

# REIMAGINING EDUCATION WITH DIGITAL TECHNOLOGIES

TO HELP YOU  
INNOVATE AT SCALE AND  
DELIVER ON DEMAND!

A CATALOGUE OF OUR  
SELECT CASE STUDIES



**happiest minds**  
The Mindful IT Company

Born **Digital** . Born **Agile**

# **ARE YOU LOOKING TO CREATE HIGHLY PERSONALIZED DIGITAL EXPERIENCES THAT DELIVER IMPACT?**

The learning ecosystem has changed more in the last 10 years than it has in the last several decades combined. This change is being driven by the emergence of digital technologies, proliferation of mobile devices and the emergence of a robust and always connected infrastructure. In addition, learner expectations have shifted dramatically towards personalized, engaging and interactive learning models that can be delivered on the go – anytime and anywhere.

As a result, the onus is now on Education providers to effectively leverage disruptive technologies to drive innovation in the way they develop, customize and administer learning programs while closely tracking their effectiveness.

At the same time, monolithic learning delivery systems are giving way to best of breed new generation digital learning environments (NGDLE). Hence, the need of the hour is to build unified digital learning experience platforms that can seamlessly co-exist and effectively integrate best-of-breed standalone learning systems.



# WHO ARE HAPPIEST MINDS & WHY YOU SHOULD TALK TO US?

We are a Next Generation  
Digital Transformation,  
Infrastructure, Security and  
Product Engineering  
Services Company.

Happiest Minds Technologies is a company with investments from Intel Capital and JP Morgan, with a rich engineering pedigree. With a strong presence in the Edutech space, we provide scalable and rapid technology solutions that bring about dynamic course content development and enable greater learner engagement, improved outcomes and significantly better teaching and learning experiences.

In addition, with our education analytics services and IPs such as UniVu, we provide a complete package that knits together all the required technology pieces to help education technology providers, institutions and learners measurably meet and exceed their specific goals.



Launched in  
**August 2011**



Raised funding of  
**US\$ 63.3 Mn**



J.P.Morgan

Our **Investors**



Ashok Soota

**2400+ People**

**170+ Customers**

**16 Cities**

**8 Countries**





# LEVERAGING ADAPTIVE LEARNING, DIGITAL TECHNOLOGIES & CONTENT ANALYTICS TO CREATE NEXT GENERATION LEARNING



Happiest Minds provides a comprehensive set of tailored offerings for the education industry that helps in accelerating the adoption of digital technologies to create learning experiences that are in tune with the expectations of contemporary learners.

This helps education technology providers publishers and institutions optimize their cost of developing new learning products while accelerating their time to market. At the same time, we also cater to learning institutions to maximize their effectiveness across the full spectrum right from attracting the students with the highest probability of success to optimizing course development and delivery.

## Happiest Minds' EduTech offerings

 <b>Digital Learning</b> <ul style="list-style-type: none"><li>• Content Enrichment</li><li>• NGDLE</li><li>• Anytime, Anywhere learning</li><li>• Adaptive personalized learning</li><li>• Predictive analytics</li><li>• Commerce and Distribution</li><li>• Compliance Testing</li><li>• Immersive learning</li></ul>	 <b>Learner Experience</b> <ul style="list-style-type: none"><li>• Course and Aid recommendation</li><li>• Best fit Students</li><li>• RPA – workflow automation</li><li>• Robo-advising</li><li>• Social platforms</li><li>• Placement rotation systems</li></ul>	 <b>Guided Assessment</b> <ul style="list-style-type: none"><li>• Question Item bank management</li><li>• Testing and Assessment</li><li>• Proctoring</li><li>• Adaptive assessment</li><li>• Badging service</li></ul>	 <b>Digital Campus</b> <ul style="list-style-type: none"><li>• SIS, ERP, workflow Automation</li><li>• Mobile Tech</li><li>• Institution wide integration</li><li>• Institutional Analytics</li><li>• Chatbots, Conversational interfaces and portals</li><li>• Formal and Executive education</li><li>• Student recruitment</li><li>• Student retention</li><li>• Institutional IOT</li><li>• Campus wide Threat Management, SDN/NFV/SDWAN</li></ul>
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# EXPERIENCE THE DIFFERENCE WITH HAPPIEST MINDS



End-to-End education solution offerings that cover content, learning platforms, institutional administration, analytics, commerce and distribution.



