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Digital Business Models and Platforms

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This chapter illustrates the role of digital technologies in the evolving digital environment and the new business models that are being created in that environment as new digital technologies emerge. The chapter describes the evolution of different types of platform models including search engine platforms, social media and chat platforms and e-commerce platforms and how businesses can use these models to their advantage. The chapter also discusses metaverse as a new form of platform model. The chapter outlines how the notion of product is servicitized through digital services. This opens up opportunities for IoT models through networked services and rental models. The development in pricing models is explored through a discussion of freemium models and subscription models. The chapter then provides pointers for businesses seeking to adopt these models.

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TABLE 0

The idea in brief

Issue	Response	Bottom Line
Digital technologies have changed the competitive landscape, levelling the playfield, creating new players and business models. New forms of institutions and business models called platforms have emerged that have usurped the advantages such technologies can provide firms and have created near monopolies that threaten conventional businesses.	The same technologies have provided opportunities for firms to transform their product, pricing and channel strategies and create new business models: serviticizing the concept of a product, options to create product lines of content that vary in content and quality, freemium models and subscription models	Firms should be creative in ways of using digital technologies to create value for their customers directly and disintermediating platforms and acquire customers efficiently, build customer lifetime value and create firm value.

Introduction

The advancement in digital technologies over the last decade has transformed the business landscape substantially. Digital technologies have created a new environment of opportunities for consumers as well as businesses, have changed the competitive landscape, levelling the playfield, creating new players and business models. The environment within which businesses strategize and create their business models have changed drastically in the past decade. The conventional environment consisting of the five Cs – customers, collaborators, competitors, context, and the company – have new forms of institutions. Traditionally, a firm develops its business model by analyzing the environment within which it operates and making the aspiration decisions of how to segment the market and targeting the right segments with an appropriate positioning strategy. The action plan, consisting of product, price, promotion, and distribution strategies, is developed in such a way that it aligns clearly with the target market. These strategies and tactics impact the business outcome in terms of impacting customer acquisition, retention, and margins and firm level metrics of sales, profits, growth rate, brand equity, and market position. Digitization has altered the environment, the strategic decisions and business models in significant ways (Kannan and Li, 2017).

FIGURE 1

Evolving Framework for Digital Business Models

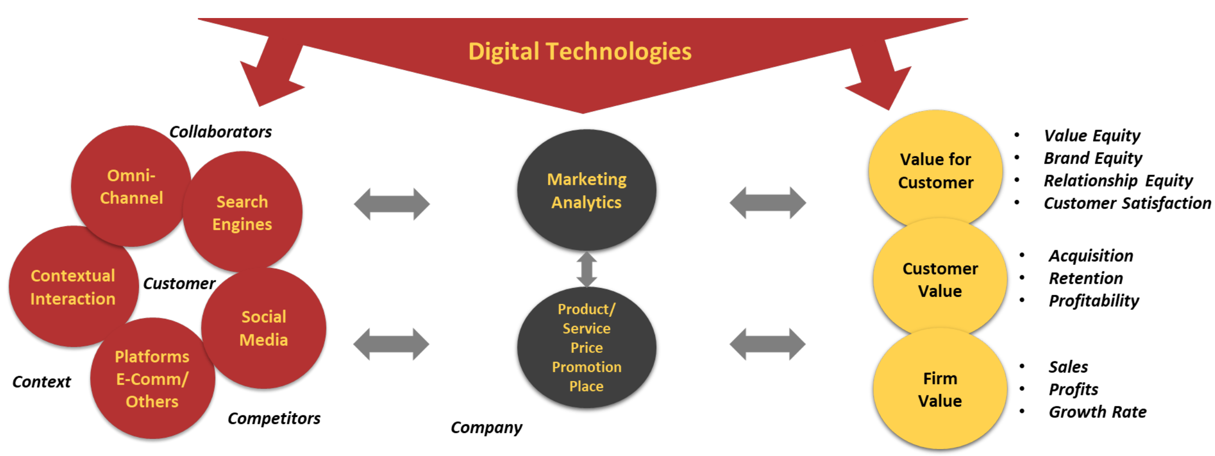
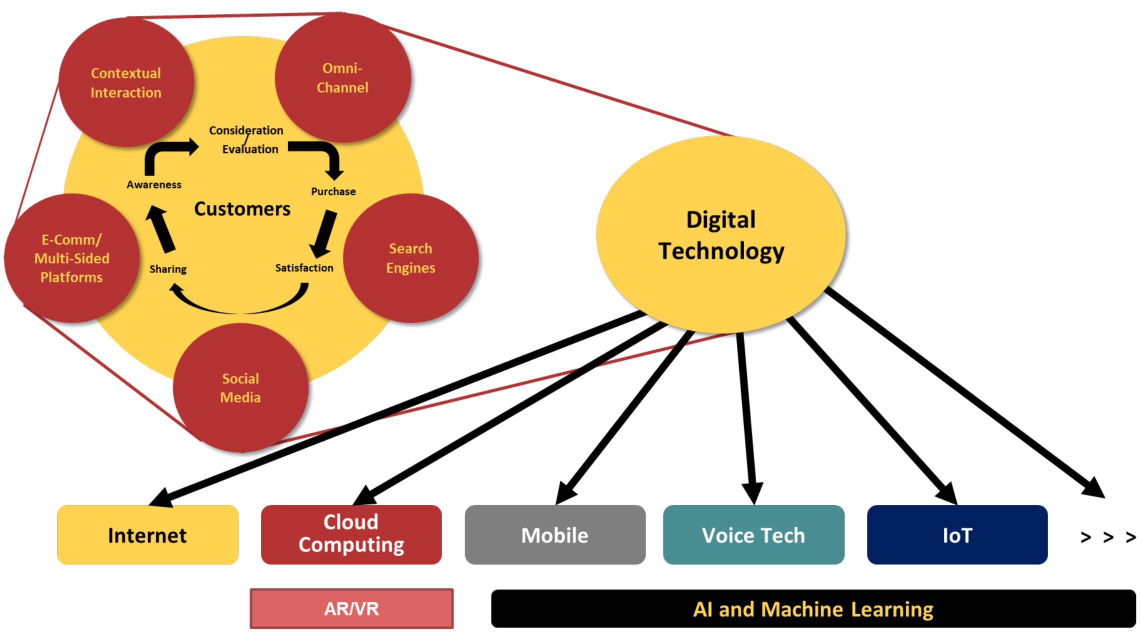


