Proximity Studio

# The complete Beacon Industry Report:

## Industry Insights and Use Cases

# Contents

# I. Opportunities Across Verticals

The Internet of Things is immensely valuable for all verticals and industries. The need for seamless and wireless integration will drive new technologies to emerge, and beacons will be key to achieving true automation.

Beacons help to automate processes because they bridge the physical world to the internet without large and expensive traditional IT infrastructures. It's just a beacon, a bluetooth signal and that's all. They gather data needed to drive cloud computing, which is the virtual headquarters of any number of automated processes.

Those processes include applications in every business vertical, from tracking assets to supporting manufacturing and distribution processes to enhancing customer engagement.

### Asset Tracking

Beacons make assets trackable, meaning tools can be stored and located with ease.

### Data generation

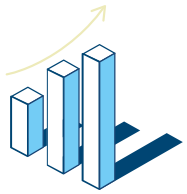
Beacons are one of the few technologies that can jumpstart big data campaigns, enabling the collection and analysis of data on an almost automated level.

### Employee and asset monitoring

Managers can oversee processes and employee movements with complete accuracy from a distance.

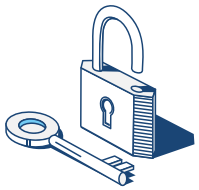
### Marketing:

Proximity technologies can deliver special offers to users based on exact location.



### Resource Optimization:

The automation provided by beacons means resources, offices, and tools can be automatically marked as in-use alongside details on when, where, and who.



### Safety and Security:

Beacons attached to restricted areas would enable automatic notification when unauthorized personnel, visitors, or customers enter a restricted or dangerous work zone.

# Manufacturing

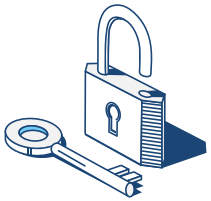
**Estimates show the economic impact of IoT applications in factories could reach between $1.2 trillion and $3.7 trillion per year by 2025.[1]**

By connecting the physical and digital, companies will be able to improve labor efficiency and automation while also optimizing storage space and techniques. They can also achieve better localization, improved workforce effectiveness, and more data-driven decision making by properly leveraging Bluetooth tools.

**Beacons enable:**

Asset tracking

Production Monitoring



Safety and security monitoring

1. *The Internet of Things: Mapping the value beyond the hype. (2015).* McKinsey

Pointr

# **Use Case:** Indoor Location with Pointr

Global indoor positioning and navigation provider Pointr worked with a major global manufacturer to bring location data services to several warehouses.

Pointr was tasked with creating an automated, scalable system that could run 24/7.

Leveraging Kontakt.io beacons, they created a BLE infrastructure that automatically registered workforce movement. This solution enabled the manufacturer to track workers with an accuracy of up to 1 meter.

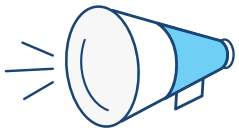
Generated data was then used within Pointr's dashboards to visualize the real time location of the workforce as well as historical movement. This enabled the manufacturer to create concrete statistics on time spent on different tasks.

# Retail

**Macy's has already installed beacons in nearly 800 of their stores. Walmart partnered with GE to roll out their own beacon trials. Tesco and Target have also followed suit. BI Intelligence expects beacons to drive $44 billion in retail in 2016--up from $4 billion in 2015.[2]**

The first major uses of beacons were in retail and marketing, and retailers are continuing to use proximity technology to engage customers and offer truly customized experiences.

**Beacons enable:**



Customized Marketing

Data generation

Location-based offers

2. *The Beacon Report.* (2015). BI Intelligence.

## **Use Case:** Employee Attendance Tracking with Elite ID

Australian beacon service provider Elite ID has been providing attendance verification systems for over a decade. They were recently approached by a shopping mall looking to quickly implement a system for tracking staff performance while on duty.

Due to legal requirements, attendance verification systems are very common in Australia. Smaller venues, however, often suffer from the high cost of developed systems.

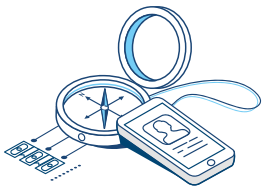
Elite ID used Kontakt.io beacons to create a BLE-based system that registed attendance using standard smart phones. Alternative solutions were estimated to cost between $1140-$1520, but Elite ID's beacon-based system offered a powerful solution at half the cost.

