# QSIGHTS

QSights, published by Q Advisors, provides thought-leadership, independent opinions and data on topics of interest to the telecom, media and technology sectors.

## Sensors to Software – Activity across the IoT Value Chain

**By Michael Crawford and Jordan Rupar / 2.16.17**

Q Advisors recently joined hundreds of leaders across the Internet of Things ("IoT") sector at the IoT Evolution Conference in Ft. Lauderdale. The multi-day conference involved panel sessions, keynotes, and presentations on the state of the IoT and its transformative impact across several sectors; including agriculture, aviation, energy, insurance, manufacturing, smart cities, and transportation, among many others.

### IoT M&A and Financing Trends

Michael Crawford, Q Advisors Partner, participated in the *IoT Money Matters* panel comprised of bankers, consultants, and investors focused on IoT. During the panel, Michael unveiled the latest edition of the Q Advisors proprietary *IoT Transaction Heat Map*, which highlights recent investment activity across the *IoT Value Chain*. The panelists engaged in lively discussions regarding overall IoT M&A and investment activity, as well as trends in each of the *IoT Value Chain* segments.

Below are several observations gathered from the *IoT Money Matters* panel and the latest edition of the Q Advisors *IoT Transaction Heat Map*:

- Deal volumes and values have steadily increased year-over-year for IoT M&A and financings
- The proliferation of IoT platforms and APIs is driving M&A and financing activity within the Manage segment. This segment accounted for significant deal volume and the largest average transaction size for both M&A and financings. Noteworthy transactions include Dell's $68 billion acquisition of EMC and Cloudera's $900 million Series F equity raise
- Traditional venture investors tend to avoid capital-intensive businesses in the Transmit segment, preferring asset-light models in the Manage and Analyze segments

***IoT is expected to facilitate the transition to an "outcome economy" in which performance rather than products are sold. Focus will continue to shift to the data generated from connected devices rather than the traditional function and application of the device itself. IoT is expected to transform traditional segments such as agriculture, energy, insurance, manufacturing, smart cities, and transportation to become more automated and autonomous, allowing for new revenue opportunities and cost savings.***

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- Corporate venture arms have emerged as key IoT investors, participating in nearly 40% of the B2B IoT financings over the last three years  Cisco Investments, GE Capital, Intel Capital, and Qualcomm Ventures are among the most active corporate investors
- IoT is becoming a "use-case" across several technologies in the traditional semiconductor, connectivity, cloud, and software segments, which is driving M&A activity.  Examples include Softbank's recent acquisition of ARM and Cisco's recent acquisition of AppDyanmics.  Though the targets are non-traditional IoT players, their technologies are being integrated into the IoT initiatives of their buyers

## Q Advisors IoT Transaction Heat Map

### IoT Value Chain

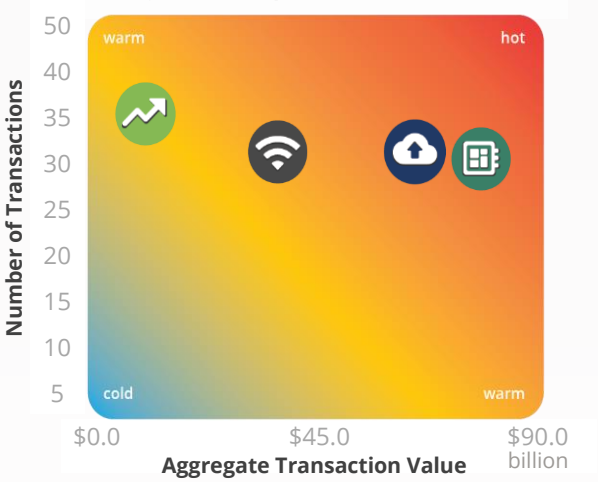
**Capture.** Sensor-Embedded Products, Machines & Hardware

**Transmit.** Network Infrastructure & Connectivity

**Manage.** Data Collection, Storage & Middleware

**Analyze.** Data Analytics, Control & Automation

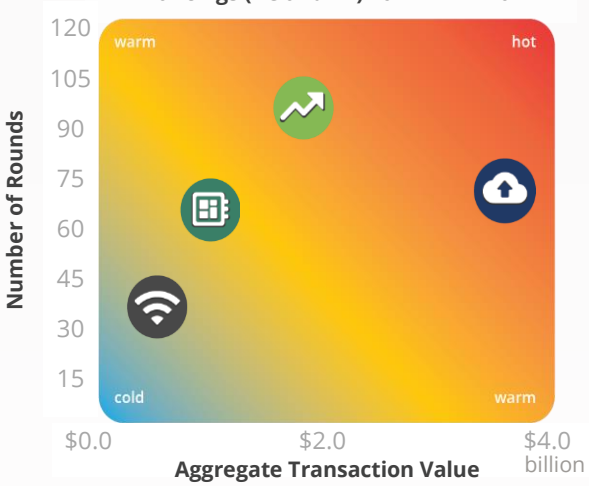
**Mergers and Acquisitions 2014 – YTD 2017**




| | # of Deals | Avg. $ Deal Size (EV)1 |
|---|---|---|
| Capture | 31 | $4.1 billion |
| Transmit | 32 | $2.1 billion |
| Manage | 32 | $5.5 billion |
| Analyze | 35 | $0.4 billion |

