

Best Invest Practice

AXIOM Luminos dRF
at Ziekenhuis Oost-Limburg in Genk

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“Workflow is significantly better compared to the older fluoroscopy equipment. The system’s ergonomic design makes patient positioning much easier, cassette handling is eliminated, and the full integration into HIS/RIS and PACS accelerates workflow.”

Professor Dr. Yvan Palmers
Head of the Medical Imaging Department
Ziekenhuis Oost-Limburg, Genk, Belgium



AXIOM Luminos *d*RF 2-in-1 digital flexibility

How much of a difference does a state-of-the-art digital R/F system really make? In 2007, the imaging department at the Ziekenhuis Oost-Limburg in Genk, Belgium installed an AXIOM Luminos *d*RF system as part of a larger department reorganization. As a recently conducted study at the hospital illustrates, the 2-in-1 flat detector-based, fluoroscopy and radiography solution proved a valuable addition to the department – both clinically and financially.

AXIOM Luminos *d*RF

- Significantly streamlined workflow
- Greater comfort for patients and staff
- Improved cost efficiency



Ziekenhuis Oost-Limburg (ZOL)

Ziekenhuis Oost-Limburg

The Ziekenhuis Oost-Limburg (ZOL) in Genk, Belgium is a regional healthcare facility with activities at three different sites.

- Beds: 822
- Radiologists: 17
- Technicians: 42
- Total exams in imaging department annually: 220,000

Changing the dynamic

Engaging the changing environment

Prior to the installation of the AXIOM Luminos *dRF* in 2007, the hospital's main imaging department largely conducted its around 50,600 radiography and fluoroscopy examinations with analog systems. Located in six different rooms, the systems no longer effectively met the increasing patient volumes and changing clinical needs. The CR cassette technology was very time, labor, space and materials intensive, not to mention, costly.

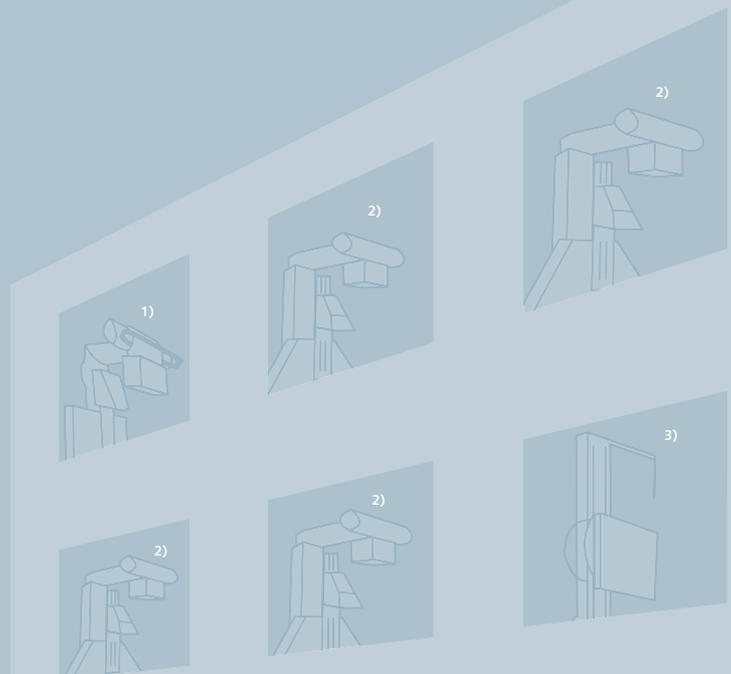
In a bold move, the facility chose to convert its R/F activities to a totally digital workflow by replacing five of its analog systems with two digital systems:

- AXIOM Luminos *dRF*: 2-in-1 flat detector solution for fluoroscopy and radiography
- AXIOM Aristos MX: dedicated flat detector radiography system

Before reorganization

Prior to reorganization, there were six rooms occupied mainly with analog fluoroscopy and radiography equipment.

- 1) AXIOM Iconos R200
- 2) Siregraph
- 3) Vertix with ceiling mounted tube



Doing double time – digitally

As a highly flexible 2-in-1 system for both fluoroscopy and radiography, the AXIOM Luminos dRF is a totally digital R/F solution that allows you to conduct dynamic sequences for fluoroscopy just as easily as create high-resolution radiography images. As a fully digital solution, the system offers numerous other advantages.