Figure 1 provides an overview of how digital technologies have changed the environment with the emergence of new forms of institutions. The environment (the block on the left Figure 1) illustrates these new forms of institutions. The block on the top shows the how digital technologies interact with the environment, creating these new institutions - multi- sided platforms such as social media platforms, e- commerce platforms, and search engine platforms along with ubiquitous connectivity provided by mobile devices and affording integration with offline channels leading to omnichannel options. The interactions with these forms of institutions is guided by the contexts within which markets operate – geographical, cultural, legal and privacy contexts. These combine to provide different options and opportunities for business models.

FIGURE 2

Digital Technologies and Digital Environment



Digital technologies are rapidly changing the environment within which customers interact on their paths to purchase. Digital technologies are reducing information asymmetries between customers and other players in the environment and providing customers with many alternative touchpoints on their customer journey (see Figure 2). This affects customers' information acquisition on quality and price, their search process, their expectations, and the resulting implication for firms. Digital technologies facilitate customer– customer interactions through online media – word- of- mouth, online reviews and ratings, and social media interactions – on social media, chat, and e- commerce platforms. These platforms act as collaboration enablers that connect a firm to its market using digital technologies. Likewise, search engines act both as collaborators with firms and as platforms on which a firm competes with other firms in acquiring customers. Omnichannel options are facilitated by ubiquitous connectivity through network and Wi- Fi connections, mobile devices and watches, and the associated infrastructure such as 5G telecommunication provide customers with access to markets and information wherever they are, transcending contexts. It also provides firms with location- aware capabilities to track customers and reach them whenever and wherever they are.

Digital technologies and the digital environment have transformed the customer journey in an omnichannel setting. Customer awareness can arise from alternative sources – through search engine, social media, and e- commerce platforms, through word- of- mouth or direct- to- consumer messages, through offline or online or mobile devices – multiplying the channels through which consumers can consider, evaluate, and purchase products and services. Likewise, the environment also provides multiple options for firms to target and communicate with their potential customers. As newer technologies emerge – voice technologies, virtual reality and augmented reality, and the Internet of Things (IoT) – channels proliferate. All these provide opportunities to create new business models and strategies.

