

Introduction to Quadra

QUADRA PARTNERS, LLC

www.quadrapartnersllc.com

Quadra: Boutique TMT-Advisory Firm

TMT focus with highly specialized expertise

Founded in early 2017, Quadra Partners focuses on clients requiring deep, integrated knowledge of public policy, business strategy, wireless engineering, and/or investing in the TMT sector.

Veteran team with public and private sector experience

Our team has decades of private and public sector experience.

- Former professional service partners and executives.
- Former senior U.S. Government officials with policy portfolios spanning many of the most important areas of TMT.

Wide range of clients from across the sector

Our clients include leading public companies; privately held companies active in regulated markets; large international consulting firms (via strategic partnerships); and leading investment firms.

Our starting point is deep knowledge of players, process, and substance in four areas

Public-policy strategy: regulatory and legislative

- FCC, key Hill committees, other federal & state, reg & leg
- FCC policy, rulemakings, auctions
- Influential stakeholders: industry, associations, non-profits
- Individual influencers: current and former FCC, Hill, and other principals and staff; economists, lawyers, academics
- FCC/DOJ/FTC/State AG experience; current and former staff
- Direct or advisory roles in most major TMT sector transactions since 2005 (in and out of government)
- Market definitions, economic modeling/merger simulations, engineering analysis
- Structural and behavioral remedies

Engineering: wireless technology and standards

- FCC/OET and NTIA staff; company engineering teams across the sector
- FCC licensing models: (e.g., CBRS)
- FCC/OET interference/performance analysis of service rules (e.g., C-Band)
- International coordination and 3GPP
- Hardware/supply chain analysis: cost, capability, availability/timing, security
- Network deployment design/cost modeling
- Extensive due-diligence experience, large companies and early stage
- Spectrum license mods/waivers; future spectrum availability; Universal-service funding flows and eligibility
- FCC and international spectrum auctions, e.g., future mmWave pipeline
- Competitive dynamics and cross-sector trends

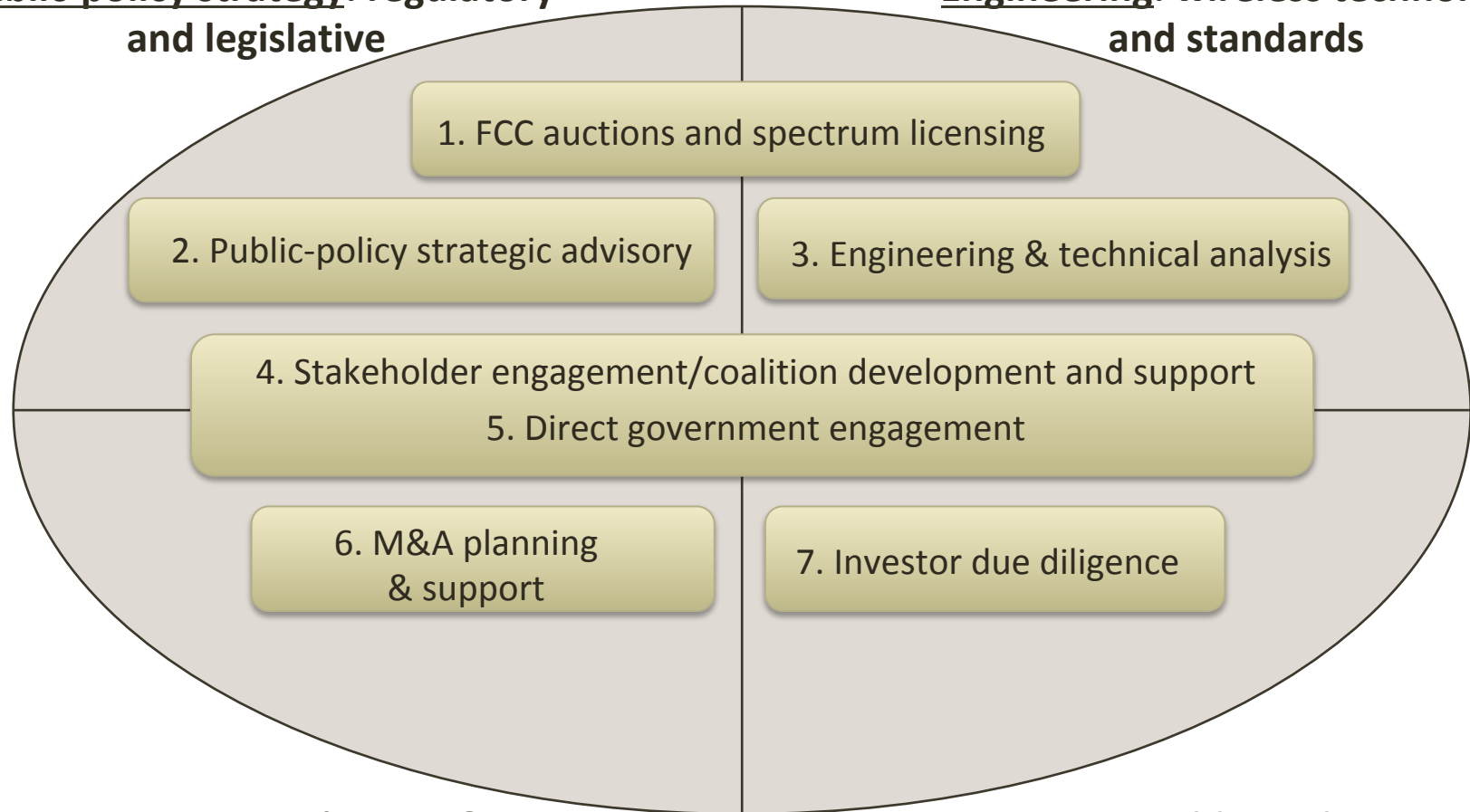
Corporate transactions: M&A, asset sale, and restructuring

