



# THE INTELLIGENT ENTERPRISE FOR HIGHER EDUCATION AND RESEARCH

Helping to establish superior  
student and faculty engagement  
through targeted solutions  
delivered across an intelligent  
enterprise









“Successfully transforming higher education and research will require a renewed focus on operating models to extend value while focusing on student engagement to extend the learning experience beyond the classroom.”

**Malcolm Woodfield**  
Global Vice President  
Higher Education and  
Research  
SAP SE

# WELCOME

Dear Customers,

The world is facing unprecedented economic, social, and environmental challenges. Research and education have become more critical than ever for the constant transfer of knowledge and skills to a world hungry for real change and leadership.

However, **the traditional university curriculum and the business models that support it are struggling to satisfy student and employee expectations** of the “outcome” of a university education. University business models are failing to control costs. Students are skeptical of the personal value – the value to them, not to the “labor market” – of the knowledge and skills being taught.

**Focus is moving from institutionally measured “student success” (the buzz phrase of the last decade) to less easily measured but more broadly powerful “student engagement.”** But this requires investment in people who can engage, in places where they engage, and in platforms on which they engage. And this, in turn, requires some painful disinvestment in or repurposing of people, places, and platforms.

In other words, the university enterprise, to deliver on its promise to educate the next generation, must become intelligent. Analytics helps us understand, predict, and recommend new trends in learning and research and in university business operations. Machine learning and artificial intelligence (AI) free people from simple, repetitive tasks that do not require a human user interface – AI is the next-gen UI. Intuitive and innovative people will focus on human services and human outcomes – the mission of teaching, research, and engagement.

**This evolution to the intelligent university will affect every activity, interaction, trans-action, and outcome at higher education institutions.** And this includes every aspect of university business operations because, like any enterprise, they have a complex workforce, demanding stakeholders, asset-intense campuses, and suppliers they rely on for products and services.

As the operating models change, institutions that deliver great experiences will rely on five pillars:

- Integrated systems support
- Reimagined university work and working
- Shared services and support
- Real-time student information
- Superior student outreach

An institution is not an ivory tower; it is a platform for leadership, student and faculty engagement, and high-velocity research. Today, this platform must be digital. Digitalization is changing the very boundaries of the user experience, blurring the lines between where the user ends and the technology starts.

And, most important of all, I am describing not only the future intelligent university but also the world in which future students will live. This is what we are preparing them for.

So, university programs and courses that emphasize strategy and oversight as well as hands-on project experience will be necessary to realize the benefits of AI and machine learning. Colleges and universities must ensure that they prepare students for the jobs of the future and embrace new opportunities.

With the SAP Intelligent Enterprise Framework, SAP provides the integrated suite of applications, the intelligent technologies, and the digital platform that institutions need to adapt. We have the vision, the solutions, and the commitment to meet the future challenges colleges and universities face in defining their transformation strategy, delivering the right solutions, and running the digital backbone in the cloud.

Best regards,

Malcolm Woodfield  
Global Vice President  
Higher Education and Research  
SAP SE

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# OUR PLACE IN THE NEW WORLD

Global “megathemes” are affecting higher education and research, providing new opportunities for growth.

- **Robotic automation and machine learning** are dramatically shaping the **future of work** at an accelerated pace, driving the need for alternate skill sets, training, and experience.
- Demographic changes are forcing **mismatches** in the availability of **skilled workers** region by region and globally to meet changing technical and professional demands. This affects both the university workforce and budgets, but it also shapes the future workplace for graduates.
- The **gig economy** is growing fast, with 16.5 million people in the labor force having **contingent** or “**alternative work arrangements**” that require continuous learning and skills development within fluid workplaces and cross-organizational support structures.<sup>1</sup>



## The higher education and research industry is being reshaped by four major trends.

- Economic pressure and changing dynamics are challenging the value of education in the view of the millennial generation, especially those seeking work with a sense of purpose.
- Global online and open coursework will increasingly be integrated as the “global campus” aggressively evolves.
- Proactive student engagement is changing to adapt classes and teaching to meet millennial expectations for “success.”
- Real-time, “always-on” mobile support is expected across the enterprise and campus, including security and monitoring.

Being able to address these global megathemes and industry challenges will determine who will be among the winners in the next 10 years. Successful operating-model innovation, process optimization, and workforce productivity are directly linked to delivering great customer and employee experiences.

In fact, research indicates that the best-performing institutions are pulling away from the rest and widening the performance gap by creating a landscape where they deliver great experiences because they successfully adopt new technologies and deliver winning solutions and services more efficiently.

According to a July 2018 study by Forrester Consulting commissioned by SAP, innovative organizations focus on digital priorities to help them achieve digital transformation.<sup>2</sup>

## Digital strategies are disruptive and changing the rules of educators.

**Newcastle University** is using the SAP HANA® business data platform for ERP and student management to consolidate key business data, including admissions, scheduling, and finance to give staff role-based mobile access through one central location for a complete picture of student needs.

**TED University** deployed more than 20 apps in less than four months to serve students and faculty members, with immediate access to academic and administrative services from any mobile device using a responsive, user-centric, and simple interface.

**Technische Universität Berlin** medical researchers run its massive protein database, ProteomicsDB, across multiple institution channels and varied data sources on SAP HANA. To create highly targeted treatments that cure complex illnesses, they need fast access to as much data as possible and reliable ways to analyze it.

**Kadir Has University** has deployed the SAP Fiori® user experience to improve productivity and satisfaction. It is now poised to transfer all its processes to the mobile environment for sharing across the enterprise and is developing new apps to meet the needs of its user community.

# 83%

Of higher education survey respondents indicate that technology has positively affected teaching effectiveness.<sup>3</sup>





# PAVING THE WAY FOR BUSINESS MODEL INNOVATIONS

By 2025, higher education institutions will transform to deliver both the educational skills and real-time job experiences necessary. Curriculums will evolve in close collaboration with public and private enterprises to adapt to changing professional requirements.

Higher education will embrace advanced technology both to run the university and to focus on the jobs of the future. These institutions will have interactive, real-time platforms focused on student engagement, personal learning, accountability, and purpose. Data-driven results will be expected through graduation, with student and faculty sentiment analysis acting as the real-time barometer.



## 30%

Of organizations are predicted to use innovation marketplaces by 2022 for on-demand services and software that raise margins by up to five percentage points<sup>11</sup>

## 35%

Of organizations will have created new ecosystems by implementing AI- and blockchain-centric platforms, thus automating 50% of processes by 2022<sup>12</sup>

## 90%

Of organizations will leverage real-time equipment and asset performance data to self-diagnose issues in advance and trigger a service intervention to avoid unplanned downtime by 2021<sup>13</sup>

## 50%

Of organizations are predicted to network related product and asset digital twins into digital twin ecosystems for a systems-level view of their business and 5% reduction in cost of quality by 2024<sup>14</sup>

## 90%

Of large enterprises will generate revenue from data as a service by 2020 – from the sale of raw data, derived metrics, insights, and recommendations – up from nearly 50% in 2017<sup>15</sup>



# FIVE PRIORITIES FOR SUCCESS

We have identified five strategic priorities necessary for higher education and research institutions to transform their business.



