

M2M Opportunities in Consumer Markets

A Parks Associates Whitepaper



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Machine-to-machine (M2M) communications—essentially “smart” networked devices talking to each other—are undergoing a period of fundamental change and significant growth.



Traditionally, a few enterprise use cases, such as fleet management and asset tracking, dominated M2M deployments.

IN RECENT YEARS

Declining sensor and chipset costs, along with cheaper network access fees, have expanded the viability of M2M communications to new industry applications.

FOR EXAMPLE, M2M technologies can allow utilities to monitor pipelines in remote locations, while vending companies can monitor machine inventories in real time to plan restocking trips more efficiently. As a result, manufacturers are increasingly embedding a wider range of products with wireless connectivity.

MOBILE OPERATORS AND KEY PLAYERS in industries as diverse as automotive, oil and gas, and healthcare all have a strong interest in pursuing this growing market. And while enterprise solutions will continue to dominate the market for the foreseeable future, M2M deployments are increasingly reaching consumers directly. New consumer-facing applications and business models are emerging in the consumer electronics, connected home, connected car, and wireless health and fitness industries.

Connected Cars

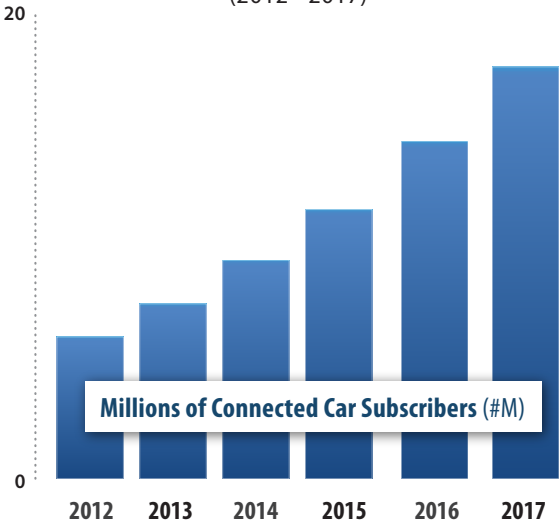
The enterprise telematics industry laid the groundwork early on for today’s connected car market, which itself came to consumers relatively early.

General Motors (GM) has been offering connected vehicle services to its customers through OnStar since 1996.

THE CORE SERVICE FEATURE of connected cars (or “consumer telematics”) is connecting passengers to a live agent in an emergency, and some models include collision sensors that will automatically notify agents via the in-vehicle telematics system. Newer offerings allow drivers to remotely control certain vehicle systems (e.g., A/C, door locks), locate their vehicle, and receive directions.

Not every connected service is enabled by an in-vehicle cellular radio. Many OEMs leverage the connectivity the passenger brings into the car via a mobile phone.

U.S. Connected Car Subscribers
(2012 - 2017)



THERE ARE PROS AND CONS to both approaches, but as this market matures, most OEMs will take a hybrid approach. Embedded cellular radios provide reliable connectivity for the most important use cases such as emergency and roadside assistance, while smartphone-enabled connectivity ensures a steady stream of the latest and greatest consumer apps.

PARKS ASSOCIATES ESTIMATES

PRESENT

16% of U.S. vehicle owners in broadband households have the ability to contact emergency services directly from the car...*a figure that doubles among those owning a car less than three years old.*

60% About 60% of consumers who own a newer vehicle with a built-in display can access apps related to maps and directions...*and 40% can access the Internet & music apps.*

The connected car space will continue to see compelling growth going forward.

45% of all new cars rolling off the line in the U.S. in 2017 will have embedded cellular modules.

17M Seventeen million consumers will subscribe to cellular-enabled connected car services by 2017.

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FUTURE

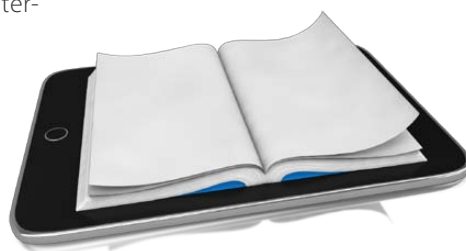
M2M in Connected CE Devices

Multiple device categories, including smartphones, gaming consoles, e-book readers, and even digital cameras, have some form of embedded wireless connectivity.

