Recommendation Report

Selecting an Online Learning Platform for Technical Training of TribeTech Software Engineers

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Abstract

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Mr. David Shannon, the Director of Engineering at TribeTech, approved a proposal to research and recommend an online learning platform for training our software engineers. TribeTech would like to adopt newer technologies that could greatly benefit our products. However, we found that many engineers in our current workforce do not yet have the knowledge to confidently use the new technologies. To close this skill gap, we plan to provide access to a *massive open online course* (MOOC) platform to our engineers. There are many MOOC platforms available and our goal was to narrow down our options until we found one that best fit our needs. We established several criteria to evaluate the platforms in order to make a final recommendation. The price of the platform should not exceed $500/user/year. The online learning platform should have courses in Go, Docker, and the Java Spring Boot framework. The platform should have reliable, good-quality content. Finally, the platform should keep its courses up-to-date. Using secondary research we conducted an in-depth comparison of three candidates: Coursera, LinkedIn Learning, and Udemy. As a result of the comparison, we found that LinkedIn Learning is the platform that fits all the criteria and best matches our needs as a company.

Keywords: MOOC, online learning platform, training, software, technology

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Executive Summary

Mr. David Shannon, the Director of Engineering at TribeTech, felt it was important that our software engineers keep up to date with newer technologies. This will benefit our company because we will then be able to confidently use improved technologies in our products, which ultimately allows us to better serve our customers.

To train our engineers, we have decided to adopt a *massive open online course* (MOOC) platform for use at our company. These learning platforms are often updated with the latest technologies and many come from reputable sources.

We identified four important criteria to use in comparing MOOC platforms: price, available content, quality, and whether the content is up-to-date. Out of all the platforms we researched, we found that LinkedIn Learning will best fit our company's needs. LinkedIn Learning fits well within our budget and satisfies all the remaining criteria as well.

Introduction

The Director of Engineering at TribeTech, Mr. David Shannon, requested we research *massive open online course* (MOOC) platforms to train our software engineers on new technologies. The purpose of this report is to research, compare and ultimately recommend a MOOC platform to use at our company.

We have plans for several of our products to take advantage of newer technologies but have found that many of our engineers are not yet familiar with these technologies. We want to be able to help our engineers close this skill gap. Therefore, training is an important investment for our company.

On April 3rd, 2021, our proposal to research MOOC platforms for use at TribeTech was approved. We aimed to complete the following four tasks in order to achieve our goal of recommending a MOOC platform.

- Conduct interviews with engineering managers

    - We achieved this by asking a series of questions to the engineering managers.
- Identify comparison criteria
    - We used the input from engineering managers and the director of engineering. We also conducted secondary research via comparison sites.
- Perform preliminary research on popular MOOC platforms to narrow down options
    - To complete this task we performed secondary research.
- Conduct an in-depth comparison of the top three platforms based on the criteria
    - Additional secondary research was needed to complete this task.

From our research, we have found one platform that best suits our company's needs. We are pleased to recommend LinkedIn Learning as the online learning platform our company should adopt. LinkedIn Learning fits well within our budget and meets all of our other criteria.

Research Methods

To complete our research we had five tasks to complete. These tasks include conducting interviews with the engineering managers, identifying the comparison criteria, conducting preliminary research of the platforms, and performing an in-depth analysis of the three top choices. Our final task was to analyze the results of the comparison and make a recommendation.

Task 1: Conduct interviews of engineering managers

We interviewed three engineering managers to get a better understanding of the types of courses we should look for when comparing MOOC platforms. We created a small set of questions to direct the conversations. The questions we asked can be found in the appendix. Our main goal of these interviews was to get clear and specific information about the top technologies we want our engineers to learn.

Task 2: Identify the comparison criteria

To establish criteria for the comparison of the MOOC platforms, we reviewed the information gathered from the engineering manager interviews. We also checked with our engineering

director for his opinion. In addition to this, we looked over a few comparison websites, to see which type of criteria others have considered when comparing MOOC platforms.

Task 3: Preliminary research of popular online learning platforms

We conducted secondary research on the Internet using comparison sites and blogs. We had already identified six popular platforms and also wanted to ensure we weren't leaving out any potential candidate that would also fit our needs. The six initial platforms were Coursera, EdX, LinkedIn Learning, Pluralsight, Udacity, and Udemy. We also visited the websites of each platform of interest to gather more information.

Task 4: Conduct an in-depth comparison of the top three platforms based on the identified criteria

In order to compare the selected platforms in-depth, we decided to take each criterion and do a part-by-part comparison. We also created an at-a-glance chart for a quick comparison. We considered creating a decision matrix to weigh each criterion, but this seemed unnecessary. We did not end up having different categories of criteria such as *required* versus *desired*. Also, the comparison is somewhat subjective.

