

AI in Marketing
Prof. Zillur Rahman
Department of Management Studies
Indian Institute of Technology, Roorkee

Week 3
Lecture-13 Application of AI in Marketing Mix-I

Welcome to this NPTEL online certification course on Artificial Intelligence in Marketing and now it is time for module 13. As you can see from this slide, now we will be talking about module 13 and 14 that relate to application of artificial intelligence in the marketing mix. And this is, this is part 1 of that and we are talking of module 13.

Now, let us look at what are the things that will be covered in this module. So, we will start with studying the application of AI in marketing mix. And we will discuss the role of 4Ps in the marketing strategy. Then we will understand the impact of AI in marketing mix and discuss the marketing mix in terms of 4Cs and then explore the strategic framework for AI in marketing mix. Thereafter, we will understand the importance and role of different types of AI for the 4Ps and the 4Cs and explore the application of AI in product and price mix. So, these are the things that we will cover in module 13.

So, now let us start with the first thing that is application of AI in the 4Ps. So, as you can see from this value delivery process that we have talked about earlier also. So, this is a value creation and delivery process where the first thing is the choosing value, then providing value and then communicating value. Choosing value relates to customer segmentation, market selection or focus and value positioning and this is called strategic marketing. The other two components that provide the value and communicating the value, they are called as the tactical marketing. In providing the value, we talk of product development, service development, pricing, sourcing, or making, distributing and servicing. Then communicating the value, we talk about the sales force, the sales promotion and advertising etcetera.

So, let us start with looking at the value creation and delivery sequence. So, this is the value creation and delivery sequence. Choosing value, which is called strategic marketing, providing value and communicating value which is tactical marketing. So, this choosing value and strategic marketing is segmentation, targeting and positioning and these are the 4Ps which are which is the marketing mix and together they form marketing strategy.

So, now let us look at the 4Ps of marketing. So, marketing strategy consists of STP and the 4Ps. The 4Ps which are called as marketing mix together constitute the tactical marketing. So, now this marketing mix that is directed towards the target market, that consists of product, price, promotion and place.

Product will include all things like product variety, quality, design, features, brand name, packaging, sizing, sizes, services, warranties, and return. Pricing will include list price, the discounts, allowances, payment period and credit terms. The promotion includes sales promotion, advertising, sales force, public relations, direct marketing and the place includes the channel, coverage, assortment, location, inventory and transport. So, these these are the things that are covered in the 4Ps.

So, now let us start with the first P that is the product. Does the product live up to the promise? Is it really the best value, the highest status, the longest lasting? Is the quality so high that customers are happy to buy it again and again? So, does the image it represents actually make the buyer feel stronger, happier and smarter? So, why would you buy it? The second P is the price. Is your product priced for the audience you are chasing? Think Rolex versus Swatch, Apple versus Acer, Rolls Royce versus Kia. Being the least expensive may not be the best way to win the hearts and the minds. So, these two may be at the opposite price spectrum. These two may again be at the opposite end of the price spectrum. But being the cheapest is not the way or the only way, the best way to win the hearts and the minds of the customers. Being too expensive for all but a few might not target a wide enough market to stay in business. So, when you are too expensive, then the target market may be very small. So, that may not be good enough for you to stay in the business. So, does it ever go on sale? So, people will look for when it goes for goes for sale.

The third is the promotion that is this used to be just about advertising. But we are about to see that there are an inordinate number of ways to get your message into the minds of potential buyers. So, now earlier these two were the same. Now it is not so. Promotion is not just about plastering your name all over the world. Its success also depends on timing. Getting the right message to the right person at the right time is the challenge. And the fourth one is the place or the placement. Is the product available through the right channels? How many sales do you forego if your item is not offered through Amazon? What is the impact of people not being able to call and order your service on the weekend? What is the difference between being able to buy your item at the grocery store as opposed to a brand name store front? So, if it is available at grocery store, vis-a-vis at a brand name store front, what will be the difference? If you are not available for call and order on a weekend, then then what happens?

