



## UCanDO Final Report

*authored by*

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*Engineering Leadership Professional Program  
Fall 2022*

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## Abstract

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Education is a significant part of our lives. It takes a long time and some require a lot of money, especially at postsecondary and professional levels, but we use it hoping to balance our resources and the impact of the chosen programs on our career and personal life.

At the same time, there are trillions of megabytes of data on the internet, and there is a big variety of educational resources, but there are several barriers that prevent us from using them effectively:

- quality and integrity of information
- language and level barriers
- learning paths are either absent or lack customization

UCanDO's mission is to enhance the career development process by providing personalized curated learning journeys to our customers through aggregating online educational resources and AI-driven customization of the course content.

# UCanDo





**Leah**  
Senior Software Engineer  
@ BigTech

- Bachelor Degree in 2017
- Wants to be promoted
- Professional fulfillment
- Higher salary

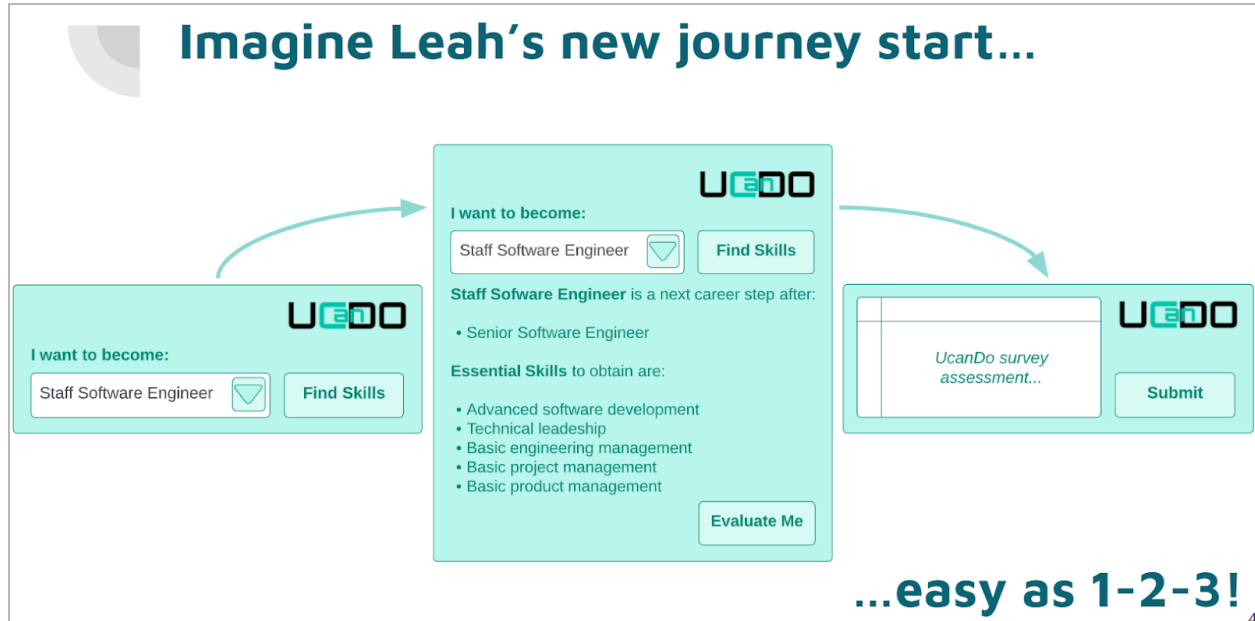
Pay \$\$ for a career coach ✘

Find a mentor through my limited contacts ✘

Pay \$\$\$ for inflexible, formal education ✘

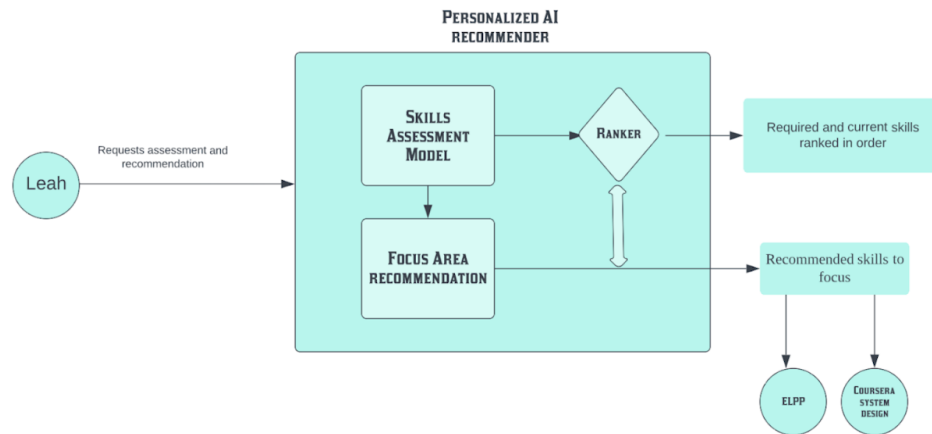
Wade through overflow of content online ✘

Imagine yourself back in the early days of your career. You want to learn and grow and ultimately want to get promoted at a regular cadence to achieve your desired professional goal. You have a bachelor degree and would like to eventually get paid more. While there are options, there is no clear path - and that is the **Problem**. You could pay for a career coach, which typically runs from 50-250\$ an hour. How do you find a good one? You could sign up for BetterUp, which is a coaching platform and costs about \$100 / month. Or you could pay 349\$ a month at PlatHQ for time with a mentor. At least with that platform you