Investing: Public and private financial markets

Quadra works with clients in seven service lines spanning the four areas

Public-policy strategy: regulatory and legislative

Engineering: wireless technology and standards



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Quadra's main service lines

1. FCC auctions and licensing

Model economic value based on engineering and market potential; joint work with auction economists on bidding strategies; FCC strategy for license rules/mods and auction procedures

2. Public-policy strategic advisory

Behind-the-scenes support on process and substance for influencing policy actions; focus on FCC and Hill committees

3. Engineering & technical analysis

Identify and assess technical strengths and weaknesses of policy proposals; technical filings and ex partes; business/investor support

4. Stakeholder engagement / coalition development and support

Behind-the-scenes and/or public support for planning, creating, and sustaining stakeholder coalitions on policy issues

5. Direct government engagement

Direct advocacy at FCC and/or Hill, including meetings, formal filings, and mix of staff and/or 8th floor as appropriate

6. M&A planning and support

Advise on regulatory (FCC, DOJ, state) risk and mitigation; pre-deal planning; roll-out and initial filing; ongoing engagement with government review; opposition support

7. Investor due diligence

Independent review/validation of investment theses; integrated review of business/competitive issues along with regulatory and/or technical areas; special expertise on spectrum issues

Team Bios

Paul de Sa



- **Chief, FCC Office of Strategic Planning** (2009-2012, 2016-2017)
 - Merger reviews, including AT&T/T-Mobile and Comcast/NBC
 - Broadband and spectrum policy, including National Broadband Plan and Competition Reports and 2010-2011 USF and ICC reform proceeding
 - Company/investor outreach
- **Senior Analyst, Bernstein Research** (2012-2016)
 - Lead analyst for U.S. Telecom sector
 - Published over 350 research notes on topics relevant for telecom and cable investors, including fixed and mobile broadband, spectrum, M&A, competition, and regulation
- **Partner, McKinsey & Company** (Washington D.C. 2000-2007; Seoul 2007-2009)
 - Served telecom and private-equity clients across a wide range of areas including strategy, due diligence, and M&A
- Postdoctoral Research Fellow, Harvard; John F. Kennedy Scholar, MIT; Doctorate in Theoretical Physics, Oxford; M.A. Natural Sciences, Cambridge

