

Network Cooperation

Making it Work and Creating Value



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Executive summary

Network cooperation brings many advantages to mobile operators; costs decrease, efficiency and quality is improved and coverage and competitiveness is increased. Network sharing is gaining popularity as the network capabilities of mobile operators are becoming less strategic and more commoditized. While network-sharing deals are announced every month, relatively few of them are actually implemented.

In a given market, realistically, only a few network-sharing configurations can be successful, given the dynamics between the market leader and smaller operators, the role of the network in gaining market advantage and regulatory considerations. Even after obtaining alignment on the key strategic and financial principles of a network-sharing venture, misalignment on operational aspects during implementation can jeopardize the deal.

Arthur D. Little has acquired expertise in conceptualizing network-sharing ventures, obtaining alignment between the key parties, detailing the venture and assisting our clients side-by-side till successful GoLive! In this report, Arthur D. Little provides insight into the common pitfalls, and key factors necessary in order to make network sharing a success.

What is network cooperation (*NetCo*)?

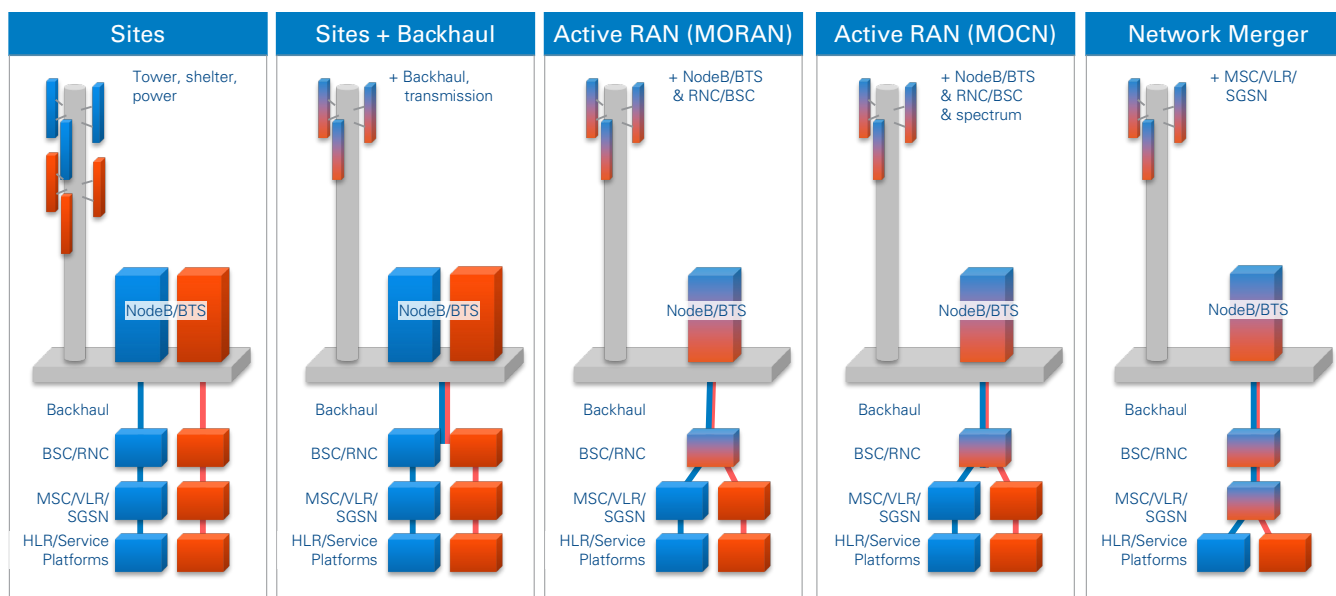
Network cooperation is the practice of a Mobile Network Operator (MNO) sharing part of its Radio Access Network (RAN) with another MNO. Often the scope of network cooperation ranges from passive RAN cooperation – the sharing of sites, tower structures, shelters, power and cooling – to active RAN cooperation – the additional sharing of backhaul transmission, backhaul fiber, antenna (common multi-band antenna), and site electronics (common baseband units for 2G/ 3G/ 4G, etc) (see Figure 1: Network sharing technical options). In advanced forms of network cooperation, a majority of the RAN infrastructure of two or more MNOs are merged, with or without spectrum pooling, achieving *One Network* that can efficiently serve the network requirements of the MNOs.

carved out, transferred and merged into a separate *NetCo*, and the *NetCo* then jointly manages the operations of these assets.

Network cooperation can also take the form of a tri-party joint venture, which can include one or more MNOs, as well as an external strategic or financial investor. In such a tri-party *NetCo*, the MNO sells a portion of its stake in the joint venture to a 3rd party investor in exchange for cash. The MNO benefits from the transaction by being able to monetize a sunk-cost in its RAN assets. The MNO also obtains expertise from a specialist 3rd party network or tower operator who now manages its RAN assets.