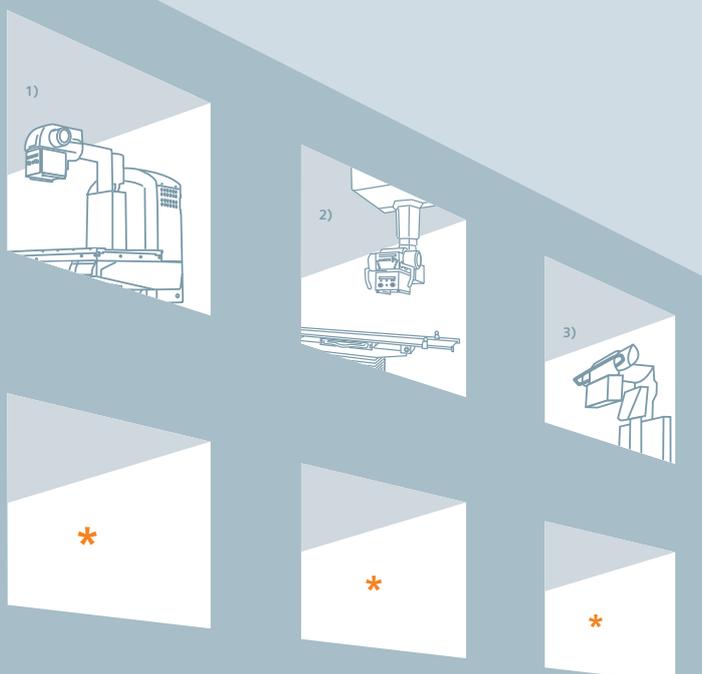
AXIOM Luminos dRF imaging efficiency

- CR cassettes for X-ray procedures completely eliminated
- Images virtually immediately available for review
- Fully integrated into clinical networking (e.g. in HIS/RIS and PACS database systems)
- Superior, workflow-conducive system design
 - low table height (48 cm) for comfortable patient transfer
 - barrier-free patient access, even from the back of the table



After reorganization

Greater flexibility and enhanced workflow: AXIOM Luminos dRF – the 2-in-1 solution for fluoroscopy and radiography



Saving lots of space

The replacement of the five analog systems with the two fully digital solutions, the AXIOM Luminos dRF and the AXIOM Aristos MX, brought with it significant space savings through the reduction of examination rooms from six to three.

- 1) AXIOM Luminos dRF
- 2) AXIOM Aristos MX
- 3) AXIOM Iconos R200

* Free rooms

Changing the outcomes

Faster throughput in fewer rooms

Compared to the previous systems, the AXIOM Luminos *d*RF has greatly facilitated radiography and fluoroscopy examinations at the Ziekenhuis Oost-Limburg. R/F procedures are now conducted faster, with fewer work steps and in half the rooms.



“The table geometry of the AXIOM Luminos *d*RF is truly superior. The lowest position at chair height means much greater comfort for the patient – and the radiographer or nurse.”

Professor Dr. Yvan Palmers

A streamlined workflow

The added clinical value provided by the AXIOM Luminos *dRF* is most visibly apparent in its positive impact on the workflow. Working with the AXIOM Luminos *dRF* offers the potential for:

- Smoother procedures for both patients and staff
- Fewer interruptions (e.g. for cassette handling)
- Almost instant image availability (up to 87% faster than with CR systems)
- Convenient data documentation and archiving
- Faster examinations (up to 56% faster)

Step		Analog fluoroscopy system	AXIOM Luminos <i>dRF</i>
1	Move system into position for patient transfer	00:11	00:09
2	Select patient in worklist	00:26	00:05
3	Call patient; patient arrives	00:20	00:17
4	Scan cassette	00:06	Step eliminated
5	Cassette positioning in Bucky tray	00:24	Step eliminated
6	Patient transfer and positioning	00:24	00:20
7	Generator settings	00:08	Step eliminated
8	System positioning and fine adjustments with fluoroscopy	00:32	00:25
9	1st acquisition	00:04	00:06
10	Scan new cassette	00:02	Step eliminated
11	Exchange cassette	00:09	Step eliminated
12	Patient repositioning	00:21	00:16
13	Generator settings	00:07	Step eliminated
14	System positioning and fine adjustments for fluoroscopy	00:25	00:19
15	2nd acquisition	00:04	00:06
16	Move system into position for patient transfer	00:15	00:05
17	Patient leaves system and room	00:23	00:18
18	Remove cassette	00:11	Step eliminated
19	Scan cassette	00:18	Step eliminated
20	Read and process cassette	01:11	Step eliminated
21	Postprocessing and documentation	00:34	00:27
Total time in minutes		6:33	2:53

