



Ministry of Higher Education & Scientific Research  
CCK – Computing Center of Khwarezmi



Tuesday, April 27, 2026

# Digital Transformation Portfolio

## Cloud and HPC: a Higher Education & Research Infrastructure

### 2021 – 2026 and beyond



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01

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Vision, objectives & strategic recommendations

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11 projects delivered

03

### Ongoing Projects

8 projects in progress & expected completion dates

04

### Planned Projects (2026-2030)

11 projects & roadmap



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# 01

# Digital Transformation Strategy

Vision, Objectives & Strategic Axes



VISION: 2021

Making higher education and scientific research a modern sector, meeting society's needs for lifelong learning and research, in harmony with the socioeconomic environment — positioning Tunisia as a renowned international hub.



Lifelong Learning

Research & Innovation

Digital Governance

International Hub

# Continuous Strategy Development



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Sept 2021

Launch of Digital Transformation Strategy with World Bank & British Embassy support — two international experts engaged.

Jan 2022

Final strategy document released in January 2022.  
Sector Steering Committee (CPTN) established on January 6, 2022 at the Ministry.

2022-2026

Implementation of strategic axes: infrastructure & network, AI, software, digital skills, governance & scientific research.




2026


Active strategy update leveraging achievements to date; roadmap for the next coming quintet (2026-2030).




## 8 Strategic Axes of the Digital Transformation Plan dealing with :



**01**  
Higher Education  
*e.g. "Elm" AI-powered Digital Library*




**02**  
Scientific Research & Innovation




**03**  
Contribution to the Community




**04**  
Institutional Policies  
*e.g. Integrated Sectorial Information System*




**05**  
Digital Skills  
*e.g. Open courses in AI technologies*



**06**  
Infrastructure  
*e.g. Cloud, HPC, University networks*



**07**  
Governance  
*e.g. First Digital Steering Committee (CPTN)*



**08**  
Administrative Framework

# Strategic Recommendations Overview



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## Political – Governance

- Strengthen digital regulatory framework
- Implement transversal governance system
- Optimize HR capacity & organization

## Operational – Quality & Skills

- Quality assurance mechanisms
- Digital competency framework
- Update curricula for digital skills
- Collaborative work culture
- Information security procedures
- Business continuity system

## Functional – Technology & Infrastructure

- Inventory of digital services & action plan
- Sectorial information system with interoperability
- Upgrade digital infrastructure
- New services for higher education modernization

Full details available in Appendix 1

# 2022 Strategic Plan – Key projects



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## "Elm" Digital Library AI augmented

AI-powered academic library system



## Integrated Info System

Sectorial information system development



## Open AI Courses

Training in AI & digital project management



## Cloud & HPC Infrastructure

Cloud, High-Performance Computing & networks



## Networking

Software defined WAN



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# 02

## Projects Under the Digital Transformation Strategy

Structural projects, statistics & project categories

# Key Statistics



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30

Total Projects

*across all axes*

11

Completed

*2021-2025*

8

In Progress

*active delivery*

11

Planned

*2026-2030*

## Current Portfolio Progress



37% Completed

27% In Progress

37% Planned

# Governance Projects



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Status	Project	Domain
Completed	Sectorial Information System Study	Study
Planned	AMOA Selection for IS Project (Project Management Support)	Governance
Planned	Digital PMO & EPPM Portfolio Management System	Governance & System
Planned	Conversion of Khwarizmi Centre to Non-Administrative Public Entity	Governance
1 Completed	0 In Progress	3 Planned

# Software Projects



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Status	Project	Domain
Completed	Academic Degree Digitization via QR Code	System
Completed	"Masari" Student Enrollment Digitization (Interoperability)	System + Interop
Completed	Internal Promotion System	System
Completed	University Degree Equivalence Requests System	System
In Progress	University Degree Catalogue	System
In Progress	Sectorial Information System	Integrated Systems
In Progress	Private Higher Education Management System	System
In Progress	Engineering Entrance Exam Digitization System	System
In Progress	International Students Management System	System

