The Science & Art of Driving Business Adoption of ML Models

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TALK SUMMARY

Myntra Data Science (MDS) is one of the largest Machine learning teams in India. Myntra has been an early adopter of ML solutions and hence our work is deeply embedded across (1) In-app recommendations at all stages of the customer journey (2) Inbound supply chain: sourcing of products, quality checks etc. (3) Outbound supply chain-inventory allocation, route optimization, transit time forecasting etc.

There are two types of challenges in adoption of ML models:

(1) First time adoption of an ML model to replace manual decision making (Adoption)
(2) Ensuring adherence to recommendations from an ML model already in production (Adaptation/Adherence)

We have learnt that there is a different set of solutions for these two types of challenges. The solutions involve a mix of analytical techniques and use of soft skills like persuasion/stakeholder management.

We believe that through anecdotes and stories, we can provide practical insights to help organizations navigate the complexities of ML model adoption and adaptation to drive sustainable success in an ever-changing business landscape. The target audience for this talk will be practicing ML mangers/leaders and we believe that our tips based on first hand experience of both failures and successes will be useful to the ML practitioner community. The talk will have the following sections:

1 FIRST TIME ADOPTION OF ML MODELS

The two primary steps we follow when working with business teams on a new Data Science project are:

(1) Agreement on the success metrics or KPIs
(2) Agreement on the measurement framework for KPIs

Point 2 above would be easy if we could do a randomized trial (AB test) every time. However in our experience there are situations where a randomized trial is not feasible. A real world example we will discuss is Product pricing. E-commerce companies are not comfortable showing different prices to different customers at the same time for the same product. In our example this led to a complicated situation where we wanted to measure the impact of an ML driven pricing strategy on GMV and Gross Margin (GM) but could not consider customers as the unit of randomization. We will provide details of how we solved this unique problem through two different approaches- one relying on an approximation scheme and good stakeholder management due to which we gradually attained business buy-in and another based on analytical techniques for determining causal effects even in observational studies.

2 BUSINESS ADHERENCE TO OUTPUTS OF A MODEL IN PRODUCTION

Supply Chain Management/Operations is an area where continued adherence to ML based planning recommendations sometimes becomes challenging. This is because when responding to on-the-ground situations like a shipment lane getting closed due to a traffic accident, operations supervisors have to override ML outputs. Operations teams also require more explainability and guidance when interpreting ML outputs, as they tend to rely more on their experience-based knowledge. We will specifically discuss our learning in the context of (1) Inventory allocation and (2) Last mile delivery projects where we often faced such issues. We also discuss solutions that worked for us- establishing standard operating procedures (SOPs) early in the ML development cycle, or involving the operations lead from the outset to ensure operational nuances are adequately considered during problem formulation.

Finally will also share our lessons in navigating the challenges resulting from the interplay between Business, Product and Engineering teams and tips on how to gain the confidence of non-technical stakeholders to drive successful business outcomes.

SHORT BIO OF PRIMARY SPEAKER

Hrishikesh V. Ganu leads the Data Science team at Myntra. He has 18 years' work experience in the areas of ML, Operations Research and Statistics. Prior to Myntra, he has played managerial roles in ML/DS teams at Intuit, Amazon among other companies. He has a Master's from Indian Institute of Science (IISc) and a full time MBA from Indian Institute of Management (IIM), Kozhikode. He has several publications in ML conferences like SIGIR, NAACL, KDD, Informs Conference on Business Analytics etc. He was an author of an accepted talk in the Workshop on Applied Machine Learning Management at KDD 2022. He likes to learn as well as coach people on the intricacies of building successful DS teams.

ABOUT THE COMPANY

Myntra [1] is one of India's leading destinations for fashion, beauty and lifestyle and a pioneer in m-commerce play. An integral part of the Flipkart Group, Myntra brings together technology and fashion to create the best experience in the fashion and lifestyle space in India. The company has partnered with over 7000+ leading fashion and lifestyle brands such as `H&M`, Levis, U.S. Polo Assn., Tommy Hilfiger, Louis Philippe, `Jack & Jones`, MANGO, Forever 21, Urbanic, `Marks & Spencer`, W, Biba, Nike, Puma, Crocs, M.A.C, and Fossil and many more, to offer a wide range in latest branded fashion and lifestyle wear. Myntra services over 27,000 pin codes across the country.

[1] https://www.myntra.com/