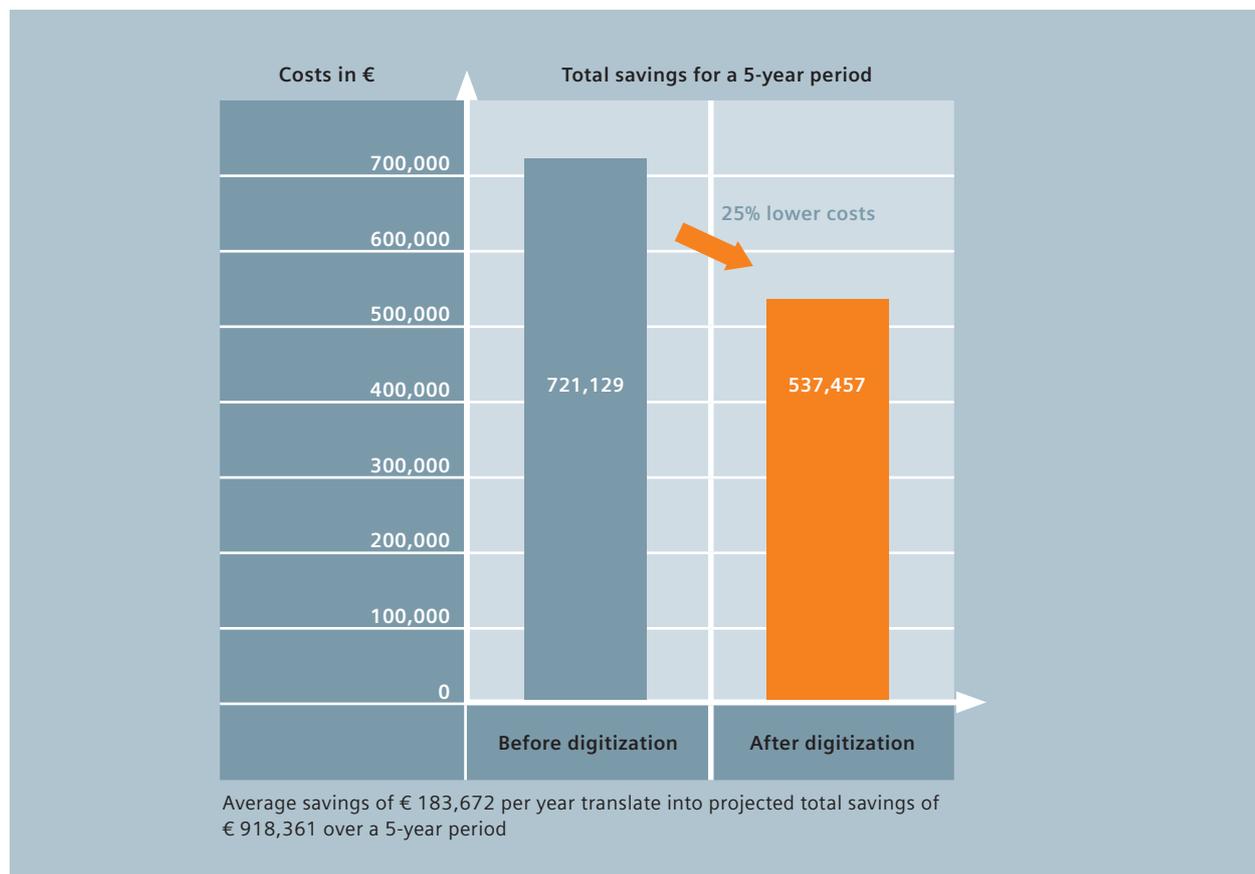
Changing the outcomes

High-performance payoff

The reorganization of the department, particularly the installation of the new digital systems, also proved a wise financial decision – one that really pays off. A cost projection for the next five years calculated overall savings in the area of € 918,000 (or an average annual cost reduction of 25%).

The substantial savings are achieved through reduced costs for:

1. System maintenance
2. Room rental
3. CR cassette handling
4. Films, prints and consumables
5. Labor



Substantial cost savings

Labor

- Less staff needed to operate fewer rooms
- Increased flexibility in imaging department through reallocation of staff

Labor costs reduced by 18% or € 472,500 over 5 years

Maintenance

- Reduction from 6 to 3 rooms
- No maintenance costs during 1st year after installation

Maintenance costs reduced by 41% or € 213,347 over 5 years

Room rental

- Reduction from 6 to 3 rooms (space savings of 111 sq. m)
 - Free rooms for miscellaneous use
- Room rental costs reduced by 37% or € 69,242 over 5 years**

