

# Comment on “FirstNet: An Economic Analysis of Opting In vs. Opting Out”

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## *Abstract*

Dippon (2017)<sup>2</sup> discusses the potential risks that a State that opts out of the FirstNet nationwide plan could face by deploying an auction-based spectrum exchange. Dippon based his analysis on the incorrect assumption that our design for an open access wireless market (Cramton and Doyle 2017)<sup>3</sup> is a spectrum exchange, when in fact it is a capacity market. Capacity is the throughput created by the combination of both spectrum and a wireless network. In addition, Dippon distorted the recommendations contained in our work and drew conclusions about the State “opt-out” process that were not stated or intended in our work. We present a summary of our design and comment about the implications for FirstNet.

## The open access wireless market

The open access market is a wholesale market for capacity. On the supply side, any network with spare capacity can participate in the market. The demand side is composed of consumers of data: Mobile Network Operators (MNOs) with constrained capacity, existing and new Mobile Virtual Network Operators (MVNOs) and businesses that rely on wireless communications (e.g. Netflix, Amazon, FedEx, Tesla etc.). The open access market offers a common ground for discovering competitive prices and maximizing the gains from trade.

MNOs already sell some of their capacity in the wholesale market. But every transaction carries a significant cost for the parties involved. Prices are negotiated bilaterally and some of the negotiations do not end in a transaction. The open access market brings liquidity, transparency, depth and efficiency by balancing the supply and demand for capacity through a series of auctions. The open access market offers an opportunity to trade capacity that, for any reason, could not heretofore be efficiently commercialized using bilateral agreements.

The open access market brings important innovations that will improve the breadth, depth and efficiency of the wholesale market:

- i. An Independent System Operator (ISO) runs the market; providing transparency and equal opportunity to all participants

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<sup>2</sup> Dippon, Christian Michael. (April 26, 2017). “FirstNet: An Economic Analysis of Opting In vs. Opting Out.” Available at SSRN: <https://ssrn.com/abstract=2939764>.

<sup>3</sup> Cramton, Peter and Linda Doyle. “Open Access Wireless Markets,” *Telecommunications Policy*, Available online 12 February 2017, ISSN 0308-5961, <https://doi.org/10.1016/j.telpol.2017.01.003>.

- ii. Markets are defined by time and location; improving the efficiency of the transactions and improving participation by fostering geographical and time innovation
- iii. There are yearly, monthly and hourly opportunities to participate, allowing participants to adjust their positions as they react to new information. This combination of forward and real-time trading allows participants to make plans and manage risks. The hourly (real-time) auctions are built on the principle of open access, which means that capacity cannot be withheld. This significantly reduces the scope for manipulation and hoarding of capacity.

The ISO is independent of both the demand and supply side. The ISO acts as a trusted party, ensuring transparency, fairness and efficiency. Similar entities exist in electricity markets, also called ISOs, and in commodity markets, called exchanges.

The advantages of providing numerous capacity products with significantly greater granularity in terms of both time and location, far in excess of traditional spectrum transactions is self-evident. At the same price, there is greater data demand in Manhattan than in rural Vermont. Similarly, at the same price, there is a greater demand in Manhattan at 9pm than at 3am. Both network operators and data users benefit from prices that reflect these differences. Locations and times with low relative prices will attract more users and innovators.

Innovators like MVNOs or companies venturing into the Internet of Things industry usually negotiate static prices and sign long-term contracts before their business models have been perfected, increasing the risk of failure. Similarly, network operators commit capacity to businesses that might fail, missing other opportunities. The open access market addresses these problems by facilitating frequent transactions based on market fundamentals. In line with current practice, yearly auctions provide a compelling complement to the long-term wholesale agreements signed today and adds monthly and hourly opportunities to trade.

### Comments about FirstNet

In 2012, Congress created the First Responder Network Authority (FirstNet) to oversee the construction, operation, and maintenance of the country's first interoperable, nationwide public safety broadband network (NPSBN). The construction and operation would be the responsibility of a private entity that would have the right to commercialize excess network capacity not used by first responders.<sup>4</sup>

In our paper, we argued that the open access market would be an excellent method for the NPSBN to commercialize its excess capacity. The open access market has been designed to maximize the efficiency of the wholesale market and give equal access to all participants: Mobile Network Operators, Mobile Virtual Network Operators and other businesses with an interest in wireless network capacity.

The NPSBN could, alternatively, monetize its excess capacity through the sales channels of a single Mobile Network Operator. For the reasons explained in the previous sections, and at length in the original paper, this existing framework is inefficient (typical network utilization rates are less than 30%

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<sup>4</sup> Middle Class Tax Relief and Job Creation Act of 2012, *Public Law 112-96* (Feb. 22, 2012) (hereafter the Act), Sec. 6208, <https://www.congress.gov/112/plaws/publ96/PLAW-112publ96.pdf>.

on average) and allows the MNOs to exert significant market power that diverts revenue to the MNO which would otherwise belong to the State and FirstNet.

Individual States can “opt-out” of the FirstNet nationwide plan, which gives the States total control of the build and operation of their network, which we assume includes both the State Radio Access Network (RAN) and Core, provided that they meet the interoperability requirements dictated by LTE standards with NTIA oversight. This affords states the opportunity to choose a different monetization strategy from the one preferred by the federal government. The evaluation of the rewards (financial, local control, etc.) and risks of opting out rests with the States.

In our paper, we do not address the opt-out decision and we regret that Dippon has stated that “[we] have suggested that a state that opts out of FirstNet can avoid the cost and financial risk of funding its own RAN by simply deploying a spectrum exchange to raise revenue.” Our work is based on an open access capacity market, not a spectrum exchange, and we have not analyzed the dynamics of opting out.

Dippon’s analysis is incomplete and misleading. The paper appears to be an advocacy piece commissioned by AT&T. The paper we reviewed had no such disclosure. After contacting the author, we learned a revised paper is now posted that discloses Whitworth Analytics LLC as the funding source. Whitworth Analytics’ motives for commissioning this paper could not be immediately discerned, although given the financial stake that AT&T has in the FirstNet project, it is reasonable to assume that AT&T was the ultimate funder.