Digital technologies also increase the capabilities that a firm has in collecting, processing and using market and customer data and provide them with new business models based on personalized offerings enabled by AI and machine learning. They create newer forms of products combining them with services. This is especially applicable to content offerings. Digital technologies also facilitate new pricing models such as freemium models and subscription models. They also facilitate newer forms of channel bundling and fulfillment. All these lead to possibilities for significantly positive outcomes in terms of value creation for customers as well as value creation for firms. In the upcoming sections, we describe the various business models enabled by the digital technologies and digital environment.

Platform Models

A platform business model facilitates interactions across a large number of participants on a platform supported by a technology infrastructure that provides connectivity between participants. The interactions could be of many kinds – a short-term interaction like in a search engine where participants looking for information/products are connected to information providers and retailers or a longer-term interaction like on a B2B platform or social media where participants are connected on a long-term basis. Platforms create value by reducing search costs or transaction costs or both, specifically through network effects. The platform model is different from a traditional business model or a reseller. A traditional business creates or manufactures products/services using raw material or other input and market it to customers. A reseller buys the products from manufacturers and sells it to customers. A platform, on the other hand, does not create the product/service but facilitates the connection between the interested parties. The platforms provide a governance structure, standards and protocols to facilitate the appropriate interactions and functioning of the platform. The success or failure of a platform may depend significantly on the governance structure (Hagiu 2014).

The digital environment has given rise many different forms of platforms ranging from search engines, social media platforms, e-commerce platforms to learning platforms. The type of participants could range from two (two-sided platforms) to many (multi-sided platforms). The platform could generate revenue by charging all the different types of participants or just one type of participant and providing free access to others. We discuss a few of the important ones below.

Search Engines: Search engines connect users who search for information to the sources of the information searched for. While search engines are free to use for users and for businesses which are connected to users through organic listings, they generate revenue through paid search for which businesses, wishing to attract potential customers searching for related terms to their websites, pay for the clicks for their sponsored ads. The search terms users use helps the businesses to target the right customers to attract. Businesses bid against each other to get top spots in response to users' search terms and a greater competition among businesses for sponsored ads increases the search engine's revenue. Companies like Google, in addition to being a two-sided platform for connecting users with businesses, also act as a multi-sided platform in helping businesses target users at various publisher sites, through display advertising. The publishers (websites) publish content that is relevant for users who visit the website to consume the content. Google targets these users on behalf of businesses, who pay for the display ads. The publishers are compensated for their ad space. Users are exposed to the ads that businesses want to shoe them. Of course, the whole display ecosystem consists of large number of players but this simplified description shows the power of multi-sided platform businesses.

Social Media Platforms: These platforms (e.g., Facebook, Instagram, TikTok, YouTube, Twitter) connect users to other users through social networks and the users consumer the content other users create. Given the significant visibility the platforms have into users' interests and preferences through the content they interact with, these platforms are able to target users precisely for the businesses who want to advertise to the users. This is also the key way they monetize the platforms. The biggest challenge for these platforms in recent times is the backlash with regard to the negative impact of social media on the users (especially young adults), creation of filter bubbles, and indiscriminate use of user data compromising their privacy.

Many of the social media platforms have also evolved over time to multi-sided platforms where they not only support businesses to advertise on the platforms but also sell through the platform. For example, social media platforms such as Douyin in China and TikTok are increasingly support businesses to do live commerce (Gu et al 2021), where influencers on the media pitch products to their followers. Influencers can be seen as a different type of users, ones with large following, that bring in revenue not only for themselves and for the businesses whose products they pitch but also for the platforms too (Haenlien et al 2020). Social media and chat platforms are fast morphing into e-commerce platforms using the influencers in a significant way to make such transformations.

E-Commerce Platforms: When the digital environment opened up opportunities for e-tailing, a number of online retailers sprang up online – Amazon and Alibaba, to mention a few. As these online retailers became behemoth brands attracting millions of visitors to their websites, these online transitioned into e-commerce platforms, where smaller retailers can set up online shops and market to the millions of visitors within the walled garden. In addition to marketing their own products to the customers, these platforms allow other sellers on their platforms to market their wares to the customers. Some of these platforms such as Alibaba also serve as B2B platforms, allowing industrial buyers to identify suppliers and forge longer-term relationships with them. Essentially such platforms become marketplaces controlled by platform owners to facilitate transactions. Platforms like Alibaba have evolved into larger ecosystems encompassing many business as well as payment functions, hosting players in large multi-sided platform. As with social media platforms, e-commerce platforms are also experimenting with live commerce involving influencers to market to their customers.

