FOUNDATION OF DIGITAL BUSINESS

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Lecture 25

Lecture 25 : Find AI opportunities – Part 1

Good morning. So, now, in this module of artificial intelligence for business now and beyond the fourth lecture in this module will be finding AI opportunities. I will do it in two parts in the next session I will cover the balance part. So, this part this session I will cover the first part. So, how we should start looking for AI opportunities?

So, steps to approaching the AI start and how to find the AI opportunities. So, what should we step by step how we do it that is the search process and then how to find out the opportunities. So, there are 4 steps for the AI start approach. Identify your AI readiness gap. Find high impact AI initiatives, HIAI.

Develop a short term AI strategy and track progress adjust and iterate. So, these are the four steps identify first what is my gap AI readiness, am I ready to start. So, that first I must estimate and then we do a high impact AI initiatives trying to find out which could be the high impact the projects to be undertaken. Then we develop a short term strategy and of course, then we have to track progress adjust and iterate. So, coming to the step 1 which is talking about identifying your AI readiness gaps.

So, basically you do an internal assessment in the form of 4 questions, important questions you ask the organization or your team or leadership team. We know what data assets we have, the answer is either yes or no. So, you have to get a collection of yes basically to know that you are ready. So, we know what data assets we have. We are storing most company generated data, we are storing the one important here is storing that we are not having data and we are not deleting

or we cannot find out we do not know where it is etcetera etcetera. So, we are storing and we can access most company generated data, the answer should be yes. We are able to access all our data stores. So, this was storing and this was about the access data is there, but is it accessible? Is it available on demand?

Again the answer should be yes and we are logging search and key customer interactions with our products and services. So, are we logging means recording the data. So, are we logging or recording the data? So, follow these answers to these questions are yes. or statements whatever it is that yes we are doing it, then we can say that we are AI ready.

So, the readiness gap is not there, but in say 3 out of 4 is yes and 1 is no, then there is some gap which you need to close before you start your AI project. And if you are just barely one AI and all three knows then you are very far away. So, you have to first do start getting to these do these things and then think about AI. So, you have to defer your AI start. The types of data a company might be generating from its daily operations.

We are talking about data, data, data. So, what are these data actually are? Customer support, support tickets and emails, call center transcripts, chat bot conversations. So, these are all data by the way it is all unstructured, but these are data. In manufacturing we have sensor data, defect reports, quality control data, environmental data, machine failure reports.

Products and services we have purchase history, product catalog, customer reviews, customer complaints. Human resources, candidate resumes, interview summaries, employee complaints and employee performance reviews. This list is not exhaustive definitely, I just brought out some of the important ones, so that you can understand what we are talking about when we say data, data, data in a corporate world, in a business environment. In an ideal scenario, all of these data should be collected, stored and made available to those who need it.

So, on demand availability of the right data. The next step is to find high impact AI initiatives. First goal is to identify the AI initiatives that will be most beneficial to my organization. So, which of these initiatives will be most beneficial? So, let me identify those because we cannot start AI for everything.

And the second goal is to develop the AI skills of leaders and members of the AI strategy. So, that will be the second goal. So, there is an AI strategy, we have identified the products and also need to develop the AI skills of leaders and members of the strategy.

The initiatives can be identified through how do you identify which are my initiatives and which I should choose, what is the process. Brainstorming by the AI strategy team because now we have trained them on AI at least on the high level of AI training like something which we are doing right now, what it can do

and what are the requirements etcetera, what are the wrong things. So, brainstorming by the AI strategy team using their domain knowledge or known inefficiencies of the organization. So, what are they brainstorming on? One is their domain knowledge because they know the business. So, it is a finance problem that the whole finance team the senior level of finance team are discussing the finance process and trying

to find out which could be an initiative and for that they need to know what is not working well. Why are you doing this project for AI? Because you want to improve something and you try to improve something which is not working or is not working good enough. either not working at all or not working good enough whichever and there you want to do this project to start think of employing whether if AI is a solution. It is like you have a disease and you are looking for the right medicine.

Examine your organization's long term goals and determine problems that AI can solve. So, one is the immediate part problems we have, the other one is my long term goal. Use an AI model to help me with my long term goals. So, long term goal is to export to maybe certain regions or attract a different cohort of customers which are not addressing at the moment. So, how to do that?

