

Unlocking the value of **RFID**

RFID

The key to hidden value

What if you were able to uniquely identify your product, your tool, your asset or any other object with a serial number unique in the world that cannot be modified or replicated?

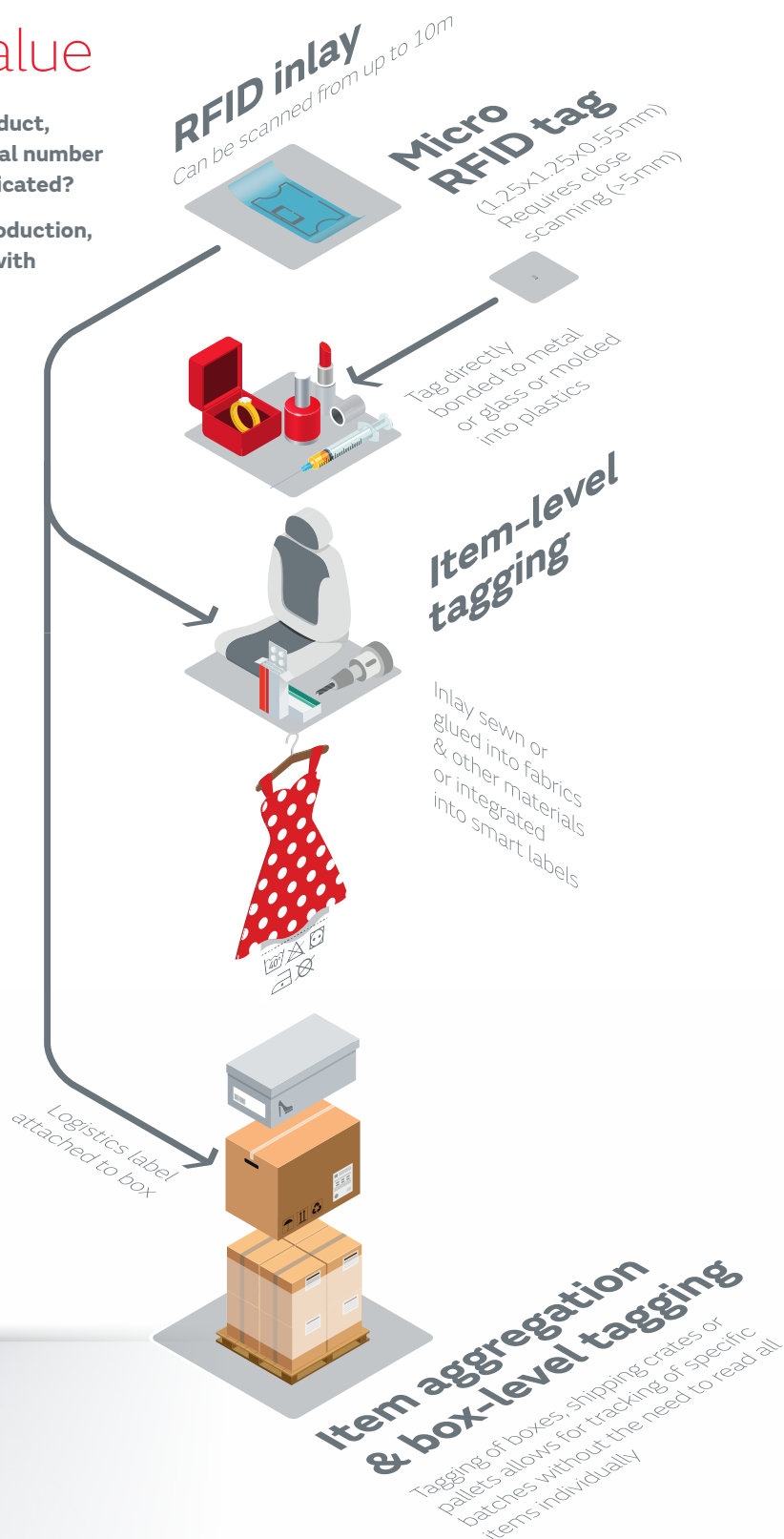
If you were able to visualise every second of the production, transportation, storage and sale of your products with unparalleled speed and accuracy?

