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Chapter 7: The future of cable services: Blending traditional delivery with on-demand innovation

7.1. Introduction

The advent of new video delivery technology has generated speculation about the future of traditional cable services. Some analysts predict a total collapse of the legacy cable model, while others regard the rapid growth of non-linear, Internet-based services merely as a new wrinkle in the already complicated media landscape. Simultaneously, both mainstream media and the industry trade press have reported that traditional cable operators wish to create innovative service offerings that take advantage of the delivery efficiency still provided by the traditional cable plant. Such "blended" services would incorporate the subscriber-fee revenues associated with traditional cable services while also expanding access to newer, more innovative programming platforms associated with broadband delivery, such as Voice-Over-IP Phone Services. However, to date, neither research nor industry has yet developed a viable conceptual framework with which to assimilate the growing range of innovative cable service offerings. Industry progress toward the realization of such blended service models has been both piecemeal and stochastic (Minerva et al., 2020; Brous et al., 2020; Casey & Hackett, 2021).

As background, in this chapter we first describe the fragmented structure of the broadband delivery services marketplace. We then situate the emerging cable service 'blends' within that structure, before offering a conceptual framework that relates the blend offerings to the capabilities inherent in both traditional wireline delivery and broadband delivery. Finally, we explore the prospects for the commercialization of blended cable services, including the current pipeline of major industry players. We hope this analysis will not only clarify the nature and significance of cable service blending, but also provide useful insight on the future evolution of the broadband delivery marketplace. We expect the future of cable services to remain as rich and complex as the

future of terrestrial movie theatres, broadcast television, or physical sound media. In turn, we hope that our mapping of the landscape and our driving questions will provide others with a roadmap guiding them through this complexity (Zhang & Qian, 2019; Mukherjee, 2020).

Fig 7.1: Blending Traditional Delivery with On-Demand Innovation

7.2. Historical Overview of Cable Services

The rise of cable began in the 1940s as an alternative delivery system for small, isolated markets unable to receive terrestrial signals. Early cable systems, called Community Antenna Television, boosted local television reception for subscribers of a service that remained technically constrained for decades. In the 1960s, systems multiplied as television viewing expanded, channeling revenue to a few large operators. These operators captured a growing share of television viewing with services prohibited from retransmitting local network stations, but considered fringe by some. Congress

intervened in the 1970s to encourage network distribution and protect nonoverlapping local channels. However, by then satellite delivery had emerged as a disruptive technology, loosening cable's grip over large and small market delivery alike. Roughly four decades elapsed before satellite delivery moved back into non overlapping markets, refocusing attention on local alternatives and creating the basis for hybrid services.

The federal-government push to induce competition with satellite delivery, ironically, became the key impetus for the diversification of cable services that began in the 1990s. Initially reliant on vertical integration with other programming distributors, service expansion accelerated during the 1990s to include allied services that capitalized on cable's relatively low additional delivery cost. By the early 2000s, bundled services had transformed what had been cable television into multichannel video programming distribution. Now, with the growing deployment of new delivery systems, servicing additional demand from the newest content distributors using on-demand technology has become the next front in the competition for TV viewers. Even as multi-screen delivery blurs distinctions, however.

7.3. Current Trends in Cable Delivery

Cable television, in the near term, will continue to deliver the majority of non-sports and non-event video programming by a linear model. Research shows that nearly 90 percent of all television viewing still occurs as it is broadcast. Moreover, approximately three-quarters of households access television services via cable, satellite, or local telco video distribution. A lot of this high market penetration is due to the ongoing availability of the bundled cable service. Nearly everyone in the middle- and upper-income brackets in multichannel video distribution markets has accepted, plus or minus a couple of exceptions, a consolidated video service. Most people perceive cable to be the optimum purveyor of it. The cable industry admits to more than 90 million cable video subscribers. Cable systems distribute 85 percent of the national aggregate video programming marketations. Their share of the national aggregate ad market is about 60 percent.

But a fundamental, tectonic change has already commenced, in both video and ad viewing. This change will continue to occur over the long haul, and it will radically alter the face and market structure of some parts of the industry. While the core of cable will continue to survive longer than most of its critics, it will also be looking at increasingly aggressive erosion in its traditional fastness. Adding Internet protocol to its distribution mix will substantially enhance the ability of telcos, satellite operators, and broadband-only delivery services to exploit that erosion opportunity. And by the same token, it will substantially handicap cable's core business model. The beginning of telco and satellite erosion is less than a decade old. The IP erosion of cable distribution's core bundling underpinnings is only a few years old.

