The Total Economic Impact™
Of Udacity For The Oil And Gas Industry

Cost Savings And Business Benefits
Enabled By Udacity’s Technical Upskilling Content Solutions For Enterprises

JUNE 2021
# Table Of Contents

**Executive Summary** .................................................. 1

**The Udacity Customer Journey** ............................. 6
   Interviewed Organization ........................................ 6
   Key Challenges ................................................... 6
   Solution Requirements/Investment Objectives ....... 7
   Use Case Description .......................................... 7

**Analysis Of Benefits** ............................................. 8
   Increased Productivity Of Upskilled Staff ............... 8
   AI Total Talent Cost Avoidance ......................... 9
   Unquantified Benefits ...................................... 10
   Flexibility ....................................................... 11

**Analysis Of Costs** ................................................. 12
   Annual Seat Fees .............................................. 12
   Cost Of Lost Productive Time Of Course 
      Participants ............................................... 13
   Initial And Ongoing Costs ................................. 14

**Financial Summary** .............................................. 16

**Appendix A: Total Economic Impact** .................. 17

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**ABOUT FORRESTER CONSULTING**

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Executive Summary

To remain competitive within their industries, non-technical enterprises face challenging and burdensome digital transformations. Given the scarcity of AI talent and the high, corresponding expense of external hiring, organizations need practical solutions to meet these new digital demands in-house. Udacity effectively upskills existing technical workforces, enabling organizations to reduce the cost of outside recruiting and increase internal productivity, engagement, and pride.

Udacity commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying Udacity’s Technical Upskilling Content Solution for Enterprises. The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of Udacity on their organizations.

Udacity is a cloud-based upskilling platform that offers industrywide, globally recognized Nanodegree programs. Courses in high-tech fields such as AI, data science, programming, and cloud computing are presented on a user-friendly platform, allowing course participants to enhance their skill sets with information required by their industries’ digital transformations. Beyond the advanced, cutting-edge content, Udacity courses are taught by actual practitioners with the latest knowledge. The courses include hands-on projects, personalized skill assessments, and real-time access to over one thousand mentors to answer participants’ questions. Employees can upskill to meet new digital challenges within their fields and industries. Having an online educational platform with relevant, standardized content allows organizations to train their employees on dynamic technologies, and thereby promote from within — avoiding costly recruiting and high starting salaries of scarce talent with high-demand technology skills.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed a London-based data science manager representing a large, multinational energy corporation with two years of experience using Udacity. Forrester used the data from this interview to project a three-year financial analysis.

Prior to using Udacity, the organization used an unstandardized, ad-hoc approach to employee upskilling, deploying multiple vendors with multiple solutions. These inconsistent learning methods led to unpredictable outcomes across the team.

After the investment in Udacity, the customer reported increased productivity in the upskilled talent pool, as well as a reduction in the costs associated with outside hiring. The ability to oversee the formalized, standardized delivery of technical learning content and educating the data science team from within allowed the organization to generate consistent outcomes and become better equipped to meet its digital transformation goals.
EXECUTIVE SUMMARY

KEY FINDINGS

Quantified benefits. Risk-adjusted present value (PV) quantified benefits include:

- **Increased productivity of upskilled staff.** As team members complete Nanodegree programs and become proficient in specific technologies, the organization is able to reduce project completion time from 4.5 months to three months. With productivity gains worth $2.6 million per year, the three-year, risk-adjusted present value (PV) of the benefit totals approximately $5.8 million.

- **AI total talent cost avoidance.** Offering Udacity upskilling Nanodegree courses to its data science team members, the team is able to achieve its objectives internally and rely less on costly outside AI talent. According to the interviewee, the organization avoids the high salary expense as well as the recruiting cost of 10 senior-level AI experts per year. Over three years, at an annual salary of $80,000 and with recruiting costs that are 50% of salary, the AI talent cost avoidance is worth approximately $2.7 million to the organization.

Unquantified benefits. Benefits that are not quantified for this study include:

- **Collaborative partnership.** The interviewee said that in addition to providing standardized and quality upskilling content, Udacity boasts a knowledgeable and responsive customer service team that works closely with data science to develop specific education “tracks” tailored to its specific needs.