Since such deployments can be quickly installed, the mall had a fully functioning infrastructure up and running in just a week.

# Facilities Management

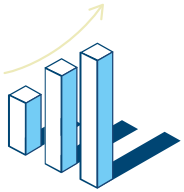
**Large workplaces present challenges in terms of the efficient use of available space. The ability to identify free spaces in real time means less time spent on searching and waiting for occupied spaces to be free. According to Steelcase, 40% of employees waste up to 30 minutes a day on looking for space to collaborate. Beacons help meeting spaces to be allocated more efficiently.**

**Beacons enable:**



Navigation and ononboarding

Utility management



Space optimalization

**Beaven Hayes.**

Chief Product Officer at Jibestream

*For most companies the biggest cost is your rent and your people. So we have a perfect storm in the corporate campus space, because we have super high rent, indoor vacancy issues, and companies want to consolidate their real estate portfolios.*

*We have a large number of new employees coming through Fortune 1000 companies, people that will need to be onboarded and become more familiar with the facilities. And then we have tons and tons of time wasted with people trying to set up meeting rooms or searching for meeting rooms. To bring in proximity to solve this has huge potential."*

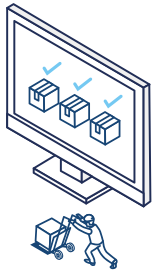
# Logistics and Transport

**McKinsey estimates the IoT can decrease the cost of sorting warehouse goods up to 30% by 2025, saving business around 6-19 billion dollars annually.[3]**

BLE technology can drastically improve how logistic businesses work with asset tracking, leading to improvements in capacity sensing, planning, reporting, and fault detection. Most importantly, Bluetooth beacon systems are easily scalable.

## Beacons enable:

Data generation



Easy and effective storage

Error reduction

*3. The Internet of Things: Mapping the value beyond the hype.* (2015). McKinsey

Navigine

# **Use Case:** Indoor Navigation with Navigine

In preparations for the 2018 World Cup, Russian Railways turned to indoor positioning company, Navigine, who built a system for guiding travelers through the 6,000 square meter Leningradsky Railway Station in Moscow.

Using 60 Kontakt.io Bluetooth low-energy beacons, and leveraging smartphone sensors, accelerometers, gyroscopes, barometers, and magnetometers, the Navigine app was able to determine a user's position in the station down to 1 meter. The app also incorporated relevant information like train schedules, platforms numbers, locations and ticket purchasing capabilities.

Passenger feedback was positive as they found it easier to navigate the station and enjoyed access to up-to-date information. The application supported the work of administrators as they controlled passenger traffic and will soon be rolled out in over 100 railway stations.

## Example application: Reusable containers

An average shipping container is used only 20% of the time. As a result, they often end up scattered around different locations. Beacons can help companies keep track of containers, pushing a higher utilization rate of these costly assets and offering a speedy ROI.

## Example application: Livestock

A cow, pig, or other animal can be equipped with a beacon in order to be tracked. A simple system might support farmers by identifying cattle and supplying immediate access to relevant data on what it has done each day. A more advanced system could analyze overall movements to aid in disease detection or optimize space usage.

# Healthcare

Estimates indicate **that hospitals purchase between 10 and 20% more equipment than necessary simply so staff will be more likely to find it [4]. Still, *Nursing Times* found that 30% of nurses spend one hour or more each shift searching for equipment [5].**

Hospital costs continue to rise including the cost per hospital bed which has risen 90% in the past 15 years to $3,144 [6]. A proper infrastructure, with asset tracking capabilities, is required to eliminate this wasted time and the need to purchase extra equipment.

## Beacons enable:

Asset tracking

Data generation

Patient management

Safety and security

4. *"Real-Time Locating Systems (RTLS) in Healthcare: A Condensed Primer."* (2015). International Journal of Health Geographics
5. *"Nurses Waste 'an Hour a Shift' Finding Equipment."* (2009). Nursing Times.
6. *Out of Control: How Clinical Asset Proliferation and Low Utilization are Draining Healthcare Budgets.* GE Healthcare. p. 3.