7.4. The Rise of On-Demand Services

The tensions outlined above are steadily leading the U.S. cable system away from a fully linear programming model, and toward a hybrid model, where linear channels remain an important offering, but where on-demand services are added in order to remain competitive — not only with cable's own video-on-demand offerings, but with all over-the-top services that emphasize interactivity and on-demand services; both to enhance market share, and to attract advertising.

Fig 7.2: The Rise of On-Demand Services

These on-demand services come in two distinct flavors: On-demand programming selected solely by the consumer (e.g., premium channels, or pay-per-view selections), or linear channels, but streamed selectively via IP, and offered as "skinny bundles" on-demand. Cable's programs are technically neither of these. Cable's services put an emphasis on collections of fully programmed (i.e., complete season), and in some cases even unprogrammed channels of highly valued content. But on-demand services are the first stage in a robust move toward on-demand services. The cable problem could be solved simply by making them free and placing advertisements in front of the available programming. While large portions of popular content remain free on the Internet, with increased traffic comes the demand for higher and higher quality compression

algorithms. The networks needed an advertising supported plan to make a real profit. These plans are finally here, providing local ads and acts, which are helpful, but they are not sufficient.

This annoyance with the ad clutter is forcing more and more consumers toward the purchase of premium services (or those that come with) ad-free plans. This is why on-demand services are going to be increasingly popular: they offer the ability to bypass cable's national commercial buyers as much as necessary by watching and transmultiplexing only your fully programmed local channels, along with that local content that is so easy to miss on TV.

7.5. Consumer Preferences and Behavior

Cable systems must consistently adapt to changes in technology and consumer preferences. During the cable industry's earliest years, operators created a functionally uniform service across similarly situated communities. Consumers at that time wanted a few additional services, such as better reception of local stations and access to a larger number of out-of-town TV signals, and they were willing to pay for those additional services. Unlike cable's early consumers, today's video subscribers have a nearly infinite number of preferences. They are not easily satisfied with a "one-size-fits-all" package. By viewing trends in recent service selections in conjunction with basic demographic information, cable video services can determine viable paths of service evolution. Operators can then formulate service alternatives to attract larger numbers of apt subscribers. One prominent theme is the increasing budgetary threshold for video entertainment in most households, given rises in income and wealth. As disposable income rises and as the time-varying cost of other, alternative entertainment options goes up, many households may become willing to pay anywhere from 10 to 20 percent or more of their disposable incomes for video entertainment. This percentage of income should be spent to access video services, programming, and equipment compatible with the viewing needs and preferences of all household members. Of course, how those funds are allocated depends on various demographic and geographic factors. The video market includes families with children and empty nesters; young singles and couples; affluent city dwellers and impoverished rural residents. Each segment varies in terms of its cable demands.

7.6. Technological Advancements in Cable Delivery

It's important to note that the cable workforce was taught over many years how to manage and evolve a traditional service platform. They are not the experts in managing the complicated evolution to the new service models needed to run a cable network as a

unique version of large-scale software-based systems. This is a real danger zone for the cable business. It is an area where industry endangering negligence occurs.

There is no doubt wireline networks are best suited for some diverse and demanding services, and for typical users with multiple diverse and demanding devices in a home environment. It is convenient to use the cable network for those services, if for no other reason than users have already paid to create the capacity. For some services the cable interface is just better. Cable operations want to use the interface for innovative new services to make the cable network more appealing to consumers. They want to efficiently carve out portions of the total bandwidth to offer access to appropriate partners or as a non-exclusive application to maximize the service and create branded service differentiation.

When fiber-to-the-home installations were initially viewed as thrusting aside cable into a regionalization of service delivery, the cable operators quickly rallied around the mass-demand multi-use regions for potentially more invested coax networks, and pushed a collective technological envelope in compression, modulation and mainstream consumer product delivery support that made of many older coax networks piping hot new phenomena. By the time of any alt-fuel or dual-fuel face-off with IP video for sudden deployment quality, coax was again established as a mainstay in the minimal multiples - going forward, the thing to be content with on the lower-cost video input to now surround CouchLand.

7.7. Impact of Streaming Services on Cable

Streaming services have made cable services much more innovative than they were in the past. This has created new options for cable companies and customers. A few years ago, it looked like traditional cable services were going to disappear forever. Streaming services got into the home video customer space and destroyed the company value of traditional video rental companies. People saw streaming services as the future of video delivery.

But streaming services can't be the video delivery solution forever. There are things that streaming services can’t do as well as cable does. Live events. Sports. Elections. Concerts. Traditional video delivery through cable still provides living rooms with the best solutions for “event TV.” Viewers don’t want to miss out on big events in real-time, and they don’t want to watch these big events after-the-fact. Cable television is still the best way for viewers to put people in the same place at the same time. It’s a shared experience. This is one of the reasons that cable still seems to people to be “TV.” This feature of traditional cable delivery is why certain channels and their high cable price

are so controversial—because cable can be the best way to deliver people's sports from the same venue at the same time.

