

Influential Article Review - Unlimited Possibilities for Business and Society With the Internet

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This paper examines business opportunities through the internet. We present insights from a highly influential paper. Here are the highlights from this paper: The World Wide Web created a connection from computers to networks. The next evolution that followed connected people to the Internet and to other people. The Internet of Things (IoT) is emerging as the third wave in the development of the Internet. IoT interconnects devices, people, environments, virtual objects, and machines. IoT is expected to revolutionize and change the way all businesses, governments, and consumers interact with the physical world. In the exploding world of IoT, there is much to learn and an overwhelming amount of research to be done. The objective of this paper is to go beyond the hype and explore basic issues related to IoT technology, including its promises as well as its pitfalls. This study discusses potential strategic benefits of this technology as well as its risks and limitations. It highlights its evolving technologies and trends and their impact on the world of tomorrow. Also, it reviews IoT's potential economic impact and explores many factors that may contribute to its successful adoption and deployment. Finally, this study explores IoT's potential application in various industries. For our overseas readers, we then present the insights from this paper in Spanish, French, Portuguese, and German.

Keywords: strategic innovation, sustainability, business, Internet of Things, World Wide Web, society

SUMMARY

- **Sensor, Connectivity and Network Layer** - This layer is at the very bottom of IoT architecture and has sensors, RFID tags and connectivity network which collects information. The RFID tags or barcode reader and sensors are wireless devices and are essential part of an IoT system and are responsible for collecting raw data. They form the essential «things» of an IoT system. Sensors are active in nature and are collecting and processing real-time information. This layer also has the network connectivity, like WAN, PAN etc., which is responsible for communicating the raw data to the next layers.
- **Gateway and Network Layer** – This layer is consist of the gateway which is comprised of embedded OS, Signal Processors, Micro-Controllers, and the Gateway Networks which are LAN, WAN, etc. The responsibility of Gateways are routing the data coming from the sensor, connectivity and

network layer and pass it to the next layer which is the Management Service Layer. Sensors and tags are rapidly becoming cheaper by the day.

- There has been a tremendous growth in applications software in recent years. Some innovative companies are working with academic and industry leaders and using hardware and software to develop powerful integrated IoT solutions. In cooperation with university research labs, these companies are developing the IT processes and applications to improve the efficiency of IoT application in different industries. Microsoft, and other software companies, are creating platforms upon which enterprises and consultants can create IoT enabled software and applications optimized for different devices.
- Data scientists, IT managers and manufacturers are experimenting with how to use related IT technologies like Edge Computing and Smart Data devices to bring in more revenue, and improve decision-making processes. Smart data is digital information that is formatted and can be acted upon at the collection point. It is directly related to the data that smart sensors embedded in physical objects produce. Edge Computing offers several advantages such as improving time to action, reducing response time down to milliseconds, while also conserving network resources . For example, edge computing plays a crucial role in real-time operating systems for Akamai Technologies Inc. in Cambridge, Massachusetts. The company collects the data at an aggregation point close to the user and transmits in real time only the data points that require immediate attention. Less time sensitive data from a sensor is sent to a centralized data warehouse for historical analysis or long-term storage .
- IoT is in its infancy, but the use cases will grow exponentially over the next few years as more and more devices become connected, opening new opportunities for innovation with smart products. In the past few years, many technologies like Augmented Reality , Industrial IoT , Edge computing, and Low Power Wide-Area were introduced that will shape the next stages in IoT development .

HIGHLY INFLUENTIAL ARTICLE

We used the following article as a basis of our evaluation: Attaran, Ph.D., M. (2017). THE INTERNET OF THINGS: LIMITLESS OPPORTUNITIES FOR BUSINESS AND SOCIETY. *Journal of Strategic Innovation and Sustainability*, 12(1).

This is the link to the publisher's website:

<https://articlegateway.com/index.php/JSIS/article/view/787>

INTRODUCTION

The "Internet of things" (IoT) is the concept of connecting any device with an on-and- off switch to the Internet and or to each other. The term refers to devices that collect and transmit data via the Internet. This includes everything from cellphones, wearable devices, industrial equipment such as car engines to jet engines or a drill of an oil rig, washing machines, coffee makers and anything else that we can think of. The concept is based on a general rule that "Anything that can be connected will be connected" (Figure-1). IoT could be considered as a giant network of connected people or "things". The connections is between things-things, people things, or people-people (Morgan, 2014).

CONCLUSION

Perhaps the biggest technology trend that is taking place right now is the Internet of Things. IoT will give us the most disruption as well as the most opportunity over the next five years. IoT is expected to revolutionize and change the world we have come to know and certainly your career and personal life.

This study identified three benefits/success measures associated with IoT: improved productivity, better-quality information, and speedy information retrieval. Each of these three benefits measures a

different aspect of success. The most highly regarded benefit of an IoT-enabled strategy is its ability to improve the productivity of its users. If leaders implement proper policy actions to encourage interoperability, ensure security, and protect privacy and property rights, IoT can begin to reach its full potential.

IoT downsides include challenges to personal privacy, over-hyped expectations, and technology complexity. IoT poses the normal risks associated with the increased use of data. It also poses a greater risk of systemic breaches as organizations connect to millions of embedded sensors and communications devices. Malicious hacking and the damage from a break-in can be literally life threatening. Finally, many of the challenges with IoT aren't technology-related or security concerns. Instead, they come from the industry's slow adoption and, often, resistance to change.