# II. Insight from industry Leaders

Szymon Niemczura

*"I think if you are not yet ready for Bluetooth 5, you are already too late"*

Szymon Niemczura is the founder and CEO of Kontakt.io. After only three years, Kontakt.io has become the leading hardware player in the beacon ecosystem. We sat down at the company headquarters in Krakow, Poland to talk about the future of beacons, how IoT will really work, and how major players are looking to integrate beacons into their existing systems

## Tell us about Kontakt.io and what you're up to at the moment.

Kontakt's mission is to lead the IoT market by empowering businesses worldwide with beacon infrastructure solutions and expertise. This is a really exciting time for us right now as we recently launched two new projects.

The first of these projects is the Proximity Studio, Kontakt's offline-to-online partnership platform connecting BLE beacon solution providers to businesses interested in understanding, exploring, and buying solutions globally - cutting down the decision making process from months to just a few weeks. Secondly, we've launched our latest service: beacon deployment and maintenance. We realized that one of the major barriers for entry into beacon solutions stemmed from uncertainty about the challenges of creating and maintaining a beacon infrastructure - we launched this service in order to mitigate the hassle and risk, allowing businesses to focus on their core strengths instead.

## Can you tell us about the current state of the beacon industry?

I don't think one should look at the beacon industry as an isolated industry. Beacons are a part of the IoT revolution. Beacons and Bluetooth have broad industry use cases. With the coming Bluetooth standard you can talk about Industry 5.0, connecting things and people not only to the internet, but also on a more local level. We are standing before the era of affordable IoT that can finally cover not only specific processes but everything within a building. Everything from machines to people can use one infrastructure and the same language. When these actors can talk to each other it will create true efficiency.

## Where are we in the IoT development right now?

Today, we have realized that IoT is not about connecting every single item to the cloud. A few years ago, the question was always, how do I get this to the cloud? In reality, the most relevant uses of data occurs at the venue where it is collected. That is where the computing needs to happen. There is no need to shuffle the date through the cloud and then shuffle it back in order to retrieve meaningful information. That is why I strongly believe there will be an element of physical location computing, so-called fog computing. This means doing the computing where it matters. You can see it as an organizational hierarchy, where the cloud is the back office, the high level management, that doesn't need to get involved for things that can be dealt with locally.

## How do modern beacons stack up against similar technologies?

People are starting to see that Bluetooth is an ideal replacement or upgrade for existing RFID or NFC solutions as well as any other expensive tech solution. Bluetooth will lead to better granularity and also better interoperability. In other words, there will be no need for specific industrial hardware. You can just use a conventional tablet and smartphone.

The infrastructure required in a warehouse or factory will be both thinner and lighter with BLE. Sometimes you will find it to be 5-10 times cheaper than any other technology offering the same robustness and quality.

## What would you say are the strengths of Bluetooth compared to other wireless technologies?

Three years ago we bet on Bluetooth because we believed that, thanks to its interoperability, range, low energy consumption, and a number of other factors, it would be a major element in many IoT applications. Other technologies might have their benefits, but Bluetooth is winning because it is everywhere. Whether you want to control a light system, an HVAC, or an employee security system, it can all run on the same standard. It is very easy to create synergies. As soon as you get other standards involved, it becomes more complicated.

## How do you see firms being able to benefit from BLE beacons?

The beauty with beacons is not that you are building a network of devices that are connected to each other. Instead, you are having a number of different devices broadcasting their information, and you can choose whether to tune in and listen to that signal. Using any smart device, you can listen to data that is relevant to you. This makes the infrastructure very simple.

A good thing about the technology is that it can be applied quickly in order to be tested. If the ROI turns out to be positive, and a business chooses to implement BLE beacons, the time to market and the scalability is very good. There are a lot of applications in the management of offices, factories, logistics, and warehouses.