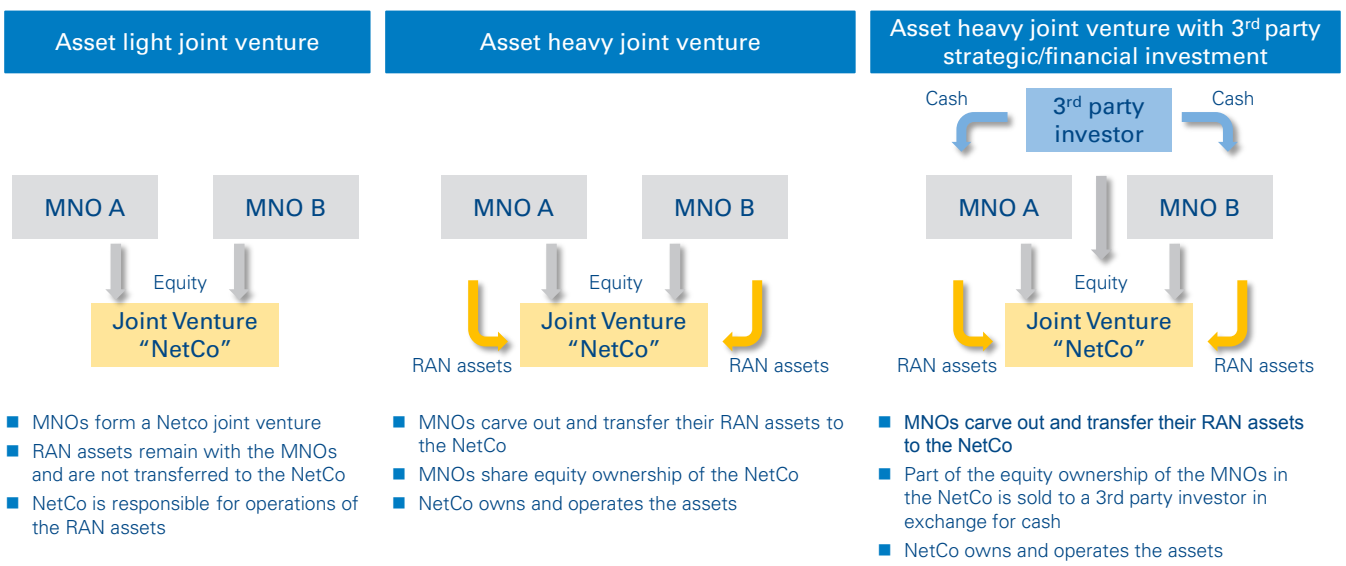
Network cooperation often takes the form of a joint venture between two MNOs (see Figure 2: Financial structure options for a *NetCo*), referred to as a *NetCo*. In an asset light *NetCo*, the RAN assets continue to be owned by the respective MNOs, but the newly formed *NetCo* jointly manages their operation. In an asset heavy *NetCo*, the RAN assets of the two MNOs are

Figure 1: Network sharing technical options



Source: Arthur D. Little

Figure 2: Financial structure options for a NetCo



Source: Arthur D. Little

How does a *NetCo* create value?

A *NetCo* creates value by optimizing the portfolio of RAN assets through the consolidation of the existing RAN asset base into a smaller, more efficient RAN base, and by avoiding redundant future capex, so called Consolidation and Joint Evolution (CJE). In addition to CJE, value is created by increasing the operators' network footprint, improving competitiveness and increasing flexibility in pricing.

Consolidation – Reduce opex

By operating the combined network with a common operations team, a *NetCo* can decrease operating costs. The *NetCo* also optimizes the network assets into an efficient *One Network* by decommissioning redundant sites/towers, consolidating the asset base and optimizing the backhaul infrastructure, thus avoiding duplicate site rent, site opex and electricity costs (Figure 3: Consolidation and Joint Evolution). Typically, consolidation results in a reduction of 5-10 percent of the combined site base in a passive network-sharing venture, and

10-15 percent of the combined site base in an active network-sharing venture.

Joint Evolution – Avoid redundant capex

Joint network planning by the *NetCo* ensures that the network is able to satisfy the RAN requirements of both MNOs with a single common network. Redundant capex investments are avoided as the *NetCo* builds and runs a common network that is used by both MNOs instead of two separate networks. The magnitude of savings from capex by a *NetCo* is even larger if, prior to the formation of the *NetCo*, the individual MNOs were considering large individual investments in network expansion, such as 4G deployments. Typically, joint evolution results in avoidance of 10-15 percent of combined site demand in a passive network-sharing venture, and avoidance of as much as 35 percent of the combined site demand in an active network-sharing venture (assuming both operators do not seek to increase the coverage for the resulting network) (see Figure 4: Percentage of sites saved by consolidation and joint evolution).