Cable services and streaming services each serve their own value. Previous cable providers lost control over the video rental market, but they have since learned how to manage cable services to retain their control over a video delivery system. Over-the-Top video services are providing cable services with room to grow as more and more unique consumer events make cable service offerings an important part of our shared experience.

7.8. Hybrid Models of Content Delivery

The introduction of on-demand content has challenged the understanding of notions such as "broadcast" and "live," as well as the principles of access and content selection that motivate cable services and other multi-channel platforms. A shift to a hybrid model—which combines around-the-clock feeds with an increasing amount of low-cost and easily accessible on-demand content for playback at the viewer's convenience—incorporates traditional cable services into the same approach taken by most current online aggregators of video content. It also provides a more coherent user experience, applying a single interface and a single set of capabilities to the entirety of the online video experience, a hybrid model results in the on-demand ecosystem becoming less fragmented than it is at present.

This hybrid model will likely apply to a wider variety of programs than the live news, sports, and other events-driven content that are the main focus of current services. Just as a traditional full-service cable or satellite service has—through the use of additional services, such as Video on Demand and Digital Video Recorders—optimized the delivery of a broader array of programs within a single menu and interface, consumers will increasingly expect this capability from delivery services. The techniques that guide a viewer toward a program or event to watch, at what point in the content a viewer will tune in, and a single clean interface to search for and access programming will become relevant not only to the traditional informational, or high-profile news-driven, programming, but also to more niche-related, traditional cable fare, delivering a complete experience to their audience. But a hybrid cable service model facilitates increased user "ownership" of their viewing experience.

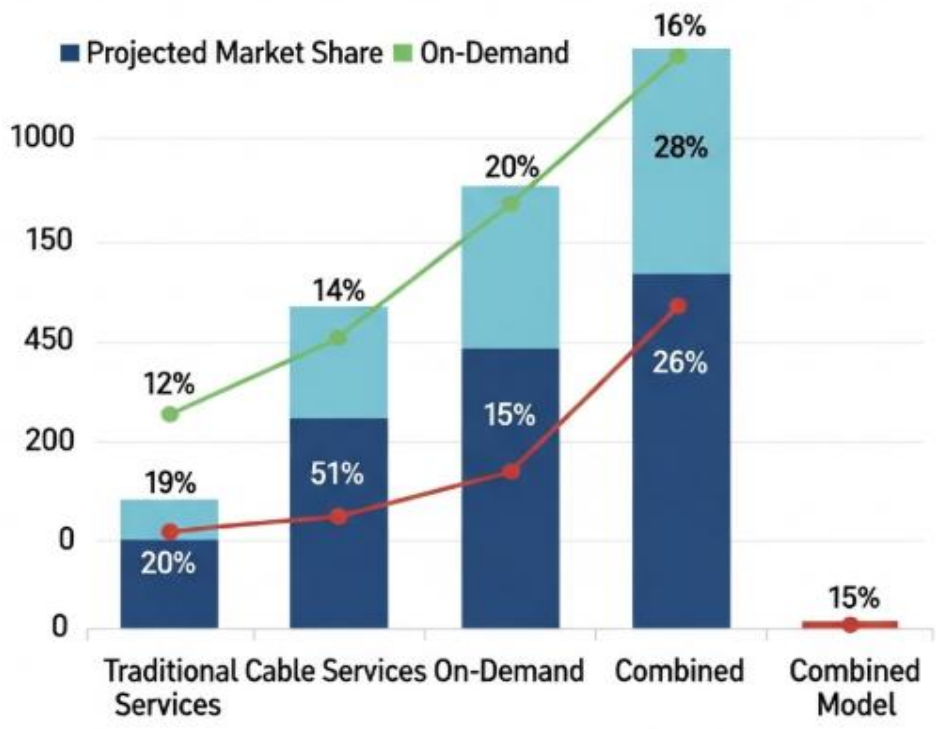

Fig 7.3: The Future of Cable Services

7.8.1. Integration of Live and On-Demand Content

Cable services have an opportunity to wow viewers with a cloud-based user experience featuring integration of linear and on-demand content in one interface of live video, with the decision to view discovered content either live or on-demand made by the user. However, for live sports, entertainment news and talk shows, awards shows, and special events such as concerts or pageants, that question does not apply.

