

Business English News 62 – Quantum Computing

Transcript

Ask anybody what technology is currently **fueling** business **transformation** and they'll surely tell you it's **artificial intelligence**. Indeed, it would appear that **AI** is **casting** an incredibly **long shadow**. But it's not the **only game in town**. There's another technology you may have seen **creeping** into the **limelight** called "**quantum computing**." For the **non-physicists** among us, TechTarget provides a useful explanation of how quantum computing works:

Compared to **classical** computing, which **processes binary** data **sequentially**, quantum computing **employs** quantum principles such as **superposition** and **entanglement**. This **empowers** faster, more accurate, and more cost-effective processing for certain types of complex problems. **Qubits**, the foundation of quantum processing, can exist in multiple **states simultaneously**. This "superposition" supports entanglement, which **intrinsically links** them in a quantum state. The result is an ability to **perform** many calculations at the same time, **exponentially boosting** processing power.

Fifteen years ago, it all might have sounded rather **sci-fi**. But with a ton of research and development over the past **decade**, **great strides** have been made toward making it a reality. **Granted**, the challenges of solving some **fundamental** problems mean that some regard it as still in its **infancy**. But that appears to be changing, as U.S. News reports:

The **worldwide** quantum computing market is **valued** at \$698 million in 2026 and is expected to **rise** to \$1.7 billion by 2033. "Capital is **flowing**, and the market is **maturing**," says Jeremy Samuelson, at Integrated Quantum Technologies. "Buyers and investors are moving from 'qubit counting' to **reliability**, **error correction** and **economic utility** as the real **gating factors**." In short, funding remains strong, but it's becoming more focused where there's **credible** technical and **go-to-market execution**.

Credibility is an important **intangible asset** that some think is **in short supply**. The tech world is **notorious** for **fetishizing novelty** and **overhyping** anything with a **glimmer** of promise. Quantum computing, however, is more than just a cool app. It represents a massive **breakthrough** in physics. And this change is generating significant business interest, according to the Wall Street Journal:

It could be years until quantum computing **delivers** on its **promise** to **revolutionize** everything from **financial trading** to drug discovery. But that's not stopping the companies developing quantum hardware and software from

speeding headlong into the **public markets**. Three different quantum computing companies have **gone public** in recent months, while another five have **announced** plans to do so later this year. "There's so much **appetite** for quantum right now," said Antoine Legault at Wedbush Securities. "If you have quantum in your company name, you're worth at least \$1 billion **from the get-go**."

That sounds like a pretty **lucrative bandwagon**. But **naysayers** have insisted that the real **potential** will remain unknown until some basic technical problems have been successfully **tackled**. **Foremost** among these is errors that **disrupt** the entire system. Well, with all the investment in research and development, the skeptics may be **losing their footing**. BCG highlights recent **game-changing** developments:

For decades, errors that destroy **fragile quantum states** have been the primary **barrier to scale**. Over the past year, leading **platforms** have demonstrated that these errors can be effectively reduced with **QEC**. This progress **prompted** providers to **accelerate** their **roadmaps** for creating **fault-tolerant** quantum computers capable of reliable **computations**. Soon, **high-value use cases** like advanced materials **simulation** will become **viable**.

So, is quantum computing like AI in that you should fear **getting left behind** if you don't have a clear strategy? It really depends on the **nature of** your business. Virtually all companies in any industry might benefit from AI, but quantum's advantages may not be so **widespread**. And even for those that **stand to gain**, they likely won't be **trading in** their old systems for completely new ones. McKinsey, among others, point to the **likelihood of hybrid** systems:

Executives can seek to **capture value** by **deploying** hybrid systems that combine QC **applications** with classical high-performance computing and AI. Practical use cases include simulating complex **molecules** and materials, which has **gained traction** in pharmaceuticals and chemicals; **optimizing** financial **portfolios**; and **modeling** complex supply chains or **energy grid loads**.

This certainly sounds exciting for several key industries. And the overall growth in quantum computing seems to **bode well** for the companies, big and small, that have been **betting on** it. In reality, it's likely still too soon to tell what the real potential is. Even some big **players** are careful in their assessment of the future. As TechCrunch reports:

IQM, a **full-stack** quantum company out of Finland, went public on the Nasdaq **via** a **SPAC merger** at a **valuation** of about \$1.9 billion. But share prices didn't **pop**. They spent most the day below the **IPO** price - a **lukewarm** welcome. SPAC mergers are often not immediately popular with **retail investors** these days. But this **fizzle** was **arguably** fueled by IQM's own **admission** in its **prospectus** that "large-scale commercial traction of quantum computing technology may never occur."