IoT will soon become a differentiating factor in competition. To capture the full range of benefits promised by the IoT, company executives must take a systematic approach to address the organizational challenges and risks IoT will create. Notably, they need to overcome the technical, organizational, and regulatory hurdles associated with using the IoT technology. In particular, organizations that use IoT technology will need better tools and methods to extract insights and actionable information from enormous IoT data gathered from customers, equipment, and people.

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APPENDIX

FIGURE 1

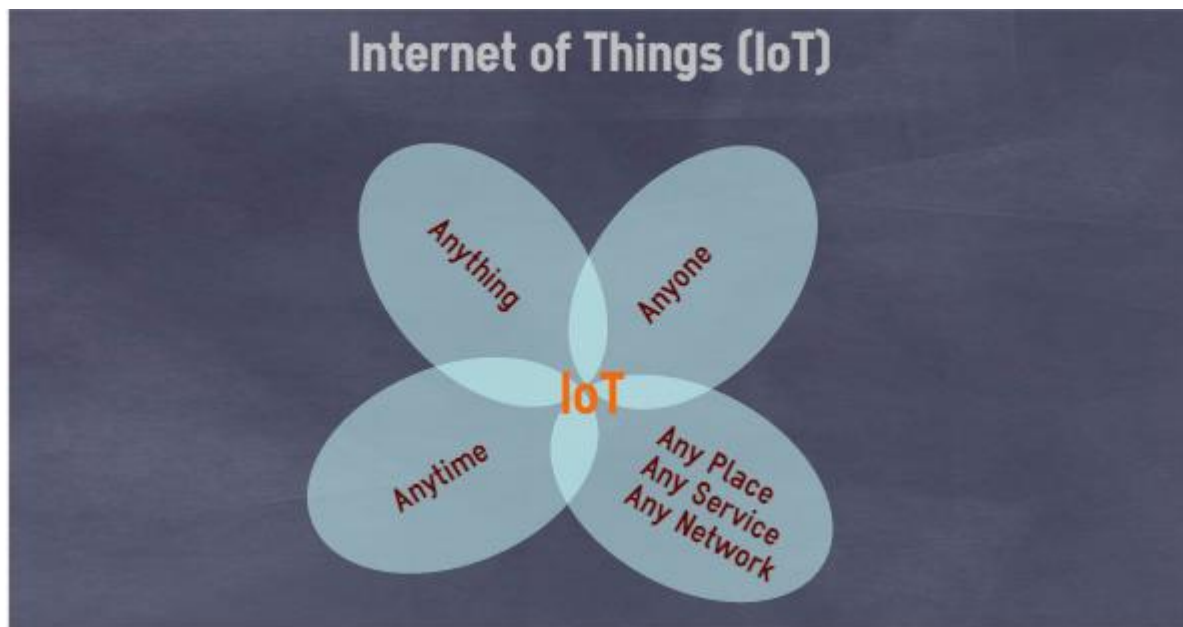


FIGURE 2

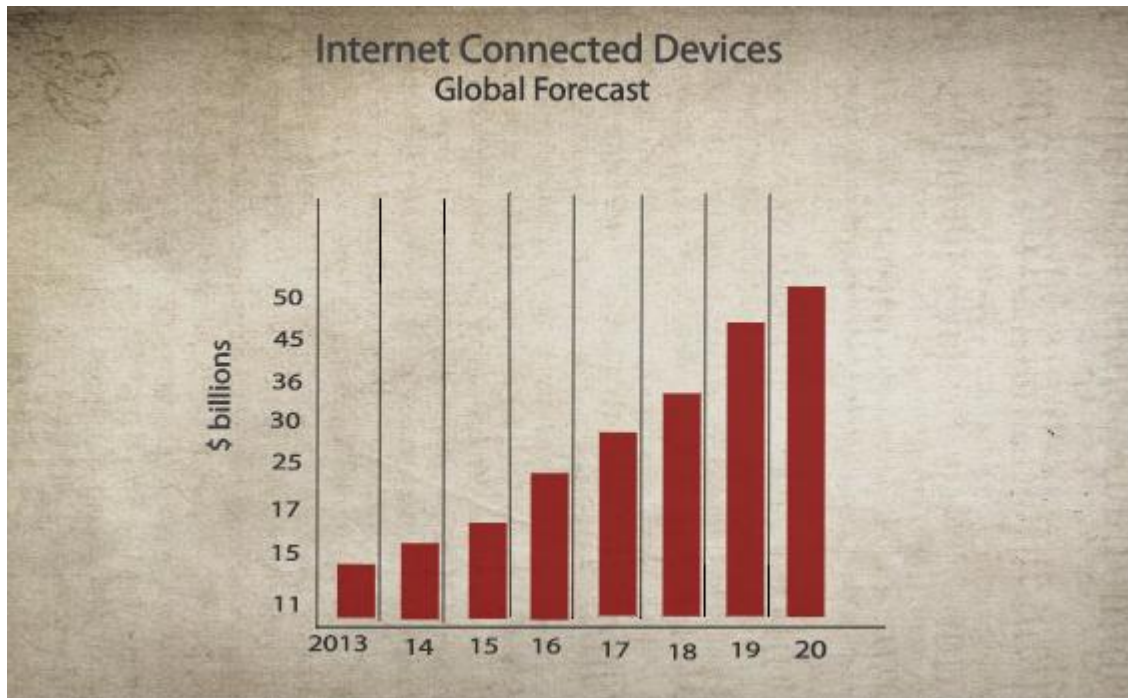
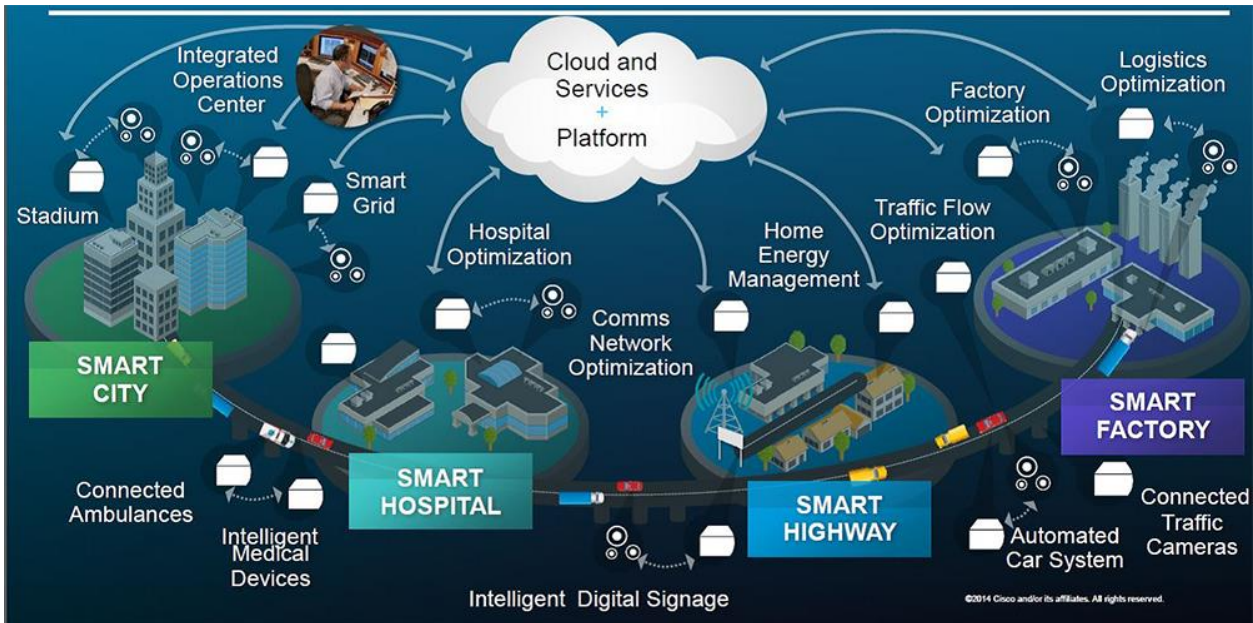


