Stop Worrying and Implement Radio Frequency Identification

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From convenience stores to traffic control, Radio Frequency Identification (RFID) technology makes the world function more efficiently. When RFID is discussed, the first thing that comes to mind is that it is all about supply chain or logistics, which is not entirely true. We can enjoy many benefits of RFID. Radio Frequency Identification is one of the most innovative technologies that has transformed businesses by increasing efficiencies and improving profitability. The tiny RFID chips have provided immense opportunities and given new meaning to our lives and communities. From a convenience store to traffic control, RFID technology makes the world function more efficiently. People, including many professionals, have embraced this technological advancement, but some have disagreed and refused to accept RFID technology and have shown concerns about the system's vulnerabilities. Those opposed argued that RFID technology is the leading cause of cybercrime, security risk, privacy invasion, and health hazards. But let's take a closer look at the world around us. Becoming a parent is a great feeling, but imagine if the newborn baby were matched with the wrong mother. Imagine if your loved one is in hospital in critical condition, and there is no real-time monitoring of patient prognosis. Pretend you work on a farm, and one of the animals you're supposed to be taking care of is missing or is infected. Say you ordered a customized birthday gift for your mother, and your package is lost. How would you fix each one of those situations? I hope that people, businesses, and health professionals who think that RFID is not a suitable technology will reconsider their

opinions and give one more chance to embrace this innovative technology after reading this paper.

We see one of RFID's most positive impacts in the world of healthcare. Hospitals and healthcare organizations are making every effort to provide good quality care to the patients. Patient security and welfare are healthcare workers' number one priority. Health care workers face serious issues, such as medication theft and shortage of surgical tools and devices, every day. RFID technology not only increases performance efficiency but also ensures patient safety. RFID stores big data and provides a unique identifier for every object. These small chips are readable like bar codes and provide accurate and timely data. Health professionals use RFID infant and mother tags to eliminate the risk of a mismatch. For inventory management, hospitals are installing smart cabinets with RFID technology to ensure the traceability of the medical inventory and effective utility of medical supplies. In the scholarly article "Implementation and Evaluation of an RFID Smart Cabinet to Improve Traceability and the Efficient Consumption of High-Cost Medical Supplies in a Large Hospital," Araujo et al. (2019) explain how the RFID system is able to track anomalies, monitor consumption of medical products per patient, and contribute to time saving. The cabinet tracks medical inventory and gives alerts when there is a shortage of urgently needed medication or surgical tools.

Currently, we all are facing a severe crisis due to the COVID-19 pandemic. Hospitals are fighting every day to save human lives. They are using RFID tags to track and monitor the movement of test-kits from the manufacturer to clinical sites and labs. The RFID tags allow the hospitals to provide real-time data and help them to locate any contamination or tampered sample. It would be very difficult for the hospitals to deal with the COVID-19 crisis if there was no real position monitoring. In the article, "Pharmaceutical Applications of Radio-Frequency

Identification”," Kalra et al. (2012) provide evidence that RFID played an important role in preventing the spread of contagious diseases. According to the article, more than 8,000 people died due to the H1N1 disease in 2009. To prevent a healthy population from coming into contact with infected patients, the hospital used RFID bracelets to strictly monitor the movement and trend of the disease. The article also provides evidence that RFID devices help people with dementia, diabetes, and cardiovascular diseases by providing important information to the patients that use it. RFID tags control blood glucose and collect data for appropriate insulin dose, which prevents the risk of ketoacidosis, a problem that can cause death. For cardiovascular patients, it collects vitals such as body temperature and pulse rate for in-time treatment to avoid cardiac arrest or respiratory failure. If this tiny device saves precious lives, then how can it be a health hazard?

The benefits of Radio Frequency Identification are not limited to healthcare. RFID also provides agriculture and farms with great opportunities. Farming is a huge economic power in any nation. Farmers make every effort to provide food to a large population. Their task is not easy and requires efficient farm management. Farmers cope with climate change, soil erosion, biodiversity loss, and contamination. Imagine one of the lettuce boxes is infected, how will farmers locate it? How will farmers locate the infected animal from the livestock? Dealing with huge amounts of data is a complicated and time-consuming job, but RFID makes that job just a little easier. The smart and powerful infrastructure of RFID helps farmers to monitor inventory easily, locate missing animals, add new ones to livestock, and monitor their health records. In the article "Livestock monitoring using RFID with R+ tree indexing," Maria and Aroul (2017) describe the infrastructure of RFID and its utility in farm management. The article highlights

how farmers can improve the product quality, ensure the welfare of farm animals, utilize resources, and minimize costs and number of spoiled goods.