INTEGRATED SYSTEMS SUPPORT  
AND COORDINATION



REIMAGINED UNIVERSITY WORK  
AND WORKING



SHARED SERVICES AND  
ADMINISTRATIVE SUPPORT



REAL-TIME STUDENT  
INFORMATION SUPPORT



SUPERIOR STUDENT OUTREACH  
AND ADVANCED MARKETING



# INTEGRATED SYSTEMS SUPPORT AND COORDINATION

A global need for effective utilization of resources is driving end-to-end integration of support systems.

In recent years, universities have tended to invest in “point solutions” to meet urgent priorities. The result has been an inefficient patchwork of products and platforms.

## The Vision

We aim that by 2025, individual departments will cease operating as independent entities as economic and customer pressure drives efficiencies. The goal is to create an integrated intelligent enterprise that balances resources and workloads to focus on teaching, research, and engagement. (See Figure 2.)

## The Journey

The journey begins with taking an enterprise view with clear targets in mind, focused on making a measurable impact on teaching, research, and engagement.

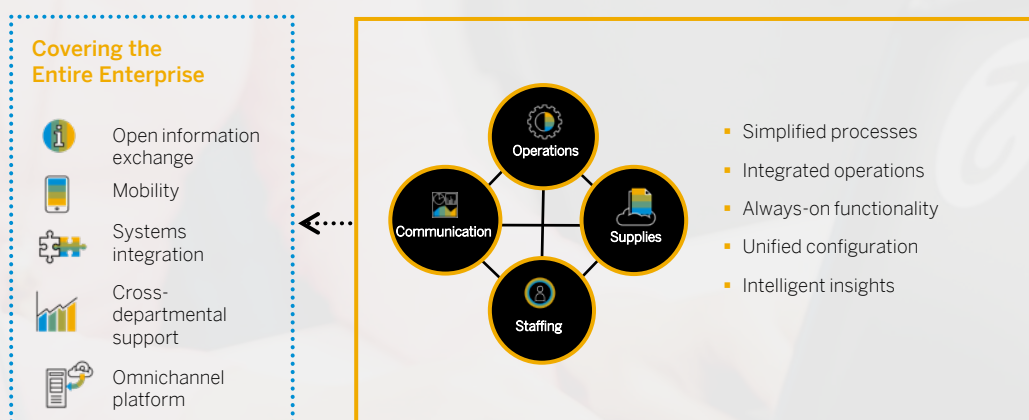
The next step is recognition that transformation means deploying technology, but this is not an IT project. Bringing together university administration

(the back office) with campus stakeholders (the front office) requires collaboration on a common platform. The journey to becoming an intelligent enterprise requires seeing **the university itself as a platform** for teaching, research, and engagement.

The deployment of integrated solutions on a single platform is a key step in the journey to becoming an intelligent university. But more important is the provision of integrated data, a “single source of truth” for university metrics in finance, people, teaching, research, and student engagement.

Using this platform, technologies such as machine learning, AI, and the IoT both generate and consume such data. They are now the single engine of the enterprise – powered by machines, driven by data, managed by people, and measured by success in teaching, research, and student engagement, they are building the next generation of leaders and innovators.

**Figure 2: The Vision of Integrated Systems Support**



By 2020, more than **40%** of data science tasks will be automated, and the number of citizen data scientists using AI will grow **5x** faster than professional data scientists.<sup>18</sup>



# INTEGRATED SYSTEMS SUPPORT AND COORDINATION

## VIRTUAL SMART SYSTEMS AND OPERATIONS

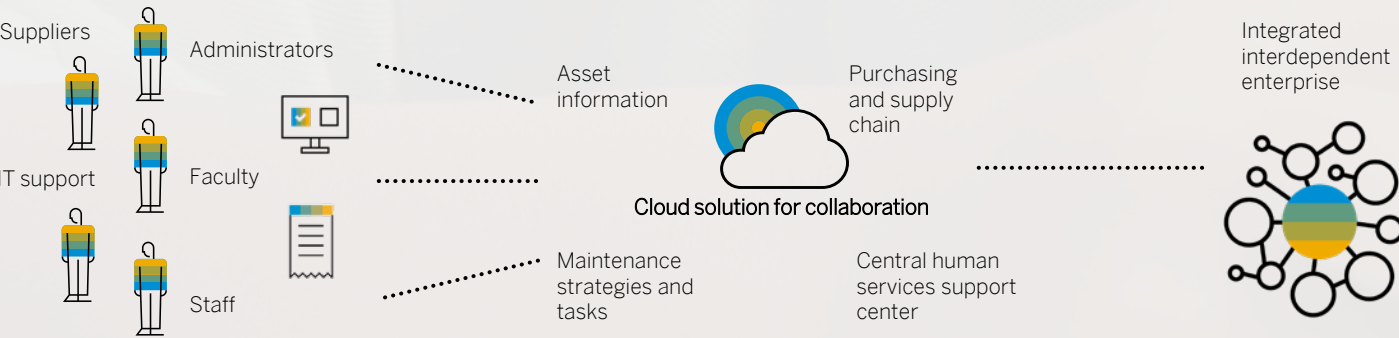
As institutions of higher education continue to seek the means to drive efficiencies and the greatest utilization of finite institutional resources, outdated legacy systems continue to be identified as demonstrating inadequacies.

The transformation for the institution begins with a thorough review of the current IT infrastructure and operating environment to identify workflow impediments and unnecessary tasks. Final transformation to become an intelligent enterprise would include a dramatic investment and movement of all systems and support to an analytics-driven and flexible cloud platform that can integrate across the organization to help facilitate the shared-service environment.

### TRADITIONAL SCENARIO



### NEW-WORLD SCENARIO



### TOP VALUE DRIVERS

12%

Reduction in employee turnover

74%

Improved efficiency when operating KPIs are tracked

Source: SAP Performance Benchmarking



# REIMAGINED UNIVERSITY WORK AND WORKING

Department-by-department staffing must change from tactical to strategic.

Nowhere is inefficiency in universities more pronounced than in department staffing structures. Employees are hired and retained without the context of an enterprise strategy to build the next-gen workforce with the skills to manage the intelligent university.

## The Vision

By 2025, institutions will have workforce development strategies in place, transforming how new employees are hired, retained, measured, and deployed. This next-gen workforce will have the skills and motivation to build and manage the intelligent university of the future. (See Figure 3.)