Chris Helzer



- **Chief Engineer (2014-2017), Senior Engineer (2011-2013), FCC Wireless Telecommunications Bureau**
 - Spectrum Frontiers (mmWave spectrum)
 - Spectrum Policy: 600 MHz Incentive Auction, 3.5 GHz rules, etc.
 - Transactions, including AT&T/T-Mobile
 - Wireless telecom standards, including representing FCC in 3GPP
- **Partner, Wireless Strategy (2007-2011)**
 - Partner in boutique engineering-consulting firm
 - Served a variety of wireless clients
- **Director, Nextel Communications (1999-2005)**
 - Engineering director in technology development, responsible for both radio network and handsets
 - Managing vendor technology roadmaps, issuing RFPs for new networks and devices, conducting field trials, etc.
- Bachelor's degrees in Electrical Engineering and Physics from the University of Maryland

Ruth Milkman



- **Chief of Staff, FCC (2013-2017)**
 - Competition policy: Major transactions involving broadband and video providers
 - Spectrum auctions: AWS-3, PCS H block, and broadcast incentive auction
 - Universal Service reform of High Cost, Lifeline, and E-rate programs
- **Chief, FCC Wireless Telecommunications Bureau (2009-2013)**
 - First universal service auction in United States (Mobility Fund I)
 - Broadcast incentive auction from conception in National Broadband Plan, through legislation, to rulemakings
 - Creating value in commercial spectrum (e.g., by addressing federal government use and changing commercial rules)
- **Partner, Lawler, Metzger, Milkman & Keeney, LLC (1998-2009)**
 - Law firm: advocacy before the FCC, including major transactions
 - Clients: start-ups as well as large telecommunications companies
- J.D. University of Michigan Law School; B.A. Harvard University; member of District of Columbia bar

Roger Sherman



- **Founder & Principal, Waneta Strategies, LLC (2016-2019)**
 - Strategic counsel to businesses, trade associations, non-profits, start-ups, and investors
- **Chief, FCC Wireless Telecommunications Bureau (2013-2016)**
 - Spectrum: H-Block, AWS-3, Broadcast Incentive Auction
 - Competition: Overhaul of Designated Entity and spectrum aggregation rules
 - Infrastructure: tower siting and small cell deployment policy
- **Chief Democratic Counsel, House Energy & Commerce Committee (2012-2013), Staff Director Subcommittee on Communications and Technology (2009-2013)**
 - Lead Democratic House staffer for all communications and technology legislation and oversight, including Spectrum Act (creating FirstNet and authorizing Broadband Incentive Auction), Net Neutrality, Recovery Act, STELA
- **Director/Senior Counsel, Sprint Corporation (1997-2007)**
 - Represented wireless business before Federal agencies; member Sprint-Nextel transaction team; lead counsel for wireless transactions and spectrum swaps
- J.D. Harvard Law School; B.A. Amherst College; member of District of Columbia and California bars

Jon Wilkins



- **Chief, FCC Wireless Telecommunications Bureau (2016-2017)**
 - Major policy initiatives in 5G spectrum availability (3.5 GHz, 28/37/39 GHz rulemakings), small cell deployment, CBRS, and broadcast incentive (600 MHz) auction
 - Transaction reviews (spectrum license transfer jurisdiction) involving all large U.S. carriers
- **Chief Operating Officer, FCC (2014-2015)**
 - Responsible for Universal Service fund administration
 - Policy team lead for E-Rate and Lifeline modernization initiatives, including \$1.5b annual expansion of E-Rate budget
 - Responsible for \$500m budget, financial, IT/cyber-security, HR, and procurement operations
 - Congressional testimony on FCC performance and operations
- **McKinsey & Company (Washington, D.C., 1996-2013)**
 - Senior Partner (2011-2013); Partner (2003-2010)
 - Leadership member: Global TMT group, Public Sector Practice, Regulatory Strategy Service Line
- J.D. Yale Law School; B.A. Dartmouth College; member of District of Columbia and Maryland bars