Task 5: Analyze comparison findings and make a recommendation in a research report

Once we had all the comparison details written up, we then had to analyze what would be best fit for our company. Some of the criteria are subjective and we had to rely on secondary research for the results, therefore an analysis by an employee of our company is an important step.

Results

Now that there is a clear understanding of the methods we used for each step in the research process, we can discuss the detailed results of that research.

Conduct interviews of engineering managers

Our engineering managers explained that we are planning on updating some of our older Java projects to use the Spring Boot framework. They also said that some upcoming projects will use the Go programming language rather than C++. We will also be moving towards using Docker for development and deployment. Since we have software engineers with various levels of knowledge on these topics, it would be useful to have training available on each.

As a result of the interviews, we also gained an understanding of other criteria that the engineering managers considered important. They felt that the quality of the courses offered needed to be taken into consideration, as well as whether the courses contain up-to-date information.

Identify the comparison criteria

Our research allowed us to finalize four necessary criteria that we used in our comparison, which are described below. We would like to make a note that we did not choose *ease of use* as a comparison criterion because all the platforms have a standard, straightforward, and easy-to-use website. Thus we consider them all equally easy to use.

Price

TribeTech has a $1000 training budget per employee. We are allowed to allocate up to 50% of this budget (which translates to $500 per employee) to acquire access to the online learning platform. Any platform which exceeds this would not be a candidate.

Content Available

There are specific technologies we want our team to learn, so it is important that each platform has those targeted courses available.

Content Quality

This is a subjective criterion, but we feel it's an important one since we want the investment we make to be useful to our engineers.

Up-to-date

Given the nature of technology, we want to be sure the courses available are up-to-date and not teaching outdated information.

Preliminary research of popular online learning platforms

The initial platforms we wanted to research were Coursera, EdX, LinkedIn Learning, Pluralsight, Udacity, and Udemy. These are well-known online learning platforms with self-paced classes. Our goal was to narrow down the selection to three platforms and then conduct a more thorough comparison.

In our preliminary research, we came across some lesser-known MOOC platforms such as Edureka, FutureLearn, and GoSkills. However, none of these platforms offered all the targeted courses.

We were also able to remove EdX, Pluralsight, and Udacity from our list. EdX did not appear to have courses for targeting some of the desired skills (specifically Go and Spring Boot). Instead, many of the classes seem to cover a conceptual understanding of a technical concept rather than a specific technology. Pluralsight we eliminated because it was outside of our price range. Our budget is $500 per employee per year. Pluralsight costs $579 per user per year. Finally, Udacity was removed from our list because it didn't contain the specific courses we desired. Udacity's focus appears to be on programs that teach a set of related programming skills, rather than individual skills.

After these eliminations, there were three platforms remaining. Therefore, the platforms we used in our in-depth comparison are Coursera, LinkedIn Learning, and Udemy.

Conclusion

In this section, we will compare the three platforms using our selected criteria. We will finish by explaining our final recommendation for the platform we feel is the best choice for TribeTech.

Comparison

We performed an in-depth comparison of the top three candidates. We explain in detail how each platform fared under each criterion in the following sections.

Price

Price is arguably the most important criterion as we are required to stay within our budget of $500/user/year for this training. Since we already eliminated platforms that were above this range, we can compare the prices of our three selected platforms. As staying under budget is still desirable for our business. The most expensive is Coursera for Business, which has a team plan priced at $399/user/year. This is followed by Udemy for Business, which has a Team plan for $360/user/year. Finally, LinkedIn Learning does not provide business pricing information on the website. However, an annual subscription for an individual costs $19.99/month. For 12 months, this is approximately $240/year. Therefore $240/user/year is the value we will use as the estimated cost for LinkedIn Learning.

Content Available

Available content is one of the criteria we evaluated during the preliminary research. We know that all of the selected platforms have some courses related to Go, Docker, and Spring Boot. Coursera has a 3-course specialization in Go, several step-by-step guided projects for Docker, and some courses for Java Spring Boot. However, the available courses for Spring Boot seem to be geared specifically towards cloud services, which is not a current need for our company. The courses can be lengthy with 8 - 14 hours expected to complete them. The guided projects are less long at around 2 hours. LinkedIn Learning has several different video courses on Go, Docker, and Spring Boot with different instructors. The length of these video courses ranges from 2 to 4 hours. Udemy has a very large content library and there are many choices for each topic. The courses range in length from 1 to 45 hours.

Content Quality

We relied on third-party reviews in order to compare the quality of the courses provided by each platform. Some of the websites we used were g2.com, bitdegree.org, and courseonline.info. We also looked into the credentials of the instructors for some of the available courses.