could find a mentor. Finding mentors is a challenge. Some corporations encourage senior leaders to be mentors to others in the company, and for sure there are good ones, but not likely enough mentors to support the younger population looking to grow. There is always an MBA type program, but finding the one you want, that would have areas you want to specialize in is tough. In addition they are expensive - and how much are they needed anymore today? Lastly, you could wade through all the online course content. Coursera has 7000+ courses, Linked In Learning over 16,000, Udemy has 213,000 and Skill Share has 34,000 and that is just the top few. So where do you start? Based on our research, the entities mentioned above, only ask 1 or 2 questions about you and then assign you some online courses. LinkedIn Learning might be utilizing your profile. It is not clear. But ultimately, you are still not getting clear guidance. What should you do?



Let's think about a better way. What if, as your younger self, you could have come to a site that collected a lot of information from you to start. What is your current role? What do you aspire to become? What are your skills? What is your history? (i.e. resume, LinkedIn Profile). There could be short coding quizzes to assess where you are at. There could be feedback from peers for those that might want to become a manager. A lot more than 1 to 2 questions could be asked, to really help better understand your capabilities. Skills could then be ranked based on the survey, with recommended areas to focus on. Relevant courses, from all those sites mentioned before, could be provided, to give you a curated, personal roadmap for where you wanted to go. In addition, what probably no other company does that we could find, you could also add in blog postings, influencers, conferences, publications, patents, etc, that would be very helpful for someone wanting to grow in their career.

## UCanDO Inference Architecture

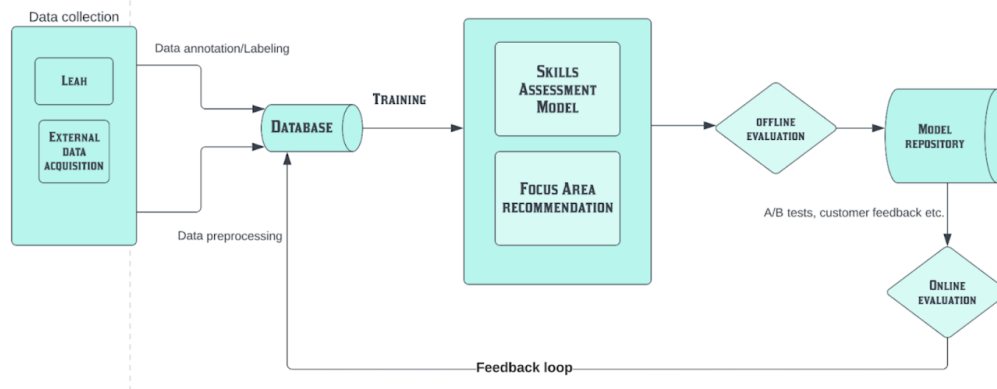


- **Rank** skills based on the survey
- **Recommend** focus areas to develop
- **Provide** information on relevant courses

