Co-funded by the
Erasmus+ Programme
of the European Union

IT Trends in higher education landscape (University of Patras View)

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Training Workshop at Aveiro, 24-28/2/2020

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IT Trends - Upat View

- Information Security Strategy: detects, responds to, and prevents security threats and challenges
- Privacy: protect all types of personal/sensitive data
- Sustain Funding: to maintain the growing use of IT services
- Systems Integrations: ensure systems interoperability, scalability, and extensibility, as well as data integrity, security, standards, and governance, across multiple applications and platforms
- Student Completion: incorporate artificial intelligence into student services to provide personalized, timely support
- Higher Education Affordability: align IT organizations, priorities, and resources with institutional priorities and resources to achieve a sustainable future.
- Administrative Simplification: apply user-centered design, process improvement, and system re-engineering
- Student-Centric Higher Education: from prospecting to enrollment, learning, job placement, alumni engagement, and continuing education

#1 Information Security Strategy

- Do you relay know where your data is?
- Now days Institutional data moves across networks
- We see a rapid growth in the rate of phishing and ransomware attacks.
- Cannot rely on perfect behavior from perfectly informed end-users
- Cannot rely on safeguarded systems, devices, and networks
- An Institutional strategy for information security is needed
- Security requirements for new it systems must be set at the design face
- Inform users periodicaly and train them at least once a year
- Get an external security assessment for your systems and networks, adapt fast to the threat landscape
  Invest in security tools
  Develop a risk-based security strategy that effectively detects, responds to, and prevents security threats and challenges

#2 Privacy

- Privacy is essential to admissions, student support, human subjects research, and many other core activities
- Clear-cut privacy guidelines that specify who has access to data is needed
- Trade-off between protecting privacy and providing easy and appropriate access to data
- Conduct a comprehensive inventory and define the data assets that most need protection, digital and non-digital
- Classify your data according to privacy levels that you should set in your defined privacy.
- Consider seriously that security can be both good and bad for privacy and enforce security without compromising privacy
- Staff, researches, teachers often lack awareness of privacy rights and requirements, educate all
- Ensure that the training and knowledge base is continual
- Adopt guidelines and agreements that protect personal data, define a privacy policy
- Study EU's General Data Protection Regulation (GDPR)

#3 Sustain Funding

- IT organization is not a profit center and the value of technology is digital, not physical
- The lifespan of technology is short and the total costs of technology goes beyond operating funding and capital funding
- Technology upgrades are frequent and not optional, budget is needed.
- IT project managers should be included early in projects with any type of technology component (from new buildings to new services to new educational programs) so that they can advise on the most efficient way to meet technology needs and estimate the true ongoing budget requirements.

#4 Systems Integrations

- Data is the most valuable digital commodity/asset of higher education institutions, but data doesn't deliver value on its own
- Stop thinking data systems as independent applications or services but as one single pool of valuable assets.
- Optimizing IT at the individual or the departmental level is no longer ideal
- Learn about digital integrations, enterprise architecture, and data and IT governance
- Apply integration "rules" in every step of system analysis, implementation and support, (including needs assessment, purchasing, data governance, security review, and enterprise architecture)
- In data governance: roles, responsibilities, and policies need to be clear, including data ownership, retention, classification, security and privacy.

#5 Student-Centric Higher Education

- Start viewing higher education from the learner's, rather than from the institution's, perspective
- New student services ecosystem is needed that will give students a broad access to the information and services with a new user experience
- Access without geographical or device constraints is a must
- Set a strategic vision, develop a common definition of student-centric higher education, and establish and prioritize broad goals, communicate them accordingly
- Find institutions that are in the road, use there implementations as models

#6 Student Completion

- Focus on student success won't be productive without cultural change on through faculty and it staff
- Data about students is institutional data, not departmental data
- Consider student success as a business outcome that can be measured, monitored, and used
- Begin using AI and analytics to deliver personalized, timely student services.
- Use data governance to sort out data roles, responsibilities, and definitions
- Develop the first case with AI and analytics at institutional level.
- Learn about uses of AI and analytics and invest in them
- Extend the use of data and AI into additional areas, such as admissions, enrollment, the first-year experience, and individual academic programs

#7 Higher Education Affordability

- Support students academic success by reducing their costs.
- Invest more in online learning to support students who can't afford higher education in any other way.
- Libraries and IT can supply open educational resources, electronic materials, and educational platforms
- Contact Vendors and Publishers and try to
  - reduce the costs of scholarly and educational materials
  - provide meaningfully discounted technologies, devices and other services
- Use technology to lower student's costs
- Implement an open educational resources program
- Recruit students if possible to work on projects.