Advanced analytics – Embedded analytic solution, ML/AI, Image/Video analytics, chatbot, student retention, enrollment and student engagement.



Technology leadership – Investing ahead of the market in the technology stack.



We are focused on using disruptive technologies like Adaptive learning content analytics, as key building blocks to overall build next generation learning experiences.







A photograph of a man with curly brown hair, wearing a white shirt and a patterned tie, pointing at a computer monitor. In the background, a woman with blonde hair is seated at a desk, working on a computer. The scene is set in a modern office or classroom environment. A blue rectangular overlay is positioned on the right side of the image, containing the text 'CASE STUDIES' in white, bold, sans-serif capital letters.

# CASE STUDIES

# Using Data Modeling to accurately predict Student Performance and effectively decrease Drop-out Rates

## CHALLENGE

The client is in the business of offering exam preparation courses for the insurance industry. However, a change in the evaluation procedure that placed higher emphasis on critical and analytical thinking in candidates led to a steep decline in the performance of students. The client was looking to arrest the resulting dropouts by putting in place a learner support system to automatically identify at risk students and initiate remedial action.

## SOLUTION

- Happiest Minds built a solution that analyzed the current student database and corroborated our findings with students who'd dropped out of the course.
- Modelled the data using various classification models while factoring in model complexity and model accuracy.
- Basis the chosen model, the team built a prediction engine that accurately classified at risk students.
- Built a visualization layer that could easily showcase trends pertaining to student performance and help instructors and administrators take corrective action.

## TECHNOLOGIES LEVERAGED

ThemesPython,  
XGBoost, Hidden  
Markov Models, Cox  
Regression, Recurrent  
Neural Networks,  
PowerBI, Azure Data  
Science VM

## VALUE DELIVERED

Reduced the  
turnaround time for the  
client by identifying at  
risk students

Developed an  
easily learnable  
model to provide  
for continuous  
calibration based  
on new data.

Enabled the client  
to make sense out  
of varied data sets  
to arrest student  
dropouts and  
boost revenues.



# Facilitated the move from traditional Business Intelligence software to a large scale Big data platform to support Batch and Real-time Analytics

## CHALLENGE

The client, a large global player in the education, research and technology services business was inundated with multiple data platforms. This required integrating the data from a variety of data sources and consolidating them into data marts and data warehouses. From these data management systems, the client carried out reporting to third party software for sales, revenue, usage and bibliometrics. They also had an MDM platform to handle their large customer data from a variety of internal and external systems.

The other important charter was improving their learning analytics platform to support evidence based teaching and ensure enriched learning experiences for new generation learning products.

## SOLUTION

- Happiest Minds was responsible for the development and enhancement of the Data Analytics & Insights (DAI) tracks.
- We built the Sales Data mart, Usage Data mart, Customer Master Data Management and Bibliometrics Data mart.
- Ensured a seamless integration with Hybris for e-commerce.
- Data Integration to third party systems for data discovery and visualization.
- Provided large scale consultation and implementation to move to a cloud based Data Lake and Data Warehouse using real time and batch data pipelines.

## VALUE DELIVERED

Put in place best practices by using our demonstrated expertise to facilitate the transition to a new-generation analytics platform.

Provided support to a variety of data sources thereby helping the client obtain a 360-degree view to make informed decisions.