Can AI help? That is my long term strategy. Or a new line of business. Ask all the business leaders to come up with their top problems that can benefit from AI. So, that is the other one.

You ask all your senior leadership what are your problems, business problems which you see, which you foresee. So, come up with the list of problems and then we discuss. Once the list is ready, the next task would be to prioritize them into most feasible and impactful initiative. So, you cannot start all of them, so you need to prioritize which one we will start with. Based on which are most feasible that low hanging fruit can be done easily quickly etcetera and also have more impact.

Developing a short term AI strategy that is step 3, start with define the clear long term goals for AI and then you try to answer the following. Where do you see most of the AI opportunities? Do these opportunities align with your longer term business objectives?

Now you have this list of opportunities now you are thinking that which should be your short term strategy. What are the specific domains you should focus on and why?

The identified specific long term goals would lead to identifying the short term strategy. So, long term goal you have identified and also accordingly you know plan what would be your short term strategy such that you can achieve the long term goal. Suppose you find that most of your AI opportunities are in customer service, this could be your competitive advantage and you want to make customer service a key differentiator for your organization. It is a competitive market and you want to tell the market that our customer service is much better than our competitors, so come to us. You would like to see faster responses time.

improved first contact resolution, improved customer satisfaction is output you want from your AI tool. So, your response time whatever it is today should become better faster. The first contact resolution, the first time a person comes to the problem I solve it, he or she does not have to come back again. So, what is my first contact resolution factor? If you currently it is 20 percent can I make it 50 percent or whatever.

Improved CSAT customer satisfaction, what is my customer satisfaction score? Is it 5, 6 out of 10? So, can I make it 9 or 10 or whatever. So, one of the approach for executing the short term strategy is called a tool called a method called proactive gap fill method. So, let us see what this method is all about the proactive gap fill method by timeline.

So, these are the timelines near term right before the AI pilot just before you want to start the pilot during when you are doing the pilot development prototyping or pilot development and then when AI is going to get implemented in the organization. So, now you want to implement that if pilot is ready successful trial and. So, the recommendation and gaps to fill. So, you should focus on these gaps.

Near term we are just about to start not yet started, we are now doing that brainstorming. AI and data education for executives and team, data strategy, budget allocation, upskilling employees. So, all of these I have already discussed in my previous slides. So, this is what you do before first thing you should do. So, it is called near term and then now you are ready you have identified initiative or a project

or an area of concern and then you are now actually starting your AI work the piloting or the development work. That time you should see hiring and outsourcing decision, formation of the team the cross functional team. So, hiring means if I want to do the

whole thing in house or most of the in house development work. So, I have to have talent if I do not have talent I have to hire and hiring takes time maybe 2 months, 3 months, 4 months whatever or whether you will outsource. So, this part must be finished this gap must be closed before the pilot work obviously.

And here if you are doing it in house then you should think about a cross functionality just not leave it to the data scientist or the data engineer. During the pilot when the work is going on the pilot development, the gap could be AI infrastructure platform selection and experimentation. So, you need that platform, you need the cloud or you have to invest heavily in servers high end servers whichever. Nowadays of course, the easy answer is the cloud. Ethics and accountability initial discussion, at this stage itself the ethics and accounts committee should start working, examining what is the AI model being developed, what is the dataset they are using, focus on the dataset and try to find out whether this data is clean

is it good enough, does it have problems, does it have a bias, if required give it to a third party or use a tool, but focus on the data. more upskilling and hiring as needed. If you need more skills let us take for example, handling the data thing you need some skills. So, you need either upskilling or hiring as required. And when it is going live to get implemented in the organization that is how you actually use throw it open to the customers.

Gaps are there should be a company wide AI understanding all employees should be aware that such and such tool has been developed AI tool has been released for commercial use. Establish workflows and processes for deploying and monitoring the monitoring needs because you have to start monitoring as soon as it is deployed and people start using it. So, what is the process for that and what are the workflows? What will happen?

How will it be captured? How will it be stored? Who will review? Assign responsible staff to manage and support AI infrastructure, model development and monitoring, since it depends on the infrastructure with its after all it is an IT tool. So, you have to have a support team, technical team available to monitor, help, run etcetera.

