

Can The ICT “Arms Merchants” Come To Terms With The Internet of Things & People?

While the “Internet of Things” represents a market of vast potential, technology suppliers must be aware of the current industry dynamics if they are to successfully seize the opportunity. The leading IT and network “arms merchants” will all play important roles in the further evolution of information and communications technology and Smart Systems development but how will these players fair as the worlds of IT and communications technologies (ICT) continue to converge into a unified delivery platform? And how will they come to grips with “life on the edge” ... The Internet of Sensors, Things and People?

As companies have awakened to the increasing interdependence of business and ICT, they are building capabilities to integrate all their assets with their enterprise systems in a much broader business and technology context. In the not too distant future, hundreds of millions, then billions, of smart communicating devices, will stretch the boundaries of today’s business and social systems, and create the potential to change the way we work, learn, entertain and innovate. Peer-to-peer information and network integration are combining to create new modes of collaboration and value creation. People, information, and technology are becoming more connected, distributed and pervasive, thus enabling the convergence of physical and virtual worlds. Information and communications technology will integrate knowledge, people and things into systems that enable awareness, creativity, better decision making, and, ultimately, higher value solutions.

Although companies will continue to invest in IT equipment and communications technolo-

gies, they will increasingly do so in the context of Smart Services. Customers will increasingly rely on external application services providers to facilitate the respective solutions based on their superior shared service delivery architectures as well as their partnerships with other technology infrastructure suppliers. As a result, we will see the emergence of a new Smart Systems and Services-centric ecosystems where large service providers act as aggregators and deliverers of applications and infrastructure services.

But for the big ICT players this whole discussion is really only about infrastructure. While the ICT community may understand infrastructure they do not understand life at the edge of the network – where sensors, devices, and algorithms are literally becoming incorporated, along with the Internet, into physical infrastructure, making something like a “smart building” or a “smart grid” much easier to contemplate than ever before. The building or the substation is literally on the Internet and the Internet is in the very matter of the physical thing.

The Internet has driven a migration towards capabilities and resources that are shared between and among devices, processes, people and smarter systems. Integrated information and communications, particularly as the world evolves toward highly distributed smarter systems, represents both a significant threat and opportunity for traditional ICT suppliers. Smart networked highly distributed systems will change everything. Much like the neurons of the brain, or ants in an anthill, or human beings in a society, as well as information devices connected to each other, the many “nodes”

of a network may not be very “smart” in themselves, but if they are networked in a way that allows them to connect effortlessly and interoperate seamlessly, they begin to give rise to smart, complex, system-wide intelligence. That is, an entirely new order of “intelligence” emerges from the system as a whole—an intelligence that could not have been predicted by looking at any of the nodes individually -- it happens only if the network’s nodes are free to share information.

The realization of truly Smart Systems and Services will involve billions upon billions of smart network nodes that ultimately “take on a life of their own.” Our present-day conception of “intelligent devices” and ICT does not allow for that. Making everyday objects connect and interoperate with Smart Systems and computing infrastructure is not the core competency of the ICT players.

Many IT equipment suppliers and wireless carriers have made recent pronouncements concerning the scale of the Internet of Things and People. There are many significant challenges in realizing such growth:

- Challenges in adopting new business models and making the business case to support investments.
- Complex services and solution delivery ecosystems that require businesses to relate in new and different ways.
- Anticipation of new product, service and systems innovation modes that are not widely adopted today.
- Requirement for vertically-focused solutions from a supply-side world that historically has been far more horizontally driven.
- Poor alignment between and among IT, Telco, and emerging “specialist” Smart Systems suppliers.