If you could monitor every piece of stock in real-time, opening up new sales avenues and opportunities for even greater efficiency?

How much value could you unlock in your business?

Radio Frequency Identification, or RFID, is a ground-breaking tool for tracking, tracing and analysing stock at every stage of the supply chain. By wirelessly reading the data encoded in miniature RFID tags, it becomes possible to remotely monitor the flow of goods and gain valuable insight into every item's identity, status and condition.

As the years go by, more and more sectors, from food production to fast moving consumer goods, from fashion to apparel retail, from healthcare to pharmaceuticals, are discovering the benefits that RFID can bring to their enterprises. This powerful technology is transforming processes across an ever-wider range of industries, helping to combat fraud, counterfeiting and grey market, streamlining stock taking and transportation and enabling even greater innovation.



At Murata ID Solutions, we have been leaders in RFID research and development for over 20 years and were among the earliest to understand its potential. With consultancy expertise and a comprehensive product range spanning both software and hardware, we are perfectly placed to assist you in unlocking the hidden value in your business.

Consultancy

Applying the science of RFID to your business

Every business can become more efficient: it's just a case of finding out how. With over 20 years' experience in RFID research and development, Murata ID Solutions is well equipped to identify the areas where RFID could be most beneficially applied and draw up a roadmap to get you there.

Ahead of any major RFID venture, our experts draw up a blueprint that sets out the parameters, key action points and expected outcomes of the project. This 'feasibility study' comprises three sections:

1 'As-is' analysis:

An in-depth examination of current supply-chain processes, from the first upstream process, through to shipment and distribution, right up to the point of sale.

In our investigations, we dig deep into the processes used at each stage of the supply chain, highlighting opportunities and potential use-cases for RFID.

2 'To-be' planning:

A roadmap to implementation, our 'to-be' planning outlines the ways in which RFID technology and systems can be employed in practice.

Analysts look at the technical, informational and management specifications of the specific project, setting out the full range of hardware, software, and processes that will need to be put in place.

3 Economic assessment:

A full calculation of the costs and projected ROI associated with the project, including terminating, initiating and operating costs and key investment affordability factors.

Our mathematical models are highly adaptable, allowing for full flexibility and potential changes in the project parameters. We also outline qualitative outcomes that are difficult to measure monetarily.

In order to field-test the new system, it is often useful to pilot the project on a smaller scale. By doing this, we can examine the effectiveness of processes and equipment, and scientifically verify each of the projected benefits.



Software

Revealing the big picture with big data



A vast amount of data can be stored and transmitted via RFID tags, offering insights into the whereabouts, identifying features and condition of individual goods and shipments. With the right software and analytical tools, this data can become an incredible asset for business owners, offering a greater level of insight into the efficiency of processes than ever before.

Following an extensive period of research - in collaboration with RFID Lab and senior stakeholders from consumer goods and fashion - we developed our id-Bridge software suite (System Administrator, Middleware and Dashboard) to enable businesses to get the most benefit from their RFID applications.

id-Bridge Middleware makes it easy to process and interpret the information transmitted from tagged goods, translating raw data into added value for businesses. It forms a scalable software layer which integrates RFID devices with legacy ERPs systems.

