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Digital Transformation Of The University: Strategic Drivers, Platform Solutions, And Process Transparency

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Abstract: This article aims to demonstrate how strategic drivers and platform solutions shape the architecture of a "digital university" and enhance the transparency of educational and management processes. A comparison of sources identifies the educational core (LMS/learning analytics), management framework (electronic document management, integrations), access and security framework (SSO/ACS), and content services (e-libraries/VR). A proprietary management transparency dashboard (KPI-01…KPI-08), an implementation roadmap, and a risk map for laboratory-dependent areas and staff readiness are presented.

Keywords: Digital transformation; digital university; LMS; learning analytics; SSO; electronic document management; ACS; KPI; management transparency; digital maturity.

Introduction: In higher education, digitalization is interpreted as a managed change in the organization of learning and management, based on data and platform services, rather than as a mechanical transfer of lectures online. S. Yu. Shlyakhina notes: "The core… of big data for managing student trajectories" [1]. As G. Abdullakhanova and N. Alimatova emphasize "The Digital Uzbekistan 2030 strategy orients the system toward continuity and personal trajectories." [2]. The practical outline covers electronic journals, EDI, SSO and access control [4].

The goal is to design a reference architecture of a “digital university” and to determine KPI transparency and offer an implementable roadmap.

METHODS

Theoretical and analytical review with content coding by categories:

1. strategic drivers/policies [1–2],
2. platform solutions (LMS/LA, SSO, EDI, ACS, VR/e-libraries) [1, 4],
3. effects and limitations [1–2, 4].
4. Synthesis method - author's reconstruction of the target architecture, panel KPI and a roadmap.

Limitation: no quantitative experiments; results are of a model-applied nature.

RESULTS

Table 1. Reference architecture of the “digital university”

Layer	Purpose	Key services/components	Note
Educational core	Managing courses and learning data	LMS, learning analytics (LA), e-portfolio	"The core is the trajectory data" [1]
Management circuit	End-to-end business processes of the university	Electronic document management, integration with	Acceleration of approvals [4]

		HR/scheduling, reporting	
Access and Security	Identification, attendance control	SSO, ACS/turnstiles, roles/rights	Transparency and traceability [4]
Content services	Expanding training scenarios	E-libraries, OER/MOOCs, VR/simulators	Access/flexibility [1], [4]
Integration layer	Seamless connectivity of systems	API/data bus, ETL, directory catalog	End-to-end analytics

The table defines the system's target map: training (LMS/LA and content) at the top, integration and security at the bottom. The layered logic allows for implementation planning and aligning responsibilities.

Table 2. **Management Transparency Dashboard**

KPI	Indicator	Formula/method	Target value
KPI-01	Share of logins via SSO	(SSO logins / all logins)×100%	≥ 95%
KPI-02	Completeness of ACS logs	(visits with tag / all classes)×100%	≥ 90%
KPI-03	Documents in EDI, end-to-end route	(through / all in EDI)×100%	≥ 85%
KPI-04	Average approval time	total time / number of documents	↓ quarterly
KPI-05	Courses in LMS	(courses in LMS / all courses)×100%	≥ 90%
KPI-06	Courses with formative assessment	(courses with FO / in LMS)×100%	≥ 70%
KPI-07	LA early warning signal coverage	(students in LA / all)×100%	≥ 95%
KPI-08	Orders closed on time	(closed on time / total)×100%	≥ 90%

Transparency Dashboard KPI Grouping:

- access and identification - KPI-01, KPI-02 ;
- document flow - KPI-03, KPI-04 ;
- training circuit - KPI-05, KPI-06, KPI-07 ;
- execution discipline - KPI-08 .

Brief explanation. The set translates transformation into manageable numbers: "access/identification" (KPI-01, KPI-02), "speed and completeness of document flow" (KPI-03, KPI-04), "maturity of the educational framework" (KPI-05, KPI-06, KPI-07), "executive discipline" (KPI-08). These four baskets are displayed on the administration and service dashboards.

Table 3. Implementation roadmap

Stage	Basic steps	Results/artifacts	Key metrics
E1. Audit	IS/data inventory, target model	5-layer architectural diagram	—
E2. Quick wins	Launching SSO, typical processes in EDI	Single sign-on, electronic document management regulations	KPI-01, KPI-02, KPI-03, KPI-04
E3. Educational vertical	LMS scale, LA launch, methodological support	Course catalog, FO templates	KPI-05, KPI-06, KPI-07
E4. End-to-end analytics	Warehouse, display cases, PDCA cycles	Transparency panel (dashboards)	KPI-01…KPI-08

Brief explanation. Four stages create a realistic trajectory: from inventory to "quick wins," then to

scaling the learning core and end-to-end analytics. At each stage, artifacts are captured and the corresponding KPI.

Risk map and compensatory measures (linked to KPIs)

- Laboratory-dependent areas. Risk of quality reduction without in-person components and equipment[1]. Measure: mixed tracks (simulators/remote labs + in-person intensive courses). Monitoring: KPI-05 (LMS course coverage) and KPI-06 (formative assessment) to ensure that the digital component does not replace critical practice.
- Personnel readiness. Deficit of digital/methodological competencies [1–2]. Measure: professional development programs; course/heading templates. Monitoring: increase in KPI-06 (implementation of FO) and decrease in KPI-04 (faster approval of educational changes in EDI).
- Socialization and hygiene. Live formats and digital hygiene are needed [1, 4]. Measure: offline/online balance regulations, tutoring practices. Monitoring: stability of KPI-05…KPI-07 without deterioration in performance or increase in risks.

CONCLUSION

Suggested:

1. a five-layer reference architecture for a "digital university,"

2. a management transparency dashboard of 8 KPIs with clear grouping,

3. a step-by-step roadmap with links to KPI-01…KPI-08,

4. A risk map with mitigation measures. The "strategy → platform → regulations → KPI monitoring" composition ensures accessibility, cost-effectiveness, and managerial transparency, while the quality of training is maintained through LA and "…with the didactic support of teachers; equal and free access and flexibility of learning are ensured[1], and management transparency and efficiency are achieved through the implementation of SSO, EDI and ACS[4]" .

Practical application - design of digital maturity and audit of processes at the level of the university, institutes and departments.

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