## What is the role of traditional companies in the ongoing evolution of BLE?

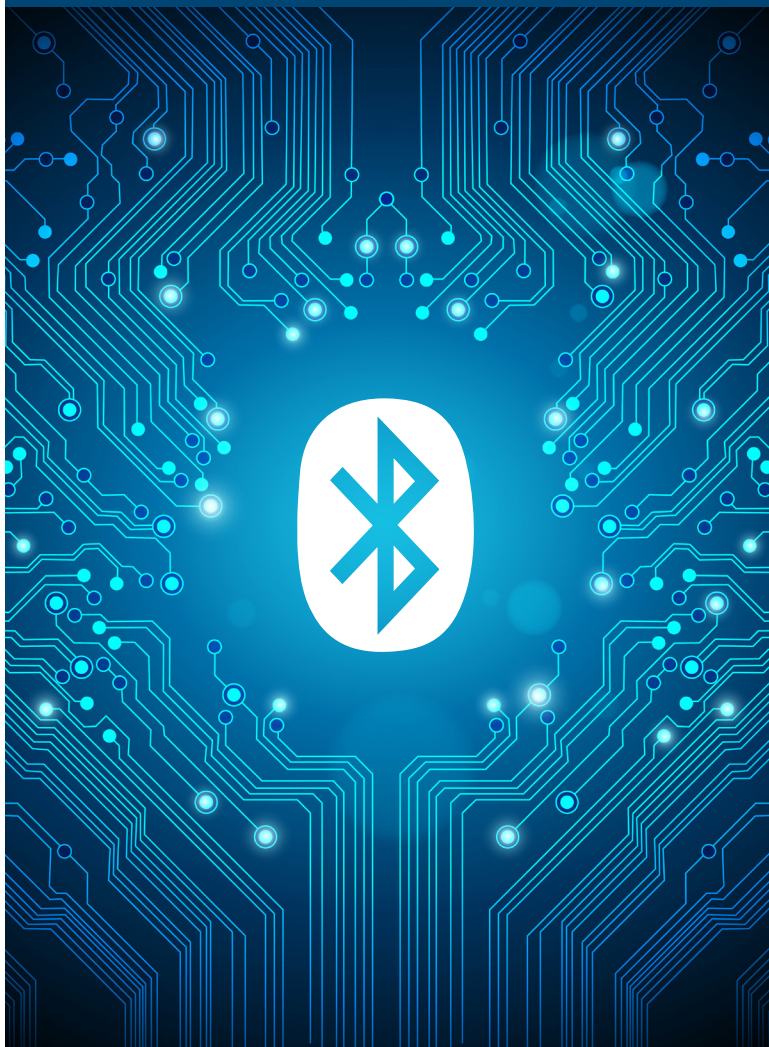
I believe these companies have been doing a great job in connecting the world. For them, when looking at the IoT, it might not be so interesting to focus on a single standard like BLE. They might prefer to build a robust system and use heavy technology. However, I believe they are realizing BLE, in the end, will replace a lot of the legacy stuff. This could lead them to focus on developing their own BLE products, but it might also lead them to start working more with companies like Kontakt.io.

## What are the main challenges companies entering the BLE industry will face?

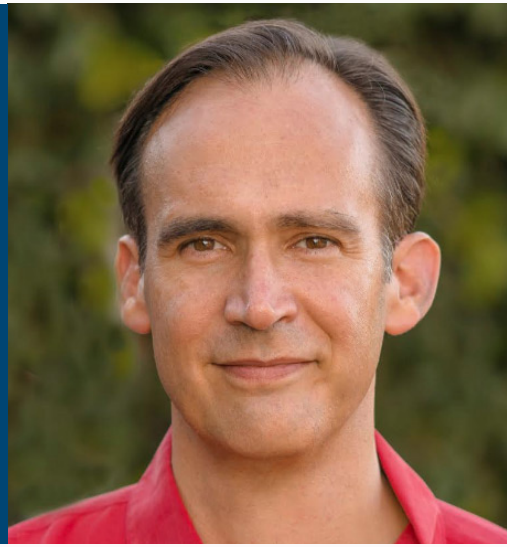
One of the bottlenecks preventing companies from using beacons in their solutions is the difficulty in understanding the total cost of building and maintaining an infrastructure. That's exactly why making beacon maintenance and deployment as easy and hassle-free as possible is an issue we are focusing on. All clients, especially those setting up a large number of beacons, place a premium on the ability to get their network up and running quickly so they can focus on their core business.

## What impact do you see Bluetooth 5 having on the BLE industry?

Bluetooth 5 is an important, and in many ways, comforting step for me and for the industry. It confirms that everything we are saying about Bluetooth is actually true. It will allow for longer range, higher data capabilities, and new IoT applications. You could almost say that Bluetooth 5 is a dream come true.



## Steve Statler



Steve Statler is a leading beacon industry expert and tech veteran. His book Beacon Technologies: The Hitchhiker's Guide to The Beacosystem offers a comprehensive and definitive overview of the development of beacon technology. We had the chance to discuss the industry with him and find out where he sees it going. We ended up talking about crossing into future technologies, how companies should think about the beacon industry, and the impact it will have on major sectors. As Steve said, we are reaching the end of the beginning for beacon history. There is much more to come.

