

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

**In the Matter of GN Docket No. 14-28, *Protecting and Promoting the Open Internet* and GN Docket No 10-127, *Framework for Broadband Internet Service***

**Comment of MFRConsulting**

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**Title II & Broadband Investment: Spurious Correlations**

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**Introduction**

I submit the attached analysis of a report that purports to show that Title II reclassification of broadband, as included in the FCC’s Open Internet Order<sup>1</sup>, will lead to a substantial reduction in broadband investment in the US. This further and more detailed analysis is more comprehensive than the one submitted<sup>2</sup> shortly after the report was filed with the FCC by the industry association USTelecom in late 2014<sup>3</sup>.

I am addressing the report again because it is one of the planks supporting the misrepresentations contained in the ongoing tsunami of protests by broadband operators against the FCC’s Open Internet Order. My analysis demonstrates that the

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<sup>1</sup> [http://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2015/db0312/FCC-15-24A1.pdf](http://transition.fcc.gov/Daily_Releases/Daily_Business/2015/db0312/FCC-15-24A1.pdf)

<sup>2</sup> MFRConsulting, <http://apps.fcc.gov/ecfs/document/view?id=60001009570>

<sup>2</sup> MFRConsulting, <http://apps.fcc.gov/ecfs/document/view?id=60001009570>

<sup>3</sup> [http://ustelecom.org/sites/default/files/documents/ExParte\\_TitleII\\_Study\\_11.19.14\\_pb.pdf](http://ustelecom.org/sites/default/files/documents/ExParte_TitleII_Study_11.19.14_pb.pdf)

finding of the report neglects a body of compelling, contradictory and documented evidence, refuting its core finding. This finding is itself built on the misuse of statistics that falsely, and with no justification, attributes causation to correlation.

The finding of this report is designed to deliver and support a key message within the barrage of unsubstantiated propaganda propagated by the major broadband operators, and their hired experts, to mislead and distort the facts about the allegedly harmful consequences of Title II reclassification, and attempts to divert attention away from the pro-competitive and pro-consumer provisions included in the FCC's Order.

This report factually destroys the credibility of the propaganda blitz by revealing that the claims made are not the products of honest attempts to present the truth. The policy positions advocated by the broadband operators are built upon "truthiness" that is valid only in their self-interested view. Their claims refer to their own, rather than discernible, reality, and are formulated without regard to evidence or logic, while presenting unfounded allegations against the accurate advocacy of others, in particular the Commission.

### **Summary – A Flawed and Biased Study and an Invalid Finding**

One of the loudest and most frequently repeated assertions by the major US broadband operators and their trade associations in opposing the Federal Communications Commission's Open Internet Order is that Title II reclassification of broadband will lead to a substantial reduction in broadband investments. Customers and the US economy will suffer as a result. Specifically, this assertion is supported by: (a) A study (the Hassett/Shapiro report<sup>4</sup> or Report) that purports to substantiate this finding based on an analysis of recent investments directed at services classified under both Title II and non-Title II regimes; and (b) The alleged impact of the uncertainty that will reign in the broadband market, thereby discouraging investment, while the Open Internet Order is challenged in the courts.

This second argument, based on the forecast consequences of prolonged litigation against the legitimacy of the Open Internet Order is not specifically addressed in detail in this research, except insofar as statements by broadband operators referred to that indicate the relative insensitivity of their investments to Title II reclassification are pertinent. These statements not only contradict the Report's finding but also expose this argument as a hollow threat that is being used to intimidate, not to inform<sup>5</sup>. More importantly the outcome of this research

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<sup>4</sup>"The Impact of Title II Regulation of Internet Providers on Their Capital Investments," Kevin A. Hassett and Robert J. Shapiro, [http://www.sonecon.com/docs/studies/Impact\\_of\\_Title\\_II\\_Reg\\_on\\_Investment-Hassett-Shapiro-Nov-14-2014.pdf](http://www.sonecon.com/docs/studies/Impact_of_Title_II_Reg_on_Investment-Hassett-Shapiro-Nov-14-2014.pdf)

<sup>5</sup> The invocation of uncertainty as a harmful influence on investment is an example of intimidation by powerful multi-billion dollar corporations. The litigation to which they refer as the cause of uncertainty is their responsibility. In effect they are telling the FCC that if this agency proposes

effectively rebuts both arguments (a) and (b), i.e. that Title II reclassification will lead to reduced investment in broadband as will uncertainty about whether this reclassification will be upheld during the lengthy period while it is being litigated. . The research demonstrates that the Hassett/Shapiro Report is fatally flawed and there is no evidence that reclassification of broadband under Title II will have any material effect on broadband investment. Therefore uncertainty about whether and when this reclassification will be definitively confirmed, or rejected, as an outcome of litigation is also immaterial to the level of future broadband investment.

The results of research into the contents and methodology of the Hassett/Shapiro Report have uncovered its reliance on a spurious correlation and its serious omissions of compelling contradictory evidence. These results refute the validity and credibility of the Report's finding. The information and analyses presented in this research demonstrate that the Report is neither credible, nor worthy of being taken seriously, because it:

1. Makes the leap about the impact of Title II on broadband investment from correlation to causation, without searching for or providing evidence of the latter<sup>6</sup>;
2. Ignores several major factors or forces that affect the level and distribution of network investments, while attributing substantial effects (unsubstantiated other than by correlation) to the difference between Title II and non-Title II investments;
3. Does not consider available historical evidence of network investments over a longer period than its use of data from 2009 to 2014 that provides a very different perspective on the evolution, and drivers of, these investments, than the one presented in the Report;
4. Takes no account of documented evidence that at least one major US broadband operator (Verizon) has been exploiting the benefits available to it under Title II, in order to support its deployments of the most modern fiber optic broadband infrastructure (FiOS), despite this operator's unsubstantiated assertions of the harm that Title II reclassification of broadband will cause.