There are many other platform models that bring two or more parties together for short-term interactions – like eBay for peer-to-peer transactions, AirBnB for rental owners and renters, Uber and Lyft for connecting drivers with passengers, gaming platforms like Xbox and Twitch to connect game developers and game players, etc. All these platforms can be viewed as aggregation platforms by aggregating supply and demand so that the marketplace transactions become efficient as the network effects create significant value for either party to be on the platform. Other kinds of platforms mentioned in literature (Hermans 2021) as being different from the above types are "learning platforms" which bring participants together to share their insights over time and thus facilitate learning among the participants. This is enabled by the synergy of participants working together and realize the potential in growing their knowledge and improving their performance. These could be educational platforms or other kinds of platforms such as open-source platforms. All are enabled by the digital environment that is advancing day by day.

How do platforms become successful? If the platform can create of an entry barrier to prevent other platforms to muscle in to the same market, then the platforms can be successful. By the same token, establishing such entry barriers are not always easy, which is one reason platform businesses fail. It is also necessary to sustain the value created for participants over time. The governance structure, rules and protocols also play an important role in the success of the platforms. Over time the platforms also become indispensable for the participants, and this allows the platforms to extract value from the participants. For example, Amazon as a platform can increase the commission on the sales made by the smaller retailers on its platform. They can force the retailers to advertise and bid for keywords on their platform. Similarly, platforms such iPhone and Android have control on the specific apps that could be featured on their platforms and the specific commission they could charge on the revenue the apps make on their platforms. Smaller retailers and apps with insignificant brand awareness do not any option other than to stay on the platforms. Platforms, therefore, can easily become monopolies with the control they have on the marketplaces they create. For the retailers, the only way to fight back the commoditization of the product categories by the platforms is to build their own brands and use alternate channels to reach the market. Hagiu and Wright (2021) outline strategies that retailers and firms can take to counter the power of the platforms. Reinartz et al (2019) show how retailers can adopt a platform model to compete in a crowded retail market and transform the value chain.

Metaverse: The latest development in platforms is the concept of metaverse, where virtual reality technology is used to immerse users in a virtual "meta" world. While the entry to the platform is through VR technology, the virtual world is also populated by other users through their avatars. Users can interact with other users like in a social media platform, exchange messages and content, form groups and communities focused on specific interests, all the while the platform owner can target the users with advertisement and messages from businesses. In addition, businesses can open storefronts in the metaverse (much like in Taobao or in a physical mall) and users can visit and make purchases. Different platforms can be created by owners in the metaverse, but these walled gardens could also be connected so that users can migrate from one meta world to another. Metaverse is the virtual counterpart of the real world – so employees within an organization can have meetings at the virtual location of the firm in a virtual conference room with users' avatars sitting in their chairs around the table. At the end of the meeting, users can check out and do shopping or hangout with friends. The stores will be able to provide 3-D representation of the items they sell and a user can get close to the item and view the details in 3-D. Users can attend live music shows (Stern 2021). Metaverse will enable the morphing of all types of platforms that we have discussed so far – social media, e-commerce platforms, search engines – and there is already intense competition among firms such as Meta (Facebook) and Microsoft to stake their claim in the virtual world.

Models based on Product and Content

The concept of product is undergoing a rapid transformation in the digital age. The augmentation of the core product with services is becoming increasingly digital, where the core value of the product is increased with value derived from digital enhancements. For example, automobiles with GPS systems, sensor-based self-driving technologies, self-monitoring and automatic ordering refrigerators, are basically traditional products that have been infused with digital services to make them more than product – they morph into servicitized products with increased value proposition for customers (Vargo 2017). In addition, the digitization of the products allow them to be networked with connectivity.

This has important implications for new business models. First, the networking of products using online and mobile technologies is spawning a rental economy wherein the dormant value of owned-products is released through digital networking for rental options (e.g., Airbnb for houses and Uber for automobiles). Such products enable the platform models that we discussed in the previous section. Second, the products themselves become the entry for providing value enhancing services. For example, developments in Internet of Things (IoT), where products are infused with smart technologies enable communication with each other and the users and allow services to be provided to users on a continual basis. Another recent example is that of Peloton, which uses the product and connectivity to provide work-out services for customers at their homes. Third, products/services themselves are morphing into services, especially in the domain of information products such as software, and content such as music, video and text, with online and mobile technologies playing a key role in delivery and fulfillment. This has provided opportunities to create product lines of various digital and traditional non-digital formats with interesting implications for bundling models.