- **Improved employee experience.** Team members who participate in Udacity’s Nanodegree courses appreciate the opportunity to build and improve their skill sets. Offering this added-value benefit at no cost to the employee is a way for the organization to demonstrate its commitment to career development and encourage employee loyalty.

- **Increased agility.** Because Udacity is cloud-based and team members complete Nanodegrees individually, the courses allow the flexibility to work with varying schedules, baseline skill levels, and learning methods. The interviewee said the flexibility of Udacity was particularly evident during the COVID-19 pandemic. Although team members were forced to adopt a work-from-home model, they could still access their coursework and complete their programs.

Costs. Risk-adjusted PV costs include:

- **Annual seat fees.** The organization pays $4,800 per seat, and it has purchased 100 seats per year since deploying Udacity two years ago. And decision-makers expect to purchase the same number of seats next year. This translates to a total PV cost of $1.2 million over three years on a risk-adjusted basis.

“Udacity enables us to upskill and reskill our data scientists and engineers at a very large scale in order to meet the needs of the overall digital transformation that is happening.”

*General manager of data science, oil and gas industry*
• **Cost of lost productive time of course participants.** The organization invests in its employees and believes that through empowerment and knowledge, learning can benefit the employee in the form of career development while the employer benefits in the form of efficiencies and cost avoidance. To realize these benefits, the organization incurs a cost to encouraging employees to perform all course activities during working hours. However, this cost is offset by increased employee retention. Completing a Nanodegree requires 13 hours per week for a period of six months, while employee retention improves by 10%, resulting in a risk-adjusted PV cost of $1.1 million over three years.

• **Initial and ongoing costs.** Initial costs include administrative and technical FTE hours that are required to implement, manage, and participate in a pilot program. Ongoing costs include 25% of one FTE’s time to manage the Udacity relationship and internal Udacity programs. The risk-adjusted PV cost to the organization over three years totals $277,333.

The interview and financial analysis found that this customer experiences benefits of $8.5M over three years versus costs of $2.6M, adding up to a net present value (NPV) of $5.9M and an ROI of 232%. 
EXECUTIVE SUMMARY

**ROI**
232%

**BENEFITS PV**
$8.5M

**NPV**
$5.9M

**PAYBACK**
<3 months

Benefits (Three-Year)

- Increased productivity of upskilled staff: $5.8M
- AI total talent cost avoidance: $2.7M

Udacity’s upskilling programs enable data science teams to significantly reduce the need to recruit outside senior-level AI talent.
EXECUTIVE SUMMARY

TEI FRAMEWORK AND METHODOLOGY
From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in Udacity.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that Udacity can have on an organization.

DUE DILIGENCE
Interviewed Udacity stakeholders and Forrester analysts to gather data relative to Udacity.

CUSTOMER INTERVIEW
Interviewed decision-makers at an organization using Udacity to obtain data with respect to costs, benefits, and risks.

FINANCIAL MODEL FRAMEWORK
 Constructed a financial model representative of the interview using the TEI methodology and risk-adjusted the financial model based on issues and concerns of the interviewed organization.

CASE STUDY
Employed four fundamental elements of TEI in modeling the investment impact: benefits, costs, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, Forrester’s TEI methodology provides a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

DISCLOSURES
Readers should be aware of the following:
This study is commissioned by Udacity and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the report to determine the appropriateness of an investment in the solution.

Udacity reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester’s findings or obscure the meaning of the study.

Udacity provided the customer name for the interview but did not participate in the interview.
**INTERVIEWED ORGANIZATION**

Forrester interviewed a data science manager employed by an organization with the following characteristics:

- A large, global oil company that performs oil exploration and energy production.
- Relies on a data science team to lead the organization through its large-scale digital transformation.
- Recognizes the urgent need to integrate more digital technology across the energy value chain to remain competitive.

**KEY CHALLENGES**

Prior to implementing Udacity, the interviewed customer’s upskilling attempts happened on the individual level through a combination of outside sources, such as noninteractive online courses or external offsite courses offered by universities or technical learning centers. In addition to the lack of standardization in its upskilling program, the organization lacked a method for assessing the existing skills and needs of the current technical workforce. The management team sought an interactive, globally recognized solution to help accomplish the organization’s strategic digital goals in a consistent and organized manner.