There are three components of our AI powered inference engine:

- 1) **Skills assessment model:** Based on the survey data of Leah and other users, the ML model rates Leah's skills on the scale of 1 to 5. This could be trained as a multi-class classification system.
- 2) **Focus Area recommendation:** This is core of our ML system recommending our users the focus areas to reach the next level. At a broad level, consider this as a collaborative filtering problem, Leah a Senior Engineer would be compared against a similar Principal Engineer's profile and get recommended focus areas which are lacking in her profile but are present in other similar users.
- 3) **Ranker:** After getting the focus areas or skills assessment, the ranker sorts them based on usefulness metrics to be decided later.

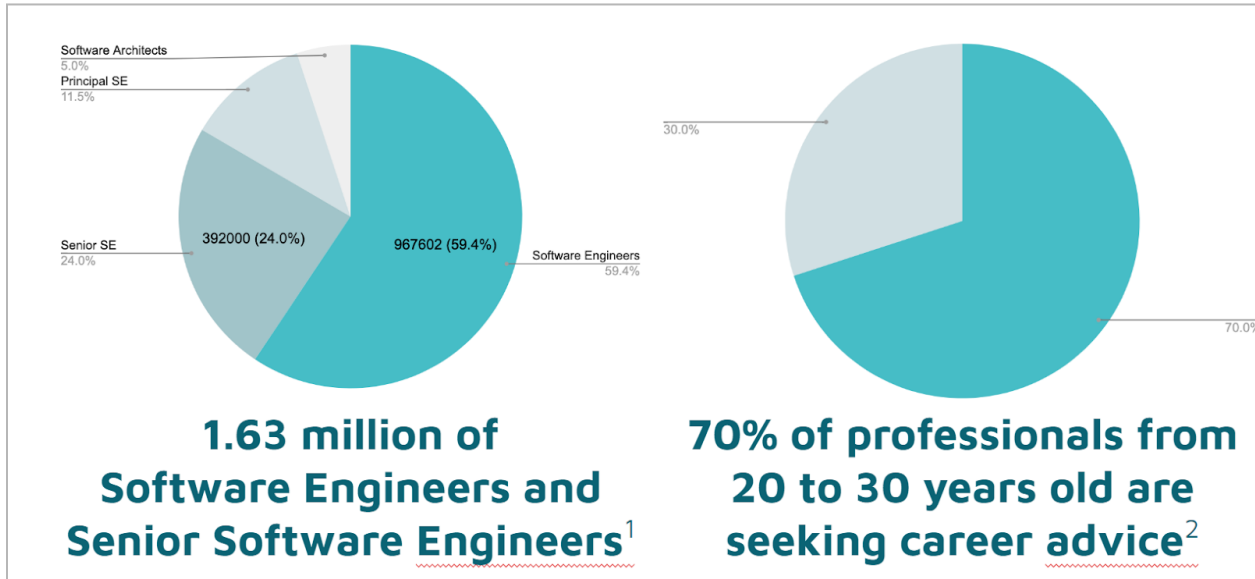
## UCanDO Training Architecture



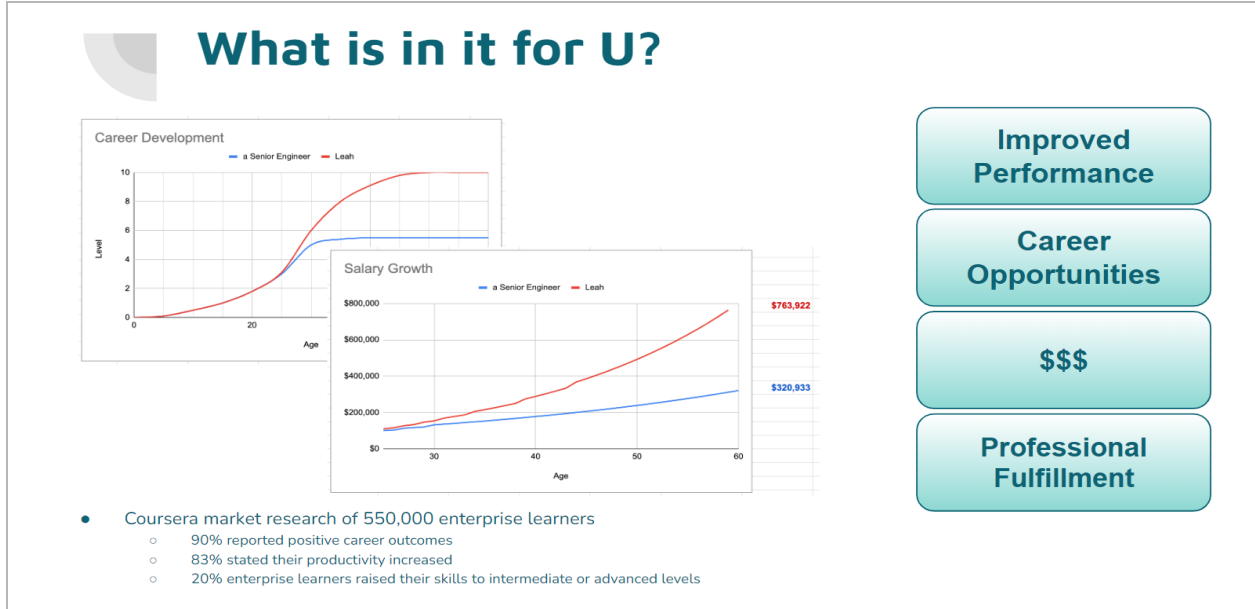
- **Feedback** on the course content
- **Tracking** customer skills development
- **Growing** knowledge of customer behavior

### Training Architecture components:

1. **Data collection:** The training data mostly consists of surveys/quiz data from customers as well as some external data lets say from LinkedIn or job portals. We will plan to build a data pipeline where we would do data curation, governance, preprocessing etc. After the data is in a format ready to train, we would store it in some data repository like Datalake.
2. **Skills Assessment model:** Initially, it could be a multilabel/multiclass classification problem where each user's skills are rated on a scale of 1 to 5.
3. **Focus Area recommender:** Initially, we are planning it as a collaborative filtering model where recommendations are served based on similar users. It has immense number of possibilities right from reinforcement learning (Thompson sampling) to deep learning based recommenders.
4. **Offline evaluation:** We would do model evaluation offline to rate how well the model is doing with metrics like NDCG (normalized discounted cumulative gain). Once the model passes the evaluation offline, it gets stored to the model repository like modelhub.
5. **Online evaluation and feedback loop:** We would design online A/B tests, evaluate click through rate etc. and based on that we update our training data/labels to constantly keep improving our models.