TABLE 1
IoT SPENDING IN DIFFERENT INDUSTRIES

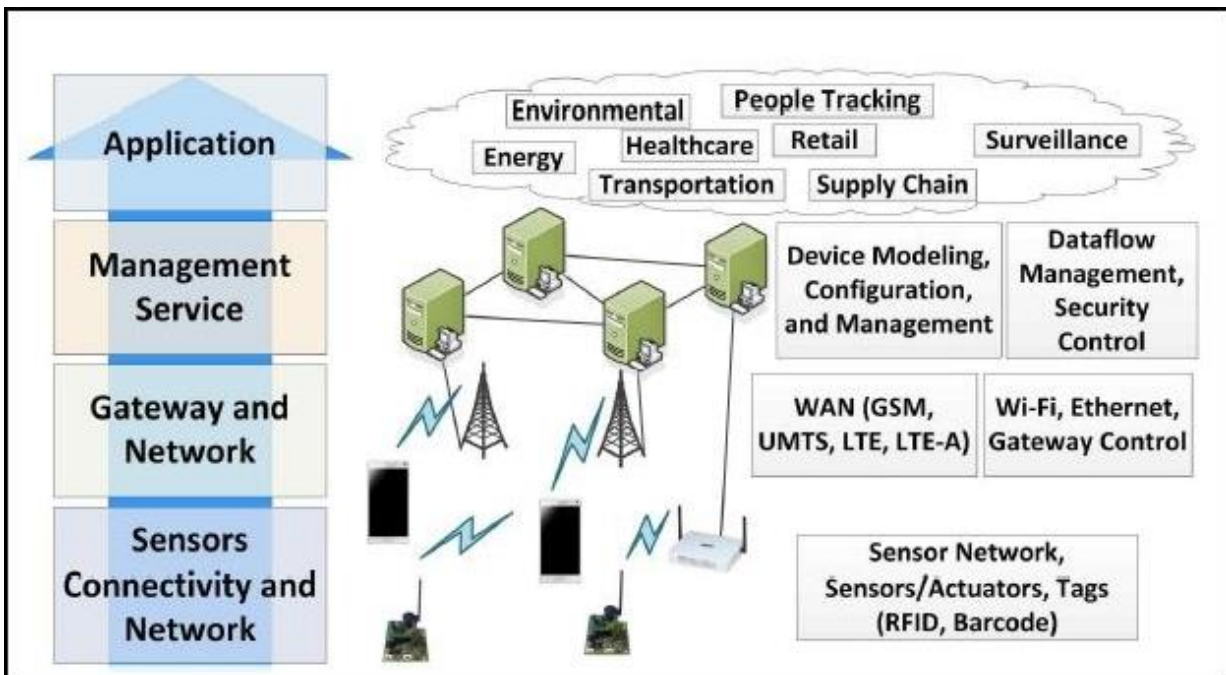
Industry	IoT Spending
Logistics	<ul style="list-style-type: none"> Will invest \$1.9 trillion in 10 years Will reach \$1.56 trillion investment by 2020
Smart Cities	
Retailers	<ul style="list-style-type: none"> Will spend \$2.5 billion by 2020
Auto Industry	<ul style="list-style-type: none"> 250,000 vehicles will be connected to the Internet by 2020
Wearable Device Market	<ul style="list-style-type: none"> Fitbit and Apple watches sold \$10 million devices in 2015
Healthcare	<ul style="list-style-type: none"> The value of improved health of chronic disease patients through remote monitoring could be as much as \$1.1 trillion per year in 2025