The growing connected consumer device ecosystem presents operators with distinct opportunities to generate new revenues.

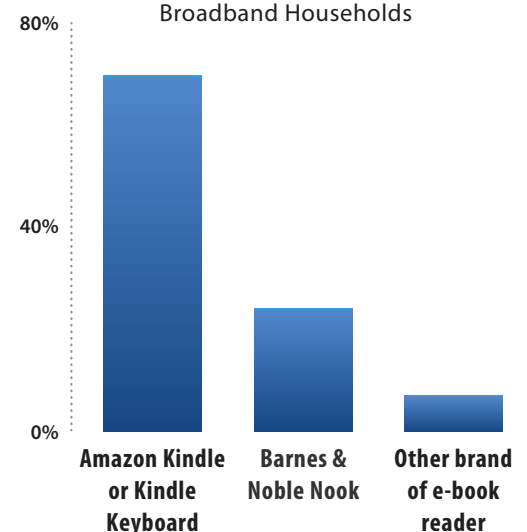
Cellular-embedded CE devices could result in increased mobile network access revenues and even VAS revenues.

Yet MNOs (mobile network operators) are already facing a network crunch due to booming mobile data consumption, and they are increasingly dependent on alternative wireless communication technologies such as Wi-Fi to handle data offload.



E-Reader Brand Adoption

Device Owners in U.S.
Broadband Households



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Three different models, which leverage cellular-embedded CE devices on market, highlight the opportunities and risks of entering the connected CE space with an M2M solution.

IN THE FIRST MODEL, MNOs can support connected CE from a B2B2C approach, typical of the M2M market.

Rather than selling mobile data plans for CE devices with embedded cellular modems directly to consumers, carriers can instead sell network access, along with the services surrounding the M2M deployment, to device manufacturers.

For device manufacturers, this model can differentiate a product and extend device functionality to include anytime/anywhere connectivity along with connectivity-enabled services. Instead of charging consumers directly for mobile broadband connectivity, CE OEMs can bundle connectivity fees into the price of the device.

Amazon established this model with the success of its Kindle e-readers. Specifically, the 3G Kindle models connect across AT&T's network so that consumers can download content without worrying about the availability or price of an Internet connection.

As of 3Q 2012 the Kindle is the **top-selling e-reading device** in the U.S. with **ONE in FIVE** U.S. broadband households—or an estimated **19 MILLION households—owning at least one Kindle.**

But this model has limited applicability to other CE devices. The Kindle model works for Amazon because the amount of data used is relatively low and data downloads occur intermittently.

IN THE SECOND MODEL, embedded personal navigation devices (PND) provide a variation of the B2B2C approach.

Operators sell network access to PND manufacturers in a typical M2M model, but the OEM then charges consumers for the data usage. For operators, this is a traditional M2M play and an opportunity to monetize unused network resources.

IN THE THIRD MODEL, MNOs monetize mobile data consumption on mobile devices by charging consumers directly.

Typically, MNOs offer connected CE device data plans without contracts, using instead a pre-paid offering (Sony PlayStation Vita, Apple iPad) or billing usage rates to an account (Apple iPad, Samsung's 4G Galaxy Camera), with data fees ranging from \$5 to \$80.

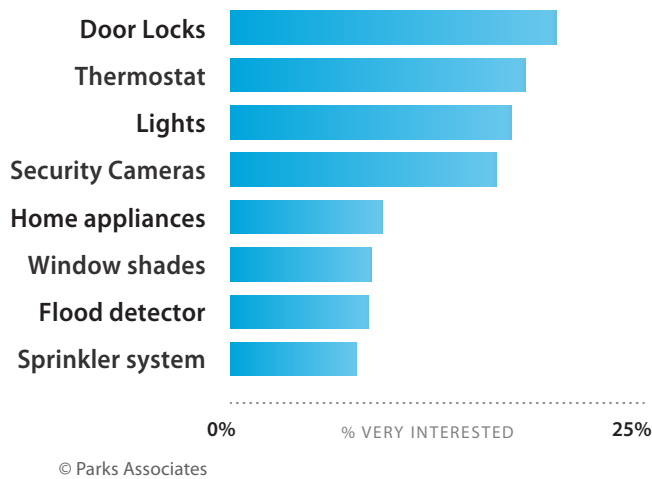
The Connected Home Space

Consumers' desire for anytime/anywhere connectivity, along with the exclusive availability of certain premium content and device features online, is driving the embedded CE market and spreading to other areas, especially in the connected home space, which will be an important and potentially very valuable segment.