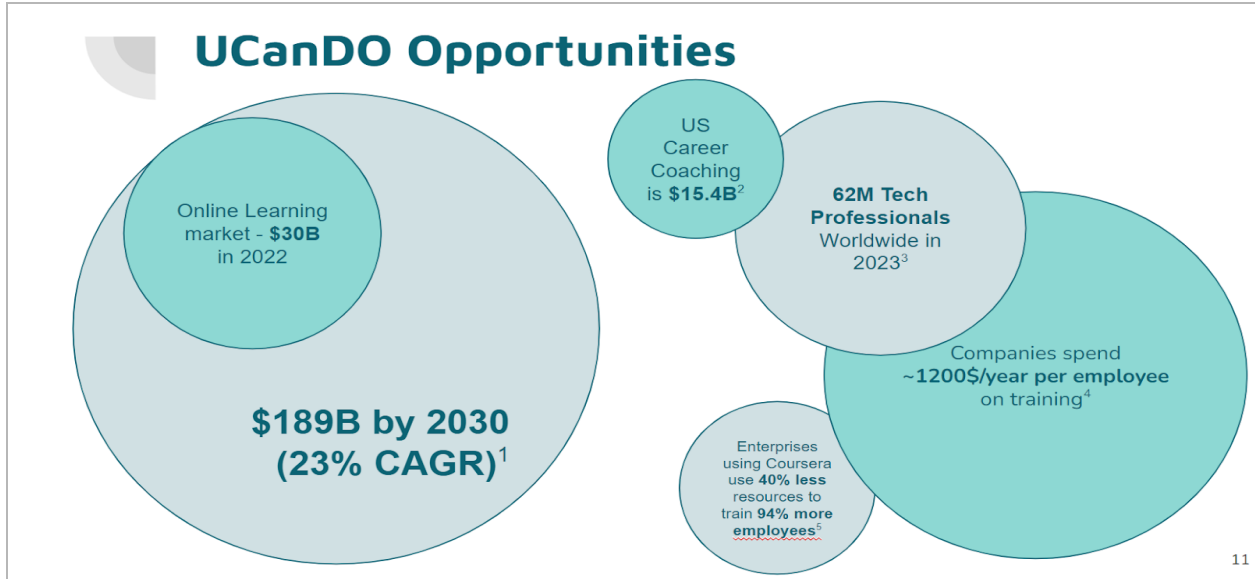
We decided to have our initial focus be on Software Engineers. Why? We understand that space and that will allow us to add maximum value. We know that in the US there are ~1.63M Software Engineers total, which includes ~24% who are Sr Software Engineers, 11% are Principal Software Engineers and another 5% who are Software Architects. Clearly as you move up that ladder, the % get smaller. However it shows progression does occur and that there are opportunities for those that want to be promoted. Additionally we know that of the younger generation, 70% of the 20 to 30 year olds are seeking career advice - where are they going to get it? We would like to provide it to them with UCanDo.



UCanDO customers will not only have an enhanced way to find appropriate courses, but they will also accelerate their career growth due to customized learning and development journeys! With the personalized learning path, UCanDO customers will be able to enhance their knowledge and skills thereby outperforming their peers. This will lead to better career opportunities, higher salaries and essentially successful fulfillment of professional objectives. What we learned from the Coursera data<sup>1</sup>, in which they did surveys on ~550,000 users who took classes through their Enterprise program, was very strong - 90% reported positive career outcomes, 83% stated their productivity increased and 20% said they advanced in their skills. Now imagine if Coursera had the ability to ask more than 2 questions about someone, and could build a curated roadmap of courses to take, out of their catalog of 7000 courses? The first two numbers might not increase a lot, but with UCanDo, we believe that much more than 20% would be able to state that their skills grew.

<sup>1</sup><https://www.thinkimpact.com/coursera-users/>





Online learning represents a huge opportunity over the next decade, growing with a 23% CAGR up to \$189B<sup>1</sup>. As the price of college continues to skyrocket, more and more people will start looking at online opportunities. In tech alone the all up TAM worldwide is 62M<sup>2</sup> tech professionals, of whom about 63% have only been in their careers 5 years or less<sup>3</sup>. The only constant in Tech is change. That represents a lot of people who will need and want to be trained. It is also not lost on the corporations who are currently spending 1200\$ on average<sup>4</sup>, per employee, per year for training. However, what enterprises have found is that using Coursera - which is not a curated roadmap - has allowed them to reduce their staffing focus on training. They also said that they are saving 1.12M\$ per year in recruiting costs by working with Coursera<sup>5</sup>. Time saved by doing online training was 40%<sup>6</sup>. And they reported a ROI of 748% on investment within 3 years<sup>7</sup>. Those are numbers from a solution that asks you 1-2 questions about what you want to learn. Imagine something more detailed, that took advantage of AI/ML and could give you a better path. A solution that could also tie in more than just courseware content.

<sup>1</sup><https://www.globenewswire.com/en/news-release/2022/08/24/2504123/0/en/Online-Education-Market-Size-is-projected-to-reach-US-198-9-Billion-by-2030-growing-at-a-CAGR-of-23-12-Straits-Research.html>

<sup>2</sup><https://www.statista.com/statistics/1126677/it-employment-worldwide/>

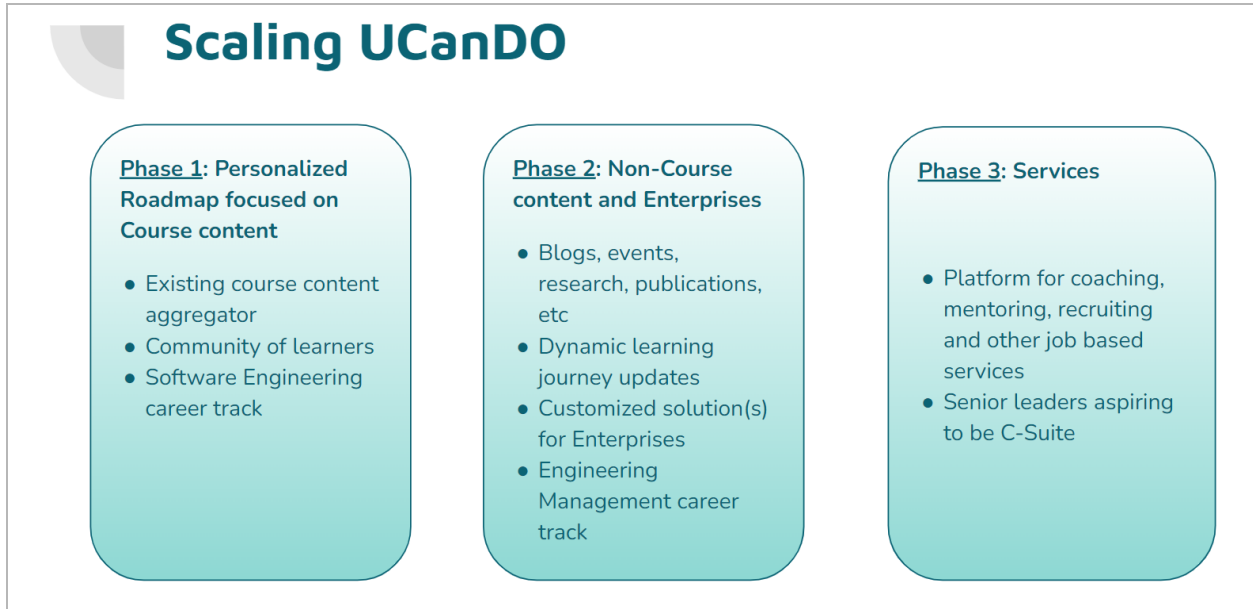
<sup>3</sup><https://www.dqindia.com/63-of-it-professionals-have-less-than-5-years-of-work-experience/>

<sup>4</sup><https://www.edume.com/blog/cost-of-training-a-new-employee#:~:text=According%20to%20the%20Association%20for,training%2C%20it's%20just%20an%20average.>

<sup>5,6,7</sup> <https://www.thinkimpact.com/coursera-users/>



Our broad vision is to be a solution that can empower people to learn and to grow, in their careers and as individuals. This includes utilizing online course content, utilizing blogs, conferences, publications and other non-courseware content, and lastly providing a platform where other career based services can be offered and consumed.



To that end we have created a road map to achieve our broader vision. During our first phase we will focus on Software Engineering - an area that we know and we will focus on aggregating all the existing content that is out there and making money through referrals. This first phase we believe is the easier (not easy) step, allowing us to get traction, to learn the market and our audience and to pivot where necessary. In the second phase, we plan to add a track in Management. While this would initially be focused on Software Management, it can be expanded to other areas as well. This is also an opportunity for us to extend our information collection engine to get feedback from peers regarding their ability to become a manager. This could be by adding some personality type tests, to help people understand where else they need to grow, to be an effective manager or leader. During this phase we want to extend our curated journey to include non courseware content. What conferences should you attend? Who are influential bloggers you should follow? Are there any meetups in your area that might tie into your career path? Also during this phase we see an opportunity to tap into the enterprise space. We believe that companies will have specific information they will want to have processed by our engine, which we can then use to cater to individual companies. As noted above, companies are seeing the benefit to online training and we believe with our solution of a curated development roadmap, that will help them even more.