Now, let us look at the AI and marketing mix. Consider the following question. What kind of implications does AI make in marketing practice? AI is augmenting tool available to marketers which increase their impact with reduced efforts. So, the impact is being increased and the effort is being reduced. One of the most important tool available to marketers are the 4 P's as it helps marketers to reach the consumers directly. AI impacts each area of the marketing mix. AI is increasingly important for practitioners who are responsible for developing innovations as AI influences the whole spectrum of marketing

activity. Now, here it is worth mentioning that the area of place requires cooperation with industry 4.0 specialists as autonomous vehicles and robots play a crucial role in creating new sales channels and new customer service. Additionally, AI applications that extend the core product require innovation design approach to find the insight that match ideas going beyond the product or even the category. This is important for implementing AI within the product and promotion areas in the marketing mix program. Significant areas of impact of AI on marketing mix are listed in the next slide.

So, these are the impact of AI on marketing mix. So, first is the product. AI is making a great impact on the following areas for the first P in the marketing mix that is the product. So, that is the first P. New product development, hyper-personalization, and automatic recommendations. Creating additional value, additional solutions beyond product categories, brand and trademark management, purchase decision predictions.

The second is the impact of AI on marketing mix that is the second component of marketing mix that is the price. So, AI impact price mainly in the following areas. One is price management and the second is dynamic price matching to customer profile. The third is the promotion. AI impact on the third P in marketing that is promotion is greatly evident in the following areas. One is creating a unique experience, personalized communication, creating the wow factor and offering benefits. So, this is where AI comes into play. Elimination of the process of learning product categories, positive impact on customer and minimized disappointment. The next is the place. The focus of AI in the place is in the following key areas. One is convenient shopping. Another is the purchase automation whereby purchase is automated. The third is faster and simpler sales process. So, that is being streamlined all the time. 24 by 7 customer service by the use of chatbots, free service shops, consultant less customer support without consultants, new distribution channels, merchandising automation.

Now, let us look at the integrated marketing that is a marketing mix and 4 Cs of the customers. Integrated marketing occurs when the marketers devise marketing activities and assemble marketing programs to create, communicate and deliver value for the consumers such that the whole is greater than the sum of the parts. So, synergy happens. 1 plus 1 is equal to 11. So, that is what we are talking about here, that is integrated marketing. So, 4 P's as we know are product, price, place, promotion and now they are converted into how the customer sees them. This is the company's view. The customers see the first P, that is a product as customer solution. He sees the price as the cost, the place as convenience and promotion as the communication.

Marketing actions. At this strategic stage, marketers can use mechanical AI, thinking AI and feeling AI. Mechanical AI for standardization, thinking AI for personalization and feeling AI for relationalization. So, this is how the 3 types of AI they come into play. Now, let us look at the strategic framework for AI in the 4 P's and the 4 C's.

Artificial intelligence and marketing actions. So, 4 P's or 4 C's product which is 1 P and consumer solution is 1 C. In mechanical AI, automate the process and output of meeting customer needs and wants. In thinking AI, personalized products based on customer preferences and feeling AI understands and meets customer emotional needs and wants. So, this is what these 3 do so far as the first P and the first C is concerned.

Now, let us move on to the next P and C, that is the price or the cost. So, this is the customer cost, and this is the price. Mechanical AI automates the process of price and automate the process of price setting and payment. Thinking AI personalizes price based on customer willingness to pay and Feeling AI negotiate price and justify the cost interactively.

The third C, that is the place and the convenience. Here mechanical AI automate customer access to the product. Thinking AI personalize front frontline interaction and Feeling AI personalize experience for customer engagement. So, now you see that here this personalization is happening for the purpose of customer engagement. The fourth P is promotion or communication. Mechanical AI automates communication with the customers. Thinking AI customize promotional content for personal communication while feeling AI tailor communication. Here it is customizing promotional content. Here they are tailoring communication based on customer emotional preferences and reactions.