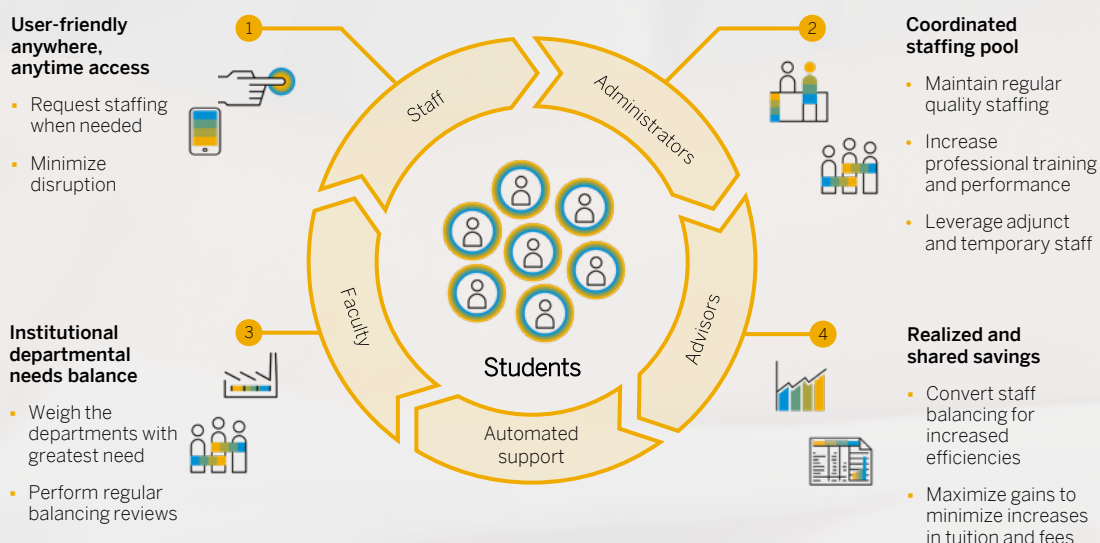
## The Journey

Execution of the next-gen workforce strategy begins with HR leadership having a renewed role at the university. The new generation of HR leaders will see new support solutions not as systems of record but as platforms for workforce development across the enterprise.

Knowledge workers will replace administrative staff, whose tasks will increasingly be done by machines. The focus will move from process execution (which will be automated) to process improvement or process elimination.

Contingent labor will grow as universities look for “on-demand” skills to respond to changing teaching and research needs.

**Figure 3: Digital Depiction of Reimagined Work and Working**



**58%** of higher education faculty members surveyed say that institutions should hire online program management companies to create, expand, or manage their online academic programs – especially where they do not have the in-house expertise.<sup>19</sup>



# REIMAGINED UNIVERSITY WORK AND WORKING CENTRAL PERSONNEL ENVIRONMENTS

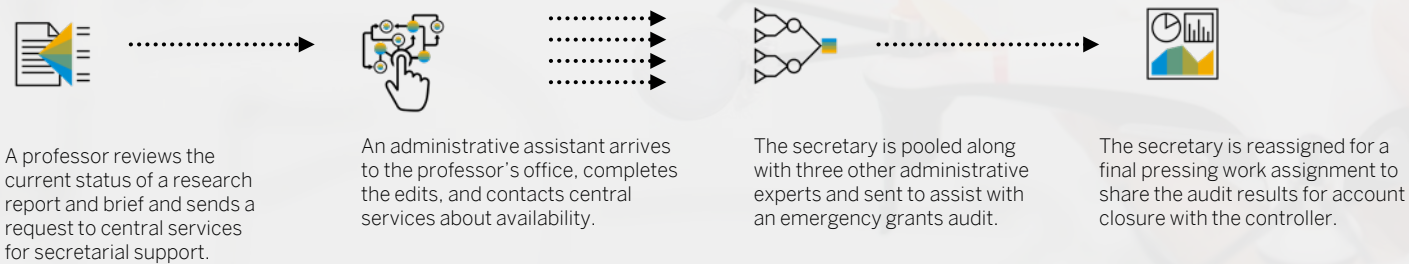
Providing administrative support college by college and department by department has been commonplace in traditional university working models. Now, current economics have made individual siloed support for a specific professor or even one department impossible.

Critical for this transformation is the ability to manage the workforce across enterprises. The future university workforce must be agile and well trained. Staffing models, in turn, need to be integrated across the campus, fluid, and adaptable. The intelligent institution will have centralized administrative requests and integrated scheduling across the organization to weight balance human capital availability against need.

## TRADITIONAL SCENARIO



## NEW-WORLD SCENARIO



## TOP VALUE DRIVERS

**10%–12%**

**Reduction** in total logistics costs

**Up to 10%**

**Reduction** in total overhead costs

Source: SAP Performance Benchmarking



# SHARED SERVICES AND ADMINISTRATIVE SUPPORT

Universities are complex operations that operate multiple “fiefdoms” of power, which in turn drain resources from the key activities of teaching, research, and student engagement.

University organizational structures are the result of institutional history, not strategic planning. To ensure future survival, efficient operations, centralized purchasing, and optimized asset utilization are essential. University services must become intelligent.

## The Vision

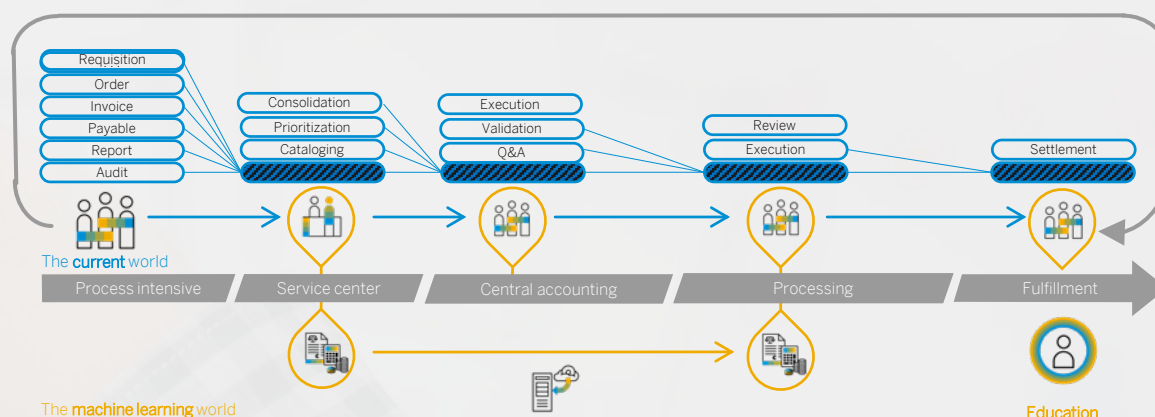
By 2025, administrative tasks will be reduced through automation, providing for an increased focus on teaching, research, and engagement. Enterprise systems will be increasingly “hands free” or “self-driving,” with a human user focus on managing outcomes against the university’s strategic goals of teaching outcomes, research productivity, and student engagement.