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anything that they do not like they will use their considerable resources – built up by revenues from customers, millions of whom have expressed their profound dissatisfaction with them under a non-Title II regime for broadband – to have the FCC's decision nullified. The strategy of "Regulation by Intimidation" being pursued by the most powerful companies in a vital industry sector, that are also stewards of public resources, is not a sound or democratic basis for the formulation or implementation of public policy.

<sup>6</sup> If AT&T, that funded the study, and the members of the industry association, USTelecom, that endorsed it by submitting it as an attachment to a filing to the FCC, have evidence that they boosted their investments specifically because and when broadband was classified as an information service (non-Title II), why have they not provided this evidence for inclusion in the Report, and why did Hassett/Shapiro not ask for it (or did they, but no such evidence is available)?

## Assessment of the Study of the Impact of Title II on Broadband Investment<sup>7</sup>

The Report presents findings based on a quantitative model that estimates the respective portions of capital investment from 2009 to 2014 subject, and not subject, to Title II regulation. It uses data from a subset of companies with Title II regulated wireline networks as well as “lightly regulated”, or non-Title II, wireline and wireless data networks. From these recent historical trends, a forecast baseline of expected investment growth from 2015 to 2019 has been developed, assuming that there is no Title II reclassification of broadband. This baseline is compared to alternative scenarios in which wireline data alone, or both wireline and wireless data services, are reclassified under Title II.

The findings of the study are striking, for example total cumulative investments in broadband over the next 5 years by the subset of companies studied would allegedly be reduced by between \$28.1 – \$45.4 billion (or up to a reduction of almost 21%), if wireline data are regulated under a Title II regime, while wireline investments would be reduced by up to almost 32%. The decrease in broadband investment would be even greater if wireless data were also to fall under this regime, as is prescribed in the FCC’s Open Internet Order announced in late February 2015.

The study’s forecasts of future broadband investment are based on the respective levels of investment identified over the period 2009-2014, associated with Title II and non-Title II expenditures. In other words, the findings assume that the only, or at least a dominant influence over operators’ investment decisions about how much to invest in enhancing capacity to offer and deliver various services, is whether or not they are subject to Title II regulation. **This premise is absurd.**

The capital expenditures subject to Title II over the period 2009-2014 cover services for which demand has been declining (traditional fixed telephone service or POTS (Plain Old Telephone Service) while demand for services not subject to Title II, during this period, i.e., broadband data, has been exploding. This picture of demand is a global phenomenon experienced in countries across the world with very diverse regulatory regimes, including many in which broadband is regulated as a telecommunications service and not as a “lightly regulated” information service.

One of the major influences on a company’s investment decisions and priorities is its perception of the demands it will be able to satisfy, and the profits and revenues it will be able to generate from its investments in its various lines of business. It would have been irresponsible and remarkable, for this reason alone, if non-Title II investments had **not** attracted the most intense levels of investment during 2009-2014, regardless of whether they had, or had not, been subject to Title II during that period.

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<sup>7</sup> Kevin A. Hassett and Robert J. Shapiro, *ibid.* - the authors acknowledge the support provided by AT&T for the study, but state that the views expressed and the analyses are theirs alone.

The authors themselves acknowledge at one point both that investments are driven by the demand for data services and, in the context of examining the relationship between wireless and wireless investments, that the results of regressions, i.e., correlation coefficients, do not establish causation. Yet they do not pursue these insights further, or draw conclusions from them that might call into question their ultimate finding.

*“These regressions<sup>8</sup> do not establish a causal link between wireless investments and wireline investments. Rather, the assumption is that both are driven by the demand for data services, and the part of wireline investment that is not correlated with that demand can be a metric for the movement of regulated investment.” (Report, p. 14)*

While there is no evidence of causation that differentiates between Title II versus non-Title II regulation and broadband investments, it is obvious that there is a causal link between wireline and wireless investments. The traffic generated by, and delivered to, the radio access networks of cellular operators, is for the most part carried over fixed network infrastructure in order to achieve end-to-end connectivity. Therefore, investments that increase capacity to meet demand from cellular customers will stimulate demand for more capacity, or investment, in fixed facilities.<sup>9</sup>

The authors’ assumption presumably puts the great majority of wireline investments into the “good”, i.e., Title II-free investment category, even though, as demonstrated below, Verizon’s FiOS investments have been made under Title II. The same, arguably hypocritical<sup>10</sup> exploitation of Title II may also be the case for AT&T’s U-verse deployments, although the information to confirm or reject this hypothesis is not available.

Furthermore, it follows from the plausible assumption in the Report that network investments, in order to handle rising traffic volumes at minimum cost, have been in recent years, are now, and will in future, be driven by the demand for data services, that the Report’s claim or finding that a Title II regime will allegedly substantially reduce these investments, is equivalent to a claim that this regulatory regime will materially reduce demand. But this second claim is not credible, as explained below. If Title II versus non-Title II does not affect demand, i.e., revenue opportunities, how

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<sup>8</sup> As part of their study Hassett/Shapiro undertake a regression analysis to determine the sensitivity of wireline to wireless investment, and find that each \$1.00 of additional wireless investment is accompanied by a \$0.90 increase in wireline investment.

