



Digital Future

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CENTER FOR
MEDICAL
SIMULATION

Glossary of Digital Transformation Terms

A | B | C | D | F | G | H | I | K | L |
M | N | O | P | Q | R | S | T | U | V |

A

Word	Description/Definition
Agile	In computing terms, agile refers to the ability for a team to quickly include new changes and adapt to changing circumstances leveraging the advances in available, scaleable technologies.
Artificial Intelligence (AI)	The capability of a machine to imitate intelligent human behavior
API	An Application Programming Interface, or API, is the set of functions/objects that a developer will provide in order to make use of their services.
Asynchronous computing	Writing and processing code that takes into account the non-deterministic delays that arise from cross-machine communications. This is done in a manner that allows other processes to continue to run while others are waited to complete.
Augmented reality	Using technology to digitally overlay information, usually through visual means, of the world around us. Augmented Reality differs from Virtual Reality in that it seeks to merge the real world and the computed world into one seamless experience.
Automation	In general, automation is the process of replacing a manually thought through task with a set of instructions that can be executed by some form of machinery.
Autonomous vehicles	Driverless, or Autonomous cars use machine learning and artificial intelligence to create a system that can take in the signals around a car and respond in a way similar to if a trained human was

behindthe wheel.

[Back to top](#)

B

Word	Description/Definition
Back door	In programming, a "back door" is a vulnerability in the program that allow users a higher level of access than they possess. These are often created by the original designer and are not always used for nefarious means. However as any vulnerability, they are often used in unintended ways.
Bitcoin	Bitcoin was the first cryptocurrency, and is currently the most valuable, mainstream currency. Bitcoin was created in 2009 by Satoshi Nakamoto in the hopes of pushing the digital economy into a new state of maturity.
Blockchain	A distributed public ledger that uses hashes of documents to preserve the originality of the documents and transaction records in the system. Blockchain can be public or private depending on the users' requirements.
Blockchain node	A node is a computer that has a copy of the distributed ledger and actively transmits and receives messages required to update the ledger.
Bot	A simple computer running a purpose-built program and connected to the internet to perform some automated task.

[Back to top](#)

C

Word	Description/Definition
Caching data	A cache is a storage of data used for its speed and proximity to its use. These are often referred to as cookies on the internet and are stored in the browser so that websites can populate fields with your information faster to give a better experience and to gather more information about you.

Certificates	Digital certificates are particular pieces of software that are used as verification of some ownership/authorization level.
Client-server model	This model uses the HTTP calls like "GET" and "POST" as well as routing to send messages from the client (usually a user's browser window) to and from the server (a back-end database or computer that delivers webpages/data).
Cloud	An abstracted set of computers/databases that are owned by a company. For example, Amazon and others whose business model is to sell time/usage of these computers without the user having to own the hardware. Cloud computing has a number of attractive features such as the ability to scale to a large number of nodes very quickly and with little overhead from the users' side.
Consensus algorithms	These are a class of algorithms used currently in blockchain platforms in order to achieve an automated sense of consensus on which transactions are valid and added to the blockchain.
Containers	Containers hold a stripped down version of the full computer stack removing any features which are not required by the particular program used in the container. These containers are powerful as they can be put on any computer and can be endlessly replicated, allowing for vast scaling to be achieved.
Crypter	A piece of software used to try and hide malicious software from detection using cryptographic techniques.
Cyber security	The field of computer science dealing with the security of networks and platforms and how to keep unwanted users from accessing or affecting sensitive information.
Cybercrimes	The class of felonies related to using programs and computers to commit criminal activities.
CryptoKitties	One of, if not the most successful companies to come out of the "blockchain revolution." These cats are described by the hash that is matched with them. Through transactions, these cats can breed with others to create different breeds with different

properties.