**UCanDO Competition**

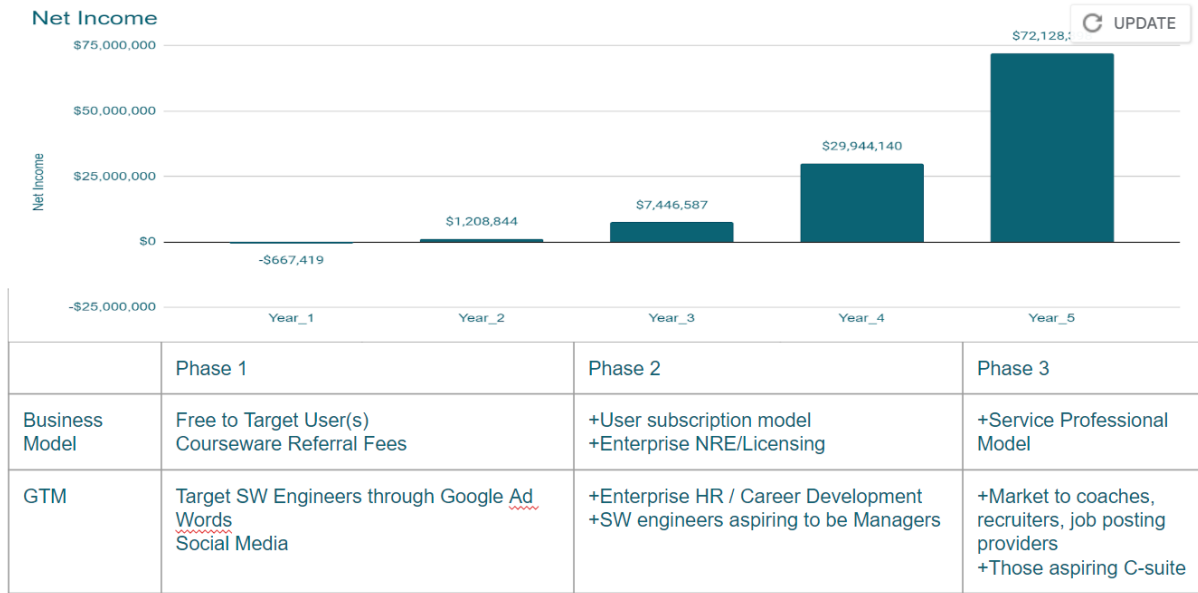
	Number of Users	Number of Courses	Market Segment	Business Model	Personalized Path	Community	Non-Course content	Career Services (Coaches, Mentors, Recruiters, Jobs)
<b>UCanDO</b>		Aggregator of Courses	End Users Enterprises	Referral Subscription	+	+	+	+
<b>coursera</b>	92M+	7,000+	End users Enterprises	Subscription	-	-	×	×
<b>in LEARNING</b>	27M+	16,000+	End Users Enterprises	Subscription	+	+	×	+
<b>udemy</b>	54M+	213,000+	End users Enterprises	Per course Subscription	-	×	×	×
<b>SKILL SHARE</b>	24M+	34,000+	End User	Subscription	-	-	×	×

+ Provided     
 - Basic     
 × Not Provided

UCanDo will create advantages to multiple stakeholders in the market by aggregating a variety of educational resources and enabling the best learning and development experience for our customers through providing referral subscriptions to relevant content. From a competitive standpoint, existing online learning platforms solutions do not provide a customized learning path for their users. Linked In may be using one's profile to make a more customized path but it is not clear. Most have no form of a community. Wouldn't it be helpful to ask others what steps they took to grow their career? Wouldn't it be useful if people could rate the classes, conferences, or blogs they have read? No other sites provide any information about useful non-course content for one's career. Lastly, other than Linked In, there are no connections to any Career Services resources. Expanding the UCanDo platform to integrate in career services will allow us to tap into other market opportunities, such as the \$14B US "Career Coaching" market<sup>1</sup>.