<sup>9</sup> Some, not all, of this wireless-related investment in fixed infrastructure may be accounted for in the “wireless” investments of cellular operators. To the extent that this is the case, the impact of wireless on wireline or fixed investment may be underreported.

<sup>10</sup> The characterization of hypocrisy is justified, since both operators claim that Title II reclassification of broadband will depress their investments, even though they have been using (documented in the case of Verizon, although the situation of AT&T is less certain) Title II benefits to support these investments.

likely is it that this distinction will affect the key driver for, and hence the level of investment?

The explosion in demand for data services has been a global phenomenon observable in many countries with a wide variety of regulatory regimes, including those that have not made the same decision as the US to differentiate broadband as a lightly regulated “information”, rather than a telecommunications service. In light of this evidence, relevant questions that the Report does not consider include for example, if Title II had been in force for broadband in the US:

- Would Apple have developed the iPhone;
- Would customers have substantially reduced their demand for broadband-delivered content, applications and services<sup>11</sup>;
- Would AT&T have refused to invest, as it has done, to meet customers’ demands (such as those triggered by the launch of the iPhone that was initially exclusive to AT&T) for more wireless broadband capacity to mitigate the severe congestion problems that arose<sup>12</sup>;
- Would Verizon have reduced the extent of its deployment of FiOS infrastructure, given that it has been exploiting and benefitting from Title II to support these broadband investments?

#### **Title II as a Causal Mechanism for Investment: The Evidence is Missing**

There are many influences other than regulation on investors’ and companies’ propensity and ability to invest in expanding and upgrading their broadband networks, such as the: (i) General economic climate; (ii) Cost and availability of capital (domestic and from foreign sources); (iii) Relative attractiveness of telecommunications for investment as compared to other sectors of the economy; (iv) Impact of new technology in enabling material reductions in costs, and increases in capability and capacity, as well as innovations (in this case predominantly originating from sources other than the broadband operators themselves) thereby stimulating new market opportunities; (v) Financial health of various individual operators, etc.

The Report’s finding of a substantial negative impact of Title II reclassification on future broadband investment is not credible, since it has neglected to investigate the roles of these other critical investment factors. The core finding of the Report is a classic case of confusing a correlation in time (broadband classified under a Title I

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<sup>11</sup> Given the interactions between the volume of customers’ demands for network capacity, and the attractiveness of the services available to them, it may also be asked whether the leading Web companies or over-the-top providers that are predominantly responsible (not the broadband operators) for unleashing these demands would have been less successful in commercializing their most popular content, applications and services, if broadband had been subject to a Title II regime.

<sup>12</sup> <http://arstechnica.com/gadgets/2010/02/how-smartphones-are-bogging-down-some-wireless-carriers/>; <http://www.att.com/gen/public-affairs?pid=20879>

regime) with causation (Title I classification of broadband stimulates investment in broadband facilities and Title II reclassification suppresses it) that ignores powerful Title II-independent forces that explain the greater attractiveness of investment to support services that happen, coincidentally, to be classified as non-Title II.

Further evidence of the absence of a serious investigation of causal mechanisms that affect broadband investment, without which the Report's finding remains at best unsubstantiated, is provided by the absence of inputs from AT&T, that funded the Report, and other members of the industry association, USTelecom, that endorsed it. If these operators have proof that their decisions about broadband investment during 2009-2014 were materially influenced by Title II versus non-Title II classification why is this evidence not included in the Report, such as internal memoranda, presentations, plans etc. developed when these investments were being planned and modified?

Did the authors ask AT&T, and other members of USTelecom, for evidence of the impact of Title II versus non-Title II classification on their investment decisions (level and allocations)? If they did not, why not, since it is an obvious step to take, and if the operators had such evidence, they would surely have produced it (redacted if and as necessary for the purpose of respecting Commercial Confidentiality). If the authors did ask, then the absence of such evidence demonstrates that the only basis for the Report's finding of causation is correlation, which is no basis at all. This finding is at best an unsubstantiated hypothesis that is refuted by evidence pertaining to other factors that affect broadband investment, presented later in this research.

To illustrate the care that must be taken in searching for causation when correlations are uncovered, an Appendix gives examples of strong correlations between events that by almost any stretch of the imagination are completely unrelated. The Appendix also illustrates, by example, the risk of conflating causation with correlation, as well as the importance of not dismissing correlation out of hand, while respecting the need to demonstrate and justify causation on the basis of research that goes well beyond the calculation of correlation coefficients.