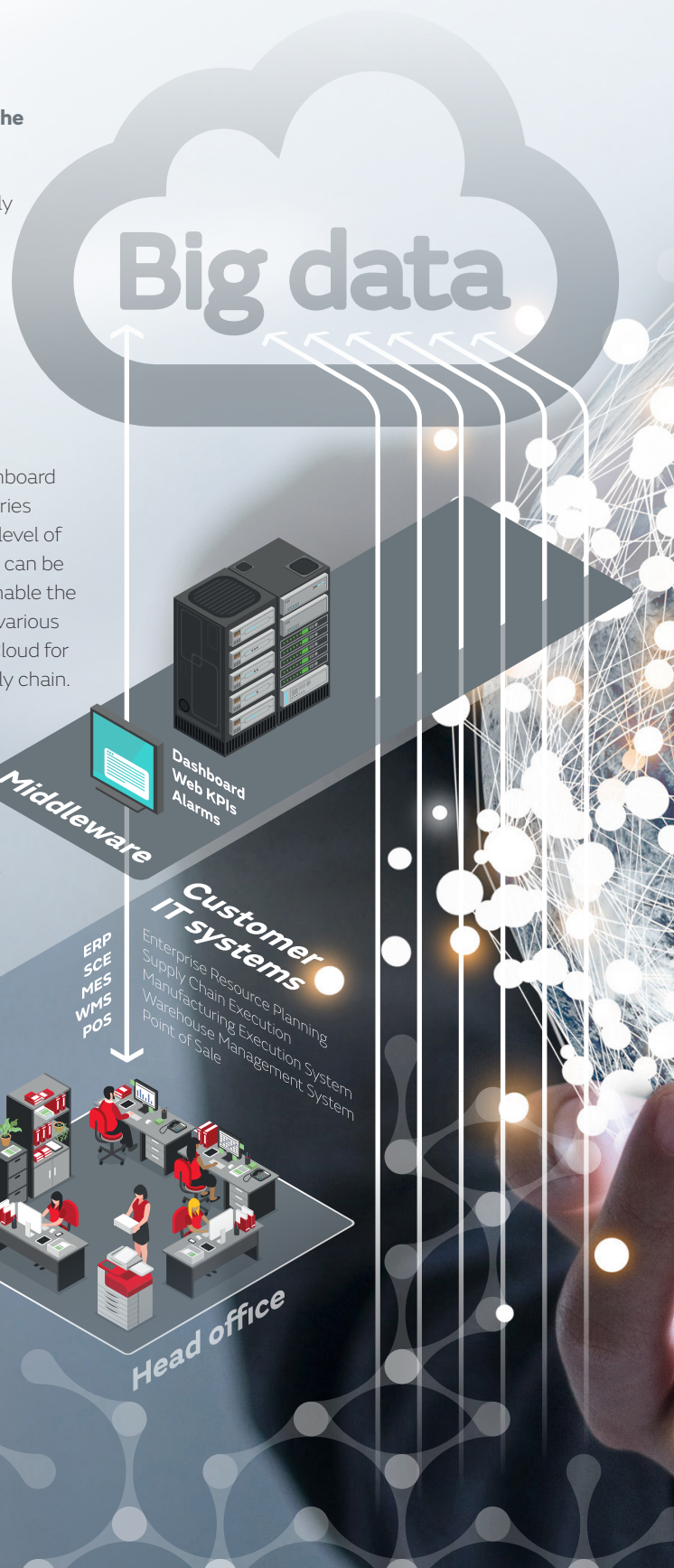
With an intuitive interface and easily-digestible presentation of data, managers at every stage of the supply chain can quickly access the information they need and take any necessary action.

It also encompasses an EPCIS data warehouse repository and a wide range of front-end process applications – such as encoding, receiving, shipping, inventory counts and transfers - for use with mobile devices.

id-Bridge Dashboard is not only a place to locate and access RFID data, but also a powerful business intelligence tool, delivering actionable insights to managerial decision makers, thanks to focused and added-value shortcuts and KPIs.

Much like RFID itself, id-Bridge Middleware and id-Bridge Dashboard support a wide range of industries and use-cases, offering a high level of adaptability to users. Software can be installed on a local server to enable the gathering of information from various local sites or linked up to the Cloud for an overview of the entire supply chain.

id-Bridge includes an object-oriented web browser interface that makes the set-up, control and maintenance of an RFID deployment easy and intuitive.



Hardware

The world's biggest game of tag

At Murata ID Solutions, we offer a complete range of RFID hardware supplied by an extensive range of carefully selected partners. Whatever your project, we can recommend industry-leading products that are perfectly suited to the use-cases in hand, based on careful consideration of quality, customer service and value for money. Our experts regularly attend exhibitions and trade fairs to stay on top of the best technology on the market – and everything we select is subject to extensive testing at the University of Parma and at Murata's anechoic chamber.

The core hardware for any RFID system can be divided into two types:

Tags

From a single warehouse to a global distribution network, RFID tags are the backbone of any RFID system. Every tag contains a serial number – making products uniquely identifiable and boosting the fight against grey-market and counterfeit goods.