## TECHNOLOGIES LEVERAGED

Informatica PowerCentre,  
Informatica Data Quality,  
Informatica MDM, Talend,  
Java, Netezza, Oracle, AWS  
Big Data Services & Qlik





# Built a Digital Learning Experience Platform to support Enhanced Content Delivery and Personalized Learning

## CHALLENGE

Traditional forms of learning have now evolved into a model that is required to be engaging, interactive and robust to facilitate ease of learning and greater effectiveness. The client was looking to build content that is current, real-time as well as interactive to host it on a learning platform, enabling anytime-anywhere learning so that it works equally well online and offline. The first step towards this was to create a content ingestion and enrichment system that makes the process interesting and engaging for learners.

## SOLUTION

- Happiest Minds built a Content ingestion platform to support various formats of learning content.
- Learning content was securely stored in content management systems that are highly replicated, indexed and optimized for delivery.
- The rich meta information about the content – usage, activities, context and products were made accessible over APIs. This resulted in sophisticated search, discovery and access to any type of ingested content.
- Content was enriched with different toolsets such as advanced flashcards, branched scenarios, click to reveal options, enhanced images including image drag and drop, graphs, maps and assessment sequencing.
- The platform built by us provides the ability for instructors and course designers to mix and match content from multiple paid as well as open education resources to support specific learning objectives and outcomes.

## TECHNOLOGIES LEVERAGED

Java/J2EE, Cassandra,  
AngularJS, Spring,  
Redis, Jenkins, Logstash

## VALUE DELIVERED

Support for varied content formats helped the client in providing a platform to expeditiously offer multiple online courses in different digital formats.

Interactive elements and toolsets made available lowered the technology barriers for instructors thereby helping them launch courses more rapidly.

Engaging content that significantly contributed towards helping students in assimilating complex subjects and concepts much faster.



# Developed an all-purpose Learning Platform to support various Learning Models and render different types of Learning Content

## CHALLENGE

With the emergence of multiple mobile form factors that enable learning on the move, the client was looking to build a generic content rendition engine that provides a seamless learning experience over the web across mobile devices and tablets. The need was to customize standards based readers that could be embedded into any learning platform and would be duly supported by backend services.

## SOLUTION

Happiest Minds built an SDK that is used to render and play the content smoothly. The solution involved:

- Building UI specific controls and widgets such that the players can support content richness involving a combination of narrative texts and interactive elements to provide similar learning experiences across web, mobile devices or tablets.
- Developing a rendering engine that is attuned to different form factors and can operate with varying levels of bandwidth.
- Server-side microservices to support relevant content.
- A specialized media player to upload and livestream content as needed.
- Dynamic and adaptive content and assessment rendering.
- Custom e-readers, Scorm and industry standard players, audio and video players to support enhanced content delivery.
- A video player that can adapt to mobile, web and browsers providing captions, chaptering, inbuilt quizzes, descriptive videos, speed control and interactive transcripts.

## VALUE DELIVERED

Unified content rendering experience across web, mobile and tablets providing enhanced student engagement and improved learning experience.

Improved reach that gained accessibility to different type of learners like formal, continuing and adult learners.

## TECHNOLOGIES LEVERAGED

Java, Spring, Cassandra, HTML, jQuery, Advance JS, Jenkins, Stash and Sonar

# Harnessing the power of Big Data and Learning Analytics for enabling Personalized Online learning

## CHALLENGE

The client was catering to a large learner base with both formal and informal educational backgrounds and was using a hybrid and flipped class room model. This had resulted in effective utilization of instructors without compromising on student engagement. As the benefits of this approach became obvious, there was an urge to go completely online while retaining the effectiveness and learner engagement achieved through the existing hybrid model in use.

## SOLUTION

- Built an embedded analytics platform that can plug into any learning platform.
- Captured every learning event on a real-time basis.
- Built an event Ingestion service: Supporting TinCan/xApi for events.
- Support for batch and real-time analytics.
- Data lake to consolidate data across various underlying systems.
- Analytics models and business intelligence systems for reports.
- Algorithms for predictive analytics.
- Provide APIs for adaptive learning integrations.