The interviewed organization struggled with common challenges, including:

- **Technical workforce skill levels lagged behind industry advances.** Without an organized and standardized upskilling curriculum providing measurable results, the organization lacked the ability to respond to significant technology advances related to the energy sector. The fast pace of relevant industry advances required decision-makers to rethink the organization’s digital learning position and make a dramatic resource shift to remain competitive.

- **Excessive costs incurred to recruit external, higher-level AI engineers.** Recruiting highly skilled AI engineers was costly because their skills and talent are in high demand. In addition to the high recruiting fees totaling 50% or more of the annual salary, AI engineers expected a higher salary than that of an internally upskilled employee because universal supply of external talent did not meet the demand.

- **Lack of a cohesive, effective content learning program.** In the absence of a unified and standardized upskilling solution, the customer could not appropriately address its digital transformation needs in an organized and measurable way that would allow the organization to create a more productive skilled technical workforce. Lacking a formalized program, team members who sought to upskill enrolled in a variety of content programs that provided various levels of knowledge about topics that did not necessarily correspond to the needs of the organization.

“The Udacity gives us a consolidated view of skill assessments and outcomes, allowing us to quickly recognize and remedy skill gaps with a standardized curriculum.”

*General manager of data science, oil and gas industry*
When evaluating the outcomes across the team, the interviewee said, “The programs were ineffective. … We just never knew what we were getting.”

“One of the reasons we like Udacity so much is that it’s a mature learning product. The performance and scalability is already there, as well as the global recognition as an effective upskilling program.”

General manager of data science, oil and gas industry

SOLUTION REQUIREMENTS/INVESTMENT OBJECTIVES

The interviewed organization searched for a solution that could:

- Provide skill assessments and address the organization’s upskilling and reskilling needs with a standardized and targeted curriculum.
- Offer a cloud-based, accessible, and user-friendly platform.
- Translate outcomes into increased productivity and a smaller talent-recruiting budget for the data science team.

USE CASE DESCRIPTION

The organization adopted Udacity to proactively manage the continuing and necessary upskilling of employees, ensuring that its technical workforce meets the current and future digital needs of the company. Udacity enables the organization’s technical employees to gain new skills or expand current skills, offering relevant professional development opportunities and job security to course participants and allowing the organization to realize productivity gains and reduce human capital expenses.

For this use case, Forrester has modeled benefits and costs over three years.

Key assumptions

- Enterprise organization in the oil and gas industry
- Purchases 100 seats per year
- Annual cost per seat is $4,800
- 120 data science projects completed each year
- 240 hours saved per project
- Team realizes the cost avoidance of 10 AI engineers

For this use case, Forrester has modeled benefits and costs over three years.
Analysis Of Benefits

Quantified benefit data

Total Benefits

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Benefit</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
<th>Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atr</td>
<td>Increased productivity of upskilled staff</td>
<td>$2,332,800</td>
<td>$2,332,800</td>
<td>$2,332,800</td>
<td>$6,998,400</td>
<td>$5,801,328</td>
</tr>
<tr>
<td>Btr</td>
<td>AI total talent cost avoidance</td>
<td>$1,080,000</td>
<td>$1,080,000</td>
<td>$1,080,000</td>
<td>$3,240,000</td>
<td>$2,685,800</td>
</tr>
<tr>
<td></td>
<td>Total benefits (risk-adjusted)</td>
<td>$3,412,800</td>
<td>$3,412,800</td>
<td>$3,412,800</td>
<td>$10,238,400</td>
<td>$8,487,128</td>
</tr>
</tbody>
</table>

INCREASED PRODUCTIVITY OF UPSKILLED STAFF

Evidence and data. The interviewee revealed the following about their organization’s use of Udacity:

- The team members who participated in Udacity courses used their improved skill levels to accomplish data science projects more efficiently. This allowed the team to complete more projects per quarter than it could in its legacy environment.

- The team realized efficiencies that were directly correlated to the effective upskilling content presented in the Udacity Nanodegree courses. The interviewee said, “With Udacity and the accelerated adoption of new technologies, we are able to keep headcount relatively constant and drive more throughput with faster project delivery.”

Modeling and assumptions. For the financial model, Forrester assumes that:

- The team completes 120 data science projects per year.