And finalize the processes around the ethics and accountability. So, by this time the ethics and accountability processes should be frozen. They should have made a list of potential risk and corresponding mitigation plan activities, what will need to be done when if either of these or any of these happen. So, continuing on this how to find AI

opportunities, whose job is AI? If you think from that angle, data scientists and machine learning engineers, the first skill that comes to the mind, the first people resources, they can identify projects and start working on them.

However, most often they do not create value for the business. Why? Because they really do not understand. They have a superficial knowledge understanding, but they do not really understand the depth of the business or the depth of the problem or the challenge, what the problem actually is and what is the right solution for that problem.

They have limited business knowledge. And limited knowledge as you know there is a saying limited knowledge can be a dangerous They need to get buy-in from management for which they are often not qualified to give business justification, return on investment etcetera. So, when you do an IT project, AI or whatever and you are proposing a prototype etcetera, you have to continuously justify your project to higher management, your bosses and specially the finance department.

They will ask what is the ROI and what is the business justification of doing this, And they are not the best person because as we have discussed that they do not have the business knowledge, they have limited knowledge. And they will not be able to come up with the ROI because also they do not know what the benefits mean for the company. So, you have to evaluate the benefit to find out the ROI. So, what is the return?

And they have little insight on the budget limitations. So, they also do not handle the budget. So, the essence of all this is that do not leave it to the IT organization or the CIOs or the CDOs organization to manage the AI development work. So, it has to be repeatedly saying it is cross functional, the lead needs to be taken by the business person. because the business person knows the problem, knows the business and also knows the justification why it is required.

So, it is a marketing problem, it is a customer problem, the marketing manager or the sales manager understands the problem not the IT person. So, he is talking to the customer, he is going to the field. he is experiencing their problem, they are talking to him. So, the customer management guy or the marketing guy or the sales engineer is the person who actually knows what the problem is and he can be empathetic with the customer. So, he should be an important member of this development team may be full time may be part time or whatever, but he needs to be consulted at every step.

when the design is being formulated and the problem is formulated the design is initial high level design is being done. When actual coding algorithm level work may be he not be consulted, but again the outcome and the testing, when I do the testing part again the sales guy has to be involved. So, that is what it we are trying to say that whose job is the AI development. So, it is obviously has to be multi and cross functional. Finding business aligned AI opportunities, you break down a new business problem and then identify parts of the problem which needs AI solution.

And then investigate the existing processes, customer pain points, improvement scope in the legacy system in the organization for finding the AI opportunities. We are still in a job how to find this AI opportunity. So, you have a big problem or whatever business problem then you break it down. into smaller components. So, one component is addressing looking into say customer pain points, one component is for the improvement scope, whatever is there the data which have you have been collected from that.

So, you have to investigate all of these and then find out what are the corresponding should be the AI opportunity. Now, there can be two methods. of this discovering of opportunity, one is the organic and the other one is proactive. So, what is an organic discovery of AI opportunity? So, here is an example is a company called Find My Gizmos, they had a customer service

The team for working on the customer service was severely overworked due to increasing volume of incoming tickets, forcing the team to work almost 16 hours a day double shift almost. So, adding people increasing the team strength was not an option on account of tight budget and the need to maintain a lean organization. So, the management was not ready to increase the team size because they wanted to keep it lean for whatever reasons one of the reason is of course budget. Now detailed investigation came up with the following areas of improvement. So, the team were very hard pressed working 16 hours a day, they themselves started brainstorming within themselves and they came up with some of these ideas.

To improve the UI the user interface design. The user interface is the software where the customer logs in and then logs in is the problem. So, the screen you see is the customer screen that is the user interface. So, can it be improved? It should be improved for whatever reasons, we will not get into the reasons, but these are the areas they identified.

Increase the database of answers or FAQs. So, FAQ we have a list if I can increase the list. probably they will get answers to some whatever they are not getting it done that is

coming to the team for giving the answer. Improve the accuracy of search results, the customer is searching for a solution or given the problem there is a search in the portal in the company's website and this is where they could potentially use AI.

improve the accuracy of search results, maybe they can put a GenAI tool at the back end. So, the search goes to GenAI and GenAI does a better search of the company's logs and documents etcetera. Recommended related articles again could potentially use AI, again the same GenAI tool can recommend certain other references for example, from the outside the company's database maybe. which can give answer to the customers problem or addresses problem. Now, these might have worked, these may have worked etcetera.

