Transform product development
# with easy access to PLM

Intro/Table of contents

Ensuring that product lifecycle stakeholders throughout your organization can access the most **accurate, up-to-date product information** will benefit all aspects of both the product and the organization itself. But how do these stakeholders – from requirements definition through service and support – get product information in a timely way to begin **informing critical decisions** today?

In this ebook, you will:

- Discover the **Impact** of today's methods

- Explore the **Role of IoT** in finding a solution

- Learn how **Thingworx Navigate** can help

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Transform product development with easy access to PLM

How do you communicate product data today?

With an estimated 90% of the world's data created in the last 2 years alone (*Conner, n.d.*), it's no wonder that companies lack the means to use it all. IDC estimates that just 0.5% of the data companies produce is ever used (*EMC, 2012*), and Big Data experts believe that if the average Fortune 1,000 company increases the amount of data it uses by just 10%, it could realize over $65 million in additional net income (*Marr, 2015*).

90%
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Fortune 1000 company increases the amount of data it uses by just
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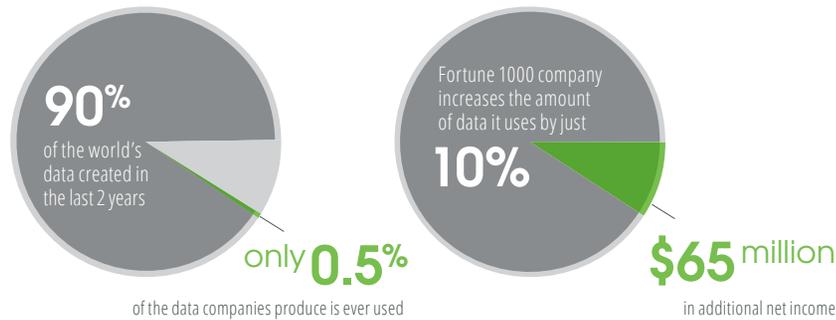
With data throughout your company coming from sources as diverse as internal IT systems, manufacturing equipment, and product service and use, it can be a challenge just to access this information – let alone analyze it, create meaning from it, and make the right decisions with it.

For starters, different teams from throughout a single company all use different systems of record to capture, manage, and communicate the information that is important to them. Each system of record requires its own unique set of skills, and accompanying training, to use – making it seem like the only people who can get data out of it are the ones who put the data in there in the first place!

Safety

Quality

Compliance

Innovation

Time-to-Market

Reliability

HAVING or **NOT HAVING**
the right data for decision-making
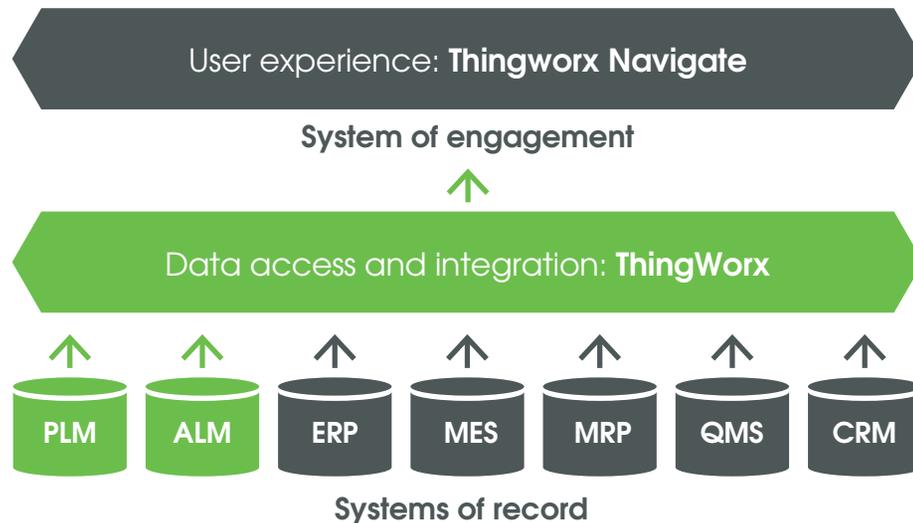can impact a product's:

Performance

Accuracy

Serviceability

Customer Satisfaction

Functionality

Market Suitability

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What is a system of record and a system of engagement?

Teams throughout an enterprise use "systems of record" to store information and to be their authoritative source of all data related to the product that they need (*Moore, 2011*). However, because these teams serve separate functions, they collaborate amongst themselves using the same system of record – creating data silos at the company. Some may rely on Product Lifecycle Management (PLM) systems while others may depend on Enterprise Resource Planning (ERP), and still others on Manufacturing Execution System data (MES) and others on Quality Management Systems (QMS). Without a single means to bridge these siloed systems – a centralized "system of engagement" – teams are missing out on valuable information about the same product that happens to be housed in a system they can't normally access.