FIGURE 3
USE OF IoT IN EVERYDAY APPLICATIONS



Source: Cisco

FIGURE 4
IoT ARCHITECTURE LAYERS



Source: Opentechdiary, 2015

TABLE 2
IoT TECHNOLOGIES AND TRENDS

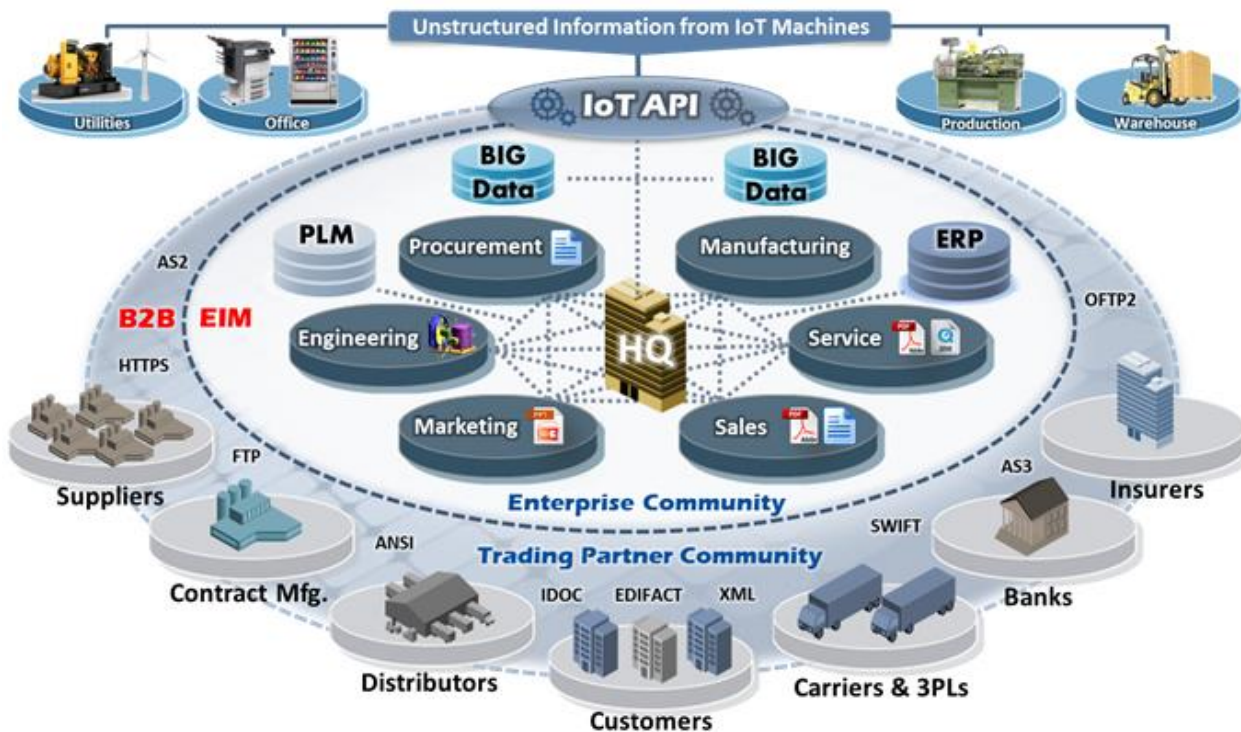
Trends	Description
Augmented Reality (AR)	<ul style="list-style-type: none"> ◆ IoT data in the form of text, graphs, images, and videos are superimposed onto a live image of the physical world ◆ Can be visualized using smart phone, tablet or smart glasses
Industrial IoT (IIoT)	<ul style="list-style-type: none"> ◆ Labeled the next industrial revolution or industry 4.0 ◆ Industrial machines and associated processes become smarter increasing levels of utilization and provide greater flexibility for meeting customers' expectations
Low-Power Wide-Area (LPWA)	<ul style="list-style-type: none"> ◆ Suitable for applications that have batteries, require low costs for connectivity hardware and services, and seek wide area connection ◆ Suitable for asset tracking, agriculture, and environmental monitoring
Edge Computing	<ul style="list-style-type: none"> ◆ Represents a shift in architecture in which intelligence is pushed from the cloud to the edge – at the periphery of the networks, as close to the originating source as possible.
Analytics Automation	<ul style="list-style-type: none"> ◆ Analytic Automation is automation of many of the manual activities. It uses a platform that can easily grab new data, make adjustments to analytics models an real time and automate prescriptive analytics
IoT Marketplaces	<ul style="list-style-type: none"> • Suppliers are offering IoT marketplaces that provide enterprises with a portfolio of hardware, software and services to assemble an IoT solution • Pre-integrated components, offered in marketplaces, are nearly plug-and-play and enable fast time-to-market
IoT Data Exchange	<ul style="list-style-type: none"> ◆ Exploring the opportunities and challenges when enterprises exposing and sharing their IoT data with external parties ◆ Example is online transportation access industry where vehicle location data is shared by Uber, Lyft, Arro, and others
Enterprise Outsourcing	<ul style="list-style-type: none"> ◆ Outsourcing of IoT activities, including building, running, and managing a suite of connected things to an outside vendor

