

The strategic dynamism of digital platforms: An analysis of the online training market

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Abstract:

Platforms play a key role in the architecture of various markets. The market of online training is typical. Platforms have sprung up following a new business model based on strategies for using digital technology to capture and create value. Business models in the training market have developed around two-sided platforms, which enable them to make offers that simultaneously attract categories of users on each side of the market. Nonetheless, the online platforms in education, their numbers swelling, have a plurality of strategies for gaining leverage so as to process collected data and use algorithms. The characteristics of these strategies are analyzed by identifying their technostrategic attributes.

According to a consensual definition, a platform's interest is to simultaneously make offers on two sides of the market, *i.e.*, for two (or more) categories of market players in a two- or multi-sided market, the aggregation of these sides forming the platform's ecosystem (HAGIU & WRIGHT 2015). Under the platform business model, the value of a service is proportional to the number of actors present on each side of the market; and the ecosystem is built on the externalities due to network effects. This majority conception in the specialized literature stems from a holistic approach necessary for a general understanding of the strategic dynamism of platforms. However it does not take account of platforms' technical and strategic characteristics as reflected in the diversity of the business models observed in the digital realm. The methods and levers for creating and developing networks and offers with value have been presented too generically (CHANAL & CRARON-FAISAN 2008).¹

To better understand the strategies driving platforms on the education market, this article analyzes the growing importance of the most recent trends in technology, above all, artificial intelligence (AI). Special attention will be paid to education platforms, which use collected data to make calculations for deploying algorithmic models in view of the classification and/or prediction of users' behaviors and uses. To design new business models, these platforms work out strategies that rely on data and their algorithmic processing. After reviewing the emerging literature on the impact of big data and AI on the "platformization" of the economy, the various strategies will be analyzed that education platforms have adopted for more added value. I shall point out how AI makes these strategies more efficient.

¹ This article has been translated from French by Noal Mellott (Omaha Beach, France). The translation into English has, with the editor's approval, completed a few bibliographical references. All websites were consulted in December 2020.

AI, the driving force in platform strategies

The development of AI through platforms, these new forms of organization, leads to the construction of market architectures based on information processing (BENAVENT 2016). The business models of “multisided” platforms heavily rely on techniques and strategies for creating value that are based on processing massive volumes of data with the goal of stimulating growth and making users loyal. By recommending products and services, bringing people and objects in relation, assessing the potential of future markets, setting prices or even drafting offers, platforms are extending and honing their business activities thanks to the automatic processing of data and metadata (HARTMANN *et al.* 2014).

The more visible forms of AI, such as chatbots or software for computer assisted decision-making, seek to improve the user experience so as to induce motivation and action (BENAVENT 2016, SCHNEIDER *et al.* 2017). They thus help redefine the strategic issues and limits of platforms. By implementing AI, an ever more intimate knowledge of users can be gleaned; and the detection of market segments, refined through an eventual shift toward “ultrasegmentation”. AI techniques, such as machine and deep learning, contribute to perfecting the design of a platform’s interfaces; they define changes in the uses of these interfaces thanks to an interplay of incentives and restrictions for users.

In summary, AI, the driving force in platform strategies, is increasingly a structural component of the technological architecture of platforms, especially since it makes them agile for managing and developing mixed organizational models, in particular by improving the connectivity of interfaces and thus generalizing strategies of interoperability between platforms and connected devices as well as between platforms themselves (ACQUATELLA *et al.* 2019).

Major strategic trends

Three strategic trends stand out with regard to the technological levers that make them disruptive. The distinctions made hereafter are intended to help us better understand by setting these trends in the light of AI’s functions, effects and issues for improving the efficiency of the strategic choices made by platforms on the education market. The major strategic trends pointed out are not mutually exclusive but, instead, complementary, namely: the disintermediation of markets, the matching of players on different sides of the market, and the technological architecture.

Disintermediation/reintermediation

This strategic approach has to do with the disintermediation-reintermediation of markets. A platform grabs a part of the value chain with the goal of upending the business of traditional intermediaries. This strategic trend has involved developing and agilely redefining partnerships through new procedures for distributing information. The platforms then “reintermediates” market segments of goods and services without acquiring assets. The power of a platform’s offer causes a massive shift in uses by cybernauts. By offering an algorithmic design, the platform concentrates and more fluidly presents information and thus becomes the intermediary preferred by users. It restores value to an offer of education by proposing an alternative and touting its distinctive characteristics, thus acquiring the status of advisor in the eyes of consumers.

