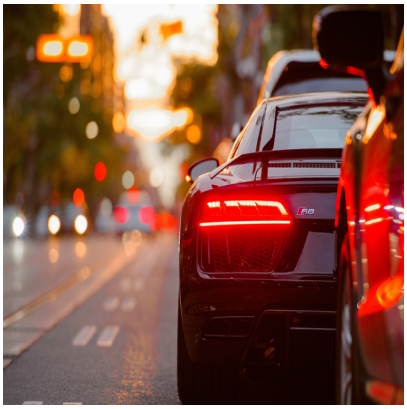

How to deal with new technologies

Description

Here are the top concepts from *â??Wharton on Managing Emerging Technologiesâ?•* by George Day and Paul J.H. Schoemaker, which provides insights into navigating the challenges and opportunities of emerging technologies:

1. Technology Adoption Life Cycle:

- Understanding the stages of technology adoption (innovators, early adopters, early majority, late majority, and laggards) helps businesses plan product launches and market entry strategies.

This concept describes the stages through which a technology is adopted by consumers. It begins with *innovators*, followed by *early adopters*, *early majority*, *late majority*, and finally *laggards*. Companies need to understand where their technology fits in this cycle to strategize product launches, marketing efforts, and how to approach different customer segments over time.

2. Disruptive Innovation:

- Focuses on how new technologies can disrupt existing markets by offering simpler, cheaper, or more accessible solutions, threatening established companies.

Disruptive innovation refers to technologies that fundamentally alter existing markets by providing simpler, more affordable, or more accessible solutions. Established businesses often overlook these innovations as they focus on their existing customer base. Over time, however, disruptive technologies improve and can overtake existing market leaders. Companies must learn how to identify potential disruptive technologies and develop strategies to compete or collaborate with them.

3. Managing Uncertainty:

- Emphasizes strategies for dealing with the high levels of uncertainty in emerging technologies, such as scenario planning, real options theory, and adaptive strategies.

Emerging technologies come with high uncertainty because their market potential, technological feasibility, and customer adoption are unknown. Strategies such as *scenario planning* (planning for multiple potential futures), *real options theory* (investing in small experiments to learn more about potential outcomes), and *adaptive strategies* (remaining flexible and adjusting course as new information arises) help businesses manage this uncertainty.

4. Technology Strategy and Roadmaps:

- The importance of creating a long-term technology strategy that aligns with business goals, including the use of roadmaps to visualize technological developments over time.

A technology strategy defines how an organization will develop and use technology to achieve business goals. *Technology roadmaps* are visual tools that show the evolution of technology over time and help plan future innovations. **Roadmaps align business goals with technological developments**, identifying what skills, investments, and resources are needed to compete in the future.

5. Organizational Flexibility and Learning:

- Encourages building a flexible organizational structure that can adapt quickly to technological changes and emphasizes continuous learning to stay competitive.

Organizations need to remain agile and flexible to respond quickly to changes in technology. This requires fostering a culture of continuous learning where employees stay updated on new technologies and can adapt their skills. Organizational flexibility may also include decentralized decision-making **to allow rapid adjustments** to market or technological shifts. Building stronger technology literacy can also help employees feel more confident when learning and adapting to new tools.

6. Strategic Alliances and Partnerships:

- Recognizes the value of forming alliances, joint ventures, and partnerships to share risks, pool resources, and leverage complementary capabilities in emerging technology fields.

Collaborating with other companies, research institutions, or even competitors can be beneficial when working with emerging technologies. **These *alliances* reduce the risks and costs associated with technology development** and allow organizations to share resources, knowledge, and expertise. Joint ventures and partnerships can accelerate innovation and market entry.

7. Assessing Market Potential:

- Outlines methods to evaluate the commercial potential of emerging technologies, including market research, customer needs assessment, and competitor analysis.

Before investing heavily in emerging technologies, businesses need to assess whether there is a viable market. This involves conducting market research, understanding customer needs, analyzing competitor actions, and evaluating the readiness of the market to adopt new technologies. By doing so, companies can make more informed decisions on whether to pursue a new technology.

8. First-Mover vs. Fast Follower Advantage:

- Discusses the pros and cons of being the first to market with a new technology versus adopting a fast-follower strategy to capitalize on lessons learned by pioneers.

First movers are the companies that introduce new technologies to the market first. They may gain an advantage by capturing market share, establishing brand recognition, and setting industry standards. However, being a *fast follower*â??adopting the technology after the first moverâ??can also be advantageous, as it allows a company to learn from the first moverâ??s mistakes, reduce risks, and enter the market with a refined product.

9. Risk Management:

- Offers frameworks for identifying and mitigating risks associated with investing in emerging technologies, such as technological, market, and competitive risks.

Investing in emerging technologies comes with multiple risks, such as technological risks (whether the technology works), market risks (whether customers will adopt it), and competitive risks (whether competitors will overtake you). Effective risk management involves identifying these risks early and creating mitigation strategies, such as diversifying investments, forming strategic alliances, or having backup plans.

10. Business Model Innovation:

- Highlights how emerging technologies often require new business models, and how companies need to innovate around how they create, deliver, and capture value.

Emerging technologies often disrupt not only products but also the way businesses create, deliver, and capture value. Companies need to rethink their *business models*â??which includes revenue models, customer interactions, and value propositions. New technologies may require companies to offer new services, adopt subscription models, or provide bundled products to capture value effectively.

11. Customer-Centric Innovation:

- Stresses the importance of integrating customer feedback and needs into the development of new technologies to ensure they meet market demands.

Successful technology adoption often depends on understanding and addressing customer needs. This concept emphasizes *customer feedback* as a critical input for innovation. By integrating customer insights early in the product development process, companies can develop technologies that better solve customer problems, improving their chances of market success.

12. Technological Ecosystems:

- Discusses the development of ecosystems where multiple companies collaborate around a core technology to drive innovation and create new markets.

Many emerging technologies thrive within *ecosystems* of related technologies, platforms, and businesses. For example, smartphones rely on an ecosystem of app developers, hardware manufacturers, and service providers. Companies must learn how to position themselves within such ecosystems, either as leaders or key partners, to leverage the full potential of the technology.

13. Intellectual Property (IP) Management:

- Provides strategies for managing IP in emerging technologies, including patents, licensing, and protecting trade secrets to sustain a competitive advantage.

In the field of emerging technologies, protecting intellectual property (IP) is crucial for maintaining a competitive advantage. Companies must use patents, trademarks, trade secrets, and licensing agreements to protect their innovations. Effective IP management ensures that companies can capitalize on their inventions and prevent competitors from copying their breakthroughs.

14. Globalization of Technology:

- Explores how emerging technologies are influenced by globalization, including the challenges and opportunities of accessing international markets and collaborating with global partners.

Emerging technologies are increasingly developed and deployed globally. Companies must consider how to access global markets and compete internationally. This might involve adapting products to different cultural or regulatory environments, collaborating with international partners, and managing global supply chains. The globalization of technology also opens up new opportunities for innovation by tapping into talent, resources, and markets worldwide.

These business concepts offer a comprehensive framework for managers dealing with new and emerging technologies and provide actionable insights on how to navigate the rapidly evolving tech landscape.

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