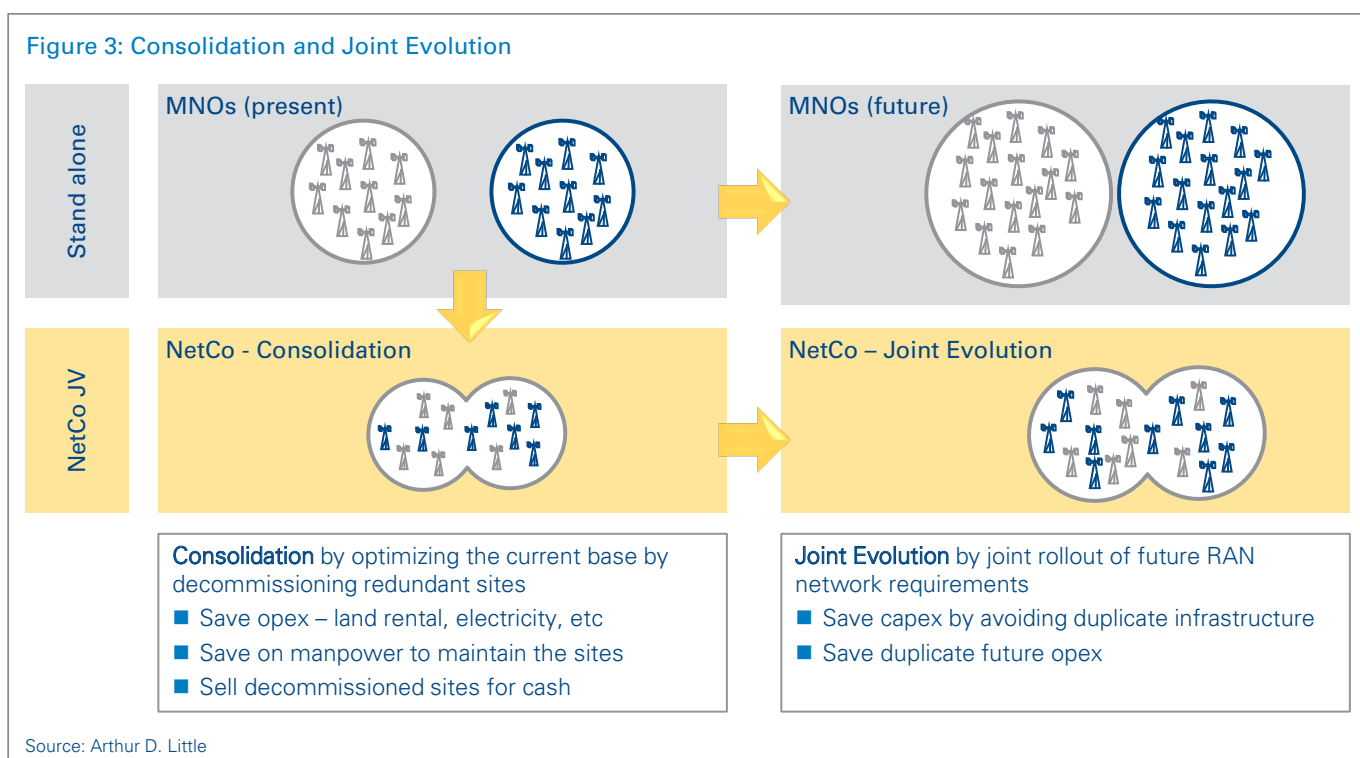
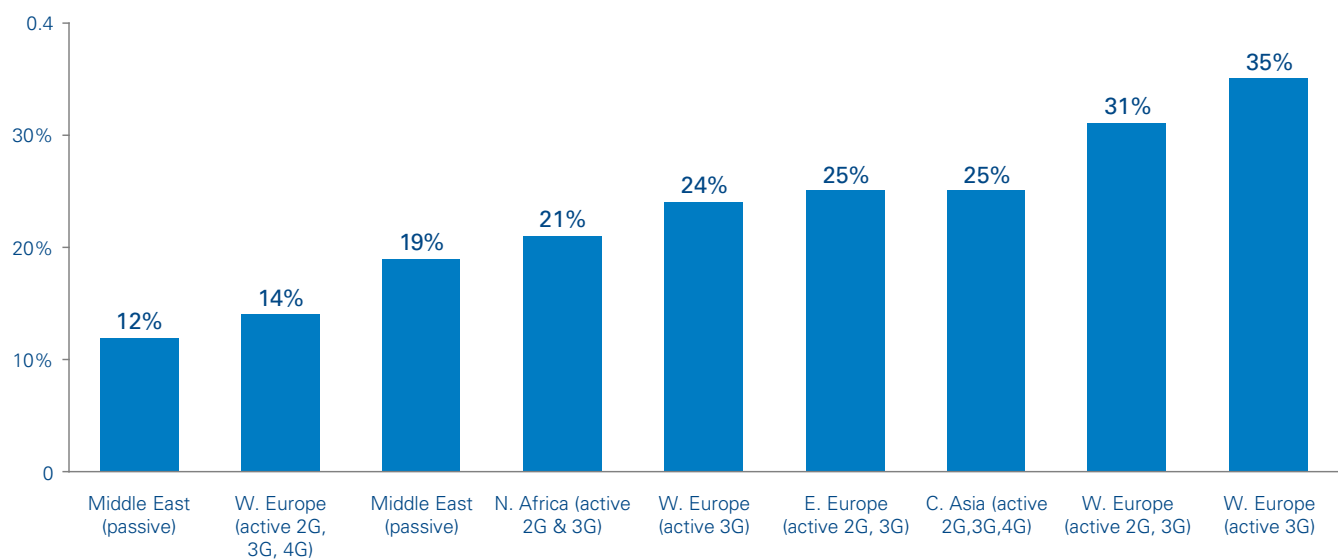


Figure 4: Percentage of sites saved by consolidation and joint evolution



Source: Arthur D. Little

Creation of a larger network footprint

When two RAN networks are combined, the geographical size and scope of the resulting *One Network* is greater than each individual network. Each MNO now gains access to a geographically larger network and the complementary strengths of the other, such as access to new sites/towers, spare backhaul capacity, etc. Typically the smaller MNO expands its effective network reach by as much as the coverage of both MNOs combined, which can be as high as 50 percent extended coverage in some cases.