#8 Administrative Simplification

- Today's administrative services and applications were generally designed for the back-office staff
- Those days are gone, but the systems and services live on.
- During application design place the end user at the center of the requirements-gathering experience
- Design and test new applications to ensure the users get what they need and enjoy from the experience.
- Comply with architecture standards to ensure that end users' experiences are the same across all relevant applications
- During application design and implementation, simplify and improve systems and processes.
- Administrative services must become as easy to use as common internet apps
- Recognize that administrative simplifications will take years and plan accordingly
- Start external assessment to understand where you stand and what optimization is appropriate
- Improve your change management procedures and apply them on administrative simplifications

Technology Trends in higher education landscape (University of Patras View)

#1 Video and live content will continue

- Video is still at the top end of the content priority list. Next is live video.
- Universities increasingly experimenting on Instagram Stories, Facebook Live, Snapchat, TikTok, and perhaps also Linkedin Live. Have a clear content and channel strategy for this raw content is crucial.
- Some students, today want a live view of what's happening at their university classrooms.
- Check OpenDelos open source project.

#2 Voice search will change the SEO

- Today, 20% of mobile queries on Google are carried out through voice search. By the end of 2020, this figure could be a lot higher.
- Google, Facebook, and Amazon are key players in the search engines and all three developing voice technology at a rapid rate.
- You can now find information on just about anything using a personal voice or visual assistant.
- Universities have to ensure that their website ranks exceptionally well in order to benefit from the technology.
- This will be an increasingly important part of the student search capabilities and one that institutions need to be ready and optimized for.

#3 Sentiment analysis and predictive analytics to support students

- Leverage data that can identify where students are at across all touchpoints and stages of their educational journey. Use predictive analytics to support students before they encounter problems.
- By spotting patterns institutions will more accurately identify students at risk of exiting a degree program, triggering appropriate response mechanisms.
- The sophistication and scale of sentiment analysis, or social listening, is providing in depth view for situations that need attention

#4 New emerging models of education with degree programs aimed at fast-growth jobs

- Online learning is evolving and growing rapidly.
- Provide access to learning programs that are flexible and accessible.
- Unbundle traditional programs to offer shorter and more flexible learning options.
- AI specialist, cybersecurity consultant, robotics engineer, big data developer are in top priority.
- Work with technology companies to co-design degree programs if possible.

#5 The campus gets smarter

- The quality of the campus experience is essential for everybody and technology will plays an important role.
- From intelligent digital signage, contactless payment solutions, room bookings, lighting, and security, to the way students learn.
- Push the boundaries of technology on campus and will rethink university life through innovative architecture, design, and technology.

#6 Accessibility becomes an even bigger digital priority

- There will be an increasing legal & regulatory focus on website accessibility which will intensify the workload (not only) on web designers and developers.
- Some universities have already created roles to work on auditing & fixing accessibility problems specifically, but those requirements will come to all.
- Website accessibility is already a priority in 2020.
- Check the European Web Accessibility directive

#7 The impact of Chatbots continues

- Chatbots become a familiar presence and feature on the majority of institution websites abroad in some way shape or form.
- Students like digital interactions, particularly when they are user-friendly, round the clock and provide good quality responses.
- Chatbots and LiveChat will become in time more agile, the hand-offs perhaps more discreet and the experience will continue to rise in quality if we invest enough in this technology.

Technology Trends in IT and Network International Companies

#1: The empowered edge

- Edge computing is a topology where information processing and content collection and delivery are placed closer to the sources of the information, with the idea that keeping traffic local and distributed will reduce latency. This includes all the technology on the Internet of Things (IoT).
- Empowered edge looks at how these devices are increasing and forming the foundations for smart spaces, and moves key applications and services closer to the people and devices that use them.
- By 2023, there could be more than 20 times as many smart devices at the edge of the network.
- 5G Network Deployments networks will emerge between 2020 and 2030

#2: The distributed cloud

- Distributed cloud refers to the distribution of public cloud services to locations outside the cloud provider's physical data centers, but which are still controlled by the provider. In distributed cloud, the cloud provider is responsible for all aspects of cloud service architecture, delivery, operations, governance and updates. The evolution from centralized public cloud to distributed public cloud extents the use of cloud computing.
- Distributed cloud allows data centers to be located anywhere. This solves both technical issues like latency and also regulatory constraints. It also offers the benefits of a public cloud service alongside the benefits of a private, local on premise cloud.

#3: Practical blockchain

- Blockchain is a type of distributed ledger, an expanding chronologically ordered list of cryptographically signed, irrevocable transactional records shared by all participants in a network.
- Blockchain also allows parties to trace assets back to their origin and also allows two or more parties who don't know each other to safely interact in a digital environment and exchange value without the need for a centralized authority,
- Digital Debit, Facebook's cryptocurrency project Libra is expected to be completely fleshed out and in sync with government regulations by 2020. As cryptocurrency gains stronger credibility and digital payment systems like Google Pay and Amazon Pay grow in use, traditional banking will lose its ground.

#4: Democratization of Technology

- Democratization of technology means providing people with easy access to technical or business expertise without extensive (and costly) training.
- It focuses on four key areas — application development, data and analytics, design and knowledge — and is often referred to as "citizen access," which has led to the rise of citizen data scientists, citizen programmers and more.

#5: DARQ Age is Here

- Distributed ledger technology (such as blockchain),
- Artificial intelligence (AI),
- Extended reality (including virtual and augmented reality), and
- Quantum computing,

abbreviated to DARQ

form one such future technology trend that must be integrated on priority.

Note of use of third parties work

This work makes use of the following works: