a lower average. The studies are made during the year so we can make an efficient decision before building the next budget.

The actions that were carried out to evaluate the use of an electronic resource as well as the recommended bibliography for students, in order to take decisions about to these resources, will now be presented.

#### A case study: Portal Current Protocols

Firstly, a study case (performed during 2008) is shown over the resource *Portal Current Protocols (Wiley Online Library)*. This resource contains the most important research methods and protocols in life Sciences. Our goal was to make a deeper assessment on it, previously to its renewal.

Our subscription included the following titles:

Current Protocols in Bioinformatics, Current Protocols in Cell Biology, Current Protocols in Cytometry, Current Protocols in Food Analytical Chemistry, Current Protocols in Human Genetics, Current Protocols in Immunology, Current Protocols in Microbiology, Current Protocols in Molecular Biology, Current Protocols in Neuroscience, Current Protocols in Pharmacology, Current Protocols in Protein Science, Current Protocols in Stem Cell Biology, Current Protocols in Toxicology.



Statistical data provided for the vendor were:

- 1- For any subscribed series, the use activity per year / month in the following fields:
  - Abstracts Visits
  - Downloaded Full Texts (HTML, PDF)
  - Access Denied (Rejected accesses to non subscribed titles)
- 2- Total activity per year:
  - Number of Sessions
  - Keywords Searched
  - Number of searches
  - Table of Contents Searches

The analysis was performed during the period January – April 2008, 2007 and 2006. In the last column the downloads percentage over the total downloads is shown:

PRODUCTO	2006	2007	2008 (ene-abr)	TOTALES	%
Current Protocols in Cell Biology	16	221	5	242	36%
Current Protocols in Molecular Biology	35	10	136	181	27%
Current Protocols in Cytometry	23	57	1	81	12%
Current Protocols in Immunology	12	59	3	74	11%
Current Protocols in Toxicology	8	2	37	47	7%
Current Protocols in Neuroscience	12	-	2	14	2%
Current Protocols in Food Analytical Chemistry	4	2	6	12	2%
Current Protocols in Microbiology	1	8	-	9	1%
Current Protocols in Protein Science	3	4	0	7	1%
Current Protocols in Pharmacology	1		1	2	0%
Current Protocols in Stem Cell Biology	-	2	0	2	0%
Current Protocols in Human Genetics	-	1	0	1	0%
Current Protocols in Bioinformatics	-	-	0	0	0%
<b>TOTALES</b>	<b>115</b>	<b>366</b>	<b>191</b>	<b>672</b>	

Table 13. Portal Current Protocols.

The titles Cell Biology, Cytometry, Immunology, Molecular Biology constitute 86% of the total number of downloads. The rest of the titles are considered for their renewal due to low use.

The following actions were performed:

- 1- Our patrons were informed about the electronic resources assessment studies, in order to raise their awareness of the need of efficiency, rationalization, and optimization of our electronic collection.
- 2- Our potential users were informed about the assessment results, and were asked their opinions and comments about it.
- 3- We analyzed the resource visibility and proposed a range of action to increase its use.
- 4- We studied new acquisition formulas that were implemented during the period 2008-2012, with an initial cost of 35.266,84€.

In 2008 we had 14 Protocols subscriber, in 2009 we renewed only the most used 6 of them. In 2012 the full resource subscription was cancelled, with a savings of 12.152€.

Likewise, data from the reports sent to the teachers are presented. The reports are centered on the use of the recommended bibliography for their students, so they might reconsider the relevance of their bibliography or perform the suitable actions for increasing its use. Furthermore, from our web page, an application shows the number of loans per book.

Reporte: Estadísticas de USO

Asignatura [70571203, Álgebra Avanzada](#)

Catálogo	Préstamos	Ejemplares	Título	[10]	[11]
<a href="#">b10420617</a>	15	2	Rings and categories of modules / Frank W. Anderson	1	1
<a href="#">b10284904</a>	10	2	Lectures on modules and rings / T.Y. Lam	1	1
<a href="#">b10137385</a>	8	2	Algebra / Michael Artin	1	1
<a href="#">b12146067</a>	6	2	A first course in noncommutative rings / T.Y. Lam.	1	1
<a href="#">b10318859</a>	1	1	Noncommutative algebra / Benson Farb, R. Keith Dennis.		1
<a href="#">b13176043</a>	0	1	An introduction to homological algebra / Charles A. Weibel.		1
<a href="#">b10448482</a>	0	1	Relative homological algebra by Edgar E. Enochs, Overtoun M.G. Jenda.		1