Better network competitiveness while maintaining network independence

Network technology, such as MORAN (Multi Operator Radio Access Network) and MOCN (Multi Operator Core Network) improves network competitiveness by supporting more than one MNO's network requirements on a single physical network. Using this technology, the *NetCo* can maintain separate spectrum, radio controllers to access the RAN, core network interface, and service-provisioning infrastructure for each MNO

linked to the RAN network. Physically, the RAN network is the same, but the *NetCo* can maintain separate and distinct logical RAN networks for each MNO.

Strategic pricing flexibility due to net lower operating costs per subscriber

Network costs per subscriber are reduced through the *NetCo's One Network*, as the number of subscribers is now the sum of the subscribers of both MNOs, while the total network cost is less than the sum of the network costs of both MNOs due to efficiencies gained. This gives each MNO the strategic flexibility to price its products and product bundles per subscriber with a lower unit cost per subscriber threshold, thus improving its ability to compete more effectively in the retail telecom services market.

Why do so few network cooperation deals become reality?

Numerous deals are announced each year with the intention of sharing or merging networks, but relatively few of these materialize into actual joint ventures. This is generally due to the complex nature of such a transaction, and the multiple levels of alignment that need to be obtained between various stakeholders. The most common issues that hinder the finalization of network cooperation deals include:

Valuation of the networks

- **RAN assets considered strategic assets:** In some cases, MNOs consider RAN assets strategic assets. This is especially pronounced in cases when one of the MNOs has a head start over the other MNO in rolling out its network or one MNO has access to strategic locations or uses spectrum bands, which are not available to the other MNO. In such cases, the MNO may not be willing to share access to the strategic portion of its RAN assets to the other MNO.
- **Inability to agree on upfront valuation of MNO assets:** Disagreement on the valuation of the network assets is the most common roadblock to establishing network cooperation. Commonly used valuation tools are net book value (NBV), replacement cost of assets, technical valuation of assets, market valuation of assets, points-based

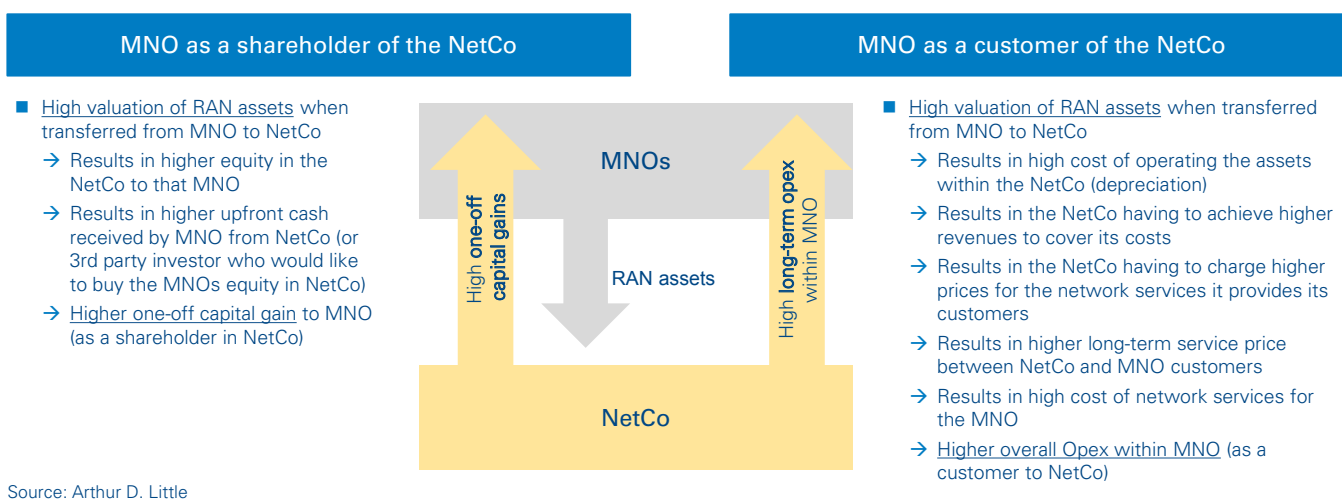
valuation of assets, and future cash generation potential of assets. Other than NBV, the other valuation methods have subjective elements when determining the valuation. Hence negotiation on valuation often gets lost in technical details without reaching a final deal.

- **Heterogeneous networks/ Asymmetry of networks of the MNOs:** In most markets, mobile operators vary in terms of network size and customer base; one MNO usually has a larger and better network relative to the other. When two MNOs come together to form a *NetCo*, effectively the MNO with a better network shares a part of its network with the smaller MNO. Often this leads to disagreements on the extent to which the smaller MNO should benefit from the established network of the larger MNO, as well as the cost/price at which one operator obtains network access services from the other operator.

Alignment on common strategic objectives

- **Internal agreement within the MNO between upfront valuation and long-term pricing of network services:** A high initial valuation of the MNO's assets being transferred to a *NetCo*, results in a high price of network services that the MNO then leases back from the *NetCo* (see Figure

Figure 5: Relationship between upfront valuation and long-term service pricing



5: Relationship between upfront valuation and long-term service pricing). MNOs face internal pressure to strike a balance between a high upfront valuation and the long-term cost of network services. A high initial valuation benefits the MNO in terms of short-term capital gains and initial cash or equity payment, but will result in higher network service prices from the *NetCo* in the long-term. Often there is internal disagreement both within the MNO, as well as between the *NetCo* and the MNO, on the extent of initial valuation vs. long-term pricing of network services from the *NetCo*.