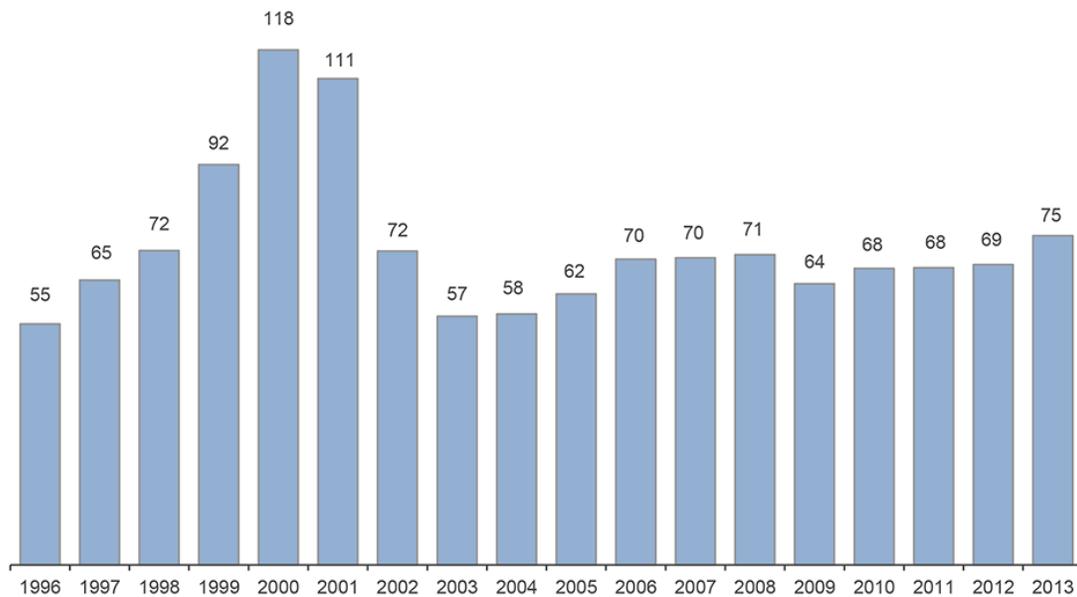
Title II or non-Title II classification is part of the broadband environment, whereas the pairs of facts linked in the examples of spurious correlations in the Appendix are not at all related. So a material link between Title II and broadband investment has at least a superficial plausibility that nevertheless, if it does exist, must be identified and justified on the basis of solid evidence for a causal mechanism that is not found in this Report. **The step from correlation to causation is critical and must be justified on the basis of verifiable evidence that the Report fails to provide.**

### Ignored or Forgotten History

The lack of credibility of the Report is confirmed by a review of broadband providers' investments over a longer period than 2009-2014. This information can

be found at the same source that filed the Report with the FCC, i.e., the industry association USTelecom, and therefore presumably was readily accessible to the authors. The chart below shows the total investments in broadband by providers in the US from 1996-2013. The proportions of these investments accounted for by different types of provider are also given.

U.S. Broadband Provider Capital Expenditures, 1996-2013 (\$ billions)



Source: USTelecom (1996-present) and Yankee Group (1996-2010).

<http://www.ustelecom.org/sites/default/files/images/Historical-Broadband-Provider-Capex-090814-big.png>

The same source reports the proportion of capital investment (capex) in networks accounted for by different categories of provider, indicating the growing importance of wireless over time<sup>13</sup>, i.e.,

*Proportion of capex by type of broadband provider:*

- In 2013: Cable – 18%; Wireline – 37%; Wireless – 45%
- Cumulatively from 1996-2013: Cable – 16%; Wireline – 53%; Wireless – 31%.

<sup>13</sup> It is not entirely clear whether in these data, some investments by wireless providers in fixed facilities, e.g., in fixed backhaul facilities, or fixed metro networks, whose capacity is used to a significant extent to handle traffic generated by mobile subscribers, are counted as wireless or wireline investments. Also, in the earlier years of the time series, wireless investments were predominantly in narrowband, rather than broadband facilities, given the state of technology at the time (wireless providers were not broadband providers in the 1990s – 3G systems became widespread after the turn of the century).

In attempting to draw conclusions from these historical data that may be relevant in identifying factors that will influence future broadband investments, two dates are especially relevant with respect to Title II. In 2002 cable modem service was classified as a Title I information service, and in 2005 DSL and wireless data were reclassified as information services. The absolute peak in investments by broadband providers occurred prior to these decisions. In 2003 broadband providers' investments fell below 50% of their peak in 2000. Since 2005 these annual investments have fluctuated (in nominal or current dollars) between \$62 billion in 2005 and \$75 billion in 2013. During the four years from 2009-2012 they were lower than the level reached in 2008, with a maximum decline of almost 10% from this earlier year. The Great Recession caused by the financial collapse in 2007-2008 may well have contributed to this decline.

This history confirms that there are factors and forces at work influencing the level of broadband investments that have nothing to do with the potential impact of Title II versus Title I classification of broadband. Moreover, these forces have had a much greater influence on the level of investments than the impact, if any, of decisions to change the regulatory classification of broadband.

The extraordinary rise and peak in investments from 1996 to 2001, outlined above, was part of the telecommunications and Internet "bubbles" of "irrational exuberance" that led to several spectacular bankruptcies, and the eventual sales of some major network assets (internationally as well as in the US) for pennies on the dollar.

The Hassett/Shapiro projections of the proportional reductions in future broadband investments as a consequence of Title II reclassification of broadband, are comparable to although smaller than the extent of the fall in investments that occurred (about 52% from peak to trough) following the bursting of these bubbles. According to the Hassett/Shapiro model, Title II classification of wireline data alone will as noted reduce future wireline investment by up to almost 32%, and total broadband investment by up to almost 21%, while the additional Title II classification of wireless data will lead to a "far larger" (although not quantified) reduction.

If the five years of "irrationally exuberant" network investments (1997-2001) are excluded, then the chart above demonstrates that, during the period from 1996-2013, annual network investments varied over a range (in current dollars) of between \$55 and \$75 billion, during which period the FCC took several important decisions, including the classification of broadband Internet access on all media as an information service. Also during this period, broadband became the dominant infrastructure in the telecommunications market, while in 1996 it still represented a minor part.