+ 8 additional projects (planned) — see roadmap

4 Completed

6 In Progress

7 Planned

# Infrastructure Projects – Network & Cloud



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Status	Project	Domain	%
Completed	Cloud Infrastructure Phase 1: E-Learning & Legacy Website Hosting	Infra & System	100%
Completed	Cloud Infrastructure Phase 2: New IS Hosting & Cybersecurity Services	Infra & System	100%
Completed	"ELM" Digital Library System (AI + 8 GPU Supercomputer)	Infra & System	100%
Completed	Advanced Campus Monitoring System	Infra & System	100%
Completed	New Router Deployment for Secure Internet Connectivity	Network Infra	100%
In Progress	HPC High-Performance Computer (China-funded) Installation	Infra & System	~70%
In Progress	CCK Data Centre Power Renovation (Manouba Zone 1 & El Manar Zone 2)	Infrastructure	Starting
Planned	Cloud Infrastructure Phase 3: Disaster Recovery and security System	Infra & System	2027
Planned	Fiber Optic & Wireless Network for University Campuses	Network Infra	2026 RFP
5 Completed		2 In Progress	2 Planned

# 03

## Completed Projects 2021 – 2025

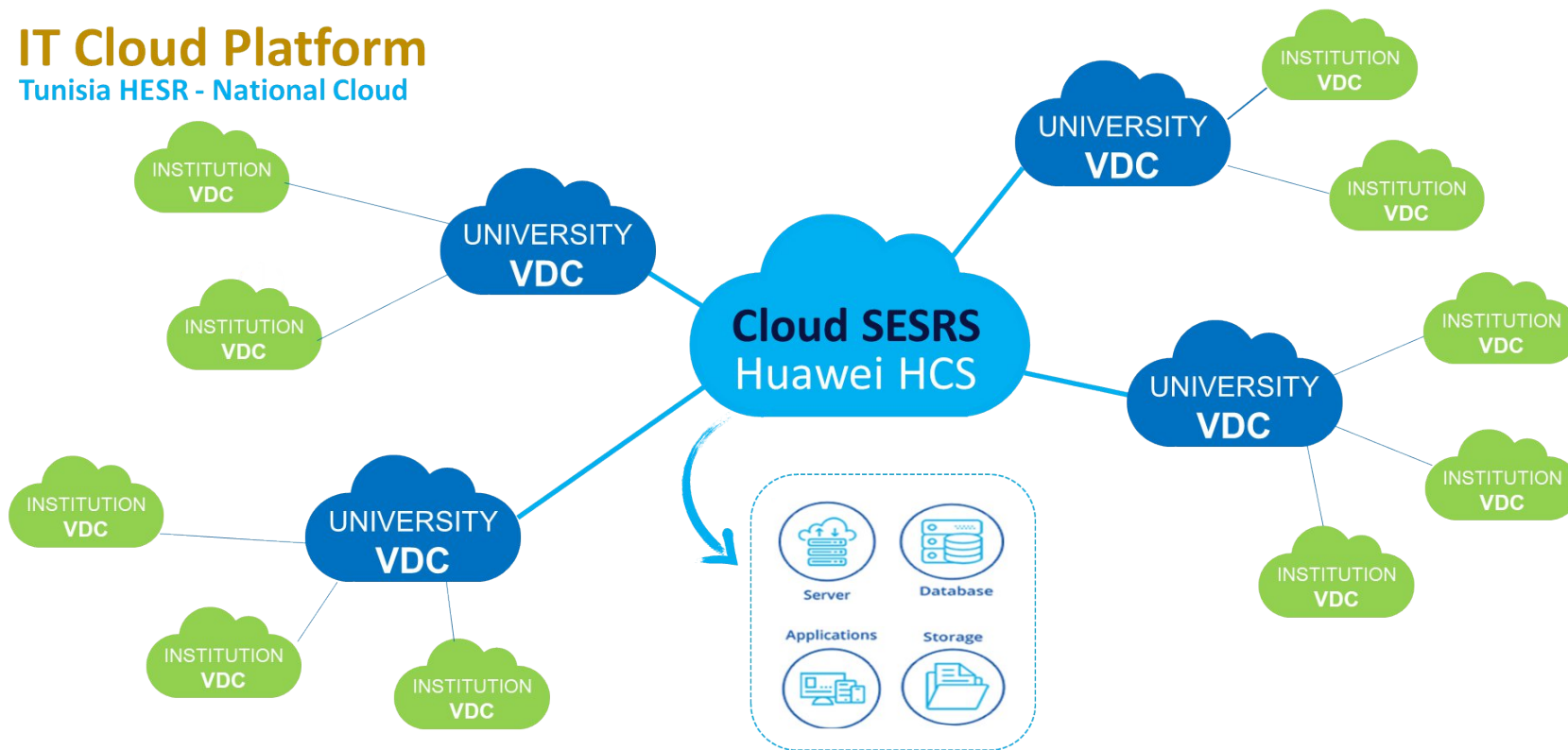
11 Projects Successfully Delivered





## IT Cloud Platform

Tunisia HESR - National Cloud

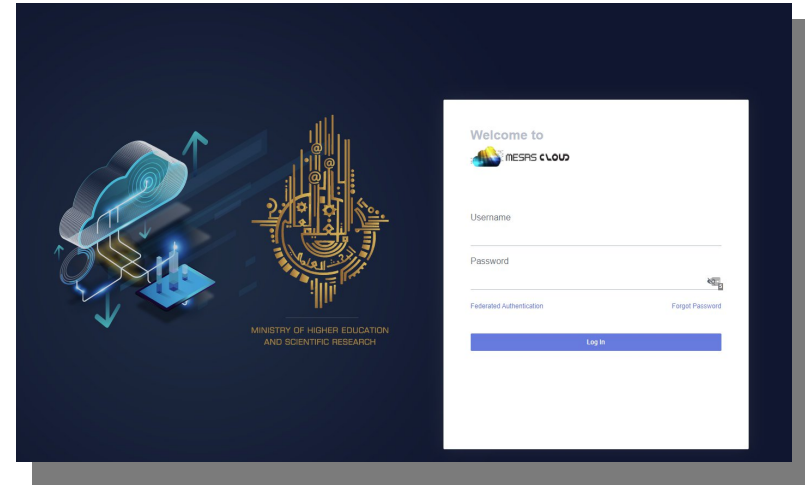
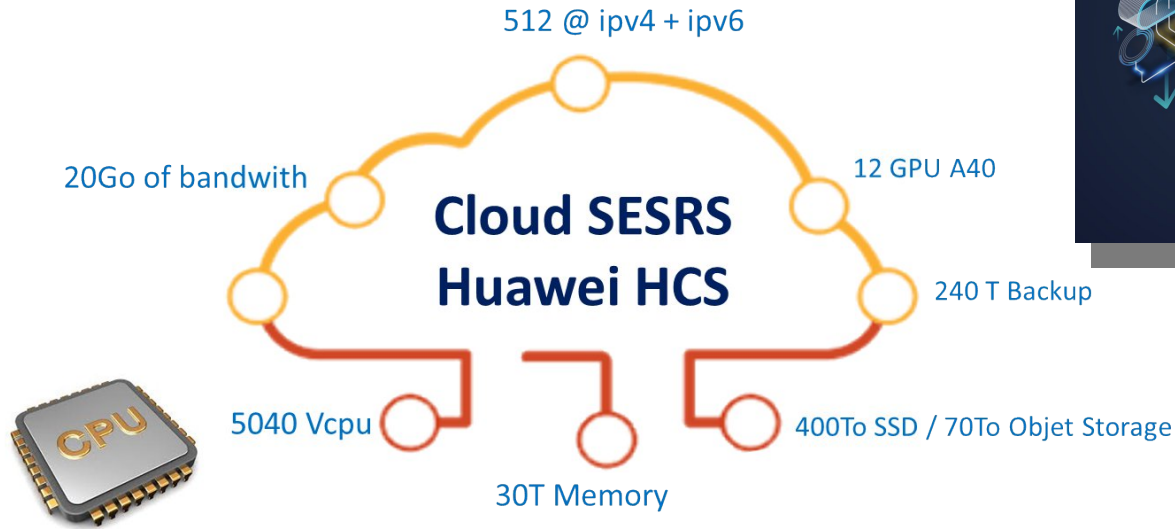