## The Journey

Enterprise change begins at the enterprise level, with a recognition of the need for comprehensive processes. The university must evolve, regardless of the organizational structure, into a platform for teaching, research, and engagement; and its business systems will reflect and support that platform strategy.

Centralization, standardization, and automation will be key steps in the journey toward the intelligent university of the future. The intelligent university will be characterized by shared services, real-time data, a single source of truth for that data, and complete transparency of costs and expenses across the enterprise. Administrative tasks will increasingly be automated. For example, payables and receivables will be automated by machine learning. (See Figure 4.)

**Figure 4: Complete Digital Representation of Shared Services and Support**



**70%** of surveyed higher education faculty members join administrators in supporting the use of open educational resources to increase student engagement while combating escalating economic challenges of outdated resources (such as textbooks).<sup>20</sup>

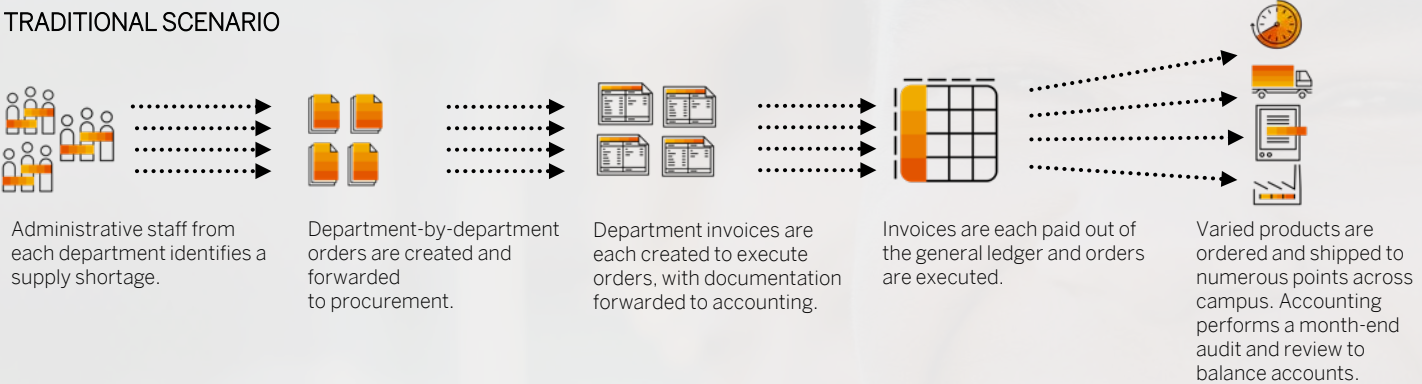


# SHARED SERVICES AND ADMINISTRATIVE SUPPORT MANAGING INTELLIGENT, INTEGRATED PROCESSES

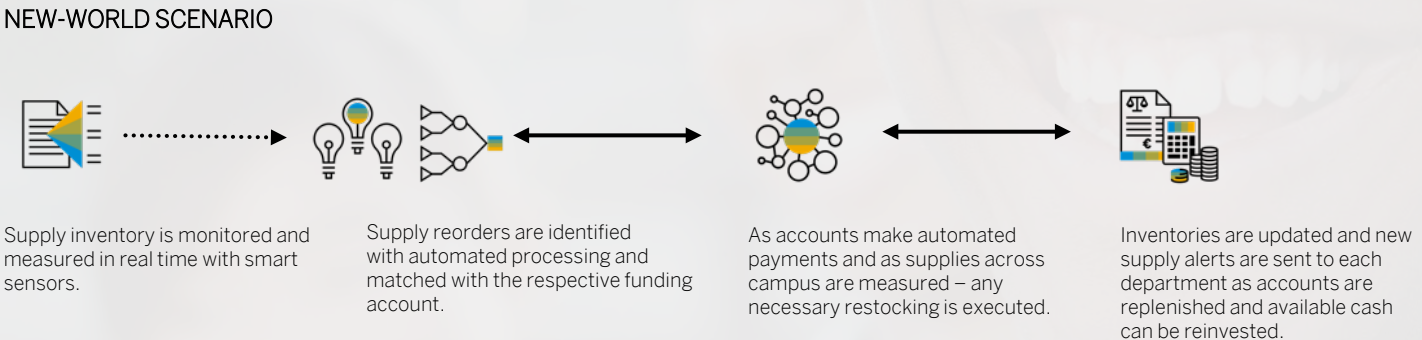
The inefficiencies in traditional college and university operating structures are inherent in the siloed nature of individual and separate institution departments that act too often as autonomous islands. This includes general support, with specific issues in purchasing and supplies, all supported with traditional ordering, invoicing, payables, and receivables. The result is multiple departments with multiple redundant workstreams and overstocking supplies.

Digital and smart support structures of the next-generation institution will use advanced technology, such as machine learning, to automatically maintain inventory and supplies across the enterprise. Ordering and payments will be automated in line, pooling purchasing for economies of scale, to anticipate supply needs and settle accounts immediately. This will negate most standard accounting practices and routine tasks to enable professional staff to provide oversight and issue resolution.

## TRADITIONAL SCENARIO



## NEW-WORLD SCENARIO



## TOP VALUE DRIVERS

**20%–30%**

Reduction in R&D costs

**Up to 10%**

Reduction in total costs

Source: SAP Performance Benchmarking



# REAL-TIME STUDENT INFORMATION SUPPORT

To meet student expectations, campus information must be available in real time and always accessible.

The smartphone and tablet of every student are the nucleus of their social world and their online outlet to society. Yet, often students cannot use these smartphones to access university systems and support. To change this, universities must become equally "smart," or intelligent.

## The Vision

By 2025, university systems will be integrated to provide the student "customer" with a single real-time view of the institution, classes, schedules, and finances, enhancing the student experience. (See Figure 5.)

## The Journey

The journey begins with the recognition that the student is the customer. On the system side, an integrated, platform approach must be implemented to facilitate mobile access by single sign-on. This enables automation aspects of student communication, with chatbots, for example.

The mobile device can now support the focus on student engagement. The mobile infrastructure will also provide real-time data and a continuous feedback loop regarding student activity. This insight will be used not only to improve student success but also to influence university planning to further improve student services and academic offerings.

**Figure 5: Connectedness with Real-Time Student Information**

### Integrated applications

Smart technology searches for synergy or conflicts

### Continual updates

Automated and seamless

### Always on, always available

360-degree uptime

### Mobile

Unilateral system platforms

### Real-time customer service

24x7 real-time support

### Security and tracking

Seamless with campus



**84%** of students surveyed feel that digital learning technology has improved their efficiency and effectiveness.<sup>21</sup>



# REAL-TIME STUDENT INFORMATION SUPPORT EXPANDING INFORMATION REACH WITH ONLINE INTEGRATION

Putting the student and faculty customer's point of view and feedback at the center of every decision is a key prerequisite for success in the digital age. It means capturing feedback from both the equipment and the people using it. And it does not stop at the front desk of the registrar's office. Colleges and universities want to become customer-centric enterprises, and the ability to focus on their most valuable customers is one of their key priorities. Since short and reliable delivery times are important for their faculty and students, institutions want to prioritize the production of their products based on the individual importance of each customer. SAP S/4HANA® enables colleges and universities to prioritize customer orders more reliably and efficiently while providing valuable insights into the order management process to avoid delayed deliveries and to help ensure on-time delivery.