User experience: **Thingworx Navigate**

System of engagement

↑

Data access and integration: **ThingWorx**

↑ ↑ ↑ ↑ ↑ ↑ ↑

PLM ALM ERP MES MRP QMS CRM

Systems of record

How does product data impact **Lifetime Product's** decisions throughout their organization?

Our sales, marketing, and R&D teams… operate with their own objectives, but they all work within our PLM system to keep the rest of the enterprise in tune with what's going on with their directions."

– David Winter,
VP of Manufacturing and R&D, Lifetime Products

LIFETIME

This leads to rampant workarounds: people without access to the systems of record instead use out-of-date information posted to third-party reporting tools, PDFs, email communications, and external file servers. Decisions made with out-of-date, inaccurate data can threaten product quality, delay time to market, and build in wasteful or even counter-productive use of resources like budgets, time, and personnel.
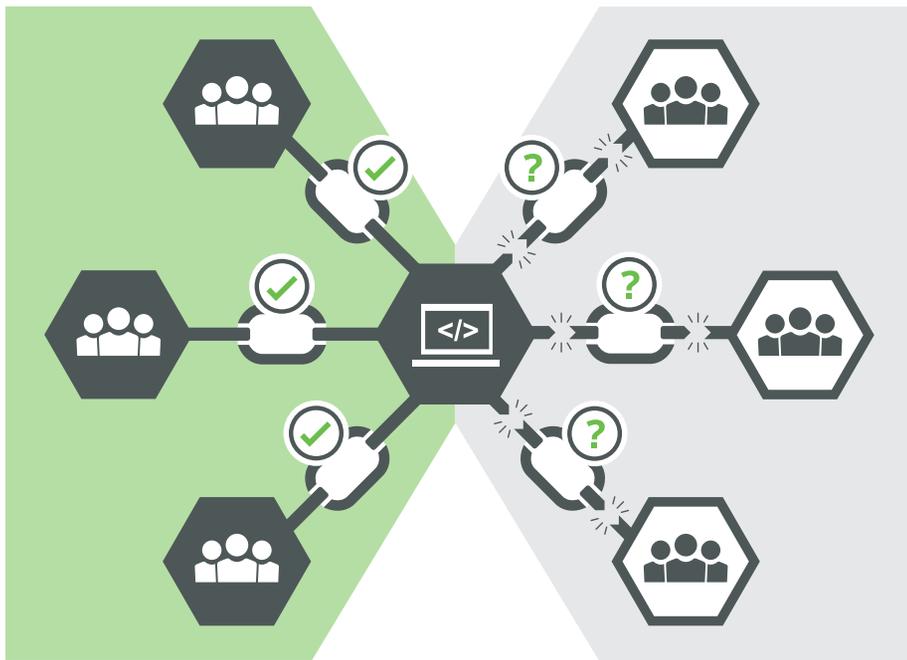
Users without access to the system of record resort to workarounds that leave decisions and actions throughout product development prone to errors, inaccuracies, quality problems, and waste.

How does making product information available impact Airbus Helicopters during a project?

Transparency is essential to us in order to be able to monitor the progress of a program on a day-to-day or weekly basis."

– Franck Dessenis,
VP, H160 Program Management, Airbus Helicopters

AIRBUS
HELICOPTERS

The role of IoT

Getting data from one place to another is the role of the Internet of Things – or IoT. This yields possibilities never before considered: Could companies learn how their products are performing in the field from sensors on those products themselves? Could product managers analyze this information to better understand the product's performance, quality, and use? Could quality engineers use this information to explore root cause – that is, why a product failed to meet its expectations – using information about conditions at the time it failed, user behavior, and environmental factors? Could a wide range of roles throughout the organization use this information to improve the way products are serviced, designed, or manufactured?

More and more companies are saying, quite simply, "Yes". With an estimated 50 billion connected "Things" predicted by the year 2020 (according to a report by Cisco and DHL), for a potential economic impact of $6.2 trillion (*Kavis, 2014*), IDC predicts no less than 70% of manufacturers will offer smart, connected products by the end of 2016 (*IDC, 2014*).

This means that IoT data will add even more information to the wealth of product-related information already available to companies: in just about four years' time, the sheer volume of data is expected to skyrocket to 15X what it is today (*EMC, 2012*).

In **4 years**, the **volume of data** is expected to skyrocket to **15**x what it is today

| 1x | 2x | 3x | 4x | 5x | 6x | 7x | 8x | 9x | 10x | 11x | 12x | 13x | 14x | 15x |

And this IoT Revolution has already begun.