### How did you first get into the beacon space?

It was while bootstrapping my own startup company that I got an opportunity to run a training program for the San Diego Airport, who wanted to get into the space. I had been working for Qualcomm, incubating what would become one of the first beacon companies. I hadn't intended to get into beacons, but a mentor of mine told me to stick with it.

So I wrote a beacon training course for the San Diego Airport, and it went really well. I decided to host an open enrollment course in the Bay Area. It ended up attracting people from all parts of the ecosystem, from chip manufacturers to beacon vendors and beacon software startups. There was clearly a real market for beacons, and I just had to write down everything I learned. That was where the idea of writing the book came from. It is a very interesting industry, and I really enjoy discussing the technology. That is the reason I am continuing the discussion through the podcast and other platforms.

### What do you think is the next step for the industry?

I can really see that infrastructure providers are the key players. They will take the ecosystem from where we are at the moment - which I see as the end of the beginning - to the mainstream. It is still early days. We are really just crossing the chasm. There is currently a lot of growth and interesting deployments, but the technology is still not mainstream.

## What does this mean for traditional providers?

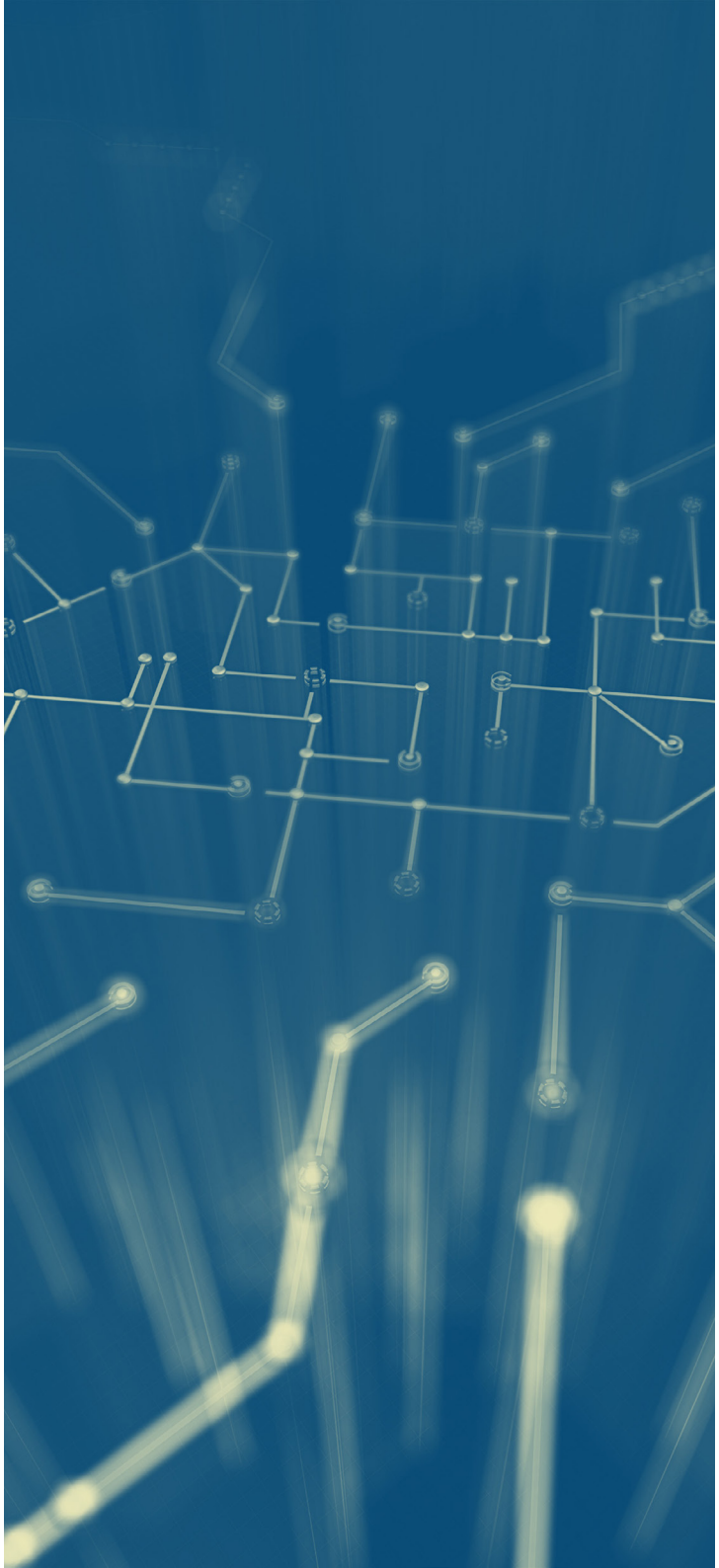
Look at Geoffrey A. Moore's model which defines a category of buyers called 'the early majority.' Those guys who are in the thicker part of the bell curve, they want to buy from a trusted provider. This is where the infrastructure provider has an important role to play. That may be new companies, like Kontakt.io, who are seen as winners, or it could be the very familiar company who already provides customers with traditional network equipment.