<b>Catálogo</b>	Enlace al registro bibliográfico del catálogo
<b>Ejemplares</b>	Número de ejemplares de la obra disponibles para consulta en sala y préstamo
<b>Préstamos</b>	Total de préstamos realizados en todas las asignaturas que recomiendan la obra
<b>Título</b>	Título de la obra.
<b>[10]</b>	Número de ejemplares para préstamo a domicilio
<b>[11]</b>	Número de ejemplares para consulta en sala y préstamo de fin de semana.

Table 14. Use of the recommended bibliography.

### The periodical assessment applied to human resources management

The characteristic organizational rigidity in Public Administrations causes, as an immediate consequence, that many positions with certain associated tasks become static positions over time, without having their compositions modified in terms of staffing and procedures (as the technological advances and the subsequent professional changes might recommend).

In our Library a study of workloads has been made, based on variables such as:

- Maximum Library use periods
- Maximum users influx periods
- Maximum training courses (at the Library) periods
- Maximum request and delivery of recommended bibliography periods
- Information resources competitive bidding periods.

And that analysis has given to us enough data to manage our human resources more effectively, especially in the current crisis situation, in which increasing the staff is virtually unviable. At the same time, the automation of a large number of activities carried out in the Library has allowed to us to reallocate a part of the staff for a more specialized service.

The most recent case at the Library of the University of Almería that can illustrate these adjustments in terms of tasks and people is the recent installation of a Radio Frequency System (RFID). One of the objectives that we have tried to pursue (in addition to making the tasks easier to both staff and users) has been the decreasing of the staff tasks around the transactions of loans and returns of books that, up to this moment, has been performed (if not as their only task) 12 people over 12 library opening hours, spread over morning (6 people) and afternoon (6 people) shifts.

Data on the evolution of the number of loans between 2010 and 2012 are shown below:

<u>University of Almeria Collection Loans</u>		
<u>Evolution 2010 - 2012</u>		
Year	Number of Loans	Number of Returns
2010	48.552	46.629
2011	48.498	46.280
2012	50.074	49.324

Table 15. Loans between 2010 and 2012.

Loans between 2010 and 2012

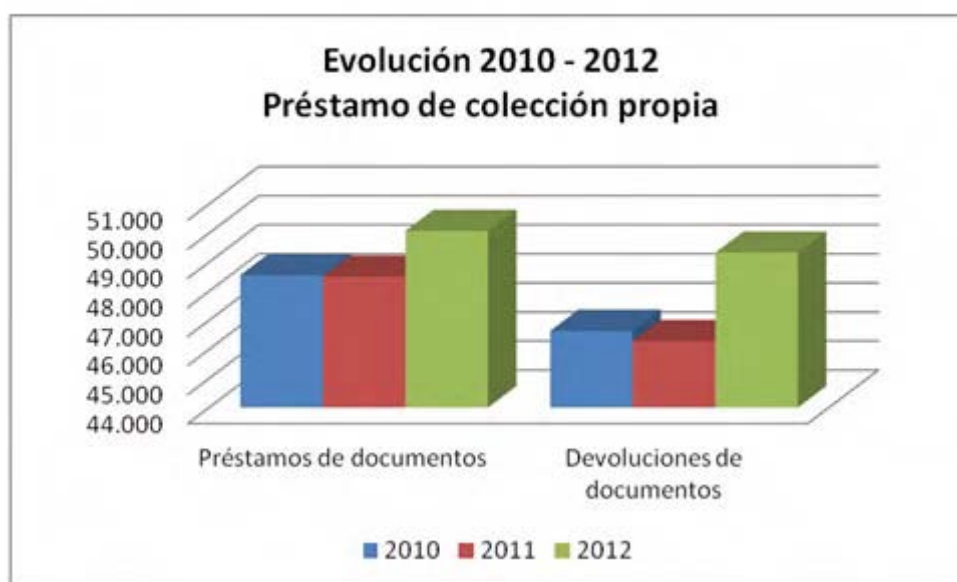


Table 16. Loans between 2010 and 2012.