The constant development of AI-driven analytics enables platforms to recommend users an offer that is likely to precisely match their explicit or tacit expectations. Platforms thus benefit from being trusted as an intermediary, a status that tones up customer loyalty and thus brings a

competitive advantage in the education marketplace. To keep this role of trusted intermediary, the platform has to exercise keen control over the flow of information generated by its partners in order to coalesce its ecosystem around collective, federative strategies. For example, the MOOC platforms for massive open online courses, such as Class Central or Quick Code, control all information about online courses (*e.g.*, the number of active learners and the rates of completion, viewing, retention and satisfaction, etc.) and thus adjust their offers of education so as to recommend courses in response to tensions in the labor market — to skills and qualifications demanded when recruitments are made.

Consequently, the improvement of a platform's recommendation system reflects the requirement of increasingly algorithmic contents for continually fluidizing the information transmitted (news, proposed courses, popular subjects, etc.) and enhancing the user experience in order to intensify enrollees' motivation. The collection of personal information from interactions with enrollees helps the platform understand users' needs and expectations. Thus informed, through data and metadata on users and their browsing patterns, about learning behaviors, user expectations (expressed or unspoken) and the demand for education, the platform can rework the user experience by improving its design and, too, recommending courses that match demand.

Matching players on two sides of the market

This strategic approach accepts the operation of a new network of value that makes it possible to massively diffuse innovation. It has to do with a platform's ability to invent new interrelations based on value between various players in the market so as to expand its business and create new markets. For example, Coursera offers a new form of intermediation and interaction between economic agents by addressing, on one side of the market, academic institutions and, on the other side, people looking for an education. Thanks to this new form of intermediation, a new offer of educational services can be drafted by mustering resources (courses, educational materials, etc.) that are underused but that, once revalued, create and coordinate a market by stimulating a new demand for education and diplomas. This form of value creation has enabled asset owners (namely academic institutions) to turn to account their organizational resources (courses, teachers, etc.). Platforms are a vector of new ways of using assets via a novel form of intermediation between cybernauts and the establishments that provide educational contents. A platform's capacity for creating new networks of value centered on the distinctive offers it promotes in the marketplace depends on the creation of new assets (MOOCs) and stimulates the development of educational platforms. Creating and coordinating new forms of intermediation depend on permanent iterations of these platforms with the market in order to continually test various value-based propositions. A platform thus semiautomatically generates, assembles and redistributes these propositions for exploring strategic possibilities thanks to the data produced by its partners. The impact of algorithms on these analyses tends to automate the quest to find and exploit new, workable deposits of value. By changing the way that users consume educational products and the format of the courses consumed, Coursera has thus opened a new online education market.

The technical architecture

In general, a platform's architecture is designed and developed like a technical infrastructure for supporting an ongoing process of innovation (BALDWIN & WOODARD 2008). The goal of controlling the technology underlying this architecture is to steer and orient the standards of techno-educational innovations in various markets. Under the model for designing this architecture, platforms may opt for a proprietary or standardized strategy. The proprietary strategy seeks to

generate a competitive advantage by staking out a position on the market via a fully integrated technological offer. The standardized strategy seeks to technologically drain competition from the market owing to the platform's own capacity for "percolating" through a wide set of technical systems an ongoing stream of incremental innovations made by the Web community.

Some platforms, like Coursera, design their interfaces alone and use a very integrated toolkit. The designs of most of the technical components of the platform's architecture are proprietary, as well as the design of interactions with users. This "*internal platform*" (GAWER 2011) develops and uses a family of products as it deploys the components and new features that it has produced out of its own resources. The platform's architecture amounts to a set of systems and subsystems corresponding to the interfaces that form a proprietary structure managed in house.

In contrast, other platforms (in particular EDX) have opted for an open source development of their interfaces. Their option for a standardized architecture leads them to outsource processes for their technical development. Education platforms with a standardized architecture have a modular, "global" infrastructure. This solution for developing a platform does not exclude exercising control over the degree of openness or certain other dimensions (whether technical or not), such as access to information or the support expected by third parties.

The difference between these two models is mainly based on their different strategic ambitions for winning shares of the market. The levers used by a proprietary strategy imply creating new demands and making new offers of services to meet them, whereas a standardized strategy gains leverage from the platform's determination to preempt other technical systems in the marketplace.

Conclusion

Although AI refers to a plurality of models and strategic ambitions, its inherent characteristics gradually impose a strategic standard that shapes the market. In fact, all organizations using a platform model have, apparently owing to their very nature, the intention to incorporate algorithms for continually developing or revitalizing their business models. Such is the case of education platforms, as they become more capable of automatically learning by collecting data and aggregating the "sides" of their ecosystem.

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