The Hassett/Shapiro study has chosen to depict the FCC's decisions about broadband classification as a major force driving the history of network investments

during this period, rather than the innovations developed by many companies, of which one notable example is Google (founded in 1998), that stimulated customers' demand for broadband service. This demand justified investment in broadband facilities, as new more powerful broadband technologies became commercially available and affordable in both the wireless and wired domains. The authors are joined in this opinion by other commentators, one of whom has described the impact of Title II reclassification of broadband as having a "...likely disastrous effect on network investment..."<sup>14</sup>

Notably the subset of companies chosen for analysis in the Report does not include any cable operators that collectively account for more fixed broadband subscribers than telephone companies. The subset only covered five telephone companies, namely AT&T and Verizon, Cincinnati Bell, TDS, and Alaska Communications. The explanation given for this choice is that only companies with "non-missing wireless and wireline investment data" could be used. Both cable networks and the most modern access networks of telephone companies, e.g. Verizon's FiOS and AT&T's U-verse, are used for, i.e., shared between broadband Internet access services and broadcast and on demand TV program delivery. The history of the largest cable operator, Comcast's investments under a non-Title II regime and its implications, is addressed later in this research.

### **The FCC's Role in Opening Opportunities for Network Operators**

The FCC has played a critical role in the history and development of the cable sector by creating frameworks within which cable operators have been able to flourish. One example of the FCC's contributions was its 1972 Cable Television Report and Order establishing a requirement that cable systems must be engineered so as to "...maintain a plant having technical capacity for non-voice return communications." The aim was to make available the potential already available in some cable systems of that time for a number of useful services: "surveys, marketing services, burglar alarm devices, educational feedback, to name a few." Limited as these examples may sound in today's Internet era, the idea behind them is farsighted and created the

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<sup>14</sup> Robert W. Crandall, March 26, 2015, "Regulating Net Neutrality: Who Will the FCC Really "Protect"?" [http://www.freestatefoundation.org/images/Regulating\\_Net\\_Neutrality\\_-\\_Who\\_Will\\_the\\_FCC\\_Really\\_Protect\\_032515.pdf](http://www.freestatefoundation.org/images/Regulating_Net_Neutrality_-_Who_Will_the_FCC_Really_Protect_032515.pdf) (the Free State Foundation describes itself as an independent, nonpartisan free market-oriented think tank). Remarkably this document also refers to several other sectors of the economy and in particular the controversy about the Keystone XL pipeline and the current disputes about alleged subsidies between US airlines and airlines based in the Gulf States as relevant indicators for understanding how Title II will suppress competition and customer welfare through undesirable government control of markets. It also presents a one-sided perspective on the FCC's past actions, referring to its allegedly restrictive initiatives, while omitting to mention its pioneering roles in establishing the basis for a flourishing cable market (including a requirement for a return channel), ensuring (admittedly not always successfully) that customers can connect the devices of their choice to networks and not be limited to choices made for them by operators, and authorizing the first commercial packet switched network against the opposition of AT&T. The FCC's Open Internet Order is ascribed in overheated language to an "...almost religious fervor..." to regulate when there is, according to the author, no evidence to justify regulation.

framework for today's substantial broadband business that has been exploited by the efforts and ingenuity of the cable operators, most notably in their establishment of the DOCSIS standard for cable modems in the mid 1990s. The history of the FCC belies the notion that its ideas and initiatives are inevitably outdated in contrast to the entrepreneurial visions that drive the private sector<sup>15</sup>.

Entrepreneurial visions have played a remarkable role in the development of the Internet and telecommunications markets and industries. However, the secret sauce of the cable industry's and other American successes in telecommunications and the Internet, often envied abroad, has been a rare and perhaps unique balance and tension of roles and collaboration between the public sector, including the Federal Government, and its agencies and the private sector.

Sadly, recognition and acknowledgment of this collaboration and tension are absent from the Report, and from the assertions of today's leading cable and telephone operators. They prefer to propagate the false and lopsided message that the FCC's initiatives will inevitably have the effect of impeding the ability of companies in the private sector to generate value for customers, innovate, and compete aggressively with each other and third parties for everybody's benefit.

Most recently they assert that the FCC, in its Open Internet Order, is merely the subservient handmaiden of a White House strategy to control telecommunications and the Internet in ways that allegedly violate the Constitution and harm all Americans. They also rewrite history to claim that the private sector has only been able to make progress in developing networks and services in the US because the FCC has not intervened in markets to any significant extent, and they must fight off burdensome and unnecessary regulations imposed by overbearing government bureaucrats that stifle innovation and harm customers. As noted above, both the FCC's history and the record of major operators belie this ideological caricature.

The contents of the Report focus on how regulation has a major impact on investment, including references to other industries. Regulation in severely restrictive forms can and has had substantial impact on the development of the sectors that are regulated. It is indisputable that regulatory changes in the past have had dramatic effects on the growth of the telecommunications sector, sometimes negatively and sometimes positively, e.g., the positive impetus to development and growth imparted by the liberalization and privatization of many national markets that occurred in the 1990s. However, the dishonesty and extreme bias of the Report are apparent in its implication that Title II, as envisaged by the FCC today, is as critical (in a negative direction) as these other fundamental changes in regulation were, while ignoring the impact of new technologies, innovations and customer demand that are independent of Title II on the relative attractiveness of investments to support different services. As another indication of the imbalanced and unreasonable character of the Report, it pays no attention to the pro-competitive

impact of rules in Title II that are designed to enable new investors and competitors to take their shot fairly and squarely, and thereby arguably may enhance rather than reduce the attractiveness of the sector for investment.