Trane North America is transforming its business model to sell "product as a service" (in their case, providing cool, comfortable air to their customers) rather than selling the product itself (air conditioning units). To do this, it needs to ensure that product information is shared more widely with its organizational stakeholders – namely, its service department – to ensure that equipment in customers' offices are not breaking down and that customers are able to be more productive in their own work due to the climate in their working space. As a result of this shift, for every $1 of equipment Trane sells, it expects up to $8 in potential service revenue. (*Taival, 2014*)

Democratizing product data into a system of engagement from existing sources as well as from potential new sources afforded by the IoT can mobilize and inform the work of teams throughout the organization – including service, marketing, product development, sales, value chain partners, engineering teams, and more – introducing new possibilities for the business and new opportunities to realize value.

Getting enterprise data to engineering and engineering data to the enterprise

Whether your company produces smart, connected products today or not, IoT and the Cloud is the means by which you are increasingly connected to the data that flows into your daily life. In fact, over one Exabyte of data (or 1 million terabytes) is estimated to be currently stored in and communicated from the cloud (*Cox, 2013*). In a matter of seconds, you can push a button on your smart phone and ask it for the latest weather information, traffic data, the best restaurants in the area and their up-to-the minute reviews, today's movie times, nearby shopping centers – and all this comes from the cloud data your smartphone apps can simply "tap into". The possibilities are endless!

Exabyte of data
(1,000,000 terabytes)

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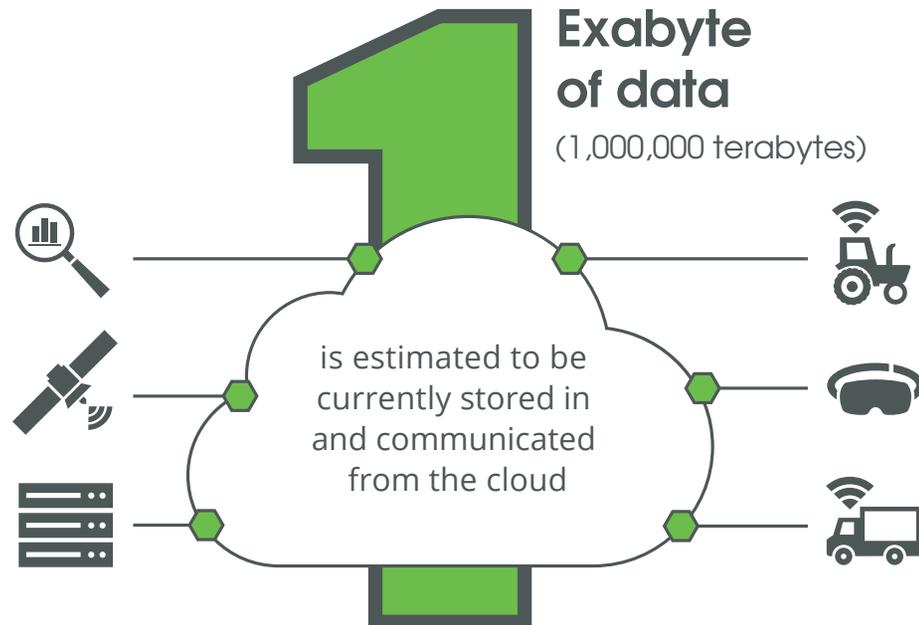
Well, nearly endless: the same model of quick and easy access to up-to-the-minute data for making key decisions does not usually apply to your company's systems – or your product's information. Today, our organizational IT (information technology) and OT (operational technology, or, the physical machines and devices that have software embedded into them in order to monitor conditions and gather data on how they are operating) has in large part not made it to this cloud-enabled, mobile-ready, IoT-powered, simplified, highly intuitive, familiar, and otherwise ubiquitous "app" paradigm – a paradigm which has quickly grown to be the primary way many users interact with technology and the world around them.
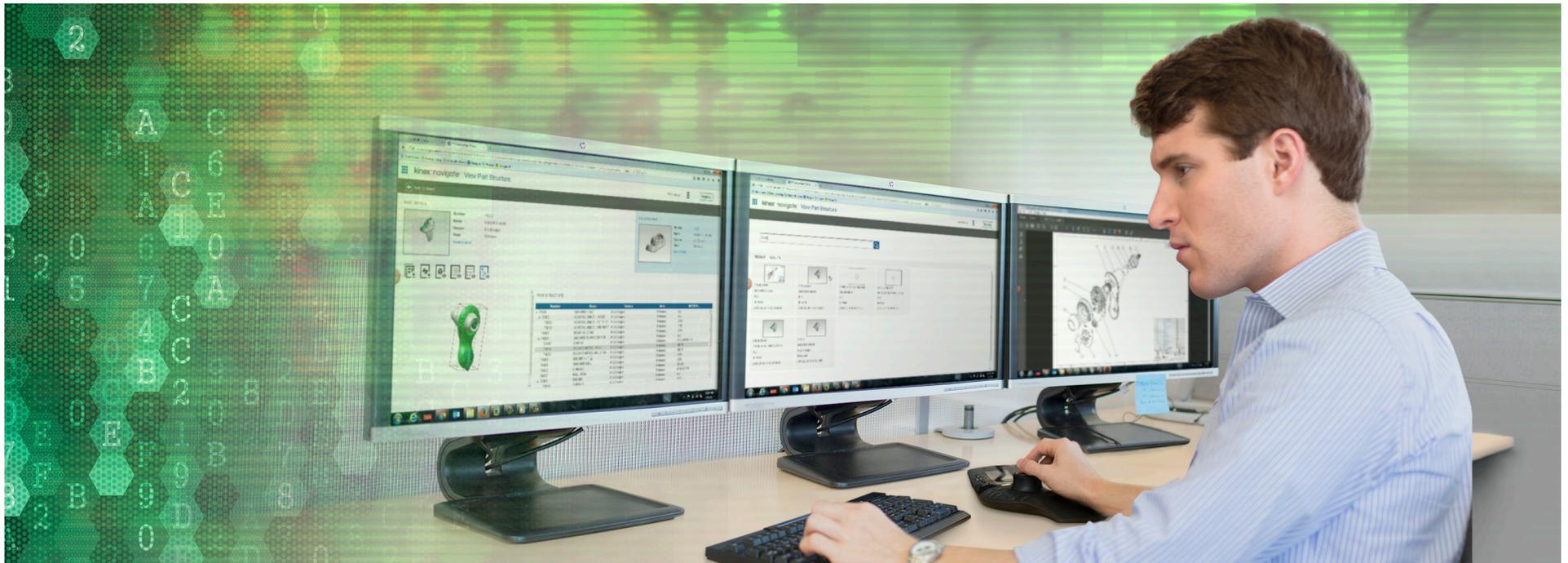
Until now.