[Back to top](#)

D

Word	Description/Definition
DAO	The Distributed Autonomous Organization (DAO) was an attempt to run an entire corporation using smart contracts. Despite its high level of interest and financial backing, the endeavor was eventually a deep failure with financial scandals and other collapse of organizational operation.
dApps	Distributed Applications (DAPPS, dApps, Daaps) are those made with the blockchain, and smart contracts being an integral part of their functionality and purpose.
Data mining	The process by which a large amount of loosely structured data is analyzed with the goal of gaining some understanding of the hidden or underlying patterns in the data.
Data science	The field of computer science dealing with the collection, processing, and manipulation of raw data.
Data scientist	Someone who applies or creates the methods, techniques, and algorithms of data science into understanding and/or gathering data.
Data warehouse	A large facility used to store a vast array of storage devices like hard drives connected together for remote access and storage, or large amounts of data.
DDoS attack	A distributed denial of service attack (DDoS attack) is performed by having large numbers of computers attempt to access a website/application, and by sending so many requests, overwhelm the target's infrastructure, rendering them incapacitated.
Descriptive analytics	Using previous information to understand the changes that have occurred in an institution
	Institutions that do not have a long history of

DevOps	Is the methodology that combines software "dev"elopment practices and attempts to merge them with information technology "op"erations
Digital defender	An antivirus software
Disintermediation	The removal of intermediaries that are traditionally required to perform some kind of good/services transfer.
DNS servers	The Domain Name Servers allow a user to type a human-friendly URL (like www.google.com) and translate that to the IP addresses that actually host the site.
Domain	A domain is a namespace that combines aspects of a company. For example, email, websites, data servers, etc.

[Back to top](#)

E

Word	Description/Definition
E-commerce	The branch of commercial entities and activities that take place via the internet, and over digital means.
Embedded systems	A purpose-built operating system/set of functions that are dedicated to perform a single task or set of tasks applied (usually) to a piece of machinery.

[Back to top](#)

F

Word	Description/Definition
Firewall	A layer of network security that monitors the incoming and outgoing traffic from a computer, usually responsible for allowing or restricting access to various websites and webapps.
Firmware	The set of computer programs written at a very low level, very close to the physical hardware.

[Back to top](#)

G

G

Word	Description/Definition
GeoCode	A geocode translates the address, like a postal address, to the specific latitude and longitudinal coordinates.
Gas	Pricing value essential for carrying out a successful transaction or executing a smart contract on Ethereum.

[Back to top](#)

H

Word	Description/Definition
Hack	A computer hack uses non-traditional means to gain usually an unauthorized access to a system.
Hash	A specific scramble of data into a unique set of characters.
HTML	HyperText Markup Language, is the syntax that a web browser uses (along with CSS) to display and organize the structure of a website.
HTTP	HyperText Transport Protocol, is the messaging protocols used by the web to transmit across the internet.

[Back to top](#)

I

Word	Description/Definition
Immutable	An immutable document is one that cannot be altered after it has been created.
Initial Coin Offering	ICOs are the most common source of funding for a new blockchain-based company. If the company uses a new token, these tokens are sold upon launch and act as a means to raise funds.
IoT	The Internet of Things is the term used to define the numerous devices and objects that are connected to the internet and can be accessed

	the internet and can be accessed.
ISP	An Internet Service Provider is the company that connects households/businesses to the internet by either owning or leasing the physical wires needed to connect.

[Back to top](#)

J

Word	Description/Definition
JavaScript	A loosely typed, interpreted language, with similar syntax to C++ that is used by websites, webservers, and browsers to allow the web to be dynamic and interactable.

[Back to top](#)

K

Word	Description/Definition
Kubernetes	An open source, container platform used to launch services on the web. Very similar to Docker.