Watching for enjoyment, community spirit, and a sense of belonging can be enhanced when everyone is tuning in then. The shared experience provides opportunities for bonding with friends and family, great discussion on social media, and group chats. Watching live saves having to be careful about avoiding news reports, social media, and other digital channels that might already reveal the end of the game, championship, or award show. But close behind on-demand viewing have become huge. For specialty programming, both on-demand and live are essential. For super-favorites such as Game of Thrones, some will have viewed the show recording while leaving the country and set to start streaming it again the minute they get off the airplane. Others will try to hold back viewing until they can watch with family members far away, at a given time, while

others in the family post on social media, creating a new model of avid fandom and bonding.

7.8.2. User Experience in Hybrid Models

The significance of user experience in the operation of hybrid models cannot be overstated. However, user experience is a concept that can be viewed from different perspectives. One is the collective user experience, with many users communicating, interacting, collaborating as well as competing with each other. The second is the individual user experience, framed by engagement with recommendation engines that seek to understand and anticipate the content preferences, patterns of preferences and usage behavior of individual users. The usage of hybrid distribution models for video content is not a single user experience because video content is consumed both 'alone' and 'with others'. Further considerations are time, space, motivations and intent. How relevant is the live experience for on-demand content, how relevant is the on-demand experience for live content? What about blends, what if there is an alternate stream on demand, or an on-demand stream available at specific times?

Live experiences may be more salient when it is the only place to see a particular piece of content but a major part of the value originates from the value others get from experiencing it together. In these situations frames, reviews and discussions prepared at the user’s own time through non-live experiences become intrinsically important moments that augment the main act of experiencing content that is ephemeral by nature. For other experiences the fact that they are live adds little value compared to non-live experiences which can be done at one's own time. In these cases what spurs and enhances the group experience may be the blend of practical real time engagement through posts, and reflections through shares and retweets. What are the on-demand motivations of users for the consumption of a particular piece of live content? What are the live motivations of users for the consumption of a particular piece of on-demand content?

7.9. Conclusion

This chapter has described how cable delivery has moved from a monopoly business model to a price-competitive model. Pay TV is a mature service with low compound annual growth rates, while growth is found in integrated service offerings with broadband and phone services. While the pipeline for delivery is critical in integrated platforms, the content is what attracts viewers to the service and retains them to lower churn levels. Given the cost of acquiring and programming content, content costs and margins are critical to operators' profitability. The pay TV business has become both capital and cash flow intensive. Given that the endgame is likely to be a wholesale model,

the players involved have different risk appetites and investment structures that will determine where this market will end.

Future Trends The future of cable services appears to be a gradual integration of services, creating TVE and interactive hybrid services that will sustain long-term profitability and growth. An increasing proportion of the audiences will be multi-platform, particularly younger audiences. Therefore linear delivery becomes a cash flow generating activity for expensive live events and the rest of the services offer a combination of on-demand, catch-up, and Cloud DVR functionalities. Ultimately, addressable television will overlay advertising opportunities across services, monetize TV viewing, and reduce dependency on subscription levels, so that operators and programmers can offer consumers a neutral experience but a positive impact on cost for collective viewing of TV screens.

Year-on-year entertainment cost inflation will ensure that a portion of the audiences remain reliant on AVOD and pseudo-acquisition base-driven SVOD. On the other hand, consumers will need to aggregate subscription payments on a new basis, while program makers will need to create real-life appointments to view products. The TV screen will ultimately combine different delivery methods and interactively amalgamate the services through ID and addressability as opposed to service platform. The cycle of uncertainty will only change once the price of content is absorbed by advertising rather than subscription.

7.9.1. Future Trends

The repackaged TVOD offering from cable MSOs provides the convenience of rental services and the degree of choice about what to watch that comes with SVoD services. Depending on a cable customer's viewing habits, the capex required for a legacy service provider to roll out a comprehensive and appealing TVOD offering that supports well the core capabilities required for consumer adoption over competing digital platforms could be a mere fraction of the investment costs required for a telco MSO to invest in effort to fully develop a competing SVoD service. For stadium events and pay-per-view content that "borrows" components of a rental business model, the capex required would be substantially higher. Compensating for this high capex investment requirement for the delivery and storage of P2P content on a real-time and N-hour-to-air basis is the pricing diversity of the P2P model.

Pricing diversity also explains the relatively high share of the cable MSO video distribution market. Although MSOs' share of consumer expenditure on video rental and library sales is relatively small, cable MSOs can take a bigger bite out of what has generally been a resource-light business by transacting the business as a supplement to their TVP offerings rather than as a stand-alone business. In addition, the establishment

of video-on-demand services based on advanced confirmed, switched digital video technology effectively sets up a two-tiered video distribution system favoring “less popular” content. The advance digital video-on-demand services will become neither price- nor technology-dependent but made to order for the distribution of transaction-resistant programming on the penny-an-hour budget.

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