Information Technology Careers

Some people simply choose a career they want to pursue early on, and others fall into careers by happenstance. Information technology as a career choice is unique in that it arguably offers broader opportunities throughout business because it courses throughout every aspect of the business world. Often times the IT professional has an easier time changing careers than many other types of business professional. The reason: information technology is everywhere in every aspect of business, so in a sense, IT professionals have seen and done it all.

A common axiom for IT professionals is “know the business”. IT professionals need a deep understanding into the inner workings of how a business works and what it does before they can start applying information technology solutions.

IT professionals are business professionals first that can be found throughout all core business functional behaviors and attempt to improve these business processes through value-added activities.

Value added refers to the added value of a product or service over the cost of products and services used to produce it from the previous stage of production.
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Business Information Technology Perception

Although many businesses have IT departments, they remain outside of the core business functional behaviors.

Information technology departments are responsible for servicing and enhancing all computing and technical assets and intellectual property of a business organization. Some of the aspects that IT departments are responsible for are simply servicing and maintaining computer assets while others employ business analysts that serve as a type of business IT consultants throughout an organization. There are typically two types of IT professionals.

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Many organizations have people that serve both roles simultaneously (service and IT consulting).

Many times, this can cause confusion. For instance, the human resources department of the organization may have misplaced expectations of a service individual that only deals with hardware concerns or answers phones at a help desk and can’t answer a business problem. The opposite can happen as well.

Information technology has a symbiotic relationship with all departments. Departments don’t function without IT, and business IT doesn’t exist with the departments to service.

Information Technology Jobs

Chief Information Officer (CIO) is a job title for the board level head of an information technology department within a business organization. The CIO normally reports to the Chief Operations Officer (COO) or Chief Executive Officer (CEO).

Head Applications Developers are in charge of software application development teams that develop, design, program, and test software applications. Head applications developers use software development tools and techniques like SDLC and UML.

SDLC is an acronym for System Development Life Cycle which is a process for creating and altering computer applications through a systematic approach.
Head applications developers are given the task of modifying an existing system, which are called legacy systems. Legacy systems are more difficult to deal with than developing a brand new system because they are typically already in use by an organization which means the system needs to keep working to support the business.

UML is an acronym for Unified Modeling Language which includes a set of graphical notation techniques to create computer models and applications. UML is sort of a “blueprint” for developing an application, and can be used with the team or outsourced.

Applications Architects design parts of applications like screen interfaces, middleware and programming infrastructure that complies with head applications developer's design principles. Middleware is the computer programming and software that connect the components an applications architect designs and programming infrastructure are the actual programming language components that help and application work correctly and as designed.

Database Administrators (DBAs) categorize data requirements and create the database entities and models that ensure accurate and smooth flowing data.

Network Administrators are directly responsible for the smooth operations and maintenance of the business’ networks and networking technology which includes its hardware and software. Network Administrators work in partnership with network engineers and network architects to implement and deploy new networks, expand old ones, or integrate an existing network with another existing network. Networks are one of the most important aspects of business computing in that they connect people and resources so network administrators are highly paid and in high demand.
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Information Technology Auditors, sometimes called Senior IT Auditors, make sure computing systems are being used correctly in specific industries within given set of regulations and compliance issues.

IT auditors develop, test, and evaluate computer systems for efficiency, accuracy, and security. Often IT auditors will be challenged by their clients to break in to their systems to see where security flaws exist.

Big Four accounting firms like KPMG often hire and pay IT auditors very well to help their clients and their computing systems become Sarbanes-Oxley compliant.

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Senior Web Developers prepare, plan, and implement web-based software applications. These applications include everything from shopping carts for online stores to advanced intranet deployment.

Senior web developers differ greatly from web designers that typically only deploy websites. Many times a business will identify a legacy system and ask senior web developers to rewrite it completely and make it browser based so it can be deployed on the World Wide Web for worldwide distribution.

Senior web developers are one of the most sought after and highly paid positions in the IT field.

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Business Intelligence Analysts make sense out of an organization's data and information, as well as external data and information to present to senior staff for the purpose of making tactical and strategic decisions.

Business intelligence analysts must have a very strong analytical background as well as sharp business knowledge. They are required to know what data and information a business needs and how to format it so it makes sense, and have an eye for detail to make sure their reports are always accurate.
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Information Technology Staff Consultants must have great communication skills as they are the conduit between IT and the rest of the organization. Information Technology staff consultants are highly trained with technology backgrounds.