The digital environment has also led to the rise of Direct-to-Consumer (DTC) models with Blue Apron, Hello Fresh, Dollar-Shave-Club being good examples of the non-digital category. In the digital category, content – whether it is entertainment content, software or other kinds of information products – have led to the emergence of ad-supported content models (especially for news and other content), one of the most common form of digital business models. All these developments also provide opportunities for customizing and personalizing content/product and service offerings, by varying not only the core product/service but also the augmented digital services. As new technologies come into play, this whole process becomes a continuous and dynamic one, just Augmented Reality and Virtual Reality are transforming how retailing and home-gym services are delivered.

The digitization of products and content also allow new forms of pricing models such as freemium and direct-to-consumer subscription models. We will focus on these next.

Freemium Models

For firms selling content or a digital service online, it can be a challenge to acquire new customers. Potential customers may not know the features of the content or service or have the experience of using the content/service. For many such experience goods, their quality can be determined only after using or experiencing those goods. In such contexts, many firms contemplate using a *freemium* or a *free trial* model to acquire customers.

The "freemium" model is basically a product line of free version and a premium version. It is a pricing strategy by which a product or service is provided free of charge, then an enhanced version of service is offered for a price. A free trial on the other hand offers the priced full service for free for a limited amount of time so that customers can try the service and experience it. Examples include Hulu streaming service available for free for a period of 3 months or Netflix offering a free trial for a month. While the free version in a freemium is a lower-tier service with fewer functionality, the free trial model usually includes all features in the service/product for free but for a limited time. There could also be an in-between model like what NYTimes.com offers – one can read 20 free articles per month, but if one needs more articles within a month they have to sign up by paying. The 20 twenty free articles could be anything and not limited to certain topics, but the quantity is limited. Popular examples of the freemium include Spotify, which has an ad-supported free service and a premium version with no ads and HootSuite, a popular social media management tool, offers free plans for individuals who want to manage up to three social profiles, and business plans for those who need more. HootSuite's freemium approach is to allow users to get to know the benefits of using their platform with enough access to their main features to know that they want access to more. Their approach works because most social media users, even individuals, will have more than three social media profiles to manage. LinkedIn and Skype are other examples.

Freemium model helps to build brand awareness and provide a costless way for customers to sample and experience a new product or service. Free features are a potent marketing tool, which allows a firm to scale up and attract a user base without expending resources on costly ad campaigns or a traditional sales force. Finally, social networks and associated word-of-mouth are powerful drivers. Many services offer incentives for referring friends, which is more appealing when the product is free. The main objective is, of course, to convert free customers to paying customers. This assumes that there are customers who value using the service enough that they are willing to pay for additional or different functionality and willing to purchase the premium version in the presence of the free version.

If a company is unable to convert an adequate fraction of its free customers to paying customers, the freemium model is likely to fail. Some firms like Spotify monetize free customers through advertising. This can recoup some of the costs of providing free service. Mobile games monetize by selling add-on features like in-app purchases which can support such a model. The conversion rate (from free to premium upgrades) for most firms range between 2 – 5 percent. Spotify is an exception with 27%, but for other firms it is much lower. While a very low conversion rate can be bad, which may indicate that the premium version does not have much added value or the firm could be giving away too much value for free, a very high conversion rate may not be all positive, because it may indicate that the free offering is not attracting as much viral attention (Kumar 2014). In the long-term, the best strategy is something that will attract a high volume of traffic and a moderate rate of conversion.

When should freemium models be used? The most important aspect is that marginal cost of an additional user should be very low, ideally zero like in digital goods – like an extra copy of an e-book or movie. There has to be a significant differential between what is given for free and what is premium. The free option should be attractive enough to attract free users and the premium version should have enough additional value for users to upgrade. The premium version should also be priced appropriately – not too high for the additional value it provides. A firm can differentiate between the free option and premium option on many dimensions of features as well as usage and user characteristics. For example, free version could have a significant delay in response time which might be acceptable for a patient user but not for impatient user, who may want to upgrade to the premium with faster speed.