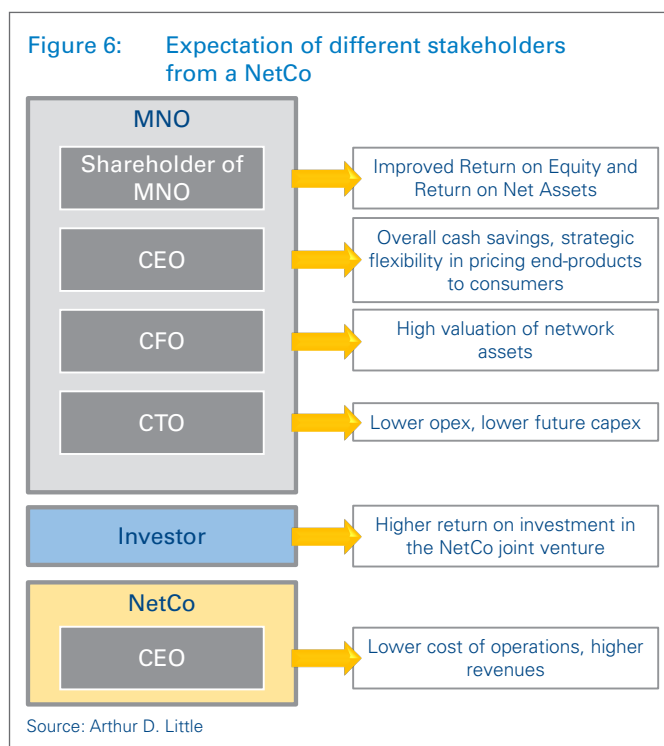
■ **Divergent growth plans of the founding MNOs:**

In a network-sharing venture involving two or more MNOs, the MNOs invariably have different strategies and growth plans. Usually the larger MNO focuses on new technologies, capacity expansion and introduction of high value data services, while the smaller MNO is more focused on coverage expansion and development of lower value data services. Disparate strategies impact future network growth and investment, which in turn impacts the scope of network synergies. Agreeing to a common *One Network* future growth plan in such a scenario is difficult, as each MNO feels it is subsidizing the network growth requirements of the other MNO, leading to stalled negotiations.

Commitment to implementation of the venture

■ **Lack of a strong project sponsor within the MNO:**

This is the most common cause of failed network cooperation deals. A *NetCo* venture results in benefits to the MNOs contributing to the deal, but the benefits vary even among the stakeholders within the same MNO (see Figure 6: Expectations of different stakeholders from a *NetCo*). Usually the CTO is focused on network cost reduction and improvement in technical network capability. The CFO is interested in greater valuation, capital gains from carving out the network assets into a *NetCo* and overall improved profitability due to lower network operating expenses. The CEO looks for strategic flexibility in launching products and services on the back of an improved network. The shareholders of the MNO want improved return on equity (RoE), return on net assets (RoNA) and return on capital



employed (RoCE). Balancing the expectations of the various stakeholders internally within the same MNO, as well as balancing the benefits apportioned to the different MNOs to the joint venture is a protracted multi-step negotiation, which often drags over many months.

- **Non-alignment on key governance principles:** During the negotiation phase, short-term governance issues, such as the harmonization of short-term network investments, prioritization of network rollout, vendor selection, funding of short-term investments, composition of *NetCo* management team, etc. have to be aligned. This often leads to delays in decision-making, and potential fallout between the two MNOs.

Making network cooperation work: lessons learned

How do we ensure that a potential joint venture focuses on the end result that is a win-win for all parties and not get lost in the process? Our experience shows that successful *NetCos* focus their effort on value creation through the *NetCo* joint venture rather than on the financial levers of value distribution.

A culture fit between both the MNOs – the primary driver of a successful *NetCo*

The cultural fit between two MNOs is difficult to measure and quantify, but based on our experience, it is often the most important driver to a successful *NetCo*. A level of healthy trust and eagerness to work with the other operator sets a conducive atmosphere for negotiations on a variety of topics. A similar pace of decision-making within both MNOs, and the level of empowerment of the management of the MNO to make decisions, aids in the success of the *NetCo*. Further internal alignment between the key entities within the MNO on key topics, such as degree of consolidation and joint evolution, capex funding, pricing, valuation, governance helps in objective and result-oriented negotiations.

Value creation – the only source of value creation is from network optimization

The only source of value creation is by creating an efficient common network through consolidation and joint evolution that can service the needs of one or more MNOs. The network is optimized by the consolidation of the founding MNOs' RAN networks into a single network and the elimination of redundant towers, sites, antenna, backhaul links, and other network elements. Capex is saved by joint future rollout of new network requirements through this *One Network*, avoiding redundant planning and building costs. Opex is saved by avoiding the redundant costs of running two separate networks, in favor of the single optimized *One Network*.