The IT department that develops the application may not have marketing experience so it becomes the information technology staff consultant’s role to be a conduit between the two. This position requires a technology based background with a bachelor’s degree in business and superior communication skills as well as two or three years experience.

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Knowing the Business

Information technology professionals, specifically IT consultants are always striving to increase efficiency in businesses. The simple approach is to first understand a business and what it does and then apply information technology. This sounds straightforward enough, but often with unexpected results, some good, and some not so good depending on your point of view.

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Enterprise Resource Planning Solutions

Enterprise Resource Planning (ERP) software is a business-wide computer system used to administer and organize all the computer resources and information for functional departments of a business from shared data stores, or database residing on a local area network.

The advantage to a central database in an ERP solution is that it includes all an organization’s information in one centralized location that can be more easily shared throughout a business.

ERP solution only requires one person to enter data which also enhances data integrity. Data integrity is a term that means data is whole or complete.
ERP Advantages

• Functional departments increase production, collaboration, and efficiency by sharing information.
• Revenue cycle and order tracking is more easily available across functional departments which enhances tactical and strategic decision making.
• Information is available at a more granular level, meaning information can be analyzed to a much finer degree.

ERP Disadvantages

• Businesses often have to re-engineer their own processes to fit ERP solutions.
• Because they are business wide, ERPs can be very expensive. Costs, training, implementation, and business process re-engineering across all functional departments is extremely costly.
• If only one person on an ERP database enters information, they must be extremely accurate or the entire organization suffers with inaccurate data.
• ERP systems are very difficult to modify or customize after they are fully implemented.

Unified Modeling Language

Unified Modeling Language (UML) is a standardized visual modeling language for developing computer software. UML includes a set of graphical notation tools and techniques to create what basically amounts to a blueprint for constructing a computer application.

Many times software developers will use UML to outline how to build their software and in what order it should be built and then outsource the project for another computer programmer to finish.
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Unified Modeling Language

When developing software systems, IT professionals employ UML by first investigating an organization's business processes and identifying who will be involved with the project, like end-users. Those that will be involved with a new system are called actors.

UML is typically used with Object-oriented programming languages, a type of programming language which encourages the programmer to reuse parts of an application like forms, programming modules, and code.

There are four basic steps in UML:

1. Use Case Scenarios are an explanation of a computer system's behavior as it receives and responds to requests that start off from outside of that system. Essentially, a use case says "who" can do "what" with the system. Use cases capture a system's behavioral requirements by detailing what will happen when a computer program runs.

2. Object Oriented Analysis (OOA) requires the computer programmer to start analyzing what a new system will need and applies object-modeling techniques to analyze the functional requirements for a system. OOA is focused on what a computer system does.

3. Object Oriented Design (OOD) takes the OOA diagrams and information and expands it to make implementation specifications. ODD is focused on how a computer system does what it does.

4. Sequence Diagrams are a kind of relational illustration that shows how computer processes relate and interact with each another and in what order. Sequence diagrams are sometimes called timing diagrams because they visually represent what should happen in a computer program and in what order.
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System Development Methodologies

IT consultants need a systematic approach to developing an entire software solution like a business-wide enterprise resource planning (ERP) system or any system for that matter. It is important in the beginning stages and every stage of every computer project that the IT consultant or team of consultants be in control of every detailed step of development. To do this, system developers choose a methodology.

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System Development Lifecycle (SDLC)

1. Initiation starts with high-level brainstorming of an intended project that tries to determine the goals of the project and whether it is even feasible.

2. Concept Development is a stage in the SDLC that is only started if initiation is complete and determined feasible.

3. Planning stages are for developing a project management plan. It is common to use Microsoft Project that allows a project manager to allocate resources and make sure who is responsible for completing each step of the overall project.

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System Development Lifecycle (SDLC)

4. Requirements stages often break the intended or existing system down to analyze problems or even potential problems by employing diagrams like the ones produced in the unified modeling language (UML).

5. Design is the stage where a computer system starts to look like a computer system.

6. Development takes the subsystems from the design stage and converts them to an overall system by installing them on their appropriate operating system and conducting preliminary testing.

7. Testing and Integration.
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Other Methodologies

Rapid Application Development (RAD) is a computer system development methodology which takes a minimalist approach. Computer software developed with RAD is more or less a "develop as you go" approach which allows systems to be developed much faster than the SDLC approach, and makes it more flexible to change in requirement.

Software Prototyping is a methodology that can be used during software development by creating software prototypes. In this case, a prototype is an incomplete version of the software being developed. Sometimes these prototypes are called vaporware.