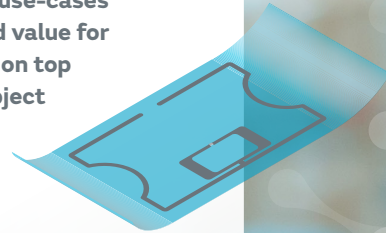
Tags can be enriched with a wide range of other static data, such as information about colours, sizing and date of manufacture, as well dynamic data at various stages of the supply chain. Used in conjunction with sensors, tags can transmit vital data about heat or moisture levels, allowing managers to keep track of the condition of each item.

At Murata ID Solutions, we have a wide range of RFID tags suited to a range of use-cases and industries. In fashion and textiles, we offer tags small enough to sew into labels and tough enough to withstand washing. For particularly small goods, we supply the world's smallest RFID tags that can be embedded into almost any item. Whatever the product, we are able to offer cutting-edge technology with the levels of reliability and durability you would expect from industry leaders.

Tag readers/writers & printers

When selecting readers for a new RFID system, you can select from either static or handheld/portable readers, depending on the specific application and stage in the supply chain. These ultra-powerful readers can scan thousands of tags in a matter of seconds, and function across a range of distances, from 50cm up to 10m. Unlike barcode readers, there is no need to have a direct line of sight to the items being scanned, allowing for ultimate ease and efficiency.

At Murata ID Solutions, we offer compact, high-frequency reader/writer modules that can be easily installed into a range of devices. This will allow users to encode tags and read them using the same device. To encode and print tags, a tag printer with an encoding add-on can also be used.



Applications

How is RFID revolutionising your industry?

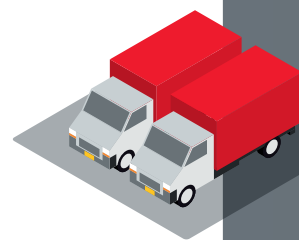
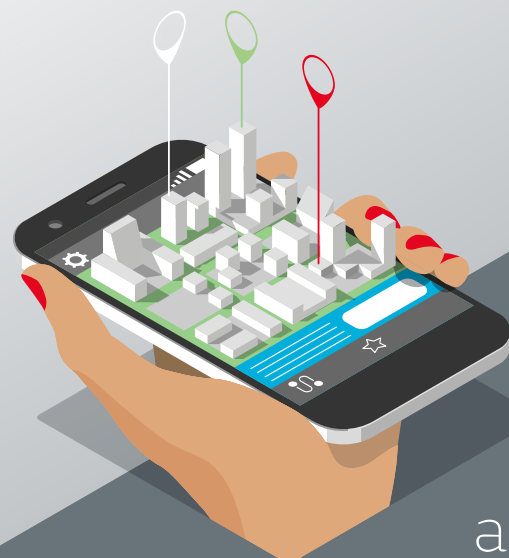
Retail firms were among the earliest adopters of RFID technology, but since then, leaders from across a spectrum of industries have discovered the ways in which RFID can benefit their businesses.

At Murata ID Solutions, we have worked with and support a huge range of industry sectors, including fashion, healthcare, retail, pharmaceutical, industrial, manufacturing and logistics. RFID has an ever-growing list of use-cases, many of which have revolutionised industry processes from shop-floor management to production and post-sale customer care.

Some of the most popular use cases for RFID include:

- Industry 4.0 operations, distributions and logistics
- Asset tracking
- Supply chain management
- Cold chain Management
- Track & trace and regulatory compliance
- Brand protection – anticounterfeiting and grey market control
- Retail
- Inventory accuracy
- Visual merchandising
- Replenishment from stockroom
- Customer experience & customer relationship management
- Anti-theft
- Omnichannel sales

At present, we have only just scratched the surface of what RFID can do.



Logistics...



Retail...



Industry...



Healthcare...

...and more!

Contact us today to discover how RFID is revolutionising your industry, and how it could transform your business processes forever.



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About Murata

Murata is a global leader in the design, manufacture and supply of advanced electronic materials, leading-edge electronic components and multi-functional, high-density modules. Murata innovations can be found in a wide range of applications from mobile phones to home appliances, and automotive applications to energy management systems and healthcare devices.

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