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watersmartinnovations.com



HOW CONNECTED DEVICES CAN DRIVE SUSTAINABILITY

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The Toro Company

- Technology that connects people to products with online identities is only as good or bad as the way people choose to use it
- You either could achieve accuracy, adequacy or fail far short of your desired outcome

- Individuals Must:
 - Be open to change
 - Have a sincere willingness to trust

Do You Have Much Trust In IoT Devices:

- Your car GPS System?
- Amazon Alexa, Google Home or Apple's Siri?



TORO Information Technology IS Revolutionizing Products

- Collecting data for its own sake isn't really helpful But if you can take the data and feed it into an automatic decision-support mechanism which can react under a wide range of conditions, its ability to feed smarter decision making becomes unlimited.

What Could Be Achieved?

- *Imagine* a “Closed-Loop” smart irrigation system with various online connectivity that can drive sustainability
- *Imagine* a smart system communicating with you to help generate a site activity record that can help you monitor & reduce water and energy in real time.

Transitioning to the Future

- Products have evolved from simple mechanical and electronic components into complex systems that combine hardware, sensors, data storage, microprocessors, software and connectivity in various ways.



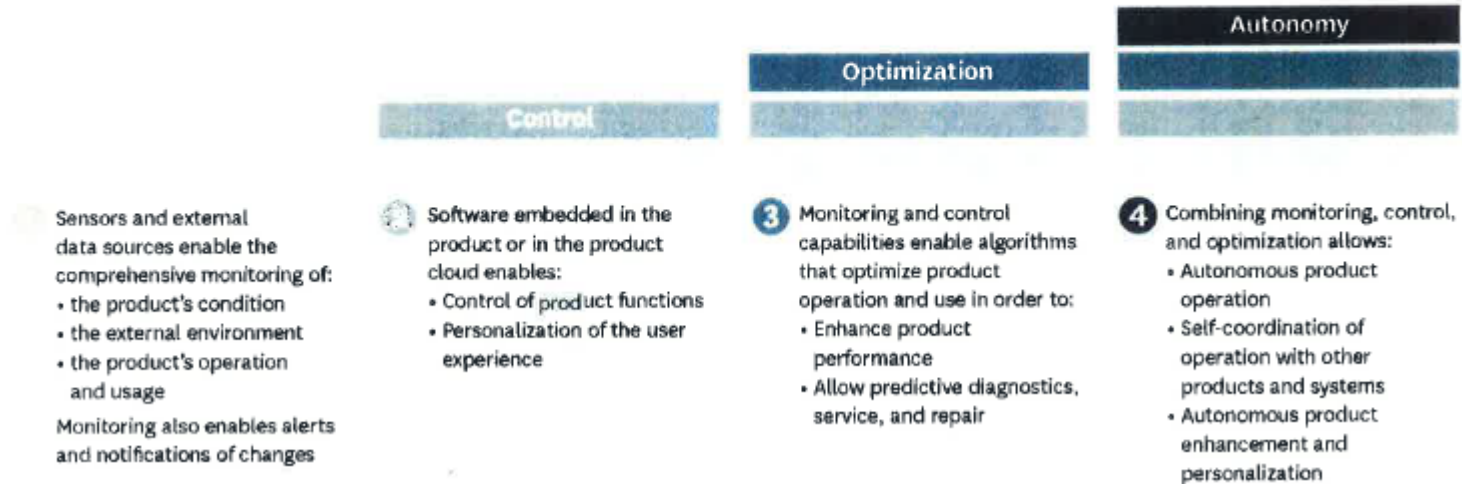
What are Smart Connected Products?

- These types of products are comprised of 3 key core elements:
 - **Physical Components**
 - **Smart Components**
 - **Connectivity Components**
- Smart components amplify the capabilities and value of physical components.
- While connectivity amplifies the capabilities and value of the smart components and enables some of them to exist outside the product itself.

THE RESULT IS – A virtuous cycle of value!

