**The Role and Constraints of Platforms & Algorithms and the Effect on Consumer Behavior**

Today many automated processes rely on algorithms and machine learning which is a subset of artificial intelligence. Over the last 20 years platform and network businesses leveraged and optimised these new technologies which eventually catapulted them to the top of almost every Fortune 500 list.

According to Cor Molenaar (2020) platform or network models provide the consumer with a large range of products, services and direct contacts and communication. Plus, they offer more transparency in terms of search and purchasing processes and pricing. In platform business models the focus shifted from maximising the customer lifetime value to maximising the value of the ecosystem. The high value activities were not performed by the platform itself but by its users on the demand and supply side. At the heart of a platform lies the matching module that links the consumer’s need to the provider’s products and services (Molenaar, 2020). The higher the offered product/service range the more likely it is that the need of a consumer is matched successfully with the right product. A cycle is created where more sellers lead to more buyers and more buyers will attract more sellers. This is also referred to as network effects. Network effects are the reason why platform businesses were able to expand so rapidly over the last 20 years. Open source software and a mindset of collaboration allowed them to have a large supply due to network connections, a complete range of services, matching based on needs and selection of the supply, interactions between all parties involved (supply, demand, information and sales) and different revenue models that go beyond transactions (Molenaar, 2020).

Technological advances especially in the fields of machine learning and artificial intelligence resulted in more knowledge about customers and their purchasing behaviour which significantly improved the matching process between customers and products/services. Platform businesses have greatly benefited from the usage of machine learning applications. If machine learning is applied successfully data is turned into seamless interactions with customers using semi-automated and real time processes. This can lead to the creation of deeper one-to-one relationships with customers, improved customer experience and a higher product differentiation (Mari, 2019). Machine learning can be used to individualise and contextualise brand communication by basing the message on past interactions with the customer. Applying machine learning in the field of paid media, marketing analytics, customer journey analysis, targeting and SEO has shown to generate high returns on investments. L’Oréal for example created 12 versions of a YouTube video each tailored to a specific segment. The campaign resulted in an increase of 109% in brand interest and 30% in purchase intent (Mari, 2019). At bol.com the automated bid system by google outperformed the manually optimised campaign by 38% in customer acquisition costs and an estimated 10 hours were saved monthly per team member (Mari, 2019). These applications have created a new way of doing marketing referred to as performance marketing.

However, machine learning and automation is not a solution for every problem. There is no free lunch meaning that there is not one single good solution that applies to all business problems. Every company, every product or service are different, and it requires lots of time and expertise to select, train, fine tune and implement a ML model. Plus, concept drift might occur which means that changing external factors alter the problem over time causing a model to become obsolete. To avoid this, models need to be updated constantly which requires significant business understanding and technological expertise. Using machine learning effectively is, therefore, not a one-time effort but an iterative process. Another important factor that needs to be considered when using algorithms to automate processes is the bias that can creep into them. There can be bias in the algorithms themselves but also in the data. A good example is racial bias. A company might have pre-dominantly white- middle class customers. Therefore, their data sets are biased towards people that fall into that category. For classification models in which an action is triggered depending on how a customer is classified this can lead to a constant favouring of the dominant class.

Machine learning and artificial intelligence has already changed marketing and consumer behaviour. Especially when looking at the 4Ps of marketing we can see the impact of ML and AI. Products are better tailored to the individual customer. Often, they are not physical anymore but a collection of values. A focus is paid to efficiency in production and distribution to have a quick time to market and flexibility in the supply chain to adapt to new needs and changes in buying behaviour. Pricing nowadays is usually dynamic depending on demand, time, place, parts and loyalty. Place is not just a high street corner shop anymore but a multichannel is implemented using offline and online channels. There is a specific value and communication for each touchpoint focussing on interactivity and digital solutions. Lastly, promotions have become highly individualised and interactive. They consist of pro-active building values such as brands and sustainability. The focus lies on direct and personal communication.

To sum up ML and AI hold a great potential to revolutionise and change marketing practices significantly. However, its implementation and maintenance are challenging. There is no go to algorithm or model that can be applied but solutions vary greatly from industry to industry even for the same issue. However, if companies manage to balance strategic goals and processes, it can lead to an improved customer experience, lower costs and higher efficiency. Platform and network businesses are the best example of that.

**Sources**

Mari, A., 2019. THE RISE OF MACHINE LEARNING IN MARKETING Goal, process, and benefit of AI-Driven Marketing.