## TRADITIONAL SCENARIO



Student initiates inter-library search for old periodical necessary to source a research report.

System malfunctions and aborts numerous search attempts.

Student contacts library staff and outlines the nature of the problem, seeking an alternate research route.

Interlibrary system is scheduled for maintenance and sits dormant for two weeks.

Student research is a failure, and topic and white-paper focus must be altered to use whatever resources are available.

## NEW-WORLD SCENARIO



University library designs IoT-enabled equipment to capture resources across participating libraries.

University monitors student project in real time and sends suggested information repositories and related topics.

Current data is merged with new data and automatically located by an IoT-enabled research tool.

Student refines research thesis based on accumulation of new resources, managing back successful sources of information.

Research paper is refined and finalized, with student automatically documenting a successful research string and successful resource locations.

## TOP VALUE DRIVERS

# 29%

**Increase** in active reporting

# 10%–20%

**Increase** in customer satisfaction



# SUPERIOR STUDENT OUTREACH AND ADVANCED MARKETING

To effectively meet current student expectations, intelligent outreach must begin while the student is still a prospect and must evolve with each individual student experience.

"Always on" is not jargon, it is the expectation of every millennial holding a smartphone. Effective student engagement will be predictive and responsive, bringing together customer experience data with university business or operational data for end-to-end intelligence.

## The Vision

By 2025, advanced student outreach will be key to the intelligent university strategy, as well as the universities' renewed focus on student engagement throughout and beyond their educational journey.

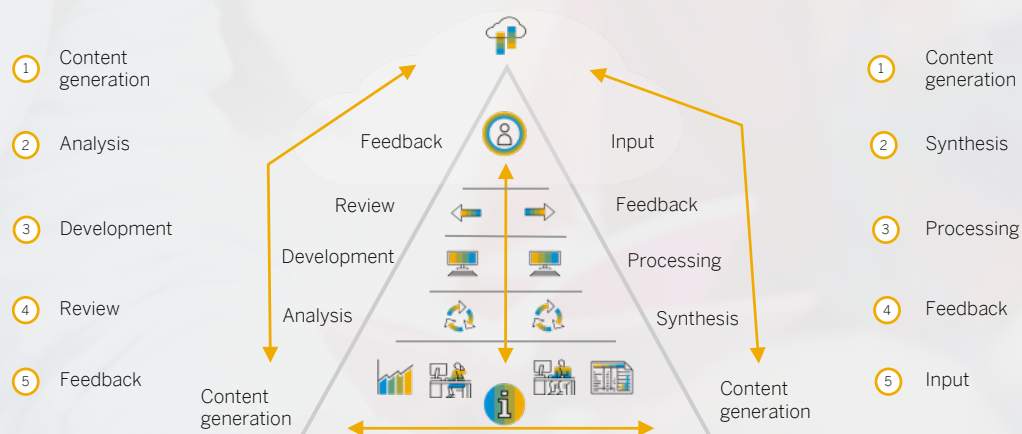
As the world of higher education providers becomes increasingly competitive, the initial and continuing student experience will be key to the university's success and to student retention, graduation, and individual, future growth.

## The Journey

The journey begins with the recognition that the student is the customer. To establish and develop this customer relationship, institutions will build a mobile, interactive online presence with features such as live customer chat on the front end, integrated with deep analytics capability on the back end.

Systems will monitor students in a 360-degree manner, from sensing interest with sentiment analysis and crowdsourcing, to outlining requested campus features and services. Imbedded analytics within those communications channels will gauge student sentiment, needs, and requirements in real time and will manage the university with those expectations. (See Figure 6.)

**Figure 6: Superior Student Outreach**



69% of students surveyed feel that digital learning technology has improved their focus.<sup>22</sup>

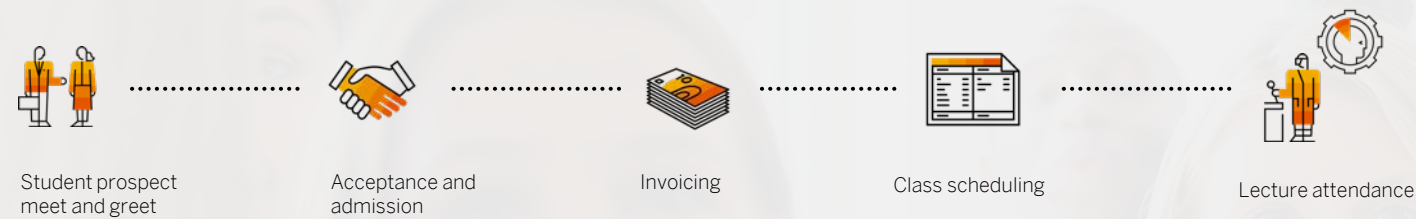


# SUPERIOR STUDENT OUTREACH AND ADVANCED MARKETING CONTINUAL AND INTERACTIVE ENGAGEMENT

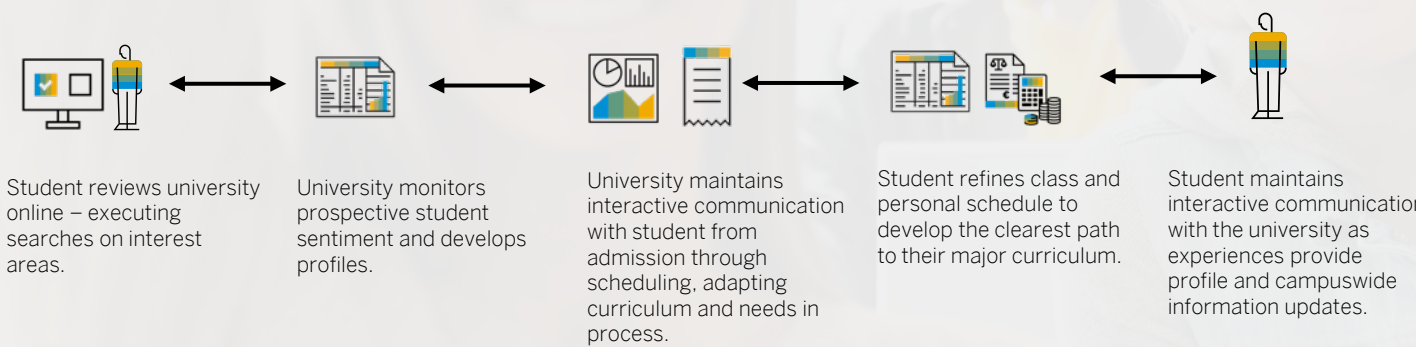
The traditional student management model begins with applications, moves to admissions, and includes invoicing, student class scheduling, attendance, course completion – and repeat. Students can often be viewed as nothing more than a number. Administrative or faculty engagement with students can often be limited to problem resolution.