Interest in home appliances with monitoring capabilities is also growing. Consumers recognize the appeal of an air conditioner with monitoring capabilities in order to control energy costs. Lights and other household white goods also score high for consumer interest in monitoring capabilities.

Interest in Mobile Home-Control Apps

U.S. Broadband Households without a Home Control System



Parks Associates data show that **ONE IN FIVE** consumers who do not currently have a home control system are **very interested** in the ability to monitor or control the door locks on their primary home from a mobile phone, and **18% would like** to remotely control their thermostat.

In the North American market, operators with fixed-line businesses are leveraging their footprint to offer connected home systems using short-range wireless solutions and IP-connected gateway devices (e.g., Verizon Home Monitoring and Control, AT&T Digital Home). As MNOs look to their future involvement in the connected home, especially operators without a fixed-line play, they will experiment with ways to encourage uptake of cellular-embedded connected home devices.

M2M Health Market Drivers

In the healthcare industry, M2M connectivity offers a variety of benefits, from improved care to lower costs to more efficient services.

Parks Associates believes that the **aging-in-place market and home-based diagnostic & monitoring market** represent the **TWO BIGGEST opportunities** for carriers in the consumer M2M health space.

TWO DISTINCT TRENDS ARE DRIVING THESE OPPORTUNITIES:

PEOPLE ARE LIVING LONGER but not necessarily healthier. The aging population is a global phenomenon affecting the U.S., Western Europe, and Japan, among others. Incidences of chronic conditions are high in most developed countries and on the rise in major developing nations, such as China, due to changing lifestyles (e.g., high-calorie diet, stress, sedentary jobs) and increasing environmental hazards (e.g., pollution, poor air quality). The consumer desire to age at home drives demand for intelligent sensor systems that enable at-home self-care.

RIISING HEALTHCARE COSTS ARE PUSHING CARE DELIVERY to cheaper alternatives that are also patient-centric and convenient to access. Use of telehealth solutions and services will consequently increase and help drive demand for connected medical devices for diagnosis and monitoring.

Caregivers IN PARTICULAR **SHOW SOLID INTEREST** in paying for home health monitoring technologies.

PARKS ASSOCIATES ESTIMATES THAT **18 MILLION** households in the U.S. have at least one caregiver looking after at least one patient or an aging parent.

OVER ONE-THIRD of these 18 million households are willing to pay for a fall-detection solution, and over one in four would pay for a telehealth service or a location-tracking service.

While not all solutions will include M2M connectivity, *some market segments*—like the personal emergency response systems (PERS) market—*are leading the way*.

OVER THE PAST 18 MONTHS, EMBEDDED CONNECTIVITY FOR PERS SOLUTIONS IN THE U.S. HAS RAPIDLY INCREASED.

Most PERS product vendors and service providers currently offer, or will develop in the near future, cellular-connected PERS products.

These providers are leveraging cellular capability in PERS base stations to widen the market to households that have ditched landlines. Additionally, integrating cellular modules inside the PERS panic button extends its range from in-home only to anywhere/anytime coverage.

Although still a relatively small market (*fewer than 400,000 cellular-enabled units will ship in 2016*), it will enjoy high growth in the near term.

Parks Associates estimates more than

61% of the new PERS products shipped in 2017 in the U.S. will feature cellular M2M connectivity

—*compared to only 15% in 2012.*

Digital Health Deployment Strategies

To drive growth in M2M health services, leading carriers in North America, Europe, and Asia-Pacific have dedicated sales teams to this sector, targeting hospital CIOs, durable medical equipment (DME) departments of large health organizations, medical device manufacturers, and leaders of health service organizations ranging from hospital ICUs to assisted-living facilities.