Many of these older companies have already started to look into the beacon industry. They want to invest but will only move forward with what they perceive as a low risk provider.

## What beacon application excites you the most right now?

My number one application would probably be safety like 911 and the National Emergency Address Database. All of the major American carriers have made a commitment to the Federal Communication Committee to improve accuracy and deliver dispatchable addresses in response to 911.

A clear opportunity is putting beacons in all sorts of equipment. For example, emergency signs could be outfitted with beacons to help venues make sure customers get the help they need in an emergency situation. There is also clear economic incentive behind this for companies that want to reduce their insurance premiums; they can reduce the risk of any sort of negligence lawsuit.



## What do you see as the main challenges when utilizing BLE technology?

I think the questions companies in the industry need to ask themselves is 'how do we make it easier to enter the market?' From my perspective, it is all about deployment, services, and network. We need to provide the end customer with solutions.

Because of where we are technologically, most companies have entered the market with only a minimum viable product. If we look at the solution providers that are really successful, what they have in common is that they are delivering a complete solution that brings real value to customers. This is what the conservative early majority wants. In the end most of the beacon companies will not focus on hardware; their focus will be on understanding a specific vertical.

## Where do you see applications for BLE beacons outside retail?

I really can see the applications in both manufacturing and logistics, although there are competing technologies there. Beacons are not a big force in manufacturing or logistics today, but we know major companies are already testing them out and running pilot programs.