So, that is not the agenda, we are now discussing only the process how what is meant by the organic discovery of AI operations. So, they had the problem, they thought about how to solve the problem. And the outcome is the areas of improvement came out of investigations and not because anyone was looking for an AI solution. So, why it is organic and not proactive is nobody said hey guys we have a problem. So, this problem we should do find out an AI solution.

So, what could be AI solution that is proactive. The organic is they brainstorm their problem and they realize that it is breaking down into some components. And if they can solve each of these or some of these components it should improve the work or the workload or the number of problems which is coming to them will reduce because the customers will do it yourself they will login and they will probably get answers to whatever they are looking for most of the cases. So, the workload will decrease the whole idea of the whole project was the problem was increasing or increase workload of 16 hours a day.

Also the last two steps with AI solution will not be adequate without the first two activities not happening. So, these two the AI based solution also is quite kind of linked here. So, you do this. So, you have to do all the steps to get better efficiency from this last two steps the AI And it is important to check whether the problem is large enough to merit the AI investment and effort.

So, when we talk about this potentially use AI, potentially use AI means is the problem large enough to merit AI. When you go talk about AI then you have to get the gen i tool and have the hardware whatever cloud etcetera access the cost will go up. So, is this problem large enough? So, every case to case basis this decision has to be made and the management has to be convinced yes this problem is large enough. So, we can do they

can do an ROI that to solve this problem time if I have to hire another say 8 people or maybe 4 people or 2 people what is the cost?

Vis-a-vis if I go for AI solution what is the cost? So, that is kind of easy because you know what is your manpower cost and also your team will tell you what is the AI cost. So, you can compare and come to a decision. So, it is always a cost based decision. And the other intangible factor here is that because the AI will be able to come up with better solutions or more information to the customer, you will have a more satisfied customer.

So, you will have your CSAT will improve or increase. So, that is you can say it is an intangible benefit which cannot be monetized. The value of that which cannot be converted into money value to get your ROI. So, straight ROI could be the labor cost versus the AI implementation cost. Now, the other one is proactive discovery of AI opportunities.

So, in this approach one systematically examines that is existing process, customer pain points, legacy systems in the organization that could benefit from AI. So, one of the example is a manual routing of tickets to support staff is inefficient. this workflow could be potentially automated with UL. So, you have a team working on handling the incoming problem tickets for the customer and you want to automate the process make it better. So, that things will improve your operations and it will be the customers will get solutions faster etcetera.

Now, some scenarios where proactively searching for AI opportunities may be helpful. So, this is what the team is now brainstorming. When you are thinking of replacing legacy systems and business processes with modern solutions, when you are planning a company or a department wide AI strategy. So, these are part of your proactive discovery of AI opportunities. When you thinking of replacing a existing system you want to do a new process new.

So, think AI first think AI can I replace it with a AI or when you are planning a company or a department wide AI strategy. So, we want to go digital we want to go AI. So, this is your new strategy. So, let us find out all the opportunities AI opportunities. So, this is that proactiveness not the organic.

When you are trying to start a pilot project to gain AI experience or a digital transformation of your unit. So, the CEO tells let us start some project we want to get into AI you are not doing anything. So, let us start with something some low hanging fruit.

Then you search which project is we will take it up for AI. This is a good case for AI not very complex, will not take much time, will not be expensive, it has will serve some immediate benefit purpose may

be the customer is waiting for something they are not getting something. So, let us try. One such use case here is how to avoid spams posts or hate an adult post in a social media platform or in any organizations website. So, this is always a strong candidate for AI because you can do it with manual intervention. Yes, you have a team to look into etcetera etcetera, but then doing a 24 by 7 so many people and not a very interesting work and very boring for the employees and also expensive.

So, can I automate this take it out of this mundane work out of the from people dimensions and move it to AI. So, this is a very common thing which is now happening common problem can happen to any organization website it can be hacked and they can post anything. And of course, the sites which are there social media platforms where you are supposed to post like Facebook for example or WhatsApp or Instagram or Twitter there of course, you have can obviously, always post anything you want. or maybe those tick tocks and all those stuff.

So, how to avoid that? So, can I use an AI model for detecting and removing it? So, this is one of the most common use case which can any organization can quickly jump into and start. Ask a few questions. Step 1, identify the potential, now we are talking about initiatives, now I have to find out which of the initiatives, how do we identify initiatives?