CR cassette handling

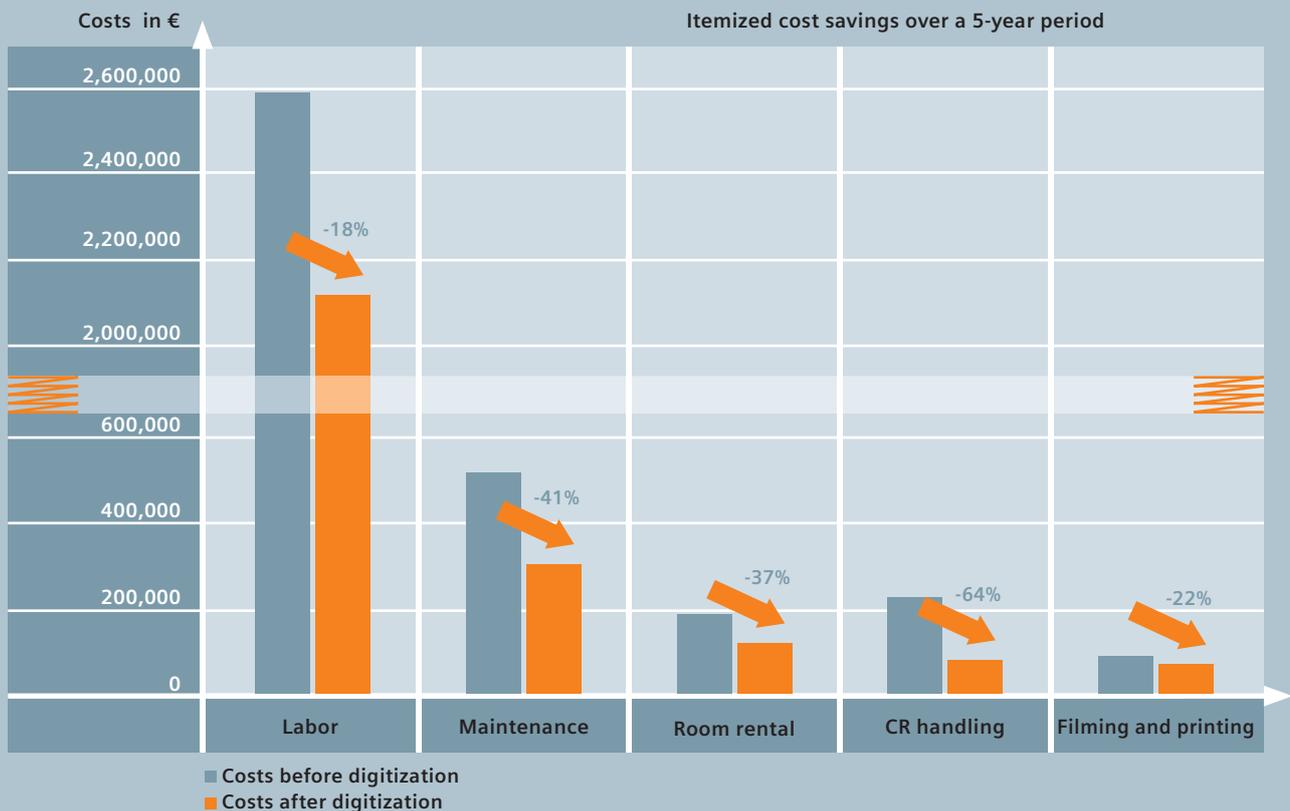
- CR cassette exams greatly reduced
- Much fewer CR cassette replacements
- 2 (of 3) CR readers eliminated (resulting in less maintenance costs)

CR cassette handling costs reduced by 64% or € 143,012 over 5 years

Film and prints

- Greatly reduced film/print quantities
- Fewer consumables

Film and print costs reduced by 22% or € 20,260 over 5 years





“AXIOM Luminos dRF is the most complete X-ray system. With its numerous functionalities and its innovative large coverage flat detector, it can be used for many different examinations ranging from fluoroscopy studies to high-resolution radiographic imaging, which allows us to easily react to changing examination mixes.”

Professor Dr. Yvan Palmers





Changing your outlook

Going forward with confidence

The findings of the study indicate that the digitization of the X-ray department at the Ziekenhuis Oost-Limburg significantly improved clinical workflow and efficiency, helping to shorten diagnostic and therapeutic decision-making while enhancing treatment quality and patient comfort.

In addition to the substantial projected cost savings, the department's new systems mix also offers the institute greater flexibility to react to future changes in the clinical environment – and to go forward with greater confidence.

Best Invest Impact

- Faster and smoother examinations
- Nine fewer work steps
- Reduction in patient examination time by 56%
- Images virtually instantly available for diagnosis
- Cassette acquisitions reduced to a minimum
- Reduction of X-ray rooms from six to three
- Greater patient comfort and faster patient transfers
- More efficient use of staff working hours
- Substantial cost savings of € 918,361 over a 5-year period
- 25% lower costs per year

Best Invest Spotlight

Acquisitions with the CR cassettes of the analog fluoroscopy systems required 21 work steps. With the fully digital AXIOM Luminos dRF and its flat detector, the same examination can be performed in 12 work steps, resulting in time savings of up to 56%.

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