About Thingworx Navigate

Thingworx Navigate is a revolutionary new set of applications that let stakeholders across a company access and impact product data sourced from multiple systems of record in a simple, role-based user interface. By adding a single, streamlined, highly intuitive "system of engagement" through which users across a company can interact with accurate, high-fidelity, real-time data housed in their systems of record, Thingworx Navigate offers product lifecycle stakeholders a modern user experience that is as easy to use as a smartphone app. Its role-based deployment ensures that any stakeholder who needs to can access the latest, most accurate product information from across many enterprise sources to drive critical decisions, in context with the user's role, in a simple, low-touch way.

According to Google, 91% of users turn to mobile devices during a task – with 60% claiming they make decisions faster using mobile apps."

– Google, 2015

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How to begin with Thingworx Navigate?

Start here	Make it your own	Add more data
Connect your PLM data to the enterprise and enterprise data to PLM with highly intuitive, out-of-the-box role-based apps that create a flexible, easily deployed System of Engagement for product data across your company.	Tailor and deploy apps based on the role of the user and the information they need: providing actionable, up-to-the-minute, accurate information at their point of need.	What else do your product lifecycle stake-holders need to know? Extend apps to incorporate new data from new systems of record, including data and analytics from smart, connected products.
• Drive more timely, accurate decisions	• Intuitive – no training required	• Extend to new data sources, systems, and users
• Improve product quality and reduce waste	• Role-based: contextualize data based on the user's needs	• Deploy and adjust apps quickly, trying out new user experiences
• Gain new insights by mashing up data sourced from multiple systems	• Increase time-to-value for systems of record	• Upgrade or replace back-end systems without disrupting the user experience
• Increase speed and breadth of adoption of enterprise software across the organization	• Cohesive, familiar user experience across devices	• Bridge systems of record no matter where they're sourced: on the cloud, on premises, SaaS, or mixed

View Document   View Design Files   View Drawing   View & Measure in 3D   View Part Properties   View Parts List   View Part Structure

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What is the value of PLM data to teams beyond engineering at [Trans-Matic Manufacturing Company](#)?

One of the things I've been very passionate about is taking the data that we create in engineering and getting it outside of the engineering department and out to the people in the company so that they can leverage this information that we've worked hard to develop"

– Tom Uminn, Engineering Systems Analyst, Trans-Matic Manufacturing Company

Thingworx Navigate delivers out-of-the-box apps supporting a wide range of PTC offerings – including Windchill, Integrity, and Windchill Quality Solutions. It also offers a highly flexible, easy-to-use, "mashup"-ready developer toolkit with the added capability to collect and display up-to-the minute product data from other enterprise systems of record and even from smart, connected products. Deployment options are highly flexible by user, role, and team – enabling in-browser access to apps, mobile-ready user interfaces, and the option to deploy apps inside of existing PTC software UIs.

Learn more about Thingworx Navigate at **[ptc.com/navigate](#)**.

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