Does the problem require complex decision making? So, does it require some expert level knowledge like a cancer risk prediction, fraud detection, image analysis, image analysis for disease like a cancer detecting which cancer etcetera. If the answer is yes, it is candidate for AI. Is this a high workload problem? Do you have to check hundreds of data points over and over again?

Like the spam detection in social media, yes AI problem. Do you know what data is needed and is the data available? What data is needed and is the data available? This I have been talking about may refer to this many times. So, is the data from algorithm can learn, data should be related to problem, example routing support tickets.

And data is one of the key sticking points in starting AI initiatives at companies. In fact, to quote IBM CEO Arvind Krishna instead he is an Indian. Data related challenges are the top reason IBM clients have halted or cancelled AI projects. They started AI project

then they realize that they do not have enough or adequate data. So, they had to cancel those projects.

Do you know what data is needed? and is the data available. The first was quantity now what the data what is the is it the right data and is it available. Often what happens in practice is the relevant ML training data is either not collected or collected, but the data lacks the required labels because for supervised learning you need to label the data it lacks the required labels for training a model.

It could also be that existing volume of data is insufficient for ML model development. Fourth question is existing software automations if any being used does it have the accuracy or manageability issues. So, automation as I told earlier is not a new thing, we have used conventional automation programmatically electronically many thing PLCs, many shop floor operation any operation are automated. But now you want to bring AI, will you bring AI? If you want to bring AI you have to ask this question.

Is the current level of automation what is being executed or being run? Is it accurate enough? Or do you have any problem with accuracy or manageability? Is it failing? Is it working sufficiently with confidence level etcetera etcetera?

So, the situation arises where the software automation is already existing. Replacing the software, the AI can be justified in the software error prone, difficult to manage, has bugs, crashes, the software version has changed, the company is no longer there who has created the software. So, now you are not going to manage if there is a problem, you do not have the solution because the software provider is not there. AI learns complex patterns from data.

So, this case becomes a problem. So, if you want to change now, let us then try AI. AI learns complex patterns from data, hence there will be less code to manage. The advantage of AI based automation is that less program. less coding compared to legacy automation software using old and outdated logics.

So, you will use this logic to make this as an AI project. When patterns change and evolve with time, one mostly has to retrain the models with newer data and not write more code. So, AI is more of pattern recognition and things like that less of codification. So, how to find this identifying the potential AI initiatives? So, you have to generate the quality training data for machine learning projects.

So, we have to now focus on data. So, strategies for generating machine learning training data. So, start manually with domain experts. Tasks that require deep domain expertise start with domain experts. One of the example classic is medical interpretation of scan data.

You need qualified doctors to do, nobody else can do that. Start manually with customers, tasks that benefit customers, crowdsource internally, tasks which can be taken out of context for label acquisition, you want to put labels. So, you need people who know the job, know the business, know the subject. So, they can only assign labels to those images. And crowdsource externally where the tasks that do not require deep domain expertise and can be taken out of context.

So, these are the four strategies which you can use to generate quality training data for machine learning for any AI project unit data. So, that was the beginning. So, one other thing is identifying potential AI initiative is like domain experts we are talking about. So, what they do there is a new automation problem. So, the manual data collection with a team of experts like if you take the case of cancer detection from the scans PET scans or

whatever scans you need doctor the team of experts or the oncologists and doctors. And the data generated from the manual task completion and then it goes to the data scientist to build the model delivering the generated data. And then there is of course, the feedback system over time the models will need to be replaced because new scans new whatever type is changing then the say it goes back to this to open the manual because we have discussed earlier that AI model once developed is not the end of it it has to be continuously upgraded retrained etcetera with new set of data refreshed, otherwise it becomes stale we had used the word stale the model will not be effective enough.

So, this is with this I will end today's session, this session based on domain experts, the other three I will discuss in the next class. Now, this I have already covered. So, if you have zero data for an automation problem or your data is limited you can put together team of experts which I have been discussing now will manually complete the tasks while at the same time start generating high quality data. And these are the references at the end of my each of my session class session the last slide will be the reference slide and you can refer to the refer.

So, with this I will end this session. Thank you very much and I will continue on the same topic in the next class.