WITHIN THE HEALTHCARE SECTOR, Parks Associates divides M2M applications into two major categories:

- **Patient-centric M2M applications** enable devices and services that directly benefit a patient's health and safety needs
- **Business-centric M2M applications** improve business functions for healthcare providers



Most carriers are pursuing opportunities in both categories, but overall they have allocated more sales resources to the patient-centric M2M market. Patient-centric M2M solutions have higher volume potential with better margins from high-value applications than business-centric solutions, but they also pose a higher liability risk and are subject to more regulatory red tape.

Within the patient-centric market, wireless healthcare solutions can be segmented into wellness and fitness applications, which are typically marketed directly to the consumer, and medical applications, which are more likely to be reimbursed by insurers and government healthcare programs.

Market Outlook and Growth Areas

The connected car space provides the most compelling areas of M2M growth for mobile carriers.

All major auto manufacturers design vehicles for global markets, so factors such as the push for eCall integration in the EU will likely drive cellular module integration in other markets as well. MNOs are in a good position to leverage their established relationships with module manufacturers, app developers, and consumers to provide auto OEMs with valuable integration services, thereby generating service revenues on top of network access fees.

FOR CONNECTED CE, these devices tend to consume too much mobile data to be successful on an M2M model.

The Kindle success story is unique, and OEMs are more likely to leverage the PND model, where consumers pay the OEM for access to connected services. At the same time, connected CE with embedded cellular connectivity are facing heavy competition from smartphones and tablets, so cellular-connected CE as a top M2M growth area in the near term is unlikely. Similarly, the connected home for now will continue to be a mix of different technologies, including Wi-Fi, Z-Wave, and ZigBee along with a minority of cellular-embedded solutions.

THE M2M OPPORTUNITY in the consumer health market requires patience and focus from mobile operators.

The space is in transition, with new players such as CardioNet, Vitality, and IDEAL LIFE challenging established market leaders like Philips, Medtronic, and Linear, but these health business clients value cellular coverage and quality of service. They need a network operator that can cover patients living in rural areas, provide strong connections for timely reporting, and ensure network reliability in life-or-death situations. These considerations and requirements will be the keys for mobile carriers in winning customers in the health space.

The steady growth in the overall M2M market over the past decade has piqued the interest of mobile network operators.

Operators participated in the early development of the M2M market primarily by wholesaling network access to other specialized network providers, but now operators see M2M as a way to diversify their revenues and provide valuable business services to large enterprise clients.

MANY TIER 1 OPERATORS are building out their internal M2M businesses and seeking strategic partnerships with M2M vendors. This increased attention from operators will benefit all M2M players as the market gets a boost from operators' resources, scale, and marketing power.



ABOUT THE AUTHORS



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Jennifer Kent is part of the Digital Health and Mobile Product research team. She studies mobile industry trends including wireless carrier strategies, next-generation networking, and mobile consumer devices. Her digital health research focuses on digital health records and devices, fitness and wellness applications, and mobile healthcare trends. Since joining Parks Associates in 2009, Jennifer has also worked on the consumer research team, analyzing consumer data related to various areas of the digital home and consumer electronics industries.

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INDUSTRY EXPERTISE: Digital Health Products and Services, Portable and Mobile Access Platforms and Applications



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INDUSTRY EXPERTISE: Digital Health Products and Services, Portable and Mobile Access Platforms and Applications, Digital Imaging Products and Services

ABOUT PARKS ASSOCIATES



Parks Associates is an internationally recognized market research and consulting company specializing in emerging consumer technology products and services. Founded in 1986, Parks Associates creates research capital for companies ranging from Fortune 500 to small start-ups through market reports, primary studies, consumer research, custom research, workshops, executive conferences, and annual service subscriptions.

The company's expertise includes new media, digital entertainment and gaming, home networks, Internet and television services, digital health, mobile applications and services, consumer electronics, energy management, and home control systems and security.

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ATTRIBUTION

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