- The hours saved to complete a project total 240 after adopting Udacity’s content delivery model.

- Each project requires six data science team members to complete.

- The fully loaded hourly rate of a data scientist is $24.

- All salary assumptions are based on average UK salaries converted into US dollars.

- Because not all time saved translates into productive time, Forrester applied a productivity capture of 60%.

Risks. The increased productivity of upskilled staff will vary with:

- The baseline skill levels in the legacy environment.

- Salary levels (which can vary by location and employee experience).

- The organization’s digital requirements.

“Offering the Udacity educational platform contributes to our employee value proposition. Over 80% of the participants reported that the program improved their loyalty to the company. This impact is extremely powerful.”

General manager of data science, oil and gas industry
• The organization’s size, industry, and location.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $5,801,328.

### Increased Productivity Of Upskilled Staff

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Metric</th>
<th>Calculation</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Data science projects completed per year</td>
<td>Interview</td>
<td>120</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>A2</td>
<td>Hours saved per project due to upskilling</td>
<td>6 weeks*40 hours</td>
<td>240</td>
<td>240</td>
<td>240</td>
</tr>
<tr>
<td>A3</td>
<td>Number of upskilled data scientists per project</td>
<td>Interview</td>
<td>6</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>A4</td>
<td>Fully loaded hourly rate of upskilled data scientist (UK)</td>
<td>$52,000 annual salary/2,080 hours per year</td>
<td>$25</td>
<td>$25</td>
<td>$25</td>
</tr>
<tr>
<td>A5</td>
<td>Productivity capture</td>
<td>Assumption</td>
<td>60%</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>At</td>
<td>Increased productivity of upskilled staff</td>
<td>A1<em>A2</em>A3<em>A4</em>A5</td>
<td>$2,592,000</td>
<td>$2,592,000</td>
<td>$2,592,000</td>
</tr>
<tr>
<td>Atr</td>
<td>Increased productivity of upskilled staff (risk-adjusted)</td>
<td>$2,332,800</td>
<td>$2,332,800</td>
<td>$2,332,800</td>
<td></td>
</tr>
</tbody>
</table>

Three-year total: $6,998,400  
Three-year present value: $5,801,328

### AI TOTAL TALENT COST AVOIDANCE

**Evidence and data.** The interviewee revealed the following about their organization’s use of Udacity:

• Udacity courses provided participants with needed, uniform skills that enabled their team to achieve their organization’s digital goals, reduce excessive recruitment costs, and avoid unnecessarily high salary levels.

• Employees developed and advanced their careers at no personal cost, leading to higher employee retention. The interviewee said, “We have a very low turnover rate, and I think that is due to the new holistic learning culture that became possible with Udacity.”

• The interviewee also addressed another risk of hiring unknown, outside talent. He said: “We could hire from the outside, but not only is it expensive, you also don’t really know that person’s capabilities other than [what’s in] their CV. If you have internal human capital that can be upskilled or reskilled, that’s a win-win. You know exactly what you’re getting.”

**Modeling and assumptions.** For the financial analysis, Forrester assumes that:

• Upon the adoption of Udacity, the team is able to avoid hiring 10 new AI engineers each year.

• The fully loaded annual salary of an AI engineer is $80,000.

• The cost to recruit is 50% of the annual salary.

• All salary assumptions are based on average UK salaries converted into US dollars.

**Risks.** The AI total talent cost avoidance benefit will vary with:

• The organization’s technical employee retention rate.
The organization’s commitment to employee personal development.

The baseline skill levels in the legacy environment.

Salary levels (which can vary by location and employee experience).

The organization’s digital requirements.

The organization’s size, industry, and location.

To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year, risk-adjusted total PV of $2,685,800.