The platform explicitly supports the IT activities of the academic community, ensuring better performance and stability for Workloads:

- **Video conferencing such as BigBlueBotton (BBB),**
- **E-learning applications : Moodle...**
- **Online practicals and End of study projects**
- **3D processing applications;**
- **ERPs;**
- **VDI Remote Desktop**



This cloud project allows the sharing of IT infrastructures; it offers IT resources and services on demand.



# Cloud : Region 2



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December 15, 2025



# "ELM-Elearning Mentor" AI-Powered Digital Library



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## System Overview

- AI-powered academic digital library
  - Supercomputer: 8× Nvidia L40S 48GB GDDR6 GPUs
  - CPU: 2× AMD EPYC 7783 (64 cores each)
  - RAM: 512 GB DDR4 ECC Registered
  - Primary Storage: Samsung 990 PRO 2TB NVMe
  - Secondary Storage: 4× Micron 7450 Pro 7.68TB
- Status: 100% complete — operational
  - AI with three different languages
    - Research, Learnings, exams, ...
  - Free access to all Tunisian students
  - More than 600 books
  - Mobile application

8× GPUs

Nvidia L40S 48GB

128 Cores

2× AMD EPYC

512 GB

ECC RAM

30+ TB

Total Storage

# "ELM-Elearning Mentor" AI-Powered Digital Library



Français Connexion Commencez maintenant

## Bienvenue sur ELM

Découvrez une nouvelle dimension de l'apprentissage avec notre application innovante qui combine la technologie IA de pointe à une plateforme de lecture fluide. Améliorez votre compréhension, organisez votre emploi du temps et embarquez dans un parcours d'apprentissage personnalisé



Inscrivez-vous gratuitement

Supporté par  MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH



## SuperServer AS -4125GS

MotherBoard

ASUS ESC8000A-E11

CPU

2x AMD EPYC 7783 64 Cores, 2.45 GHz, Boost 3.5 GHz, 256MB Cache

GPU

8x Nvidia L40S 48GB GDDR6

RAM

16x 32GB DDR4 3200 MHz ECC REG (512 GB total)

PRIMARY STORAGE

SSD Samsung 990 PRO 2TB M.2 NVMe

SECONDARY STORAGE

4x SSD MICRON 7450 PRO 7.68TB



العدد	المادة	الوقت	الرمز الفريد
33	تاريخ الإسلام من قرطبة مع الأندلس	1	رمز فريد
34	التاريخ الإسلامي	2	رمز فريد
35	التاريخ الإسلامي من القرن الثامن عشر	3	رمز فريد
37	التاريخ الإسلامي من القرن الثامن عشر	4	رمز فريد
38	التاريخ الإسلامي من القرن الثامن عشر	5	رمز فريد
60	تاريخ الحضارة الإسلامية	6	رمز فريد
61	تاريخ الحضارة الإسلامية	7	رمز فريد
63	تاريخ الحضارة الإسلامية	8	رمز فريد
64	تاريخ الحضارة الإسلامية	9	رمز فريد
66	التاريخ الإسلامي	10	رمز فريد
70	التاريخ الإسلامي	11	رمز فريد
71	التاريخ الإسلامي	12	رمز فريد
72	تاريخ الحضارة الإسلامية	13	رمز فريد
73	التاريخ الإسلامي	14	رمز فريد
78	التاريخ الإسلامي	15	رمز فريد

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Subscribers, you have received your ELM AI, your essential companion within the e-learning system. It is designed to assist you in your learning journey, providing personalized recommendations and support. Prepare for a history journey with us. Expect insightful chapter summaries and, upon the book's completion, a comprehensive set of 100+ questions to evaluate your learning. Additionally, we provide a unique, thought-provoking comprehension question to enhance your group. Together, we shall master the art of understanding and memorization.