One example of a disruptive innovation introduced by a source that had no reason to care about Title II rules, one way or another, is the Apple iPhone. This now iconic product was first launched in 2007, stimulating customers' uses of wireless-delivered services and applications to an extent that caught AT&T by surprise, after it had arranged an exclusive contract with Apple to make the iPhone available in the US only to AT&T customers.<sup>16</sup>

### **Conflicting Statements of Broadband Operators**

Curiously, the authors of the Report not only neglect and/or ignore ample documented evidence suggesting that their core finding is invalid, or at the very least unsubstantiated, but they also fail to take note of the actions and statements of broadband operators indicating that these operators themselves do not believe in its validity. For example, as is shown later, Verizon, an operator most vehemently opposed to Title II reclassification, that constantly raises the alarm about the harm for which this regulatory regime will allegedly be responsible, has nevertheless used the benefits available to it under Title II to support the deployment of its most modern and powerful broadband access networks, i.e., FiOS.

Two themes emerge from the major broadband operators themselves that contradict the assertion in the Report that Title II reclassification of broadband will lead to a substantial reduction in broadband investments.

Senior executives in these operators have downplayed the significance of Title II versus non-Title II classification as a factor in their investment plans. More tellingly – actions speak louder than words – as noted, one of these operators, Verizon, has exploited the benefits available to it under Title II, in order to support its deployment of new broadband networks, while another (AT&T) has tried to deny the benefits available under Title II to potential broadband competitors.

Among the evidence about the willingness and propensity to invest in broadband infrastructure that are independent of Title II are the: (i) Statements of the CFO of Verizon about its investment intentions and their independence from Title II, even though Verizon opposes Title II reclassification, and is expected to mount a legal challenge against it<sup>17</sup>; and (ii) Unexpectedly large amounts bid for AWS-3 spectrum

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<sup>16</sup> Arstechnica.com, *ibid.* “How smartphones and bogging down some wireless carriers,”

<sup>17</sup> <http://seekingalpha.com/article/2743375-verizon-communications-vz-presents-at-ubs-42nd-annual-global-media-and-communications-conference-transcript?all=true&find=John%2BHodulik>

licenses by mobile broadband operators at a time when there is uncertainty about Title II reclassification applied to mobile broadband data services<sup>18</sup>.

For its part AT&T has for years regularly employed the tactic of saying that its investments in network infrastructure will be lower, unless it gets its way with a proposed merger, or with an existing rule it wants to have eliminated, or a proposed new rule it argues should be rejected. The Title II controversy is only the latest example of AT&T's use of this tactic, according to a statement by its CEO, which however it has since softened<sup>19</sup>.

The position recently taken by the third largest wireless operator, Sprint, that its investment plans will not be affected by Title II reclassification of wireless data, is also noteworthy<sup>20</sup>. So too is Google Fiber's statement that its ability to deploy competitive fiber networks, and therefore capital investments, would be enhanced if under Title II, because it could then enjoy the same benefits as telephone companies and cable operators, notably pole access<sup>21</sup>. In Austin, Texas, AT&T stated (revealing its attitude toward Title II and what it considers to be legitimate practices with respect to competitors), that it did not have to provide Google Fiber with access to the poles (20% of the total in the city) that it owns. Austin's City Council, which owns the remaining 80%, drafted an ordinance to make AT&T open up the poles<sup>22</sup>.

AT&T's position in Austin indicates that, while it benefits from access to poles on public land for deployment of its broadband networks, it denies access to a competitor, in violation of one of the rules available under Title II to prevent anti-competitive discrimination by network operators. It reveals an attitude, on the part of AT&T, that justifies the application of Title II to broadband as a pro-competitive, pro-customer measure.

Verizon has demonstrably exploited the benefits of Title II in the deployments of its FiOS networks. One example of this behavior is found in Verizon's cable franchise renewal application in New Jersey.<sup>23</sup> As Verizon states:

*"Verizon NJ has been upgrading its telecommunications facilities in large portions of its telecommunications service territory so that cable television services may be provided over these facilities. This upgrade consists of deploying fiber optic facilities*

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<sup>18</sup> <http://finance.yahoo.com/news/verizon-t-interested-aws-3-225453425.html>;  
<http://news.investors.com/technology/121114-730188-fcc-proposes-rules-broadcast-tv-spectrum-auction.htm>

<sup>19</sup> <https://www.techdirt.com/blog/netneutrality/articles/20141112/07323529118/att-pouts-freezes-mostly-bogus-fiber-to-press-release-deployments-net-neutrality-bluff.shtml> ;  
[http://www.denverpost.com/business/ci\\_27025425/at-amp-t-backtracks-threat-halt-fiber-rollout](http://www.denverpost.com/business/ci_27025425/at-amp-t-backtracks-threat-halt-fiber-rollout)

<sup>20</sup> <http://www.wirelessweek.com/news/2015/01/sprint-cto-%E2%80%9Clight-touch%E2%80%9D-title-ii-won%E2%80%99t-harm-mobile-investment>

<sup>21</sup> See Google filing at the FCC, <http://apps.fcc.gov/ecfs/document/view?id=60001011462>