### Al Total Talent Cost Avoidance

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Metric</th>
<th>Calculation</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>Number of outside AI engineer hires required as an alternative to upskilling</td>
<td>Assumption</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>B2</td>
<td>Fully loaded salary of outside AI engineer hire (UK)</td>
<td>Assumption</td>
<td>$80,000</td>
<td>$80,000</td>
<td>$80,000</td>
</tr>
<tr>
<td>B3</td>
<td>AI engineer cost to recruit</td>
<td>$80,000 annual salary*50%</td>
<td>$40,000</td>
<td>$40,000</td>
<td>$40,000</td>
</tr>
<tr>
<td>Bt</td>
<td>AI total talent cost avoidance</td>
<td>B1*(B2+B3)</td>
<td>$1,200,000</td>
<td>$1,200,000</td>
<td>$1,200,000</td>
</tr>
<tr>
<td>Btr</td>
<td>AI total talent cost avoidance (risk-adjusted)</td>
<td>↓10%</td>
<td>$1,080,000</td>
<td>$1,080,000</td>
<td>$1,080,000</td>
</tr>
</tbody>
</table>

Three-year total: $3,240,000  
Three-year present value: $2,685,800

### UNQUANTIFIED BENEFITS

Additional benefits that the customer experienced but was not able to quantify include:

- **Collaborative partnership.** The interviewee said the customer service team at Udacity is accessible and responsive. He said, “The customer service has been very supportive, helping to create senior leader engagements as well as helping our people really understand our objectives.”

- **Improved employee experience.** Offering quality upskilling opportunities to the data science team members to learn new skills or to expand existing talents created a more satisfied technical workforce. The employees feel more appreciated, more capable, and more versatile as their skillsets grow. This leads to increased engagement and productivity. The interviewee said, “Ninety-six percent of our participants reported that they learned a new skill or enhanced an existing skill that they can directly apply to their existing job roles.”

- **Increased agility.** The cloud-based upskilling platform offers a flexible solution that allows course participants to complete coursework
regardless of location. This is especially relevant after the shift to work-from-home models due to the COVID-19 pandemic.

Udacity helped the organization upskill its technical employees and meet the dynamic digital demands of the oil and gas industry while eliminating reliance on offsite technical educational courses.

**FLEXIBILITY**

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement Udacity and later realize additional uses and business opportunities, including:

- **Accessibility to cutting-edge technological content delivery.** Udacity offers an interactive solution for organizations to quickly embrace and activate cutting-edge technical skills. The interviewee stated: “With new emerging technologies, it’s very hard to get people trained in a timely manner without something like Udacity in place. I can have people working on a Nanodegree within weeks of identifying a new skill needed.”

- **Customization of content.** Udacity allows the organization to select content and design a program specific to its needs. Developing tailored “tracks” to correspond to the organization’s immediate technical requirements enables the organization to retain its competitive position within its industry. The interviewee said: “The ability to deploy cutting-edge learning tailored to our needs is really important. I don’t have to worry about employee performance, consistency, or scalability with Udacity.”

- **Operational efficiency.** As the organization’s participants continue to achieve Udacity Nanodegrees, the data science course graduates are better equipped to quickly identify new skills needed to achieve the organization’s digital transformation goals.

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in **Appendix A**).
Analysis Of Costs

Quantified cost data

Total Costs

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Cost</th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
<th>Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ctr</td>
<td>Annual seat fees</td>
<td>$0</td>
<td>$480,000</td>
<td>$480,000</td>
<td>$480,000</td>
<td>$1,440,000</td>
<td>$1,193,689</td>
</tr>
<tr>
<td>Dtr</td>
<td>Cost of lost productive time of course participants</td>
<td>$0</td>
<td>$436,800</td>
<td>$436,800</td>
<td>$436,800</td>
<td>$1,310,400</td>
<td>$1,086,257</td>
</tr>
<tr>
<td>Etr</td>
<td>Initial and ongoing costs</td>
<td>$248,952</td>
<td>$11,413</td>
<td>$11,413</td>
<td>$11,413</td>
<td>$283,190</td>
<td>$277,333</td>
</tr>
<tr>
<td></td>
<td>Total costs (risk-adjusted)</td>
<td>$248,952</td>
<td>$928,213</td>
<td>$928,213</td>
<td>$928,213</td>
<td>$3,033,590</td>
<td>$2,557,279</td>
</tr>
</tbody>
</table>

ANNUAL SEAT FEES

Evidence and data. The interviewee revealed the following about their organization’s use of Udacity:

- Udacity charges annual seat fees of $4,800.
- The organization purchases 100 seats per year.

Risks. Given Udacity's standard pricing structure across all industries, Forrester did not apply a risk adjustment to this cost. It did however yield a three-year total PV cost of $1,193,689.