[Back to top](#)

M

Word	Description/Definition
Merkle root	In a Merkle tree where a hash is connected to another hash and their parent is the hash of the two children, the Merkle root is the top-most hash, consisting of the hash of all the lower hashes.
Merkle tree	A data structure that uses hashes of the connected data as the name of each data point. Parents of each node hash the children's combined hashes until the top Merkle root remains.
Microservices	A type of software architecture that uses small, modular functions distributed on the cloud to provide users with lean functionalities.
Middleware	Specific software that bridges the gap between the database and the software

	database and the software.
Miners	Computers on the blockchain network that are used to process and through some consensus algorithm like proof of work, secure the transactions in a block on the blockchain in exchange for financial reward.
Mixed reality	A form of augmented reality that embeds digital entities into the frame of view of the real world.

[Back to top](#)

P

Word	Description/Definition
Patch	A software update that is normally intended to repair or include fixes to certain problems with the current version of the software.
Phishing	An activity that uses false information like pretending to be a bank, in order to get someone's private information. This is usually done indiscriminately. With such a low success rate, large numbers are usually targeted.
Predictive analytics	The application of statistical and data science methods to historical data in order to provide predictions for the future.
Proof of work	A consensus algorithm used in Bitcoin and Ethereum. A hash is required to have a fixed number of preceding zeros and so a junk variable, called a nonce, is iterated and added to the transaction data until a satisfactory hash is found.
Public and private keys	Cryptographic numbers usually based on large prime numbers, that are used to authenticate and encrypt messages sent across a network.
Pull request	In GitHub, a pull request is sent by a developer to the owner of the repository, requesting them to include the code that they have written.

[Back to top](#)

R

Word	Description/Definition
Ransomware	A pernicious brand of malicious software that prevents a user from accessing some or all of their computer until paying the party responsible.
Remittance	The international transfer of money of an individual to their home country.
RFID	Radio Frequency Identification technology uses radio waves to connect to items in a cost effective and efficient manner.

[Back to top](#)

S

Word	Description/Definition
Satoshi Nakamoto	The alias of the inventor/s of Bitcoin and the founder/s of the modern blockchain/cryptocurrency landscape.
Schema	The pattern of structure used in an database to sort and store information.
Self-sovereign identity	A way of making an individual's identity portable and retained by the individual instead of with institutions.
Serverless model	Leveraging the cloud providers to provide all of the server requirements (like scaling and distribution), requiring the developer to only focus on the front end and functional aspects of the product.
Sharing economy	The term used to define the new dynamic of peer to peer transactional services and transfer of goods.
Smart contracts	Programs written for the Ethereum blockchain that are able to execute functions, read and write data.
	AKA packet analyzer is used to analyze data sent

Sniffers	AKA packet analyzer is used to analyze data sent over a network
Social software	Refers to the second generation of the world wide web, Web 2.0, that involves the communication and human-interactive products and services that were introduced
Spoofing	Using software to successfully hide one's identity, usually during a cybersecturty attack
Supervised learning	A class of machine learning that uses a set of data with known values to direct the training of a model to improve its accuracy.

[Back to top](#)

T

Word	Description/Definition
TCP	Transmission Control Protocol (TCP) is one of the fundamental protocols used in the internet's infrastructure to send packets of information between two points and ensuring their delivery.
Traveling sales man problem	An optimization problem whose solution is typically impossible to find in finite time due to the exponential solution space.
Turing complete language	A Turing complete language is one that is capable of performing any computation or function.

[Back to top](#)

U

Word	Description/Definition
URL	A uniform resource locator (URL) is used to find entities on the internet, whether they are servers, products, or databases.

[Back to top](#)

V

Word	Description/Definition
Virtualization	The process of creating an operating system inside another operating system so that an isolated, or sandboxed environment can be used to test, develop, or deploy a software.

[Back to top](#)

W

Word	Description/Definition
Whitepaper	The technical document, popularized by cryptocurrencies in the last two years, that describes the inner workings of the product.
World Wide Web	The interconnected set of web sites that use hyperlinks to connect over the internet.
Worm	A computer virus that self replicates so that it can infect multiple machines autonomously.

[Back to top](#)

X

Word	Description/Definition
XaaS	A general term that implies "anything" as a service.

[Back to top](#)