Vocabulary

To fuel: To provide energy or support for something. "New investment is fueling growth in the technology sector."

Transformation: A major change in the way something works or is organized. "Digital transformation has changed how companies serve their customers."

Artificial intelligence / AI: Technology that allows computers to perform tasks that normally require human intelligence. "We use artificial intelligence to analyze customer data."

To cast a long shadow: To have a strong and lasting effect on something. "The financial crisis continues to cast a long shadow over the banking industry."

The only game in town: The only realistic or serious option available. "For this type of analysis, the new software is the only game in town."

To creep: To increase or develop slowly and often unnoticed. "Operating costs have started to creep up."

Limelight: A position where someone or something receives a lot of attention. "The company is in the limelight after its successful product launch."

Quantum computing: A type of computing that uses quantum effects to solve certain problems in new ways. "Quantum computing could change how companies solve complex problems."

Non-physicists: People who are not trained or educated in physics. "The course explains quantum computing in simple terms for non-physicists."

Classical: Based on traditional computers and standard computing methods. "Classical computers are still the main technology used by businesses."

To process: To handle or work with information or data. "The system can process thousands of transactions every second."

Binary: A system using two possible values, usually 0 and 1. "Classical computers use binary information to process data."

Sequentially: One after another in a particular order. "The traditional system processes the tasks sequentially."

To employ: To use something for a particular purpose. "The company employs advanced software to improve its forecasts."

Superposition: A quantum state in which a qubit can represent more than one possible state at the same time. "Superposition could help businesses solve certain complex problems faster."

Entanglement: A quantum connection between particles where the state of one is linked to the state of another. "Quantum entanglement may support new types of secure communication."

To empower: To give someone or something the ability or power to do something. "The new technology empowers managers to make faster decisions."

Qubit: The basic unit of information in a quantum computer. "A quantum computer uses qubits instead of traditional bits."

State: The condition or value of a system at a particular time. "The system records the state of each qubit."

Simultaneously: Happening at the same time. "The platform can analyze several markets simultaneously."

Intrinsically: Naturally or as an essential part of something. "This technology is intrinsically different from the old system."

To link: To connect two or more things. "The software links customer data with sales information."

To perform: To do a task or operation. "The new system can perform complex calculations."

Exponentially: At a rate that becomes much faster as something increases. "The amount of data is growing exponentially."

To boost: To increase or improve something. "The new system will boost productivity."

Sci-fi: Fiction based on imagined scientific or technological developments. "Some quantum technologies still sound like something from sci-fi."

Decade: A period of ten years. "The company has grown significantly over the past decade."

To make great strides: To make a lot of progress. "We've made great strides in improving our response times."

Granted: Used to admit that something is true before making another point. "Granted, the technology is expensive, but costs may fall over time."

Fundamental: Basic and very important. "Security is a fundamental concern for financial companies."

Infancy: An early stage of development. "The technology is still in its infancy."

Worldwide: In all parts of the world. "Companies worldwide are investing in AI."

Valued: Considered to be worth a particular amount or considered important. "The company is valued at several billion euros."

To rise: To increase in amount, level, or value. "Demand for advanced computing is expected to rise."

To flow: To move continuously from one place to another. "Investment continues to flow into the technology sector."

To mature: To develop and become more advanced. "The quantum computing market will take time to mature."

Reliability: The ability to work correctly and consistently. "Reliability needs to be improved before we can start using this technology."

Error correction: Methods used to find and fix errors in computing systems. "Better error correction is important for reliable quantum computers."

Economic utility: The practical value something has in creating economic benefits. "Companies need to understand the economic utility of quantum computing."

Gating factors: Conditions or problems that must be dealt with before something can happen. "Cost and reliability are major gating factors for the technology."

Credible: Believable and likely to be successful or true. "The company needs a credible plan for entering the market."

Go-to-market: A plan for introducing and selling a product or service. "We need a clear go-to-market strategy before launching the product."

Execution: The process of putting a plan into action. "This sounds good at first, but successful execution will be difficult."

Intangible asset: Something valuable that a company owns but cannot physically touch, such as a brand or patent. "The company's software is an important intangible asset."