While firms have the option to use freemium or free trial models, the important question remains when they should go for free trial instead of freemium. If *all* features of the product/service need to be experienced to understand the value proposition of the premium offering, then the firm needs to offer free trial for a limited time with all features of the offering. Also, if providing free offering is costly over time, then free trial is a good option. The online environment provides easy options to experiment with the freemium and free trial models. Li, Jain and Kannan (2019) show that free versions of free trials should be designed in a specific way to increase the sales of the premium version/ or the version that is being marketed. Thus, specific design of these offerings play an important role in the success of the freemium/free trial models. Gu, Kannan and Ma (2018) show that freemium models can benefit from having a product line of premium products – that is, in addition to the free version, the firm should have at least two premium versions. They show that by appropriately pricing these premium lines, firms can activate either compromise effect or attraction effect which lead to increased sales of the premium versions, moving customers away from the free version. Finally, there have been instances where firms have moved away from the freemium model once they have acquired enough customers. Similarly, since the concept streaming has become well-known, many streaming services do not offer free trials anymore but provide customers to cancel their services at any time.

Subscription Models

With the popularity of direct-to-consumer (DTC) models, subscription pricing models have also become very popular. One of the advantages of the subscription pricing model is that payment is recurring and automatic and is useful to measure retention of the customers easily. Strictly speaking, subscription models by themselves do not increase retention, but since subscriptions are form of a contractual relationship, it is easy to identify how many customers you have and how many have churned as compared to a non-contractual setting. From that viewpoint, it helps to highlight the churn problems that you might be having and take corrective action to retain customers. More formally, subscription model is a pricing model where customer pays a regularly recurring amount in exchange for the use a product or service. Examples include streaming (Amazon Prime, Netflix), online news and content (WSJ.com , NYTimes.com), products shipped on a regular basis (Dollar Shave Club, Hello Fresh, etc.).

A well-implemented and well-run subscription model can have high retention rates. Firms can be quite selective in acquiring customers for subscription model by highlighting the continuing value of the business to the customers. Acquisition of customers is also forced to be more customer lifetime value-oriented and more towards acquiring the right customers with higher retention rates. Freemium or free trial models may help in such acquisition efforts. An added advantage of the subscription models is that investors and analysts love the model because of predictable revenue stream given the retention rates.

There are many factors that help retention in subscription models. One is easy payments using auto-pay services and auto-renewals, so that customers' credit card gets charged automatically. Sometimes customers do not come around to cancelling subscriptions due to pure inertia. Other times even when they want to cancel subscriptions, the firms make it very difficult for customers to cancel easily – information for cancelling the service is not easily accessible on the website or customers may have to call the call-center to cancel. Then there is the sunk cost effect. That is, customers feel compelled to shop – because not doing so would be "wasting" the money they have already paid for the subscription Finally, there is the endowment effect. Once a consumer has access to and is receiving curated products, or can enjoy the convenience of replenishment, they are less likely to want to give those up.

In addition to the above, there are several other factors that impact retention in a subscription model. First, there is social influence – positive word of mouth within social networks and among members can have a positive impact on ongoing relationship and retention. Second, usage plays a critical role in subscription renewal – usage facilitates customers to derive the value from the product/service - this is one reason that Peloton would want its customers to exercise regularly and send customers nudges for it. If they do not exercise, then they would see the subscription as a waste and cancel it. Third, there are opportunities for learning customer preferences in the ongoing relationship. This can help in product/service personalization and thereby focus on increasing value for customers, which has a positive impact on retention.

Subscription models have become so popular that they are being over-used by firms and are getting a backlash in recent times. First, they are overused as a locking mechanism. As this comment from Scott Stein of CNET highlights, "Suddenly, or more than ever, we're subscribing to everything…We rent the world we live in." This, of course, makes customers waste a lot of money on things they really do not need or use on a regular basis. Firms making it difficult to cancel subscriptions leads to customer ire and negative word of mouth. This has also attracted the attention of regulators. Finally, from the firms' viewpoint, subscription implementation can lead to increased costs in the interim till, if and when, the model stabilizes. Despite all these negatives, if a subscription model is conceived and designed well to provide value to both customers and the firms, it can contribute to the firm's value significantly. Amazon Prime is a good example and there are many such examples.

Conclusion

As digital technologies advance along with developments in artificial intelligence technologies, there are many opportunities for firms to find niches in the business landscape where they can differentiate themselves in creating value for customers. A good example is the online retailing industry, where personalization technologies are providing website of personalized website offerings for each customer using AI technologies, so that customers do not have to endlessly search for the products they prefer. Companies such as Stitch Fix and The Yes are pioneers in such business models. The next frontier of digital business model lies at the confluence of emerging digital technologies and AI and machine learning techniques. The business models will also likely have a shorter life span as pace of development increases. We are indeed living in exciting times!

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