<sup>1</sup><https://www.ibisworld.com/industry-statistics/market-size/job-training-career-counseling-united-states/#:~:text=What%20is%20the%20market%20size.is%20%2415.4bn%20in%202022.>

# UCanDO Financials



We also believe there is an opportunity to make money. One of the main areas of revenue is commission based referrals from companies like Coursera, Linked In Learning and Udemy. Referral fee's range from 10% to 45%. Our model assumes that we are on the lower end of that range for referrals early on and assumes no more than 1 course per month. We will start with Software Engineers, but this same referral model can also be benefited from as we add tracks for Management and C-Suite and eventually other tracks. While this is a good source of revenue, it comes at a higher cost of marketing due to using Google Ad Words.

In Phase 2 to start to scale the business, we see opportunities to monetize our value add of including non-course content to the development roadmap as well as providing dynamic updates to the roadmap, based on new rankings and/or new courses. We were not able to test this thesis, so it is an assumption at this point. At the same time, reviewing the data previously discussed in the paper, that Enterprises see in utilizing online learning to lower costs, we believe there is an opportunity with large enterprises to customize our AI/ML engine, to factor in specific issues that they care about. Our initial thoughts are we could charge NRE (non recurring engineering) fee of \$100K per enterprise and then a \$19.95 monthly subscription free for the number of employees in the program, which we think would be about 5000. The likelihood is that early on, Enterprises would want to negotiate a flat fee and likely less than we would want to take, but the opportunity to get our solution in their hands will likely be worthwhile. We also recognize that Enterprise sales are slow and closing contracts takes time so in the first year of this program we are targeting having only 2 customers and by the end of the 5 year model, we would have 14 Enterprise customers.

In the last phase, we would create the platform for Career Services. While we believe that there is money to be made here, that part of the model is not flushed out as much. As a comparison if

you look at BetterUp, which is a coaching platform, they charge users about \$100 / month and pay the coaches about \$30 / hr. In the past year there was a change to the contracts for the coaches which caused some issues. On the other end of the spectrum is PlatformHQ, which has mentors on the platform for free but charge the users 350\$ a month. We would like to think, that based on the data we have on users of the platform, that there could be a different model to use, to attract coaches, mentors, recruiters, job posters, etc. Building out the platform would have high engineering costs and ultimately high marketing costs.



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CEO



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CFO/CMO



**Nandini De**  
VP of Engineering



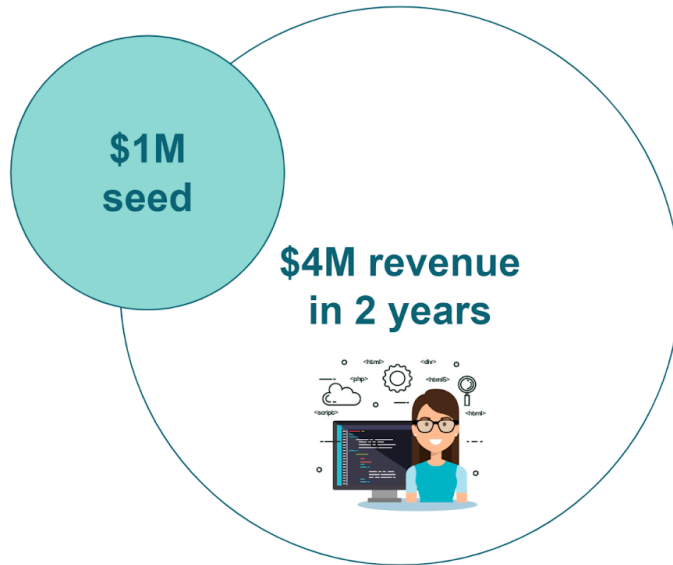
**Brad Carpenter**  
VP of Product Management



As a team, we bring many years of experience across multiple companies and different roles that we believe we can apply to making a solution like this a success.



## You can help us...



...UCanDO<sup>17</sup>