Value distribution – there are a variety of methods of value distribution using financial levers

Value is distributed from the *NetCo* to the MNOs through two routes:

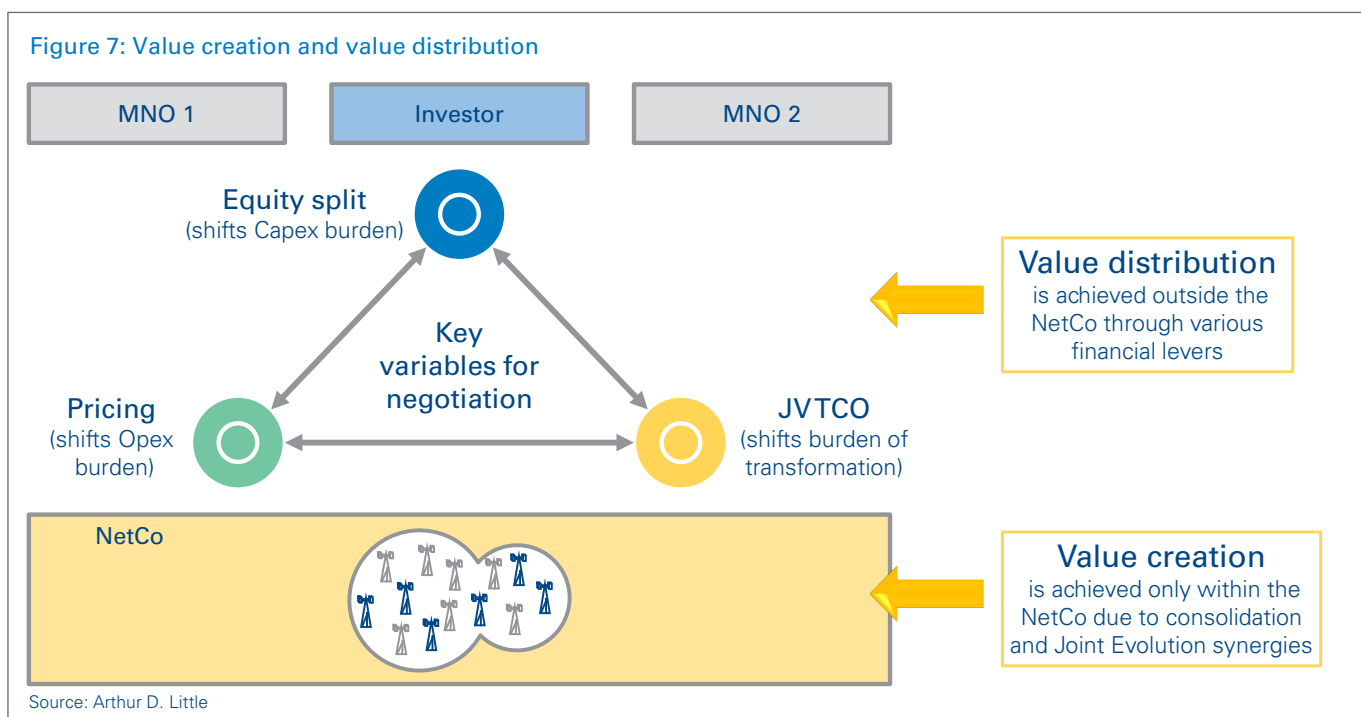
- *MNO as shareholder*: If the MNO as a shareholder obtains cash or equity in the *NetCo* that is of greater value than the value of the network assets that it contributes into the *NetCo*, then it gains value. Normally this method is preferred by MNOs looking to raise cash for new investments or looking to obtain capital gains from the carve-out of its network assets.
- *MNO as a customer*: If the MNO as a customer obtains network services from the *NetCo* at a lower overall cost as compared to business-as-usual, then it gains value by improving the EBIT impact of its network costs. Normally, this method is preferred by MNOs looking for long-term cost optimization of its network, especially in the face of rising new investments in 4G, LTE, fiber, etc.

Value distribution is inherently a zero-sum game; hence an appropriate balance between value distribution from the *NetCo* to the MNOs should be achieved (see Figure 7: Value creation and value distribution). A fair initial valuation of assets from the MNO to the *NetCo* will enable an appropriate cost structure going into the *NetCo*, which results in a fair pricing of network services that the *NetCo* then charges back the MNOs.

There are three primary financial levers of value distribution:

- Valuation of the assets contributed by the MNOs into the *NetCo*, and equity split
- Cost structure of the network transferred from the MNOs into the *NetCo*,
- Pricing of services from the *NetCo* to the MNOs.

Most potential network cooperation deals stall due to the divergent characteristics of the founding MNOs. Usually the mobile operators have different assets and expectations of the value of these assets, different network cost structures and operational capabilities that they transfer into the *NetCo*, and different expectations of the pricing of the long-term network services to be obtained from the *NetCo*. A negotiation focused only on one of the above levers can lead to protracted discussions without a definite result.



A pragmatic solution is to define the primary principles of valuation, the cost structure calculation and the service pricing methodology upfront before starting negotiations. Once these principles have been mutually agreed, then negotiations on the technical, financial and organizational aspects of the deal should commence. For each of the three main levers above, the founding MNOs should internally define an acceptable range of values that they expect from the *NetCo* deal, before entering into negotiations with the other party.