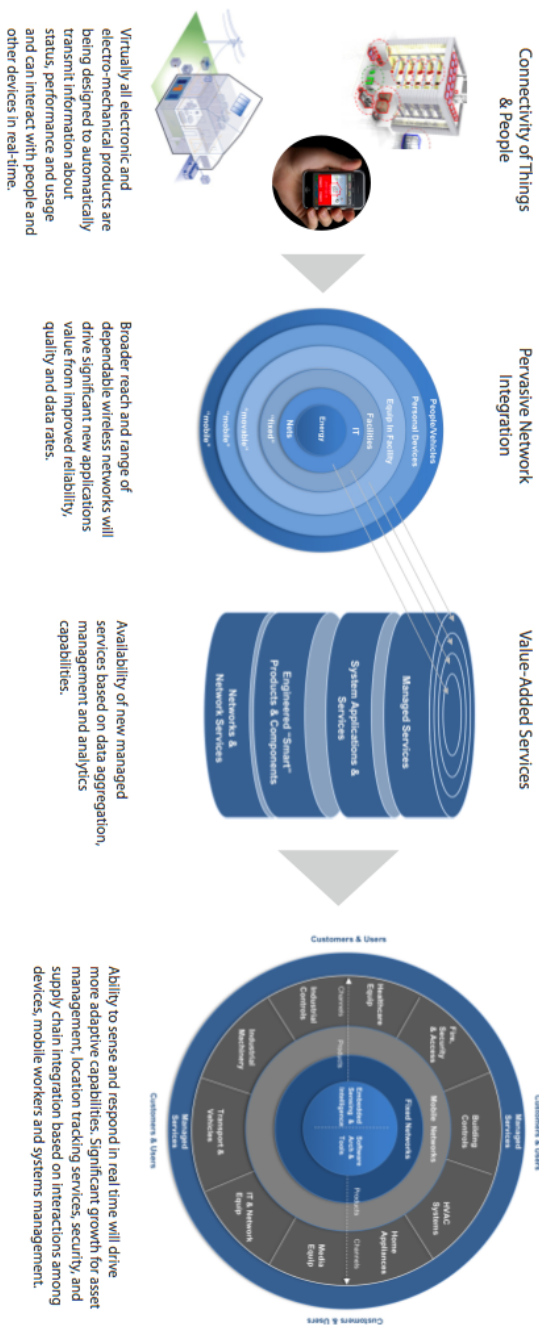
Though the modes of the IT and network services are intermingling today, they have historically operated within well-established business models that reflected the distinctive competencies that each group believed to be at its core. The advent of Smart Systems is causing a blurring between these legacy business models forcing major suppliers to re-think their roles.

There is increasing evidence that large IT and Telco players will create new roles in evolving ecosystems as part of teams of suppliers that deliver Smart Services, but they must contemplate the threat of current revenues shrinking and shifting away to new Smart Systems and Services providers and the opportunity to develop new and different business models to capture the shifting value.

Integrating Smart Systems & ICT

The Evolving Internet of People & Things.....

These forces are informing a new trend we call "Smart Systems." In its simplest form, Smart Systems is a concept in which inputs—from machines, people, video streams, maps, newsfeeds, sensors, and more—is digitized and placed onto networks. These inputs are integrated into systems that connect people, devices, business processes, and content to enable collective awareness.



Virtually all electronic and electro-mechanical products are being designed to automatically transmit information about status, performance and usage and can interact with people and other devices in real-time.

Broader reach and range of dependable wireless networks will drive significant new applications value from improved reliability, quality and data rates.

Availability of new managed services based on data aggregation, management and analytics capabilities.

Ability to sense and respond in real time will drive more adaptive capabilities. Significant growth for asset management, location tracking services, security, and supply chain integration based on interactions among devices, mobile workers and systems management.

Integrating Smart Systems & ICT



As The Physical & Virtual Worlds Converge, Connectivity & Integration Will Become Universal As Components, Platforms & Systems Become Ever More Standardized, Open and Collaborative ...

As networks have invaded the "physical" world, traditionally unique components and interfaces between and among electronic as well as mechanical elements are becoming more and more standardized.

The implications of these trends are enormous. No product development organization or its suppliers of componentry and sub-systems will be able to ignore these forces -- product and service design will increasingly be influenced by common components and sub-systems. Vertically defined, stand-alone products and application markets will increasingly become a part of a larger "horizontal" set of standards for hardware, software and communications.

As it becomes easier and easier to design and develop smart systems, competitive differentiation will shift away from unique, vertically focused product features towards how the product is actually used and how the product fosters interactions between and among users in a networked context.

The opportunities this opens up to forward thinking product and service organizations are nearly infinite. Businesses can begin to explore many new possibilities for system solutions unthinkable just a few years ago.