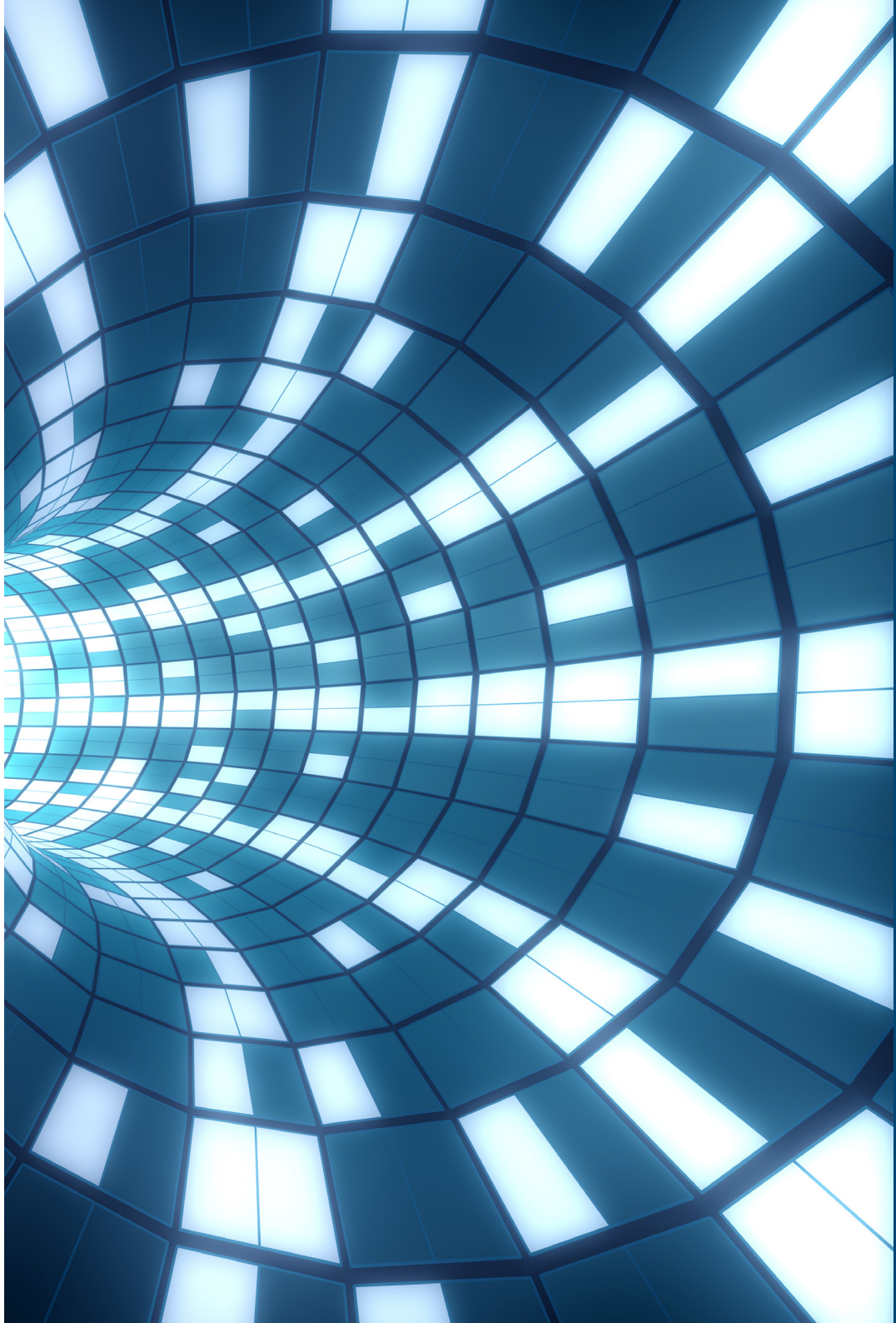
Hospitals are a very clear use case as well. Both hospitality and patient flows can be improved by bringing beacons in. There are a lot of inefficiencies with people getting lost or left waiting. If we can save time for doctors and their entire team, that will be big. Workplaces are another strong vertical where we see

solutions for room booking as well as for security.

If evolving standards can lead to higher accuracy and better integration with other tracking technologies, then I think Bluetooth can really give Ultra-Wideband a run for its money. When Bluetooth offers a similar accuracy for a fraction of the cost, then you'll see more applications. This is not a question of if it is going to happen. The pieces have not yet fallen into place, but they will in the near future.

## What role will technology development have in the beacon industry?

Overall I believe we will see more integrated systems in the future. Bluetooth has a notably strong position because of its close integration with the handset. WiFi is still interesting, especially when combined with BLE beacons. We also see beacon manufacturers including NFC and RFID, meaning there is something interesting with that tap experience. For me it is quite clear that people will continue offering solutions, both hardware and software, that offer an integration of different technologies. Beacons are one tool in the kit bag, and people will get more and more sophisticated about mixing tools together.



# III. Future Applications

Though beacons are becoming a staple in the IoT space, they are still relatively young. More importantly, they are still proving their formidability as more than just a marketing tool. What was once seen as a retail commodity is now speedily turning into one of the most affordable and scalable ways to establish a completely connected IoT network.

Beacons are transforming convoluted systems into seamless and automated infrastructures. While it may take some time for consumers to recognize the power of proximity technology, industry and forward-thinking companies will find that beacons not only save money by optimizing operations they can also provide a better atmosphere for employees, customers, and visitors.

Proximity Studio

kontakt.io

# Proximity Studio and Kontakt.io

The Proximity Studio is Kontakt.io's offline-to-online partnership platform offering firms a single entry to the beacon industry. The platform connects BLE beacon solution providers with businesses interested in understanding, exploring, and buying beacon solutions globally. By bringing together different actors from the industry we make sure that firms interested in beacon solutions gain access to the most suitable solutions while cutting down the average decision making time from nine months to a few weeks. This makes the Proximity studio unique in the industry.

The Proximity Studio thought leadership program is a leading source for information beacons and IoT. As a part of the Proximity Studio, we work with a network of solution providers in order to gain a deeper understanding of the evolution of the beacon industry and how beacon based solutions are creating value in firms in all industries. The thought leadership program is designed to share information about beacon technology and its role in the Internet of Things revolution. We strive to support leaders from businesses and institutions in taking decision and understanding proximity technology.