*(1) Excludes 53 out of 130 total transactions with undisclosed*

**Financings (VC and PE) 2014 – YTD 2017**




| | # of Deals | Avg. $ Round Size (Capital Invested)1 |
|---|---|---|
| Capture | 61 | $15.7 million |
| Transmit | 31 | $20.3 million |
| Manage | 68 | $59.7 million |
| Analyze | 98 | $20.8 million |

*(1) Excludes 16 out of 258 total transactions with undisclosed*

## Broader IoT Trends and Key Conference Takeaways

Several key takeaways were gathered from the conference keynotes, panels, and presentations regarding prominent trends and potential considerations within the IoT landscape.

**Connectivity.** The debate continues as to whether licensed or unlicensed spectrum is the preferred connectivity choice for IoT deployments. Factors include security, quality of service, availability, and cost. Connectivity providers supporting a range of deployments such as LoRa, Random Phase Multiple Access (RPMA), and Narrowband IoT (NB-IoT) all made their case. Many speakers speculated that while several of these technologies will have a role in the future of IoT, only one or two technologies will dominate.

**Security.** The need for security across the value chain was addressed in most of the conference panels and presentations. One panelist stated that "security is the biggest chasm that IoT has to cross".

**Data Ownership.** IoT is expected to generate a tremendous amount of data that can be collected, analyzed, and monetized. Auto manufacturers may eventually make more money from the data collected by connected vehicles than they'll make on the car itself. The question of who owns the data will be a gating factor in the success of IoT going forward. Does the car manufacturer, connectivity provider, and / or application provider have rights to the data generated by a driver?

**Data Privacy.** Data privacy regulations, rules, and regulations often vary by country. For example, without a release, personal data collected in Germany must remain in the country. One speaker raised the hypothetical situation involving an English driver operating a connected car licensed in France that drives into Germany.

**Platforms.** IoT "platforms" are proliferating, which makes it difficult for some companies to differentiate themselves. IoT contains little standardization, given the nascent stage of the industry and the rapidly growing number of connected devices. Consequently, several platform providers have emerged to provide a plug-and-play solution. Some of these platforms are horizontal in nature; others target specific verticals.

**Business Models.** IoT is redefining business models and how companies go to market. For example, GE is moving from selling a jet engine to delivering hours of thrust and fuel efficiency for a recurring fee, using predictive analytics to reduce costs and maximize profits. Aviation was identified as an industry well-suited for IoT, with over 15 petabytes of data being generated each day by flights within the U.S. alone.

## Next Steps for IoT

IoT is expected to facilitate the transition to an "outcome economy" in which performance rather than products are sold. Focus will continue to shift to the data generated from connected devices rather than the traditional function and application of the device itself. However, in order to effectively use this data, several hurdles must be overcome relating to connectivity and transmission, standardization, security, data ownership and privacy. As these challenges are addressed, IoT is expected to transform traditional segments such as agriculture, energy, insurance, manufacturing, smart cities, and transportation to become more automated and autonomous, allowing for new revenue opportunities and cost savings.

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Michael Crawford joined Q Advisors in 2005 and leads the firm's IoT practice. He has over 20 years of investment banking and operating experience. During his investment banking career, Michael has executed mergers and acquisitions and raised equity and debt capital through both private placements and public offerings. He has represented companies in a range of industries, and within telecom, media, and technology (TMT) he is focused primarily on data centers, Internet of Things (IoT) and XaaS cloud-based businesses. His past TMT clients include ATN International, Bolo Systems, Kall8, Narus, Switch Communications, and WVT Communications.

Prior to joining Q Advisors, Michael spent five years with Level 3 Communications, a Fortune 500 telecommunications service provider, where he held leadership positions in Corporate/Business Development, Sales Management, and Marketing. Prior to Level 3, Michael was an investment banker with Prudential Securities in New York, as well as with two leading boutique firms in Denver.

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Jordan Rupar joined Q Advisors in 2012 and she is part of the firm's IoT practice. She has executed numerous mergers and acquisitions, equity financings and strategic advisory assignments for clients across the telecom, media, and technology (TMT) industries with a particularly deep focus on cloud communications, software and technology, IoT, and other emerging growth sectors. Specific clients on whose transactions she has been engaged include: ANPI, Arkadin, Broadsmart, Calligo, CallTower, Magnetic North, One Source Networks, Telesphere Networks, UNSi and WennSoft.

### About Q Advisors

Q Advisors LLC (www.qllc.com) is a world-class global boutique investment bank formed in 2001 serving public and private companies, PE firms, entrepreneurs and large multi-nationals in the telecom, media, and technology (TMT) sectors. The firm has extensive, global reach, while also providing the personalized service of a boutique advisory firm. Thanks to our partners and senior staff, who come from leading investment banks and operating companies, we leverage extensive industry knowledge and analytical insights to help our clients achieve successful M&A and capital markets transactions.