TABLE 3
IoT IMPLEMENTATION CHALLENGES

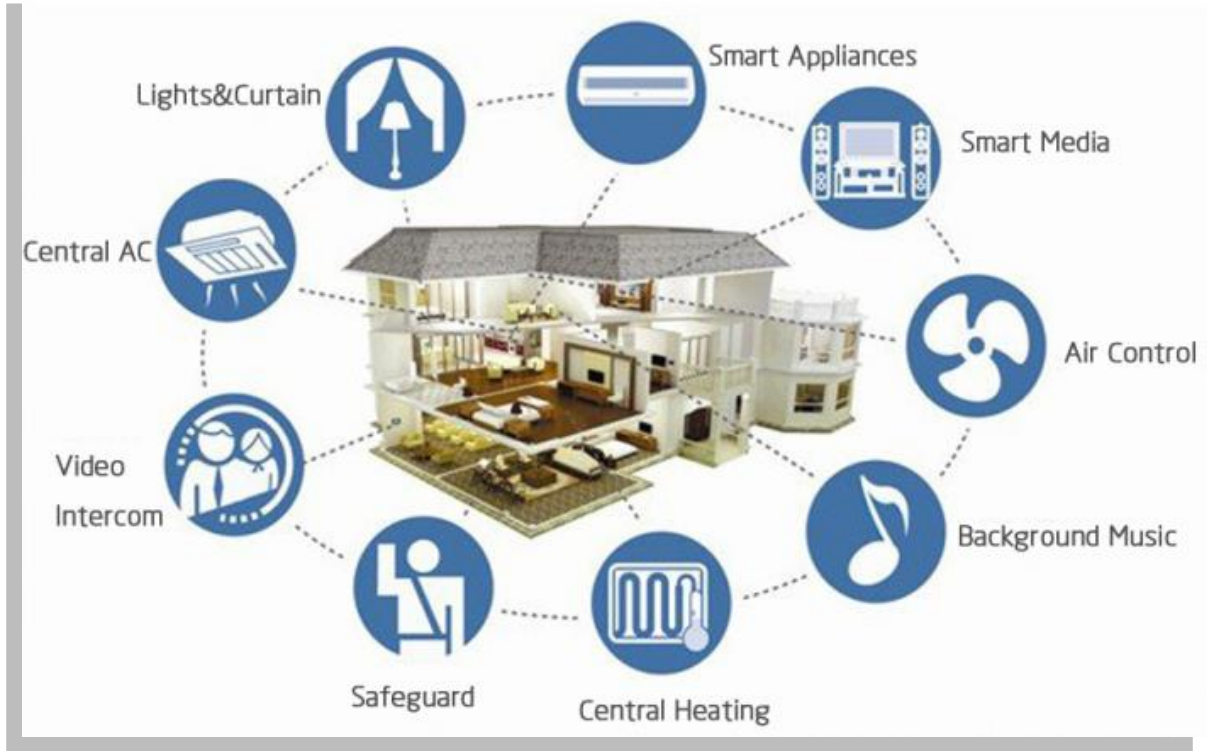
Levels	Challenges
Technical	<ul style="list-style-type: none"> ◆ Imperfect read-rates ◆ Unproven systems ◆ Problems with assembling low-cost sensors ◆ Integrity of corporate networks ◆ Shortage of appropriate software and middleware ◆ Lack of in-house expertise to implement IoT ◆ Requires innovation in technologies and business models ◆ Requires investment in new capabilities and talent

Data Security	<ul style="list-style-type: none"> ◆ Concern regarding the compromise of data ◆ Uncertainty around security of data storage ◆ Insufficient security for user data and their protection ◆ Physical security of storage site ◆ Concern about Cyber-Attacks and Cybercrime
Big Data	<ul style="list-style-type: none"> ◆ Storing, tracking, analyzing and making sense of the vast amount of data that will be generated by IoT devices pose a great challenge
Privacy Issues & Government Regulations	<ul style="list-style-type: none"> ◆ Privacy concerns and potential for legislation ◆ Lack of global standards - uncertainty around standards ◆ Intellectual property rights
Testing IoT Applications	<ul style="list-style-type: none"> ◆ IoT applications must be subjected to stringent testing requirement
Human Elements	<ul style="list-style-type: none"> ◆ The human elements have been labeled as the biggest threat to the reliability, resilience and security of IoT system

**FIGURE 5
IMPACT OF IoT ON BUSINESS WORLD**



**FIGURE 6
USE OF IOT IN EVERY ASPECTS OF SMART HOME**



Source: TechPedia, 2015

**TABLE 4.1
APPLICATIONS OF IoT IN DIFFERENT INDUSTRIES**

Industry	Applications
<p align="center">Healthcare (Internet of Medical Things) (IoMT)</p>	<ul style="list-style-type: none"> • Telemedicine - remote patient monitoring of people with chronic conditions • Tracking patients medication orders • Wearable devices that can send information to caregivers • Hospital beds with sensors that measure patient’s vital signs • Real-time location services with badges that can track patients, staff, and medical devices • RFID tags placed on medical equipment and supplies for inventory tracking • Environmental monitoring-checking the temperature of refrigerators and hand hygiene compliance
	<ul style="list-style-type: none"> • Precision weather forecasts