In the next-generation college and university, student engagement is a living, interactive relationship that begins as a college prospect investigates a university, with the data processed as sentiment analysis. Respective student interests are cataloged, with tailored interactive outreach being driven. Student information is continually updated to automatically tailor a learning curriculum for the student, while living accommodations are automatically scheduled. Comprehensive account and schedule summaries are available on a mobile device: student activities and interests are continually monitored.

## TRADITIONAL SCENARIO



## NEW-WORLD SCENARIO



## TOP VALUE DRIVERS

**3%–10%**

**Improvement** in service margin

**25%–30%**

**Improvement** in invoice processing time

Source: SAP Performance Benchmarking





# KEY TECHNOLOGIES

The fast pace of technological advancements has the most profound impact on how institutions of higher education and research transform to respond to customers' needs and market trends.

Intelligent technologies promise to bring great benefits, such as productivity and gains in efficiency, enabling innovative new business models and new revenue streams. The following intelligent technologies are instrumental in helping institutions of higher education and research respond to market trends.

## **Artificial Intelligence and Machine Learning**

Machine learning enables algorithms to “learn” from existing data and achieve the best possible outcomes without being explicitly programmed. Once the algorithm is trained, it can then predict future outcomes based on new data. Institutions can use these capabilities to eliminate repetitive manual tasks in accounting, scheduling, and processing for faculty and students across departments and across the campus. Research can now be supplemented by helping with complex solution configurations by applying machine learning to historical data to streamline analytics processes for multiple hypothetical lab scenarios – reducing valuable time spent on administrative tasks for grant funding.

## **The Internet of Things**

Advances in ubiquitous connectivity and edge computing are driving a steep change in organizational productivity. This connectivity, coupled with artificial intelligence and machine learning, can analyze petabytes of data and affect business outcomes. Although institutions have been using the Internet of Things (IoT) for some time now, an entire campus value chain or cross-institution value chain can be connected from design to production to supply chain. Data-driven insights from department and faculty preferences can drive better designs, lower costs, and reduce risk. Remote condition monitoring of assets and research provides real-time data from faculty and employees to predict accurate resource allocation and identify potential quality problems in research and laboratory exercises.



Real-time needs assessments and service and asset deployment monitoring will ensure an institution can leverage economies of scale for continuity of the highest research outcomes.

#### Data Platform to Manage Experiences

In the digital economy, the cycle time to sense, analyze, and respond is a big competitive differentiator. Leaders are interlocking the operational performance data from business systems (explaining what is happening) with the experience data coming in the moment from customers and employees (explaining why it is happening).

#### Advanced Analytics

The integration of advanced analytics capabilities – including situational awareness – into applications enables business users to analyze data on the fly and drives better decision-making. Empowered users, benefiting from embedded analytics in business processes, can get real-time visibility into their changing environment, simulate the impact of business decisions, mitigate risk, and achieve better customer outcomes.

#### Blockchain

A breakthrough in technology, blockchain is revolutionizing the movement and storage of value by creating a chain of unalterable transactional data. The blockchain model of trust, through massively distributed digital consensus, will reshape commerce across the entire digital economy. In higher education and vocational education, blockchain is already being used to provide secure access to credentials.

#### Virtual and Augmented Reality

The use of digital technology to create immersive experiences – virtual reality (VR) – was once the stuff of science fiction. So was augmented reality (AR), which lets users interact with digital content that's overlaid on the real world. This technology is already in use for medical students and is increasingly being used in the classroom.

#### Conversational AI

Advances in machine learning are enabling algorithms to become highly accurate in natural-language understanding and in image and voice recognition, which are especially useful in after-service and call-center activities. Voice interfaces will be the go-to technology for the next generation of applications, allowing for greater simplicity, mobility, and efficiency while increasing worker productivity and reducing the need for training.

#### Robotic Process Automation

Robotic process automation streamlines repetitive, rule-based processes and tasks in an enterprise and reduces cost through the use of software robots by replicating specific tasks or keystrokes.



## 83%

Of academics surveyed highlight technology as making a positive impact on student learning<sup>4</sup>

## ~50%

Of new mobile apps use voice as a primary interface, and 50% of the consumer-facing G2000 will use biometric sensors to personalize experiences by 2020<sup>5</sup>

## 50%

Of new industrial robots will use AI by 2019<sup>6</sup>

## 57%

Increase, on average, of the contribution of machines and algorithms to specific tasks by 2022<sup>7</sup>

## US\$1.2 trillion

IoT spending in 2022<sup>8</sup>

## 75%

Of manufacturers will provide their service teams with access to searchable video content through mobility and wearables by 2021<sup>9</sup>

## 40%

Of digital transformation initiatives will use AI services by 2021<sup>10</sup>





# GETTING THERE: A PHASED APPROACH

Companies will become intelligent enterprises on three distinct tracks as they evolve their strategic priorities to match their company's vision. They will:



1. **Optimize** what they already do by implementing a stable and scalable digital core to make processes more transparent and integrated