**SOLUTION HUAWEI SD-WAN : GESTION CENTRALISÉE DU RÉSEAU DES UNIVERSITÉS TUNISIENNES PAR LE CCK.**

**1 COUCHES DE GESTION & CONTRÔLE (AU CCK)**  
Gestion Centralisée, Orchestration, IA et Analytique, Sécurité Unifiée

**2 RÉSEAU OVERLAY SD-WAN (VPN)**  
Tunnels Sécurisés

**3 COUCHES D'ACCÈS (SITES UNIVERSITAIRES)**

**ÉQUIPEMENTS CLÉS (HUAWEI)**  
iMaster NCE-Campus  
NetEngine AR Series Routers

**AVANTAGES POUR LE CCK & RUT**  
• Réduction des Coûts (OPEX/CAPEX)  
• Expérience Utilisateur Améliorée  
• Déploiement Agile  
• Sécurité de Bout en Bout

- Intelligent Traffic Steering & Optimization
- Comprehensive Hybrid Networking (5G/MPLS)
- Fast Deployment (Zero-Touch Provisioning)
- Converged Security (Native Security Capabilities)
- Direct Cloud Access

# MEDUSA Cable



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Co-funded by  
the European Union



The Medusa submarine cable is a **transformative**, 8,700-km fiber-optic infrastructure landing in Bizerte, that is set to revolutionize research, education, and digital development in the Tunisia.

- Massive Increase in Data Speed: The cable will increase internet speeds for North African universities by a **factor of 200**
- Direct Access to European Networks: Directly connect Tunisian research centers to the Géant Network, the European high-speed backbone for research and education.
- Support for Future Technologies: The backbone needed for high-performance computing, cloud computing, and artificial intelligence (AI) research
- Enabling Large-Scale Cooperation and Integration with EU Research Ecosystem