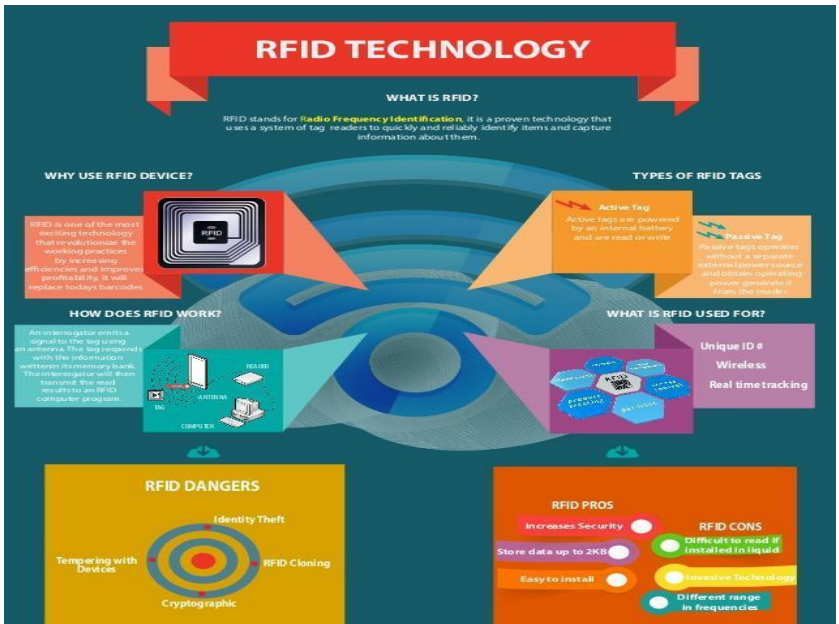
Dealing with a tremendous amount of data to get useful information is a huge task that many business professionals understand. It is important to get accurate and timely information because information which is out of date is immaterial and useless. In the business world, every minute is precious and requires quick, smart decisions to attain an advantage. If the company faces inventory issues or shipment delays, it might end up going bankrupt because it cannot locate the root problem. H. Sebastian Heese, professor of supply chain management from North Carolina University, also believed that RFID technology had given a new meaning to businesses. In his article "Inventory Record Inaccuracy, Double Marginalization, and RFID Adoption," Hesse (2007), highlighted the error and discrepancies between inventory quantities and product availability to the customers in the supply chain model. In his analysis, he compares and contrasts the supply chain process to analyze the consequences of inventory uncertainty and the incentive of adopting RFID technology. He argued that small errors would interrupt the ongoing processes. Identifying errors or miscalculations is a big challenge in supply chain management. In the article, Heese claimed that no business runs smoothly without identifying abnormalities or defects. He said that RFID technology has a great opportunity to rectify the errors between inventory records and actual stocks to customers. He argued that the adoption of RFID technology would help to resolve errors. The whole supply chain process would be under surveillance, and it would be much easier for the controllers and supervisors to detect errors. Heese also discussed that RFID technology assists supervisors to take appropriate action for the identified error. Inaccurate action may result in severe malfunctioning of the activity. Zhao, Liu, and Lin (2010) also approved the implementation of RFID technology on business processes and

agree that the corporate world has various potential opportunities and faces big problems and challenges every day, such as inventory control, tracking, operational performance optimization, customer, and managerial issues. In the scholarly article, "Incorporating business process management into RFID-enabled application systems," Zhao, Liu, and Lin (2010) highlight the routine business processes in the context of RFID business scenarios. Every day, the product distribution center handles a large volume of shipments, including a series of steps, and it is hard to track a product's shipping status. Whereas, the RFID-implemented distribution center provides the product's real-time information, improves the efficiency of the product handle, and helps in recovering counterfeit goods.

Imagine the disappointment when your special moment gets ruined due to the late arrival of the package or missing shipment. You feel helpless because nothing is in your control. Many business professionals agreed that RFID technology provides a better way to connect with the consumer market. In the article "The Value to the Customer of RFID in Service Applications," Heim et al. (2009) examined how customer value may be affected by implementing RFID in service sectors, which are of great importance in the business world. The article identifies a broad set of value dimensions related to RFID applications, which constructs a basis for the subsequent investigative study of RFID in the service segment. The authors argued that various service sectors use RFID applications, including hospitals and healthcare providers, libraries, postal services, banking services, airlines and transportation services, and government services. The authors agreed that RFID has made our lives better and tasks more convenient by making it easy to locate books, transfer cash from one account to another, track package deliveries, and collect toll and taxes. The authors claimed that in businesses, the consumer market holds immense importance, and for a successful business, it is important to attain customer satisfaction

by providing high-quality service by identifying and communicating value offers to customers. He claimed that customers do not like to be limited by paper slips or booklets and instead want fast and easy access to information that is effectively communicated through RFID tags.

Technologists and engineers are trying their best to invent more advanced and better technology that serves mankind. However, the misuse of technological advancement by predators and hackers is a constant threat. RFID provides monitoring, tracking, and protection, but hackers and predators may manipulate the system to read the RFID tag information. This allows them the information they need in order to commit identity theft and gain access to victims' cars, homes, offices, or card payments. That being said, it is the misuse of technology that leads to cybercrime, not RFID. It is wrong to accuse a smart and effective technology due to the irrational and unethical acts of others. The following infographic provides a more clear, precise understanding of RFID technology, its mechanisms, and its pros and cons. Identification of the problem is the first and the most important step in addressing this issue. What we know about the pitfall of RFID is preliminary. There is not enough research that explains that RFID infrastructure is vulnerable or that other operating systems or technological mesh networks can cause a problem. We should come together to solve problems and appreciate the technological advancements that serves mankind.



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