In short supply: Not available in large enough quantities. "Skilled engineers are currently in short supply."

Notorious: Famous for something bad or difficult. "The industry is notorious for its complex regulations."

To fetishize: To treat something as extremely important or special, sometimes without good reason. "Companies should not fetishize new technology without considering its business value."

Novelty: The quality of being new, unusual, or different. "The novelty of quantum computing attracts a lot of media attention."

To overhype: To describe something as more impressive or important than it really is. "Companies should not overhype the benefits of new technology."

Glimmer: A small sign or possibility of something positive. "The early results offer a glimmer of hope that sales will steadily increase."

Breakthrough: An important discovery or development. "The company announced a breakthrough in quantum error correction."

To deliver on a promise: To do what you said you would do. "The technology must deliver on its promise of faster calculations."

To revolutionize: To completely change the way something is done. "Quantum computing could revolutionize the financial industry."

Financial trading: The buying and selling of financial assets such as shares and currencies. "banks use a variety of financial trading strategies to maximize their profits."

To speed headlong into: To move very quickly towards something, often without enough consideration. "I don't think we should speed headlong into this investment without understanding the risks."

Public markets: Financial markets where shares and other securities are traded openly. "The company raised money through the public markets."

To go public: To offer a company's shares for sale to the public for the first time. "The technology company plans to go public next year."

To announce: To officially tell people about a decision, plan, or event. "The company announced a new partnership with a research university."

Appetite: A strong desire or willingness to do or have something. "There is growing investor appetite for quantum technology."

From the get-go: From the very beginning. "We made reliability a priority from the get-go."

Lucrative: Producing a lot of profit. "This could become a lucrative market for us."

Bandwagon: A popular trend that many people join because others are doing it. "Many companies have jumped on the AI bandwagon."

Naysayers: People who say that something will not succeed. "The naysayers believe quantum computing is still too unreliable."

Potential: The possibility of becoming successful or useful in the future. "This approach has the potential to transform how we do business."

To tackle: To try to deal with a difficult problem. "The company is using AI to tackle supply chain problems."

Foremost: Most important or best known. "Security is our foremost concern."

To disrupt: To change an industry or market in a major way. "New technology could disrupt the financial services industry."

To lose your footing: To lose your position, stability, or advantage. "Companies can lose their footing if they fail to adapt to new technology."

Game-changing: Having a major effect on a situation or industry. "The new technology could be game-changing for logistics."

Fragile: Easily damaged, broken, or affected. "The supply chain remains fragile after several major disruptions."

Quantum states: Different possible conditions of a quantum system. "Quantum computers use quantum states to store and process information."

Barrier: Something that makes progress or success difficult. "High costs remain a major barrier to adoption."

Scale: The size or level of something. "The company needs to increase production to achieve greater scale."

Platform: A system or technology that provides a base for developing or running applications. "The company is building a platform for quantum applications."

QEC: Short for quantum error correction, methods used to detect and correct errors in quantum computing. "QEC is essential for building reliable quantum computers."

To prompt: To cause something to happen or encourage someone to act. "The new regulations prompted the company to change its strategy."

To accelerate: To make something happen faster. "The investment could accelerate the development of quantum technology."

Roadmap: A plan showing the steps needed to achieve a goal. "The company has published a roadmap for its new technology."

Fault-tolerant: Able to continue working correctly even when errors occur. "Fault-tolerant systems will be important for large-scale quantum computing."

Computation: The process of calculating or processing information. "The system can perform complex computations."

High-value use case: An application that can provide significant business or financial benefits. "Drug discovery could be a high-value use case for quantum computing."

Simulation: A computer model of a real situation or process. "The company uses simulation to test new production methods."

Viable: Able to work successfully or provide a useful solution. "We need to find a viable business model."

To get left behind: To fail to keep up with others. "Companies that ignore new technology could get left behind."

The nature of: The basic character or qualities of something. "We need to understand the nature of the problem before investing."

Widespread: Existing or happening in many places or among many people. "The widespread use of AI is changing the workplace."

Stand to gain: To be likely to benefit from something. "Financial companies stand to gain from faster data analysis."

To trade in: To buy and sell a particular type of product or asset. "The company trades in financial securities."

Likelihood: The chance that something will happen. "There is a high likelihood of further investment in the sector."

Hybrid: Combining two different types of technology, systems, or methods. "The company is developing a hybrid quantum-classical system."