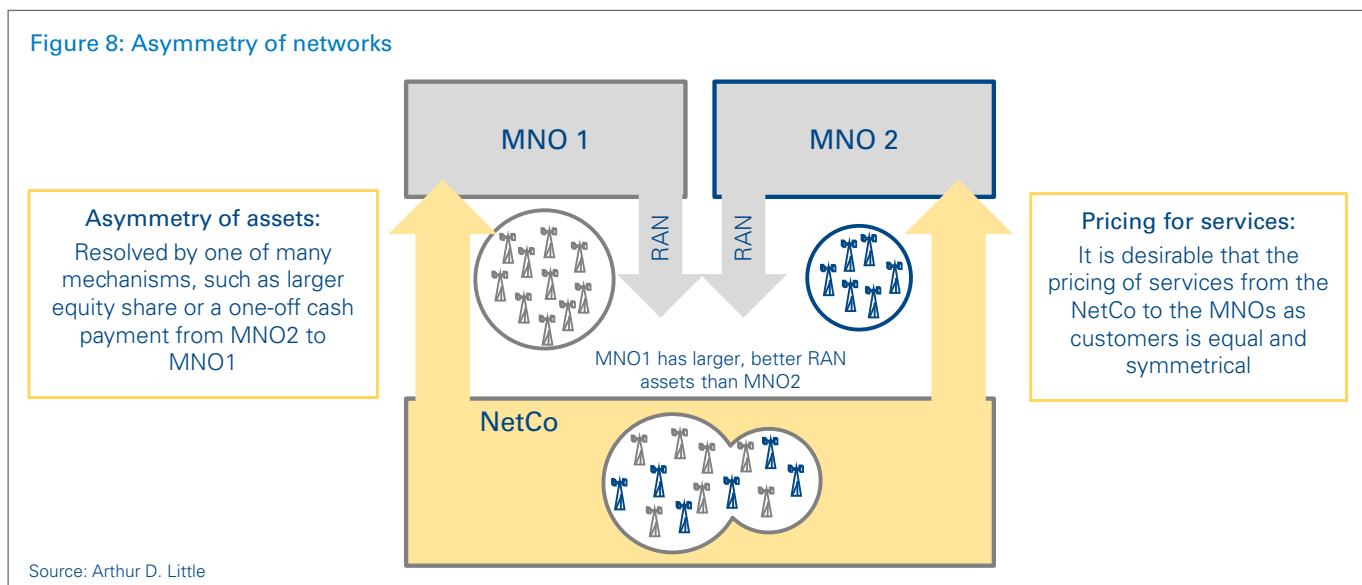
A *NetCo* is a long-term partnership that is difficult to reverse, and hence it is vital to create an atmosphere of trust through constructive negotiations. There should not be expectations of hard bargains nor ambitions to extract high valuations. All parties in a *NetCo* have an inherent interest in the long-term sustainability of a *NetCo* and hence should strive to create a financially and technically healthy *NetCo*.

Asymmetries should be acknowledged upfront and fairly compensated

Many network-sharing deals stall during the negotiation phase due to an inability to address asymmetries between the networks of the founding MNOs. One MNO may have a larger, more geographically diverse network, better spectrum bands, a greater number of licenses, better backhaul/ backbone network, lower cost base and better operations than the other MNO. This is quite natural, as each MNO is at a different phase of growth in the market and may also have a different strategic focus.

An effective method to deal with asymmetries is to acknowledge the asymmetry upfront and suitably reward the MNO that brings in the better network. Ideally, compensation for asymmetries should be in the form of a one-time payment or greater equity stake in the *NetCo* (Figure 8: Asymmetry of networks). Long-term or recurring compensation for asymmetries should be avoided, as it hinders the *NetCo* from focusing on a common efficient cost and pricing base.

Figure 8: Asymmetry of networks



Source: Arthur D. Little

In our past project work, we have seen that asymmetries have been effectively dealt with by negotiating fair compensation for use of the asymmetric assets of one MNO by the other MNO. The compensation should take into consideration the large upfront capex that was put in by the first MNO, the potential risk of the investment of the first MNO, and fair utilization of the asset for both MNOs going forward. When one MNO has a much larger network footprint than the other MNO, access of the larger MNOs network to the smaller MNO would involve a one-off anchor-tenant fee to compensate for the asymmetry, and a long-term site rental fee that is equal to both MNOs to incentivize long-term cost optimization for that asset.

The network-sharing venture should have a strong project sponsor from the MNO

Normally, a network cooperation deal involves all the main stakeholders within an MNO, including the CEO, CFO, CTO, and shareholders, although different stakeholders have different expectations of the benefit from such a deal. The CTO is usually focused on maximizing the efficiency of the network, the CFO looks for the highest valuation for the network assets, and the CEO is interested in maintaining strategic flexibility in the running of his business and overall cash flow savings.

