



Smart Systems Evolution

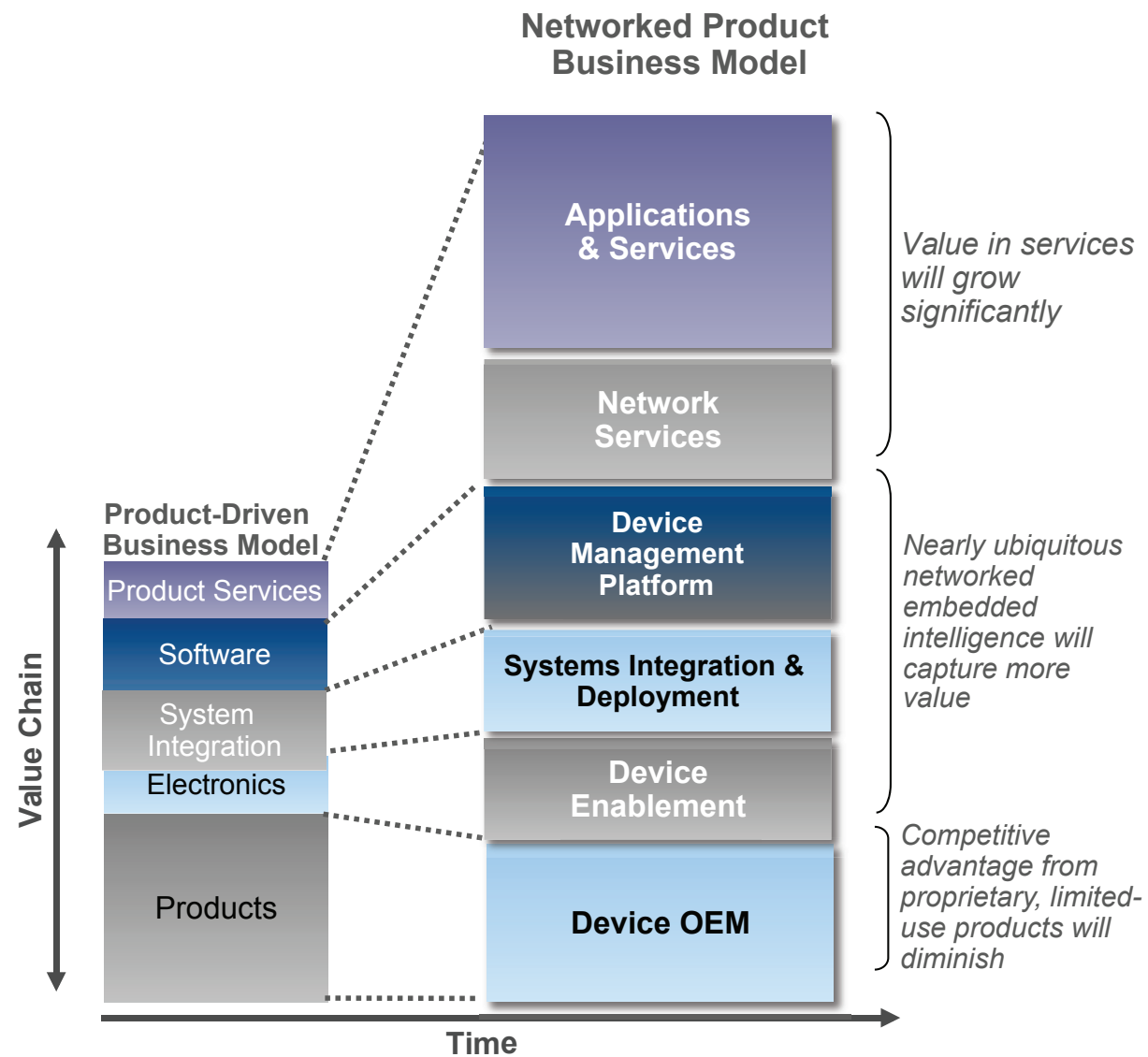
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# Connected Devices, Equipment & Systems Will Drive Significant Smart Services Opportunities For A Broad Range Of Players .....

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.

