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# Mobile virtual network operators: a strategic transaction cost analysis of preliminary experiences

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## Abstract

This paper describes and analyzes critical conditions for achieving net benefit from opening the value-chain in mobile communications by introducing mobile virtual network operators (MVNOs) in the Scandinavian and British markets. MVNOs are radio-less network operators that outsource the radio part and some other network elements to radio-based mobile network operators. The conclusion is that MVNOs offering complex bundles of innovative value-added services will probably not be competitively sustainable as separate firms, only as more tightly integrated partners of radio-based mobile network operators.

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*Keywords:* Virtual mobile operators; Contracts; Strategy; Profitability

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## 1. Introduction

The purpose of this paper is to evaluate the social and private benefit from the joint operation of *regular* and *virtual* mobile network operators through the lenses of strategic transaction cost economics (Williamson, 1999a). Mobile virtual network operators (MVNOs) are *radio-less* operators that own and control at least some part of the mobile network, while contracting out to regular *radio-based* mobile network operators (MNOs) the radio part along with all the remaining complementary network facilities and service applications that are necessary to provide mobile services to end users.<sup>1</sup> Prospective benefits are sharper upstream competition, lower supply prices

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<sup>1</sup> Besides owning a minimum of network elements to deliver and receive calls, control over a Subscriber Identity Module (SIM) card is recognized as a key requirement of an MVNO. Sufficient user “control” may, however, be achieved without legally owning the card’s identification code, including the mobile network code that would allow the MVNO subscribers to roam into the network of various MNOs. This can be achieved by contracting with the legal owner of the card code for the right to use the card for all or almost all commercial purposes. Although Sense uses their own SIM Toolkit and may also claim they sell their own SIM cards, it is still Telenor or NetCom as spectrum-licensed network operators that are the legal holder or “owner” of the mobile network code. In this paper service providers of the Sense-type are included as a kind of virtual operator because they represent valuable experience.

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and more innovative downstream service packaging, branding and marketing. These are benefits from outsourcing that seldom can be achieved without additional *transaction costs* in terms of time-consuming negotiations, arbitration and even litigations. Net social benefit can therefore only be accomplished to the degree transaction hazards are moderate throughout the contracting period, or to the degree contractual safeguards are sufficient to prevent transaction costs from escalating.

Until recently the prevailing opinion of incumbent operators and most regulators has been that the positive effects of virtual network operation were highly uncertain, probably minimal and definitely not big high enough to justify regulatory intervention.<sup>2</sup> The main reason for such skepticism seems to be the expected negative incentive effects that such a regulation would have on investment in future networks such as in third generation mobile network (UMTS network), combined with weaker infrastructure competition. Although these negative investment incentive and competition effects will be moderated by the positive effect that such regulation will have on service innovations and competition in service provision, skeptics (most incumbents and some regulators) expect positive effects to be outweighed by negative ones. In particular, since the radio-based network owners stand to benefit less than others, virtual operation will not appear as a viable strategy until facilitating regulation and appropriate operating conditions have been established, the associated industrial dynamics sufficiently documented, and the radio-based network operators highly convinced about their own benefit from such dynamics.

The intention with this paper is to start a more open and critical discussion and evaluation of this difficult, but important question. The choice of theoretical approach for such an evaluation will be presented in Section 2. Further definition and description of the concept of virtual mobile network operators are covered in Section 3, followed by two illustrative cases in Section 4. Conclusion and discussion finalize the paper in Section 5.

## 2. A strategic transaction cost economics approach

Transaction cost economics (TCE) deals with transaction hazards caused by *interdependency* and *asymmetric information* and the respective *governance* structures (firm, markets, hybrid contracting) that may serve to mitigate such hazards. TCE can also be applied strategically to explore how different governance forms may assist in exploiting competitive advantage that can be derived from leading technology and best practice. As indicated above, the crucial MVNO question is whether network services outsourced to radio-based operators is *technologically separable* from complementary services provided by virtual operators, and if separable, whether they still are too interdependent (and therefore *non-redeployable*) to justify full *corporate separation*.

Technological separability will increase and interdependency will decrease to the degree the respective inter-firm transactions between regular and virtual operators are facilitated by open

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<sup>2</sup>This was the conclusion reached by the British regulator Oftel and Norwegian Department of Communication that recently evaluated the concept of virtual operators in mobile communication (Oftel, 1999a, b; St.meld.nr. 24 (1999–2000)).

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