## TECHNOLOGIES LEVERAGED

Apache NiFi, Hadoop,  
Tableau, AngularJS,  
Python for data  
sciences

## VALUE DELIVERED

- Quick deployment of an embedded analytics solution to provide greater learner insights.
- Evidence based decision making for instructors and program administrators.
- Early alerts for proactive student engagement and remedial actions.
- Highly personalized learning experiences based on the background and needs of each learner.
- Better student completion, outcomes and significantly improved returns on investment.



# Creation of an Adaptive Learning Integration service to align Course Delivery and Pacing with Learner Competencies

## CHALLENGE

The client was looking to generate personalized learning paths for students based on their unique learning needs and the time taken to grasp new concepts. The need was to build an autonomous learning engine that provides guided learning activities based specifically around the needs of the learner and their preferred pace of absorbing the content. This was driven by specifically defined assessment programs that intuitively determined whether a learner was at the beginner, intermediate or advanced levels to charter an appropriate learning path.

## SOLUTION

Happiest Minds worked on the integration of a learning platform into an adaptive learning system that provided for improved course pacing and delivery. The solution involved –

- User provisioning and Synchronization which required integrating learner systems and the adaptive engine through single sign-on.
- Providing a mechanism to make the system aware of user context (profile, goals, current levels, effort, pace et al) and course attributes (difficulty level, learning path et al).
- Determining the skills definition and associated weights, threshold levels to qualify learners to bucket them according to competency levels, building a content inventory and establishing reliable rankings.
- Setting up rules and priorities for using an adaptive engine to baseline and determine appropriate course pacing and delivery.
- Continuously update meta data to understand learners and associated learning material
- Assignment rendering for effective measurement of learner progress.

## VALUE DELIVERED

Deployed an adaptive learning service at scale to support personalized course delivery.

Developed a more tailored system of assignments and tests based on each learner's potential.

Put in place an automated system to continually track proficiency of learners.

## TECHNOLOGIES LEVERAGED

Java, Oracle, Spring, Spring JDBC, Angular for UI

# Automated the process of Proctoring to Improve Quality of Assessments and Reduce Administration Costs

## CHALLENGE

The client is in the business of offering exam preparation courses for the Nursing industry. The course preparation required the client to provide multiple practice examinations that were all proctored simulating an actual examination styled setup. Proctoring required IoT and man power and the client wanted to put in place a technology solution to lockdown the computers used for administering tests.

## SOLUTION

- Happiest Minds built a solution with a mechanism to lock down the computers at the start of the tests and restore the machines to normal operations once the testing was complete.
- The lockdown involved, preventing access to applications other than the one used to administer the tests.
- Put in place a mechanism to track the number of time violations allowed before tagging and revoking the exam for the learners.
- Ability for the proctor to see what one is doing in the examination center.

## TECHNOLOGIES LEVERAGED

Angular 6 , TypeScript,  
.NET Core, .NET WebAPI,  
EF Core, SQL Server

## VALUE DELIVERED

Significantly increased  
proctoring efficiency by  
utilizing intelligent cameras.

Ensuring accurate  
performance results based  
on student performance.



# NOTES

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

## About Happiest Minds

Happiest Minds, the Mindful IT Company, applies agile methodologies to enable **digital transformation** for enterprises and technology providers by delivering seamless customer experience, business efficiency and actionable insights. We leverage a spectrum of disruptive technologies such as: Big Data Analytics, AI & Cognitive Computing, **Internet of Things**, Cloud, Security, SDN-NFV, RPA, Blockchain, etc. Positioned as "Born Digital . Born Agile", our capabilities spans across product engineering, digital business solutions, infrastructure management and security services. We deliver these services across industry sectors such as retail, consumer packaged goods, edutech, e-commerce, banking, insurance, hi-tech, engineering R&D, manufacturing, automotive and travel/transportation/hospitality.

Headquartered in Bangalore, India Happiest Minds has operations in USA, UK, The Netherlands, Australia and Middle East.

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[http://www.happiestminds.com/  
services/education-publishing](http://www.happiestminds.com/services/education-publishing)**

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