Marketing actions. Depending on which benefit is desirable, a marketer can use multiple AI intelligences individually or collectively. Let us now take a look at the use of different types of AI intelligences augmenting 4P actions to be able to deliver superior consumer benefits. AI and the product mix. So, what does mechanical AI does? Product that is the customer solution. Action includes goods and services as offerings to meet the customer needs and wants. Now, such action typically includes product design, packaging, branding, returns, associated customer service in these activities. Mechanical AI can be used for product branding actions that can benefit from standardization. For example, brand logo design can be automated by a decision tree like machine learning using multiple choice questions, allowing small-budget marketers to have AI-assisted branding.

Product adoption and acceptance can be tracked and monitored automatically. While enjoying the standardization benefits of mechanical AI, one needs to be cautious about automating product decisions when those products are related to consumer identity. In those cases where they are related to consumer identity, then this automating product decision becomes questionable.

Next comes the thinking AI. Thinking AI can be used for product branding actions that can benefit from personalization. So, now we are talking about personalizing the product and branding actions. For example, marketing analytics can predict market trends for product design that cater more precisely to target consumers' preferences. Big data

analytics can be used to inform product development to quickly adapt to consumer trends and changing preferences. So, now with these big data analytics, we can easily identify the consumer's trend and changing preferences and then we can inform the product developers to change the product accordingly. Topic modeling can advance service innovation and design.

Adaptive systems can be used to personalize service to each consumer's preference and deep learning can be used to personalize point of interest recommendations. So, now deep learning is used at point of interest recommendations. While feeling AI can be used for product branding actions that can benefit from relationalization. So, feeling AI and relationalization. For example, conversational AI can be trained to have brand personality to interact with customers.

Machine learning can recommend TV programs based on the viewer's mood. Brands can track their reputation through text and sentiment analysis, tweets, reviews, and social media posts. Chatbots can mimic customers' communication style to provide emotional support. So, they can look at the customer's communication style and then they can reply accordingly. AI in personalized engagement marketing. An approach to create, communicate, and deliver personalized offerings to customers is becoming a game changer for the marketers. So, now we are talking of personalized engagement marketing. Feeling AI can also be used to engage customers in service interactions.

Now, let us look at the customer responses. Customers have varying responses and attitudes towards using AI products. So, that is that is a problem. For example, some studies show that consumers may be resistant to using AI based products in the following cases. One is personal medical AI, identity-based consumption automation, anthropomorphized consumer rewards. So, these studies put a boundary condition for marketers when using AI in the product branding actions to generate positive consumer responses. Consumer service is emotionally charged yet is also costly. A marketer can handle customer service using the three artificial intelligence intelligences to balance the cost satisfaction trade-off in serving customers. So, this is the trade-off that that can be used in order to see which of the three AIs can be used.

Mechanical AI such as text based chatbots is widely used online to handle a massive amount of routine customer service. Most customers' questions can be answered by such bots. As long as such automation is not related to customers identity. It is easy to implement, cost efficient and it can be scaled up easily. Thinking AI such as natural language processing chatbots can handle more diversifies customers and idiosyncratic issues that is multicultural customers with accents and contextual dependent complaints. This is an AI version of an old telephone menu except that customers are talking to chatbots rather than humor customer service agents. Although a recent study shows that customers may not feel comfortable yet about talking to chatbots. So, that is again

customers are not ready to talk to the chatbots. But with the wider acceptance of AI and further advances of chatbots, we can expect the acceptance to increase over time. So, this acceptance rate is going up. So, now it becomes easier for a company to use AI to handle customer queries.

Feeling AI such as Cogit's emotional AI systems can analyze the pace of speaking, energy and empathy and common errors of conversations and give in-call guidance to customer service agents in call centers that make the conversations more natural and engaging.