In 2010 our Library began to work on the implementation of a system of loans and returns self-service, installing a machine to perform these operations. Usage data of the machine between May 2010 and June 2012 didn't give us the satisfactory results that we had expected, due to some problems about the preparation of our collections, as well as the difficulty of identification of users for the use of the machine.

It was in the summer of 2012 when we implemented a global project of radiofrequency, allowing us to have the collection ready to the auto loan machine. Also, we worked with the Information Technology Service of the University of Almería for the easy identification of users through the use of a unique key for all the services of the University. The success of this initiative is shown in the following data.

<u>Auto Loan Machine Use</u>		
<u>Evolution 2010 - 2012</u>		
Year	Number of Loans	Number of Returns
2010*	2953	4667
2011	5967	7646
2012**	2974	4180
2012 (nov.)	4039	2698
*From May 1st		
**From January to June		

**Table 17. Auto loan machine. Evolution 2010-2012.**

As we can see the loans made in a single month (November 2012) outnumbered those made between January and June of the same year, and even equaled the full number of loans of the previous year.

About the number of returns, in just one month, they equaled more than half of the returns made from January to June 2012, and more than 35% of the previous year returns. Let's see the evolution during the year 2012:

Auto loan machine 2012

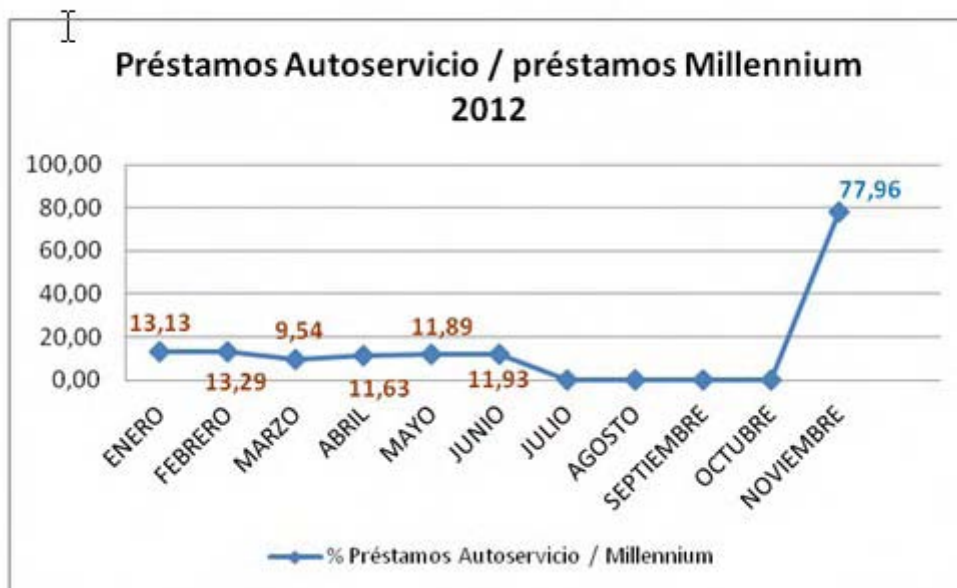


Table 18. Auto loan machine 2012.

Auto loan machine 2012



Table 19. Auto loan machine 2012.

After the implementation and commissioning of the RFID system, the manual loan activities have been reduced about 80%, so the freed staff time is now dedicated to other activities, as is shown below:

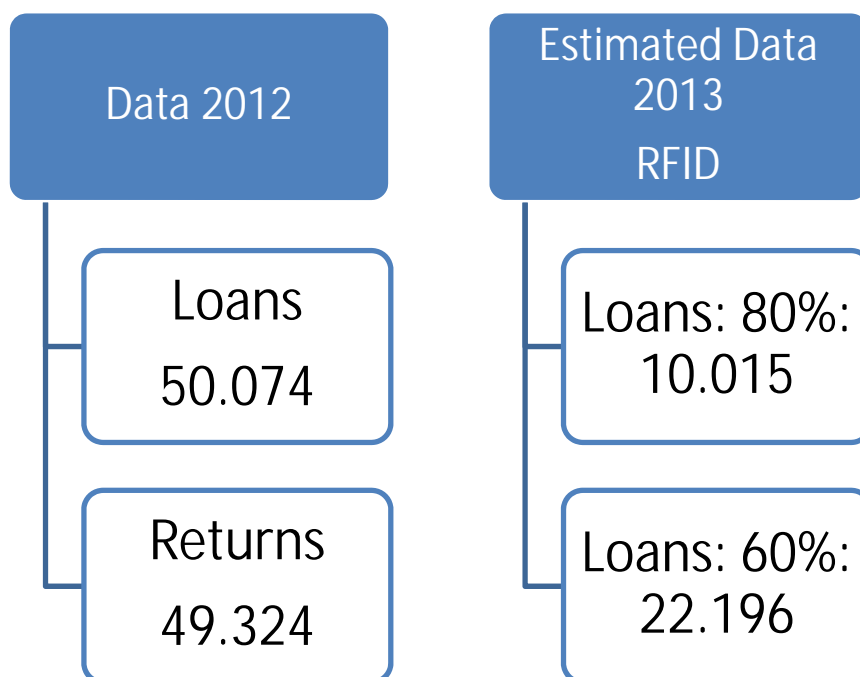
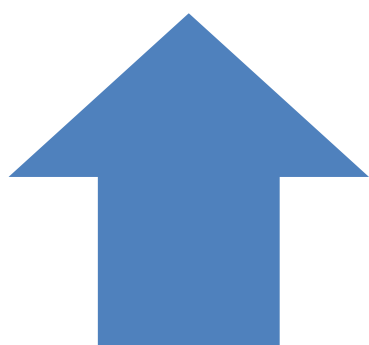
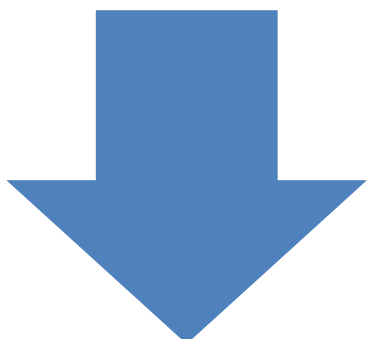


Table 20. Loan with RFID.



### New tasks:

- Giving a more specialised bibliographic information
- Attending new tools for users: chat
- Cooperating in the maintenance of our Institutional Repository



### Training Plan:

- Retrieving information from databases, ejournals, ENCORE
- Chat y FAQs
- Institutional Repository

Table 21. Staff - other activities.

Obviously it is necessary to carry out a staff training plan to achieve the correct development of these new tasks. So annual training plans fully aligned with the objectives are already set out.

It is this latter concept (the establishment of objectives) that is the basis and justification of all of the aforementioned: our Library Management System relies on annual targets with a strict follow-up in terms of their compliance through periodic measurement of performance indicators.

Since 2005, the ISO 9001 Standard Library Certification has enabled us to develop a management system in which data based decision-making has become the foundation of its guidelines.

This way, the basis of our performance is our Quality Management System through Annual Quality Plans (annually audited), each one of them is segmented into three parts that make up a whole. One of these parts, is the Improvement Plan, that includes those objectives and actions to be carried out within one year period in order to improve our working procedures.

Below we can see the 2013 objectives, actions, and the compliance measuring indicators related to electronic resources evaluation and self-service automated loan:

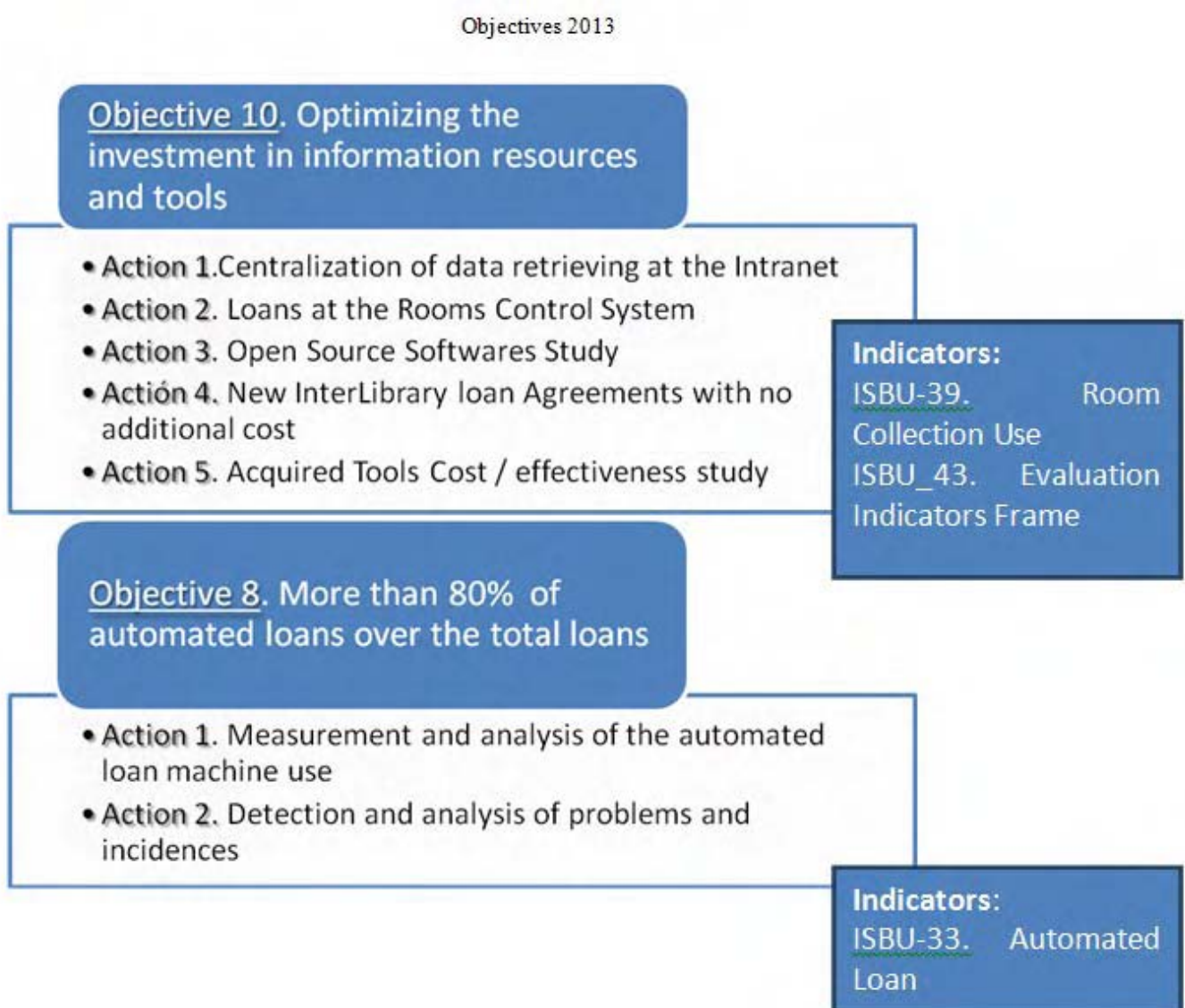


Table 22. Objectives 2013.

## Conclusion

As a conclusion we may outline that what is essential is the exhaustive knowledge of the activities and data use generated in the Library, in order to make more appropriate decisions, which may be consistent with the objectives set by the Institution, and provided with criteria of efficiency in order to provide a qualified service.

### Bibliografia:

- [1] Fry A., *A hybrid model for managing standard usage data: principles for e-resource statistics workflows*, "Serials Review", 2013, Vol. 39, nr 1, s. 21-28.
- [2] Gray H., Sutton G., Treadway V., *Do quality improvement systems improve health library services? A systematic review*, "Health Information and Libraries", 2012, Vol. 29, nr 3, s. 180-196.
- [3] Kohn K. C., *Usage-based collection evaluation with a curricular focus*, "College and Research Libraries", 2013, Vol. 74, nr 1, s. 85-97.
- [4] Koizumi M., *Theories of strategic management in American libraries: from the 1960s to the 2000s*, "Library and Information Science", 2011, nr 65, s. 37-82.
- [5] Rodriguez Bravo B., Alvite Diez M. L., *An analysis of the use of electronic journals in a Spanish academic context: developments and profitability*, "Serials Review", 2011, Vol. 37, nr 3, s. 181-195.

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