# 04

## Ongoing Projects & Expected Completion



8 Projects actively in delivery

# Ongoing Projects (HPC)



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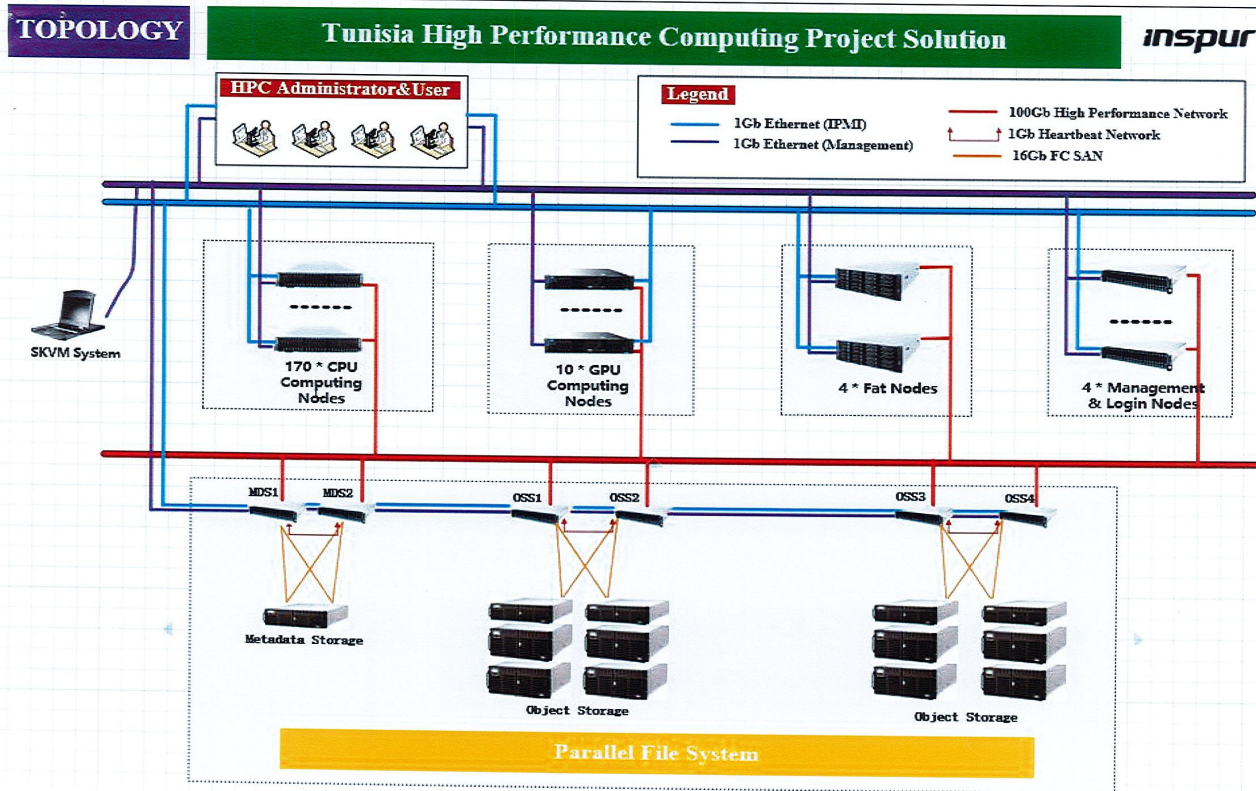


# Compute Architecture Details



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Node Type	Quantity	Configuration	Primary Use
Standard Compute	170 nodes	2× Xeon 6326, 256GB RAM	General HPC
GPU Accelerated	30 nodes	2× Xeon 6342 + 4× A30 GPUs	AI/ML, Visualization
High-Performance	10 nodes	4× Xeon 6348H, 512GB RAM	Memory-intensive
Login/Management	4 nodes	2× Xeon 6326, 256GB RAM	User access

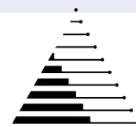


# Performance Calculations : Theoretical Peak Performance



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Component	Formula	Performance
Standard Compute	$170 \times 2.9\text{GHz} \times 16\text{c} \times 2 \times 32$	504.83 TFlops
GPU Nodes (CPU)	$30 \times 2.8\text{GHz} \times 24\text{c} \times 2 \times 32$	129.02 TFlops
High-Perf Servers	$10 \times 2.3\text{GHz} \times 24\text{c} \times 4 \times 32$	70.66 TFlops
<b>TOTAL SYSTEM</b>		<b>704 TFlops</b>



Toubkal  
Supercomputer

3.15	8000	69000	1300
PF of computing capacity	TB of combined storage	CPU cores	Servers