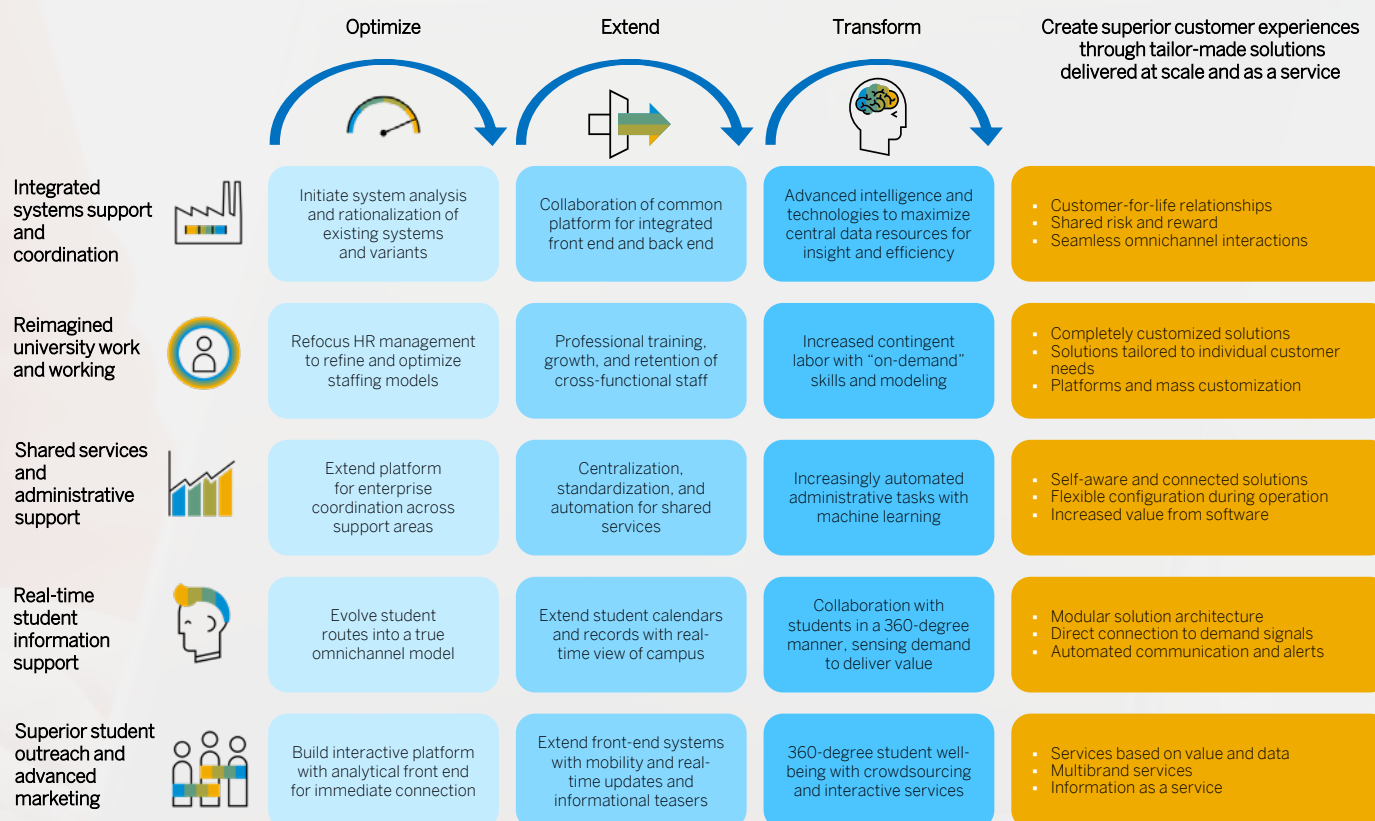


2. **Extend** their current processes by connecting them to the real world using IoT technologies



3. **Transform** their business using a constant stream of data enabling new service-driven business models. (See Figure 7.)

Figure 7: Strategic Priorities Across the Maturity Framework



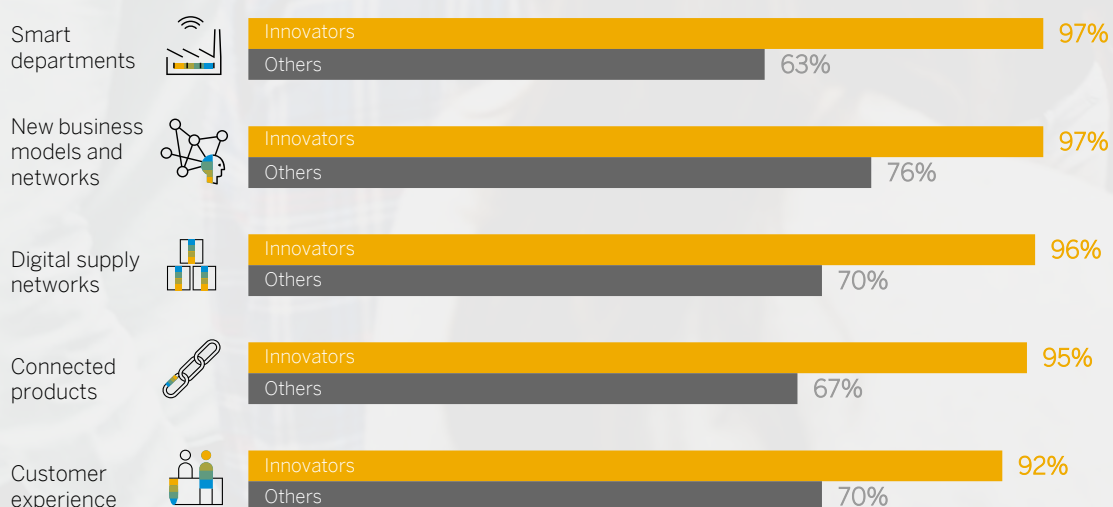
# EARLY DIGITAL ADOPTERS LEAD THE WAY

## How do you achieve these strategic priorities?

Start by reimagining your institution with your customers – your faculty and students. Build a road map for optimization and intelligent automation to simplify your organization and free up resources to invest in and focus on teaching, research, and engagement

According to a July 2018 study by Forrester Consulting that was commissioned by SAP, innovative companies focus on digital priorities to help them achieve digital transformation more than other companies. (See Figure 5.)

