INFO~TECH
RESEARCH GROUP

2019 CIO TREND REPORT

Become a Leader in the Loop

Introduction

In 2019 and beyond the CIO will be asked to deliver much more: as a business partner, a trusted technology advisor, and a key driving force in the present and future relevance of their organization. The pressure is on to become more than a supplier of services and an executor of projects.

As the business' technological steward, the CIO must help their organization adopt emerging technologies with an eye to their long-term impact. The CIO must educate their organization about new ways to deploy existing technology, enabled by changes in the technology landscape. Finally, the CIO must help their organization grow, not just operationally, but also as a service provider that puts customers at the forefront.

Accomplish this by becoming a **leader in the loop.** Use Info-Tech's approach to emerging technology to take a strategic position when it comes to trend adoption.

Input
User-Facing AI

Input: The materials, commands, and data that will be used to derive a finished product.

User-Facing AI: The automation of user and/or customer-facing tasks to decrease the burden on human support service providers while increasing user satisfaction.

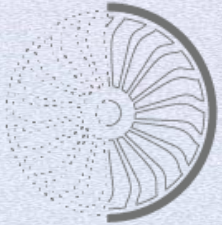
Output
Digital Twin

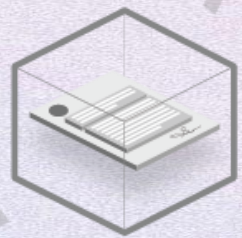
Output: The result of the previous three stages presented in a way that is actionable to the stakeholder.

Digital Twin: The creation of digital models of real-life objects using data from sensors on the objects themselves.

What is the loop?

"The loop" describes the steps for getting from a starting point to a result. Throughout human history, objectives and operations follow "the loop." The loop consists of four parts: input, process, control, and output. Each of these components is connected to a technology from the *CIO Trend Report 2018*.





Process
Robotics

Process: The steps taken to study, synthesize, break down, and reconstruct the inputs into a finished product.

Robotics: Encompasses robotic process automation (RPA), the automation of virtual or clerical processes with software "taskbots" and robotic automation of physical tasks by machines.

Control
Blockchain 2.0

Control: Ensures the right information is transferred to the right stakeholders in relation to the finished product.

Blockchain 2.0: A "distributed ledger" that removes reliance on a single master copy of a digital record by storing multiple duplications of the record on different devices.

What is leadership in the loop?

The increased proliferation and sophistication of technology means there are more choices than ever for your business. **Leadership in the loop is about providing stewardship in the learning and adoption of new technologies.**

Providing leadership in the loop is not easy for an IT leader. To become a leader in the loop, the CIO must learn about changes in the technology environment, adopt emerging technology strategically, and grow by delivering on outcomes – both business and human.

How do you become a leader in the loop?

Learn about changes in the technology environment

Learn about technologies that will impact the business and social environment. These are shifts that change the way we deploy and use other technologies. A leader in the loop must learn about them and foresee the impact they will have. This report explores three technologies that will have profound impact on the business and social environment in the next several years.

Adopt emerging technology

Focus technology adoption efforts on technologies that can stack together. Throughout history, technologies have stacked together to create new use cases that multiplied the benefits of the individual technologies. This report explores how technologies from Info-Tech's trend report last year have combined to create new use cases.

Grow by delivering on outcomes

The cost of technology has exceeded its benefit when it begins to harm resilience, experience, and trust. A leader in the loop adopts new technologies based on their impact not just on business outcomes, but also on human outcomes. This report examines business and human outcomes and how they shape technological adoption.

Learn about changes in the technology environment

Digital Ethics

Digital ethics is concerned with the social impact of digital data collection and analysis. Although regulation of consumer data is not a new concept, recent years have seen a proliferation of unprecedented use cases that have pushed the boundaries of both existing legislation and customer expectations.

5G

5G is the name of the latest generation of mobile communication technology, offering improved speed, reliability, and connectivity over its predecessor, 4G. The promise of 5G is a gateway into a fully interconnected world. No more buffering before a video loads. Instead, 5G offers the instantaneous sync of large volumes of data and the ability to connect hundreds of thousands of users simultaneously and have them interact, in a virtual environment, with minimal latency.

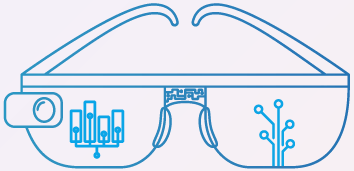
Dapps

Dapps (pronounced "DEE-Apps") is an application running its back-end on a decentralized peer-to-peer network. In a traditional app, the app calls an API to grab your data from a database and displays them. In a Dapp, there is no central database. Instead data are stored on a decentralized network of peers – such as a blockchain. On the front-end, a Dapp is no different than any application that you can download right now.

Adopt emerging technology

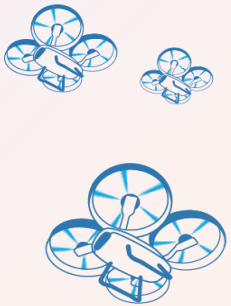
Digitized Serialization

A trend towards secure tracking of data generated in the physical world using decentralized ledgers. By adding blockchain technology to a digital twin or sensor on a physical world object, careful and secure tracking is enabled.



Digital World

By combining the accessibility of user-facing artificial intelligence (AI) and digital twin technology, this trend allows users to see the details of a the internet of things (IoT) object. Imagine looking at an airplane engine with your augmented reality (AR) goggles and seeing the last date of maintenance, the mileage, and the serial number – all at a glance.



Autonomous Swarms

Autonomous swarms are comprised of many robots that together accomplish a task each individual robot cannot. Robot swarms can exist without blockchain. However, adding blockchain pushes the technology past a critical threshold of security and reliability, which makes it suitable for deployment in many currently hypothetical use cases.

3 Key Business Outcomes

These trends have impacts on business outcomes. They have the potential to change internal processes and external positioning within industry.

Efficiency

The ability of the technology to use fewer resources to accomplish the same amount of output or more.

Intelligence

The ability of the technology to leverage organizational outputs to make processes smarter and more efficient.

Scale

The ability of the technology to quickly increase capacity.

3 Key Human Outcomes

It is not enough to think about business outcomes. Leaders in the loop must also consider human outcomes: how technologies will impact the humans and societies they interact with.

Trust

The extent to which the technology improves trust between parties.

Experience

The extent to which the technology improves user experience by making something easier, simpler, faster, or more fun.

Resilience

The extent to which the technology helps people and the organization quickly recover when a negative event occurs, or prevents negative events altogether.

How to read this report

LEARN
Changes in Technology Environment

Description	A description of the different technology environment shifts and what they entail.
Signals and Drivers	A summary of events, observed behaviors, and underlying forces that are driving these shifts.
Critical Uncertainties	A description of the key unknowns that will shape the impact of these technological shifts.
Scenario Analysis	An analysis of the possible outcomes of these technological changes based on the critical uncertainties.
Info-Tech Resources	A list of Info-Tech resources that will assist your organization in understanding these environmental changes and what they mean for your business.

ADOPT
Emerging Technologies

Description	A description of the technologies and what they can achieve.
Benefits	A summary of the benefits that could be achieved from a business and human perspective from the successful adoption of these technologies.
Dependencies	A summary of the technological prerequisites needed to make adoption of the technologies more widespread.
Case Study	A real-life example of how the technology is currently being applied in industry.
Info-Tech Resources	A collection of Info-Tech material that will assist your organization with understanding and adopting the emerging technologies.