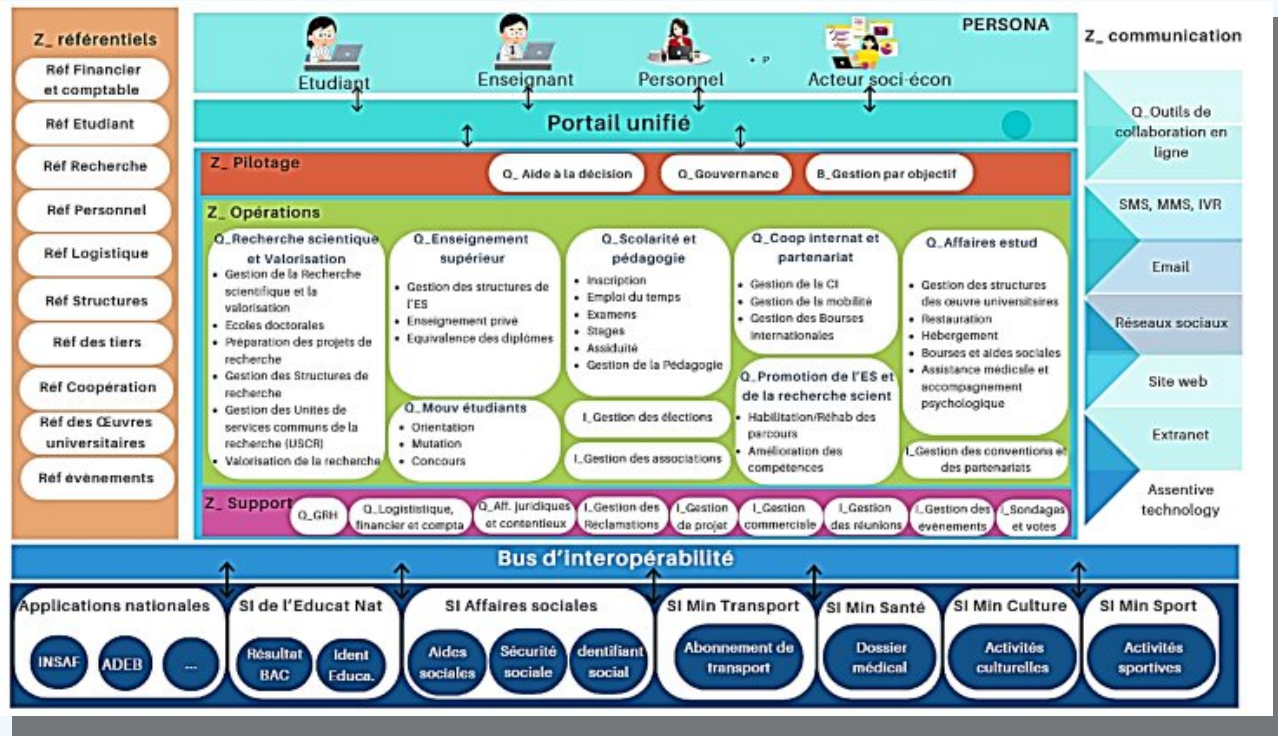
# 05

## Planned Projects 2026 – 2030

11 Projects & Roadmap



# Planned Projects 2026-2030



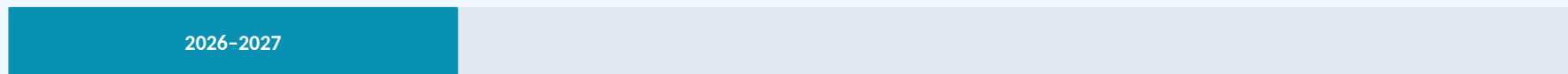
14 different RFQ

- [cahier des charges ERP - Administratif.docx](#)
- [cahier des charges ERP - OCTP.docx](#)
- [CC - AMOA V MESRS.docx](#)
- [CC - AMOA VF.docx](#)
- [CC - Coopération intern.docx](#)
- [CC - Décisionnel.docx](#)
- [CC - Enseign Sup.docx](#)
- [CC - GRH.docx](#)
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- [CC - Oeuvres universitaires.docx](#)
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# Integrated Information System — Implementation Plan

The Sectorial IS Study generated 14 technical specification documents covering all system components.

## Phase 1: Core Systems & Referentials



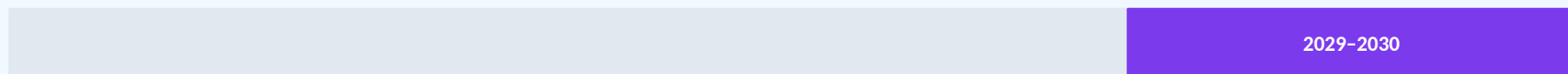
## Phase 2: Student & Academic Systems



## Phase 3: Research & Community



## Phase 4: Governance & Analytics





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# Thank You

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