**Figure 8: Innovators Focus More on Digital Priorities than Others<sup>17</sup>**



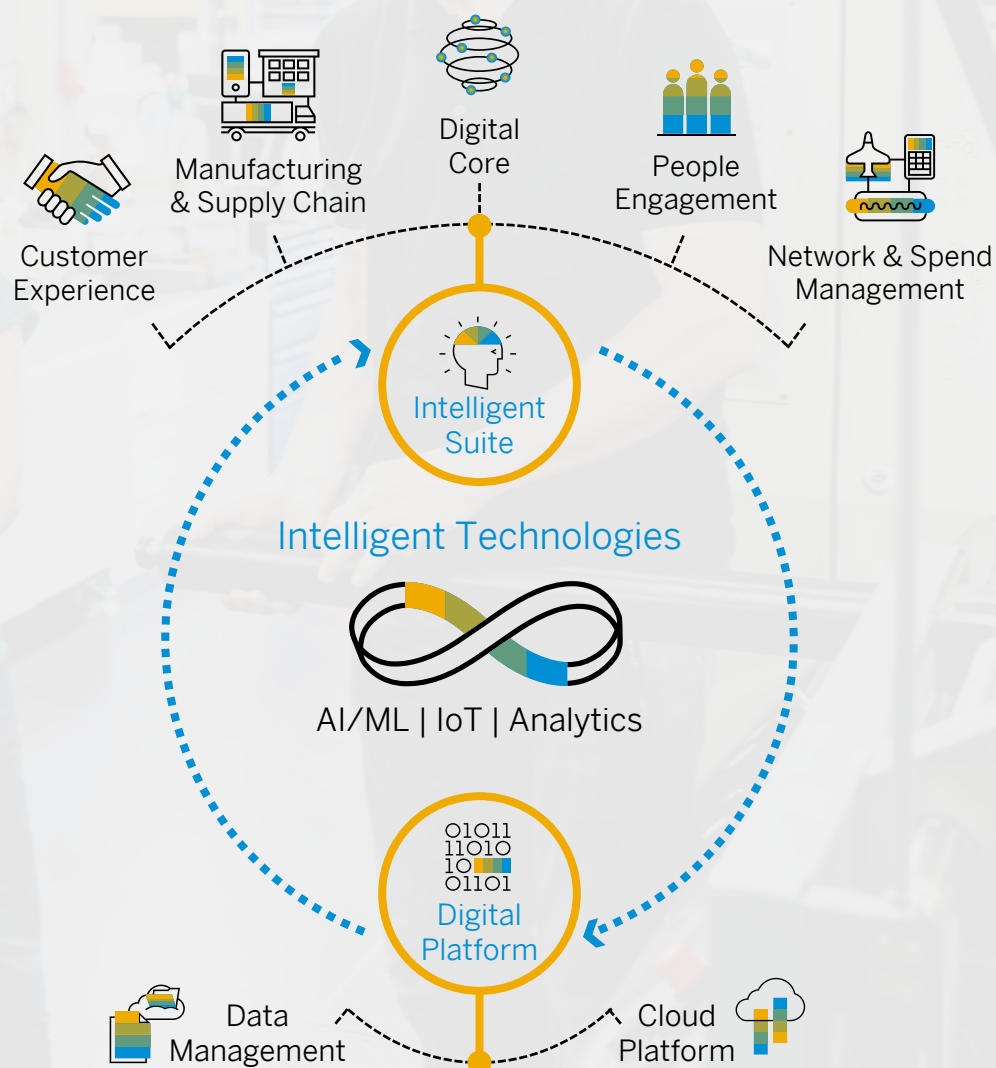


# SAP'S FRAMEWORK FOR THE INTELLIGENT ENTERPRISE

The Intelligent Enterprise framework (see Figure 9) is a suite of intelligent business applications that use intelligent technologies and can be extended on a digital platform.

This enables next-generation organizational processes to deliver breakthrough business value on our customers' journey to becoming intelligent enterprises.

**Figure 9: SAP Intelligent Enterprise Framework**







# HOW TO PLAN YOUR PATH TO THE INTELLIGENT ENTERPRISE

In the digital economy, intelligent technologies and integrated operating processes are now driving digital transformation.

To do this effectively requires an end-to-end plan for becoming an intelligent enterprise. This includes creating an intelligent enterprise road map and implementation plan with proven best practices and deployment options that optimize for continuous innovation with a focus on intelligent outcomes.

## The end-to-end journey to becoming an intelligent enterprise



### Plan

well to manage expectations

#### Simplify and innovate

- Reimagined operating models, processes, and work
- SAP Intelligent Enterprise Framework methodology as a guide for digital transformation
- Value-based innovation road maps

### Build and launch

with proven best practices

#### Standardize and innovate

- Model-organization approach to accelerate adoption with model industry solutions
- Design thinking and rapid, tangible prototypes
- Coengineered industry innovations delivered with agility

### Run

all deployment models

#### Run with one global support

- One global, consistent experience
- End-to-end support – on premise, cloud, or hybrid

### Optimize

for continuous innovation

#### Optimize to realize value

Continuously captured and realized benefits of digital transformation

To move forward with speed and agility, it helps to focus on live digital data and combine solution know-how and industry-specific process expertise with data analytics so that the right digital reference architecture is defined and delivered. In that context, a model-institution approach is aimed at simplifying and increasing the speed of the digital transformation journey. Model organizations represent the ideal form of standardization for a specific line of business or industry. They are built on preconfigured SAP solutions based on best practices supported by SAP, along with the business content that encompasses our experience and expertise relevant for the industry. They provide a comprehensive baseline and come with the accelerators to jump-start digital transformation projects.



# COMPREHENSIVE SAP ECOSYSTEM ORCHESTRATING THE WORLD TO DELIVER VALUE FASTER

Our comprehensive higher education and research ecosystem offers integration into:

- Open architecture with a choice of hardware and software
- Broad reach through partners to serve your business of any size anywhere in the world
- Complementary and innovative third-party solutions
- Forum for influence and knowledge
- Large skill sets

Our partner ecosystem includes, among others:

**accenture**  
High performance. Delivered.

**Atos**

**Capgemini**

**celonis**

**Cognizant**

**Consultoría  
Organizacional**

**CSC**

**csneovias**

**DELL**

**Deloitte.**

**EPI·USE**

**Hewlett Packard  
Enterprise**

**HITACHI**  
Inspire the Next

**IBM**

**itelligence**  
NTT DATA Business Solutions

**KPIT**

**LeverX**

**LSI**

**NEORIS**

**NTT DATA**  
Global IT Innovator

**OPENTEXT**

**seidor**

**SIEMENS**

**vendavo**

**V  
Vistex**

**wipro**



# SAP IS COMMITTED TO INNOVATION



## 10-Year Innovation Vision

SAP delivers fully intelligent business solutions and networks that span across company boundaries and promote purpose-driven businesses. These solutions will be the most empathic symbiosis between machine intelligence and human ingenuity.

- Self-running enterprise systems
- Self-organizing operational ecosystems
- New markets and operating models



## Comprehensive Industry Coverage

SAP enables comprehensive coverage of the complete higher education and research value chain across the enterprise. With its clear industry road map, SAP is the partner of choice for the industry.

- More than 8,000 higher education and research customers innovate with SAP solutions
- 97 of the top 100 global universities run SAP solutions
- The top 20 universities with the largest endowments run SAP solutions
- All lines of business are supported on a single platform



## Proven Services Offering

By bringing together world-class innovators, industry and emerging technology expertise, proven use cases, and design thinking methods, we help higher education institutions develop innovations that deliver impact at scale.

- Proven methodologies to drive innovation, from reimagining customer experiences to enhancing operations
- Innovation that is fueled through a managed innovation ecosystem from SAP
- Ability to build your own innovation capability and culture

SAP supports higher education and research organizations in becoming intelligent enterprises– providing integrated business applications that use intelligent technologies and can be extended on SAP Cloud Platform to deliver breakthrough business value.



## Learn more

- [SAP.com for Higher Education and Research](#)
- [SAP Leonardo](#)
- [SAP Digital Business Services](#)
- [SAP Design Thinking](#)



# RESOURCE

Outlined below is additional external research that was used as supporting material for this paper.

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9. "[IDC FutureScape: Worldwide Manufacturing Product and Service Innovation 2019 Predictions](#)," IDC, Doc. #US43135918, October 2018.
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17. "[Emerging Opportunities for Discrete Manufacturers to Deploy Industry Processes in the Cloud](#)," Forrester Consulting on behalf of SAP, July 2018.
18. "[Gartner Top 10 Strategic Technology Trends for 2019](#)," Gartner, October 15, 2018.
- 19., 20. "[Conflicted Views of Technology: A Survey of Faculty Attitudes](#)," *Inside Higher Ed* in partnership with Gallup, October 2018.
- 21., 22. "[New Survey Data: Four Out of Five College Students Say Digital Learning Technology Helps Improve Their Grades](#)," McGraw-Hill, October 17, 2016.

Note: All sources cited as "SAP" or "SAP benchmarking" are based on our research with customers through our benchmarking program and other direct interactions with customers.



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