Precision Agriculture/Precision Farming	<ul style="list-style-type: none"> • Deep thunder and precision agriculture- ensure that crops and soil receive exactly what they need for optimum health and productivity • Enables as-needed farming and site-specific crop management
Retail Industry	<ul style="list-style-type: none"> • Reliable and accurate order forecast • Better products' position on shelves • Improved counterfeiting identification, theft prediction, and faster recalls • Amazon Go- a convenience store that has no registers, no self-checkout, and no lines • Inventory optimization • Facility layout optimization • Customer-relationship management
Transportation	<ul style="list-style-type: none"> • Driverless car or autonomous vehicle- A robotic vehicle that is designed to travel between destination without a human operator • 250, 00 vehicles will be connected to the Internet by 2020 • Save maintenance costs by predicting when maintenance is needed for vehicles • Mobike-Inexpensive bike rental in Shanghai where you can pick up a smart bike from a location near to you and drop it off when done anywhere in the city
Energy	<ul style="list-style-type: none"> • Smart grid – all the components of the electric grid are capable of two-way communication using sensing and measurement technologies • Electric companies can manage distribution more efficiently and respond to outages faster

TABLE 4.2
APPLICATIONS OF IoT IN DIFFERENT INDUSTRIES

Industry	Applications
Cities	<ul style="list-style-type: none"> • City's functions are managed by integrating multiple information, communication technology, and IoT solutions • Individual vehicles with sensors are linked to broader systems to manage traffic congestion • Cities like Amsterdam, Barcelona, Madrid, and Stockholm implemented the technology

Buildings and Homes	<ul style="list-style-type: none"> • Smart homes enable homeowner to remotely control and program an array of home electronic devices by entering a single command • Temperature monitoring and HVAC control • Safety and security • Home healthcare • Fire and leak detection • Solar panel monitoring and control • Automated meter reading
Manufacturing	<ul style="list-style-type: none"> • Camera installed along production lines measure the number of components in bins and an inventory management system automatically places supply orders to refill the containers • Predict when equipment is wearing down or needs repair. This could reduce maintenance costs by 40% and cut unplanned downtime by 50% • Help to improve machines performance, extending their lives and learn how they could be redesigned to do even more • RFID tags are used to optimize equipment use and inventory • Usage based design and pre-sales analytics • Adds intelligence to manual processes • Enhanced visibility into customer needs • Accurate & timely asset tracking
Mining/ Oil and Gas	<ul style="list-style-type: none"> • More than 30,000 sensors are used on a typical oil rig for optimization, prediction, and data-driven decision making • Self-driving vehicles promise to raise output by 5% and productivity by 25%. They could also cut safety costs by 20%
Wearables	<ul style="list-style-type: none"> • Smart watches and fitness bands can track your steps, calculate calories burned, monitor your stress level • They can track employees at work, children at play, and even the elderly in assisted living.

TRANSLATED VERSION: SPANISH

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

VERSION TRADUCIDA: ESPAÑOL

A continuación se muestra una traducción aproximada de las ideas presentadas anteriormente. Esto se hizo para dar una comprensión general de las ideas presentadas en el documento. Por favor, disculpe cualquier error gramatical y no responsabilite a los autores originales de estos errores.

INTRODUCCIÓN

El "Internet de las cosas" (IoT) es el concepto de conectar cualquier dispositivo con un interruptor de encendido y apagado a Internet y/o entre sí. El término se refiere a dispositivos que recopilan y transmiten datos a través de Internet. Esto incluye todo, desde teléfonos celulares, dispositivos portátiles, equipos industriales como motores de automóviles hasta motores a reacción o un taladro de una plataforma petrolera, lavadoras, cafeteras y cualquier otra cosa que se nos ocurra. El concepto se basa en una regla general de que "Todo lo que se puede conectar estará conectado" (Figura-1). IoT podría considerarse como una red gigante de personas o "cosas" conectadas. Las conexiones son entre cosas-cosas, personas, cosas o personas-personas (Morgan, 2014).

CONCLUSIÓN

Quizás la mayor tendencia tecnológica que está teniendo lugar en este momento es el Internet de las cosas. IoT nos dará la mayor disrupción, así como la mayor oportunidad en los próximos cinco años. Se espera que IoT revolucione y cambie el mundo que hemos llegado a conocer y, sin duda, su carrera y vida personal.

Este estudio identificó tres medidas de beneficios / éxito asociadas con IoT: productividad mejorada, información de mejor calidad y recuperación rápida de información. Cada uno de estos tres beneficios mide un aspecto diferente del éxito. El beneficio más apreciado de una estrategia habilitada para IoT es su capacidad para mejorar la productividad de sus usuarios. Si los líderes implementan acciones políticas adecuadas para fomentar la interoperabilidad, garantizar la seguridad y proteger la privacidad y los derechos de propiedad, IoT puede comenzar a alcanzar su máximo potencial.

Las desventajas de IoT incluyen desafíos a la privacidad personal, expectativas exageradas y complejidad tecnológica. IoT plantea los riesgos normales asociados con el mayor uso de datos. También plantea un mayor riesgo de violaciones sistémicas a medida que las organizaciones se conectan a millones de sensores integrados y dispositivos de comunicación. La piratería maliciosa y el daño de un robo pueden ser literalmente potencialmente mortales. Finalmente, muchos de los desafíos con IoT no están relacionados con la tecnología o las preocupaciones de seguridad. En cambio, provienen de la lenta adopción de la industria y, a menudo, de la resistencia al cambio.

IoT pronto se convertirá en un factor diferenciador en la competencia. Para capturar toda la gama de beneficios prometidos por IoT, los ejecutivos de la empresa deben adoptar un enfoque sistemático para abordar los desafíos y riesgos organizacionales que creará IoT. En particular, deben superar los obstáculos técnicos, organizativos y regulatorios asociados con el uso de la tecnología IoT. En particular, las organizaciones que utilizan la tecnología IoT necesitarán mejores herramientas y métodos para extraer información e información procesable de enormes datos de IoT recopilados de clientes, equipos y personas.