<sup>22</sup> <http://www.fiercetelecom.com/story/att-says-it-can-block-google-fiber-poles-austin-city-begs-differ/2013-12-17>

<sup>23</sup> [http://www.verizon.com/idc/groups/public/documents/adacct/nj\\_swf\\_renewal\\_082013.pdf](http://www.verizon.com/idc/groups/public/documents/adacct/nj_swf_renewal_082013.pdf)

*directly to the subscriber premises. The construction of Verizon NJ's fiber-to-the-premises FTTP network (the FTTP network) is being performed under the authority of Title II of the Communications Act of 1934 and under the appropriate state telecommunications authority granted to Verizon NJ by the Board and under chapters 3 and 17 of the Department of Public Utilities Act of 1948. The FTTP network uses fiber optic cable and optical electronics to directly link homes to the Verizon NJ networks."*

Similar language is found in Verizon's New York City FiOS TV franchise. Indeed, the classification of FTTP as a Title II service appears to be in every Verizon FiOS TV cable franchise nationwide.

There is nothing illegal about the use of Title II that gives Verizon rights, such as that of entering upon private property to install fiber lines, and other benefits, such as regulated rate increases to POTS (Plain Old Telephone Service) customers for the deployment of fiber optics. FiOS facilities are also used to deliver high-speed broadband Internet access, as well as cable TV services. However, it is strange for broadband operators to argue that Title II reclassification of broadband will inhibit their willingness to invest in broadband facilities when they have been exploiting the benefits of Title II in order to support these very investments. Moreover, it exposes the "have my cake and eat it too" nature of Verizon's position - ***Title II is a bad idea with harmful consequences except when it benefits Verizon.***

Verizon's two-faced position with respect to Title II reflects its self-interest, and that of operators in comparable situations, but not the interests of other stakeholders. It is an understandable position for Verizon to adopt. But it also justifies the FCC's initiative as in the Open Internet Order to ensure that the benefits – and the obligations – associated with Title II are fairly and reasonably extended, and these benefits are made available to, and the accompanying obligations imposed on all actual and potential telecommunications services providers<sup>24</sup>.

Comcast has not been subject to Title II, but enjoys comparable "rights-of-way" privileges under the terms of its franchises. The question of whether Comcast's eagerness to invest would suffer from an application of Title II to its broadband business can be looked at in the context of the widely publicized, and substantial body of evidence about its unsatisfactory operations and behavior, that has come to light during the FCC's Open Internet Proceeding and the review of Comcast's proposed merger with TWC, as well as the results of customer surveys<sup>25</sup>.

In light of this evidence, it might be expected that Comcast, if operating in an effectively competitive market in which customers could in theory easily switch to

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<sup>24</sup> Provisions should be made for small providers, with no significant market power so that they are not unreasonably burdened, given their limited resources, with having to meet obligations that are designed to prevent abuses of market power that, unlike Verizon or AT&T and Comcast, they cannot exercise.

<sup>25</sup> <http://consumerist.com/2014/12/30/comcast-time-warner-cable-still-bringing-up-rear-in-customer-satisfaction-surveys/>

alternative providers, would be investing as much as needed to improve the quality of its services and customer care. Instead, over the nine year period between 2006-2014, with no Title II rules in place for its business, Comcast chose to spend a total of over \$21.5 billion on share repurchases<sup>26</sup>. These repurchases are designed to sustain or boost the company's share price, thereby disproportionately benefitting a handful of its executives, whose total compensation includes substantial proportions of stock. These expenditures do nothing to improve customers' experiences or the quality of Comcast's broadband services.

The absence of Title II regulation on Comcast has not inspired it to invest as much as it should have. Furthermore, in 2014 the number of US cable broadband subscriptions exceeded the number of cable pay TV subscribers. The justification for Title II to protect (and enhance) competition (not specific competitors), and the rights of customers, applies to Comcast, and other large cable operators as broadband providers as much as it applies to Verizon and AT&T.

### **An Honest Debate about Public Policy and Regulation of Broadband**

Important issues and questions of public policy with respect to broadband and the Internet are at stake. People of good faith and judgment can come to different defensible conclusions about the relative merits of alternative choices that should then become the subjects of vigorous, open, and honest debate. However, the extreme point of view and narrowly selective, misrepresented and distorted evidence presented in the Report are destructive to the purpose of this debate. The purpose is, or should be, to formulate and then pursue choices arrived at and supported by the best available evidence and analysis that can be brought to bear (that is not necessarily coincident with who has the most money to spend on lobbying) in order to foster progress toward ensuring a sustainable, high quality, broadband infrastructure in the US that works to the benefit of all Americans. At the same time, the implementation of these choices must enable investors in networks and operators to generate reasonable, not excessive, returns on the efforts they make and the risks they take in markets that are effectively competitive, which the current US broadband access market is not.

The experts, who produced, and others who quote and affirm the "finding" of the Report about the substantial negative impact of Title II on broadband investment, along with still others who claim that the broadband sky will fall if the FCC's Open Internet Order is upheld and enforced, should be made to substantiate their unsupported position with accurate data, if they have it, or admit its major flaws. These flaws include the absence of a search for causation beyond correlation and the neglect of evidence for the substantial impact of factors unrelated to Title II on network investments in the US and abroad.