Let us take a look at data requirements for AI augmented product mix summarized in the following table. So, this is the product mix and AI potential. Now, starting with the first column, what AI can offer? Identification of gaps in the market for new product development that is 1. Creation of more customized and boutique products 2 and 3 is awareness of what is in style or trendy and thus worth producing and selling. Now, what are the data requirements for this? Historical data on customers, their purchases, and associated outcomes. Customers, what are their purchases and the outcome, for example satisfaction or the order returns. In order to create recommendations, databases of consumer profiles from which to estimate new customer size profiles depending on inputs. Information on trending products, topics and styles from social media, press articles, etc. Examples of current AI applications are new product development that is choosy fast fashion based on trends identified through analysis of social tagging. Hyper individualized product customization for example, dojo's clothes that are customized according to AI enabled customer measurements.

Now, AI and product mix, an example, AI can identify which products to manufacture. Fast fashion brand choosy draws fashion inspirations almost exclusively from the top trending posts on Instagram, releasing 10 styles a week that customers can order before they go into production. By creating only products that customers have committed to buying, choosy avoids accumulating surplus stock and leverages the upside of mass customization while minimizing the downsides. So, now they produce only what is paid by the customers already.

AI and price mix, price, or the customer cost. Action includes the task of payment, price setting and price negotiations, which is the cost that the consumer pays for the product. The payment task is routine and can be handled best by mechanical AI. So, this payment can be easily handled by mechanical AI. Apple pay, Google pay, PayPal, Amazon payments and Square are some popular automatic payment methods for online marketers. The price setting task is calculation intensive and analytical which is the strength of thinking AI. In a 2019 study demonstrates that multi-armed bandit algorithms from statistical machine learning can dynamically adjust online prices in real time. Even if the price information is incomplete. So, we can use these algorithms, multi-armed bandit

algorithm for setting prices in real time. Even though the full price information may not be available. A machine learning framework based on Bayesian inference can optimize online pricing even when data are updated frequently and are scarce and noisy. Prices can also be personalized by incorporating consumer online word of mouth and consumers private personal information. It has also been proposed that retailers can use big data to optimize dynamic best response pricing algorithm that considers consumer choices, competitors' action, and supply parameters. The price negotiation task is interactive thus feeling AI is in a better position to undertake this task.

Interpersonal likability impacts price negotiation. Outcome in a B2B relationship suggesting that interaction, communication, and sentiment may be critical for price negotiations. The data requirement for AI augmented price mix is summarized in the following table. What AI can offer? Estimation of consumer prices, elasticity at both individual and collective level, one. The second is provisions of dynamic pricing that is search pricing and price discrimination and the third is detention, detection of anomalies. For example, errors in pricing fraud or non-profitable customers.

Data requirements to carry out all this include both historical and real time sales, search and price data on form and custom and competitor product. Examples of current AI implications are retailers such as Amazon use algorithms that automatically increase price in response to spikes in demand. WISE Athena leverages machine learning to analyze both own and competitors' prices to help firm make optimal prices and promotional decisions. Again, an example of this is Airbnb employs AI and ML to help host make pricing decisions about their property. Pricing is a complex process for host given traditional demand factors such as seasonal changes, local events, and location as well as the fact that each listing exhibits unique property characteristics. Airbnb provides pricing assistance with an ML algorithm that makes pricing suggestions for each date that a host makes a property available.

So, in order to conclude this module, we have discussed the application of AI in the marketing mix. Then we have seen 4Ps and 4Cs are together they are called as marketing mix and constitutes tactical marketing which together with strategic marketing is referred to as marketing strategy. The three kinds of AI has different importance in marketing mix. Mechanical AI for standardization, thinking AI for personalization and feeling AI for relationalization. We also have discussed strategic framework for AI in marketing mix. Lastly, we have studied the application of AI in product and price mix, and these are the five books from which the material for this module was taken. Thank you.