TRANSLATED VERSION: FRENCH

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

VERSION TRADUITE: FRANÇAIS

Voici une traduction approximative des idées présentées ci-dessus. Cela a été fait pour donner une compréhension générale des idées présentées dans le document. Veuillez excuser toutes les erreurs grammaticales et ne pas tenir les auteurs originaux responsables de ces erreurs.

INTRODUCTION

L'« Internet des objets » (IoT) est le concept de connexion de n'importe quel appareil avec un interrupteur marche et arrêt à Internet et/ou les uns aux autres. Le terme fait référence aux appareils qui collectent et transmettent des données via Internet. Cela inclut tout, des téléphones cellulaires, des appareils portables, des équipements industriels tels que les moteurs de voiture aux moteurs à réaction ou une foreuse d'une plate-forme pétrolière, des machines à laver, des cafetières et tout ce à quoi nous pouvons penser. Le concept est basé sur une règle générale selon laquelle « tout ce qui peut être connecté sera connecté » (Figure 1). L'IoT pourrait être considéré comme un réseau géant de personnes ou d'« objets » connectés. Les liens sont entre les choses-choses, les gens, les choses ou les gens-personnes (Morgan, 2014).

CONCLUSION

Peut-être que la plus grande tendance technologique qui se déroule en ce moment est l'Internet des objets. L'IoT nous donnera le plus de perturbations ainsi que le plus d'opportunités au cours des cinq prochaines années. On s'attend à ce que l'IoT révolutionne et change le monde que nous avons appris à connaître et certainement votre carrière et votre vie personnelle.

Cette étude a identifié trois mesures des avantages et du succès associés à l'IoT : une productivité accrue, des informations de meilleure qualité et une récupération rapide des informations. Chacun de ces trois avantages mesure un aspect différent du succès. L'avantage le plus apprécié d'une stratégie basée sur l'IoT est sa capacité à améliorer la productivité de ses utilisateurs. Si les dirigeants mettent en œuvre des mesures politiques appropriées pour encourager l'interopérabilité, assurer la sécurité et protéger la vie privée et les droits de propriété, l'IoT peut commencer à atteindre son plein potentiel.

Les inconvénients de l'IoT comprennent les défis à la vie privée, les attentes exagérées et la complexité technologique. L'IoT présente les risques normaux associés à l'utilisation accrue des données. Cela pose également un risque accru de violations systémiques lorsque les organisations se connectent à des millions de capteurs et d'appareils de communication intégrés. Le piratage malveillant et les dommages causés par un cambriolage peuvent littéralement mettre la vie en danger. Enfin, bon nombre des défis liés à l'IoT ne sont pas liés à la technologie ou à la sécurité. Au lieu de cela, ils proviennent de la lenteur de l'adoption de l'industrie et, souvent, de la résistance au changement.

L'IoT deviendra bientôt un facteur de différenciation dans la concurrence. Pour saisir toute la gamme des avantages promis par l'IoT, les dirigeants d'entreprise doivent adopter une approche systématique pour relever les défis organisationnels et les risques que l'IoT créera. Ils doivent notamment surmonter les obstacles techniques, organisationnels et réglementaires associés à l'utilisation de la technologie IoT. En particulier, les organisations qui utilisent la technologie IoT auront besoin de meilleurs outils et méthodes pour extraire des informations et des informations exploitables à partir d'énormes données IoT collectées auprès des clients, des équipements et des personnes.

TRANSLATED VERSION: GERMAN

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

ÜBERSETZTE VERSION: DEUTSCH

Hier ist eine ungefähre Übersetzung der oben vorgestellten Ideen. Dies wurde getan, um ein allgemeines Verständnis der in dem Dokument vorgestellten Ideen zu vermitteln. Bitte entschuldigen Sie alle grammatikalischen Fehler und machen Sie die ursprünglichen Autoren nicht für diese Fehler verantwortlich.

EINLEITUNG

Das "Internet der Dinge" (IoT) ist das Konzept, jedes Gerät mit einem Ein- und Ausschalter mit dem Internet und / oder untereinander zu verbinden. Der Begriff bezieht sich auf Geräte, die Daten über das Internet sammeln und übertragen. Dazu gehört alles von Mobiltelefonen, tragbaren Geräten, Industriegeräten wie Automotoren bis hin zu Düsentriebwerken oder einem Bohrer einer Bohrinne, Waschmaschinen, Kaffeemaschinen und allem anderen, was wir uns vorstellen können. Das Konzept basiert auf einer allgemeinen Regel: "Alles, was verbunden werden kann, wird verbunden" (Abbildung-1). IoT könnte als ein riesiges Netzwerk von verbundenen Menschen oder "Dingen" betrachtet werden. Die Verbindungen bestehen zwischen Dingen, Menschen, Dingen oder Menschen-Menschen (Morgan, 2014).

SCHLUSSFOLGERUNG

Der vielleicht größte Technologietrend, der gerade stattfindet, ist das Internet der Dinge. IoT wird uns in den nächsten fünf Jahren die meisten Störungen und Chancen bieten. Es wird erwartet, dass IoT die Welt, die wir kennengelernt haben, und sicherlich Ihre Karriere und Ihr Privatleben revolutionieren und verändern wird.