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<sup>26</sup> Source: MFRConsulting analysis from Comcast's Annual Reports

The Report is lopsided in both tone and content. The authors ignore critical facts about and distort the history of the development of telecommunications in the US since 1996. They do not consider the multidimensional and in some important respects sector-specific mix of incentives and obstacles, as well as the perceptions of risks and entrepreneurial visions (sometimes accurate and sometimes not) that in the real world influence investment decisions in networks and related products and services. Nor do they make any attempt to offer a balanced assessment that considers the potential pro-competitive and investment-stimulating effects of Title II, but instead focus solely on its potential negative consequences, which coincidentally AT&T, the source of funding for their research, has been very vocal and prolific in proclaiming. Their analyses and findings do not deserve to be taken seriously. They provide material for propaganda purposes and fodder for self-serving lobbying by special interests. The finding of the Report is not the product of fact-based, objective research deserving of respect.

**The observable and forecast future patterns of broadband investment cannot be attributed plausibly, let alone convincingly, to the presence or US-unique absence of Title II-type regulation in some but not all market segments.**

#### **The Motivation behind the Publication of the Report is Unclear**

The motivation behind the authors' decision to propagate the conclusion that Title II reclassification of broadband will cause a substantial reduction in future broadband investment is unclear. This conclusion is based on deeply flawed and incomplete analysis and interpretation published in a Report that has ignored relevant well known facts and factors as discussed above, and has not included a credible search for causation. The central finding of the Report rests on the correlation between broadband investment and Title II classification as evidence of causation or a negative link between the former and the latter. This conclusion is consistent with an ideology that opposes any substantive regulation by a government agency on the grounds that it will inevitably be harmful. But history shows that while regulation can be harmful in some applications, so can an absence of regulation, or an overreliance on self-regulation in others, as former Federal Reserve Chairman Alan Greenspan has admitted<sup>27</sup>.

The authors acknowledge that AT&T, one of the largest broadband operators supported their work. AT&T has been making the same claim as the authors about Title II's adverse effect on investment, although the latter state that the study's findings and their opinions are their own and therefore their agreement with AT&T is the outcome of independent research. Nevertheless some will believe that AT&T's support caused their ideological predilection. It seems just as plausible that evidence of an ideological predilection from their previous work may have attracted AT&T's support. We may never know. Nevertheless whatever the background to the Report it would be scandalous if its sloppy thinking and misuse of statistics to

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<sup>27</sup> <http://www.washingtonpost.com/wp-dyn/content/article/2008/10/23/AR2008102300193.html>

fabricate evidence and the “facts” on which a key conclusion is based were allowed to flourish unchecked.

### Appendix: Spurious Correlations and the Search for Causation

A few examples of spurious correlations <sup>28</sup> with very high coefficients (above 0.99) include:

*(i) US spending on science, space, and technology correlates with (ii) Suicides by hanging, strangulation and suffocation.*

*(i) The Divorce rate in Maine correlates with the (ii) Per capita consumption of margarine in the US.*

A somewhat lower correlation coefficient (about 0.95) is found in:

*(i) Per capita consumption of cheese (US) correlates with (ii) Number of people who died by becoming tangled in their bedsheets.*

A significant lower correlation coefficient (about two thirds) is found in:

*(i) Number of people who drowned by falling into a swimming pool correlates with (ii) Number of films in which Nicolas Cage appeared - but (i) has a higher correlation (coefficient over 0.91) with the (iii) Number of Visitors to SeaWorld California.*

On a more serious note the controversy about an alleged link between autism and vaccinations and the resultant outbreaks of diseases thought to have been conquered as result of rejections of vaccinations shows the potential risks of basing decisions on an unjustified or unsubstantiated deduction of causation from correlation.<sup>29</sup>

A more plausible connection between correlation and causation as a basis for a decision, although still not up to the highest standard of rigorous proof, can be found in evaluating the merits of the alternatives of an opt-in (the employee has to make an active choice to participate) or an opt-out (the employee has to make an active choice not to participate) enrollment process for 401(k) savings plans. There is a substantial quantity of data establishing that enrollment rates are higher in an opt-out process, with all other things being equal as best as they can be controlled for (i.e., an “Inertia” effect)<sup>30</sup>. Therefore the opt-out process should be implemented if the goal is to maximize participation in 401(k) savings plans.

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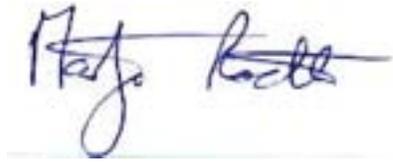
<sup>28</sup><http://tylervigen.com>

<sup>29</sup> <http://www.cdc.gov/vaccinesafety/concerns/autism/>

<sup>30</sup>[https://www.richmondfed.org/publications/research/region\\_focus/2007/winter/pdf/feature2.pdf](https://www.richmondfed.org/publications/research/region_focus/2007/winter/pdf/feature2.pdf)

It is also worth remembering that while initial studies of smoking and cancer identified correlation, there was no credible evidence for a causal mechanism at that time (the 1940s), as most of the carcinogens in tobacco had not been identified. One hypothesis was that fumes from tarmac roads, or possibly cars themselves were the source or cause of lung cancer.

It is legitimate not to dismiss correlation out of hand, but at the same time it should not be assumed that significant correlation implies or proves a causal explanation. In the case of tobacco and lung cancer evidence of a causal association soon mounted as result of painstaking research, although this connection was denied for many years by the tobacco industry and the consultants they hired.

A handwritten signature in blue ink, appearing to read 'Martyn Roetter', written over a light blue horizontal line.

Martyn Roetter, D. Phil Physics (Oxon)