Emerging Technologies: Creating New Ways to Solve Business Problems

At a Glance

Emerging technology can enable enterprise goals — but only if properly implemented. To achieve smart implementation, companies should:

- Automate processes

- Enrich data

- Visualize data and analytics

- Innovate to reach new capabilities

- Ensure early and frequent collaboration between the CIO and the C-suite

In today's transformative business environment, emerging technology has a decisive role to play in an organization's innovations, customer experience and overall success. On one hand, business leaders have the greatest insight about the organization's needs and objectives, and likely have new ideas on how to achieve those objectives. On the other hand, the CIO has the greatest knowledge of what is possible — along with an understanding of emerging technologies and how they can be used.

Emerging technologies such as artificial intelligence (AI), machine learning (ML), augmented reality (AR) and Internet of Things (IoT) can help organizations scale on demand, improve resiliency, minimize infrastructure investments, and deploy solutions rapidly and securely. Potentially disruptive emerging technologies such as quantum computing threaten to revolutionize many industries, as well as pose significant risks businesses must manage in the coming years. More importantly, these technologies can help companies create powerful transformations within the organization that can drive additional revenue and set it apart from the competition.

Combining the insights of the business leaders with the technical knowledge and expertise of the CIO leads to synergistic decision-making that differentiates organizations and brings prized marketplace disruption.

CIOs must learn to think differently by applying technology solutions to solve *business* challenges. However, they must be enabled by organizational cultures that support innovation and governance functions that facilitate the partnership between the CIO and business executives.

Investment in emerging technology is not just a risk/reward assessment — it is an investment/return

decision. This is because some ROI may not be directly quantifiable, such as increases in goodwill or brand recognition. Companies that quickly uplifted their technology in response to the COVID-19 pandemic were far more resilient than others, specifically in the form of an enabled workforce and more efficient customer experience through digital channels. Soliciting input from all members of the C-suite is important for a holistic, comprehensive business case. In addition, it is important that organizations recognize ROI may be a long-term play, as short-term ROI may not reflect the full potential a technology brings. However, whether short- or long-term, emerging technology brings risks that must be identified and mitigated. Companies should focus on value creation and risk mitigation in equal measure.

Automate where possible

Existing processes should be assessed to determine current building blocks. Then, to the extent financially feasible, organizations should identify repeatable processes that are performed often, as they are ideal candidates for hyperautomation, which applies advanced technologies such as artificial intelligence (AI) and machine learning (ML) with robotic process automation (RPA) to increasingly automate processes. Mundane tasks that do not result in skills growth and are not rewarding to employees can be performed by machines so that staff can focus on higher-level, more rewarding tasks. For example, machine learning can be applied to automate tasks that are repetitive, labor-intensive, and require numerous hours to perform. By using data to implement and improve data processes, organizations can take advantage of the rapidly evolving field of machine learning to gain significant ROI.

Enrich to empower

Business decisions should be powered by enriched data. It is important that organizations understand the data that is available to them — and they must filter and organize it in formats that can be used for further analytics. Strong data analytics enables smarter business decisions.

Data is growing exponentially. By 2026, one trillion Internet of Things (IoT) devices will be in use. Each device generates endless data on demographics, purchasing decisions and profiles. To take advantage of the flood of data, organizations that harness data and enrich it to make smart business decisions can gain competitive advantage through improved operations and personalized customer experiences. Those that do not may face competitive pressures that pose threats to continuing operations.

Visualize for value

Visualization technology makes data more meaningful to businesses by allowing for more profound ways of presenting data and ideating strategies. For example, augmented reality (AR) can help improve decision-making by bridging physical and logical worlds and has the potential to revolutionize different industries and functions. Organizations can level-up data visualization by applying AR to make data visually available in near real-time while AR provides real-time feedback to staff who must make difficult, instant decisions based on the information they have on hand. For example, a field technician working on a piece of equipment in a tight, remote space could have instructions or diagrams in their view while working on the equipment with both hands.

Innovation may require long-term investment

The capacity for innovation is contingent on foresight. CIOs have the potential to expand the realm of the possible for their organizations. They must think of new ways to leverage emerging technology for efficiency, competitive advantage or market share. However, there must be a recognition among C-suite members that while CIOs can implement life- and business-changing technologies, some tools require long-term investment.

For example, in the next three to five years, quantum computing is going to begin having an astounding impact on business processes and will require businesses to think differently about challenges and how they can go about solving them. Quantum computing will enable organizations to have exponential increases in computing capability and will make it possible to solve problems that cannot be solved today. But, just as with other emerging technologies, long-term planning and workforce training are required.

Collaborate early and often

CIOs must collaborate early and often with all constituents inside and outside the C-suite. Each C-suite member must freely bring a unique skillset to form a high-functioning team with accountability. While all C-suite members work toward common business goals, there will be issues that are of particular importance to each, including:

- **Chief financial officer (CFO)** — Emerging technology presents difficult investment decisions that can result in runaway costs. Preemptively implementing controls can save money by reining in expenses.

- **Chief risk officer (CRO)** — Emerging technology brings new risks. It is critical that CROs identify and mitigate new risks to minimize impact on ROI.

- **Chief audit executive (CAE)** — New technology requires updated skillsets. Staff with the requisite training is essential to auditing new technology and ensuring it is operating as intended. CAEs should also realize the importance of refreshing the risk profile regularly — along with internal audit plans —to cover emerging technology risks. For example, companies with RPA should conduct an internal audit on the process taken to govern, implement and control RPA.

- **Chief data officer (CDO)** — Enabling emerging technology for the organization is largely dependent on the CDO. Close collaboration and alignment between the CDO and CIO are key.

- **Chief marketing officer (CMO)** — Ensuring that the CIO and CDO have a strong understanding of the customer experience is critical to the value brought by emerging technology. CMOs enable this understanding.

Where do companies go from here?

While emerging technology surfaces many factors to consider, it is important that organizations ensure the following actions are taken in their technology enablement journeys:

- Leverage existing assets by assessing current technology and using current building blocks such as data sources, technology and talent

- Set a foundational understanding among the C-suite about how the business will transform and how it will get there

- Have a framework that facilitates engagement between the CIO and business leaders so that CIOs understand business goals and the desired customer experience

- Develop a culture fostered around change enablement so that employees are open to change. Forward-thinking organizations embrace employee empowerment and develop training programs to provide new skills for more rewarding careers as the organization modernizes, helping employees feel safe from the real or perceived job security threat from automation

- Swiftly qualify what is of value to the organization and what is a fad

When properly implemented, emerging technologies can be powerful in helping companies solve business problems, scale on demand, improve resiliency and deploy technology solutions rapidly and securely. Companies should conduct a digital maturity assessment and determine areas where emerging technology could provide the greatest value or enable the organization to deliver on its strategies with greater certainty or at a faster pace. It's also critical to have effective change management during the transition, otherwise any technology program will never truly reap the intended benefits. The most successful CIOs of the future will be those who seamlessly provide optimal customer and employee experiences while enabling business innovation.

AUTHORS

GHISLAINE ENTWISLE, Managing Director, Technology Consulting, Melbourne (AU)
SCOTT LALIBERTE, Managing Director, Global Leader, Emerging Technology Solutions, Philadelphia

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For more information, please contact us at TechnologyConsulting@protiviti.com.