To capture value: To gain financial or business benefits from something. "Companies need a clear strategy to capture value from AI."

To deploy: To put a technology, system, or product into use. "The bank plans to deploy the new software next year."

Application: A practical use of a technology or system. "Financial modeling is one possible application of quantum computing."

Molecule: A very small unit of a substance made from two or more atoms. "Researchers are using quantum computers to model complex molecules."

To gain traction: To become more popular, successful, or accepted. "The technology is beginning to gain traction among investors."

To optimize: To make something work as well or efficiently as possible. "The software helps companies optimize delivery routes."

Portfolio: A collection of investments, products, or projects. "The company is adding quantum technology to its investment portfolio."

To model: To create a representation of a real situation or system. "The software can model changes in energy demand."

Energy grid loads: The amount of electricity being used on an energy network at a particular time. "Quantum computing could help utilities predict energy grid loads."

To bode well: To be a good sign for the future. "Strong customer demand bodes well for the company's growth."

To bet on: To invest in or support something because you believe it will succeed. "Several investors are betting on quantum technology."

Players: Companies or organizations that are active in a particular market or industry. "Several major players are investing in quantum computing."

Full-stack: Covering all the main parts of a technology system, from basic hardware to applications. "The company is developing a full-stack web development platform."

Via: Through or by using a particular method or route. "Customers can access the service via our online platform."

SPAC merger: A business deal in which a private company becomes public by merging with a *special-purpose acquisition company*. "The technology company went public through a SPAC merger."

Valuation: An estimate of how much a company or asset is worth. "The company's valuation increased after the new investment."

To pop: To increase suddenly and significantly, especially in price or value. "The company's share price popped after the announcement."

IPO: An initial public offering, when a private company sells shares to the public for the first time. "The company is preparing for its IPO."

Lukewarm: Showing only limited enthusiasm or interest. "Investor reaction to the announcement was lukewarm."

Retail investors: Individual people who invest their own money rather than large professional investors. "Retail investors showed strong interest in the new IPO."

Fizzle: To gradually lose energy, interest, or success. "Investor interest could fizzle if the company misses its targets."

Arguably: Used to say that something can reasonably be considered true. "This is arguably the biggest challenge facing the industry."

Admission: A statement that something is true, especially something that may be surprising or negative. "The CEO's admission raised concerns about the company's strategy."

Prospectus: An official document giving information about a company or investment opportunity. "Investors should read the prospectus before buying shares."

Language Review

A. Collocations

Match words from each column to make collocations found in the article.

1. To bode	a. A promise	
2. To go	b. Well	
3. To deliver on	c. Great strides	
4. In short	d. Traction	
5. To gain	e. Supply	
6. To make	f. A long shadow	
7. To lose	g. Public	
8. To cast	h. Your footing	

B. Vocabulary Quiz

- Which of the following are quantum principles? [Choose 2]
 - Entanglement
 - Binary
 - Superposition
 - Empowerment
- If something is new and hasn't had a lot of time to develop, it is in its...
 - ... utility.
 - ... reliability.
 - ... infancy.
 - ... get-go.
- Which of the following words describe a great *change* or *new discovery*?
 - Transformation
 - Long shadow
 - Fundamental
 - Revolutionize
 - Credible
 - Breakthrough
 - Game-changing
 - Platform
 - Roadmap
 - Computation

4. Which of the following is closest in meaning to the word "possible?"
- a. Credible
 - b. Viable
 - c. Arguable
 - d. Valuable
5. Which of the following expressions have opposite meanings?
- a. To go public
 - b. To lose footing
 - c. To gain traction
 - d. To deliver on a promise
6. " _____ " are people who refuse to jump on the _____.
- a. Non-physicists / platform
 - b. Retail investors / merger
 - c. Players / portfolio
 - d. Naysayers / bandwagon
7. Which of the following would typically be expressed in a dollar amount?
- a. Valuation
 - b. Application
 - c. Prospectus
 - d. Lucrative
8. If something is overhyped and eventually doesn't live up to its potential, then we say it _____.
- a. Disrupts
 - b. Pops
 - c. Fizzles
 - d. Glimmers

Answers

A. Collocations

1/b, 2/g, 3/a, 4/e, 5/h, 6/c, 7/d, 8/f

B. Vocabulary Quiz

1/a, c, 2/c, 3/a, d, f, g, 4/b, 5/b, c, 6/d, 7/a, 8/c