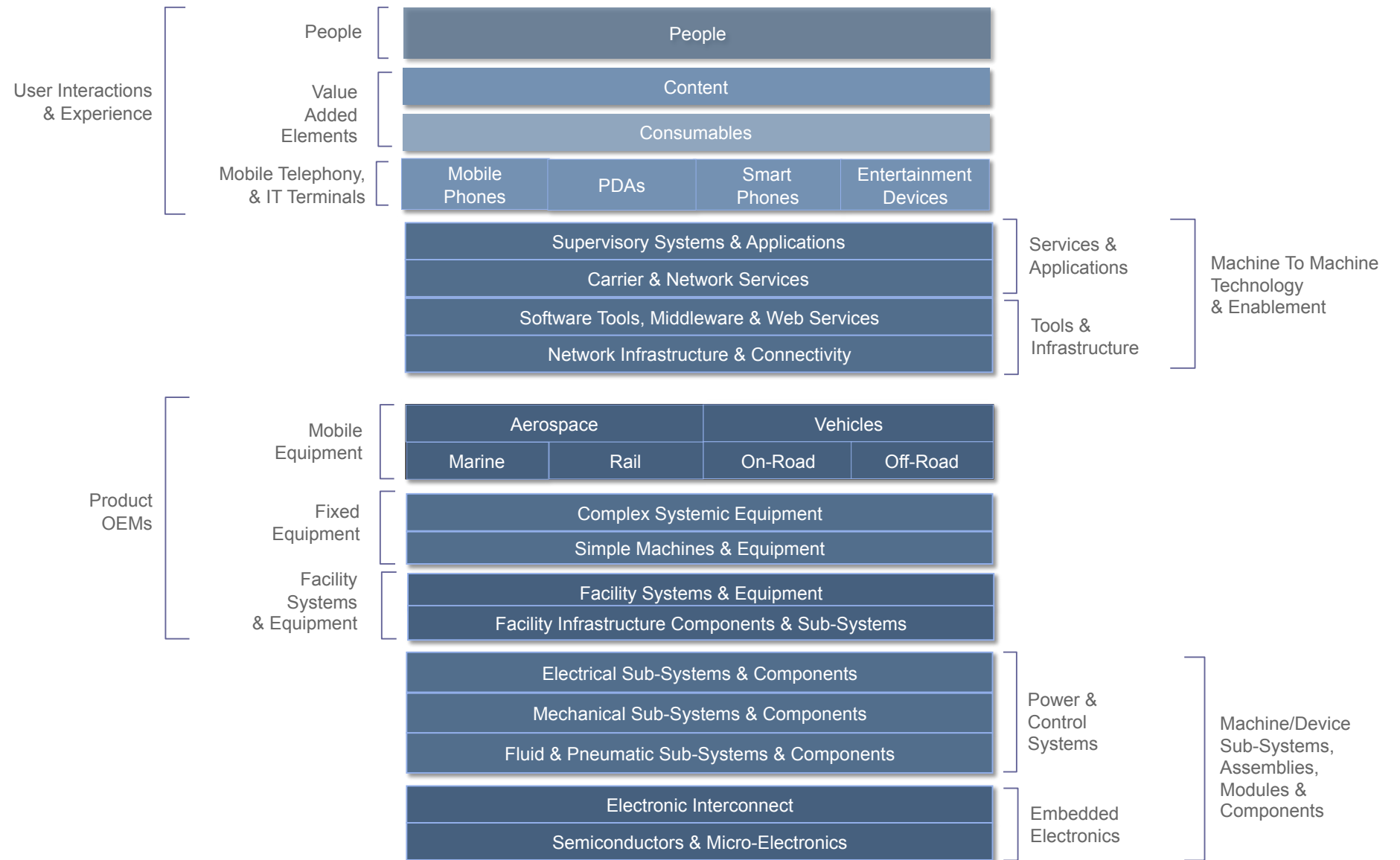


Smart Systems repositions the whole relationship of people and devices [the real world] to business systems. They must be built upon across-the-board digital automation, accomplished by enabling intelligent devices to communicate with and control each other, along with a whole new generation of information tools for managing rich, vast streams of meaningful data. The goal is to network smart devices into systems that are self-sensing, self-controlling, and self-optimizing—automatically, without human intervention.

# 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 Emergence of Smart Systems & Businesses.....

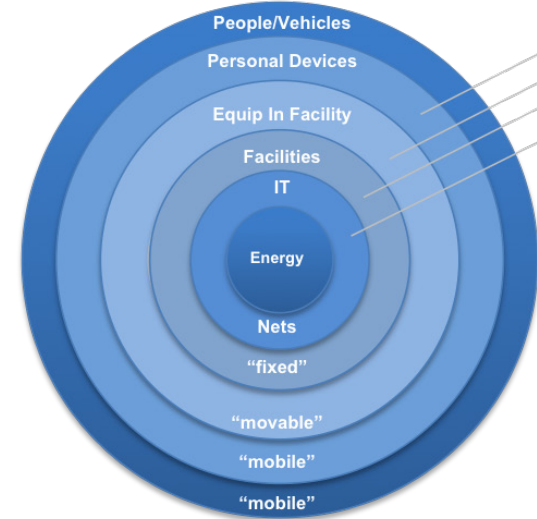
These forces are informing a new trend we call "Smart Business." In its simplest form, Smart Business is a concept in which inputs—from machines, people, video streams, maps, newsfeeds, sensors, and more—is digitized and placed onto networks. These inputs are integrated into systems that connect people,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

Connectivity of Things & People



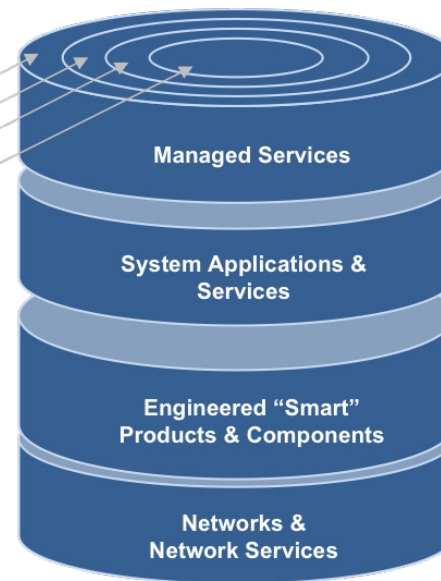
Virtually all electronic and electro-mechanical products are being designed to automatically transmit information about status, performance and usage and can interact with people and other devices in real-time.

Pervasive Network Integration



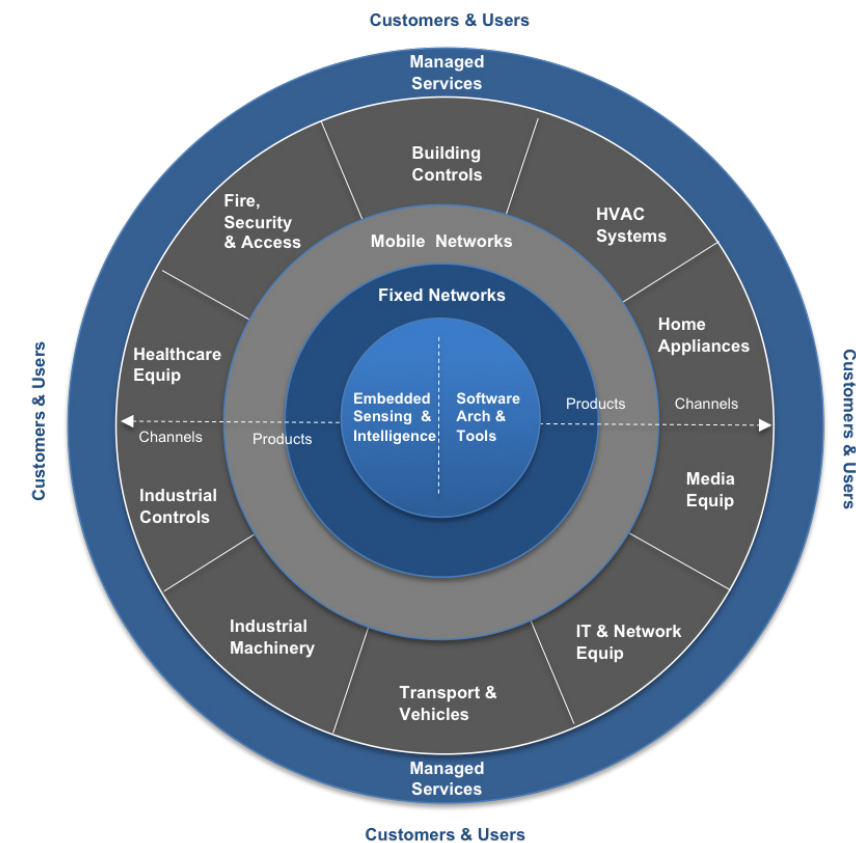
Broader reach and range of dependable wireless networks will drive significant new applications value from improved reliability, quality and data rates.

Value-Added Services



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

New Application Values



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.

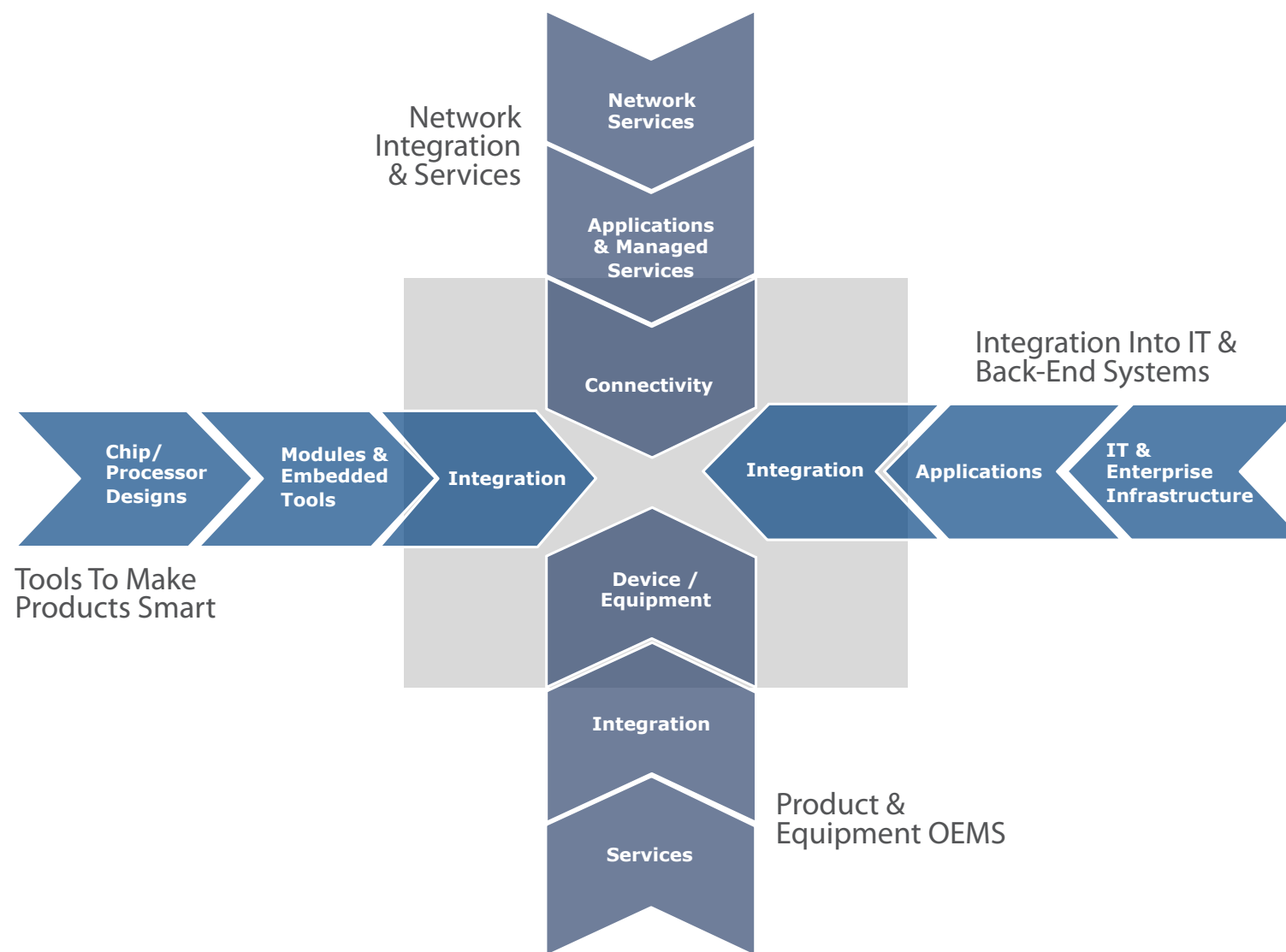
## How Will Players Align Themselves To Better Deliver New Smart Systems & Solutions?

The Convergence of Real-World Systems With IT & Networks Is Not Well Supported Today -- Key Players Are Not Aligned To Realize The Full Value Of A Connected World

The Smart Business phenomena is giving rise to a whole new generation of technology and services enabling players who are linking users, producers and intermediary channels in new ways which, in turn, is creating many opportunities to offer customers new "managed experiences." This ultimately allows the service provider to create and bundle new values.

Relatively few traditional product companies have succeeded in really designing and delivering fully integrated, networked solutions. They are missing the opportunity to create a new model of success. These evolving combinations of players are acting in a truly disrupting manner in the marketplace. Traditional B2B markets will likely be radically re-structured

Value Chains For Integrated Smart Systems Are Still Evolving



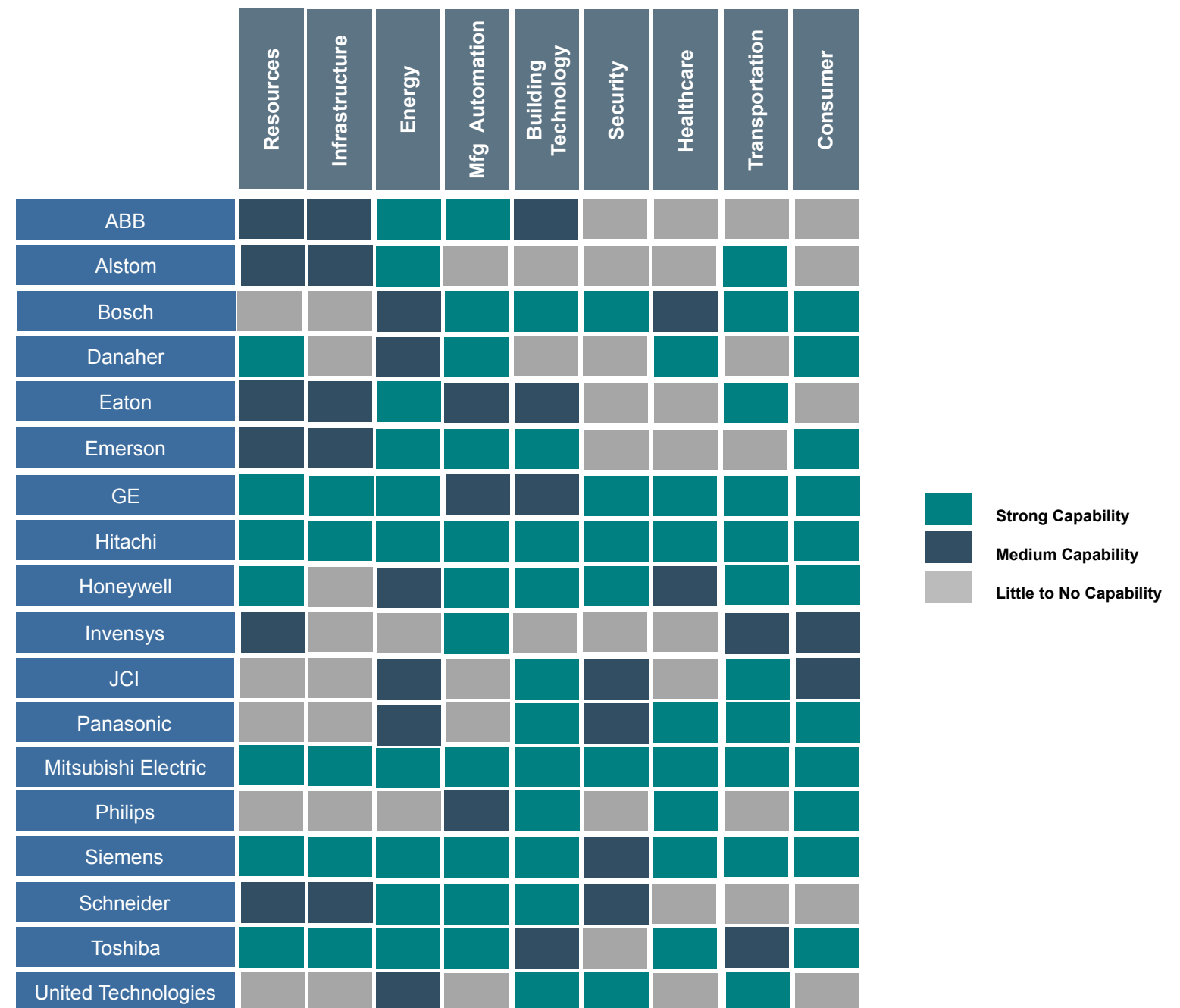
# How Will This Impact Traditional Diversified Manufacturers ..... How Will Their Roles Evolve?

In the emerging complex world of smart systems, there is no vendor that has established a clear leadership position.

The "Internet of Things" represents a market of vast potential for technology suppliers (players providing silicon, network connectivity/services, IT back-ends, etc.), but what about the community of diversified manufacturers and solutions providers? How will the manufacturers of the assets and equipment align themselves with the Smart Systems opportunity as it develops

Players like GE, Siemens, Bosch, ABB, Hitachi and Emerson are using their strengths in key verticals to expand into Smart Systems. They already have equipment and systems in our buildings, vehicles, factories, offices, and homes. They have also created software and services that run and automate these complex environments. Ultimately they could be the community best positioned to break ahead of the pack, if they don't become their own worst enemies that is.

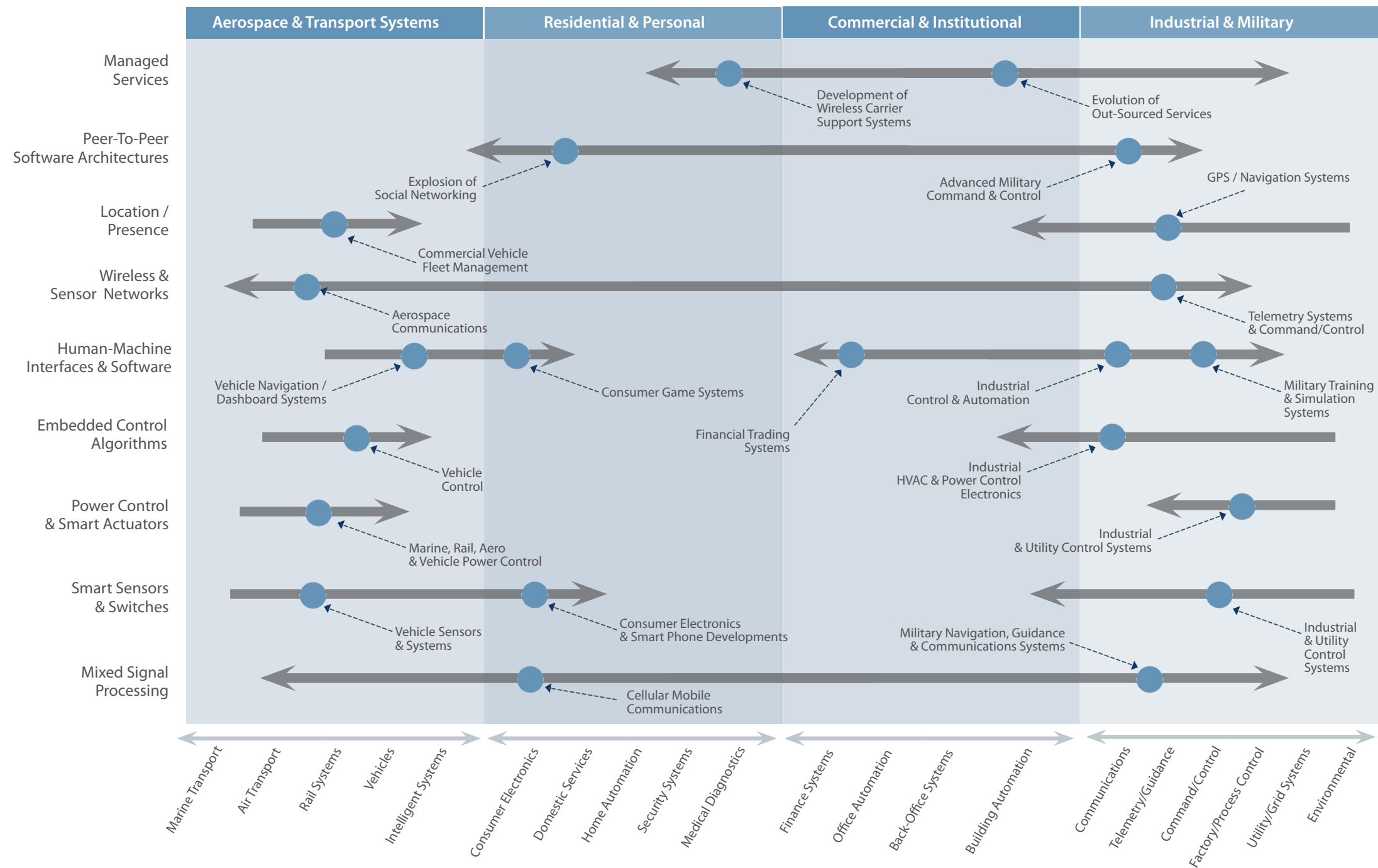
Industry Coverage For Large Diversified Product & Services Players



# Large Diversified Players Have The Potential To Drive Core Innovation More Fluidly Across Sectors, Applications & Platforms Creating Entirely New Growth Opportunities ....

The marketplace is converging into a vast unified technology architecture to support networking and collaboration based on common digital building blocks and standards for software and communications

Technologies & Innovation Driving The Internet of Things & People

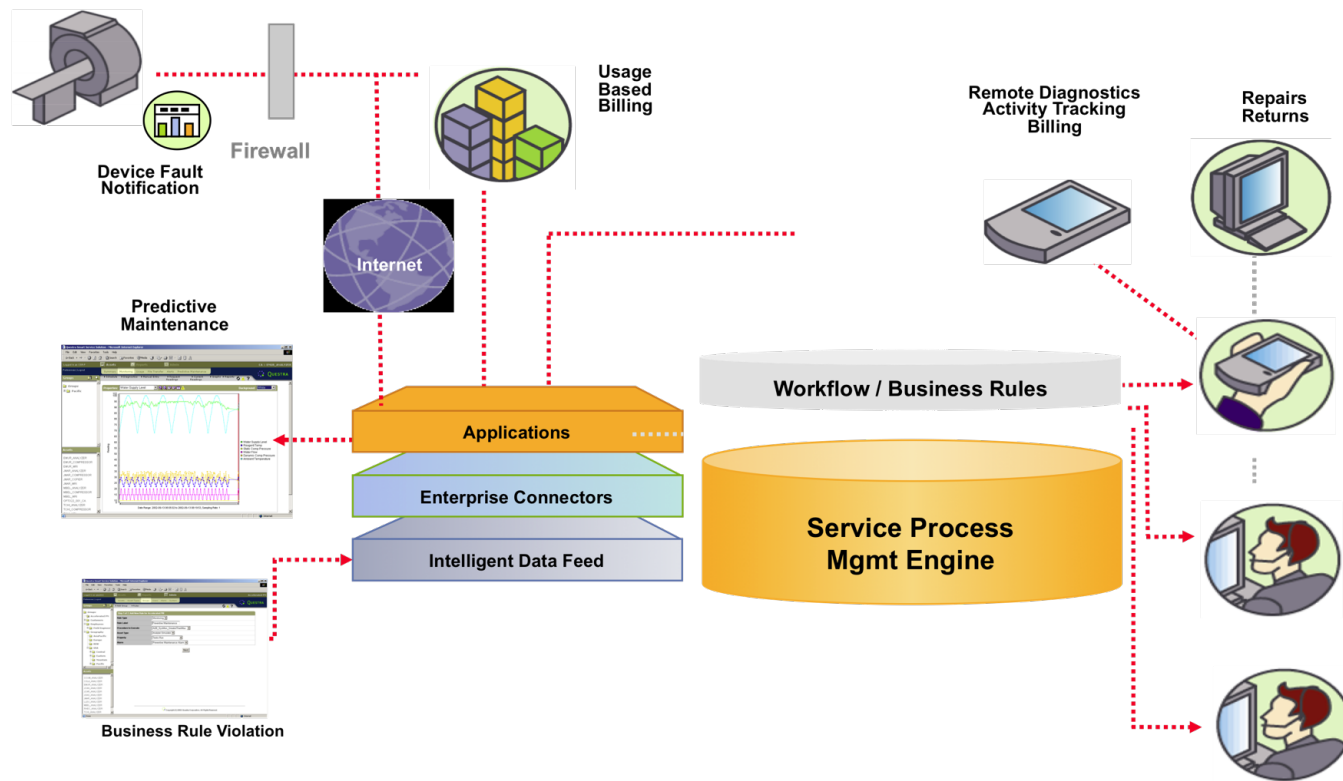


# Revolutionary New Systems & User Experiences Will Emerge If Players Re-Think Their Approaches

We believe smart systems and business design needs to transcend discrete product or service innovation. Assuming that the role of design is only about making existing products or services more attractive no longer works. Business designers need to creatively imagine fully developed systems and whole marketplaces. Companies need to envision the design role as one that can address product, service and business systems in a world of infinitely expanding interactions and relationships.

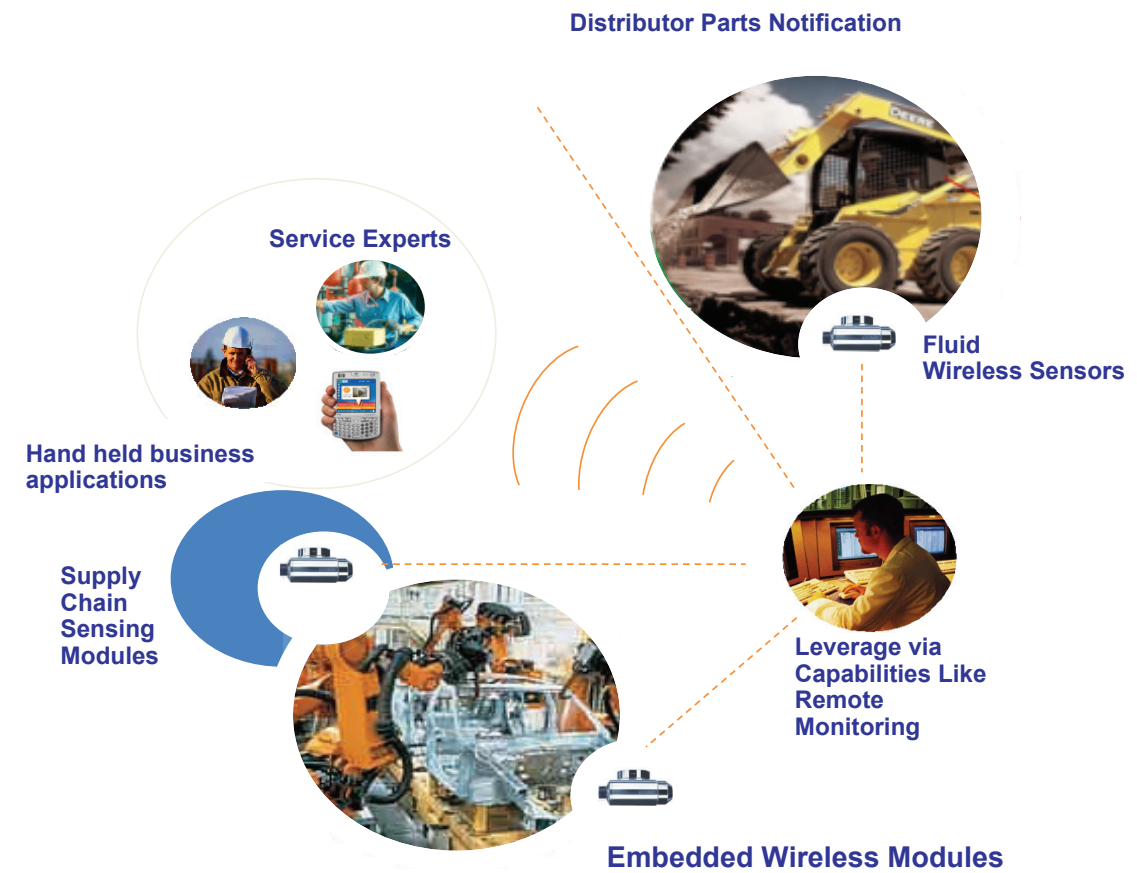
## Health & Well Being

As the world grows more connected, healthcare challenges will continue to rise - the intersection of health & lifestyle forces will create vast new opportunities.



## Industrial Asset & Supply Chain Management

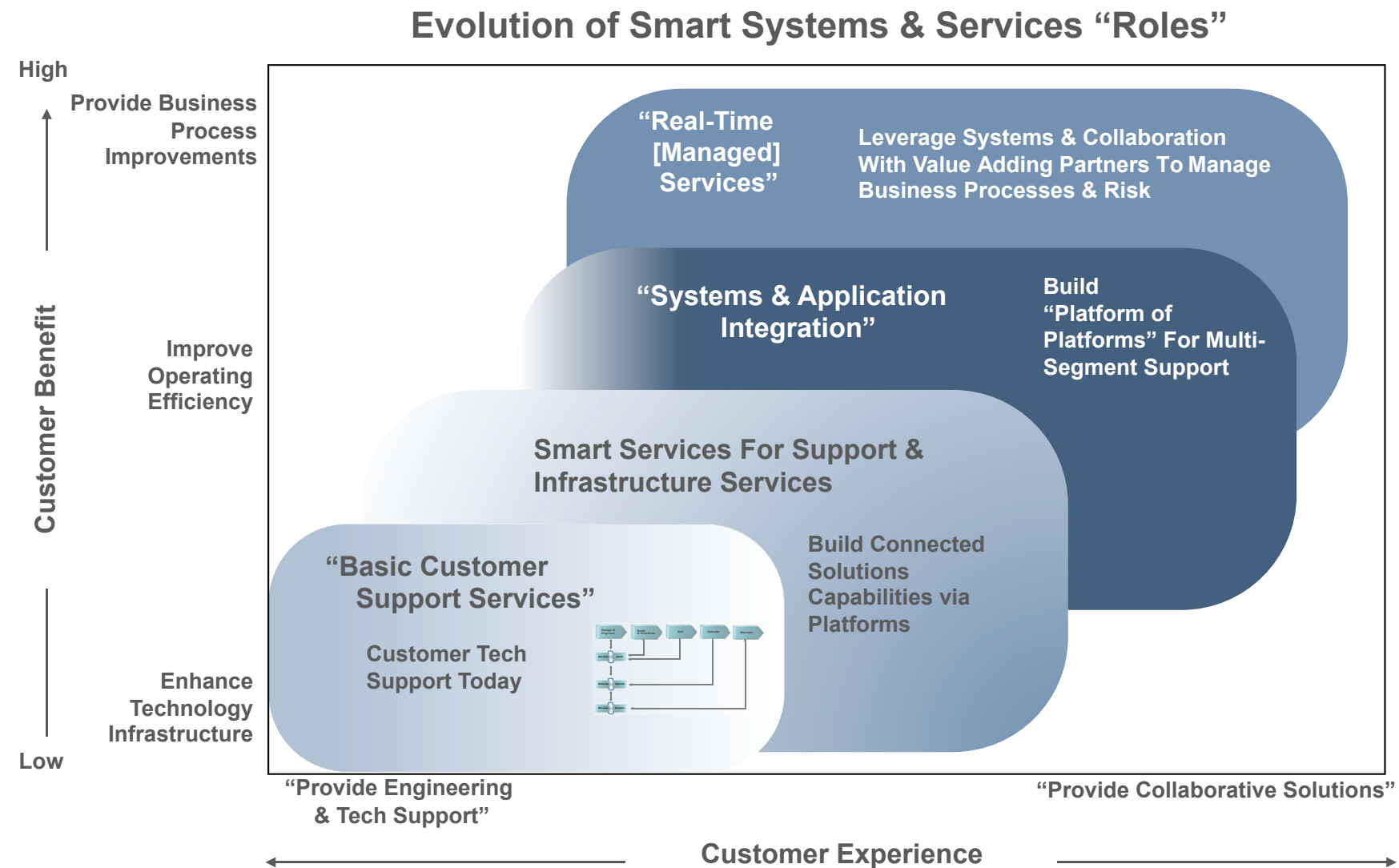
Peer-to-peer info and network integration are combining to create new modes of collaboration and value creation for traditional businesses.



## Players That “Sensor Up The World” Will Have A Huge Competitive Advantage

Focusing on leveraging installed equipment services to support expansion into a broader scope of customer systems and process management, as well as the ability to bundle life-cycle services, capital financing, and equipment, provides a stage upon which the real long-term gains driven by Smart Systems can be realized.

If you look at the amount of money that businesses spend on these problems, or could save with better solutions, you see that there are far more dollars available in Smart Services than in the merely product-based activities of yesterday. This opportunity is far more significant than just capturing more of the [or protecting] installed equipment services and aftermarket parts revenues. Incalculable value will flow from integrating many real-world assets and facilitating monitoring, control, and systems intelligence.

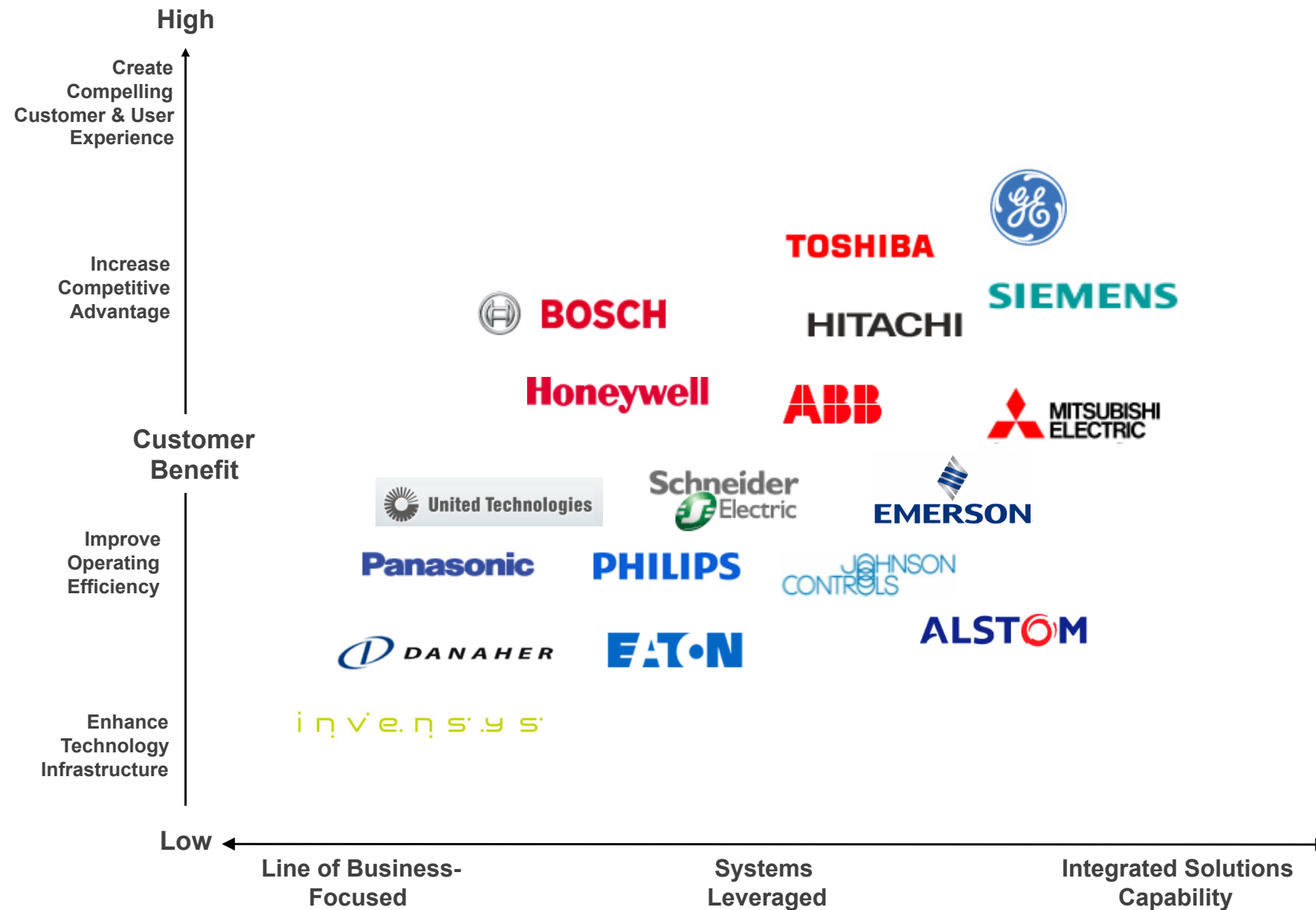


# But How Far Have The Diversified Players Really Come On Their Road To Smart Systems & Services?

It's clear that there are certain players who get this more than others .....

Many people inside these companies get this; but many more haven't yet assimilated the entire picture. These companies are large bureaucracies founded on focused products addressing focused markets. The era of Smart Systems will cut across traditional product P&L and market boundaries like a machete. If the major diversified, industrial behemoths don't see the implications of this soon, a new category of player may emerge to fill the crucial role.

Progress Towards Fully Integrated Smart Systems & Solutions

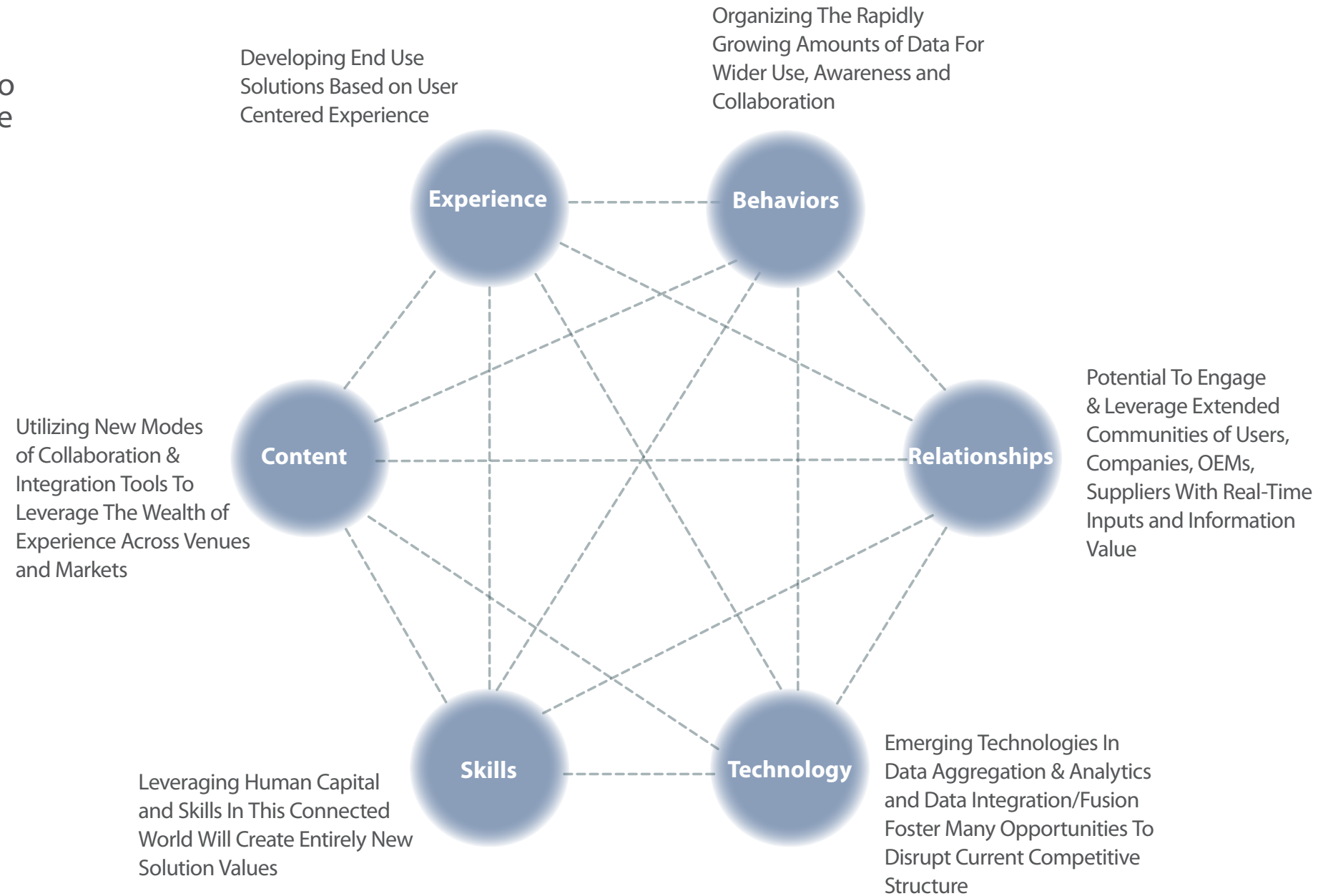


## A New Frame Of Reference Is Required ..... How Do We Connect The Dots?

The solutions we are describing here have no managerial hierarchy, command and control decision making or proprietary ownership of ideas.

These networks will be self-organized by people who are motivated to explore and develop ideas they care deeply about. Collaborative innovation will extend beyond ideas about new products and services to the very manner in which business is conducted.

To discover, design and develop innovative systems, organizations must consider all the elements involved and the context they fit into.



## Forcing Organizations To Think And Act Differently About Creating New Growth

In many organizations the ability to grow organically has been reduced to appearances rather than accomplishments. We believe this climate discourages people from risking any new ideas. Over time, these behaviors have become so inhibiting that in order to change many organizations will need to think and act very differently.

### SYSTEM DESIGN

We believe design needs to transcend discrete product or service innovation. Assuming that the role of design is only about making existing products or services more attractive no longer works. Business designers need to creatively imagine fully developed systems and whole marketplaces. Companies need to envision the design role as one that can address product, service and business systems.

### RELATIONSHIPS

Problem solving for new systems opportunities must address tough questions: how can an organization turns its workers, partners, and customers into believers and contributors? How can we make changes that can impact multiple functions and organizations and ultimately solve really big problems or create unique new offerings? We are firm believers in the human element - the community as a manifestation of the system and visa versa. Behaviors of users, customers, teams, functions, leadership, all need to be considered. Understanding empathy, participation, motivations - putting human sensibilities and behaviors at the center of the solution is key.

### INNOVATION ASSETS

Companies need to move beyond a conventional orientation to assets to a view of assets in the context of new growth initiatives. Organizations need a disciplined process focused on optimizing all tangible and intangible assets including people and competencies, brands and positioning, technologies and intellectual property, alliances and relationships, and manufacturing and distribution capacities. The level of innovation investment required for success usually includes significant collaborative and/or coordinated investments across a wide range of internal functions (R&D, Sales & Marketing, Manufacturing, etc.) and by a variety of external partners up and down the value chain.