Annual Seat Fees

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Metric</th>
<th>Calculation</th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>Number of seats purchased</td>
<td>Interview</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>C2</td>
<td>Cost per seat</td>
<td>Interview</td>
<td>$4,800</td>
<td>$4,800</td>
<td>$4,800</td>
<td></td>
</tr>
<tr>
<td>Ct</td>
<td>Annual seat fees</td>
<td>C1*C2</td>
<td>$0</td>
<td>$480,000</td>
<td>$480,000</td>
<td>$480,000</td>
</tr>
<tr>
<td>Ctr</td>
<td>Annual seat fees (risk-adjusted)</td>
<td></td>
<td>$0</td>
<td>$480,000</td>
<td>$480,000</td>
<td>$480,000</td>
</tr>
</tbody>
</table>

Three-year total: $1,440,000

Three-year present value: $1,193,689
COST OF LOST PRODUCTIVE TIME OF COURSE PARTICIPANTS

Evidence and data. The interviewee revealed the following about their organization’s use of Udacity:

- Udacity Nanodegree participants completed all coursework during working hours and lost time to complete their day-to-day responsibilities while engaged in the upskilling course.
- Course participants experienced increased engagement in their roles due to the investment in their career development.
- The team realized an increase in employee retention upon the completion of Nanodegrees.

Modeling and assumptions. For the financial analysis, Forrester assumes:

- Udacity course participants are required to spend 13 hours per week for six months to complete a Nanodegree program.
- The average annual, fully loaded salary of a course participant is $52,000.
- Udacity upskills 100 graduates per year.
- Forrester assumes an engagement capture of 90% because the organization’s commitment to employee development could result in a 10% cost recapture due to increased employee engagement.
- Forrester assumes a reduced turnover rate of 10%.
- All salary assumptions are based on average UK salaries converted into US dollars.

Risks. The cost of lost productive time of course participants will vary with:

- The baseline skill levels in the legacy environment.
- The baseline turnover rate.
- Salary levels (which can vary by location and employee experience).
- The organization’s size, industry, and location.

To account for these risks, Forrester adjusted this cost upward by 5%, yielding a three-year, risk-adjusted total PV of $1,086,257.
**ANALYSIS OF COSTS**

**Total Cost Of Lost Productive Time Of Course Participants**

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Metric</th>
<th>Calculation</th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>Number of upskilled graduates</td>
<td>Interview</td>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>D2</td>
<td>Lost productive time per course participant (organization pays 100% for employee time)</td>
<td>13 hours per week<em>26 weeks</em> ($52,000/2,080 hours per year)</td>
<td>$8,450</td>
<td>$8,450</td>
<td>$8,450</td>
<td></td>
</tr>
<tr>
<td>D3</td>
<td>Increased engagement capture due to human capital investment</td>
<td>Assumption</td>
<td>80%</td>
<td>80%</td>
<td>80%</td>
<td></td>
</tr>
<tr>
<td>D4</td>
<td>Cost of lost productive time of course participants</td>
<td>D1<em>D2</em>D3</td>
<td>$676,000</td>
<td>$676,000</td>
<td>$676,000</td>
<td></td>
</tr>
<tr>
<td>D5</td>
<td>Number of upskilled graduates</td>
<td>Interview</td>
<td></td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>D6</td>
<td>Percentage decrease in turnover</td>
<td>Assumption</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>D7</td>
<td>Cost of replacement</td>
<td>$52,000 upskilled salary*50%</td>
<td>$26,000</td>
<td>$26,000</td>
<td>$26,000</td>
<td></td>
</tr>
<tr>
<td>D8</td>
<td>Decrease in turnover offsetting cost of program</td>
<td>D5<em>D6</em>D7</td>
<td>$260,000</td>
<td>$260,000</td>
<td>$260,000</td>
<td></td>
</tr>
<tr>
<td>D9</td>
<td>Total cost of lost productive time offset by increased retention</td>
<td>D4-D8</td>
<td>$416,000</td>
<td>$416,000</td>
<td>$416,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Risk adjustment</td>
<td>↑ 5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dtr</td>
<td>Total cost of lost productive time offset by increased retention (risk-adjusted)</td>
<td></td>
<td>$0</td>
<td>$436,800</td>
<td>$436,800</td>
<td>$436,800</td>
</tr>
</tbody>
</table>