Coursera appears to have high-quality content. Much of the content comes from universities and certified professionals (Bitdegree, 2021). Students are often very satisfied with the quality of the courses. On g2.com, 79% of 186 users gave it a 5-star review. However, one complaint is that courses can be outdated (Courseonline.info, 2021).

LinkedIn Learning was rated lower than our other two platforms when it comes to quality courses on the sites we visited. On g2.com, 64% of 455 users gave it a 5-star review. However, we are aware that this metric can't be directly compared with the other platforms since there are a different number of total reviewers for each platform. A complaint we found on this platform is that there is a lack of advanced content (Bitdegree, 2021). We checked the LinkedIn Learning website and many of the technical courses are taught by professionals in the industry.

The quality of Udemy courses is harder to evaluate since there is such a large amount of content available. The sites we visited mention mixed reviews when it comes to course quality (Bitdegree, 2021; Courseonline.info, 2021). However, many students feel the quality is excellent and 73% of 316 users gave the platform a 5-star review (g2, 2021). Another tricky part of evaluating Udemy is there is a wide variety of instructors, who may not have the expected credentials to teach a course. According to the Udemy support page, there is no approval process to becoming an instructor.

Up-to-date

Lastly, we want to ensure the content in the courses is not outdated. We picked a few courses and compared the dates they were released or last updated.

Coursera does not give dates that the courses were released. It is not clear if courses are regularly released or updated on this platform.

LinkedIn Learning has relevant courses which were released as recently as March 2021. It seems new courses actively are released on this platform.

Udemy has relevant courses which were updated as recently as April 2021. Courses are added and updated regularly.

Table 1 shows a quick glance comparison of the 3 platforms.

Table 1. Quick glance comparison

Platform	Price	Content Available	Quality of Content	Up-to-date
Coursera	$399 per user per year	Specialization available for Go; Guided Projects available for Docker; Courses available for Sprint Boot, but have a cloud services focus Length of courses: Short to Long	95% of reviews on g2.com are 4 or 5 stars Content is from universities and certified professionals.	May have outdated courses.
LinkedIn Learning	$240 per user per year	Multiple classes on Spring Boot, Go and Docker Length of courses: Short	93% of reviews on g2.com are 4 or 5 stars Content is from industry professionals.	Up to date courses available
Udemy	$360 per user per year	Large selection of classes on all topics Length of courses: Short to Long	95% of reviews on g2.com are 4 or 5 stars Content may come from sources that are not vetted.	Up to date courses available

Recommendation

We analyzed the above comparison and decided the platform most well suited to our company is LinkedIn Learning. Not only will we be able to stay significantly under budget with this option, but the platform also has good-quality, up-to-date content from reliable sources. Additionally, the course lengths are reasonable and will allow our engineers to get up and running quickly without being overwhelming.

Schedule and Cost

In the proposal, we estimated a schedule and budget for the project. In this section, we will cover how those estimates compared with the actual schedule and cost of the research project.

Schedule

In our proposal, we estimated this research project would take 4 weeks to complete. The first task was scheduled to start on the week starting with April 11th and the final task was scheduled to be completed the week beginning with May 2nd.

Fortunately, we were able to get the proposal approved quickly and began our research on the week starting with April 4th. As we got started with the research, we realized more tasks could be completed within the same week and overlap with each other. We were able to make good progress and finish a week ahead of schedule, with the final task completed the week of April 18th. Figure 1 shows the actual dates in pink and the original estimate in blue.

#	Tasks	Date of Tasks (by Week)				
		April				May
		4	11	18	25	2
1	Conduct interviews of engineering managers					
2	Identify the comparison criteria					
3	Preliminary research of popular online learning platforms					
4	Conduct an in-depth comparison of each platform based on the identified criteria					
5	Analyze comparison findings and make a recommendation in a research report					

Figure 1. Actual vs Estimated Project Schedule

Budget

In our proposal, we estimated the research project to cost $2,360. This cost covered the primary researcher's salary over the course of the project. Table 2 shows the actual vs. expected budget for the research project. We were able to stay on budget. It is likely that we underestimated the budget in the originally proposed schedule. Since we were able to complete the project in less time than expected, it ended up being an accurate estimate.

Table 2. Actual vs Estimated Budget

Name	Expected Hours	Actual Hours	Hourly Rate (U.S. Dollars)	Expected Cost (U.S. Dollars)	Actual Cost (U.S. Dollars)
Riva McKnight	40	40	59	2,360	2,360
Total				2,360	2,360

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Appendix: Questions for Engineering Managers

1. What technologies will we be moving towards in future projects?
2. Where are the skill gaps we see in our current engineers?
3. Are there any specific features you would like to see in a training platform?