Diese Studie identifizierte drei Vorteile/Erfolgsmaße im Zusammenhang mit dem IoT: verbesserte Produktivität, bessere Informationsqualität und schnelles Abrufen von Informationen. Jeder dieser drei Vorteile misst einen anderen Aspekt des Erfolgs. Der am meisten geschätzte Vorteil einer IoT-fähigen Strategie ist ihre Fähigkeit, die Produktivität ihrer Benutzer zu verbessern. Wenn Führungskräfte geeignete politische Maßnahmen ergreifen, um die Interoperabilität zu fördern, die Sicherheit zu gewährleisten und die Privatsphäre und Eigentumsrechte zu schützen, kann das IoT sein volles Potenzial entfalten.

Zu den Nachteilen des IoT gehören Herausforderungen für die Privatsphäre, übertriebene Erwartungen und Technologiekomplexität. IoT birgt die normalen Risiken, die mit der verstärkten Nutzung von Daten verbunden sind. Es stellt auch ein größeres Risiko systemischer Sicherheitsverletzungen dar, da Unternehmen eine Verbindung zu Millionen von eingebetteten Sensoren und Kommunikationsgeräten herstellen. Böswilliges Hacking und der Schaden durch einen Einbruch können buchstäblich lebensbedrohlich sein. Schließlich sind viele der Herausforderungen beim IoT keine technologiebezogenen oder Sicherheitsbedenken. Stattdessen kommen sie von der langsamen Akzeptanz der Branche und oft dem Widerstand gegen Veränderungen.

IoT wird schon bald zu einem Differenzierungsfaktor im Wettbewerb. Um die gesamte Bandbreite der Vorteile des IoT zu nutzen, müssen Führungskräfte einen systematischen Ansatz verfolgen, um die organisatorischen Herausforderungen und Risiken anzugehen, die das IoT mit sich bringt. Insbesondere müssen sie die technischen, organisatorischen und regulatorischen Hürden überwinden, die mit der Nutzung der IoT-Technologie verbunden sind. Insbesondere Unternehmen, die IoT-Technologie einsetzen, benötigen bessere Tools und Methoden, um Erkenntnisse und umsetzbare Informationen aus enormen IoT-Daten zu extrahieren, die von Kunden, Geräten und Mitarbeitern gesammelt werden .

TRANSLATED VERSION: PORTUGUESE

Below is a rough translation of the insights presented above. This was done to give a general understanding of the ideas presented in the paper. Please excuse any grammatical mistakes and do not hold the original authors responsible for these mistakes.

VERSÃO TRADUZIDA: PORTUGUÊS

Aqui está uma tradução aproximada das ideias acima apresentadas. Isto foi feito para dar uma compreensão geral das ideias apresentadas no documento. Por favor, desculpe todos os erros gramaticais e não responsabilize os autores originais responsáveis por estes erros.

INTRODUÇÃO

A "Internet das coisas" (IoT) é o conceito de conectar qualquer dispositivo com um interruptor liga-e-desliga à Internet e ou entre si. O termo refere-se a dispositivos que coletam e transmitem dados através da Internet. Isso inclui tudo, desde celulares, dispositivos vestíveis, equipamentos industriais, como motores de carros, até motores a jato ou uma broca de uma plataforma de petróleo, máquinas de lavar, cafeteiras e qualquer outra coisa que possamos pensar. O conceito é baseado em uma regra geral de que "Tudo o que pode ser conectado será conectado" (Figura 1). A IoT pode ser considerada como uma rede gigante de pessoas conectadas ou "coisas". As conexões são entre coisas-coisas, pessoas, coisas ou pessoas-pessoas (Morgan, 2014).

CONCLUSÃO

Talvez a maior tendência tecnológica que está ocorrendo agora seja a Internet das Coisas. A IoT nos dará a maior disrupção, bem como a maior oportunidade nos próximos cinco anos. Espera-se que a IoT revolucione e mude o mundo que conhecemos e, certamente, sua carreira e vida pessoal.

Este estudo identificou três medidas de benefícios/sucesso associadas à IoT: maior produtividade, informações de melhor qualidade e recuperação rápida de informações. Cada um desses três benefícios mede um aspecto diferente do sucesso. O benefício mais considerado de uma estratégia habilitada para IoT é sua capacidade de melhorar a produtividade de seus usuários. Se os líderes implementarem ações políticas adequadas para incentivar a interoperabilidade, garantir a segurança e proteger a privacidade e os direitos de propriedade, a IoT pode começar a atingir todo o seu potencial.

As desvantagens da IoT incluem desafios à privacidade pessoal, expectativas exageradas e complexidade tecnológica. A IoT apresenta os riscos normais associados ao aumento do uso de dados. Também representa um risco maior de violações sistêmicas à medida que as organizações se conectam a milhões de sensores e dispositivos de comunicação incorporados. Hackers maliciosos e os danos de um arrombamento podem ser literalmente fatais. Finalmente, muitos dos desafios com a IoT não são relacionados à tecnologia ou preocupações de segurança. Em vez disso, eles vêm da lenta adoção da indústria e, muitas vezes, da resistência à mudança.

A IoT em breve se tornará um fator diferenciador na concorrência. Para capturar toda a gama de benefícios prometidos pela IoT, os executivos da empresa devem adotar uma abordagem sistemática para enfrentar os desafios e riscos organizacionais que a IoT criará. Notavelmente, eles precisam superar os obstáculos técnicos, organizacionais e regulatórios associados ao uso da tecnologia IoT. Em particular, as organizações que usam a tecnologia IoT precisarão de melhores ferramentas e métodos para extrair insights e informações acionáveis de enormes dados de IoT coletados de clientes, equipamentos e pessoas.