**Three-year total: $1,310,400**

**Three-year present value: $1,086,257**

**INITIAL AND ONGOING COSTS**

**Evidence and data.** The interviewee revealed the following about their organization’s use of Udacity:

- Initial costs include one internal data analyst committed 100% for nine months to administer and manage the Udacity pilot program.
- Internal technical labor includes 10 senior-level AI FTEs participating in the pilot course for 13 hours per week for a period of nine months.
- Ongoing management of the Udacity partnership requires 25% of one full-time data analyst.

**Modeling and assumptions.** For the financial analysis, Forrester assumes that:

- The data analyst overseeing the pilot program earns a fully loaded annual salary of $41,500.
- Senior-level AI pilot participants earn a fully loaded annual salary of $80,000.
- The data analyst responsible for the ongoing management of the Udacity partnership earns a fully loaded annual salary of $41,500.
- All salary assumptions are based on average UK salaries converted into US dollars.

**Risks.** Initial and ongoing costs will vary with:

- The complexity and length of the pilot program.
- The number of AI FTEs required to participate in the pilot program.
- Salary levels (which can vary by location and employee experience).
- The organization’s size, industry, and location.
To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV of $277,333.

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Metric</th>
<th>Calculation</th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>E1</td>
<td>Administrative labor implementation cost</td>
<td>Interview</td>
<td>$31,125</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(UK)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>Technical labor implementation cost (including pilot)</td>
<td>Interview</td>
<td>$195,195</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>E3</td>
<td>Ongoing management</td>
<td>1 FTE at $41,500*25%</td>
<td>$10,375</td>
<td>$10,375</td>
<td>$10,375</td>
<td></td>
</tr>
<tr>
<td>Et</td>
<td>Initial and ongoing costs</td>
<td>E1+E2+E3</td>
<td>$226,320</td>
<td>$10,375</td>
<td>$10,375</td>
<td>$10,375</td>
</tr>
<tr>
<td>Etr</td>
<td>Initial and ongoing costs (risk-adjusted)</td>
<td></td>
<td>$248,952</td>
<td>$11,413</td>
<td>$11,413</td>
<td>$11,413</td>
</tr>
</tbody>
</table>

Three-year total: $283,190  
Three-year present value: $277,333
Consolidated Three-Year Risk-Adjusted Metrics

The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization’s investment. Forrester assumes a yearly discount rate of 10% for this analysis.

These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Analysis (Risk-Adjusted Estimates)

<table>
<thead>
<tr>
<th></th>
<th>Initial</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Total</th>
<th>Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total costs</td>
<td>($248,952)</td>
<td>($928,213)</td>
<td>($928,213)</td>
<td>($928,213)</td>
<td>($3,033,590)</td>
<td>($2,557,279)</td>
</tr>
<tr>
<td>Total benefits</td>
<td>$0</td>
<td>$3,412,800</td>
<td>$3,412,800</td>
<td>$3,412,800</td>
<td>$10,238,400</td>
<td>$8,487,128</td>
</tr>
<tr>
<td>Net benefits</td>
<td>($248,952)</td>
<td>$2,484,588</td>
<td>$2,484,588</td>
<td>$2,484,588</td>
<td>$7,204,811</td>
<td>$5,929,849</td>
</tr>
<tr>
<td>ROI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>232%</td>
</tr>
<tr>
<td>Payback period</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>&lt;3 months</td>
</tr>
</tbody>
</table>
Appendix A: Total Economic Impact

Total Economic Impact is a methodology developed by Forrester Research that enhances a company’s technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

**TOTAL ECONOMIC IMPACT APPROACH**

**Benefits** represent the value delivered to the business by the product. The TEI methodology places equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization.

**Costs** consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.

**Flexibility** represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

**Risks** measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on “triangular distribution.”

**PRESENT VALUE (PV)**

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.

**NET PRESENT VALUE (NPV)**

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

**RETURN ON INVESTMENT (ROI)**

A project’s expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.

**DISCOUNT RATE**

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.

**PAYBACK PERIOD**

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.