Capabilities of Smart Connected Products

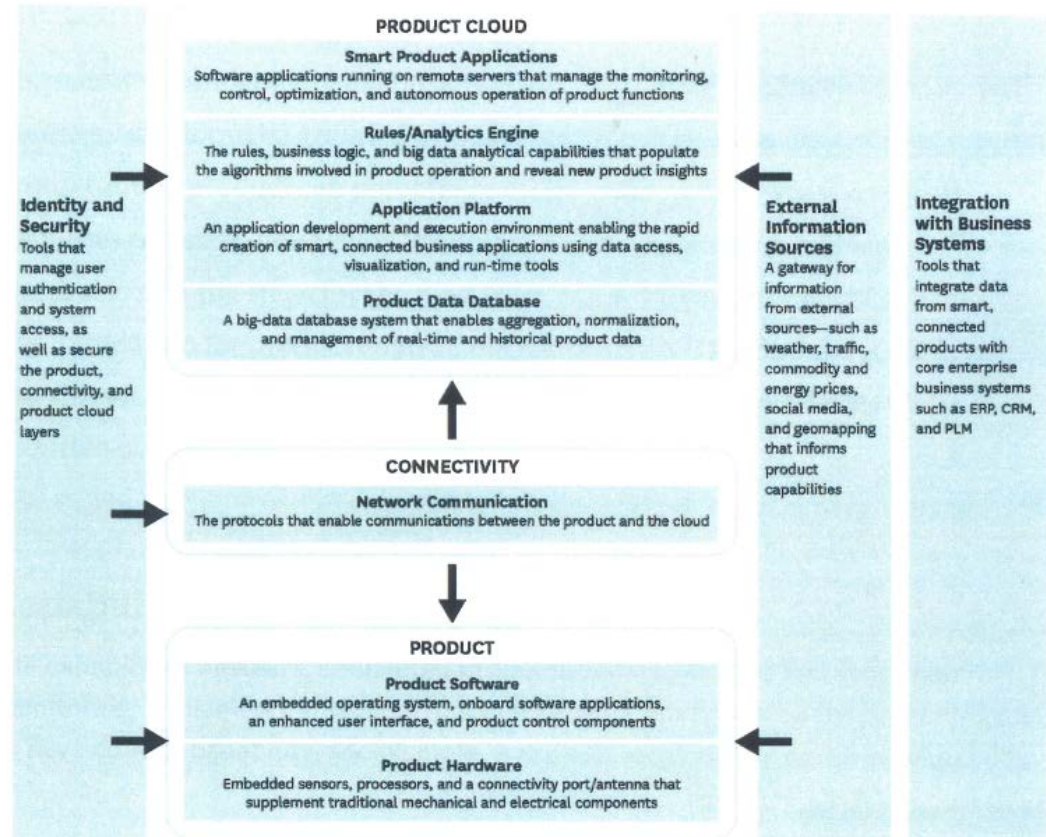
The capabilities of smart, connected products can be grouped into four areas: monitoring, control, optimization, and autonomy. Each builds on the preceding one; to have control capability, for example, a product must have monitoring capability.



- Expanding opportunities for new functionality
- Far greater reliability
- Higher product utilization

The New “Technology Stack”

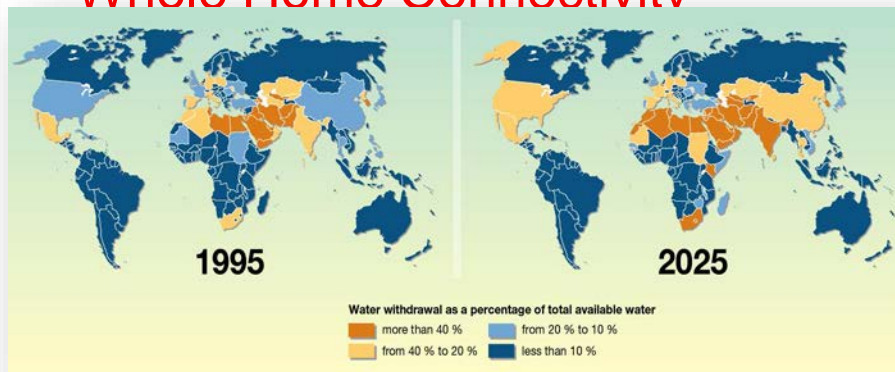
- Imagine how objects/products with connected online identities can
 - Actually drive sustainability



HOME SMART HOME



- The availability & cost of water and energy
- Labor
- Productivity – doing more with less
- Whole Home Connectivity



With all the Good . . . Comes the Scary

- Creating a more sustainable world with the lot brings new challenges
 - It will require many different industries and individuals to work together
 - The proliferation of connected devices will create enormous security challenges, forcing us to secure billions of access points against nefarious hackers