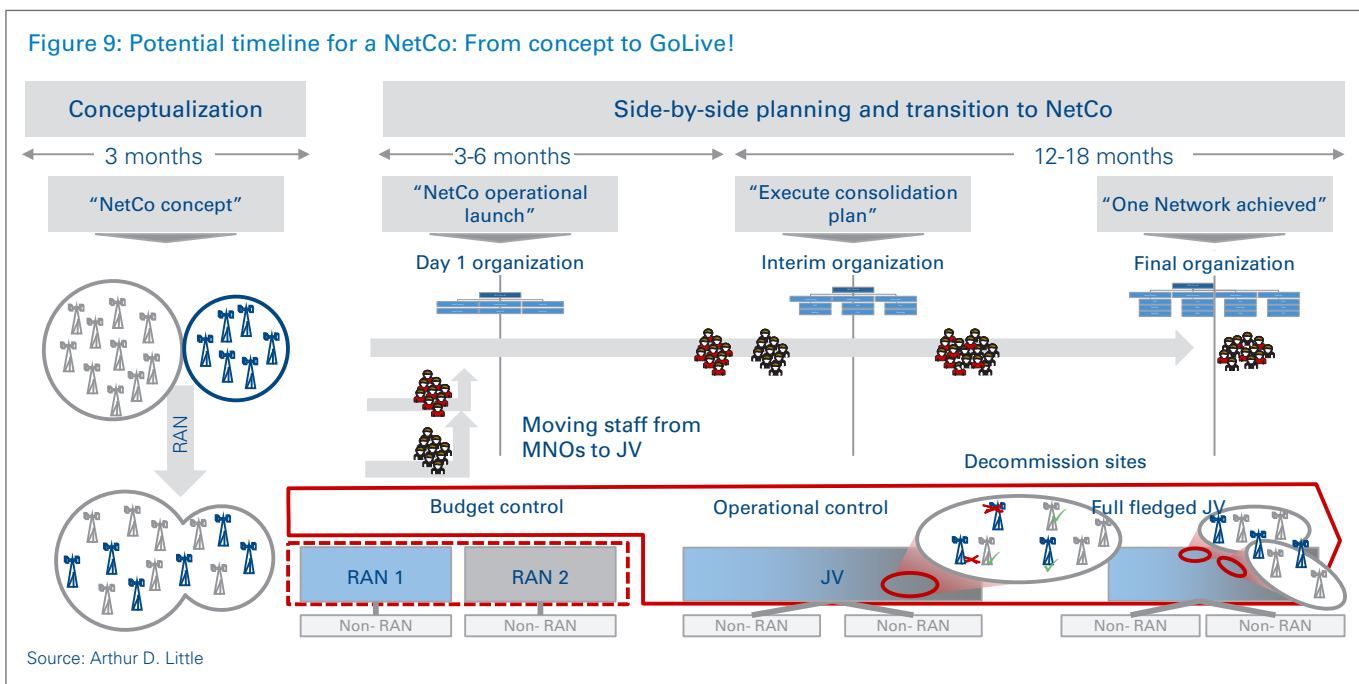
The shareholders would like to improve their RoE and RoNA. Multiple expectations of different stakeholders within the same MNO lead to difficulty in agreeing to a common negotiation strategy with the other MNO, as well as the NetCo.

Successful NetCo deals are often the result of a strong project sponsor, usually either the CEO or a shareholder of the MNO, who is able to drive decision-making at a high level, balancing short-term valuation with long-term cost savings, and short-term loss of network differentiation to long-term focus on consumers and market dynamics.

Agreeing on an achievable timeline – with the right balance between planning and execution

A network-sharing joint venture usually takes between one and two years from initial concept to actual formation of the joint venture. A well-paced timeline, with actionable and measurable deadlines should be agreed upfront (see Figure 9: Potential timeline for a NetCo: From concept to GoLive!). The initial three months should be focused on conceptual planning, but the rest of the timeline should have actionable and jointly executed tasks. The core action team responsible for planning and forming the NetCo should include personnel from both MNOs who

Figure 9: Potential timeline for a NetCo: From concept to GoLive!



work together at a neutral location. As negotiations on the joint venture progress, the core action team should be gradually expanded to include key members from both the MNOs responsible for the functions of plan-build-run of the network. Such a gradual team evolution ensures an atmosphere of trust building, and encourages both parties to contribute to the development of the *NetCo*.

such as valuation, pricing, capex funding, and future network rollout, is dealt with in a separate parallel stream by the key decision-makers of both MNOs. Arthur D. Little has successfully used its value distribution negotiation framework to ensure constructive negotiations and to obtain the right balance of objectives achieved by all parties to the *NetCo*.

In past successful assignments, Arthur D. Little has developed a proven negotiation framework that minimizes time spent on the initial concept development phase. Initially, we focus our effort on obtaining alignment on the basic concept and principles of the *NetCo* with the two MNOs upfront. Subsequently, our effort is focused on getting the two MNO teams working side-by-side together to detail the *NetCo* concept. Such a set-up creates an atmosphere of trust and ownership among the nascent *NetCo* team, and simultaneously moves all parties towards the *NetCo*, team-by-team and function-by-function. Thus, time is optimally spent on both planning and execution by the actual team members of the future *NetCo* as opposed to lengthy planning by external planners. Simultaneously, difficult negotiation decisions,

Conclusion

There is no doubt that a NetCo and network-sharing joint ventures create more efficient networks and benefits all parties in terms of reduced opex and capex, and more flexibility in strategic pricing. Network sharing also results in better network coverage, and increased competitiveness. However, the right approach to the formation of a NetCo is critical. Negotiation between mobile operators on network sharing is complex and requires the mobile operators, often very different companies, to come to an alignment on a range of issues. In particular, network-sharing cooperation should include:

- A focus on value creation by network optimization
- Fair value distribution by balancing short-term valuation requirements with long-term cost optimization
- An objective approach to asymmetries, and
- A strong project sponsor to drive decision-making and ensure an actionable timeline

Successfully integrating these various elements ensures that the NetCo progresses from a theoretical concept to a successful practical reality.

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